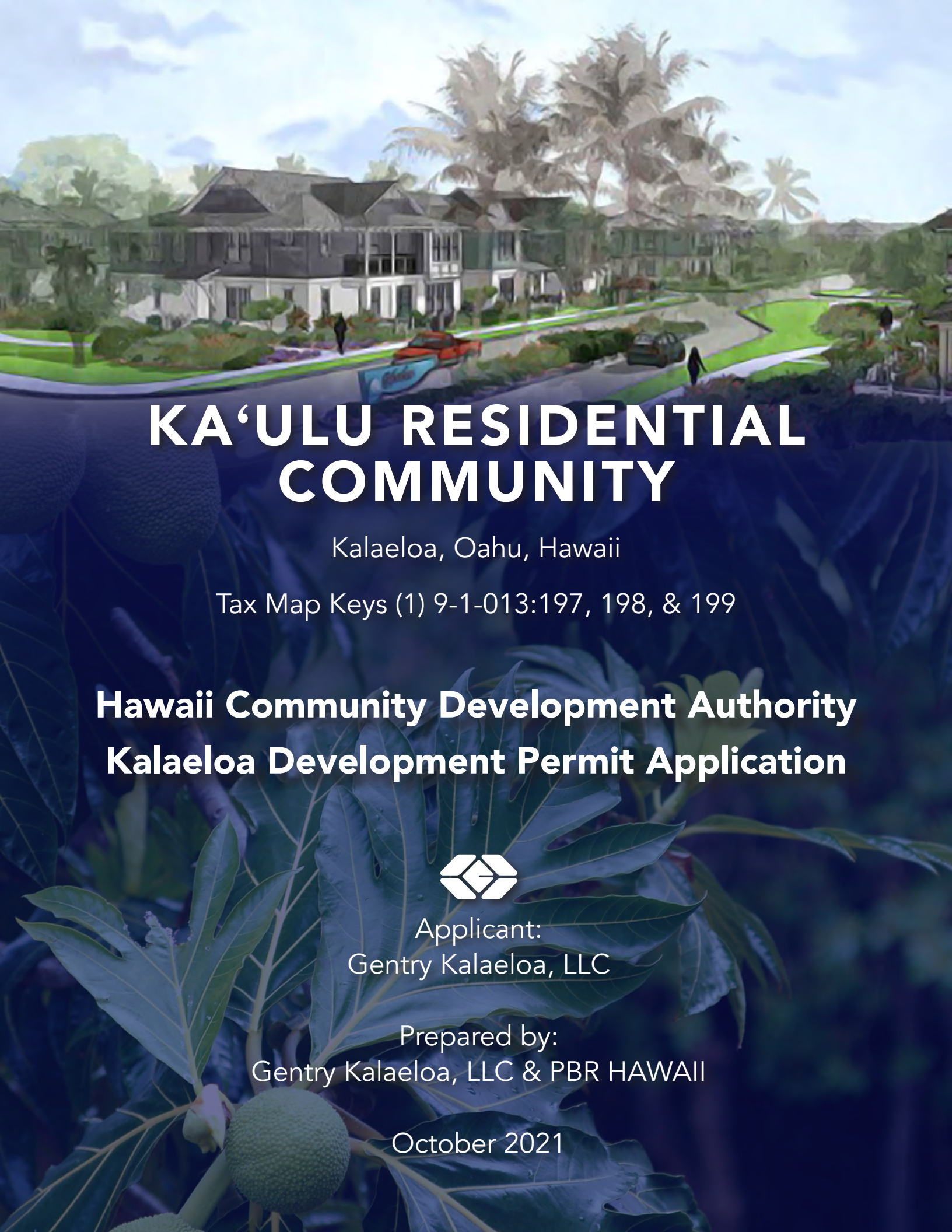


An artistic rendering of a residential development. In the background, there are large, multi-story houses with dark roofs and light-colored walls, surrounded by lush tropical landscaping including palm trees and other greenery. In the foreground, a paved road curves through the scene, with a red car and a person walking. The overall atmosphere is bright and sunny, with a clear blue sky.

# KA'ULU RESIDENTIAL COMMUNITY

Kalaeloa, Oahu, Hawaii

Tax Map Keys (1) 9-1-013:197, 198, & 199

## **Hawaii Community Development Authority Kalaeloa Development Permit Application**



Applicant:  
Gentry Kalaeloa, LLC

Prepared by:  
Gentry Kalaeloa, LLC & PBR HAWAII

October 2021





Hawaii Community Development Authority  
547 Queen Street  
Honolulu, Hawaii 96813  
(808) 620-9643 FAX (808) 587-0299



## KALAELOA PERMIT APPLICATION

### APPLICANT INFORMATION

Applicant Gentry Kalaeloa, LLC  
Mailing Address P.O. Box 295  
Honolulu, HI 96809-0295  
Telephone No. (808) 599-5558  
Project Site Address Portion of parcel (TMKs 9-1-013:197, 198 & 199) within Kalaeloa Community Development District bound by Franklin D. Roosevelt Avenue, Copse Avenue, Realigned Boxer Road and West Perimeter Road, Kapolei, Hawaii 96707  
Landowner Hunt Communities, LLC  
Address 737 Bishop Street, Suite 2750, Honolulu, HI 96813

Description of Work to be Done New construction of CPR residential community consisting of 390 homes (262 Flex Loft multi-family units and 128 Front Yard single-family units); recreation and open space; and related infrastructure

### TYPE OF REQUEST:

- ☐ Rules Clearance  
☐ Improvement Permit  
☒ Development Permit  
☐ Conditional Use Permit  
☐ Conditional Use of Vacant Land  
☐ Other \_\_\_\_\_

### PARCEL INFORMATION:

Tax Map Key: 9-1-013:197, 198 & 199  
Transect Zone: T3 General Urban

### PROJECT INFORMATION

#### Existing Use and Floor Area (S.F.)

☐ Commercial \_\_\_\_\_  
☐ Industrial \_\_\_\_\_  
☐ Residential \_\_\_\_\_  
☒ Other Vacant  
TOTAL 0 SF

#### Nature of Work

☒ New Building ☐ Repair  
☐ Addition ☐ Electrical  
☐ Demolition ☐ Plumbing  
☐ Alteration  
☐ Other \_\_\_\_\_

#### Proposed Use and Floor Area (S.F.)

☐ Commercial \_\_\_\_\_  
☐ Industrial \_\_\_\_\_  
☒ Residential 519,584  
☐ Other \_\_\_\_\_  
TOTAL 519,584

Notes: A new residential community with single-family and multi-family homes.

### NOTE TO APPLICANT:

- Please refer to Subchapter 5 of the Kalaeloa CDD Rules, Chapter 215, Hawaii Administrative Rules, for detailed information on procedures, permit requirements and fee schedule.
- Final approval by HCDA is required prior to issuance of a building permit for any development within the Kalaeloa CDD. **For approval of building permits, submit the building permit application form and the following sets of plans:**
  - Building Department copy
  - Job site copy
  - HCDA copy (if applicable)
- For any project where construction drawings are not available, submit two (2) sets of project information as listed in "Filing Procedures".
- For any project located within the Special Management Area (SMA) of the Kalaeloa Community Development District, please consult with the State Office of Planning for SMA use requirements.

I hereby acknowledge that I have read this application and attached information for the above-referenced project site and state that the information is correct. I hereby agree to comply with all City and County of Honolulu ordinances and state laws regulating development and building construction and authorize HCDA to inspect the property or construction upon notification of the undersigned for compliance with the respective Permit.

Signature (applicant or agent): Quentin Machida

Date: October 26, 2021

Print Name: Quentin Machida, President, Gentry Kalaeloa, LLC.

Telephone No.: (808) 599-5558

### FOR HCDA USE ONLY:

Permit Fee: \_\_\_\_\_ Paid by: \_\_\_\_\_

Landowner's Consent (if applicable): \_\_\_\_\_

Section 206E-5.6 (if applicable): \_\_\_\_\_

Reviewed

By HCDA: \_\_\_\_\_

Date: \_\_\_\_\_

HCDA Approved

Date: \_\_\_\_\_





October 26, 2021

Mr. Deepak Neupane, PE, AIA, MBA  
Executive Director  
Hawaii Community Development Authority  
547 Queen Street  
Honolulu, HI 96813

Dear Mr. Neupane:

SUBJECT: Development Permit Application for Ka'ulu

On behalf of Gentry Kalaeloa, LLC and Gentry Homes, LTD (Gentry), I am pleased to submit a Development Permit application for the development of Ka'ulu, a residential community on a 29.8-acre parcel in Kalaeloa. (TMK (1) 9-1-013:197, 198 & 199). Hunt Communities Hawaii, LLC currently owns the property (referred to as "Parcel 1") which is in the Hawaii Community Development Authority (HCDA) Kalaeloa Community Development District (KCDD) T3 General Urban transect zone. Parcel 1 also includes site of the Department of Veterans Affairs Multi-Specialty Outpatient Clinic.

Ka'ulu will include a total of 390 residential homes: 262 multi-family (MF) attached and 128 single-family (SF) detached units. The units will be under a condominium property regime ("CPR") and will be built in increments under a Joint Development Agreement.

Ka'ulu will help to fulfill the vision of Kalaeloa as a Center of Excellence or *Wahi Ho'okela* by providing a well-designed and livable residential community within Kalaeloa. Gentry has strived for excellence in the design of this new and exciting community, while remaining respectful of past and place. With compact development patterns, ample open space, and greenways, Ka'ulu will be a pedestrian-friendly community in which connectivity is emphasized.

As detailed in the application, Ka'ulu is consistent with:

- The Kalaeloa Master Plan, which sets forth the vision for the KCDD
- The KCDD Rules (Chapter 15-215, Hawaii Administrative Rules (HAR)) governing the development of Kalaeloa;
- The Kalaeloa Reserved Housing Rules (Chapter 15-216, HAR), which set forth requirements for the provision of reserved housing within the KCDD; and
- Section 206E-5.6(j), Hawaii Revised Statutes, which sets forth criteria for the development of land within community development districts under the jurisdiction of the HCDA.

As stated in the Kalaeloa Master Plan, "...quality of life is often reflected in housing, education, recreation, accessibility, and open space, among others. A community that supports a high quality of life creates social value." By offering high quality housing with an affordable component in a mixed-use



Mr. Deepak Neupane, PE, AIA, MBA  
October 26, 2021  
Page 2 of 2

area, Gentry will be helping to create a sustainable urban environment where residents can live, work, learn, and play.

We hope that you and the Authority will give our proposed project your favorable consideration.

If you have questions or need additional information, please feel free to reach out to me (at 808 599-8224 or [QuentinM@GENTRYHAWAII.com](mailto:QuentinM@GENTRYHAWAII.com)) or our agent, Tom Schnell of PBR HAWAII (at 808-521-5631, 808-561-7978, or [tschnell@pbrhawaii.com](mailto:tschnell@pbrhawaii.com)). Thank you very much.

Sincerely,

GENTRY HOMES, LTD.



Quentin Machida  
President and CEO

Enclosures

cc: Tesha Malama, HCDA  
Tom Schnell, PBR HAWAII



# **Ka‘ulu Residential Community**

**TAX MAP KEYS (1) 9-1-013:197, 198, & 199**

## **Hawaii Community Development Authority Kalaeloaloa Development Permit Application**

**Applicant:**

**Gentry Kalaeloaloa, LLC**

**Prepared by:**

**Gentry Kalaeloaloa, LLC & PBR HAWAII**

**October 2021**

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## List of Acronyms and Abbreviations

|            |                                               |
|------------|-----------------------------------------------|
| AMP        | archeological monitoring plan                 |
| AOAO       | Association of Apartment Owners               |
| BPNAS      | Barbers Point Naval Air Station               |
| BRAC       | U.S. Navy's Base Realignment and Closure      |
| CEB        | Civil Engineering Branch                      |
| City       | City and County of Honolulu                   |
| CPR        | condominium property regime                   |
| DPP        | Department of Planning and Permitting         |
| FEA        | Final Environmental Assessment                |
| Gentry     | Gentry Kalaeloa, LLC                          |
| GBH        | Green Building Hawai'i                        |
| HAR        | Hawai'i Administrative Rules                  |
| HCDA       | Hawaii Community Development Authority        |
| HECO       | Hawaiian Electric Company                     |
| HRS        | Hawai'i Revised Statutes                      |
| Hunt       | Hunt Communities Hawaii, LLC                  |
| IECC       | International Energy Conservation Code        |
| KCDD       | Kalaeloa Community Development District       |
| KCDD Rules | Kalaeloa Community Development District Rules |
| KMP        | Kalaeloa Master Plan                          |
| KWC        | Kalaeloa Water Company                        |
| RMTC       | R.M. Towill Corporation                       |
| sf         | square feet                                   |
| SHGC       | solar heat gain coefficient                   |
| SIHP       | State Inventory of Historic Places            |
| SHPD       | State Historic Preservation Division          |
| PER        | Preliminary Engineering Report                |
| PV         | photovoltaic                                  |
| TCP        | Traditional Cultural Practices Hawaii         |
| TIAR       | Traffic Impact Analysis Report                |
| TRB        | Traffic Review Branch                         |
| VA         | Veterans Affairs                              |
| VLT        | visible light transmission                    |



## Acknowledgements

- Design Consultant – dtj Design
- Agent – PBR HAWAII & Associates, Inc.
- Civil Engineer – R.M. Towill Corporation
- Traffic Engineer – Fehr & Peers
- Archeologist – Traditional Cultural Practices (TCP) Hawaii
- Legal Counsel –Watanabe Ing LLP

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## 1. Introduction

Gentry Kalaeloa, LLC<sup>1</sup> (“Gentry”), is requesting approval of a Development Permit to build Ka’ulu, a residential community within the Hawaii Community Development Authority (HCDA) Kalaeloa Community Development District (KCDD). The proposed community is on three Tax Map Key (TMK) parcels (TMKs (1) 9-1-013:197, 198, 199) totaling 29.8 acres. Hunt Communities Hawaii, LLC (Hunt) currently owns the land and other adjoining or nearby parcels referred to as “Hunt Parcel 1”). Hunt and Gentry Homes, Ltd. executed a land purchase agreement in December 2020, and it is anticipated that the purchase will be consummated by the end of 2021.<sup>2</sup>

Ka’ulu will include parks, greenways, and a total of 390 homes: 262 Flex Loft multi-family attached and 128 Front Yard single-family detached units. The units will be under a condominium property regime (CPR) and will be built in increments under a Joint Development Agreement.

Ka’ulu will help to fulfill the vision of Kalaeloa as a Center of Excellence or *Wahi Ho’okela* by providing a well-designed and livable residential community within Kalaeloa. Gentry has striven for excellence in the design of this new community, while remaining respectful of past and place. With compact development patterns, ample open space, and greenways, Ka’ulu will be a pedestrian-friendly community in which connectivity is emphasized.

### 1.1 Meaning

Local kūpuna selected the name “Ka’ulu” for this new community in reference to the ‘ulu tree, which is one of the first trees early settlers brought to Hawaii. Mo’olelo from the Kalaeloa region recounts that when the island’s original inhabitants arrived on O’ahu, they landed in Kalaeloa and planted the first ‘ulu trees. The tree’s nutritious fruit was an important staple for ancient Hawaiians and has seen a resurgence in popularity and cultivation today.

The name Ka’ulu highlights the origin of humans living on O’ahu. Once the original inhabitants landed, they were not looking back to where they came from but rather looked forward to starting a new life in Hawai’i. The same will be true for those who decide to live in the modern-day Ka’ulu community—they can look forward to the move to a new area and the start of a new life.

### 1.2 Master Planning Context

The KCDD encompasses approximately 3,695 acres formerly occupied by Barbers Point Naval Air Station (BPNAS). Pursuant to Act 184, Session Laws of Hawai’i 2002, the entirety of former BPNAS lands, as well as redevelopment responsibility for Kalaeloa, were transferred from the NAS Barbers Point Redevelopment Commission to the HCDA.

In May 2005, HCDA adopted a Strategic Plan that established a vision for Kalaeloa as a “Center for Excellence” or *Wahi Ho’okela* within the ‘Ewa region of O’ahu. The vision was founded on a set of core values aimed at striving for excellence in multiple disciplines, respect for the past, creating social and economic value, and community involvement.

The Strategic Plan was followed by adoption of the Kalaeloa Master Plan (“Master Plan”) in March 2006. The Master Plan was: 1) intended to serve as an amendment to the then existing Kalaeloa

---

<sup>1</sup> Gentry Kalaeloa, LLC is a wholly owned entity of Gentry Homes, LTD.

<sup>2</sup> For the purposes of this application, at the time of submittal, Gentry Kalaeloa, LLC is the applicant and Hunt Communities Hawaii, LLC is the landowner.

Community Redevelopment Plan prepared as part of the U.S. Navy's Base Realignment and Closure (BRAC) process; and 2) the result of intensive planning and outreach efforts.

The Master Plan outlines a vision and policies to revitalize Kalaeloa with new job opportunities, new schools, regional connectivity, transit connectivity, affordable housing, recreational facilities, resource protection, new industries, and economic growth. As the first new residential community to be built in Kalaeloa, Ka'ulu is designed in accordance with the Master Plan and will embody the Plan's vision of *Wahi Ho'okela*.



## 2. Ka'ulu

### 2.1 Location and Surrounding Uses

Ka'ulu will be in the most northwestern portion of the KCDD on TMKs (1) 9-1-013:197, 198, 199. These parcels are within a larger property which is commonly referred to as Hunt Parcel 1.<sup>3</sup> Hunt Parcel 1 is surrounded by:

- **North:** Franklin D. Roosevelt Avenue
- **East:** Copahee Avenue
- **South:** Realigned Boxer Road/Saratoga Avenue
- **West:** West Perimeter Road

Other proposed uses within Hunt Parcel 1 include:

- The United States Department of Veterans Affairs (VA) Multi-Specialty Outpatient Clinic (adjacent to Ka'ulu on the north and west); Gentry is coordinating the planning of Ka'ulu with the VA's consultants.
- The extension of Kamokila Boulevard
- A retail and commercial center

Uses surrounding Hunt Parcel 1 include:

- **North:** the Ronald T. Y. Moon Judiciary Complex and the Oahu Railway and Land Company Right of Way (across Franklin D. Roosevelt Avenue)
- **Northwest:** Costco and the Honolulu Star Advertiser (across Franklin D. Roosevelt Avenue)
- **Northeast:** Pohakala at Mehana (a residential community by DR Horton-Schuler Division) (across Franklin D. Roosevelt Avenue)
- **East:** Barbers Point Elementary School (across Copahee Avenue)
- **South:** A photovoltaic (PV) solar farm on land leased from the State Department of Hawaiian Home Lands and vacant land (across the realigned Boxer Road/Saratoga Avenue)
- **West:** Kapolei Business Park (across West Perimeter Road)

**Figure 1** shows Hunt Parcel 1, the proposed Ka'ulu site (TMKs (1) 9-1-013:197, 198, 199), surrounding roads, and surrounding uses.

### 2.2 Site

The Ka'ulu site is on three TMK parcels (TMKs (1) 9-1-013:197, 198, 199) totaling 29.8 acres (the Site). The Site is vacant with no structures. Exhibit 1 shows the Site's existing conditions, including topography, property lines, easements, and surrounding streets.

---

<sup>3</sup> Hunt Parcel 1 (formerly TMK (1) 9-1-013:002) was recently subdivided in to seven separate TMK parcels: TMKs (1) 9-1-013:195, 196, 197, 198, 199, 200, and 201).



**Figure 1: Location and Surrounding Uses**

Ka'ulu parcels are within a larger property which is commonly referred to as Hunt Parcel 1. Hunt recently received approval to subdivide this larger property (TMK (1) 9-1-013:002) to accommodate:

- The 29.8-acre Site (consisting of three lots: Lot 13047-C, 452,798 square feet (sf); Lot 13047-D, 372,695 sf; Lot 13047-E, 472,915 sf);
- The VA Multi-Specialty Outpatient Clinic (Lot 13047-B, 415,194 sf);
- The Kamokila Boulevard extension right of way (Lot 13047-F, 171,842 sf); and
- A 5.9-acre triangular parcel proposed for future commercial/retail use (Lot 13047-A, 263,037 sf)

See Exhibit 2 for the approved subdivision map.<sup>4</sup>

The Site and adjacent parcels are in KCDD transect zone T3 General Urban Zone, in which single-family and multi-family homes are permitted by right under Hawaii Administrative Rules (HAR) Title 15, Subtitle 4, Chapter 215, Kalaheo Community Development District Rules ("KCDD Rules") Figure 1.7, Land Use.

### **2.3 Ka'ulu Design**

Ka'ulu will be a pedestrian-friendly, green community with ample open space and common areas for recreating. Pockets of green space adjacent to the homes will provide gathering areas where children can enjoy the outdoors and families can get to know their neighbors. Landscaped walkways between buildings will provide residents and their guests with accessways to the front entrances of the homes, as well as a safe and attractive pedestrian and bicycle network and greenways, including a greenway to Barbers Point Elementary School. The conceptual rendering in Figure 2 depicts an example of how Ka'ulu is designed to promote walkability and pedestrian orientation.

The Ka'ulu homes (both single-family and multi-family) are designed using two complimentary architectural themes: "Plantation" and "Craftsman." Both styles have a rich history in Kalaheo and throughout Hawai'i residential architecture and both styles adapt especially well to tropical environmental demands. All single-family and multi-family homes will have alley loaded full-sized parking spaces, and all multi-family buildings will feature four-sided architecture with attractive design elements visible from all angles. All building types will have two different complimentary exterior elevation designs and multiple exterior color schemes.

Exhibit 3 shows the conceptual project site plan.

### **2.4 Building and Site Plan**

Table 1 provides a building and site summary, including total square footages of the buildings, floor area required for reserved housing units, open and recreation space, and projected building heights by building type.

---

<sup>4</sup> TMK numbers were recently assigned to the subdivided parcels. Exhibit 2 includes the TMK numbers.





**Figure 2: Conceptual Rendering of a Greenway**

**Table 1 – Building and Site Summary**

| <b>Building and Site Summary</b>                                                             |             |
|----------------------------------------------------------------------------------------------|-------------|
| Residential Floor Area of 6-Plex Flex Loft Buildings* (7,338 sf * 17 buildings)              | 124,746 sf  |
| Residential Floor Area of 8-Plex Flex Loft Buildings* (9,762 sf * 20 buildings)              | 195,240 sf  |
| Residential Floor Area of 128 Single-Family Front Yard Houses* (Details provided in Table 2) | 199,598 sf  |
| Total Gross Floor Area (Details provided in Table 2)                                         | 519,584 sf  |
| Residential Floor Area for Reserved Housing Units (20% of total FAR)                         | 104,802 sf  |
| Net Residential Floor Area                                                                   | 414,782 sf  |
| Open Space                                                                                   | 417,446 sf  |
| Recreation Space                                                                             | 125,042 sf  |
| Public Facilities                                                                            | 18,958 sf   |
| Projected Height of 6-Plex Flex Loft Building                                                | Approx. 28' |
| Projected Height of 8-Plex Flex Loft Building                                                | Approx. 28' |
| Projected Height of Single-Family Front Yard Houses                                          | Approx. 27' |

\*Excludes stairwells, parking, and utility and trash enclosures.

As required in KCDD Rules §15-215-41 and Figure 1.3, the frontage occupancy at the build-to line will meet the 50% minimum requirement for the T3 Zone. See Exhibit 4.

The following exhibits contain architectural floor plans for Ka'ulu.

- Exhibit 11.1: Front Yard House (Single-Family) – Plan 1
- Exhibit 11.2: Front Yard House (Single-Family) – Plan 2
- Exhibit 11.3: Front Yard House (Single-Family) – Plan 3
- Exhibit 12: Flex Loft 6-Plex (Multi-Family) – Floor Plans
- Exhibit 13.1: Flex Loft 8-Plex (Multi-Family) – First Floor Plan
- Exhibit 13.2: Flex Loft 8-Plex (Multi-Family) – Second Floor Plan

### 2.4.1 Home Designs

Ka'ulu will have two different home types: single-family condominium homes and multi-family homes. Both home types are designed in conformance with building types required under KCDD §15-215-38:

- Single-family homes meet requirements for the Front Yard House building type under KCDD Rules Figure BT.1; and
- Multi-family buildings meet the design requirements for the Flex Loft building type under KCDD Rules Figure BT.5

Table 2 summarizes the number and types of residential units.

**Table 2 –Summary of Residential Unit Types**

| Type                               | Bedrooms/<br>Bathrooms | Total<br>Units | SF per<br>unit<br>Floor<br>Area | Total<br>SF | Market | Reserved | Parking<br>Provided |
|------------------------------------|------------------------|----------------|---------------------------------|-------------|--------|----------|---------------------|
| Single-Family Condo,<br>Plan 1, 1R | 3 BR / 2.5 BA          | 42             | 1,513                           | 63,546      | 42     | 0        | 84                  |
| Single-Family Condo,<br>Plan 2, 2R | 3 BR / 2.5 BA          | 43             | 1,573                           | 67,639      | 43     | 0        | 86                  |
| Single-Family Condo,<br>Plan 3, 3R | 3 BR / 2.5 BA          | 43             | 1,591                           | 68,413      | 43     | 0        | 86                  |
| 6-Plex Multi-Family,<br>Plan 1, 1R | 2 BR / 2 BA            | 34             | 1,156                           | 39,304      | 34     | 0        | 68                  |
| 6-Plex Multi-Family,<br>Plan 2, 2R | 3 BR / 2 BA            | 34             | 1,223                           | 41,582      | 0      | 34       | 68                  |
| 6-Plex Multi-Family,<br>Plan 3, 3R | 3 BR / 2 BA            | 34             | 1,290                           | 43,860      | 34     | 0        | 68                  |
| 8-Plex Multi-Family,<br>Plan 1, 1R | 2 BR / 2 BA            | 40             | 1,156                           | 46,240      | 40     | 0        | 80                  |
| 8-Plex Multi-Family,<br>Plan 2, 2R | 3 BR / 2 BA            | 40             | 1,223                           | 48,920      | 0      | 40       | 80                  |
| 8-Plex Multi-Family,<br>Plan 3, 3R | 3 BR / 2 BA            | 40             | 1,290                           | 51,600      | 40     | 0        | 80                  |
| 8-Plex Multi-Family,<br>Plan 4     | 2 BR / 2 BA            | 20             | 1,100                           | 22,000      | 7      | 13       | 40                  |
| 8-Plex Multi-Family,<br>Plan 5     | 2 BR / 2.5 BA          | 20             | 1,324                           | 26,480      | 20     | 0        | 40                  |
| <b>TOTAL</b>                       |                        | 390            |                                 | 519,584     | 303    | 87       | 780                 |

#### 2.4.1.1 Single-Family Homes – Front Yard House (BT.1)

Ka'ulu's well-designed and efficient single-family condominium homes are slightly larger in size than the multi-family homes and will be situated on small zero-lot line CPR "lots" which are technically "limited common elements." Current plans show that the 128 two-story single-family homes will consist of 3 bedrooms and 2-1/2 baths and will range in size from approximately 1,500 sf to 1,600 sf of floor area.

The single-family homes will have Porch and Fence frontages. Figure 3 shows the conceptual single-family Porch and Fence frontages. Exhibits 11 through 13 include floor plan layouts and the residential floor area calculations for three different model types, as well as prototypical fence locations. The exhibits also show that parking will be in the 3<sup>rd</sup> layer as required under KCDD Rules Figure 1.9. Elevation drawings for the units are shown in Exhibits 14 through 16.



**Figure 3:** Conceptual Porch and Fence Frontages for Single-Family Homes

#### **2.4.1.2 Multi-Family – Flex Loft (BT.5)**

Ka'ulu's architecturally interesting multi-family buildings will be key elements of this residential community that will be the first of its kind in Hawai'i. Consisting of townhomes and flats, the multi-family buildings will offer affordable living options that will appeal to a wide range of buyers—from young individuals and families who prefer two-story living to seniors, physically challenged persons, and others desirous of single-story living.

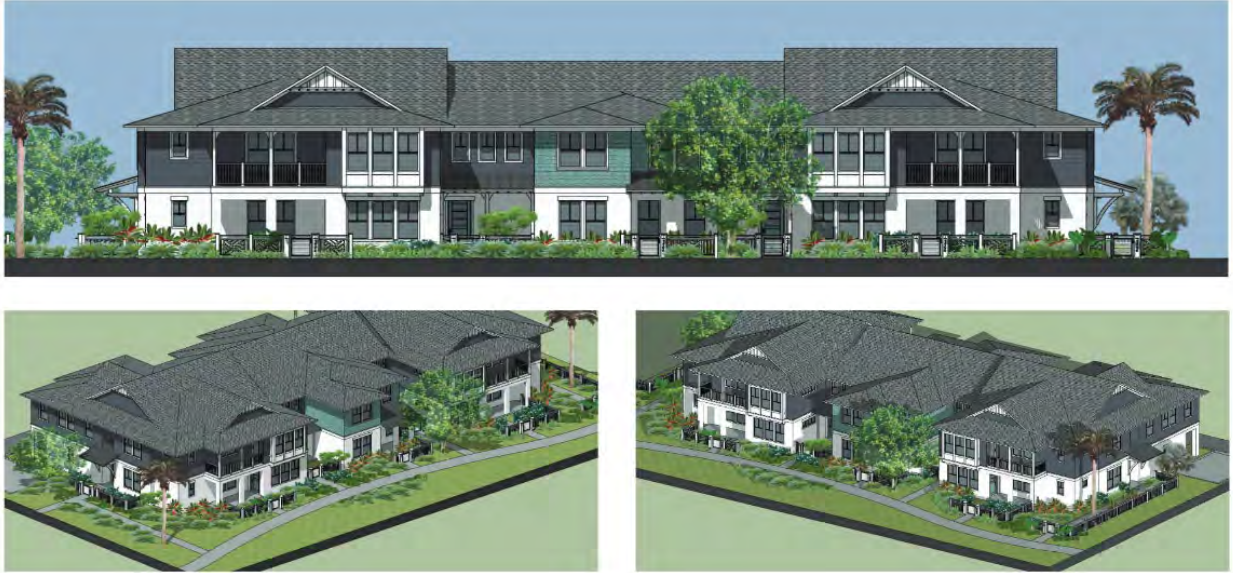
The 6- and 8-unit multi-family buildings were designed strategically for Kalaeloa and offer compact homes that not only live well, but also fit in seamlessly in the community. By creating recesses between the lower-level units that serve as entries for the upper units, the building's scale is broken down substantially. This also gives the multi-family buildings an appearance of two to three smaller homes. Only one common stair and entry is needed in both building types, thus affording the homeowners access to their units via a private entrance at the ground level (and much more of a single-family lifestyle in a multi-family setting).

Garages are in the back of the multi-family buildings and most garages are recessed below covered lanais to break down the monotony of a "garage-door appearance" in the alleys. The oversized garages are designed to accommodate storage and the lanais above will provide excellent outdoor living space. Oversized one-car garages and narrow driveway aprons allow for larger planting beds between the driveways for landscaping to further soften and enhance the alleyway.

The multi-family buildings will have Porch and Fence frontages. Figure 4 shows conceptual multi-family Porch and Fence frontages.

Exhibits 12 and 13 show conceptual floor plan drawings for the multi-family 6-plex and multi-family 8-plex condominium buildings, respectively. Exhibits 14 through 16 show conceptual elevation drawings for the two building types. Exhibits 12 and 13 show prototypical fence locations.





**Figure 4:** Conceptual Porch and Fence Frontages for Multi-Family Buildings

The multi-family component will consist of seventeen (17) 6-plex multi-family buildings totaling 102 units, and twenty (20) 8-plex multi-family buildings totaling 160 units, for a total of 262 multi-family units. The units will range from 2-bedroom, 2-bath to 3-bedroom, 2-bath units with approximately 1,000 sf to 1,300 sf of floor area. Gentry is proposing to fulfill its reserved housing requirements through the sale of an estimated 87 of the multi-family units to households earning not more than 140% of Honolulu's area median income (AMI).

#### **2.4.1.3 Single-Family and Multi-family Buildings**

Figure 5 shows a conceptual rendering of the single-family and multi-family (6-plex and 8-plex) buildings on Saratoga Avenue. All front entrances to the units will face the public street. Exhibits 17.1 and 17.2 show the texture, materials, and colors proposed for exterior finishes and fences.



**Figure 5:** Conceptual rendering of buildings on Saratoga Avenue

#### **2.4.2 Landscape Plan**

Kalaeloa's arid climate will be taken into consideration when designing the common area landscaping for the Project. Plantings will be coupled with creative organic elements oriented toward children's play and interest, as well as passive recreation.

Pathways will be designed to create interest through plantings, as well as horizontal variety and vertical tiering. The Association of Apartment Owners (AOAO) will be responsible for irrigation and maintenance of common areas; individual homeowners will be responsible for irrigation and maintenance within fenced areas (limited common areas). Gentry will provide landscaping within front yard limited common areas when homes are sold, . As shown in Exhibit 9.1, Conceptual Landscape Plan, trees for the planting palette will be from the Preferred Plant Species list in KCDD Rules Figure 1.10. Exhibit 9.2 shows the Landscape Maintenance Plan.

Hunt will improve the surrounding thoroughfares, including the planting of street trees. See Appendix G. The thoroughfares are not part of Ka'ulu for the purpose of this application. However, as shown in Exhibits 10.1 through 10.4, Ka'ulu will interface with the surrounding roadways and is being planned in coordination with Hunt. These exhibits show a cross section of the building frontages up to and including the four surrounding roadways.

## 2.5 Open and Recreation Space

Table 3 summarizes the required open and recreation spaces, based on KCDD Rules §15-215-45 and §15-215-46.

**Table 3 – Open and Recreation Space Requirements**

| Open Space Requirements                                  |                                     |
|----------------------------------------------------------|-------------------------------------|
| Required Area of Open Space                              | 20% of Lot Area                     |
| Lot Area                                                 | 29.8 acres or 1,298,088 sf          |
| Required Open Space                                      | 259,618 sf                          |
| Open Space Provided                                      | 417,446 sf (32% of lot area)        |
| At least one third of open space to be provided at grade | 100% of open space will be at grade |
| Recreation Space Requirements                            |                                     |
| Required area of recreation space per dwelling unit      | 55 sf                               |
| Total number of dwelling units                           | 390                                 |
| Required Recreation Space                                | 21,450 sf                           |
| Recreation Space Provided                                | <b>125,042 sf</b> (320 sf/unit)     |

Ka'ulu will have approximately 9.6 acres (417,446 sf) of open space (approximately 157,828 sf over the requirement) and approximately 2.9 acres (125,042 sf) of recreational space (approximately 103,592 sf over the requirement). Recreation spaces will include active, kid-friendly areas with play apparatus; exercise equipment for adults; gathering spaces for get-togethers; and passive neighborhood parks.

Exhibit 8 shows the open space and recreation areas to be provided in Ka'ulu, including a list and examples of recreational amenities to be provided. Figure 6 is a conceptual rendering of one of recreation areas.

## 2.6 Parking, Loading, and Bicycle Facilities

### 2.6.1 Vehicular Parking

Per KCDD Rules §15-215-47(e), a total of 562 off-street parking spaces are required for the Project, based on the number of single-family and multi-family units to be built. A total of 931 parking spaces are planned for the Project, exceeding the minimum parking requirements.



**Figure 6:** Conceptual Rendering of Recreation/Open Space Areas

At least 2 spaces per detached dwelling unit will be provided for the 128 detached dwelling units, for a total of 256 parking spaces. Likewise, at least 2 off-street parking spaces will be provided for the 262 multi-family units (including those sold as reserved housing units) for a total of 524 parking spaces. See Exhibits 11.1 through 11.3 for locations of the parking spaces for the single family homes and Exhibits 12 and 13 for the locations of the parking spaces for the multi-family buildings. There will be an additional 151 off-street parking spaces for residents, visitors, and the U.S. Postal Service, all of which will be standard-sized spaces. Table 4 provides a summary of required parking spaces and the additional number of spaces to be provided. Exhibit 7 shows the location of the 151 off-street parking spaces to be provided.

**Table 4 – Parking Requirements**

| Required Parking for Residential Units                    |                 |              |        |
|-----------------------------------------------------------|-----------------|--------------|--------|
| Unit Type                                                 | Rule Req't/Unit | No. of Units | Spaces |
| Detached Single-Family                                    | 2               | 128          | 256    |
| 600 sf or Less                                            | 0.9             | 0            | 0      |
| >600 sf (Market)                                          | 1.25            | 175          | 219    |
| >600 sf (Reserved)                                        | 1.0             | 87           | 87     |
| Total Required                                            |                 |              | 562    |
| Spaces provided for residential units (2 per unit)        |                 |              | 780    |
| Additional off-street resident and visitor parking spaces |                 |              | 148    |
| Dedicated parking spaces for USPS mail delivery           |                 |              | 3      |
| Total Parking Provided                                    |                 |              | 931    |
| Stall Size                                                |                 |              |        |
| Standard                                                  | 931             | Compact      | 0      |
| % of Total                                                | 100%            | % of Total   | 0%     |

### 2.6.2 Loading

Per KCDD Rules §15-215-47(l), at least three (3) loading spaces are required based on the total gross areas of the buildings. At least three (3) loading spaces will be provided. Table 5 provides a summary of required loading spaces and the number provided. Exhibit 7 shows the proposed location of the loading spaces.

**Table 5 – Loading Requirements**

| Loading Requirements for Multi-Family Dwellings           |         |
|-----------------------------------------------------------|---------|
| Residential floor area for 17 6-plex buildings = 7,338*17 | 124,746 |
| Residential floor area for 20 8-plex buildings = 9,762*20 | 195,240 |
| Total Multi-Family Residential Floor Area (sf)            | 319,986 |
| Rule Requirement                                          | Spaces  |
| 150,001 – 300,000 (sf)                                    | 2       |
| Each additional 200,000 over 300,000 (sf)                 | 0       |
| Total Spaces Required                                     | 2       |
| Total Spaces Provided                                     | 3       |
| Size                                                      | Spaces  |
| Large: 12'W x 35'L x 14'H                                 | 2       |
| Small: 9'W x 19'L x 10'H                                  | 1       |

### 2.6.3 Bicycle Parking

Long-term bicycle parking will be provided in individual garages in the both the single-family and multi-family buildings (See Exhibits 11.1 through 13.1.). For short-term bicycle parking, bicycle corrals accommodating approximately 6-8 bicycles will be installed in each of the recreation areas throughout the project. Exhibit 7 shows the proposed bicycle corral locations within the Project, as well as a sample type of the bicycle corral to be provided.

## 2.7 Access and Circulation

The primary entrance to Ka'ulu will be via Kamokila Boulevard, which will be a full movement intersection. Additional access points will be via Saratoga Avenue and Franklin D. Roosevelt ("Roosevelt") Avenue. Roosevelt Avenue access will be a right in/right out intersection. Access from Copahee Avenue will be limited to pedestrians and bicycles to reduce vehicular conflicts with school-related traffic and functions.

Internal roadways are in compliance with City requirements for private condominium projects and will require review and approval from appropriate City departments. The internal roads will accommodate fire, refuse, and emergency vehicles, in addition to providing vehicular and bicycle circulation within the community. Exhibit 5 shows surrounding streets, access points, and internal roadways. Exhibit 6 shows the pedestrian, bicycle and vehicular circulation plan.

## 2.8 Green Building

As a residential developer, Gentry has become a reputed leader in green building. Gentry will continue this trend by offering energy-efficient and sustainable homes in Ka'ulu. Energy-saving appliances, insulation, solar water heating, LED lighting, and provisions for electric car charging stations are examples of what will be included as standard home components. Natural shading and ventilation principles are incorporated in the designs.



In addition, Ka'ulu is designed to meet the requirements set forth in KCDD Rules §15-215-48 pertaining to:

- Stormwater design – quantity control or stormwater design – quality control;
- Heat island effect – non-roof or heat island effect - roof; and
- Water efficiency, water efficient landscaping

Gentry will submit documentation and sustainability calculations showing that the proposed project meets the applicable green building rating system at the appropriate certification level.

A LEED Certification Review letter from John Bendon, Founder of Green Building Hawai'i (GBH), states that if Gentry were to apply for LEED certification, GBH is confident that LEED Gold certification could be achieved for Ka'ulu. Appendix A contains the LEED certification review letter and LEED scorecard.

Gentry is a Legacy Tree Partner with the Hawaiian Legacy Reforestation Initiative. A native tree is planted for every Gentry home that is sold. This practice will continue for every Ka'ulu home that is sold.

## 2.9 Public Facilities Dedication

Per KCDD Rules §15-215-64(d)(2), four percent of the total residential floor area (exclusive of floor area devoted to reserved housing units) is required to be dedicated for public facilities. As shown in Table 6 below, the Public Facilities Dedication requirement of 16,591 sf will be met by setting aside 18,958 sf of land for the future widening of Saratoga and Franklin D. Roosevelt Avenues, both of which will be public roadways. See Exhibit 18 for a Public Facilities Dedication map and a letter from HCDA confirming that the land set aside for future road-widening can be considered a public facility if the roadway is identified as a future street in the Kalaeloa Thoroughfare Plan. The letter states that a new roadway that will be dedicated to the City or an existing private roadway improved to City standards and intended to be dedicated to the City can qualify for the public facility dedication requirement.

**Table 6 – Public Facilities Dedication Requirements**

| Public Facilities Dedication                                                                                                                                                               |           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Required % of the total residential floor area exclusive of floor area devoted to reserved housing units and their associated common areas in proportion with the floor area of other uses | 4%        |
| Residential floor area for 17 6-plex buildings = 7,338*17                                                                                                                                  | 124,746   |
| Residential floor area for 20 8-plex buildings = 9,762*20                                                                                                                                  | 195,240   |
| Residential floor area for 128 single-family condos                                                                                                                                        | 199,598   |
| Total residential floor area (See Table 1 and Table 2)                                                                                                                                     | 519,584   |
| Minus residential floor area for reserved housing units                                                                                                                                    | (104,802) |
| Net residential floor area (excluding reserved housing)                                                                                                                                    | 414,782   |
| Square footage of public facilities dedication required (4% * 414,782 sf)                                                                                                                  | 16,591 sf |
| Square footage to be provided                                                                                                                                                              | 18,958 sf |

## 2.10 Development Timetable

It is currently anticipated that the Development Permit approval process will be completed in early 2022, with site work construction to commence shortly thereafter and the first home closings in approximately 2023.



## **2.11 Existing Business Relocation Plan**

The Site is vacant and there are no existing tenants, residents, or businesses requiring relocation.

## **2.12 Public Consultation**

Gentry presented preliminary plans for Ka'ulu to the HCDA at its regular meeting of March 3, 2021. The meeting was conducted via Zoom and was open to the public.

On March 23, 2021, members of the Gentry team presented preliminary plans for Ka'ulu to the principals of the district schools that will serve Ka'ulu (Barbers Point Elementary School, Kapolei Middle School, and Kapolei High School), as well as the Campbell/Kapolei Complex Area Superintendent and his assistant.

Gentry provided informational presentations of its plans for Ka'ulu to the Makakilo/Kapolei/Honokai Hale Neighborhood Board No. 34 at the board's Regular Meetings (via Webex) on March 24, 2021, September 22, 2021, and October 27, 2021.

Appendix E contains: 1) a copy of the board's agenda and meeting minutes for March 24, 2021; 2) a copy of the board's agenda for May 26, 2021, Gentry's corrections to the March 24, 2021 minutes, and the board's meeting minutes for May 26, 2021 listing the corrections that were unanimously approved; 3) a copy of the board's agenda for September 22, 2021; and 4) a copy of the board's agenda for October 27, 2021.

Additionally, Gentry provided an informational presentation to the Ewa Neighborhood Board No. 23 on Thursday, October 14, 2021.

Gentry also made a presentation to the Kalaeloa Stakeholders Group on Thursday, August 12, 2021, via Zoom. The Kalaeloa Stakeholders Group consists of a variety of participants, all of whom have a stake in Kalaeloa. Representatives of the group include area residents; the military; elected officials; federal, State and City government officials; area businesses; landowners and developers; non-profit organizations; homeless and emergency shelters; environmental groups; area schools and churches; and others. Approximately 35 participants were in attendance at the August 12<sup>th</sup> meeting. There were no questions asked of Gentry following its presentation.

## **2.13 Design Review**

Gentry presented preliminary project plans and building designs to the HCDA Kalaeloa Authority members at its meeting of March 5, 2021. Gentry also met with HCDA staff members, including KCDD's Director of Development, and the former Board chair, to discuss the design of Ka'ulu. Feedback provided by staff, Authority members, and the public have been used to refine the design of Ka'ulu. Gentry has continued to meet regularly with HCDA staff to ensure that its plans are in compliance with KCDD Rules.

### **3. Conformance**

#### **3.1 Kalaeloa Community Development District Rules**

The KCDD Rules carries out the vision and concepts of the Kalaeloa Master Plan by classifying and regulating the types and intensities of development and land uses within the KCDD. Ka'ulu has been designed in accordance with the KCDD Rules as shown in Table 7.

**TABLE 7. COMPLIANCE WITH KCDD RULES (CHAPTERS 15-215 AND 216, HAR)**

| CATEGORY        | KCDD RULES<br>Title 15, Chapter 215, HAR                                                                                               | REQUIREMENTS<br>(ALLOWABLE)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | PROPOSED<br>(KA'ULU)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | EXHIBIT/<br>COMMENT                   |                              |                                    |                                  |                                 |             |       |     |     |     |             |       |     |     |     |               |     |     |     |     |         |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   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| SITE AREA       |                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 29.8 acres (1,298,408 sf)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Exhibit 1, Site's Existing Conditions |                              |                                    |                                  |                                 |             |       |     |     |     |             |       |     |     |     |               |     |     |     |     |         |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| REGULATING PLAN | §15-215-22, Regulating Plan<br>Figure 1.2 Regulating Plan                                                                              | Transect Zone: T-3, General Urban Zone                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Complies with §15-215-22 and Figure 1.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                       |                              |                                    |                                  |                                 |             |       |     |     |     |             |       |     |     |     |               |     |     |     |     |         |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| TRANSECT ZONE   | §15-215-23(b)(3), Transect Zones<br>§15-215-23(c), Standards Applicable to Transect Zones<br>Figure 1.3, Development Standards Summary | <p>The T3 general urban zone is characterized by mixed use projects, with a commercial emphasis. Streets with curbs, sidewalks and landscaping shall define medium-sized, pedestrian-friendly blocks.</p> <p>Building Types</p> <p>Frontage Types</p> <p>Building Placement</p> <ul style="list-style-type: none"><li>Frontage Occupancy at Build to Line: 50% min</li><li>Front Yard: 5'-15'</li><li>Side Yard: 0'</li><li>Rear Yard: 0"</li></ul> <p>Building Form</p> <ul style="list-style-type: none"><li>Maximum Height, T3 General Urban Zone, 60'</li><li>Maximum Density, T3 General Urban Zone, Residential/Lodging:<ul style="list-style-type: none"><li>10 units/acre minimum</li><li>20 units/acre maximum</li></ul></li></ul> | <p>Complies with §15-215-23 (b)(3) and §15-215-23(c)</p> <p>T-3 General Urban Zone</p> <p>Front Yard House (Single-family) and Flex Loft (multi- family buildings) are permitted in the T3 general urban zone.</p> <p>Frontage types will be Porch and Fence</p> <table><thead><tr><th>Street</th><th>Lineal Feet (LF) of Frontage</th><th>Req. (50%) Frontage Occupancy (LF)</th><th>Frontage Occupancy Provided (LF)</th><th>Frontage Occupancy Provided (%)</th></tr></thead><tbody><tr><td>Copahoe Ave</td><td>1,121</td><td>560</td><td>568</td><td>51%</td></tr><tr><td>Saratoga Rd</td><td>1,384</td><td>692</td><td>708</td><td>51%</td></tr><tr><td>Kamokila Blvd</td><td>550</td><td>275</td><td>288</td><td>52%</td></tr><tr><td>FDR Ave</td><td>716</td><td>358</td><td>378</td><td>53%</td></tr></tbody></table> <p>Building heights will be approximately 27' to 28'.<br/>Densities average 13 units per acre.<br/>(390 units/29.8 acres = 13)</p> | Street                                | Lineal Feet (LF) of Frontage | Req. (50%) Frontage Occupancy (LF) | Frontage Occupancy Provided (LF) | Frontage Occupancy Provided (%) | Copahoe Ave | 1,121 | 560 | 568 | 51% | Saratoga Rd | 1,384 | 692 | 708 | 51% | Kamokila Blvd | 550 | 275 | 288 | 52% | FDR Ave | 716 | 358 | 378 | 53% | Exhibit 3, Conceptual Site Plan<br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br><br>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| Street          | Lineal Feet (LF) of Frontage                                                                                                           | Req. (50%) Frontage Occupancy (LF)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Frontage Occupancy Provided (LF)                                                                                                                                                                                                                                                                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| Copahoe Ave     | 1,121                                                                                                                                  | 560                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 568                                                                                                                           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 |     |     |     |             |       |     |     |     |               |     |     |     |     |         |     |     |     |     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   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| Saratoga Rd     | 1,384                                                                                                                                  | 692                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 708                                                                                                                           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| Kamokila Blvd   | 550                                                                                                                                    | 275                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 288                                                                                                                           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**TABLE 7. COMPLIANCE WITH KCDD RULES (CHAPTERS 15-215 AND 216, HAR)**

| CATEGORY | KCDD RULES<br>Title 15, Chapter 215, HAR | REQUIREMENTS<br>(ALLOWABLE)                                                                                                              | PROPOSED<br>(KA'ULU)                                                                                                                                                                  | EXHIBIT/<br>COMMENT                                                                                                 |
|----------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
|          | <b>Figure BT.1 Front Yard House</b>      | <b>A. Pedestrian Access</b><br>Principal entrance to principal building shall be directly from the street, through front yard.           | Entrance to each of the homes is accessible directly from the street through the common area front yards.                                                                             | Exhibit 3, Conceptual Project Site Plan                                                                             |
|          |                                          | <b>B. Parking Design and Location</b><br>1. Parking shall be located in third layer.                                                     | Parking will be in the third layer.                                                                                                                                                   | Exhibits 11.1 to 11.3, Floor Plans                                                                                  |
|          |                                          | 2. Parking access shall be as per Section 15-215-47, Parking and Loading                                                                 | Parking access complies with Section 15-215-47.                                                                                                                                       | Exhibit 3, Conceptual Project Site Plan                                                                             |
|          |                                          | <b>C. Open Space</b><br>1. Open space shall maintain a minimum of 20 foot dimension on any one side.                                     | In calculating Ka'ulu's open space, only areas with a minimum 20-foot dimension were included.                                                                                        | Exhibit 8, Open Space / Recreation Areas                                                                            |
|          |                                          | 2. At least 20% of the lot area shall be provided as open space. One third of this requirement shall be provided at grade.               | Ka'ulu meets the 20% minimum open space requirement; 100% of which will be provided at grade.<br>Required: 259,618 sf (20% x 1,298,088 sf [29.8 acres])<br>Provided: 417,446 sf (32%) | Exhibit 8, Open Space / Recreation Areas                                                                            |
|          |                                          | <b>D. Frontage</b><br>1. Permissible frontage types are: Common Yard, Porch and Fence, and Stoop.                                        | All frontages will be Porch and Fence.                                                                                                                                                | Figure 3, Conceptual Porch and Fence Frontages for Single-Family Condominiums<br>Exhibits 11.1 to 11.3, Floor Plans |
|          |                                          | <b>E. Building Massing for Principal Building</b><br>1. Principal buildings shall be composed of one and/or two stories.                 | All Front Yard Houses will be two stories.                                                                                                                                            | --                                                                                                                  |
|          |                                          | 2. Maximum floor plate ratios for the principal building shall be 100% for both the 1 <sup>st</sup> story and the 2 <sup>nd</sup> story. | Maximum floor plate ratios do not exceed 100%.<br>Plan 1 First Floor 100%, Second Floor 87%<br>Plan 2 First Floor 100%, Second Floor 83%                                              | Exhibits 11.1 to 11.3, Floor Plans                                                                                  |

**TABLE 7. COMPLIANCE WITH KCDD RULES (CHAPTERS 15-215 AND 216, HAR)**

| CATEGORY | KCDD RULES<br>Title 15, Chapter 215, HAR | REQUIREMENTS<br>(ALLOWABLE)                                                                                                                        | PROPOSED<br>(KA'ULU)                                                                                                                                                     | EXHIBIT/<br>COMMENT                                                                                                               |
|----------|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
|          |                                          |                                                                                                                                                    | Plan 3 First Floor 100%, Second Floor 85%                                                                                                                                |                                                                                                                                   |
|          | <b>Figure BT.5 Flex Loft</b>             | <b>A. Façade Width</b><br>1. Maximum of 30 feet for each flex-loft.                                                                                | Maximum façade widths are less than 30 feet.<br><u>Flex Loft 8-Plex façade</u><br>25' to 28' 9" wide<br><u>Flex Loft 6-Plex façade</u><br>28' 9" wide                    | Exhibit 12, Flex Loft 6-Plex (Multi-Family) – Floor Plans<br><br>Exhibit 13.1, Flex Loft 8-Plex (Multi-Family) – First Floor Plan |
|          |                                          | 2. The maximum number of attached flex-loft units is ten.                                                                                          | The maximum number of attached flex-loft units is 6 and 8, respectively.                                                                                                 |                                                                                                                                   |
|          |                                          | <b>B. Pedestrian Access</b><br>1. The entrance shall be accessible directly from the street through the frontage line.                             | Home entrances are accessible directly from the street through the frontage line.                                                                                        | Exhibit 3, Conceptual Project Site Plan                                                                                           |
|          |                                          | <b>C. Parking Design and Location</b><br>1. Parking shall be located in the third layer.                                                           | Parking is in the third layer.                                                                                                                                           | Exhibit 12, Flex Loft 6-Plex (Multi-Family) – Floor Plans<br><br>Exhibit 13.1, Flex Loft 8-Plex (Multi-Family) – First Floor Plan |
|          |                                          | 2. Parking access shall be as per Section 15-215-47, Parking and Loading.                                                                          | Parking access complies with Section 15-215-47.                                                                                                                          | Exhibit 3, Conceptual Project Site Plan                                                                                           |
|          |                                          | <b>D. Open Space</b><br>1. At least 20% of the lot area shall be provided as open space. One third of this requirement shall be provided at grade. | At least 20% of the lot area will be open space, 100% of which will be at grade.<br>Required: 259,618 sf (20% x 1,298,088 sf [29.8 acres])<br>Provided: 417,446 sf (32%) | Exhibit 8, Open Space / Recreation Areas                                                                                          |
|          |                                          | 2. The open space area must be open to the sky.                                                                                                    | All open space areas will be open to the sky.                                                                                                                            |                                                                                                                                   |



**TABLE 7. COMPLIANCE WITH KCDD RULES (CHAPTERS 15-215 AND 216, HAR)**

| CATEGORY | KCDD RULES<br>Title 15, Chapter 215, HAR | REQUIREMENTS<br>(ALLOWABLE)                                                                                                                                                 | PROPOSED<br>(KA'ULU)                                                                                                                                                                                                                                                                                                                                                                                        | EXHIBIT/<br>COMMENT                                                                                                                                                                                                                   |
|----------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                                          | <b>E. Frontage</b><br>1. Permissible frontage types are: Porch and Fence, Terrace or Lightwell, Stoop, Shopfront, Gallery and Arcade.                                       | The buildings will have Porch and Fence frontages.                                                                                                                                                                                                                                                                                                                                                          | Figure 4: Conceptual Porch and Fence Frontages for Multi-Family Buildings<br><br>Exhibit 10,<br><br>Exhibit 12, Flex Loft 6-Plex (Multi-Family) – Floor Plans<br><br>Exhibit 13.1, Flex Loft 8-Plex (Multi-Family) – First Floor Plan |
|          |                                          | <b>F. Building Massing</b><br>1. Facades shall have at least one encroaching element, such as a lanai, balcony or plane break occupying at least 15% of the façade.         | Encroaching lanais and plane breaks occupy: 23 to 71% of the buildings' façade.<br><br><u>Flex Loft 8-Plex</u><br>Front: Façade 1,522-1,741 sf / Encroaching 342-541 sf (23-31%)<br><br>Side: Façade 890 sf / Encroaching 224-261 sf (25-29%)<br><br><u>Flex Loft 6-Plex</u><br>Front: Façade 1,262-1,476 sf / Encroaching 304-526 sf (25-36%)<br><br>Side: Façade 367 sf / Encroaching 224-261 sf (61-71%) | Exhibit 12, Flex Loft 6-Plex (Multi-Family) – Floor Plans<br><br>Exhibit 13.1, Flex Loft 8-Plex (Multi-Family) – First Floor Plan<br><br>Exhibit 15.1 to 16.2, Flex Loft Elevations                                                   |
|          |                                          | 2. Building elevations abutting side yards shall provide at least one horizontal plane break of at least three feet, and one vertical break of at least two feet.           | N/A. Per the site plan, there are no building elevations abutting side yards.                                                                                                                                                                                                                                                                                                                               | Exhibit 3, Conceptual Project Site Plan                                                                                                                                                                                               |
|          |                                          | 3. Maximum floor plate ratios for 3-story buildings shall be 100% for the 1 <sup>st</sup> story, 100% for the 2 <sup>nd</sup> story, and 85% for the 3 <sup>rd</sup> story. | Maximum floor plate ratios will not exceed 100%. All buildings are two stories.<br><br><u>Flex Loft 8-Plex</u>                                                                                                                                                                                                                                                                                              | Exhibit 12, Flex Loft 6-Plex (Multi-Family) – Floor Plans                                                                                                                                                                             |

**TABLE 7. COMPLIANCE WITH KCDD RULES (CHAPTERS 15-215 AND 216, HAR)**

| CATEGORY             | KCDD RULES<br>Title 15, Chapter 215, HAR                                            | REQUIREMENTS<br>(ALLOWABLE)                                                                                                                                                                                                                 | PROPOSED<br>(KA'ULU)                                                                                                                                                                                                               | EXHIBIT/<br>COMMENT                                                                                                                                                                                                                              |
|----------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                      |                                                                                     |                                                                                                                                                                                                                                             | First Floor 100% Second Floor 96%<br><u>Flex Loft 6-Plex</u><br>First Floor 100% Second Floor 96.4%                                                                                                                                | Exhibit 13.1, Flex Loft 8-Plex (Multi-Family) – First Floor Plan                                                                                                                                                                                 |
| <b>FRONTAGE TYPE</b> | <b>§15-215-39 Frontage type</b><br><b>Figure 1.3, Development Standards Summary</b> | All buildings shall conform to the frontage standards set forth in Figure 1.6 (frontage type), which specify element standards for each frontage type.                                                                                      | All frontages will be Porch and Fence.                                                                                                                                                                                             | Figure 3 and Figure 4: Conceptual Porch and Fence Frontages<br><br>Exhibit 10.1 to 10.4, Cross Sections<br><br>Exhibit 12, Flex Loft 6-Plex (Multi-Family) – Floor Plans<br><br>Exhibit 13.1, Flex Loft 8-Plex (Multi-Family) – First Floor Plan |
|                      | <b>Figure 1.6 Frontage Types</b><br><b>b. Porch &amp; Fence</b>                     | Porch and Fence: A planted frontage where façade is set back from the frontage line with an attached porch that is permitted to encroach. A fence at front line maintains street spatial definition. Porches shall be no less than 8' deep. | Project meets these criteria, including 8' deep porches.                                                                                                                                                                           | Exhibits 10.1 to 16.2, Cross Sections, Floor Plans, Elevations                                                                                                                                                                                   |
| <b>LAND USE</b>      | <b>§15-215-40 Land use</b><br><b>Figure 1.7 Land Use</b>                            | All lots shall conform to the land uses specified in Figure 1.7 (land use).<br><br>Single-family Residential and Multi-family Residential uses are permitted by right in the T3 General Urban                                               | Ka'ulu provides single-family residential and multi-family residential uses. Under Figure 1.7 (land use) single-family residential and multi-family residential uses are permitted by right in the T3 General Urban transect zone. | Exhibit 3, Conceptual Project Site Plan                                                                                                                                                                                                          |

**TABLE 7. COMPLIANCE WITH KCDD RULES (CHAPTERS 15-215 AND 216, HAR)**

| CATEGORY                           | KCDD RULES<br>Title 15, Chapter 215, HAR                                                                                                                            | REQUIREMENTS<br>(ALLOWABLE)                                                                                                                                                                                                                                                                                                                                                                                  | PROPOSED<br>(KA'ULU)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | EXHIBIT/<br>COMMENT                      |                              |                                    |                                  |                                 |             |       |     |     |     |             |       |     |     |     |               |     |     |     |     |         |     |     |     |     |                                                                                                                                                          |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------------------------------|------------------------------------|----------------------------------|---------------------------------|-------------|-------|-----|-----|-----|-------------|-------|-----|-----|-----|---------------|-----|-----|-----|-----|---------|-----|-----|-----|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>BUILDING<br/>PLACEMENT</b>      | <p><b>§15-215-41 Building placement</b></p> <p><b>Figure 1.3, Development Standards Summary</b></p> <p><b>Figure 1.8-A, Building Placement and Encroachment</b></p> | <p>Facades shall be built parallel to the build to line with a minimum frontage occupancy as provided in Figure 1.8 (building placement and encroachments).</p> <p>Frontage Occupancy at Build-to Line – 50% minimum for T3 Zone</p> <p>Setback:<br/>Front Yard – 5' – 15'<br/>Side Yard – 0'<br/>Rear Yard – 0'</p>                                                                                         | <p>Frontage Occupancy at Build-to Line:<br/>Exceeds 50%</p> <p>Front yard setbacks along all street frontages: approximately 10' from the property line, excluding lands set aside on the northern and southern property boundaries for future public roadways.</p> <p>Side yard setback: &gt; 0'<br/>Rear yard setback: &gt; 0'</p> <table border="1"> <thead> <tr> <th>Street</th><th>Lineal Feet (LF) of Frontage</th><th>Req. (50%) Frontage Occupancy (LF)</th><th>Frontage Occupancy Provided (LF)</th><th>Frontage Occupancy Provided (%)</th></tr> </thead> <tbody> <tr> <td>Copahee Ave</td><td>1,121</td><td>560</td><td>568</td><td>51%</td></tr> <tr> <td>Saratoga Rd</td><td>1,384</td><td>692</td><td>708</td><td>51%</td></tr> <tr> <td>Kamokila Blvd</td><td>550</td><td>275</td><td>288</td><td>52%</td></tr> <tr> <td>FDR Ave</td><td>716</td><td>358</td><td>378</td><td>53%</td></tr> </tbody> </table> <p align="center">--</p> | Street                                   | Lineal Feet (LF) of Frontage | Req. (50%) Frontage Occupancy (LF) | Frontage Occupancy Provided (LF) | Frontage Occupancy Provided (%) | Copahee Ave | 1,121 | 560 | 568 | 51% | Saratoga Rd | 1,384 | 692 | 708 | 51% | Kamokila Blvd | 550 | 275 | 288 | 52% | FDR Ave | 716 | 358 | 378 | 53% | <p>Exhibit 4, Frontage Occupancy Map</p> <p>Exhibits 10.1 to 10.4, Cross Sections</p> <p>Exhibits 11.1 to 13.1, Front Yard House and Flex Loft plans</p> |
| Street                             | Lineal Feet (LF) of Frontage                                                                                                                                        | Req. (50%) Frontage Occupancy (LF)                                                                                                                                                                                                                                                                                                                                                                           | Frontage Occupancy Provided (LF)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Frontage Occupancy Provided (%)          |                              |                                    |                                  |                                 |             |       |     |     |     |             |       |     |     |     |               |     |     |     |     |         |     |     |     |     |                                                                                                                                                          |
| Copahee Ave                        | 1,121                                                                                                                                                               | 560                                                                                                                                                                                                                                                                                                                                                                                                          | 568                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 51%                                      |                              |                                    |                                  |                                 |             |       |     |     |     |             |       |     |     |     |               |     |     |     |     |         |     |     |     |     |                                                                                                                                                          |
| Saratoga Rd                        | 1,384                                                                                                                                                               | 692                                                                                                                                                                                                                                                                                                                                                                                                          | 708                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 51%                                      |                              |                                    |                                  |                                 |             |       |     |     |     |             |       |     |     |     |               |     |     |     |     |         |     |     |     |     |                                                                                                                                                          |
| Kamokila Blvd                      | 550                                                                                                                                                                 | 275                                                                                                                                                                                                                                                                                                                                                                                                          | 288                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 52%                                      |                              |                                    |                                  |                                 |             |       |     |     |     |             |       |     |     |     |               |     |     |     |     |         |     |     |     |     |                                                                                                                                                          |
| FDR Ave                            | 716                                                                                                                                                                 | 358                                                                                                                                                                                                                                                                                                                                                                                                          | 378                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 53%                                      |                              |                                    |                                  |                                 |             |       |     |     |     |             |       |     |     |     |               |     |     |     |     |         |     |     |     |     |                                                                                                                                                          |
| <b>BUILDING FORM</b>               | <p><b>§15-215-42 Building form</b></p> <p><b>Figure 1.3, Development Standards and</b></p>                                                                          | <p>The height of any building or structure or portion thereof shall be measured from ground elevation.</p> <p>Attics shall not exceed fourteen feet in height.</p> <p>All principal buildings shall be constructed with building elements conforming to Figure 1.3 (development standards summary, building form)</p> <p>Maximum height limit in the T3 General Urban transect is 60 feet.</p>               | <p>The height of the buildings will be measured from ground elevation and will range from approximately 27' to 28' in height.</p> <p>Attic heights range from 8'2" to 9'3."</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <p>Exhibits 14.1 to 16.2, Elevations</p> |                              |                                    |                                  |                                 |             |       |     |     |     |             |       |     |     |     |               |     |     |     |     |         |     |     |     |     |                                                                                                                                                          |
| <b>ARCHITECTURAL<br/>STANDARDS</b> | <p><b>§15-215-43 (a)-(g) Architectural standards.</b></p>                                                                                                           | <p>(a) Balconies, galleries, and arcades shall be made of concrete, painted wood or metal.</p> <p>(b) For building facades and elevations in the T3 general urban, T4 urban center and T5 urban center high intensity transect zones, a change of exterior texture and material should be accompanied by a change in plane; provided, however, glazing and spandrel glass is exempt from this provision.</p> | <p>(a) Balconies will be made of painted wood.</p> <p>(b) Changes of exterior texture and material in the building facades and elevations will be accompanied by a change in plane.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p>Exhibits 14.1 to 16.2, Elevations</p> |                              |                                    |                                  |                                 |             |       |     |     |     |             |       |     |     |     |               |     |     |     |     |         |     |     |     |     |                                                                                                                                                          |

**TABLE 7. COMPLIANCE WITH KCDD RULES (CHAPTERS 15-215 AND 216, HAR)**

| CATEGORY | KCDD RULES<br>Title 15, Chapter 215, HAR | REQUIREMENTS<br>(ALLOWABLE)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | PROPOSED<br>(KA'ULU)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | EXHIBIT/<br>COMMENT                                                                                                                                                                                                                                              |
|----------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                                          | <p>(c) Fences, walls, and hedges may be constructed or installed to a height of six feet in any side yard or rear yard and to a height of three feet in any portion of a front yard or a side yard that faces a thoroughfare:</p> <p>(1) Fences in front yards or side yards facing a thoroughfare shall be painted or constructed out of a decorative material compatible with the materials of the principal building; and</p> <p>(2) Retaining walls shall be constructed out of masonry or stone or another equally durable material.</p> <p>(d) Lighting:</p> <p>(1) Entrances, arcades and passageways shall be illuminated;</p> <p>(2) Courtyards, passageways, roof gardens, corner plazas, and other landscaped areas shall provide pedestrian-scaled, tamperproof lights;</p> <p>(3) Lighting sources shall be constructed or installed so that light is aimed downwards and does not spill over to abutting properties; and</p> <p>(e) Roofs:</p> <p>(2) Roofs shall either be finished with light colors for reflectivity or incorporate landscaping; and</p> <p>(f) Service functions (T3 general urban)</p> <p>(h) Windows:</p> | <p>(c) Fences, walls, and hedges will be a maximum of 6'-0" in any side or rear yard, and a maximum of 3'-0" in front yards facing the four major surrounding streets.</p> <p>(c)(1) Fences in front yards and side yards facing the four surrounding thoroughfare will be constructed of vinyl or aluminum, which will be compatible with the principal buildings.</p> <p>(d)(1) Entrances and passageways will be illuminated.</p> <p>(d)(2) Passageways and other landscaped areas will provide pedestrian-scaled, tamperproof lights.</p> <p>(d)(3) Lighting sources will be installed so that the light is aimed downwards and does not spill over to the abutting properties.</p> <p>(e)(2) Roofs will be finished with lighter colors.</p> <p>Recycling and trash bins will be provided to individual homeowners and will be stored in enclosed garages or within private fenced areas.</p> | <p>Exhibits 10.1 to 10.4, Cross Sections<br/>Exhibits 11.1 to 13.1, Floor Plans</p> <p>Exhibit 17.2, Texture, Materials and Colors – Fences</p> <p>Exhibit 17.1, Texture, Materials and Colors – Exterior Finishes</p> <p>Exhibits 11.1 to 13.2, Floor Plans</p> |

**TABLE 7. COMPLIANCE WITH KCDD RULES (CHAPTERS 15-215 AND 216, HAR)**

| CATEGORY  | KCDD RULES<br>Title 15, Chapter 215, HAR                                   | REQUIREMENTS<br>(ALLOWABLE)                                                                                                                                                                                                                                                                                                                                                                               | PROPOSED<br>(KA'ULU)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | EXHIBIT/<br>COMMENT                                                                                          |
|-----------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
|           |                                                                            | <p>(1) Highly-reflective and mirrored glass materials are prohibited; and</p> <p>(2) Visible light transmission level of windows on the ground floor shall be seventy percent or greater and on all other floors the visible light transmission level shall be fifty percent or greater.</p>                                                                                                              | <p>(h)(1) Highly-reflective and mirrored glass materials will not be used.</p> <p>(h)(2) Glazing will be consistent with Interpretation INT-2-21. Gentry is currently targeting visible light transmission levels of approximately 40-50 percent for both the first and second floor glazing, which Gentry anticipates will be the highest reasonably possible VLT level for appropriate glazing units while still complying with the solar heat gain coefficient requirements of the Energy Code.</p> |                                                                                                              |
| LANDSCAPE | <b>§15-215-44 Landscape</b><br><b>Figure 1.10, Preferred Plant Species</b> | <p>The standards for landscaping for the T3 general urban zone:</p> <p>(1) All required yards shall be landscaped.</p> <p>(2) New plantings shall be selected from the preferred plant species list provided in Figure 1.10 (preferred plant species).</p> <p>(4) Landscaping shall have an automatic irrigation system with a rain or moisture sensor, or with a system that eliminates water waste.</p> | <p>All required yards will be landscaped.</p> <p>New plantings will be selected from the preferred plant species list. Figure 1.10 (preferred plant species). Planting will include:</p>                                                                                                                                                                                                                                                                                                               | <p>Exhibit 9.1,<br/>Conceptual<br/>Landscape Plan</p> <p>Exhibit 9.2,<br/>Landscape<br/>Maintenance Plan</p> |

**TABLE 7. COMPLIANCE WITH KCDD RULES (CHAPTERS 15-215 AND 216, HAR)**

| CATEGORY | KCDD RULES<br>Title 15, Chapter 215, HAR | REQUIREMENTS<br>(ALLOWABLE) | PROPOSED<br>(KA'ULU)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | EXHIBIT/<br>COMMENT |
|----------|------------------------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
|          |                                          |                             | <p><b>Street Tree On-Site (Small + Medium)</b><br/>           Buttonwood<br/>           Hala<br/>           Kou Haole Tree<br/>           Kou Tree<br/>           Plumeria<br/>           Silver Trumpet Tree<br/>           Breadfruit Tree</p> <p><b>Shade Tree (Large)</b><br/>           Monkeypod Tree</p> <p><b>Shade Tree (Small + Medium)</b><br/>           Buttonwood<br/>           Hala<br/>           Kou Haole Tree<br/>           Kou Tree<br/>           Plumeria</p> <p><b>Ornamental Tree (Small + Medium)</b><br/>           Silver Trumpet Tree</p> <p><b>Palms (Entry)</b><br/>           Loulu Palm<br/>           Triangle Palm</p> <p>Landscaping will have an automatic irrigation system with a rain or moisture sensor, or with a system that eliminates water waste.</p> <p>The AOA will be responsible for irrigation and maintenance of common areas; individual homeowners will be responsible for irrigation and maintenance within fenced areas (limited common areas).</p> |                     |



**TABLE 7. COMPLIANCE WITH KCDD RULES (CHAPTERS 15-215 AND 216, HAR)**

| CATEGORY            | KCDD RULES<br>Title 15, Chapter 215, HAR                       | REQUIREMENTS<br>(ALLOWABLE)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | PROPOSED<br>(KA'ULU)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | EXHIBIT/<br>COMMENT                                                                                                                                                                                        |
|---------------------|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RECREATION<br>SPACE | <b>§15-215-45 Recreation<br/>space</b>                         | <p>(a) Lots within all transect zones shall provide the following recreation space:</p> <p>(3) Fifty-five square feet of recreation space per dwelling unit</p> <p>(b) If the on-site recreation space is provided outdoors, it may be used to satisfy a portion of the open space requirements as set forth in section 15-215-46 (open space).</p>                                                                                                                                                                                                                                                                                                                                                                  | <p>Required: 21,450 sf (390 dwelling units x 55 sf)</p> <p>Provided: 125,042 sf of recreational space, which will also be used to satisfy a portion of the open space requirements.</p> <p>Recreation spaces will include:</p> <ul style="list-style-type: none"> <li>• Play Structure</li> <li>• Picnic Areas with Seating and Tables</li> <li>• Exercise Equipment</li> <li>• Lawn for Play and Games</li> <li>• Shade Trellis</li> <li>• Meandering Trails</li> </ul>                                                                                                                                                                                                                                                        | <p>Figure 3, Conceptual Project Site Plan</p> <p>Exhibit 8, Open Space / Recreation Areas</p>                                                                                                              |
| OPEN SPACE          | <b>§15-215-46 Open space</b>                                   | A minimum of twenty percent of each lot shall be provided as open space                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p>Required: 259,682 sf (1,298,408 sf x 20%)</p> <p>Provided: 417,446 sf of open space.</p> <p>All open space will be at grade.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Exhibit 8, Open Space / Recreation Areas                                                                                                                                                                   |
| PARKING             | <b>§15-215-47 Parking and loading,<br/>Figure 1.9, Parking</b> | <p>(b) Access. Driveway access for parking shall be a minimum of fifty-five feet measured from the edge of the right-of-way.</p> <p>(c) Curb cuts for T3 general urban zone, T4 urban center zone and TS urban center high intensity zone shall be minimized along boulevards and avenues, to the maximum practicable extent.</p> <p>(d) Parking location shall conform with standards set forth in Figure 1.9 (parking)</p> <p>(e)(1) Off-Street Parking</p> <ul style="list-style-type: none"> <li>• Detached dwellings: two per unit plus one per one thousand square feet of floor area over 2,500 square feet;</li> <li>• Multi-family dwelling greater than six hundred square feet: 1.25 per unit;</li> </ul> | <p>(b) Driveway access for parking will range from 141' to 416', measured from the edge of the right-of-way. All resident parking will be alley loaded.</p> <p>(c) There will be no curb cuts for driveways along the future City-dedicated streets and avenues surrounding the Site. Access to private driveways will be through shared alleys onsite.</p> <p>(d) Parking spaces will be provided in the 3<sup>rd</sup> layer as required under Figure 1.9-B.</p> <p>(e)(1) Off-Street Parking Required: 562:</p> <ul style="list-style-type: none"> <li>• Detached dwellings: 256 spaces (2 spaces X 128 units)</li> <li>• Multi-family dwellings &gt;600 sf (market): 219 spaces (1.25 spaces X 175 market units)</li> </ul> | <p>Exhibit 7, Visitor Parking, Loading Zones, and Short-Term Bicycle Parking</p> <p>Exhibits 11.1 to 13.1, Floor Plans</p> <p>Exhibit 7, Visitor Parking, Loading Zones and Short-Term Bicycle Parking</p> |

**TABLE 7. COMPLIANCE WITH KCDD RULES (CHAPTERS 15-215 AND 216, HAR)**

| CATEGORY        | KCDD RULES<br>Title 15, Chapter 215, HAR | REQUIREMENTS<br>(ALLOWABLE)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | PROPOSED<br>(KA'ULU)                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | EXHIBIT/<br>COMMENT                                                                                                                                 |
|-----------------|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
|                 |                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <ul style="list-style-type: none"> <li>Reserved dwelling units: 87 spaces (1.0 space X 87 units)</li> </ul> <p>Off-Street Parking Provided: 931 residential and visitor parking stalls:</p> <ul style="list-style-type: none"> <li>Detached dwellings: 256 spaces (2 spaces X 128 units).</li> <li>Multi-family dwelling (including reserved housing units): 524 spaces (2 spaces X 262 units).</li> <li>Off-street resident, visitor, and USPS parking spaces: 151 spaces.</li> </ul> | Exhibits 11.1 to 13.1, Front Yard House and Flex Loft plans                                                                                         |
| LOADING         | §15-215-47 Parking and loading           | <p>(l) Loading:</p> <ul style="list-style-type: none"> <li>Multi-family dwellings and lodging: two loading spaces per 150,001 – 300,000 sf</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                             | <p>Required: 2 loading spaces</p> <p>Provided: 3 loading spaces</p>                                                                                                                                                                                                                                                                                                                                                                                                                    | Exhibit 7, Visitor Parking, Loading Zones, and Short-term Bicycle Parking                                                                           |
| BICYCLE PARKING | §15-215-47 Parking and loading           | <p>(m) Bicycle parking:</p> <p>(1) Both short-term bicycle parking and long-term bicycle parking shall be provided by the developer;</p> <p>(2) Bicycle parking shall be provided within four hundred feet of the principal entrance of the building</p>                                                                                                                                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>Short-term bicycle parking: bicycle corrals accommodating approximately 6-8 bicycles will be installed in each of the recreation areas.</li> <li>Long-term bicycle parking: accommodated within the residents' garages.</li> <li>Residents' garages are attached to individual units.</li> </ul>                                                                                                                                                | <p>Exhibit 7, Visitor Parking, Loading Zones, and Short-term Bicycle Parking</p> <p>Exhibits 11.1 to 13.1, Front Yard House and Flex Loft plans</p> |
| GREEN BUILDING  | §15-215-48 Green building                | <p>(c) Green Building standards</p> <p>(1) A project shall qualify for the applicable base LEED rating system in effect at the date of application, at the appropriate certification level</p> <p>(3) The project shall document the achievement of at least one LEED point or other comparable measure in an alternative rating system at the appropriate certification level for the following credit categories:</p> <p>A) At least one LEED point in either sustainable site: stormwater design - quantity control or stormwater design - quality control</p> | <p>The project will comply with applicable green building standards (i.e., either LEED new construction or alternative system as permitted by HCDA).</p> <p>See Appendix A for a preliminary LEED certification review of the Project.</p>                                                                                                                                                                                                                                             | Appendix A, LEED Certification Review Letter and Scorecard                                                                                          |

**TABLE 7. COMPLIANCE WITH KCDD RULES (CHAPTERS 15-215 AND 216, HAR)**

| CATEGORY                               | KCDD RULES<br>Title 15, Chapter 215, HAR          | REQUIREMENTS<br>(ALLOWABLE)                                                                                                                                                                                                                                                                                                                                                                                                                                                             | PROPOSED<br>(KA'ULU)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | EXHIBIT/<br>COMMENT                                                                                                                                                                       |
|----------------------------------------|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                        |                                                   | <p>B) At least one LEED point in either sustainable sites: heat island effect - non-roof or heat island effect - roof; and</p> <p>(C) At least one point in water efficiency, water efficient landscaping</p>                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                           |
| <b>LARGE LOT DEVELOPMENT</b>           | <b>§15-215-62 Large lot development.</b>          | Establishes standards for developing large lots, dividing them into smaller pedestrian-oriented blocks, and achieving an interconnected block network with walkable block lengths. The standards are intended to promote walkability, pedestrian-orientation, and sustainability of urban and built form. Buildings should include massing and articulation that reflects a human scale, rather than large, monolithic, and repetitive building fabric.                                 | <p>Ka'ulu complies with following large lot development requirements:</p> <ul style="list-style-type: none"> <li>The Site will be divided to create pedestrian-oriented blocks.</li> <li>The new thoroughfares surrounding the Site will connect with existing thoroughfares.</li> <li>Passageways will range from 15' to 58' between building elevations.</li> <li>New passageways will be ungated and will be accessible to the public.</li> <li>Ka'ulu has been designed with alleys for service and parking.</li> <li>Entrances to residences will be off a new or existing thoroughfare or passageway.</li> </ul> <p>Mid-block pedestrian passageways will be incorporated throughout Ka'ulu, providing greater grid connectivity. Mid-block pedestrian passageways will not abut an alley except as permitted.</p> | <p>Exhibit 3, Conceptual Project Site Plan</p> <p>Exhibit 5, Surrounding Streets, Access Points and Internal Roadways</p> <p>Exhibit 6, Pedestrian, Bicycle and Vehicular Circulation</p> |
| <b>HISTORIC AND CULTURAL SITES</b>     | <b>§15-215-63 Historical and cultural sites.</b>  | <p>Prior to the submittal of any permit application to the authority, a developer shall obtain a letter from SHPD which confirms that the developer has complied with all SHPD requirements.</p> <p>(d) Minimum dedication requirements. Land dedication requirements are:</p> <p>(4) Four percent of the total residential floor area exclusive of floor area devoted to reserved housing units and their associated common areas in proportion with the floor area of other uses.</p> | <p>SHPD has provided a letter regarding compliance with Chapter 6E-42 Historic Preservation Review.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>Appendix B, SHPD Letter Accepting the Archeological Monitoring Plan</p>                                                                                                                |
| <b>DEDICATION OF PUBLIC FACILITIES</b> | <b>§15-215-64 Dedication of public facilities</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>Based on 519,584 sf of residential floor area (minus 104,802 sf of floor area devoted to reserved housing units), 16,591 sf of public facilities dedication is required (4% * 414,782). 18,958 sf of land will be dedicated for future public roadway widening projects, exceeding the requirement by approximately 2,367 sf.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>Exhibit 18, Public Facilities Dedication</p>                                                                                                                                           |

**TABLE 7. COMPLIANCE WITH KCDD RULES (CHAPTERS 15-215 AND 216, HAR)**

| CATEGORY            | KCDD RULES<br>Title 15, Chapter 215, HAR               | REQUIREMENTS<br>(ALLOWABLE)                                                                                                                                                                                                                                                    | PROPOSED<br>(KA'ULU)                                                                                                                                                                                                                                                                                                                                                          | EXHIBIT/<br>COMMENT                                                                                                              |
|---------------------|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| RESERVED<br>HOUSING | <b>§15-216-17 Requirement for<br/>Reserved Housing</b> | (a) Every developer applying for a development permit for approval to construct multi-family dwelling units on a lot greater than 40,000 gross square feet shall construct and reserve at least twenty per cent of the total residential floor area as reserved housing units. | Total floor area is 519,584 sf.<br><br>Required: Reserved Housing (20%): 103,917 sf.<br><br>Provided: 104,802 sf of reserved housing floor area (approximately 87 reserved housing units).<br><br>Reserved housing units will be located throughout Ka'ulu. The current plan is to provide at least one reserved housing unit in each of the Flex Loft multifamily buildings. | Section 3.3, Reserved Housing<br><br>Exhibit 3, Conceptual Site Plan<br><br>Exhibit 19, Reserved Housing Requirement Calculation |

### 3.1.1 Hawai'i Administrative Rules Section 15-215-78(e)

Table 8 shows how the Project will be compliant with applicable provisions of HAR §15-215-78(e) and the Kalaeloa Master Plan.

**Table 8 – Conformance with HAR §15-215-78(e)**

| Required findings. Approval of a development permit shall require all of the following findings of fact: |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                          | Requirements                                                                                                                                                                           | Ka'ulu                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>KMP Consistency</b>                                                                                   | That the proposal complies with and advances the goals, policies and objectives of the Kalaeloa Master Plan (KMP).                                                                     | <p>Ka'ulu will advance the goals, policies, and objectives of the applicable district plan in the following ways:</p> <ul style="list-style-type: none"> <li>• The construction and completion of this new residential community will be a significant milestone in the continuing revitalization of the KCDD.</li> <li>• Ka'ulu will create both social and economic value, especially for those who live and work in West Oahu, by providing for the housing needs of local families.</li> <li>• As a well-designed community of beautiful, quality homes, Ka'ulu will contribute to KMP's vision of Kalaeloa as a Wahi Ho'okela (Center for Excellence) within the 'Ewa region.</li> <li>• With many gathering places within the community, Ka'ulu will contribute to the vision of Kalaeloa as a center where Hawaii's people can come together.</li> <li>• Ka'ulu will be respectful of the past and place, as reflected in its name. The area, known during pre-contact times for its 'ulu fruit, was a place of respite and refreshing for those making the journey by land to the west side of O'ahu. Ka'ulu will likewise provide a place of respite and refreshing for those who choose to call it "home."</li> <li>• By creating a network of open spaces and recreational amenities that connect the community, residents will also have access to eco-friendly choices for transportation, i.e., walking or biking.</li> <li>• In addition to providing much-needed homes for local residents, Ka'ulu will contribute to the revitalization of Kalaeloa through public dedications, economic benefits, tax revenues, and increased activity within Kalaeloa.</li> </ul> |
| <b>KCDD Compliance</b>                                                                                   | <b>Rules</b><br>That the proposed project complies with the Kalaeloa CDD rules.                                                                                                        | Table 7 of this application details compliance with HAR Chapters 15-215 and 15-216.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Compatibility</b>                                                                                     | That the proposal will not have a substantial adverse effect on surrounding land uses and will be compatible with the existing and planned land use character of the surrounding area. | <p>Ka'ulu will not have a substantial adverse effect on surrounding land uses. On the contrary, Ka'ulu will complement its surrounding uses, providing a convenient location that is proximate to many amenities for its residents.</p> <p>Figure 1 and the discussion in Section 2.1 of this application further describe the Project's surrounding land uses and land use compatibility.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

### 3.2 Hawai'i Revised Statutes Section 206E-5.6(j)

Hawai'i Revised Statutes (HRS) § 206E-5.6(j), sets forth decision-making criteria for the HCDA to consider in determining whether to approve a project. Table 9 shows how the Project meets the statutory criteria in HRS § 206E-5.6(j).

**Table 9 – Compliance with HRS § 206E-5.6(j)**

| HRS Section                                      | Consideration                                                                                                                                                  | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>The extent to which the proposed project:</b> |                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>§206E-5.6(j)(1)(A)</b>                        | Advances the goals, policies, and objectives of the applicable district plan.                                                                                  | <p>Ka 'ulu will advance the goals, policies, and objectives of the applicable district plan in the following ways:</p> <ul style="list-style-type: none"> <li>• The construction and completion of this new residential community will be a significant milestone in the continuing revitalization of the KCDD.</li> <li>• Ka 'ulu will create both social and economic value, especially for those who live and work in West Oahu, by providing for the housing needs of local families.</li> <li>• As a well-designed community of beautiful, quality homes, Ka'ulu will contribute to KMP's vision of Kalaeloa as a Wahi Ho'okela (Center for Excellence) within the 'Ewa region.</li> <li>• With many gathering places within the community, Ka'ulu will contribute to the vision of Kalaeloa as a center where Hawaii's people can come together.</li> <li>• Ka'ulu will be respectful of the past and place, as reflected in its name. The area, known during pre-contact times for its 'ulu fruit, was a place of respite and refreshing for those making the journey by land to the west side of Oahu. Ka'ulu will likewise provide a place of respite and refreshing for those who choose to call it "home."</li> <li>• By creating a network of open spaces and creational amenities that connect the community, residents will also have access to eco-friendly choices for transportation, i.e., walking or biking.</li> <li>• In addition to providing much-needed homes for local residents (including reserved housing homes), Ka'ulu will contribute to the revitalization of Kalaeloa through public dedications, economic benefits, tax revenues, and increased activity within Kalaeloa.</li> </ul> |
| <b>§206E-5.6(j)(1)(B)</b>                        | Protects, preserves, or enhances desirable neighborhood characteristics through compliance with the standards and guidelines of the applicable district rules. | Table 7 of this application details compliance with the KCDD Rules.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>§206E-5.6(j)(1)(C)</b>                        | Avoids a substantially adverse effect on surrounding land uses through compatibility with the existing and planned land use character of the surrounding area. | The Ka'ulu Site (TMKs (1) 9-1-013:197, 198, 199) and the adjacent parcels are designated transect zone T3 General Urban Zone. According to HAR §15-215 Figure 1.7, Land Use, Single-Family and Multi-Family residences are permitted by right in the T3 General Urban Zone. The new residential community will therefore be compatible with the existing and planned land use character of the surrounding area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>§206E-5.6(j)(1)(D)</b>                        | Provides housing opportunities for all income groups, particularly                                                                                             | Ka'ulu will provide 390 much-needed market and reserved housing homes for sale to local residents. The majority will                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |



| HRS Section                                                                                      | Consideration                                                                                                                                                                 | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                  | low, moderate, and other qualified income groups.                                                                                                                             | be affordable to those earning up to 140% of the area median income.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>The impact of the proposed project on the following areas of urban design, as applicable:</b> |                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>§206E-5.6(j)(2)(A)</b>                                                                        | Pedestrian oriented development, including complete streets design.                                                                                                           | Ka'ulu will be a pedestrian- and bike-friendly neighborhood with ample open and recreational space. The surrounding streets developed by Hunt will be built in accordance with the City's Subdivision Standards, which require complete street design as per Chapter 114, Article 33, ROH. The complete streets surrounding the Property will accommodate pedestrians and bicyclists, as well as vehicular traffic.                                                                                                                                                                                                                                                                                                                                                        |
| <b>§206E-5.6(j)(2)(B)</b>                                                                        | Transit oriented development, including rail, bus, and other modes of rapid transit.                                                                                          | Ka'ulu is proximate to bus routes (Routes 413 and 416) and is approximately 1.8 miles from the Kapolei Transit Center and 3.3. miles from the start of the Honolulu Authority for Rapid Transportation (HART) rail system. Both the City and HCDA encourage implementation of the "complete streets" development model, which emphasizes the development of safe, multi-modal, and pedestrian-oriented streetscapes and connectivity. The complete streets design of surrounding streets (being built by Hunt) will facilitate access to the Ka'ulu community by bus, rail, and modes of transportation other than the automobile. Ka'ulu will have short-term bicycle parking areas in the recreation areas. Long-term bicycle parking will be in the residents' garages. |
| <b>§206E-5.6(j)(2)(C)</b>                                                                        | Community amenities such as gathering places, community centers, culture and arts facilities, and the full array of public facilities normally provided by the public sector. | Ample gathering places for Ka'ulu's residents will be provided throughout the Project and is one of its featured amenities. Recreation spaces will include active, kid-friendly areas with play apparatus; exercise equipment for adults; gathering spaces for get-togethers; and passive neighborhood parks (See Exhibit 8). The amenities will be for use by Ka'ulu's residents and not the general public.                                                                                                                                                                                                                                                                                                                                                              |
| <b>The impact of the proposed project on the following areas of State concern:</b>               |                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>§206E-5.6(j)(3)(A)</b><br><b>§206E-5.6(j)(3)(B)</b>                                           | Preservation of important natural systems or habitats<br>Maintenance of other resources relevant to the State's economy                                                       | Gentry is committed to reducing the carbon footprint by building new homes that conserve natural resources and provide a healthy environment. Home offerings will be energy-efficient and sustainable. Energy-saving appliances, insulation, solar water heating, LED lighting, and provisions for electric car charging stations are examples of what will be included as standard home components. Natural shading and ventilation principles will be incorporated into the designs. The site will be sustainable through stormwater design and water-efficient landscaping. Gentry will continue to "build green" to minimize energy costs and produce more sustainable communities.                                                                                    |
| <b>§206E-5.6(j)(3)(E)</b>                                                                        | Employment opportunities and economic development                                                                                                                             | Ka'ulu will provide an estimated 174 jobs during construction. It will generate an estimated \$14.7 million of City and State taxes and fees; it will generate an estimated \$700,000 of additional annual property tax revenues.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>§206E-5.6(j)(3)(F)</b>                                                                        | Maintenance and improvement of the quality of educational programs and services provided by schools                                                                           | In addition to complying with HRS §§302A-1601 through 1612 regarding School Impact Fees, Gentry is evaluating how to assist with the needs of the adjacent Barbers Point Elementary School and other district schools to enhance the learning environment for our keiki.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>§206E-5.6(j)(4)</b>                                                                           | The representations and commitments made by the developer in the permit application process.                                                                                  | This application and subsequent information to be presented at public hearings on the development permit constitute and will constitute representations and commitments made by Gentry in the permit application process.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

### **3.3 Reserved Housing**

HAR Title 15, Subtitle 4, Chapter 216, entitled "Kalaeloa Reserved Housing Rules" sets forth requirements for reserved housing units required as a condition of new residential development or redevelopment within the KCDD.

HAR §15-216-17 requires every developer applying for a development permit for approval to construct multi-family dwelling units on a lot greater than 40,000 gross square feet to construct and reserve at least twenty per cent of the total residential floor area as reserved housing units. Based on a total residential floor area of 519,584 sf, Gentry is required to provide at least 103,917 sf of reserved housing units for Ka'ulu. Gentry will likely exceed this requirement by providing approximately 104,802 sf of residential floor area for the development of reserved housing units, which will amount to approximately 87 units. These units will be sold to households earning not more than 140% of the area median income.

Exhibit 19 shows how the amount of reserved housing was calculated, and which plan types will be provided as reserved housing units. Gentry will comply with the requirements of HAR Chapter 216, Subchapter 3 in the sale of reserved housing units.

Exhibit 3 shows the conceptual project site plan, including the anticipated locations of reserved housing units.

## 4. Technical Studies

### 4.1 Archeological and Cultural Resources

Traditional Cultural Practices (TCP) Hawaii conducted a literature review and field inspection for the 49.68-acre Hunt Parcel 1 (formerly TMK 9-1-013: 002<sup>5</sup>) a portion of which will comprise the Ka'ulu site. In addition to conducting archival research, TCP conducted fieldwork that included a 100% pedestrian survey of the entire parcel to identify potential historic properties.

The parcel has been completely grubbed and graded at least two times in the: 1) 1940s (when it was prepared for construction/build out for military structures); and 2) 1970s (when the parcel was cleared of all structures). During the field inspection TCP found rectilinear “structural pads” of degraded asphalt and mechanically compacted sediment. The degraded asphalt areas represent old driveways and common areas around which were structural (small building) pads associated with the former use of the area for a military base. TCP requested a State Inventory of Historic Places (SIHP) number for these circa World War II features. TCP also recommended archeological monitoring during construction activities due to the potential presence of subsurface pit caves (sink holes) that could not be observed from the ground surface.

As part of its review of the literature review and field inspection report, the State Historic Preservation Division (SHPD) requested a draft archeological monitoring plan (AMP) be prepared meeting the requirements of HAR §13-279-4. Subsequently, TCP prepared an AMP, which SHPD accepted by a letter dated May 20, 2021. Appendix B contains SHPD's letter dated May 20, 2021, accepting the AMP.

### 4.2 Traffic Assessment

HCDA accepted the Hunt Kalaeloa Roads Final Environmental Assessment (FEA) in September 2020. The FEA addresses Hunt's proposed improvements to roadways, intersections, and utility systems intended to support the future development of Hunt's Parcels 1, 2, and 3 within the KCDD, including the Ka'ulu site and roads surrounding the Site.

All roadways will be designed to meet City Department of Planning and Permitting (DPP) subdivision standards. Significant road reconfiguration is planned for the following: the new southern extension of Kamokila Boulevard between Saratoga Avenue and Franklin D. Roosevelt Avenue; construction of a new “Road A” connecting Hornet Street to Franklin Street; and improvements to Copahoe Avenue between Saratoga Avenue and Franklin D. Roosevelt Avenue.

The FEA Appendix C is a Traffic Impact Analysis Report (TIAR) for the Development of Parcels 1, 2 and 3 in Kalaeloa, conducted by Fehr & Peers and dated December 29, 2017. The study analyzed two project alternatives to be constructed on the three parcels:

- 1) 1,500 residential units – A total of 496 single-family and 1,004 multi-family units on Parcels 1, 2, and 3; or
- 2) Mixed-Use Development – A total of 139 single-family and 1,110 multi-family units, 169,000 sf of retail uses, and an 80,000 sf VA Clinic.

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<sup>5</sup> Hunt Parcel 1 (formerly TMK (1) 9-1-013:002) was recently subdivided in to seven separate TMK parcels: TMKs (1) 9-1-013:195, 196, 197, 198, 199, 200, and 201).

The impacts of the two project alternatives on the surrounding transportation system were evaluated following guidelines established by DPP Traffic Review Branch (TRB) and the State of Hawai'i Department of Transportation – Highways Division. The TIAR recommended several mitigative measures to surrounding roadways which, when implemented, are expected be sufficient to address impacted intersections. Hunt will make the improvements to the surrounding roadways. Overall, the two project alternatives were not expected to substantially increase the walking, biking, or transit demand to a level where it could not be accommodated by existing or planned facilities. The two project alternatives were expected to enhance multi-modal facilities and services, especially with the promotion of the use of passive and active spaces and non-motorized modes.

After the December 2017 TIAR was completed, Fehr & Peers prepared *Hunt Parcel 1 Access Evaluation in Kalaeloa* (dated September 13, 2019), a technical memorandum that documented the anticipated operations of the proposed driveways serving the VA Center site. Subsequently, the Parcel 1 site plan was revised to consolidate site access and remove two driveways on Copahee Avenue, as well as to remove a right-turn only driveway on Kamokila Boulevard serving the residential uses. As a result, the DPP TRB staff requested that an updated access evaluation be conducted to verify that the proposed driveway configurations will provide adequate access to and circulation around the Site. In addition, DPP TRB requested that an analysis be made to justify the driveway proposed for the realigned Boxer Road (Saratoga Avenue extension) on the makai side of the Site given the plan to only improve the mauka side of the road along the project frontage between Kamokila Boulevard and Copahee Avenue. In response, Fehr & Peers prepared a Technical Memorandum dated March 17, 2021, *Hunt Parcel 1 in Kalaeloa – Residential Driveway Operations Evaluation*.

The Memorandum states that from an operational perspective, the Site access points will function at a desirable overall intersection level of service during the peak hours at Kalaeloa area buildout. If the driveway on Saratoga Avenue were not provided, driveway access to the Site would still be adequate from an operations standpoint; however, it is recommended that the driveway be included as part of Site development to increase overall neighborhood connectivity, minimize circuitous travel, and enhance emergency access to the Site.

In the case of the Copahee Avenue driveways that were included on a previous version of the site plan, their removal does not significantly compromise site access or negatively affect overall area circulation. This is due in part to the relatively low volumes that would have used these driveways during the peak hours. In addition, elimination of these driveways also minimizes traffic adjacent to Barbers Point Elementary School and reduces potential conflicts between vehicles and pedestrians/bicyclists accessing the school. The memorandum also recommends that the non-auto access point should be generally aligned with the existing crosswalk to the school to minimize the potential for jaywalking and focus crossing activity at one location.

Appendix C contains a copy of the TIAR Executive Summary (Fehr & Peers, 12/29/17) and the Technical Memorandum (Fehr & Peers, 3/17/21). TRB's concurrence with the recommendations in the Technical Memorandum is included as part of Appendix D.

### **4.3 Preliminary Engineering Report**

R.M. Towill Corporation (RMTC) prepared a Preliminary Engineering Report (PER) for the Project dated July 19, 2021. The purpose of the report is to determine and confirm the availability of infrastructure and utilities to accommodate Ka'ulu, including sanitary sewer, water, drainage, electrical, communication and cable.

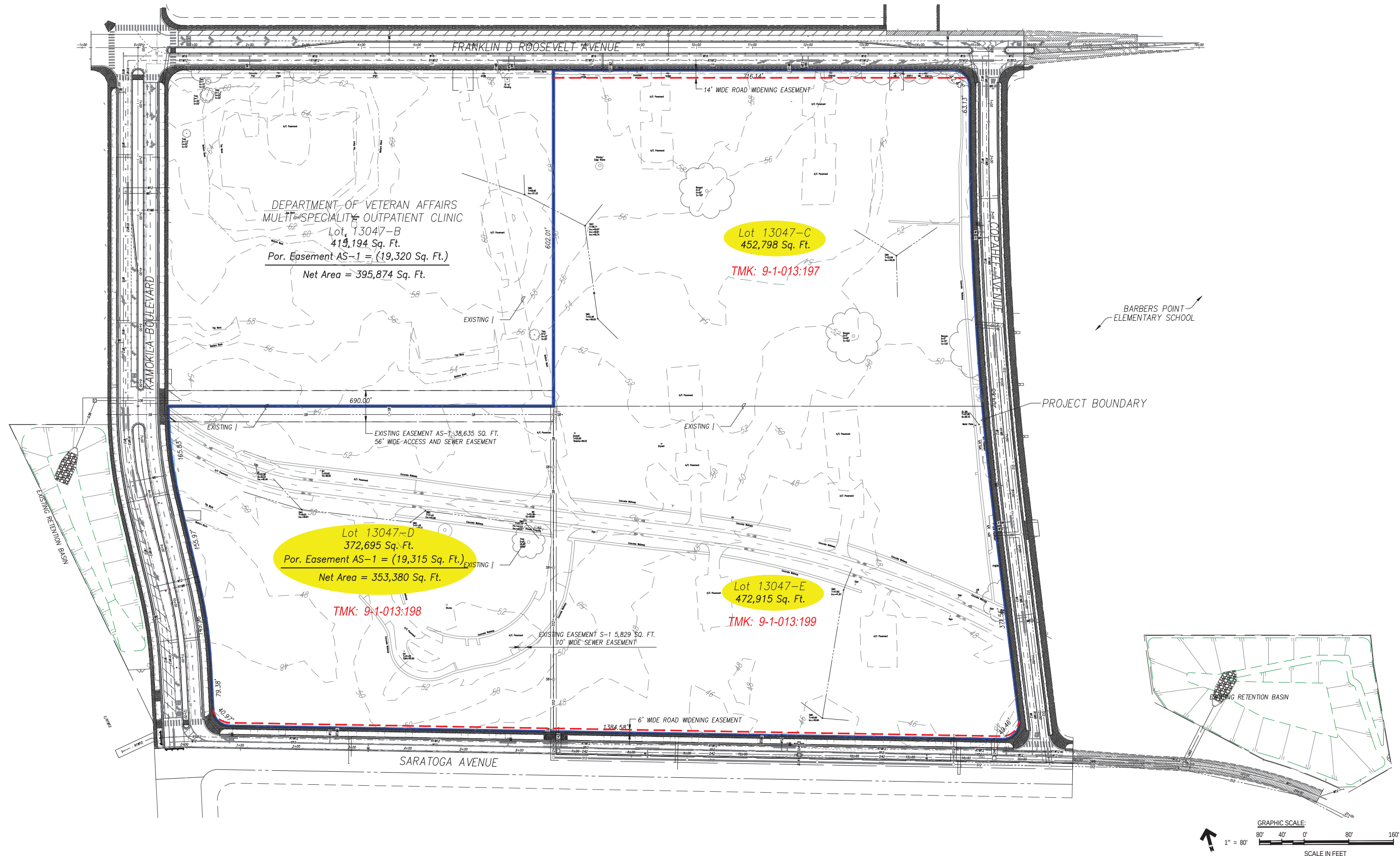
RMTC anticipates that infrastructure systems will be able to accommodate Ka‘ulu and has taken steps well ahead of this application to confirm the availability of utilities, as detailed in Table 10. Appendix D contains the Preliminary Engineering Report.

**Table 10 – Available Infrastructure Status**

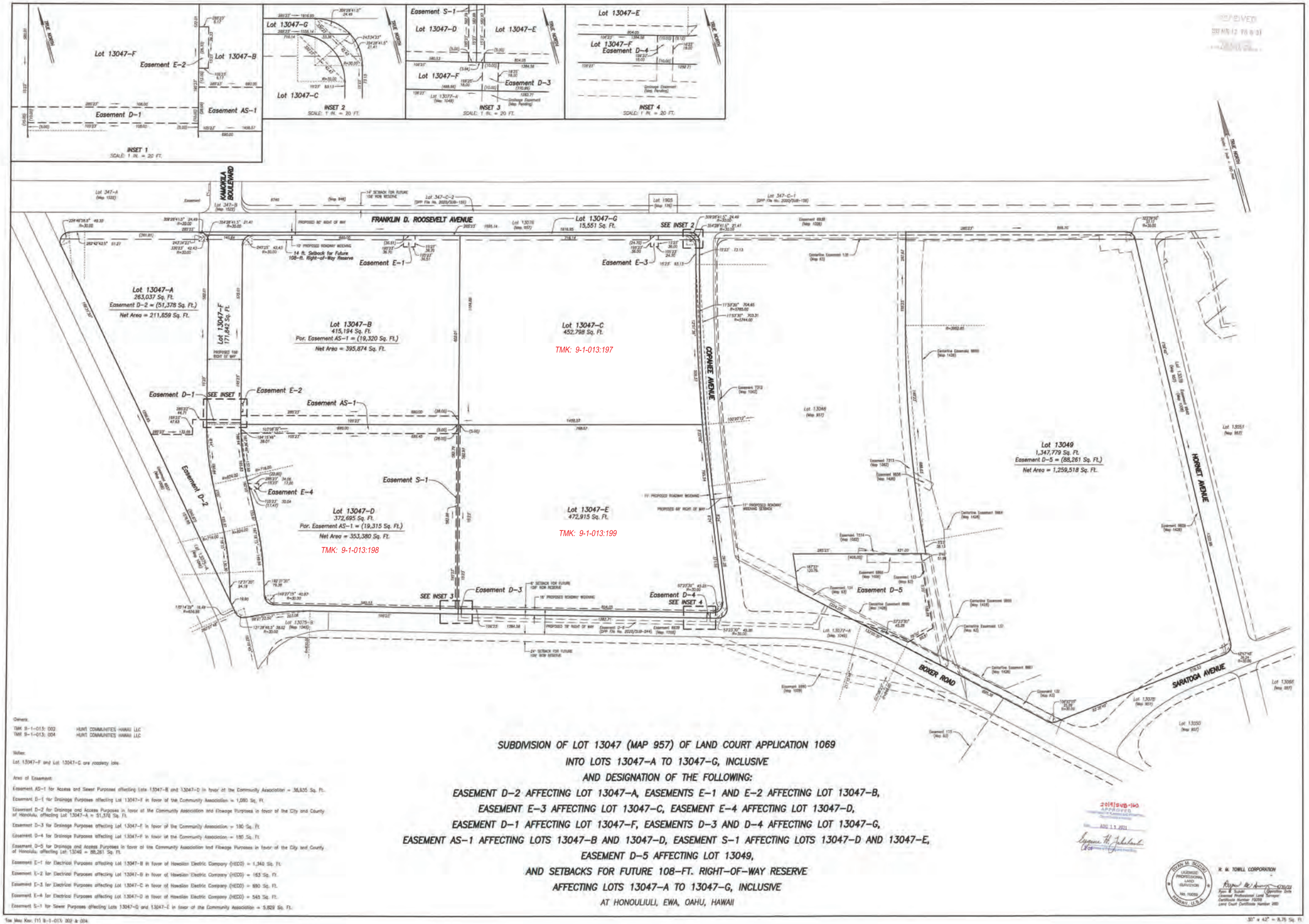
| Utility                                  | Agency                                              | Approval/<br>Confirmation Sought                                  | Current Status                                                                                           |
|------------------------------------------|-----------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| Water                                    | Kalaeloa Water Company (KWC)                        | Will-serve letter                                                 | Will-serve letter dated 4/30/21 received from KWC                                                        |
| Sewer                                    | Kalaeloa Water Company<br><br>DPP Wastewater Branch | Will-serve letter<br><br>Approval of sewer connection application | Will-serve letter dated 4/30/21 received from KWC<br><br>Application approved with conditions 4/27/2020. |
| Drainage /Stormwater Quality             | DPP Civil Engineering Branch (CEB)                  | Approval of Drainage Master Plan                                  | Email approval received from CEB on 9/16/21                                                              |
| Traffic                                  | DPP Traffic Review Branch (TRB)                     | Approval of traffic analyses, location of access points           | Email approval received from TRB on 9/15/21                                                              |
| Electrical                               | Hawaiian Electric Co. (HECO)                        | Will-serve letter                                                 | Will-serve letter dated 4/21/21 received from HECO                                                       |
| Telephone/<br>Communication System/Cable | Spectrum                                            | Will-serve letter                                                 | Will-serve letter dated 2/21/21 received from Spectrum                                                   |

Appendix D contains the above-referenced letters and correspondences.

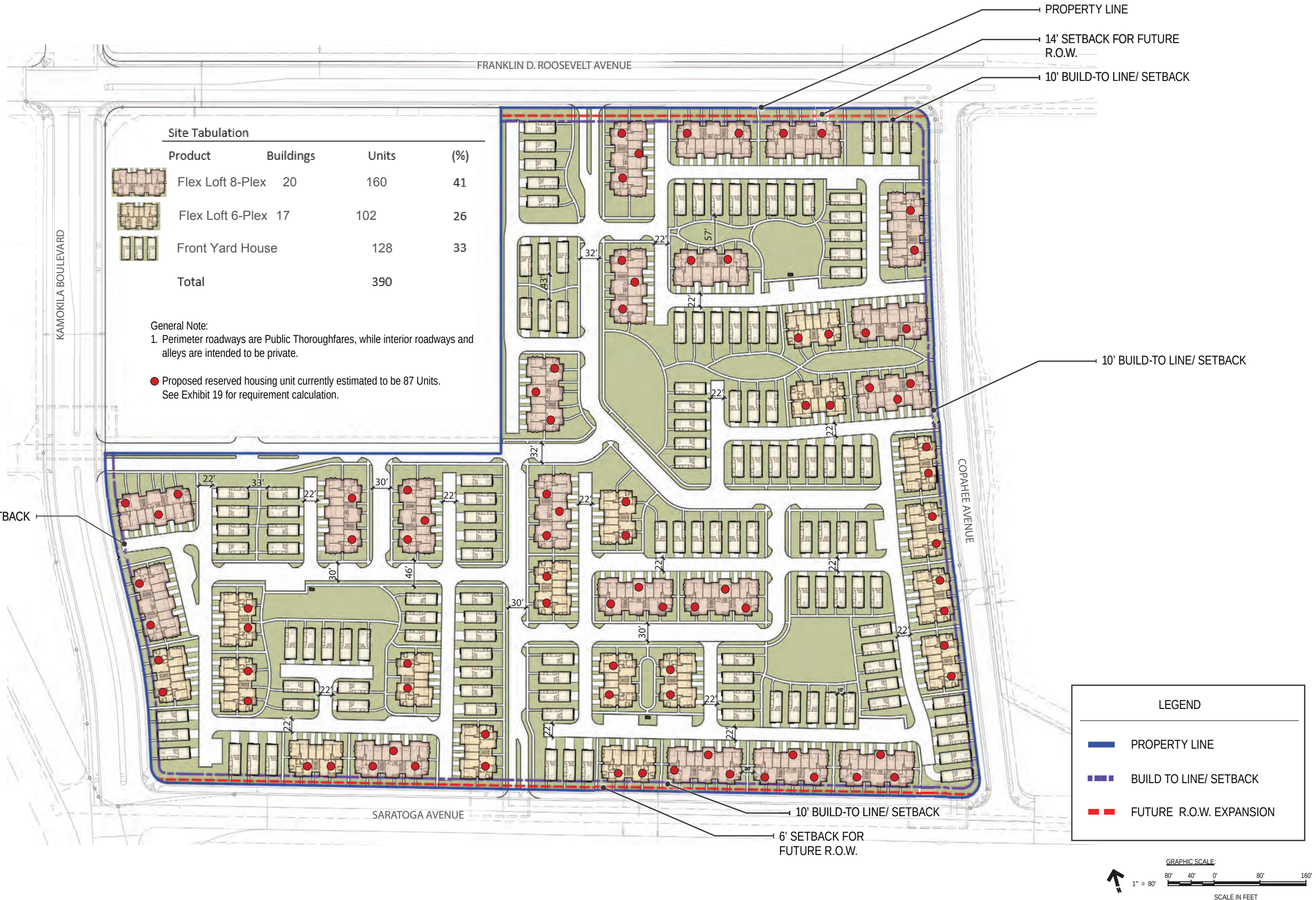
# EXHIBITS



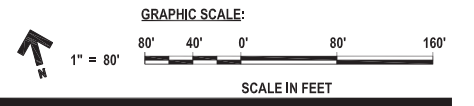






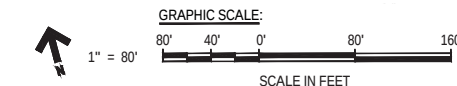
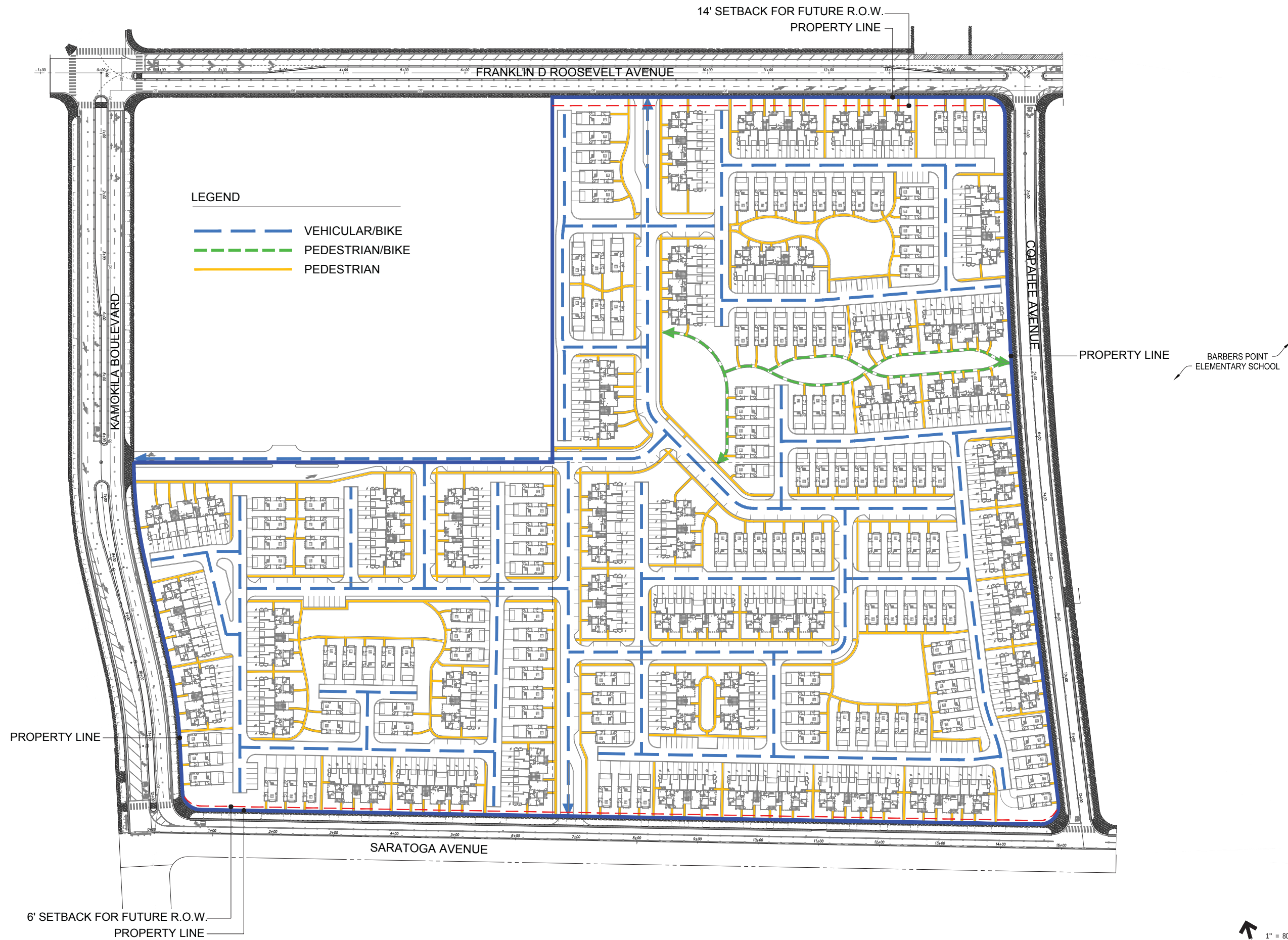














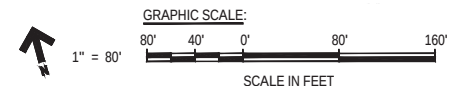
| PARKING                | REQUIRED | PROPOSED |
|------------------------|----------|----------|
| FLEX LOFT UNITS        | 308      | 524      |
| FRONT YARD HOUSE UNITS | 256      | 256      |
| VISITOR/USPS           | -        | 151      |
| TOTAL                  | 564      | 931      |

| LEGEND                         | # OF PARKING |
|--------------------------------|--------------|
| ● PARALLEL (8'X22')            | 95           |
| ● FRONT-IN (8.5'X18')          | 56           |
| ■ LOADING (12'X36')            | 2            |
| ■ LOADING (9'X19')             | 1            |
| ● BICYCLE PARKING (SHORT TERM) | N/A          |

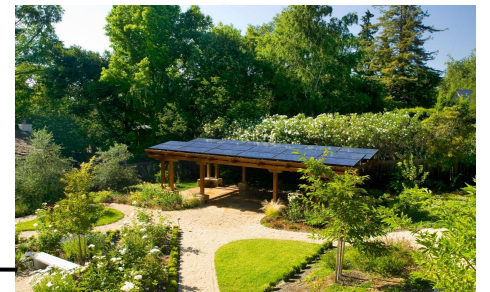


AN EXAMPLE OF A BICYCLE CORRAL THAT CAN BE EXPANDED TO ACCOMMODATE 4-12 BICYCLES.

- NOTES:
1. ALL PARKING SPACES ARE STANDARD SIZE.
  2. 2 PARKING SPACES PROVIDED FOR EACH UNIT. SEE EXHIBITS 11.1 TO 13.
  3. DRIVEWAY ACCESS FOR PARKING WILL EXCEED THE 55' MINIMUM REQUIREMENT MEASURED FROM THE EDGE OF RIGHT-OF-WAY (FROM BOUNDARY, PERIMETER THOROUGHFARE STREETS), AS ALL PRIVATE PARKING IS ALLEY LOADED.







SHADE STRUCTURE



PLAY STRUCTURE



FITNESS STATION



TRELLIS

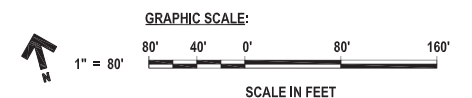


BENCH (AT LEAST TWO IN EACH PARK)



PICNIC TABLE (AT LEAST TWO IN EACH PARK)

10' BUILD TO LINE / SETBACK  
6' SETBACK FOR FUTURE R.O.W.  
PROPERTY LINE





## LANDSCAPE REQUIREMENTS

- New planting shall be selected from the Preferred Plant Species List (KCDD Rules Figure 1.10).
- Landscaping shall have an automatic irrigation system with a rain or moisture sensor, or with a system that eliminates water waste.
- A minimum of 20% of each lot shall be provided as open space.

SILVER TRUMPET TREE (TYP.)

3'-6" ENTRY WALK (TYP.)

4'-6" LANDSCAPE WALK (TYP.)

MAILBOX KIOSK

MAILBOX KIOSK

SHRUB BED (TYP.)

MAILBOX KIOSK

SILVER TRUMPET TREE (TYP.)

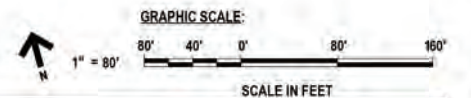
SARATOGA AVENUE

SILVER TRUMPET TREE (TYP.)

## TREE LEGEND

| Symbol                                                                                | Function                                                                                                                                              |
|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <b>Street Tree Off-Site (External - By Others) *</b><br>Buttonwood<br>Silver Trumpet Tree<br>*Per DPP approved Street Tree Plan                       |
|    | <b>Street Tree On-Site (Small + Medium)</b><br>Buttonwood<br>Hala<br>Kou Haole Tree<br>Kou Tree<br>Plumeria<br>Silver Trumpet Tree<br>Breadfruit Tree |
|    | <b>Shade Tree (Large)</b><br>Monkeypod Tree                                                                                                           |
|  | <b>Shade Tree (Small + Medium)</b><br>Buttonwood<br>Hala<br>Kou Haole Tree<br>Kou Tree<br>Plumeria                                                    |
|  | <b>Ornamental Tree (Small + Medium)</b><br>Silver Trumpet Tree                                                                                        |
|  | <b>Palms (Entry)</b><br>Loulou Palm                                                                                                                   |

BUTTONWOOD (TYP.)

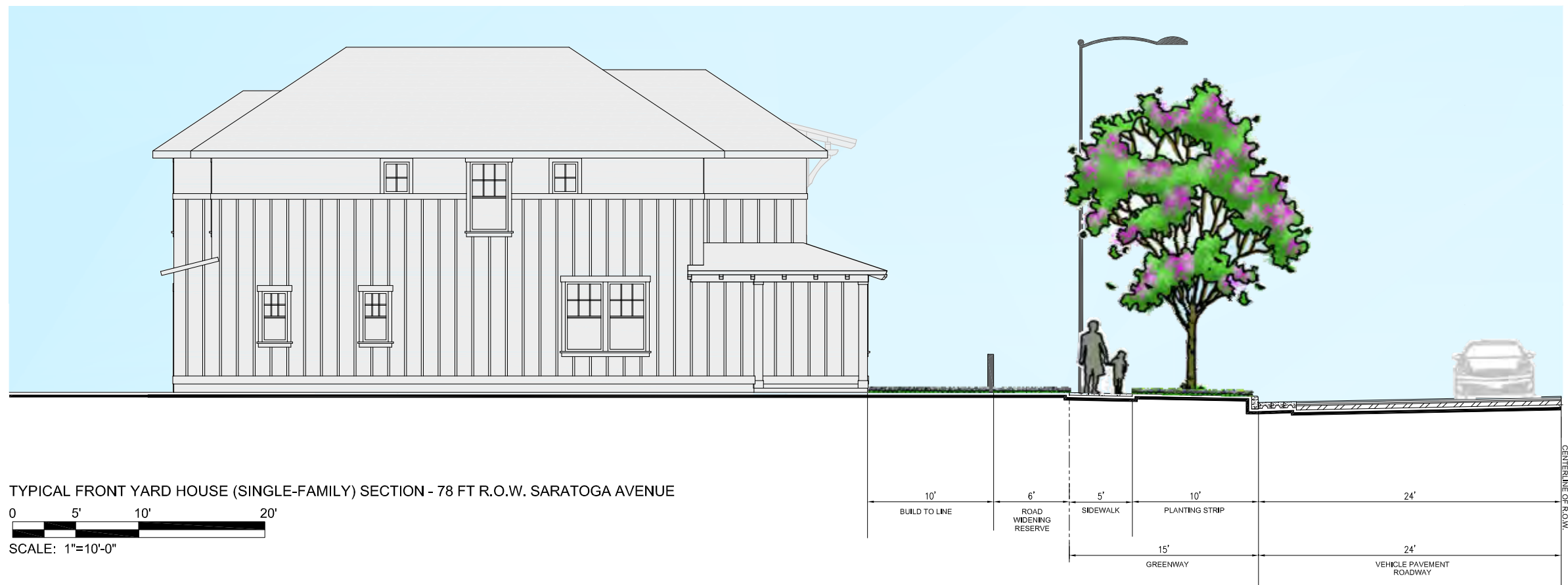




Legend

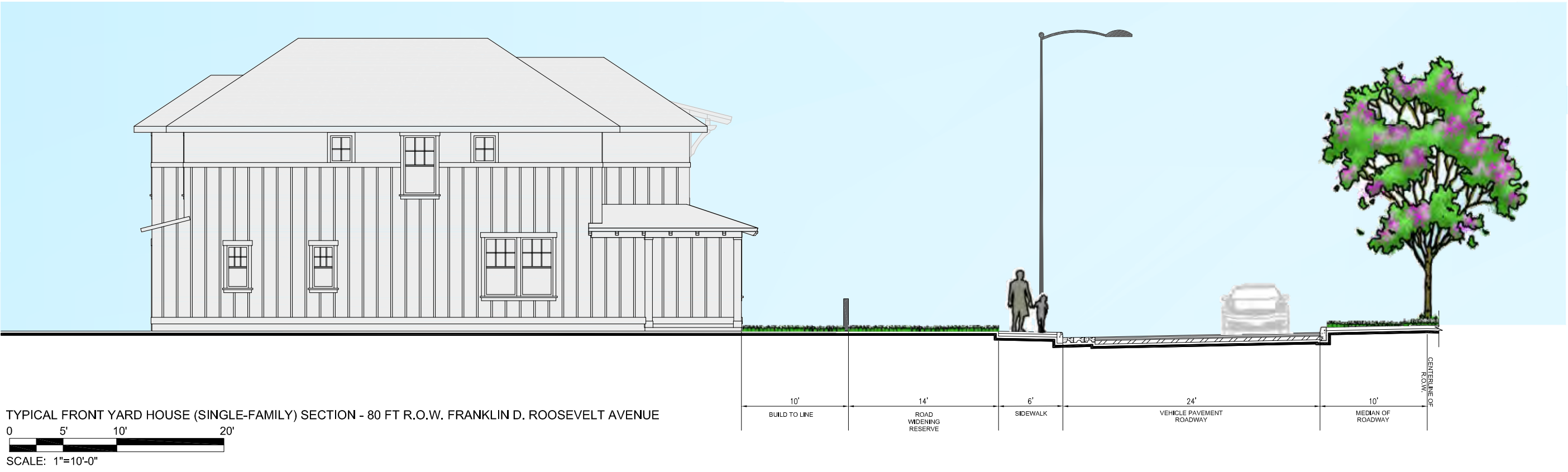
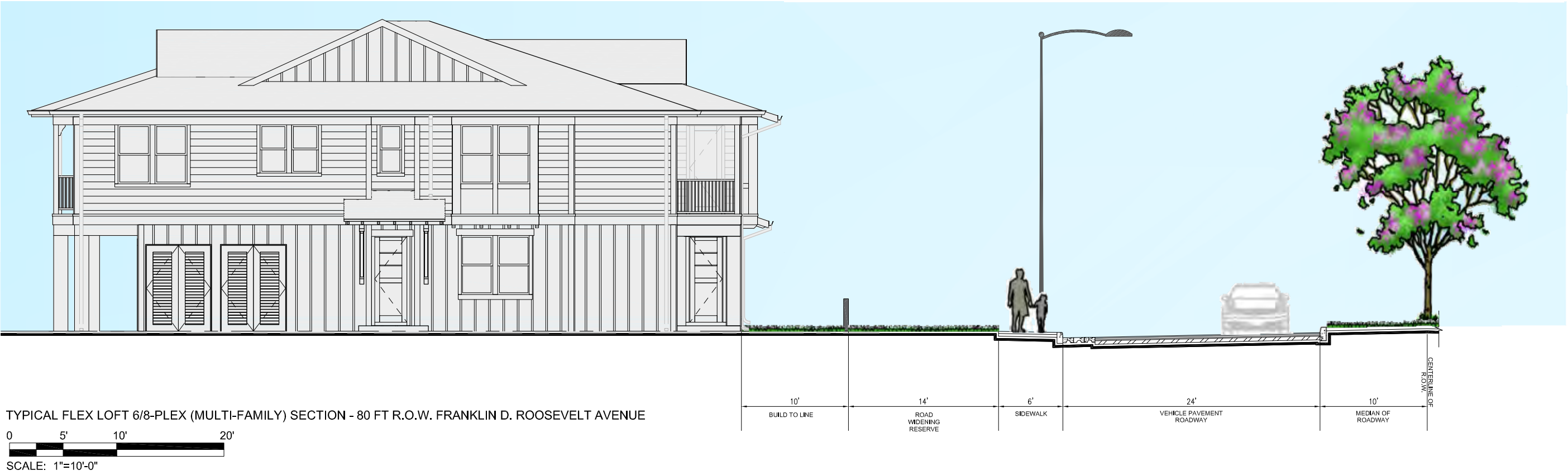
- Areas to be maintained by the AOA (common areas)
- Areas to be maintained by individual homeowners (limited common areas)



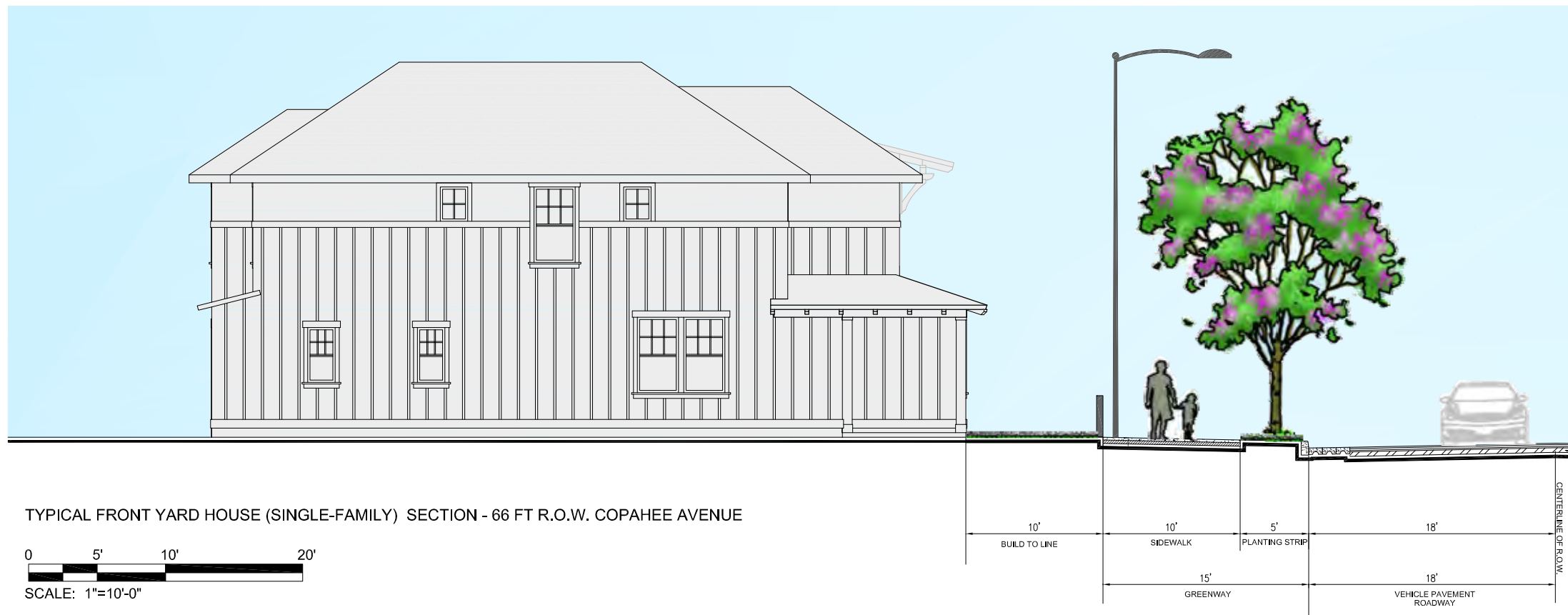












Front Yard House Req. Breakdown

A. Pedestrian Access

Pedestrian Access To Front Door

B. Frontage Occupancy

Actual Frontage Breakdown

Total Building Width @ Occupancy Line Front Elevation: 22'-0"

Total Building Width @ Occupancy Line Side Elevation: 55'-0"

C. Floor Plate Ratio

First Floor Area Total: 1,134 SF (100%)

Second Floor Area Total: 986 SF (87%)

Gross Horizontal Areas Total: 2,120 SF

D. Residential Floor Area

First Floor Area Total: 595 SF

Second Floor Area Total: 918 SF

Total: 1,513 SF

E. Fence Locations

Height 3'-0" front yard or side yard when facing thoroughfare

Height 6'-0" for side yard or rear yard.

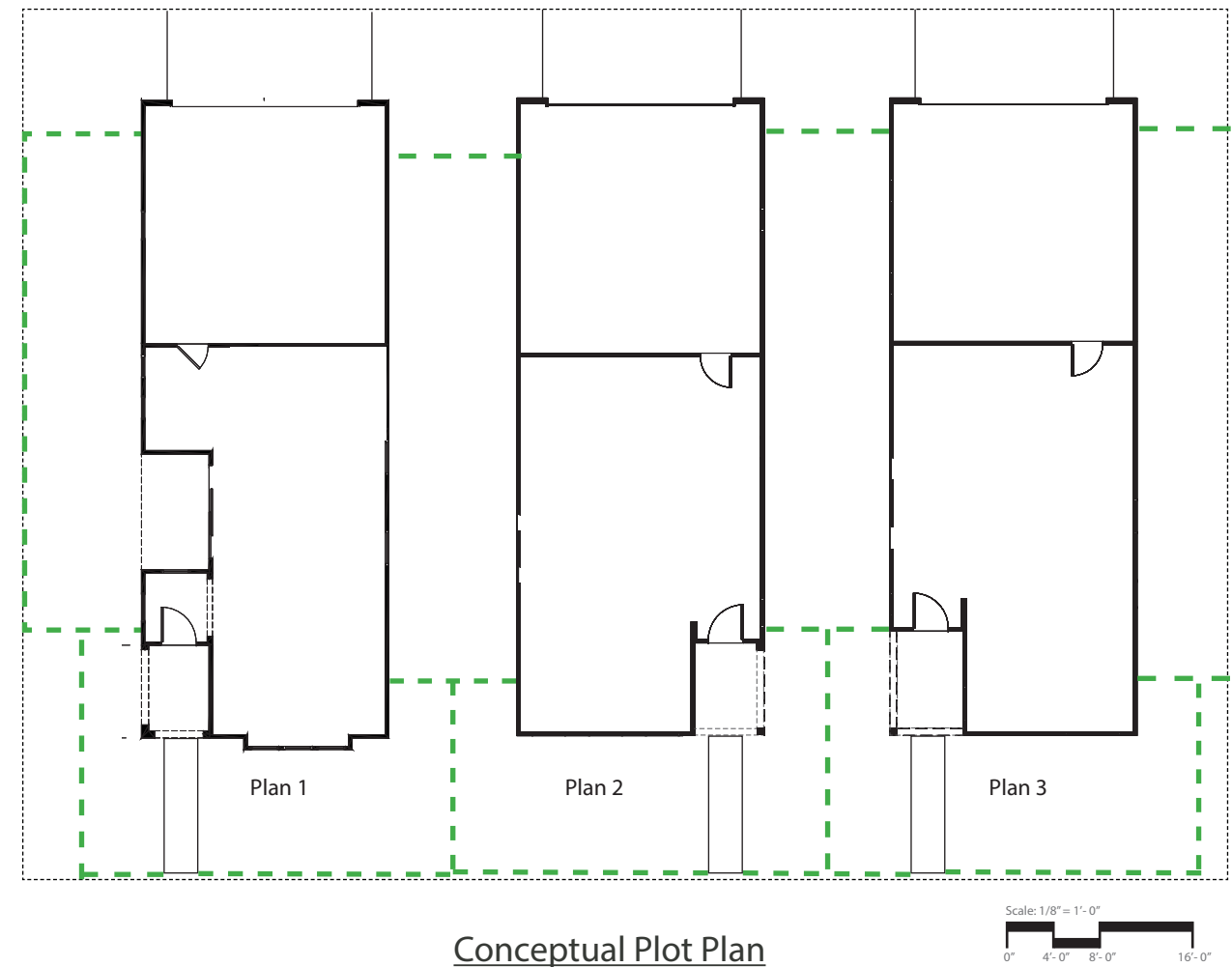
F. Trash Can & Bicycle Location

T R B

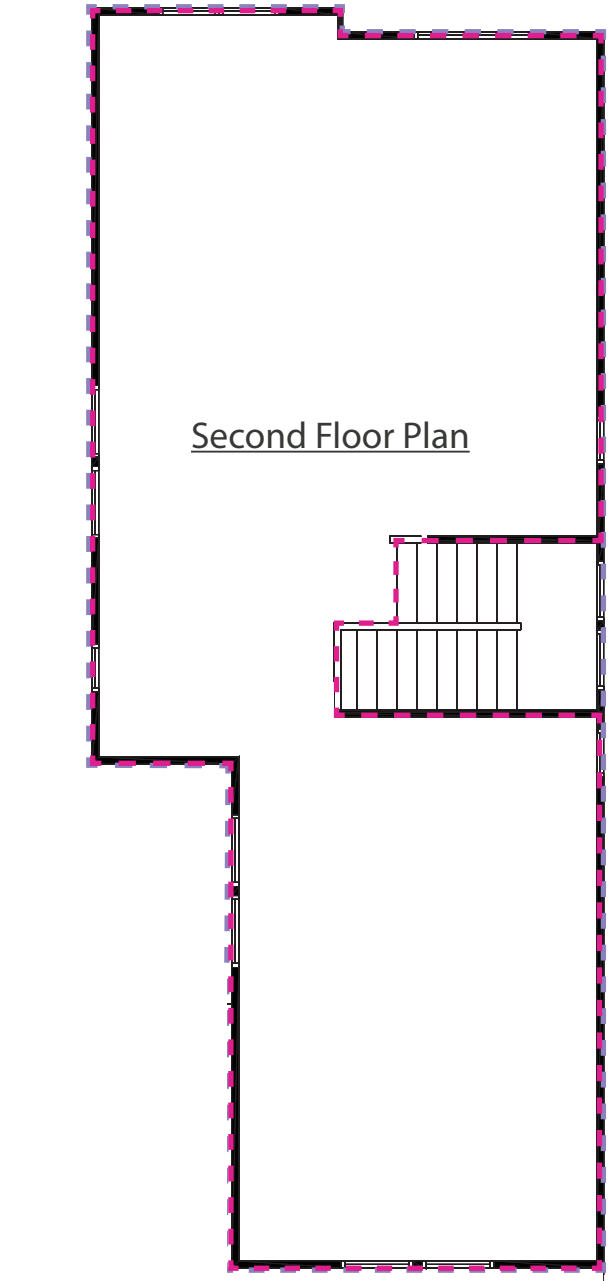
G. Building Height: Overall Height: 27'-2"

H. Parking Design & Location

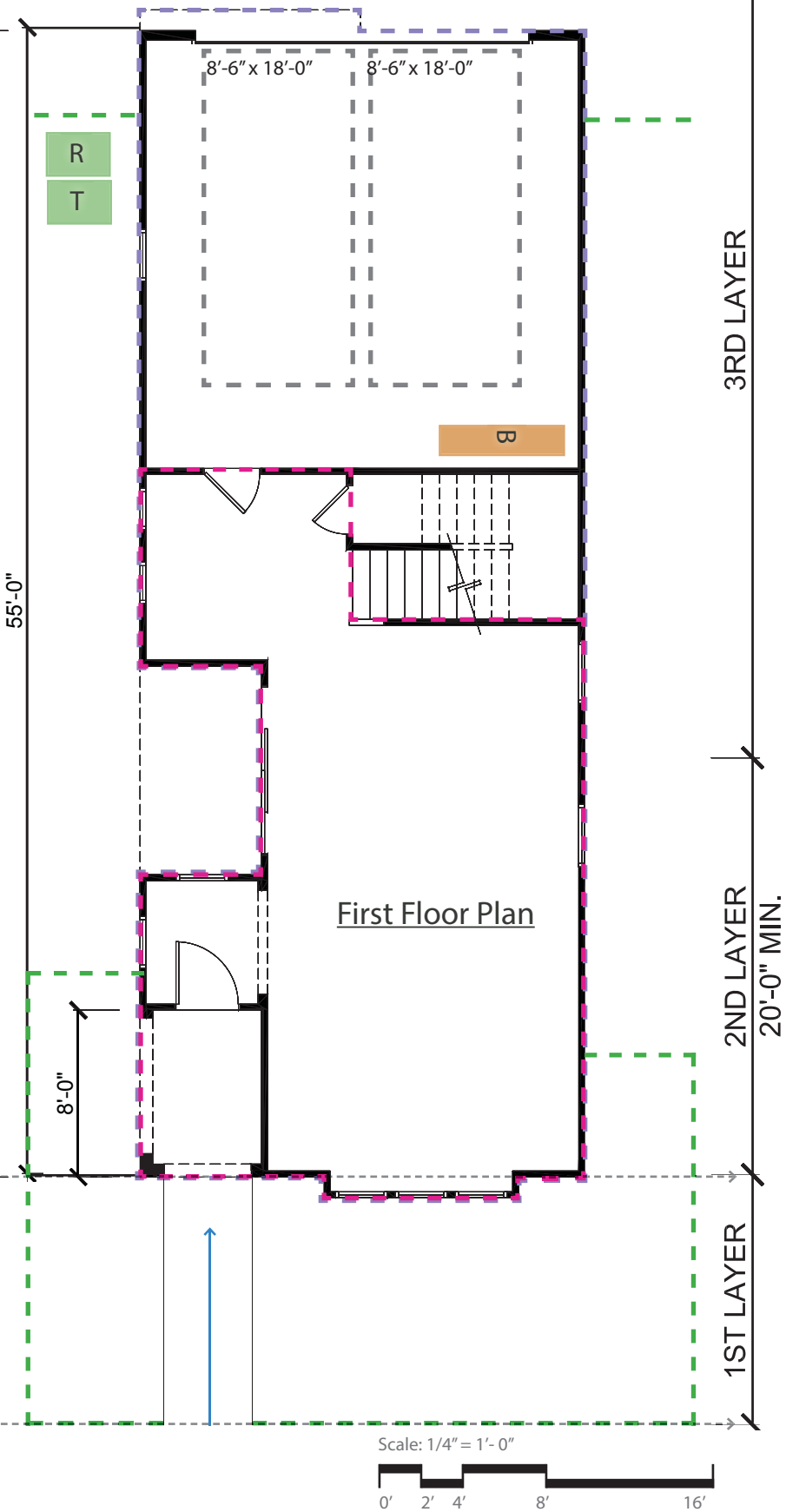
Standard Stall 8'-6" x 18'-0"



Conceptual Plot Plan



Second Floor Plan



First Floor Plan

Front Yard House Req. Breakdown

A. Pedestrian Access

Pedestrian Access To Front Door

B. Frontage Occupancy

Actual Frontage Breakdown

Total Building Width @ Occupancy Line Front Elevation: 22'-0"

Total Building Width @ Occupancy Line Side Elevation: 55'-0"

C. Floor Plate Ratio

First Floor Area Total: 1,173 SF (100%)

Second Floor Area Total: 969 SF (83%)

Gross Horizontal Areas Total: 2,142 SF

D. Residential Floor Area

First Floor Area Total: 654 SF

Second Floor Area Total: 919 SF

Total: 1,573 SF

E. Fence Locations

Height 3'-0" front yard or side yard when facing thoroughfare

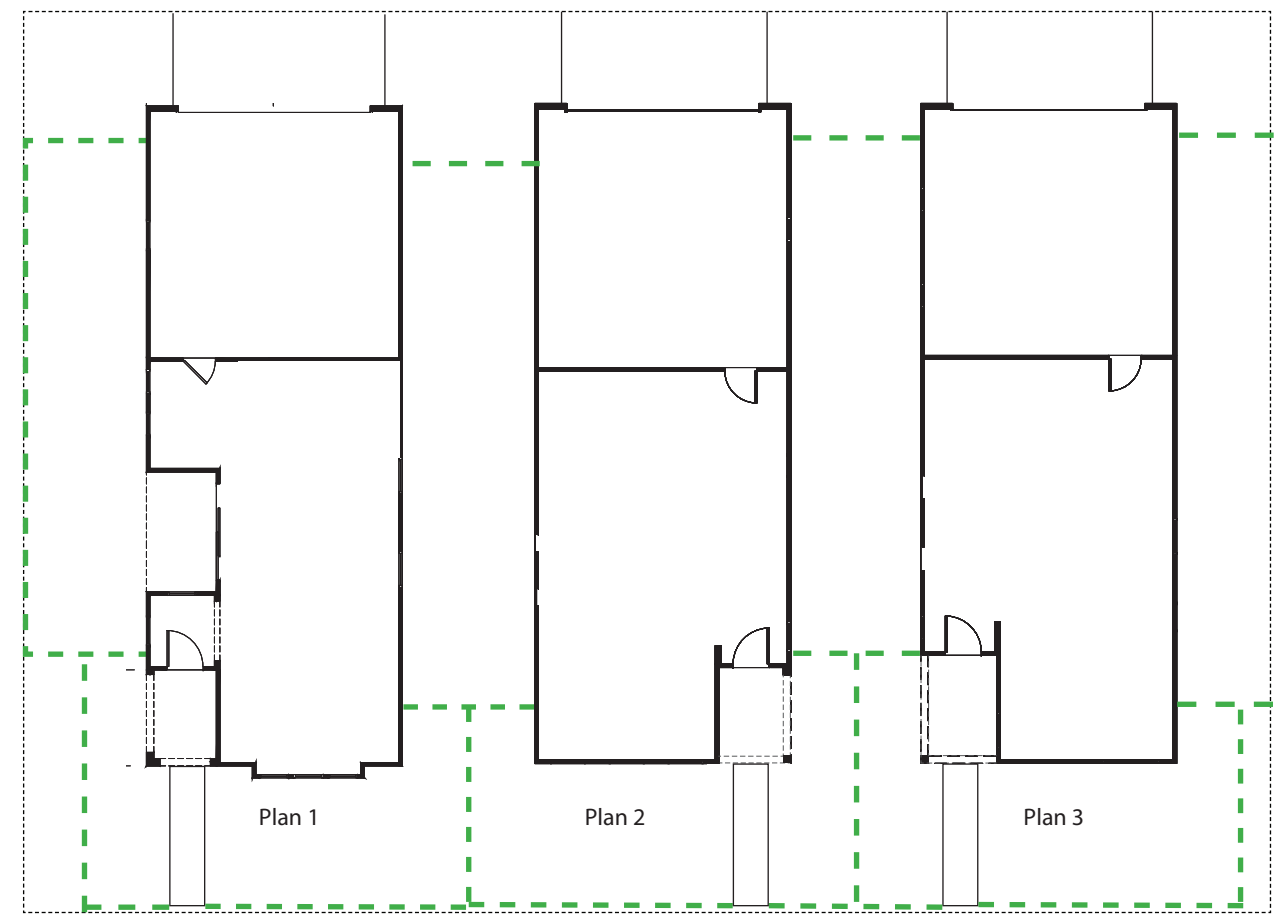
Height 6'-0" for side yard or rear yard.

F. Trash Can & Bicycle Location

T R B

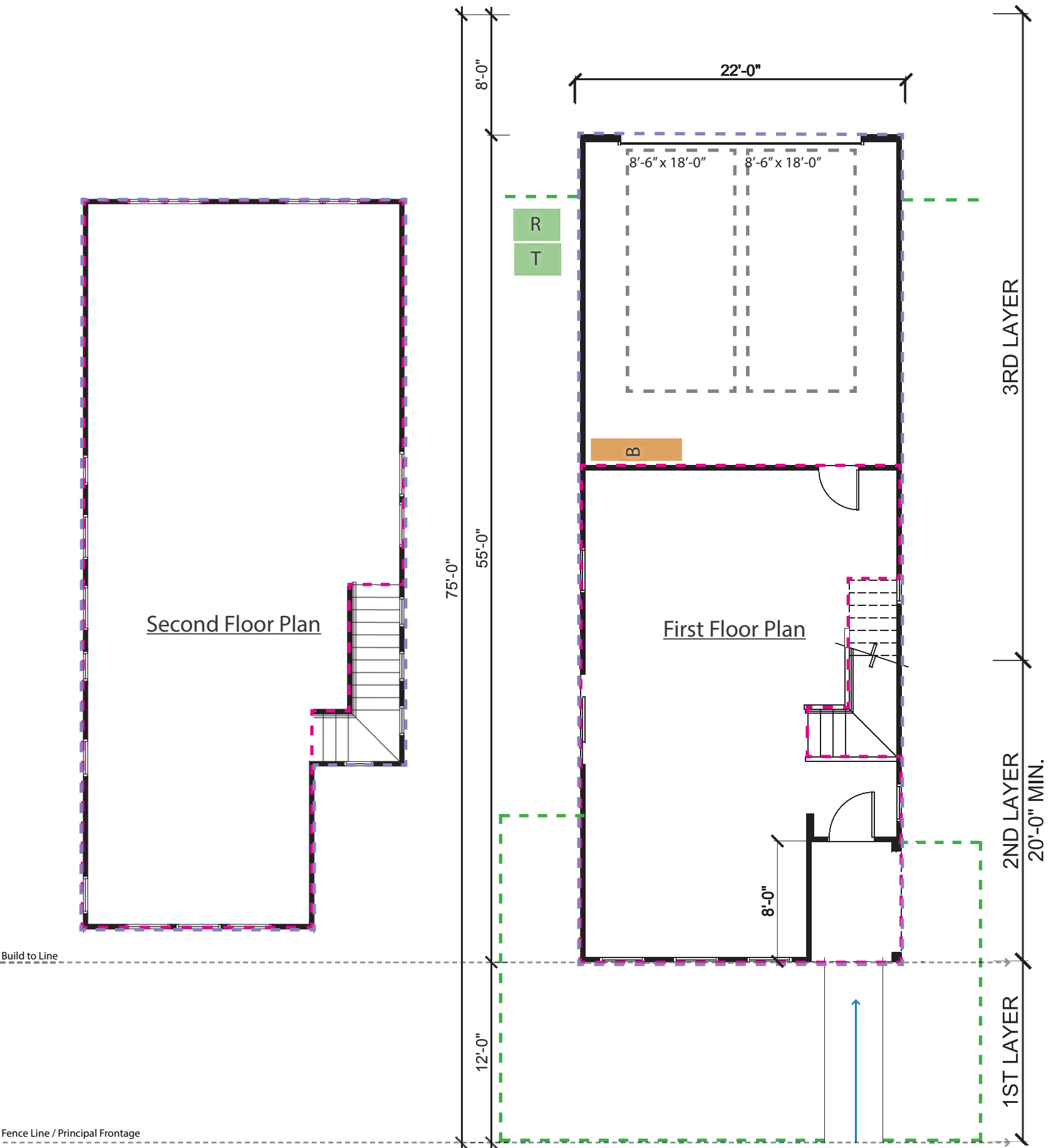
G. Building Height: Overall Height: 27'-2"

H. Parking Design & Location  
Standard Stall 8'-6" x 18'-0"



Conceptual Plot Plan

Scale: 1/8" = 1'-0"  
0' 4'-0" 8'-0" 16'-0"



Scale: 1/4" = 1'-0"  
0' 2' 4' 8' 16'



GENTRY KALAELOA, LLC

These graphics have been prepared for planning purposes and are subject to change as a result of the planning and/or permitting process.

KA'ULU - EXHIBIT 11.2

FRONT YARD HOUSE (SINGLE-FAMILY) - PLAN 2



Front Yard House Req. Breakdown

A. Pedestrian Access

Pedestrian Access To Front Door

B. Frontage Occupancy

Actual Frontage Breakdown

Total Building Width @ Occupancy Line Front Elevation: 22'-0"

Total Building Width @ Occupancy Line Side Elevation: 55'-0"

C. Floor Plate Ratio

First Floor Area Total: 1,173 SF (100%)

Second Floor Area Total: 1,000 SF (85%)

Gross Horizontal Areas Total: 2,173 SF

D. Residential Floor Area

First Floor Area Total: 650 SF

Second Floor Area Total: 941 SF

Total: 1,591 SF

E. Fence Locations

Height 3'-0" front yard or side yard when facing thoroughfare

Height 6'-0" for side yard or rear yard.

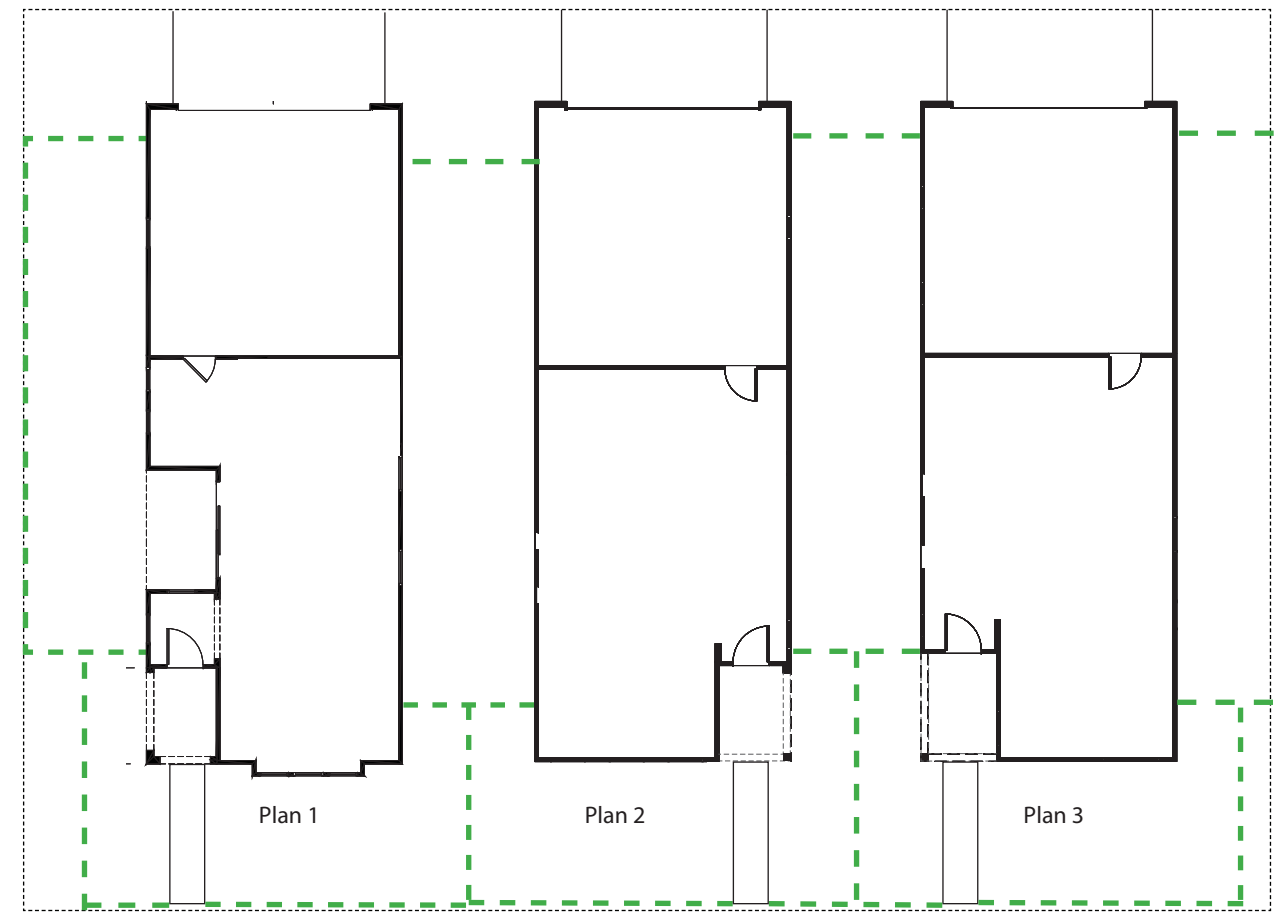
F. Trash Can & Bicycle Location

T R B

G. Building Height: Overall Height: 27'-2"

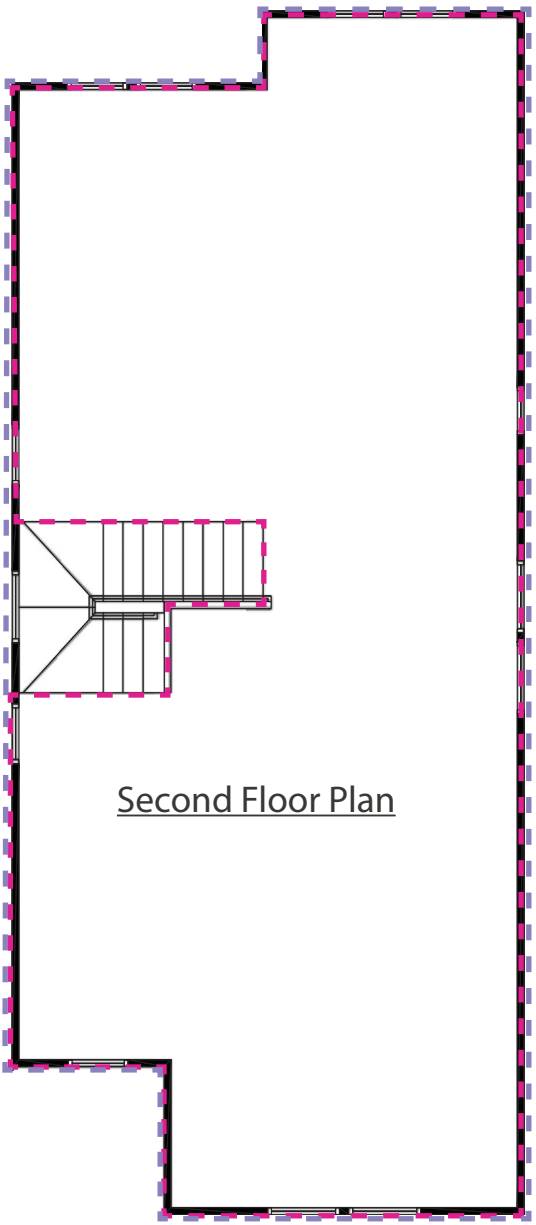
H. Parking Design & Location

Standard Stall 8'-6" x 18'-0"

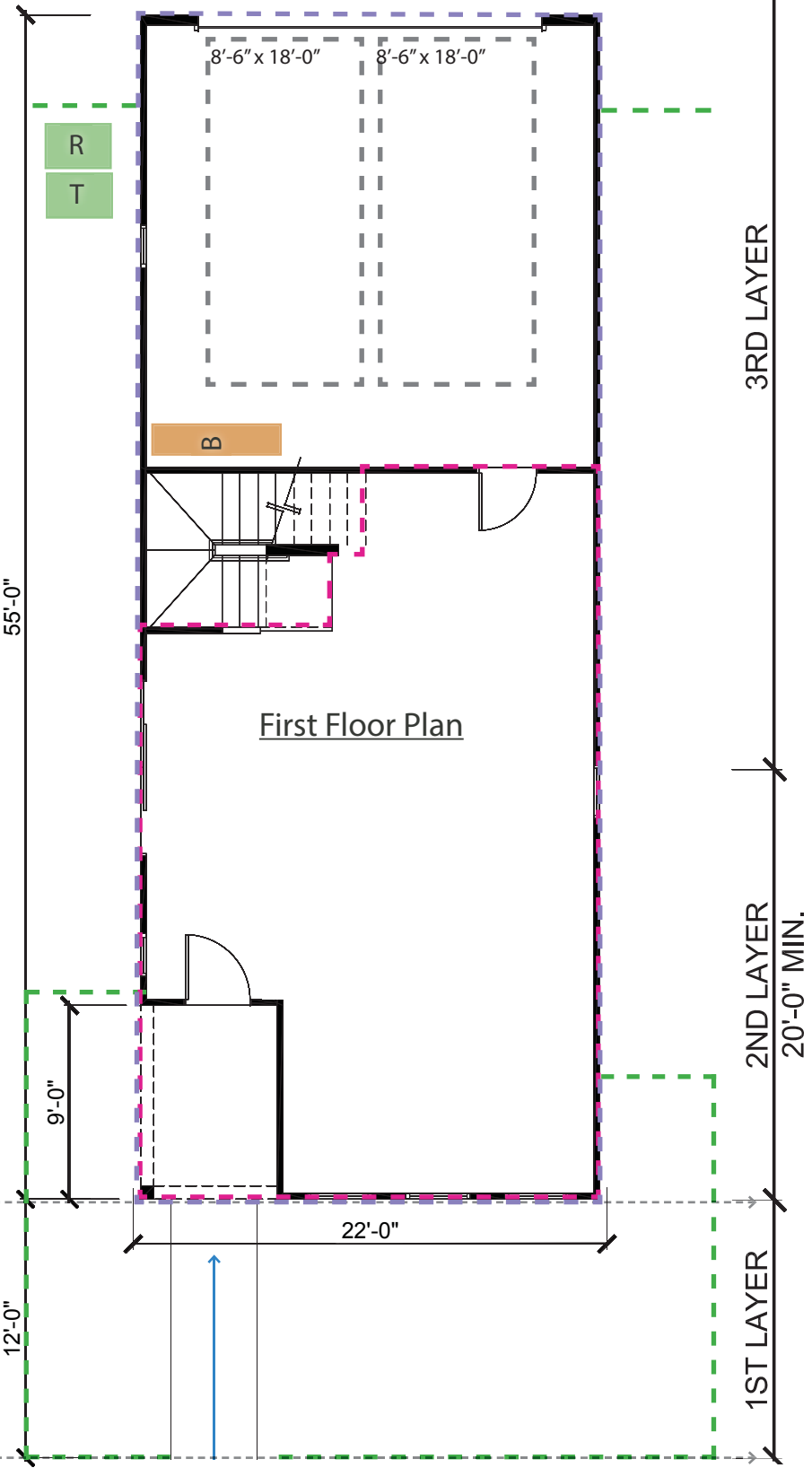


Conceptual Plot Plan

Scale: 1/8" = 1'-0"



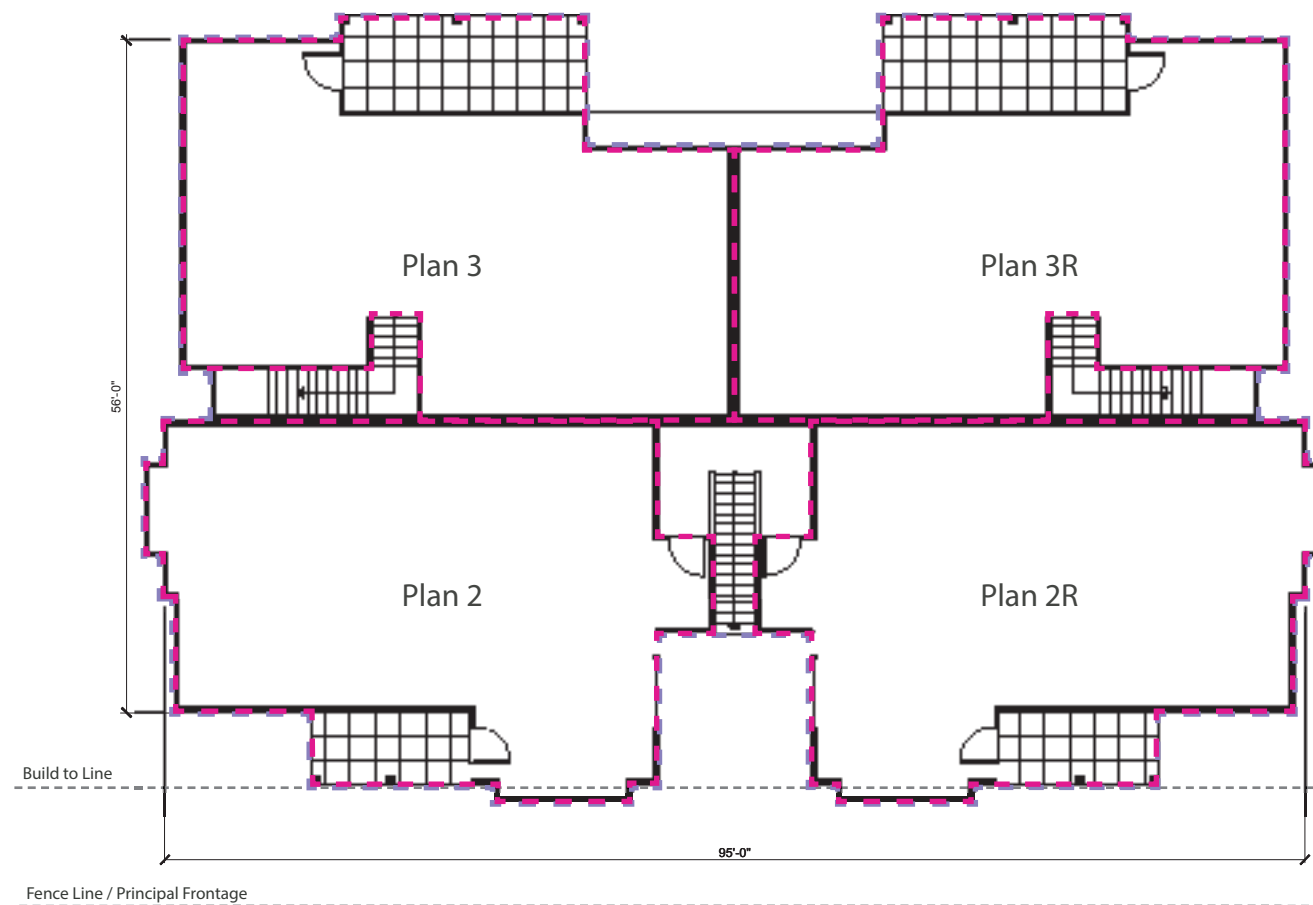
Second Floor Plan



First Floor Plan

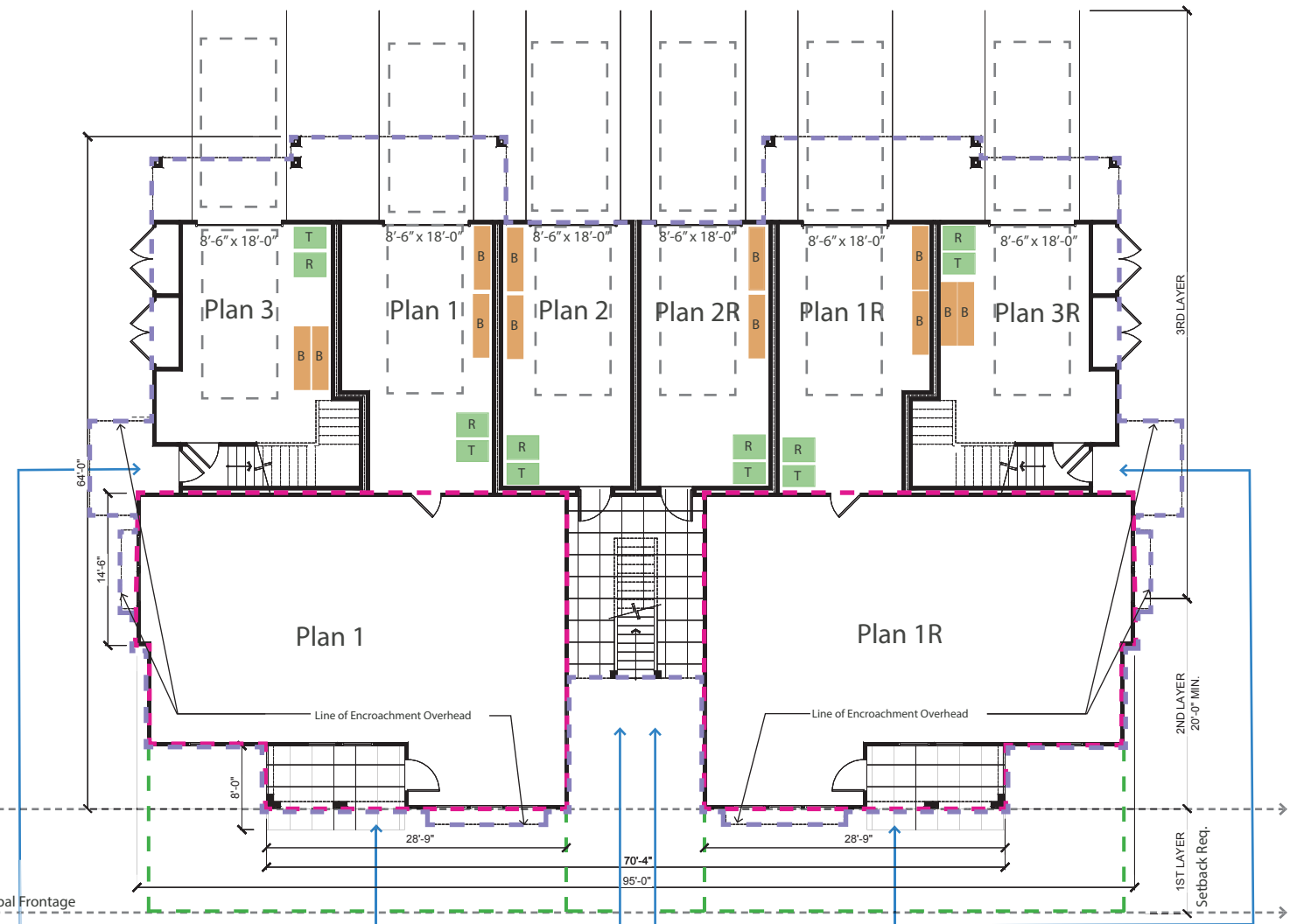
Scale: 1/4" = 1'-0"





Second Floor Plan

Flex Loft 6-Plex



First Floor Plan

Flex Loft 6-Plex

## Flex Loft Req. Breakdown

### A. Pedestrian Access

Pedestrian Access To Front Door

### B. Frontage Occupancy @ Front Elevation

Total Building Length: 95'-0"

Total Building @ Occupancy Line: 70'-4"

Flex Loft Width @ Occupancy Line :28'-9"

Frontage Occupancy @ Side Elevation

Total Building Length: 64'-0"

Total Building @ Occupancy Line: 14'-6"

FlexLoft Width @ Occupancy Line: 14'-6"

### C. Floor Plate Ratio

First Floor Plate Area Total: 5,559 SF (100%)

Second Floor Plate Area Total: 5,361 SF (96.4%)

Gross Horizontal Areas Total: 10,920 SF

### D. Residential Floor Area

|           |         | Per Plan | Total Building |
|-----------|---------|----------|----------------|
| Plan 1/1R | Floor 1 | 1,156 SF | 2,312 SF       |
| Plan 2/2R | Floor 2 | 1,223 SF | 2,446 SF       |
| Plan 3/3R | Floor 2 | 1,290 SF | 2,580 SF       |
| Total:    |         |          | 7,338 SF       |

### E. Fence Location

Height 3'-0" front yard or side yard when facing thoroughfare

Height 6'-0" for side yard or rear yard.

### F. Trash Can & Bicycle Location

R T B

### G. Building Height: Overall Height: +/- 28' - 3"

### H. Parking Design & Location Standard Stall 8'-6" x 18'-0"



Scale: 1/8" = 1'-0"

Flex Loft Req. Breakdown

A. Pedestrian Access

Pedestrian Access To Front Door

B. Frontage Occupancy

Total Building Length: 130'-0"  
Total Building @ Occupancy Line: 105'-4"  
Flex Loft Width @ Occupancy Line: 28'-9" and 25'-0"  
Frontage Occupancy @ Side Elevation

Total Building Length: 64'-0"  
Total Building @ Occupancy Line: 46'-5 1/2"  
Flex Loft Width @ Occupancy Line: 27'-5 1/2" and 14'-6"

C. Floor Plate Ratio

First Floor Plate Area Total: 7,642 SF (100%)  
Second Floor Plate Area Total: 7,323 SF (96%)  
Gross Horizontal Areas Total: 14,965 SF

D. Residential Unit Floor Area

|           |           | Per Plan        | Total Building |
|-----------|-----------|-----------------|----------------|
| Plan 1/1R | Floor 1   | 1,156 SF        | 2,312 SF       |
| Plan 2/2R | Floor 2   | 1,223 SF        | 2,446 SF       |
| Plan 3/3R | Floor 2   | 1,290 SF        | 2,580 SF       |
| Plan 4    | Floor 2   | 1,100 SF        | 1,100 SF       |
| Plan 5    | Floor 1/2 | 674 SF / 650 SF | 1,324 SF       |
| Total:    |           |                 | 9,762 SF       |

E. Fence Location

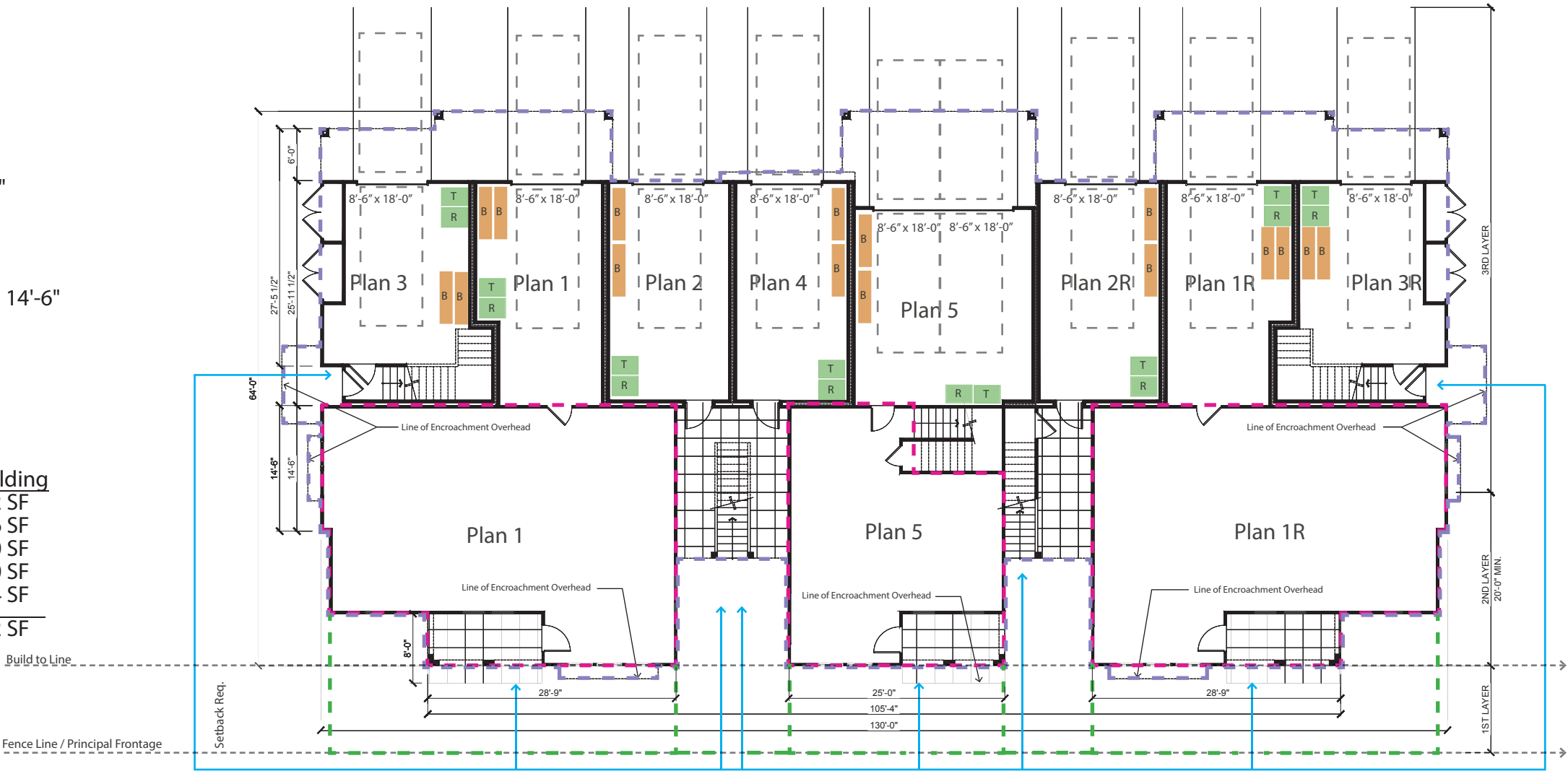
Height 3'-0" front yard or side yard when facing thoroughfare  
Height 6'-0" for side yard or rear yard.

F. Trash Can & Bicycle Location

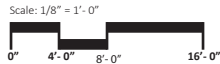
R T B

G. Building Height: Overall Height: +/- 28' - 3"

H. Parking Design & Location  
Standard Stall 8'-6" x 18'-0"



First Floor Plan  
Flex Loft 8-Plex



Flex Loft Req. Breakdown

A. Pedestrian Access

Pedestrian Access To Front Door

B. Frontage Occupancy

Total Building Length: 130'-0"  
Total Building @ Occupancy Line: 105'-4"  
Flex Loft Width @ Occupancy Line: 28'-9" and 25'-0"  
Frontage Occupancy @ Side Elevation  
Total Building Length: 64'-0"  
Total Building @ Occupancy Line: 46'-5 1/2"  
Flex Loft Width @ Occupancy Line: 27'-5 1/2" and 14'-6"

C. Floor Plate Ratio

First Floor Plate Area Total: 7,642 SF (100%)  
Second Floor Plate Area Total: 7,323 SF (96%)  
Gross Horizontal Areas Total: 14,965 SF

D. Residential Unit Floor Area

|           |           | Per Plan        | Total Building |
|-----------|-----------|-----------------|----------------|
| Plan 1/1R | Floor 1   | 1,156 SF        | 2,312 SF       |
| Plan 2/2R | Floor 2   | 1,223 SF        | 2,446 SF       |
| Plan 3/3R | Floor 2   | 1,290 SF        | 2,580 SF       |
| Plan 4    | Floor 2   | 1,100 SF        | 1,100 SF       |
| Plan 5    | Floor 1/2 | 674 SF / 650 SF | 1,324 SF       |
| Total:    |           |                 | 9,762 SF       |

E. Fence Location

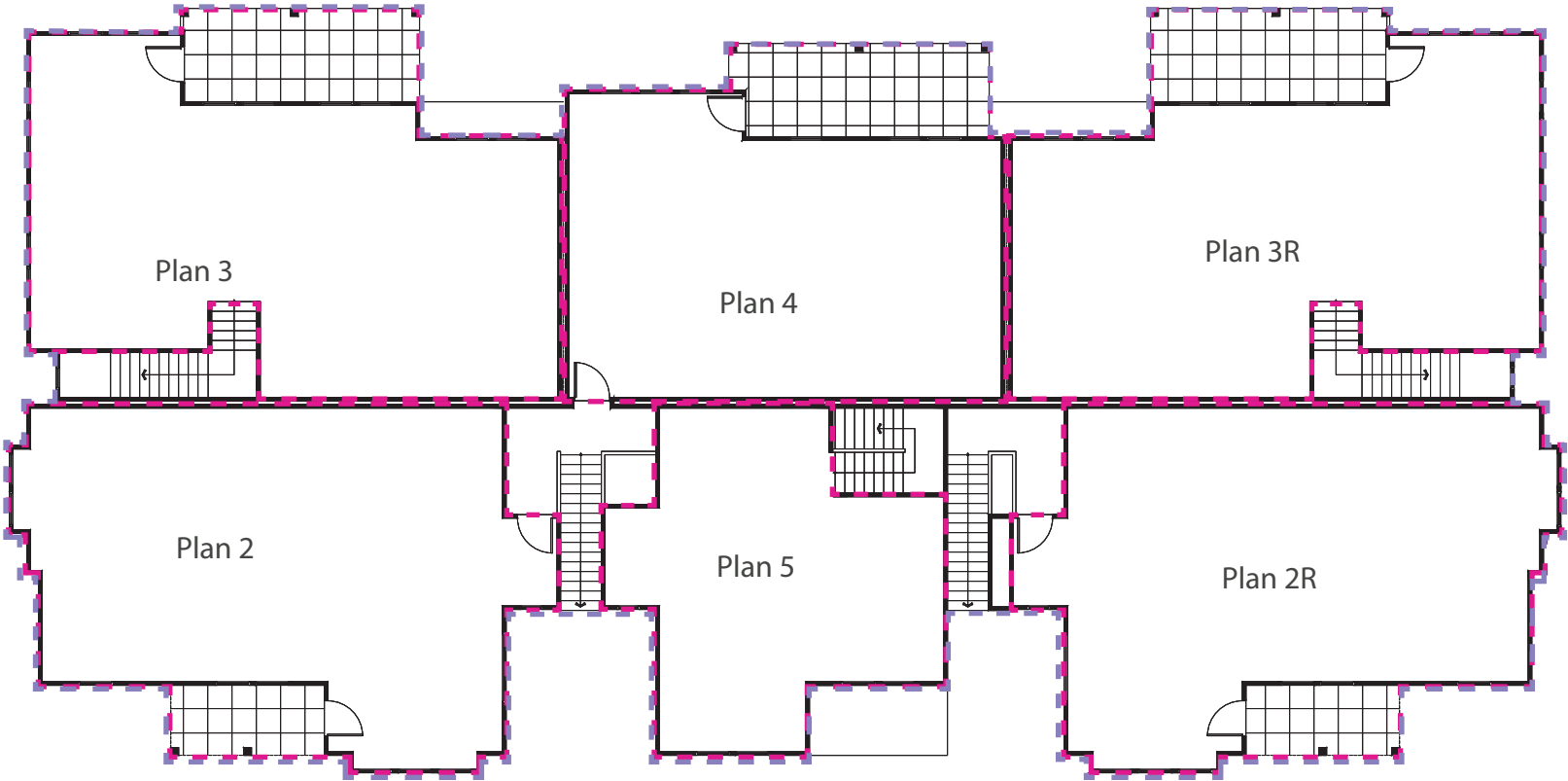
Height 3'-0" front yard or side yard when facing thoroughfare  
Height 6'-0" for side yard or rear yard.

F. Trash Can & Bicycle Location

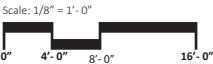


G. Building Height: Overall Height: +/- 28' - 3"

H. Parking Design & Location  
Standard Stall 8'-6" x 18'-0"

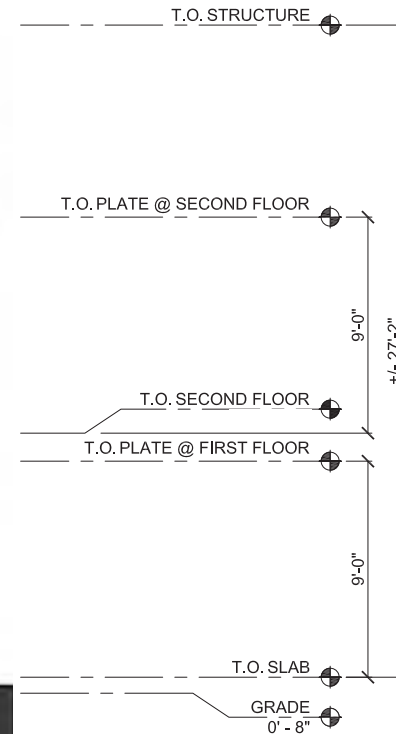


Second Floor Plan  
Flex Loft 8-Plex

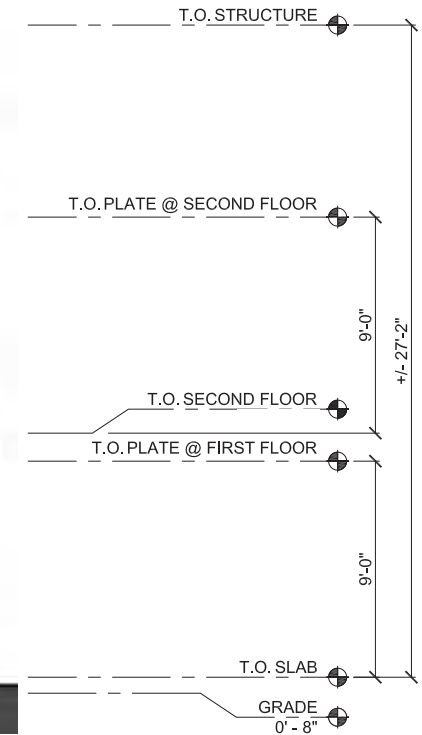




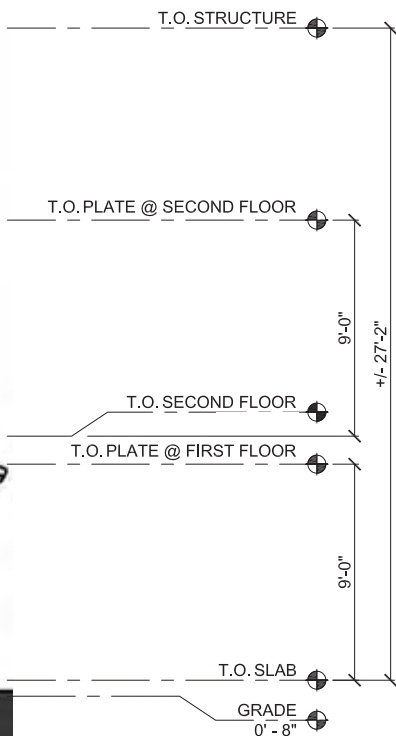
Right Elevation



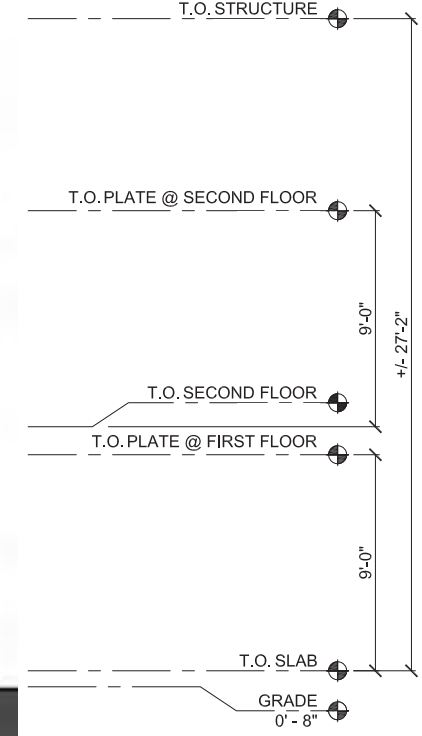
Rear Elevation



Left Elevation



Front Elevation



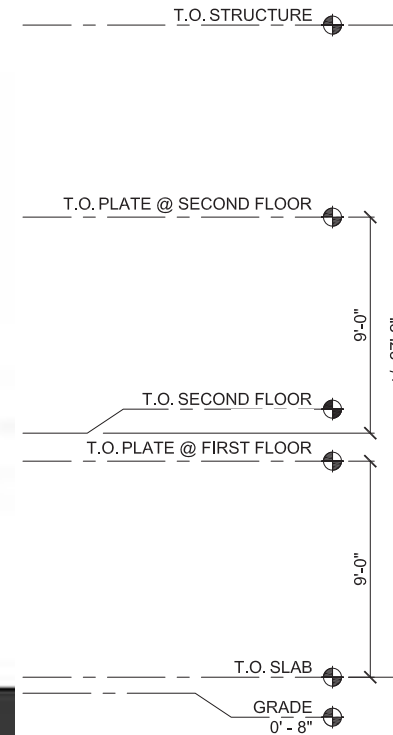
Scale: 1/4" = 1' - 0"



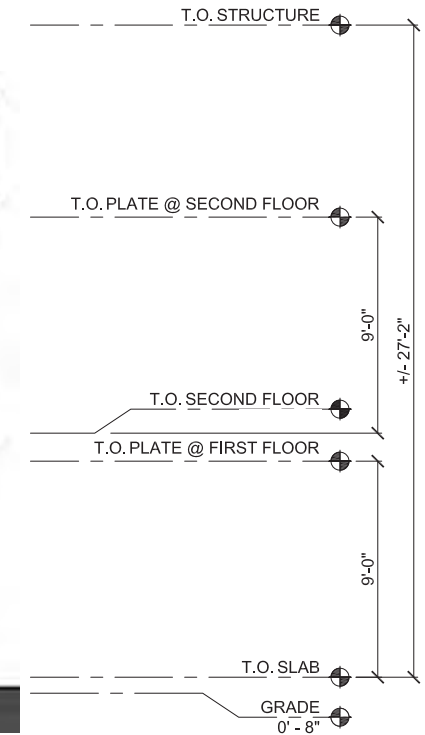




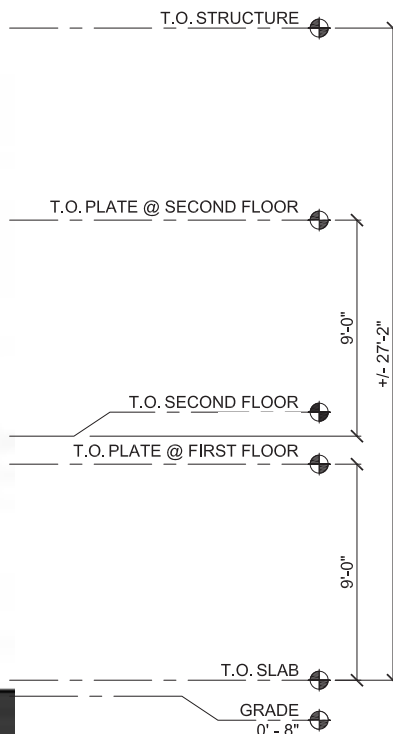
Right Elevation



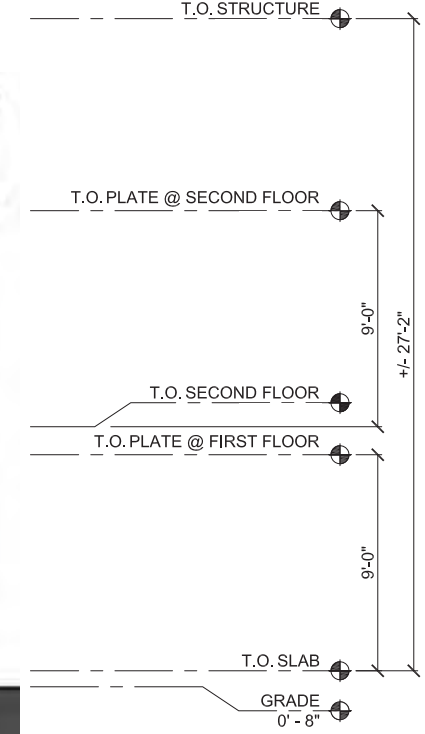
Rear Elevation



Left Elevation

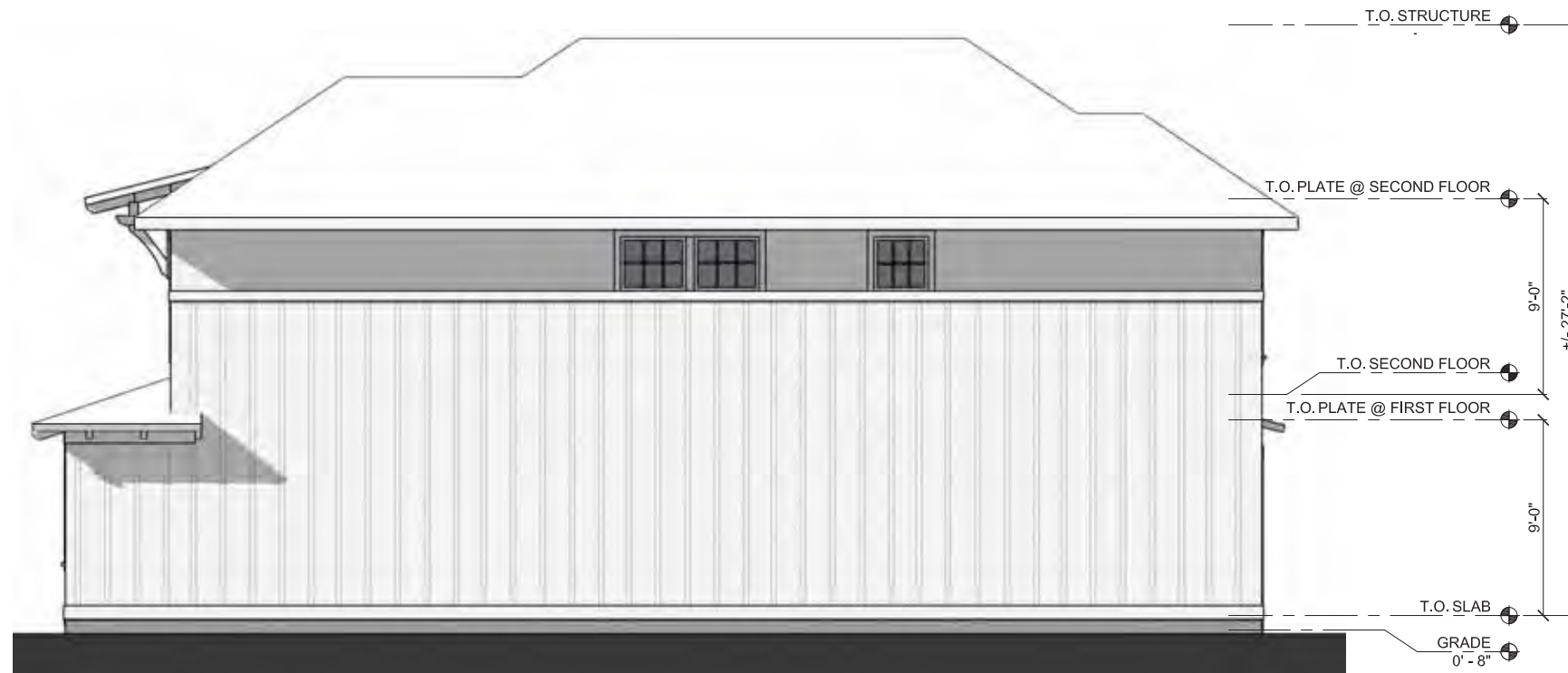


Front Elevation



Scale: 1/4" = 1'- 0"





Right Elevation



Rear Elevation



Left Elevation



Front Elevation

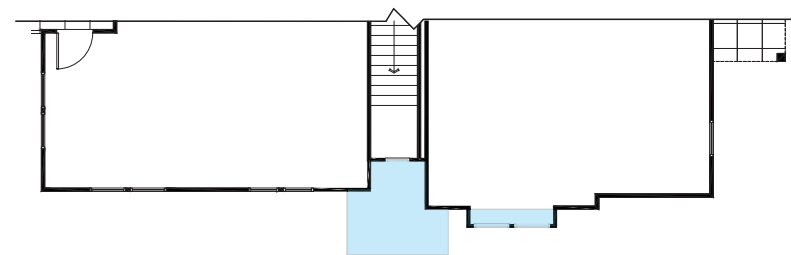
Scale: 1/4" = 1' - 0"





Left Elevation  
(Right Similar)

Encroaching Element



Second Floor Plan Reference

## B. Building Massing: Side Elevation

NOTE: Optional Side Elevation Encroachment: only applies at locations where side facade is at build to line  
 Encroaching Elements: 261 SF  
 Building Facade @ Build to Line: 367 SF - - - -  
 Percentage of Encroaching Elements past Build to Line: 71%



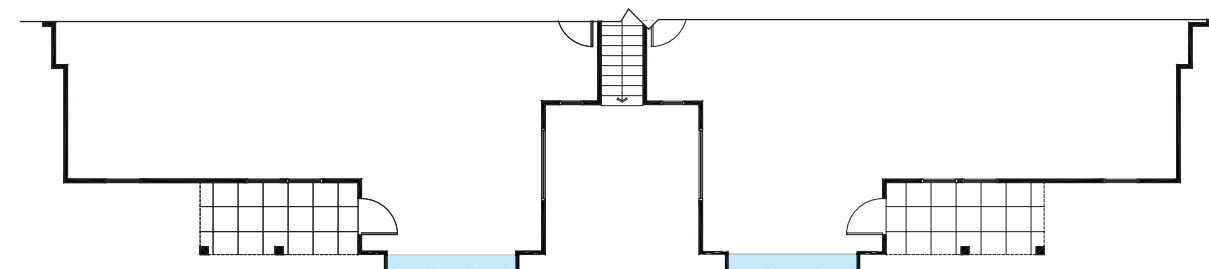
Rear Elevation



Building Facade @ Build to Line

Front Elevation

Encroaching Element



Second Floor Plan Reference

## A. Building Massing: Front Elevation

Front Facade Encroachment:  
 Encroaching Elements @ Build to Line: 304 SF  
 Building Facade @ Build-to-Line: 1,262 SF - - - -  
 Percentage of Encroaching Elements past Build to Line: 25%

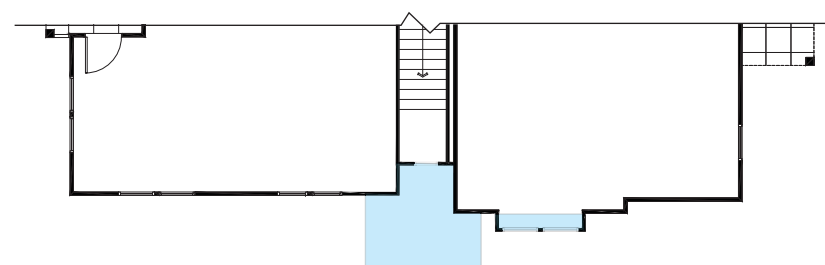
Scale: 1/8" = 1'-0"  
 0' 4'-0" 8'-0" 16'-0"





Left Elevation  
(Right Similar)

Encroaching Element



Floor Plan Reference

## B. Building Massing: Side Elevation

NOTE: Optional Side Elevation Encroachment: only applies at locations where side facade is at build to line

Encroaching Elements: 224 SF

Building Facade @ Build to Line: 367 SF - - - -

Percentage of Encroaching Elements past Build to Line: 61%



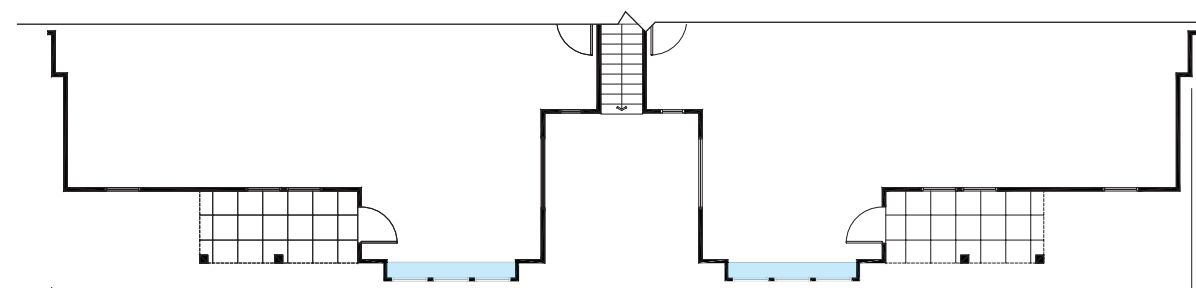
Rear Elevation



Building Facade @ Build to Line

Front Elevation

Encroaching Element



Floor Plan Reference

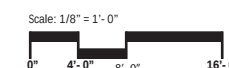
## A. Building Massing: Front Elevation

Front Facade Encroachment:

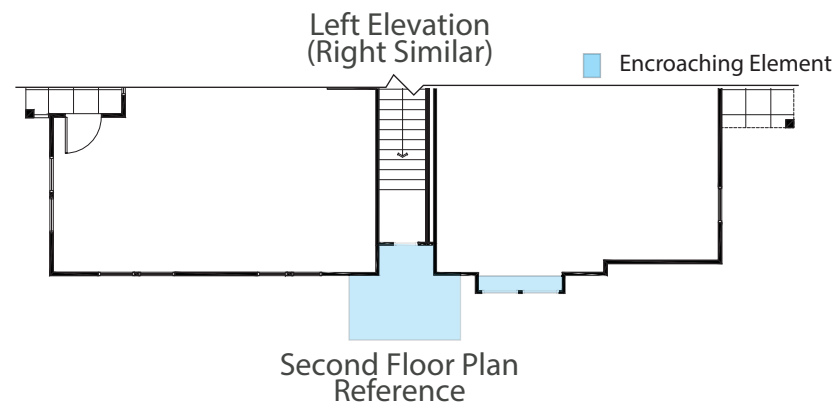
Encroaching Elements @ Build to Line: 526 SF

Building Facade @ Build to Line: 1,476 SF - - - -

Percentage of Encroaching Elements past Build to Line: 36%







B. Building Massing: Side Elevation

NOTE: Optional Side Elevation Encroachment: only applies at locations where side facade is at build to line.

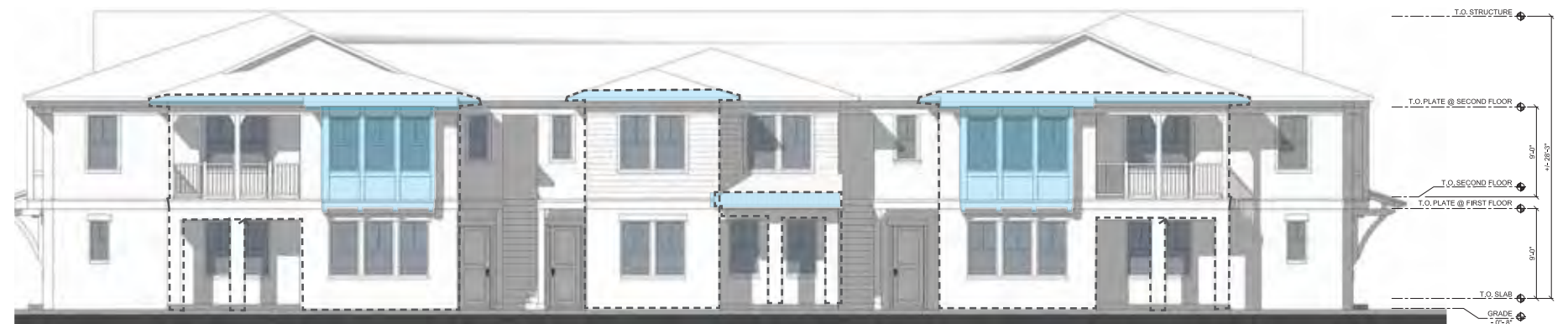
Encroaching Elements: 261 SF

Building Facade @ Build to Line: 890 SF - - - -

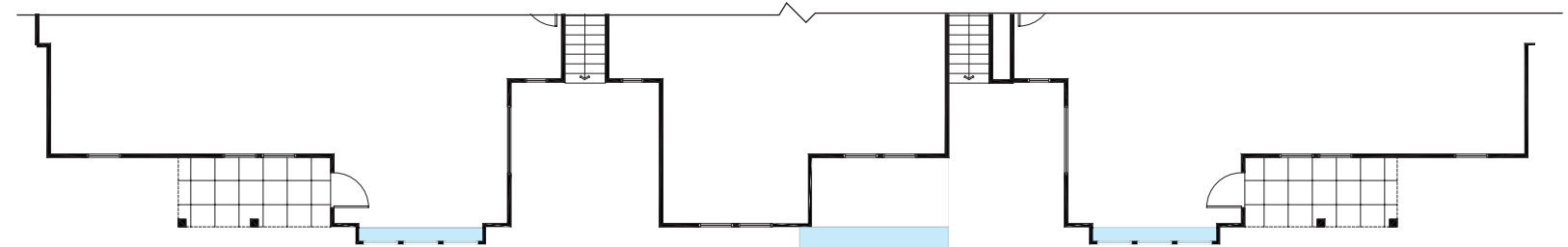
Percentage of Encroaching Elements past Build to Line: 29%



Rear Elevation



Front Elevation



A. Building Massing: Front Elevation

Second Floor Plan Reference

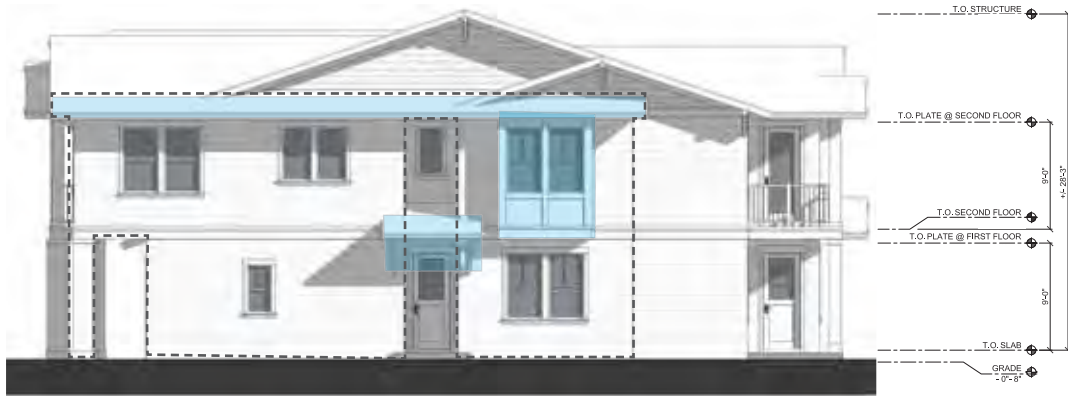
Front Facade Encroachment:

Encroaching Elements @ Build to Line: 342 SF

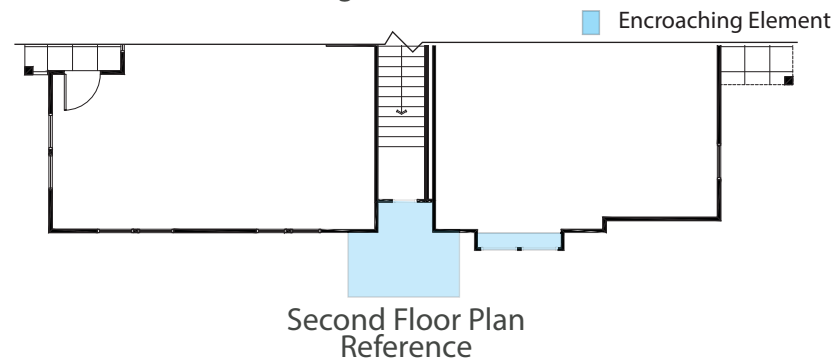
Building Facade @ Build to Line: 1,522 SF - - - -

Percentage of Encroaching Elements past Build to Line: 23%





Left Elevation  
(Right Similar)



Second Floor Plan  
Reference

#### B. Building Massing: Side Elevation

NOTE: Optional Side Elevation Encroachment: only applies at locations where side facade is at build to line.

Encroaching Elements: 224 SF

Building Facade @ Build to Line: 890 SF - - - -

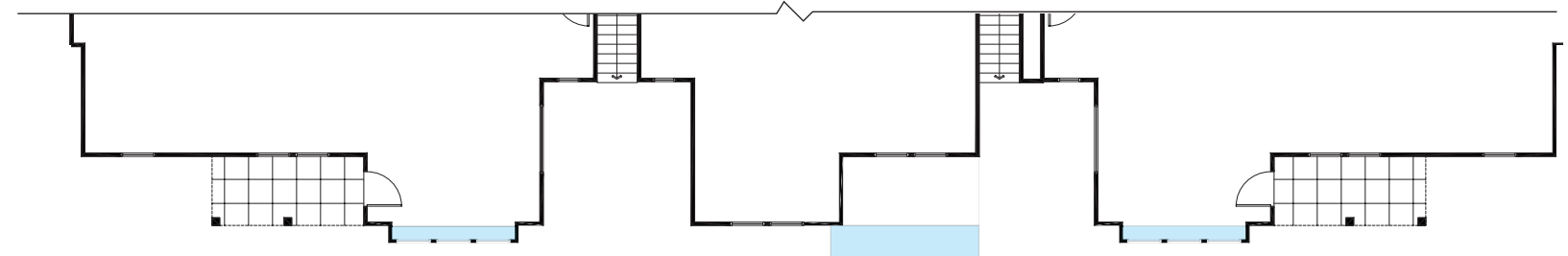
Percentage of Encroaching Elements past Build to Line: 25%



Rear Elevation



Front Elevation



Second Floor Plan  
Reference

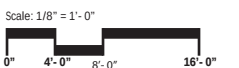
#### A. Building Massing: Front Elevation

Front Facade Encroachment:

Encroaching Elements @ Build to Line: 541 SF

Building Facade @ Build to Line: 1,741 SF - - - -

Percentage of Encroaching Elements past Build to Line: 31%







Landmark Solaris, shown in Aged Cedar

## LANDMARK SOLARIS®

### Solar Reflective Shingles

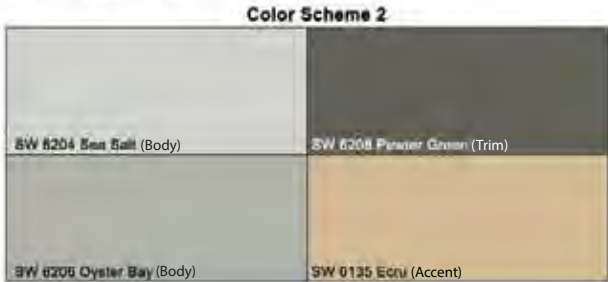
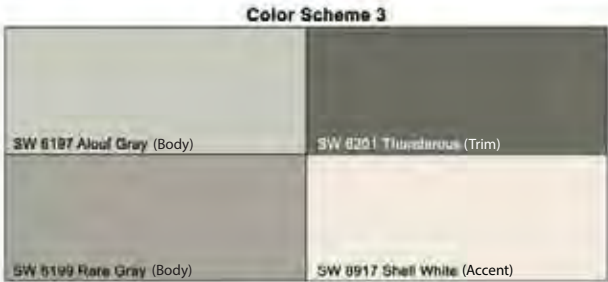
- Two-piece laminated fiberglass-based construction
- Classic shades and dimensional appearance of natural wood or slate
- Meets ENERGY STAR requirements
- Lifetime limited transferable warranty - residential\*
- 50-year limited transferable warranty - group-owned or commercial\*
- 15-year **StreetFighter®** algae-resistance warranty
- **NailTrak®** extra-wide nailing area for accurate installation
- 10-year SureStart™ protection
- 15-year 110 mph wind-resistance warranty
- Wind warranty upgrade to 130 mph available. CertainTeed starter and CertainTeed hip and ridge required

\* See warranty for specific details and limitations

### COLOR AVAILABILITY



### Kalaeloa - Exterior Paint Colors



**CertainTeed**  
SAINT-GOBAIN

## Technical Data Sheet

### Landmark Solaris®

#### PRODUCT INFORMATION

Landmark Solaris® innovative technology produces a shingle that reflects solar energy in a traditional color palette. All colors are rated by Cool Roof Rating Council (CRRC) and meet California's Title 24 requirements for cool steep slope roofing. Landmark Solaris shingles are manufactured using the same high standards as all CertainTeed roofing products and are covered by the same superior warranty protection. These shingles are available in "Metric" dimensions 13 1/4" x 38 3/4". This product also features CertainTeed's NailTrak® that offers a wider nailing area.



Landmark Solaris algae-resistant (AR) shingles have the additional attribute of resisting the growth of algae especially in damp regions. AR shingles are not available in all regions.

Colors: Please refer to product brochures or CertainTeed website for the colors available in your region.

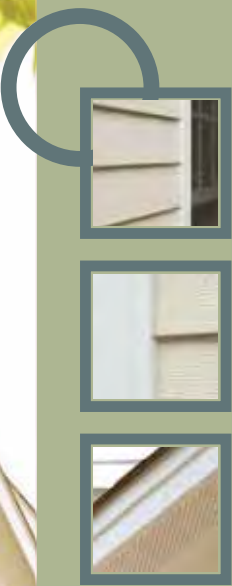
| Color              | CRRC Product ID# | Solar Radiative Properties |         |                   |         |                        |      | Energy Star Certified? |
|--------------------|------------------|----------------------------|---------|-------------------|---------|------------------------|------|------------------------|
|                    |                  | Solar Reflectance          |         | Thermal Emittance |         | Solar Reflective Index |      |                        |
|                    |                  | Initial                    | Aged    | Initial           | Aged    | Initial                | Aged |                        |
| Aged Cedar **      | 0668-0055        | 0.26                       | 0.24    | 0.92              | 0.90    | 28                     | 24   | Yes                    |
| Birchwood          | 0668-0084        | 0.21                       | 0.21    | 0.92              | 0.83    | 21                     | 17   | No                     |
| Burnt Sienna **    | 0668-0153        | 0.20                       | Pending | 0.92              | Pending | 20                     | 20 * | No                     |
| Crystal Gray **    | 0668-0058        | 0.27                       | 0.26    | 0.93              | 0.90    | 29                     | 27   | Yes                    |
| Georgetown Gray ** | 0668-0116        | 0.20                       | 0.20    | 0.91              | 0.92    | 19                     | 20   | No                     |
| Graphite **        | 0668-0155        | 0.21                       | Pending | 0.91              | Pending | 21                     | 21 * | No                     |
| Heather Blend **   | 0668-0117        | 0.20                       | 0.20    | 0.91              | 0.92    | 19                     | 20   | No                     |
| Mist White **      | 0668-0071        | 0.26                       | 0.28    | 0.92              | 0.90    | 28                     | 29   | Yes                    |
| Moire Black        | 0668-0129        | 0.19                       | 0.18    | 0.91              | 0.92    | 18                     | 17   | No                     |
| Mojave Tan         | 0668-0115        | 0.19                       | 0.20    | 0.88              | 0.90    | 17                     | 19   | No                     |
| Resawn Shake **    | 0668-0118        | 0.19                       | 0.20    | 0.92              | 0.93    | 19                     | 20   | No                     |
| Silver Birch **    | 0668-0072        | 0.26                       | 0.27    | 0.90              | 0.89    | 27                     | 28   | Yes                    |
| Weathered Wood **  | 0668-0119        | 0.20                       | 0.21    | 0.91              | 0.91    | 19                     | 21   | No                     |

\* Aged SRi is calculated using the California Energy Commission's Solar Reflective Index (SRi) Calculation Worksheet.

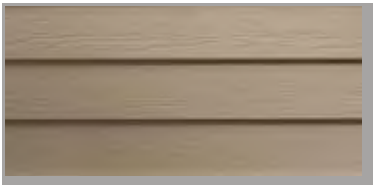
\*\* Product meets the cool roofing requirements of Green Building Standards Code of Los Angeles County for residential buildings.



**JamesHardie**  
Siding | Trim

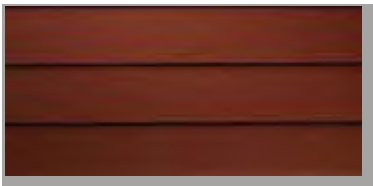


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**UNCOMPROMISING PERFORMANCE.**



#### SELECT CEDARMILL\*

|             |                       |                                     |
|-------------|-----------------------|-------------------------------------|
| Khaki Brown | Thickness             | 5/16 in.                            |
|             | Length                | 12 ft. planks                       |
|             | Width                 | 5.25 in. 6.25 in. 7.25 in. 8.25 in. |
|             | Exposure              | 4 in. 5 in. 6 in. 7 in.             |
|             | ColorPlus Pcs./Pallet | 324 280 252 210                     |
|             | Prime Pcs./Pallet     | 360 308 252 230                     |
|             | Pcs./Sq.              | 25.0 20.0 16.7 14.3                 |



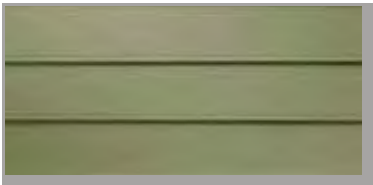
#### SMOOTH

|               |                       |                                     |
|---------------|-----------------------|-------------------------------------|
| Courtyard Red | Thickness             | 5/16 in.                            |
|               | Length                | 12 ft. planks                       |
|               | Width                 | 5.25 in. 6.25 in. 7.25 in. 8.25 in. |
|               | Exposure              | 4 in. 5 in. 6 in. 7 in.             |
|               | ColorPlus Pcs./Pallet | 324 280 252 210                     |
|               | Prime Pcs./Pallet     | 360 308 252 230                     |
|               | Pcs./Sq.              | 25.0 20.0 16.7 14.3                 |



#### BEADED CEDARMILL\*\*

|            |                       |               |
|------------|-----------------------|---------------|
| Light Mist | Thickness             | 5/16 in.      |
|            | Length                | 12 ft. planks |
|            | Width                 | 8.25 in.      |
|            | Exposure              | 7 in.         |
|            | ColorPlus Pcs./Pallet | 210           |
|            | Prime Pcs./Pallet     | 240           |
|            | Pcs./Sq.              | 14.3          |



#### BEADED SMOOTH\*

|                |                       |               |
|----------------|-----------------------|---------------|
| Heathered Moss | Thickness             | 5/16 in.      |
|                | Length                | 12 ft. planks |
|                | Width                 | 8.25 in.      |
|                | Exposure              | 7 in.         |
|                | ColorPlus Pcs./Pallet | 210           |
|                | Prime Pcs./Pallet     | 240           |
|                | Pcs./Sq.              | 14.3          |

\*Beaded CedarMill® and Beaded Smooth are available exclusively with ColorPlus Technology in Pittsburgh, Philadelphia and New England districts.

Products are available primed or with ColorPlus Technology finishes. For more details, visit [jameshardiepros.com](http://jameshardiepros.com)



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GENTRY KALAELOA, LLC

These graphics have been prepared for planning purposes and are subject to change as a result of the planning and/or permitting process.

## KA'ULU - EXHIBIT 17.1 TEXTURE, MATERIALS AND COLORS - EXTERIOR FINISHES





# Echelon Plus

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## VINYL THROUGHOUT

**NEW!**  
 Full privacy package with ultra aluminum insert in post has become a "star" due to its great price and "Legs" style design.

**NEW!**  
 New design with three rail rail in post creates convenience for shipping, handling and lowers the cost.

**NEW!**  
 New shadow box design with three rails in post creates convenience for shipping, handling and lowers the cost.

**NEW!**  
 Post caps and new accessories meet all your needs.

**MONO-EXTRUSION** is a process that injects a UV-protectant in the entire profile, having 100% coverage.
   
**CO-EXTRUSION** causes the profile to have only 20% coverage of UV-protectant, which is the cap stock and is only paper-thin.

**What is the difference?**  
 Just think about solid gold and plated gold.

**NEW COLORS AVAILABLE**  
 White, Tan, Blue gray

**TREND** As a sophisticated combination of tradition and technology, premium vinyl (PVC) fencing, constructed of high-tech polyvinyl compounds, has the same applications as wood fencing, but is maintenance-free and you'll never have to worry about painting, peeling, warping, termites, corrosion or rust. That is why the demand for PVC fencing, has been surging 20-30% annually and this year's growth could hit 50%.

**QUALITY** Not all vinyl fences are the same. Structure Vinyl Fence is manufactured with the highest industry UV protection with 100% virgin vinyl throughout. This insures long-term durability, flexibility & weatherability in even the harshest climates. Our patented unique design makes assembly & shipping much easier. Structure Vinyl Fence is built to last and backed with a lifetime limited warranty.

**AFFORDABLE** Efficient company system, our own manufacture, and favorable labor rates, allow us to produce a superior product at a cost that is good to your bottom line. Compare rates and see why Structure is your smart choice.

**LIFETIME LIMITED WARRANTY**

**CLASSIC™**  
 Echelon Plus Classic style boasts traditional extended pickets with an arrow-shaped spear. These pointed pickets act as a visual warning to potential intruders.

- 3 Rail / 4 Rail options available
- Flush or Standard bottom options available

**MAJESTIC™**

Echelon Plus Majestic has a contemporary feel that incorporates a flush top rail which produces a stately and streamlined appearance. This fence style highlights the landscape by blending with the surrounding architectural design.

- 3 Rail / 4 Rail options available
- Flush or Standard bottom options available

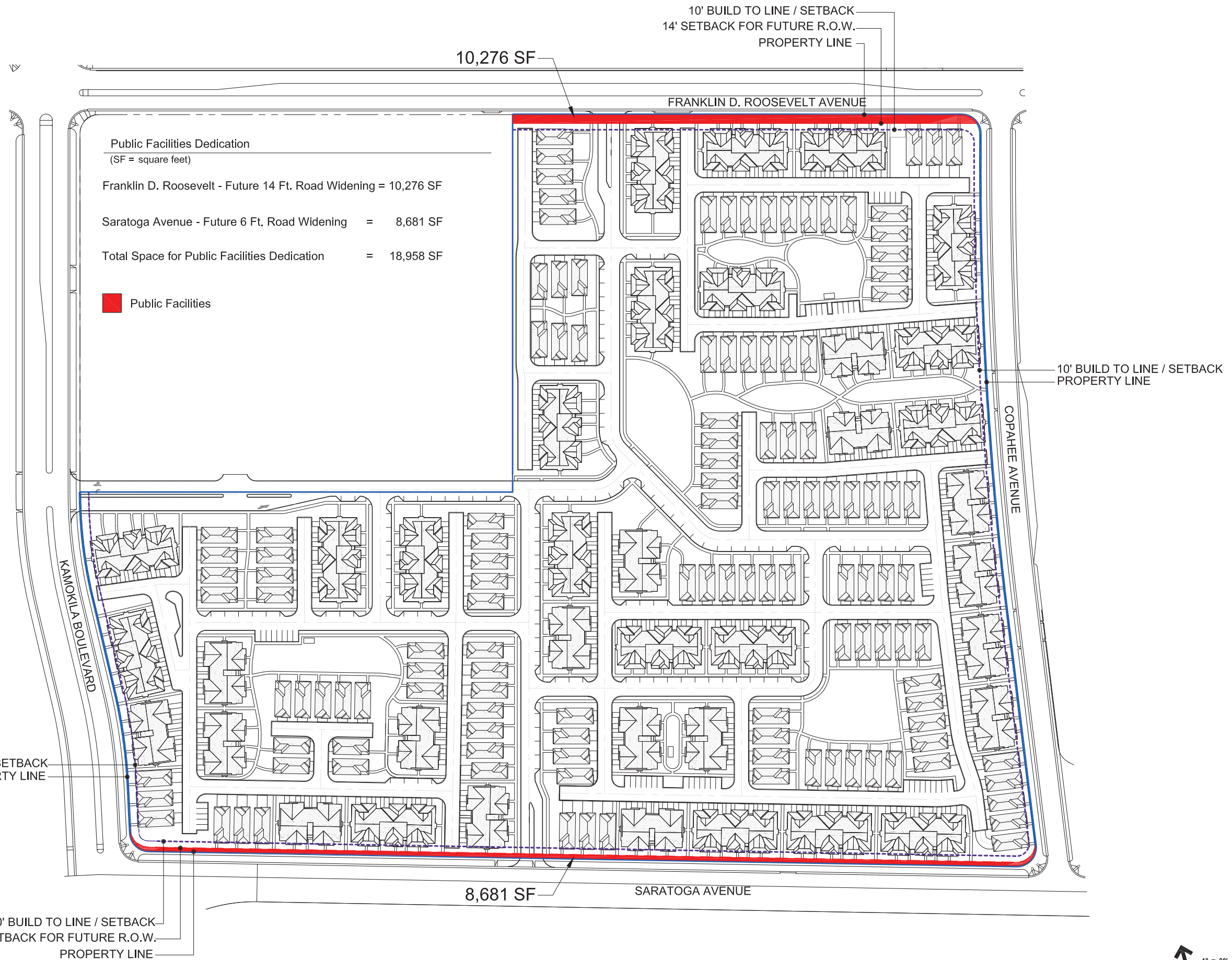
**GENESIS™**  
 Echelon Plus Genesis has sleek lines of unadorned square pickets that are reminiscent of solid vertical bar wrought iron. The extended flat-topped tips can also be accented with decorative finials to enhance the fence design.

- 3 Rail / 4 Rail options available
- Flush or Standard bottom options available

Learn more online at [ameristarfence.com](http://ameristarfence.com) or by calling 888-333-3422

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DEVELOPMENT AUTHORITY**

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DAVID Y. IGE  
GOVERNOR

JOHN WHALEN  
CHAIR

DEEPAK NEUPANE, P.E., AIA  
EXECUTIVE DIRECTOR

December 18, 2020

Quentin Machida  
President and CEO  
Gentry Homes, LTD.  
733 Bishop Street, Suite 1400  
Honolulu, Hawaii 96813

Dear Mr. Machida,

Re: Response to Gentry's Questions Relating to the Development of  
Parcel 1 in Kalaeloa

Thank you for your letter dated, November 12, 2020, the Hawaii Community Development Authority (HCDA) provides the following response to the questions you posed in your letter:

- 1) §15-215-64 Dedication of public facilities. Question:  
Would you please confirm that the internal private roads, parks, pedestrian ways, and land set aside for future widening public roads would be considered "public facilities?"

*Response:*

- *Internal private driveways and pedestrian ways serving the project only would not be considered public facilities.*
- *Parks will be considered as public facilities if they are open for general public use and not limited to use by only the residents of the development. Open space provided to meet the 'open space' and 'recreational space' requirements cannot be used to satisfy the public facility dedication requirement.*
- *The land set-aside for future road-widening can be considered a public facility, if the roadway is identified as a future street in the Kalaeloa Thoroughfare Plan. A new roadway that will be dedicated to the City and County of Honolulu (City) or an existing private roadway improved to City standards and intended to be dedicated to the City can qualify for public facility dedication requirement.*

- 2) §15-215-45 (b) Recreation space. and §15-215-46 Open space. Question:  
*Can a portion of the required 'open space' be utilized to satisfy the 'recreation space' requirement?*

*Response:*

- *Yes, if it qualifies as recreational use and provides recreational amenities, such as play structures, ball courts etc.*

*Passive landscaped areas do not qualify as recreation space. The developer should delineate 'open space' and 'recreation space' separately and demonstrate how both requirements are satisfied.*

Building Type Questions:

- 3) §15-215-38 Building type. Question:

Does, the prosed designs for the SF Condos meet the requirements of the *Front Yard House* Figure BT.1?

*Response: Yes*

- 4) §15-215-38 Building type. Question:

Does, the prosed designs for the MF 6-plex and 8-plex buildings meet the requirements for Figure BT.5?

*Response: Yes. Figure BT.5 Flex Lot allows for the proposed 6 and 8 plex buildings. Building massing requires that building elevations abutting side yards shall provide at least one horizontal plane break of at least 3 feet and one vertical break of at least 2 feet. For BT.5 Flex-Loft building typology permitted frontage types are Porch and Fence, Terrace or Lightwell, Stoop, Shopfront, Gallery and Arcade. A common yard frontage is not permitted.*

- 5) Per § 15-216-17, Requirement for reserved housing units. Every developer applying for a development permit for approval to construct multi-family dwelling units on a lot greater than 40,000 gross square feet shall construct and reserve at least twenty per cent of the total residential floor area as reserved housing units.

*Response: The reserved housing requirements would apply.*

If you have any questions please contact Tesha Malama, Kalaeloa Director of Planning and Development at [tesha.malama@hawaii.gov](mailto:tesha.malama@hawaii.gov) or 808-372-3562.

Sincerely,



Deepak Neupane, P.E., AIA  
Executive Director

c: Tom Schnell, PBR

## Reserved Housing Requirement Calculation

Exhibit 19

| Type                         | Bedrooms/<br>Bathrooms | Total Units | SF per unit<br>Floor Area | Total SF       | Market     |                | Reserved  |                | Parking<br>Provided |
|------------------------------|------------------------|-------------|---------------------------|----------------|------------|----------------|-----------|----------------|---------------------|
|                              |                        |             |                           |                | Units      | Floor Area     | Units     | Floor Area     |                     |
| Front Yard House, Plan 1, 1R | 3 BR / 2.5 BA          | 42          | 1,513                     | 63,546         | 42         | 63,546         | 0         | 0              | 84                  |
| Front Yard House, Plan 2, 2R | 3 BR / 2.5 BA          | 43          | 1,573                     | 67,639         | 43         | 67,639         | 0         | 0              | 86                  |
| Front Yard House, Plan 3, 3R | 3 BR / 2.5 BA          | 43          | 1,591                     | 68,413         | 43         | 68,413         | 0         | 0              | 86                  |
| 6-Plex Flex Loft, Plan 1, 1R | 2 BR / 2 BA            | 34          | 1,156                     | 39,304         | 34         | 39,304         | 0         | 0              | 68                  |
| 6-Plex Flex Loft, Plan 2, 2R | 3 BR / 2 BA            | 34          | 1,223                     | 41,582         | 0          | 0              | 34        | 41,582         | 68                  |
| 6-Plex Flex Loft, Plan 3, 3R | 3 BR / 2 BA            | 34          | 1,290                     | 43,860         | 34         | 43,860         | 0         | 0              | 68                  |
| 8-Plex Flex Loft, Plan 1, 1R | 2 BR / 2 BA            | 40          | 1,156                     | 46,240         | 40         | 46,240         | 0         | 0              | 80                  |
| 8-Plex Flex Loft, Plan 2, 2R | 3 BR / 2 BA            | 40          | 1,223                     | 48,920         | 0          | 0              | 40        | 48,920         | 80                  |
| 8-Plex Flex Loft, Plan 3, 3R | 3 BR / 2 BA            | 40          | 1,290                     | 51,600         | 40         | 51,600         | 0         | 0              | 80                  |
| 8-Plex Flex Loft, Plan 4     | 2 BR / 2 BA            | 20          | 1,100                     | 22,000         | 7          | 7,700          | 13        | 14,300         | 40                  |
| 8-Plex Flex Loft, Plan 5     | 2 BR / 2.5 BA          | 20          | 1,324                     | 26,480         | 20         | 26,480         | 0         | 0              | 40                  |
| <b>TOTAL</b>                 |                        | <b>390</b>  |                           | <b>519,584</b> | <b>303</b> | <b>414,782</b> | <b>87</b> | <b>104,802</b> | <b>780</b>          |
|                              |                        |             |                           |                |            | <b>79.8%</b>   |           | <b>20.2%</b>   |                     |



# APPENDICES

**APPENDIX A**  
***LEED Certification Review***  
***Letter and Scorecard***



**GREEN  
BUILDING  
HAWAII**  
A division of EnergyLogic

PO Box 792005, Pā'ia, HI 96779  
greenbuildinghawaii.com  
+1 (808) 873-2040

## Kalaeloa Parcel 1- LEED Certification Review

To Whom it May Concern:

Green Building Hawaii, the premier green and sustainable building inspection and ratings consulting firm in the State, has reviewed the preliminary plans for the Gentry Homes project known as Kalaeloa Parcel 1. After review of drawings, location, known building practices, and product selections, we are confident that under the LEED-Homes version 4 rating system the project could earn a Gold level certification with an estimated 62 points. As a residential multifamily low rise project, the applicable rating system would be Residential BD&C (also known as LEED for Homes) rating system.

In our analysis, we have determined that the project would meet the minimum HCDA required points in the following areas:

SS - heat island reduction using energy star qualified roofing products;

SS - Stormwater runoff by controlling stormwater runoff from at least a 95<sup>th</sup> percentile rain event.

WE - Landscape water efficiency measures designed to achieve landscape water requirement reduction over baseline calculations.

The attached scorecard and LEED Homes checklist detail the expected points in each credit category.

To achieve LEED certification, projects must submit to inspections throughout the build process by a certified LEED Green Rater, undergo performance testing, and submit to review by the USGBC before being certified. While Green Building Hawaii (GBH) cannot guarantee LEED certification based on this preliminary review due to the outlined certification process, we are confident that Gentry Builders can successfully achieve a LEED Gold certification for this project.

This assessment is based on the working relationship that GBH has had with Gentry Builders for many years and our professional opinion that they are a top performing builder in the State. In addition, GBH is able to provide all the required inspections and testing for LEED certification for this project and can attest to Gentry Builder's ability to have all the required elements in place for a successful certification.

Please feel free to contact us with any questions related to the potential for LEED certification for this project.

Mahalo,

John Bendon

Founder, Green Building Hawaii  
Senior Business Development Manager, EnergyLogic

**Kalaeloa Parcel 1 Scorecard (ID: )**

Project Address USA

Note: The information on this tab is READ-ONLY. To edit this information, see the Credit Category tabs.



| Integrative Process |                     | Preliminary | Y | 1 of 2 | M | 0 | Verified | 0 |
|---------------------|---------------------|-------------|---|--------|---|---|----------|---|
| IPc                 | Integrative Process |             |   | 1 of 2 |   | 0 |          |   |



| Location and Transportation |                                   | Preliminary | Y | 7 of 15  | M | 3 | Verified | 0            |
|-----------------------------|-----------------------------------|-------------|---|----------|---|---|----------|--------------|
| LTP                         | Floodplain Avoidance              |             |   | Required |   |   |          | Not Verified |
| <i>Performance Path</i>     |                                   |             |   |          |   |   |          |              |
| LTc                         | LEED for Neighborhood Development |             |   | 0 of 15  |   | 0 |          |              |
| <i>Prescriptive Path</i>    |                                   |             |   |          |   |   |          |              |
| LTc                         | Site Selection                    |             |   | 4 of 8   |   | 2 |          |              |
| LTc                         | Compact Development               |             |   | 2 of 3   |   | 1 |          |              |
| LTc                         | Community Resources               |             |   | 1 of 2   |   | 0 |          |              |
| LTc                         | Access to Transit                 |             |   | 0 of 2   |   | 1 |          |              |



| Sustainable Sites |                                            | Preliminary | Y | 4 of 7   | M | 0 | Verified | 0            |
|-------------------|--------------------------------------------|-------------|---|----------|---|---|----------|--------------|
| SSp               | Construction Activity Pollution Prevention |             |   | Required |   |   |          | Not Verified |
| SSp               | No Invasive Plants                         |             |   | Required |   |   |          | Not Verified |
| SSc               | Heat Island Reduction                      |             |   | 2 of 2   |   | 0 |          |              |
| SSc               | Rainwater Management                       |             |   | 0 of 3   |   | 0 |          |              |
| SSc               | Nontoxic Pest Control                      |             |   | 2 of 2   |   | 0 |          |              |



| Water Efficiency         |                   | Preliminary | Y | 7 of 12  | M | 1 | Verified | 0            |
|--------------------------|-------------------|-------------|---|----------|---|---|----------|--------------|
| WEp                      | Water Metering    |             |   | Required |   |   |          | Not Verified |
| <i>Performance Path</i>  |                   |             |   |          |   |   |          |              |
| WEc                      | Total Water Use   |             |   | 7 of 12  |   | 0 |          |              |
| <i>Prescriptive Path</i> |                   |             |   |          |   |   |          |              |
| WEc                      | Indoor Water Use  |             |   | 0 of 6   |   | 1 |          |              |
| WEc                      | Outdoor Water Use |             |   | 0 of 4   |   | 0 |          |              |



| Energy and Atmosphere                     |                                                        | Preliminary | Y | 30 of 38 | M | 0 | Verified | 27           |
|-------------------------------------------|--------------------------------------------------------|-------------|---|----------|---|---|----------|--------------|
| EAp                                       | Minimum Energy Performance                             |             |   | Required |   |   |          | Not Verified |
| EAp                                       | Energy Metering                                        |             |   | Required |   |   |          | Not Verified |
| EAp                                       | Education of the Homeowner, Tenant or Building Manager |             |   | Required |   |   |          | Not Verified |
| <i>Performance Path</i>                   |                                                        |             |   |          |   |   |          |              |
| EAc                                       | Annual Energy Use                                      |             |   | 27 of 29 |   | 0 |          | 27           |
| <i>Performance and Prescriptive Paths</i> |                                                        |             |   |          |   |   |          |              |
| EAc                                       | Efficient Hot Water Distribution System                |             |   | 2 of 5   |   | 0 |          |              |
| EAc                                       | Advanced Utility Tracking                              |             |   | 1 of 2   |   | 0 |          |              |
| EAc                                       | Active Solar-Ready Design                              |             |   | 0 of 1   |   | 2 |          |              |
| EAc                                       | HVAC Start-Up Credentialing                            |             |   | 0 of 1   |   | 0 |          |              |
| <i>Prescriptive Path</i>                  |                                                        |             |   |          |   |   |          |              |
| EAp                                       | Home Size                                              |             |   | Required |   |   |          | Not Verified |
| EAc                                       | Building Orientation for Passive Solar                 |             |   | 0 of 3   |   | 0 |          |              |
| EAc                                       | Air Infiltration                                       |             |   | 0 of 2   |   | 0 |          |              |
| EAc                                       | Envelope Insulation                                    |             |   | 0 of 2   |   | 0 |          |              |
| EAc                                       | Windows                                                |             |   | 0 of 3   |   | 0 |          |              |
| EAc                                       | Space Heating & Cooling Equipment                      |             |   | 0 of 4   |   | 0 |          |              |
| EAc                                       | Heating & Cooling Distribution Systems                 |             |   | 0 of 3   |   | 0 |          |              |
| EAc                                       | Efficient Domestic Hot Water Equipment                 |             |   | 0 of 3   |   | 0 |          |              |
| EAc                                       | Lighting                                               |             |   | 0 of 2   |   | 0 |          |              |
| EAc                                       | High-Efficiency Appliances                             |             |   | 0 of 2   |   | 0 |          |              |
| EAc                                       | Renewable Energy                                       |             |   | 0 of 4   |   | 0 |          |              |





| Materials and Resources |                                     | Preliminary | Y | 2.5 of 10 | M | 1            | Verified | 0 |
|-------------------------|-------------------------------------|-------------|---|-----------|---|--------------|----------|---|
| MRp                     | Certified Tropical Wood             | Required    |   |           |   | Not Verified |          |   |
| MRp                     | Durability Management               | Required    |   |           |   | Not Verified |          |   |
| MRc                     | Durability Management Verification  | 1 of 1      |   | 0         |   |              |          |   |
| MRc                     | Environmentally Preferable Products | 0.5 of 4    |   | 0         |   |              |          |   |
| MRc                     | Construction Waste Management       | 0 of 3      |   | 0.5       |   |              |          |   |
| MRc                     | Material-Efficient Framing          | 1 of 2      |   | 0.5       |   |              |          |   |



| Indoor Environmental Quality |                                                       | Preliminary | Y | 6 of 16 | M | 3.5          | Verified | 0 |
|------------------------------|-------------------------------------------------------|-------------|---|---------|---|--------------|----------|---|
| EQp                          | Ventilation                                           | Required    |   |         |   | Not Verified |          |   |
| EQp                          | Combustion Venting                                    | Required    |   |         |   | Not Verified |          |   |
| EQp                          | Garage Pollutant Protection                           | Required    |   |         |   | Not Verified |          |   |
| EQp                          | Radon-Resistant Construction                          | Required    |   |         |   | Not Verified |          |   |
| EQp                          | Air Filtering                                         | Required    |   |         |   | Not Verified |          |   |
| EQp                          | Environmental Tobacco Smoke                           | Required    |   |         |   | Not Verified |          |   |
| EQp                          | Compartmentalization                                  | Required    |   |         |   | Not Verified |          |   |
| EQc                          | Enhanced Ventilation                                  | 1 of 3      |   | 0       |   |              |          |   |
| EQc                          | Contaminant Control                                   | 0.5 of 2    |   | 0       |   |              |          |   |
| EQc                          | Balancing of Heating and Cooling Distribution Systems | 1 of 3      |   | 1       |   |              |          |   |
| EQc                          | Enhanced Compartmentalization                         | 1 of 1      |   | 0       |   |              |          |   |
| EQc                          | Combustion Venting                                    | 2 of 2      |   | 0       |   |              |          |   |
| EQc                          | Enhanced Garage Pollutant Protection                  | 0 of 2      |   | 1       |   |              |          |   |
| EQc                          | Low-Emitting Products                                 | 0.5 of 3    |   | 0.5     |   |              |          |   |



| Innovation |                              | Preliminary | Y | 1.5 of 6 | M | 0            | Verified | 0 |
|------------|------------------------------|-------------|---|----------|---|--------------|----------|---|
| INp        | Preliminary Rating           | Required    |   |          |   | Not Verified |          |   |
| INc        | Innovation                   | 0.5 of 5    |   | 0        |   |              |          |   |
| INc        | LEED Accredited Professional | 1 of 1      |   | 0        |   |              |          |   |



| Regional Priority |                   | Preliminary | Y | 3 of 4 | M | 0 | Verified | 0 |
|-------------------|-------------------|-------------|---|--------|---|---|----------|---|
| RPc               | Regional Priority | 3 of 4      |   | 0      |   |   |          |   |

#### Point Floors

The project earned at least 8 points total in Location and Transportation and Energy and Atmosphere

Yes

The project earned at least 3 points in Water Efficiency

No

The project earned at least 3 points in Indoor Environmental Quality

No

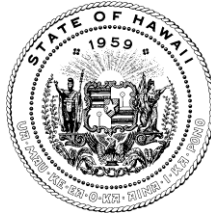
| Total | Preliminary | Y | 62 of 110 | M | 40.5 | Verified | 27 |
|-------|-------------|---|-----------|---|------|----------|----|
|-------|-------------|---|-----------|---|------|----------|----|

Certification Thresholds Certified: 40-49, Silver: 50-59, Gold: 60-79, Platinum: 80-110

## **APPENDIX B**

### ***SHPD Letter Accepting the Archeological Monitoring Plan***

DAVID Y. IGE  
GOVERNOR OF  
HAWAII



SUZANNE D. CASE  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA  
FIRST DEPUTY

M. KALEO MANUEL  
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

**STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES**

STATE HISTORIC PRESERVATION DIVISION  
KAKUHIHEWA BUILDING  
601 KAMOKILA BLVD., STE 555  
KAPOLEI, HI 96707

May 20, 2021

Deepak Neupane, P.E.  
Executive Director  
Hawaii Community Development Authority  
547 Queen Street  
Honolulu, Hawai'i 96817  
Email Reply only c/o Tesha Malama  
Tesha.malama@hawaii.gov

IN REPLY REFER TO:  
Project No.: 2021PR00172  
Submission No.: 2021PR00172.002  
Submission No.: 2021PR00172.003  
Doc. No.: 2105SH09  
Archaeology

Dear Deepak Neupane:

**SUBJECT: Chapter 6E-42 Historic Preservation Review –  
Proposed Development Project on 49.68-Acre Kalaeloa Parcel 1  
Revised Draft Archaeological Monitoring Plan  
Honouliuli Ahupua'a, 'Ewa District, Island of O'ahu  
TMK: (1) 9-1-013:002**

On February 16, 2021, the State Historic Preservation Division (SHPD) received a draft archaeological monitoring plan (AMP) titled, *Archaeological Monitoring Plan for a 49.68 – Acre Parcel ("Parcel 1") in Kalaeloa, Honouliuli Ahupua'a, 'Ewa District, O'ahu Island, Hawai'i TMK (1) 9-1-013:002* (Monohan, December 2020) for review and acceptance. In a letter dated March 31, 2021, the SHPD requested revisions to the draft AMP (Project No. 2021PR00172, Submission No. 2021PR00172.001, Doc. No. 2103SH11). On April 20, 2021, the SHPD received a letter from the Hawai'i Community Development Authority (HCDA) stating the revisions SHPD requested to the draft AMP have been made and a request for State Inventory of Historic Places (SIHP) Site Nos. was submitted to SHPD for historic properties identified within the project area. Accompanying HCDA's letter was the revised draft AMP (Submission No. 2021PR00172.002). On May 18, 2021 the SHPD requested two additional minor revisions (Email Correspondence; Stephanie Hacker [SHPD] to Tesha Malama [HCDA] and Jinny Cheung and Thomas Lee [Hunt Communities, LLC.]) which were completed and submitted to SHPD's HICRIS intake system on May 19, 2021 (Submission No. 2021PR00172.003).

The AMP was prepared in support of a project proposed by the landowner, Hunt Communities Hawaii LLC (Hunt), in coordination and overseen by the Hawai'i Community Development Authority (HCDA). The proposed project includes: (1) a 29.8-acre residential community of single and multi-family homes, (2) a 9.5-acre proposed Veterans Administration (VA) Multi- Specialty Outpatient Clinic, (3) an approximate 6-acre commercial center, including an approximate 3 acres designated for a drainage basin to address the storm water drainage for the commercial center and the VA clinic, and (4) a 108-ft.-wide Kamokila Boulevard extension bisecting the parcel. The proposed project is part of Hunt's master planning activities within the Kalaeloa Community Development District (Kalaeloa). Hunt is working with the HCDA on the planning, development and construction activities that are anticipated over the next five to ten years in Kalaeloa. Hunt has contracted TCP Hawai'i, LLC to aid in the Chapter 6E historic preservation review process and prepare the AMP.

In a letter dated December 22, 2020, the SHPD determined there is not sufficient data to concur with HCDA's Chapter 6E effect determination of "No historic properties affected" and requested archaeological monitoring be conducted by a qualified archaeologist for identification purposes during all ground disturbing activities required for the proposed project. The proposed project is a private project, therefore at the request of the HCDA, SHPD reissued its letter dated December 22, 2020 (Project No. 2020PR34823.001, Log No. 2020.02716, Doc. No. 2012SH07) to

Deepak Neupane, P.E.

May 20, 2021

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correct the applicable Hawai'i Revised Statutes (HRS) from HRS §6E-8 to HRS §6E-42 (SHPD Project No. 2020PR34823, Doc. No. 2102SH10).

Due to the long timeline associated with this project, which is projected to span up to ten years, as well as the presumed multiple construction teams and professionals which will be involved, the AMP requires that prior to starting on the project each individual that will be working on site shall undergo an orientation which outlines the provisions and requirements described in the AMP. This orientation shall foster an awareness of the requirement to have a minimum of one archaeologist on site to monitor *each* ground disturbing activity, the archaeologists authority to halt ground disturbing activities to investigate or record possible resource finds, and will identify the person or persons responsible for coordinating the schedule for activities which require archaeological monitoring, to ensure one or more archaeologists are on site to monitor project activities as required by this plan.

Additionally, the plan includes a stipulation that the construction personnel responsible for the scheduling and coordination of ground disturbing activities are acquainted with the archaeological monitoring professional(s) on a minimum of a quarterly basis to update contact information and ensure the required coordination is facilitated. It shall be the responsibility of the HCDA, the project proponent, the contracted archaeologist, and the construction personnel to adhere to the requirements of this plan. Lastly, the AMP includes a stipulation that the project proponent is responsible for keeping a log to keep track of all the project personnel who have received the archaeological monitoring requirements briefing.

SHPD has been made aware that over the course of the proposed project, more than one archaeological company may be contracted at a time to conduct archaeological monitoring for certain components of the overall project. Please note, the AMP must be provided to, and followed by, each archaeologist contracted for this project. **SHPD requests** a copy of this letter is provided to the contracted archaeological company as well, and recommends this letter be attached as an Appendix to the final AMP.

The revisions requested by SHPD were satisfactorily completed and the AMP meets the requirements of HAR §13-279-4. **It is accepted.** Please send one hard copy of the report, clearly labeled Final, along with a text-searchable PDF copy of the AMP and a copy of this acceptance letter to the SHPD Kapolei office, attention Library. Please send a text-searchable PDF copy of the report to HICRIS Project 2021PR00172 using the Project Supplement option, and a PDF copy of the AMP to [Lehua.K.Soareshawaii.gov](mailto:Lehua.K.Soareshawaii.gov).

On May 18, 2021, the SHPD received the requested information to assign SIHP Site numbers to the historic properties identified during a field inspection conducted by TCP Hawai'i, LLC in support of the proposed project. This request is currently under review. Once the SIHP Site numbers are assigned, **please submit** to SHPD's HICRIS intake system an updated Final Literature Review and Field Inspection (LRFI) report, which incorporates the SIHP Site numbers assigned to the documented historic properties, under the SHPD HICRIS Project Number 2021PR00172 using the Project Supplement option.

The proposed project has duplicate project numbers in HICRIS. This project was originally assigned Project Number 2020PR34823; Project Number 2021PR00172 will be the primary project number in which all materials related to this project shall be submitted moving forward. **Please submit** all forthcoming information and correspondence related to the subject project to the SHPD HICRIS system under Project 2021PR00172 using the Project Supplement option.

The HCDA is the office of record for this undertaking. Please maintain a copy of this letter with your environmental review record for this undertaking.

Please contact Stephanie Hacker, Historic Preservation Archaeologist IV, at [Stephanie.Hackerhawaii.gov](mailto:Stephanie.Hackerhawaii.gov) or at (808) 692-8046 for matters regarding archaeological resources or this letter.

Aloha,

*Alan Downer*

Alan S. Downer, PhD

Administrator, State Historic Preservation Division

Deputy State Historic Preservation Officer



Deepak Neupane, P.E.

May 20, 2021

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cc: Suzanne D. Case, DLNR, [Suzanne.Case@hawaii.gov](mailto:Suzanne.Case@hawaii.gov)  
Robert K. Masuda, DLNR, [Robert.K.Masuda@hawaii.gov](mailto:Robert.K.Masuda@hawaii.gov)  
Jinny Cheung, Hunt, [Jinny.Cheung@huntcompanies.com](mailto:Jinny.Cheung@huntcompanies.com)  
Thomas Lee, Hunt, [Thomas.Lee@huntcompanies.com](mailto:Thomas.Lee@huntcompanies.com)  
Chris Monahan, TCP Hawai'i, [mookahan@gmail.com](mailto:mookahan@gmail.com)

# **APPENDIX C**

## ***Traffic Impact Analysis Report***

### ***Executive Summary and***

### ***Technical Memorandum***

# ***APPENDIX C1***

## ***Traffic Impact Analysis Report***

### ***Executive Summary (Fehr & Peers, 12/29/17)***

## 1.0 EXECUTIVE SUMMARY

This report presents the results of the transportation impact analysis report (TIAR) for the proposed residential development complex located within the Kalaeloa area of West Oahu. The proposed project will be either all residential units or a mixed-use development comprising 251 fewer residential units, supporting retail uses, and a Veterans Affairs (VA) Clinic. The project will be developed on three distinct parcels located on the makai side of Roosevelt Avenue between Kamokila Blvd and Franklin Street within the Kalaeloa Master Plan area. In addition, the development is expected to be fully constructed and occupied by Year 2020. This study analyzed the following two project alternatives to be constructed on the three parcels:

- **1,500 Residential Unit** - A total of 496 single family and 1,004 multi-family units are proposed on Parcels 1, 2, and 3 according to the following layout: Parcel 1 will include 126 single family and 404 multi-family dwelling units; Parcel 2 will include 370 single family dwelling units; and Parcel 3 will include 600 multi-family dwelling units, or
- **Mixed-Use Development** – Includes a total of 139 single family and 1,110 multi-family units, 169,000 square feet (s.f.) of retail uses, and an 80,000 square foot VA Clinic. Parcel 1 will include 82 single family and 351 multi-family units, the VA Clinic, and 51,000 s.f. of retail uses. Parcel 2 will include 57 single family and 345 multi-family units, and 28,000 s.f. of retail uses. Parcel 3 will include 414 multi-family units and 90,000 s.f. of retail uses.

The impacts of the proposed project to the surrounding transportation system were evaluated following guidelines established by the City & County of Honolulu Department of Planning & Permitting (DPP) Traffic Review Branch (TRB) and the Hawaii Department of Transportation – Highways Division (HDOT). The operations of 12 existing key intersections were evaluated during the weekday morning (AM) and evening (PM) peak hours for Existing (2017), as well as for Near Term (2020) conditions without and with the project. Impacts were identified assuming sequential and cumulative development of the three parcels: Parcel 1 only, Parcels 1 and 2, and Parcels 1 through 3.

The project is anticipated to generate the following trips for each alternative development scenario:

### 1,500 Residential Units

- Parcel 1: a total of 4,299 daily trips, including 274 trips during the AM peak hour (64 inbound/210 outbound) and 332 trips during the PM peak hour (209 inbound/123 outbound).
- Parcels 1 & 2: a total of 7,764 daily trips, including 542 trips during the AM peak hour (131 inbound/411 outbound) and 689 trips during the PM peak hour (434 inbound/255 outbound).
- Parcels 1, 2, and 3: a total of 12,259 daily trips, including 804 trips during the AM peak hour (191 inbound/613 outbound) and 980 trips during the PM peak hour (617 inbound/363 outbound).





## Mixed-Use Development

- Parcel 1: a total of 9,740 daily trips, including 647 trips during the AM peak hour (373 inbound/274 outbound) and 765 trips during the PM peak hour (351 inbound/414 outbound).
- Parcels 1 & 2: a total of 14,880 daily trips, including 936 trips during the AM peak hour (503 inbound/460 outbound) and 1,139 trips during the PM peak hour (560 inbound/579 outbound).
- Parcels 1, 2, and 3: a total of 22,454 daily trips, including 1,186 trips during the AM peak hour (582 inbound/604 outbound) and 1,702 trips during the PM peak hour (855 inbound/847 outbound).

These estimates do not include vehicle reductions associated with transit trips anticipated to use the planned extension of the Honolulu Rail Transit system to West Kapolei as some residents are expected to use the rail transit line via the East Kapolei station after its opening in 2019, but trips to the station would be made by automobile and bus transit. Additionally, non-auto reductions accounting for bicycle and pedestrian project trips were also not included to provide a more conservative traffic analysis. A non-auto trip reduction of about a five (5) percent is reasonable given the existing and planned adjacent facilities and the nearby complementary land uses. A five (5) percent vehicle reduction would only decrease project peak hour traffic by 59 and 85 trips in the AM and PM peak hours, respectively, under the Parcel 1, 2, and 3 Mixed-Use scenario (i.e. the higher of the two buildout scenarios). Although encouraging non-auto travel is important from a community and sustainability perspective, this reduction is not significant enough to eliminate any of the project impacts identified in this analysis.

The project is expected to a total of five (5), seven (7), and seven (7) intersection impacts under the Parcel 1, Parcels 1 and 2, and Parcels 1, 2, and 3 development scenarios, respectively, under the Mixed-Use development alternative. One less intersection is expected to be significantly impacts under each of the development scenarios for the 1,500 Residential Unit alternative. **Table ES-1** shows the intersection impacts and under which parcel scenario those impacts would be triggered. Note that the impacts identified in **Table ES-1** are for the Mixed-Use development alternative with the higher trip generation estimate unless otherwise noted.

All of the impacts at intersections can be reduced to a less than significant level through the following improvements listed in **Table ES-2**. **Table ES-2** shows the LOS for each impacted intersection without and with the proposed mitigations under both project alternatives, as well as the level of project responsibility for each improvement.

The Kamokila Boulevard extension, makai of Roosevelt Avenue, and Roosevelt Avenue Diamond Head of Kamokila Boulevard are assumed to be two-lane roadways with the proposed project. Project traffic is expected to be accommodated on these two-lane roadways, but would be constrained at the adjacent intersections (i.e., Roosevelt Avenue/Kamokila Boulevard and Fort Barrette Road-Enterprise

Street/Roosevelt Avenue). However, the project mitigation to install a traffic signal at each intersection will improve operations on Kamokila Boulevard, Roosevelt Avenue, and Fort Barrette Road and enhance vehicular flow through the study area.

With the project's proposed mitigation measures at the impacted intersections, additional roadway capacity and access to the Kalaeloa area is not needed. However, as traffic continues to grow in the overall area from subsequent development, traffic volumes at two key locations (the Fort Barrette Road-Enterprise Street/Roosevelt Avenue intersection and the Kamokila Boulevard/Kapolei Parkway intersection) will cause LOS E or worse operations, and additional intersection improvements would be difficult to implement due to right-of-way constraints and/or the need for non-standard configurations. Accordingly, new capacity via the Wakea Street extension between Kapolei Parkway and Roosevelt Avenue would likely be needed to provide an additional route for motorists to access Kalaeloa and to balance vehicle delay and peak hour congestion on the surrounding roadway network.

Overall, the proposed project is not expected to substantially increase the walking, biking, or transit demand to a level where it could not be accommodated by existing or planned facilities. In addition, the project is expected to enhance multi-modal facilities and services, especially with the promotion of the use of passive and active spaces and non-motorized modes. The project is also expected to not conflict with any existing facilities and planned improvements. Thus, the project's impacts to pedestrian, bicycle, and transit facilities and services are therefore considered less than significant.

**TABLE ES-1: NEAR TERM (2020) PLUS PROJECT INTERSECTION LEVELS OF SERVICE (IMPACTED LOCATIONS WITHOUT MITIGATION)**

| Intersection                    | Traffic Control <sup>1</sup> | Peak Hour | Near Term LOS <sup>2</sup><br>(Mixed-Use Development unless otherwise noted) |               |               |                     |
|---------------------------------|------------------------------|-----------|------------------------------------------------------------------------------|---------------|---------------|---------------------|
|                                 |                              |           | Baseline                                                                     | Parcel 1      | Parcels 1 & 2 | Parcels 1, 2, and 3 |
| 5. Kapolei Pkwy / Kalaeloa Blvd | Signal                       | AM        | C                                                                            | C             | C             | C                   |
|                                 |                              | PM        | F                                                                            | <u>E</u>      | <u>E</u>      | <u>E</u>            |
| 6. Kapolei Pkwy / Kamokila Blvd | Signal                       | AM        | C                                                                            | D             | <u>E</u>      | <u>F (E)*</u>       |
|                                 |                              | PM        | C                                                                            | D (C)*        | D             | <u>E (D)*</u>       |
| 7. Kapolei Pkwy / Wakea St      | SSSC                         | AM        | E                                                                            | <u>F (E)*</u> | <u>E</u>      | <u>F</u>            |
|                                 |                              | PM        | E                                                                            | <u>E</u>      | <u>E</u>      | <u>E</u>            |
|                                 | Signal                       | AM        | F                                                                            | <u>E</u>      | <u>E</u>      | <u>E</u>            |



TABLE ES-1: NEAR TERM (2020) PLUS PROJECT INTERSECTION LEVELS OF SERVICE (IMPACTED LOCATIONS WITHOUT MITIGATION)

| Intersection                                       | Traffic Control <sup>1</sup> | Peak Hour | Near Term LOS <sup>2</sup><br>(Mixed-Use Development unless otherwise noted) |               |                          |                    |
|----------------------------------------------------|------------------------------|-----------|------------------------------------------------------------------------------|---------------|--------------------------|--------------------|
|                                                    |                              |           | Baseline                                                                     | Parcel 1      | Parcels 1 & 2            | Parcels 1,2, and 3 |
| 8. Fort Barrette Rd / Kapolei Pkwy                 | AWSC                         | PM        | F                                                                            | <u>F</u>      | <u>F</u>                 | <u>F</u>           |
| 9. Roosevelt Ave / Kamokila Blvd                   |                              | AM        | C                                                                            | <u>E (C)*</u> | <u>F (<del>E</del>)*</u> | <u>F</u>           |
|                                                    |                              | PM        | C                                                                            | <u>E (D)*</u> | <u>F</u>                 | <u>F</u>           |
| 10. Roosevelt Ave / Copahee Ave                    | SSSC                         | AM        | C                                                                            | D (C)         | <u>F (D)</u>             | <u>F (D)</u>       |
|                                                    |                              | PM        | B                                                                            | C             | <u>F (C)</u>             | <u>F (D)</u>       |
| 12. Fort Barrette Rd-Enterprise St / Roosevelt Ave | AWSC                         | AM        | F                                                                            | <u>F</u>      | <u>F</u>                 | <u>F</u>           |
|                                                    |                              | PM        | F                                                                            | <u>F</u>      | <u>F</u>                 | <u>F</u>           |
| TOTAL INTERSECTION IMPACTS                         |                              |           | -                                                                            | 4             | 7                        | 7                  |

Source: Fehr & Peers, 2017

Notes:

<sup>1</sup> AWSC = All-way stop controlled; SSSC = Side-street stop controlled

<sup>2</sup> LOS calculations performed using the *Highway Capacity Manual (HCM) 2010* method. LOS for side street stop-controlled (SSSC) intersections is worst-case movement. For the remaining control types, the overall average delay and LOS is reported. LOS E and F operations are highlighted in **bold**. **LOS** represent project impact.

\* LOS is different between development alternatives. LOS in parentheses is for the 1,500 Residential Unit alternative.

TABLE ES-2: NEAR TERM (2020) PLUS PROJECT WITH MITIGATIONS INTERSECTION LEVELS OF SERVICE

| Intersection                                       | Peak Hour | Baseline | Plus Parcel 1 | Plus Parcel 1 w/ Mit. | Plus Parcels 1 & 2 | Plus Parcels 1 & 2 w/ Mit. | Plus Parcels 1, 2, & 3 | Plus Parcels 1, 2, & 3 w/ Mit. | Proposed Mitigation                                                                                                                                         | Project Responsibility ** |
|----------------------------------------------------|-----------|----------|---------------|-----------------------|--------------------|----------------------------|------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| 5. Kapolei Pkwy / Kalaheo Blvd                     | AM        | C        | C             | C                     | C                  | C                          | C                      | C                              | Construct a second Diamond Head-bound left turn lane on Kapolei Parkway                                                                                     | Fair Share Contribution   |
|                                                    | PM        | F        | F             | E (D)*                | F                  | E                          | F                      | E                              |                                                                                                                                                             |                           |
| 6. Kapolei Pkwy / Kamokila Blvd                    | AM        | C        | D             |                       | E                  | C                          | E (E)*                 | C                              | Construct a second mauka-bound left turn lane on Kamokila Boulevard                                                                                         | 100%                      |
|                                                    | PM        | C        | D (C)*        | N/A                   | D                  | C                          | E (D)*                 | D (C)*                         |                                                                                                                                                             |                           |
| 7. Kapolei Pkwy / Wakea St                         | AM        | E        | E (E)*        | A                     | E                  | A                          | F                      | A                              | Install a traffic signal                                                                                                                                    | Fair Share Contribution   |
|                                                    | PM        | E        | E             | A                     | E                  | A                          | F                      | A                              |                                                                                                                                                             |                           |
| 8. Fort Barrette Rd / Kapolei Pkwy                 | AM        | F        | F             | E                     | F                  | E                          | F                      | E                              | Restripe Kapolei Parkway to provide 2 through lanes in both directions. Provide left-turn protected signal phasing on Kapolei Parkway and optimize timing.  | Fair Share Contribution   |
|                                                    | PM        | F        | F             | D                     | F                  | E (D)*                     | F                      | E                              |                                                                                                                                                             |                           |
| 9. Roosevelt Ave / Kamokila Blvd                   | AM        | C        | E (C)*        | N/A                   | F (E)*             | B                          | F                      | B (C)*                         | Install a traffic signal                                                                                                                                    | 100%                      |
|                                                    | PM        | C        | E (D)*        |                       | F                  | C (B)*                     | F                      | C                              |                                                                                                                                                             |                           |
| 10. Roosevelt Ave / Copahoe Ave                    | AM        | C        | D (C)         |                       | E (D)              | C                          | F (D)                  | D                              | Widen Roosevelt Avenue ewa of Copahoe Avenue to provide a refuge island median for the mauka-bound left-turn movement. Install an ewa-bound left turn lane. | 100%                      |
|                                                    | PM        | B        | C             | N/A                   | F (C)              | C                          | F (D)                  | D                              |                                                                                                                                                             |                           |
| 12. Fort Barrette Rd-Enterprise St / Roosevelt Ave | AM        | F        | F             | C                     | F                  | D (C)*                     | F                      | D                              | Install a traffic signal                                                                                                                                    | Fair Share Contribution   |
|                                                    | PM        | F        | F             | C                     | F                  | C                          | F                      | D (C)*                         |                                                                                                                                                             |                           |

Source: Fehr & Peers, 2017





TABLE ES-2: NEAR TERM (2020) PLUS PROJECT WITH MITIGATIONS INTERSECTION LEVELS OF SERVICE

| Intersection | Peak Hour | Baseline | Plus Parcel 1 | Plus Parcel 1 w/ Mit. | Plus Parcels 1 & 2 w/ Mit. | Plus Parcels 1, 2, & 3 | Plus Parcels 1, 2, & 3 w/ Mit. | Proposed Mitigation | Project Responsibility ** |
|--------------|-----------|----------|---------------|-----------------------|----------------------------|------------------------|--------------------------------|---------------------|---------------------------|
|--------------|-----------|----------|---------------|-----------------------|----------------------------|------------------------|--------------------------------|---------------------|---------------------------|

Notes:

N/A = Not Applicable. No significant impact under this scenario, thus mitigation is not needed.

LOS calculations performed using the *Highway Capacity Manual (HCM) 2010* method. LOS for side street stop-controlled (SSSC) intersections is worst-case movement. Other uncontrolled movements generally operate well with limited delay.

Undesired LOS and corresponding seconds of delay per vehicle are highlighted in **bold**. LOS represent project impact.

\* LOS is different between alternatives. LOS in parenthesis is for the 1,500 Residential alternative.

\*\*Project responsibility: Yes = impact is project-specific and project is responsible for implementing mitigation. Fair Share Contribution = contributing to cumulative impact and project is responsible to a fair-share contribution of mitigation

## ***APPENDIX C2***

### ***Traffic Impact Analysis Report***

#### ***Technical Memorandum (Fehr & Peers, 3/17/21)***



## TECHNICAL MEMORANDUM

Date: March 17, 2021

To: Brent Nakaoka, R.M. Towill Corporation

From: Andrew Scher and Sohrab Rashid

**Subject:** *Hunt Parcel 1 in Kalaeloa – Residential Driveway Operations Evaluation*

SD21-0379

This memorandum presents the revised driveway operations evaluation for Hunt Parcel 1 within the Kalaeloa area of the Ewa Region of Oahu, Hawaii. Parcel 1 is planned to include a total of 389 dwelling units, an 88,675 square-foot (sf) Veterans Administration (VA) medical facility, and approximately 51,000 sf of retail/commercial uses. The residential uses and VA facility will be on land bound by Roosevelt Avenue, Copahoe Street, realigned Boxer Road, and the Kamokila Boulevard extension, while the retail uses will be located on the west side of the Kamokila Boulevard extension. The purpose of this study is to determine if the proposed access layout including driveways and streets will provide acceptable traffic operations.

### STUDY BACKGROUND

Fehr & Peers originally studied the overall circulation impacts of the proposed Hunt Parcel 1 development as documented in *Development of Parcels 1, 2, and 3 in Kalaeloa Transportation Impact Analysis Report* (Fehr & Peers, December 2017). After that study, we prepared a September 13, 2019 *Hunt Parcel 1 Access Evaluation in Kalaeloa* technical memorandum prepared for R. M. Towill that documented the anticipated operations of the proposed driveways serving the site. More recently, the Parcel 1 site plan has been revised to consolidate site access and remove two driveways on Copahoe Avenue, as well as removal of a right-turn only driveway on Kamokila Boulevard serving the residential uses.

Accordingly, City & County of Honolulu Department of Planning & Permitting (DPP) Traffic Review Branch (TRB) staff have requested that an updated access evaluation be conducted to verify that the proposed driveway configurations will provide adequate access to and circulation around the site. In addition, DPP TRB is requesting that an analysis justifying the driveway proposed for Boxer Road on the makai side of the site given the plan to only improve the mauka side of the road along the project frontage between Kamokila Boulevard and Copahoe Street. The results of the revised driveway operations study are presented below.

### PROPOSED PARCEL 1 RESIDENTIAL DRIVEWAY ACCESS

The current site plan is dated June 24, 2020 as shown on **Figure 1**, which illustrates the location of the three proposed driveways that will serve Parcel 1 residential uses and provide access to the adjacent public streets. Each driveway is described in detail below and illustrated and numbered on the site plan:



- On Kamokila Boulevard: Driveway 1: This proposed full-access driveway will be 56' wide with a median and will be provide shared access to both the VA facility and the residential uses on the east side of Kamokila Boulevard, as well as access to the retail uses on the west side of the street;
- On Boxer Road: Driveway 2: This proposed full-access driveway will be 34' wide and primarily serve the residential uses, although some VA facility-generated traffic could use it to access Boxer Road to and from the east; and
- On Franklin D. Roosevelt Avenue: Driveway 3: This proposed right-turn only access driveway will be 34' wide and will serve the residential uses only.

It should be noted that with the development of Parcel 1, only the mauka side of Boxer Road along the site frontage between Kamokila Boulevard and Copahee Avenue is proposed to be improved by the project. In addition, a right-turn only driveway on Roosevelt Avenue will serve the VA site, but will not be accessed by residential traffic. Lastly, the retail uses will be served by the west leg of the Driveway 1 intersection, as well as the west leg of the Kamokila Boulevard/Roosevelt Avenue intersection.

Initially, all the driveway approaches serving the residential uses are expected to be stop-controlled, and traffic on the intersecting public street will not be required to stop. The assumed lane configuration for Driveway 1 is two outbound lanes (one left and one shared through/right lane) and two inbound lanes, while Driveways 2 and 3 are assumed to include one lane inbound and outbound. The west leg of the Driveway 1 intersection serving the retail uses is also expected to include one left and one shared through/right lane on the approach to the Kamokila Boulevard extension.

All full access driveway intersections are expected to operate acceptably in the near-term where: 1) existing traffic volumes are very low on Kamokila Boulevard and Boxer Road, and 2) where the Roosevelt Avenue driveway will include a channelized left-turn lane in and refuge lane for outbound traffic, thereby minimizing delay for all vehicles.

With additional redevelopment within the Kalaeloa area and increased traffic on the streets adjacent to Parcel 1, delays for traffic entering and existing the site will incrementally increase and modified traffic control devices at the driveway intersections will be needed as described in the next section. At Driveway 3, only the mauka-bound right-turn movement out will be controlled by a stop sign and this control will not change, regardless of the volume of through traffic on Roosevelt Avenue.

## **OPERATIONS ANALYSIS**

To ensure that adequate operations can be provided with the proposed access layout, traffic volumes generated by the project site uses were assigned to each of the driveway intersections using trip rates from the December 2017 TIA cited above and the current unit counts (133 single-family and 256 multi-family illustrated on the current site plan.

Through traffic volumes on each of the public streets fronting the project were obtained from the *Kalaeloa Roadway Master Plan Buildout Update and Hunt Parcel Consistency Evaluation* (Fehr & Peers, September 13, 2019). Use of volumes from this document ensure that the access points analysis is based on long-term forecasts of traffic expected to use these streets with buildout of the Kalaeloa area.

Traffic operations were analyzed using Synchro 10 software for each of the full-access driveway intersections (1 through 3) for two scenarios: 1) with all driveways, and 2) for Driveway 1 and 3 only





assuming the Boxer Road driveway (Driveway 2) is not constructed, and traffic at that driveway is diverted to the other site driveways. For Driveway 1 on Kamokila Boulevard, this intersection was assumed to be signalized with Kalaeloa area buildout using an initial cycle length of 120 seconds and assumed coordination with the signal at Roosevelt Avenue. No analysis is provided for Driveway 3 because right-turn only movements are not typically analyzed for private driveways, and the maximum projected volume for the outbound right turn under either driveway scenario is 42 vehicles in the AM peak hour.

The operations results in terms of level of service (LOS) for both driveway scenarios are presented in **Table 1** below, and the Synchro calculation worksheets for the driveway intersections are attached as an exhibit to this report.

**Table 1: Full Access Driveway Operations Summary (Kalaeloa Area Buildout Conditions)**

| Driveway Intersection           | Traffic Control             | Peak Hour | All Driveways      |                  |                             | Without Boxer Rd Driveway |                  |                             |
|---------------------------------|-----------------------------|-----------|--------------------|------------------|-----------------------------|---------------------------|------------------|-----------------------------|
|                                 |                             |           | Delay <sup>1</sup> | LOS <sup>2</sup> | Worst Movement <sup>3</sup> | Delay <sup>1</sup>        | LOS <sup>2</sup> | Worst Movement <sup>3</sup> |
| 1. Kamokila Blvd/<br>Driveway 1 | Signal                      | AM        | 13.7               | B                |                             | 13.9                      | B                |                             |
|                                 |                             | PM        | 13.1               | B                |                             | 13.8                      | B                |                             |
| 2. Boxer Rd/<br>Driveway 2      | Side Street<br>Stop Control | AM        | 23.6               | C                | SB Left                     |                           |                  |                             |
|                                 |                             | PM        | 27.9               | D                | SB Left                     |                           |                  |                             |

Source: Fehr & Peers, March 2021

Notes:

<sup>1</sup> Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized intersections. Worst-case movement delay expressed in seconds per vehicle for unsignalized (i.e., side street stop control) intersections.

<sup>2</sup> LOS = Level of service. Delay ranges are different for signalized and unsignalized traffic control.

<sup>3</sup> Worst Movement = indicates the directional movement with the worst-case delay for unsignalized intersections.

As shown in **Table 1**, both the study locations under the "All Driveways" scenario are projected to operate at desirable operating levels (i.e., LOS D or better) with buildout of the Kalaeloa area. Overall, each location is expected to operate within a reasonable operating range for driveways on arterial and collector streets. The results of the Driveway 2 operations are considered conservative in that no separate left- or right-turn lanes are assumed on Boxer Road, and they are not warranted based on low volumes of four (4) and 31 vehicles, respectively, during any peak hour.

If Driveway 2 on Boxer Road is not provided, the residential traffic originally projected to use that driveway would use the two remaining driveways. That diversion would have a negligible effect on Driveway 1 operations as shown in the "Without Boxer Road Driveway" scenario in **Table 1**. Similarly, the addition of fewer than 15 vehicles during the peak hour to the outbound right-turn movement at Driveway 3 would not substantially impact traffic operations compared to the "All Driveways" scenario.

## SUMMARY OF PARCEL 1 PROPOSED DRIVEWAY OPERATIONS

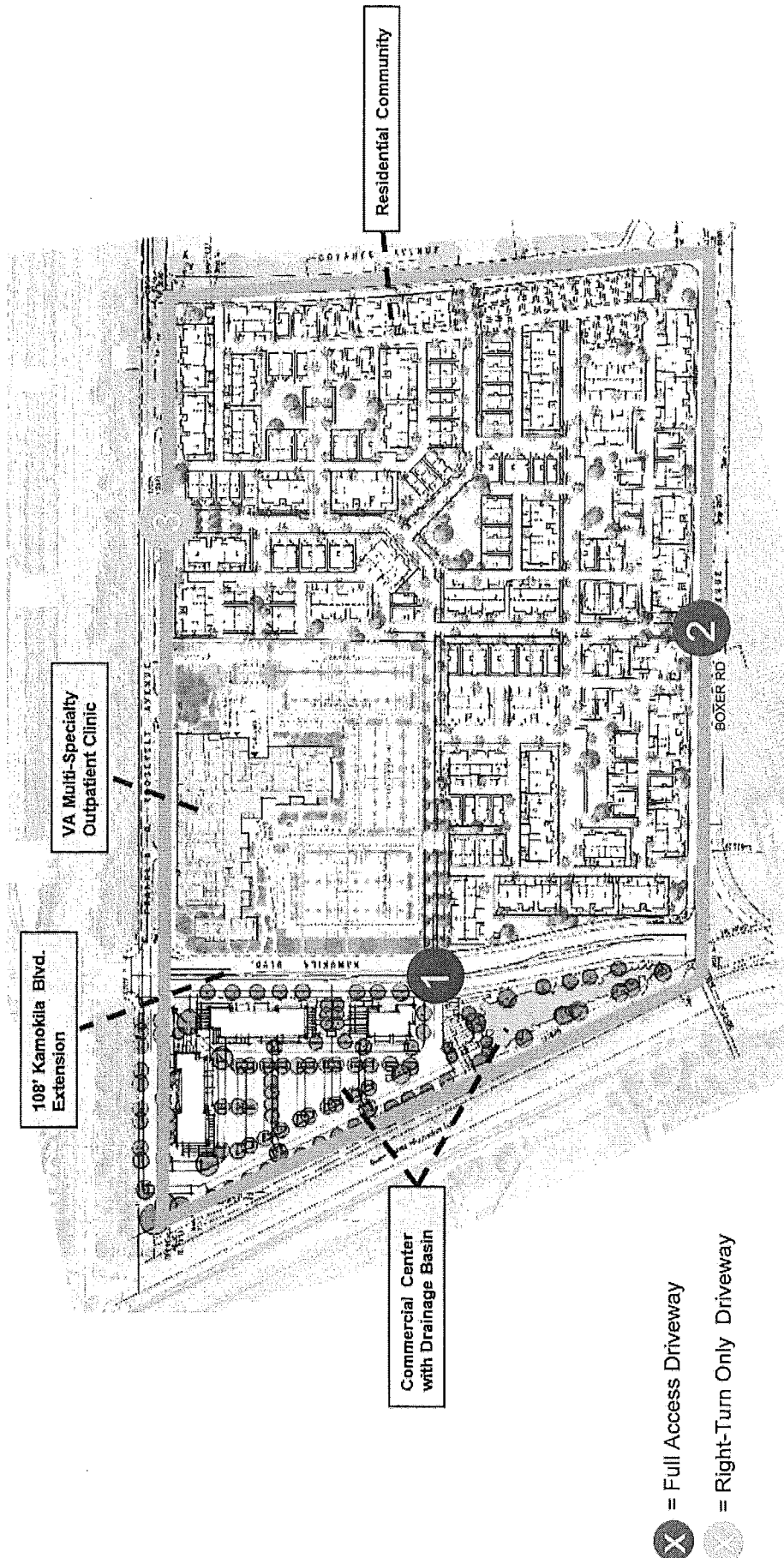
From an operational perspective, the project site access points will function at a desirable overall intersection LOS during the peak hours at Kalaeloa area buildout. If Driveway 2 on Boxer Road were not provided, driveway access to the site would still be adequate from an operations standpoint. However, we recommend including Driveway 2 as part of site development to increase overall neighborhood connectivity, minimize circuitous travel, and enhance emergency access to the site.



In the case of the Copahoe Avenue driveways that were included on a previous version of the site plan, their removal does not significantly compromise site access or negatively affect overall area circulation. This is due in part to the relatively low volumes that would have used these driveways during the peak hours. In addition, elimination of these driveways also minimizes traffic adjacent to Barbers Point Elementary School and reduces potential conflicts between vehicles and pedestrians/bicyclists accessing the school. At a minimum, however, an on-site pedestrian and bicycle access connection should be provided from Parcel 1 to Copahoe Avenue, and this non-auto access point should be generally aligned with the existing crosswalk to the school. This configuration would minimize the potential for jaywalking and focus crossing activity at one location. The crosswalk should be enhanced with signage and an appropriate warning beacon, and ideally it would be configured as a raised crosswalk to increase visibility of pedestrians and bicyclists to drivers, as well as managing vehicle speeds next to the school.

Attachments:

- Figure 1 – Project Site Plan – Driveway Locations
- LOS Calculation Worksheets



- ⊗ = Full Access Driveway
- ⊙ = Right-Turn Only Driveway

PROJECT: KALAELOA PARCEL 1

■ HUNT 2020.06.24 Subject to change upon further design

Figure 1  
PARCEL 1 RESIDENTIAL DRIVEWAY ACCESS

HCM 6th Signalized Intersection Summary  
1: Retail Dwy/VA Dwy & Kamokila

AM Peak Hour  
03/05/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |   |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 12                                                                                | 5                                                                                 | 7                                                                                 | 9                                                                                 | 5                                                                                 | 147                                                                               | 10                                                                                 | 371                                                                                 | 27                                                                                  | 181                                                                                 | 882                                                                                 | 23                                                                                  |
| Future Volume (veh/h)        | 12                                                                                | 5                                                                                 | 7                                                                                 | 9                                                                                 | 5                                                                                 | 147                                                                               | 10                                                                                 | 371                                                                                 | 27                                                                                  | 181                                                                                 | 882                                                                                 | 23                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                 |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                               | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 13                                                                                | 5                                                                                 | 1                                                                                 | 9                                                                                 | 5                                                                                 | 11                                                                                | 11                                                                                 | 391                                                                                 | 26                                                                                  | 191                                                                                 | 928                                                                                 | 23                                                                                  |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 26                                                                                | 46                                                                                | 9                                                                                 | 19                                                                                | 14                                                                                | 31                                                                                | 23                                                                                 | 2311                                                                                | 153                                                                                 | 223                                                                                 | 2820                                                                                | 70                                                                                  |
| Arrive On Green              | 0.01                                                                              | 0.03                                                                              | 0.03                                                                              | 0.01                                                                              | 0.03                                                                              | 0.03                                                                              | 0.01                                                                               | 0.68                                                                                | 0.68                                                                                | 0.13                                                                                | 0.80                                                                                | 0.80                                                                                |
| Sat Flow, veh/h              | 1781                                                                              | 1513                                                                              | 303                                                                               | 1781                                                                              | 520                                                                               | 1144                                                                              | 1781                                                                               | 3383                                                                                | 224                                                                                 | 1781                                                                                | 3544                                                                                | 88                                                                                  |
| Grp Volume(v), veh/h         | 13                                                                                | 0                                                                                 | 6                                                                                 | 9                                                                                 | 0                                                                                 | 16                                                                                | 11                                                                                 | 205                                                                                 | 212                                                                                 | 191                                                                                 | 465                                                                                 | 486                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1781                                                                              | 0                                                                                 | 1816                                                                              | 1781                                                                              | 0                                                                                 | 1664                                                                              | 1781                                                                               | 1777                                                                                | 1830                                                                                | 1781                                                                                | 1777                                                                                | 1855                                                                                |
| Q Serve(g_s), s              | 0.9                                                                               | 0.0                                                                               | 0.4                                                                               | 0.6                                                                               | 0.0                                                                               | 1.1                                                                               | 0.7                                                                                | 5.0                                                                                 | 5.0                                                                                 | 12.6                                                                                | 8.7                                                                                 | 8.7                                                                                 |
| Cycle Q Clear(g_c), s        | 0.9                                                                               | 0.0                                                                               | 0.4                                                                               | 0.6                                                                               | 0.0                                                                               | 1.1                                                                               | 0.7                                                                                | 5.0                                                                                 | 5.0                                                                                 | 12.6                                                                                | 8.7                                                                                 | 8.7                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.17                                                                              | 1.00                                                                              |                                                                                   | 0.69                                                                              | 1.00                                                                               |                                                                                     | 0.12                                                                                | 1.00                                                                                |                                                                                     | 0.05                                                                                |
| Lane Grp Cap(c), veh/h       | 26                                                                                | 0                                                                                 | 56                                                                                | 19                                                                                | 0                                                                                 | 45                                                                                | 23                                                                                 | 1214                                                                                | 1250                                                                                | 223                                                                                 | 1414                                                                                | 1476                                                                                |
| V/C Ratio(X)                 | 0.50                                                                              | 0.00                                                                              | 0.11                                                                              | 0.47                                                                              | 0.00                                                                              | 0.36                                                                              | 0.48                                                                               | 0.17                                                                                | 0.17                                                                                | 0.86                                                                                | 0.33                                                                                | 0.33                                                                                |
| Avail Cap(c_a), veh/h        | 111                                                                               | 0                                                                                 | 386                                                                               | 111                                                                               | 0                                                                                 | 354                                                                               | 111                                                                                | 1214                                                                                | 1250                                                                                | 468                                                                                 | 1414                                                                                | 1476                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 58.7                                                                              | 0.0                                                                               | 56.6                                                                              | 59.0                                                                              | 0.0                                                                               | 57.4                                                                              | 58.8                                                                               | 6.8                                                                                 | 6.8                                                                                 | 51.4                                                                                | 3.4                                                                                 | 3.4                                                                                 |
| Incr Delay (d2), s/veh       | 13.9                                                                              | 0.0                                                                               | 0.8                                                                               | 16.6                                                                              | 0.0                                                                               | 4.8                                                                               | 15.0                                                                               | 0.3                                                                                 | 0.3                                                                                 | 9.0                                                                                 | 0.6                                                                                 | 0.6                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.5                                                                               | 0.0                                                                               | 0.2                                                                               | 0.4                                                                               | 0.0                                                                               | 0.5                                                                               | 0.4                                                                                | 1.9                                                                                 | 1.9                                                                                 | 6.2                                                                                 | 2.7                                                                                 | 2.8                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 72.6                                                                              | 0.0                                                                               | 57.4                                                                              | 75.6                                                                              | 0.0                                                                               | 62.2                                                                              | 73.8                                                                               | 7.1                                                                                 | 7.1                                                                                 | 60.4                                                                                | 4.0                                                                                 | 4.0                                                                                 |
| LnGrp LOS                    | E                                                                                 | A                                                                                 | E                                                                                 | E                                                                                 | A                                                                                 | E                                                                                 | E                                                                                  | A                                                                                   | A                                                                                   | E                                                                                   | A                                                                                   | A                                                                                   |
| Approach Vol, veh/h          | 19                                                                                |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                   | 428                                                                                |                                                                                     |                                                                                     | 1142                                                                                |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 67.8                                                                              |                                                                                   |                                                                                   | 67.0                                                                              |                                                                                   |                                                                                   | 8.8                                                                                |                                                                                     |                                                                                     | 13.4                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | E                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | A                                                                                  |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 19.5                                                                              | 86.5                                                                              | 5.8                                                                               | 8.2                                                                               | 6.0                                                                               | 100.0                                                                             | 6.3                                                                                | 7.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                                | 4.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 31.5                                                                              | 37.5                                                                              | 7.5                                                                               | 25.5                                                                              | 7.5                                                                               | 61.5                                                                              | 7.5                                                                                | 25.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+1), s  | 14.6                                                                              | 7.0                                                                               | 2.6                                                                               | 2.4                                                                               | 2.7                                                                               | 10.7                                                                              | 2.9                                                                                | 3.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.5                                                                               | 2.6                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 7.7                                                                               | 0.0                                                                                | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay           | 13.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                  | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |



Intersection

Int Delay, s/veh 0.4

| Movement                 | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      |      | ↕    | ↕    |      | ↕    | ↕    |
| Traffic Vol, veh/h       | 1    | 685  | 579  | 10   | 14   | 7    |
| Future Vol, veh/h        | 1    | 685  | 579  | 10   | 14   | 7    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | -    | -    | 0    | -    |
| Veh in Median Storage, # | -    | 0    | 0    | -    | 0    | -    |
| Grade, %                 | -    | 0    | 0    | -    | 0    | -    |
| Peak Hour Factor         | 95   | 95   | 95   | 95   | 95   | 95   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 1    | 721  | 609  | 11   | 15   | 7    |

| Major/Minor          | Major1 | Major2 | Minor2        |
|----------------------|--------|--------|---------------|
| Conflicting Flow All | 620    | 0      | 0 1338 615    |
| Stage 1              | -      | -      | - 615 -       |
| Stage 2              | -      | -      | - 723 -       |
| Critical Hdwy        | 4.12   | -      | - 6.42 6.22   |
| Critical Hdwy Stg 1  | -      | -      | - 5.42 -      |
| Critical Hdwy Stg 2  | -      | -      | - 5.42 -      |
| Follow-up Hdwy       | 2.218  | -      | - 3.518 3.318 |
| Pot Cap-1 Maneuver   | 960    | -      | - 169 491     |
| Stage 1              | -      | -      | - 539 -       |
| Stage 2              | -      | -      | - 481 -       |
| Platoon blocked, %   | -      | -      | -             |
| Mov Cap-1 Maneuver   | 960    | -      | - 169 491     |
| Mov Cap-2 Maneuver   | -      | -      | - 169 -       |
| Stage 1              | -      | -      | - 538 -       |
| Stage 2              | -      | -      | - 481 -       |

| Approach             | EB | WB | SB   |
|----------------------|----|----|------|
| HCM Control Delay, s | 0  | 0  | 23.6 |
| HCM LOS              |    |    | C    |

| Minor Lane/Major Mvmt | EBL   | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)      | 960   | -   | -   | -   | 216   |
| HCM Lane V/C Ratio    | 0.001 | -   | -   | -   | 0.102 |
| HCM Control Delay (s) | 8.8   | 0   | -   | -   | 23.6  |
| HCM Lane LOS          | A     | A   | -   | -   | C     |
| HCM 95th %tile Q(veh) | 0     | -   | -   | -   | 0.3   |

# HCM 6th Signalized Intersection Summary

1: Retail Dwy/VA Dwy & Kamokila

03/05/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 26                                                                                | 15                                                                                | 14                                                                                | 21                                                                                | 10                                                                                | 198                                                                               | 14                                                                                 | 856                                                                                 | 13                                                                                  | 111                                                                                 | 712                                                                                 | 27                                                                                  |
| Future Volume (veh/h)        | 26                                                                                | 15                                                                                | 14                                                                                | 21                                                                                | 10                                                                                | 198                                                                               | 14                                                                                 | 856                                                                                 | 13                                                                                  | 111                                                                                 | 712                                                                                 | 27                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                 |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                               | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 27                                                                                | 16                                                                                | 1                                                                                 | 22                                                                                | 11                                                                                | 15                                                                                | 15                                                                                 | 901                                                                                 | 14                                                                                  | 117                                                                                 | 749                                                                                 | 27                                                                                  |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 44                                                                                | 70                                                                                | 4                                                                                 | 39                                                                                | 26                                                                                | 36                                                                                | 29                                                                                 | 2534                                                                                | 39                                                                                  | 144                                                                                 | 2701                                                                                | 97                                                                                  |
| Arrive On Green              | 0.02                                                                              | 0.04                                                                              | 0.04                                                                              | 0.02                                                                              | 0.04                                                                              | 0.04                                                                              | 0.02                                                                               | 0.71                                                                                | 0.71                                                                                | 0.08                                                                                | 0.77                                                                                | 0.77                                                                                |
| Sat Flow, veh/h              | 1781                                                                              | 1742                                                                              | 109                                                                               | 1781                                                                              | 717                                                                               | 978                                                                               | 1781                                                                               | 3582                                                                                | 56                                                                                  | 1781                                                                                | 3498                                                                                | 126                                                                                 |
| Grp Volume(v), veh/h         | 27                                                                                | 0                                                                                 | 17                                                                                | 22                                                                                | 0                                                                                 | 26                                                                                | 15                                                                                 | 447                                                                                 | 468                                                                                 | 117                                                                                 | 380                                                                                 | 396                                                                                 |
| Grp Sat Flow(s), veh/h/ln    | 1781                                                                              | 0                                                                                 | 1851                                                                              | 1781                                                                              | 0                                                                                 | 1694                                                                              | 1781                                                                               | 1777                                                                                | 1860                                                                                | 1781                                                                                | 1777                                                                                | 1848                                                                                |
| Q Serve(g_s), s              | 1.8                                                                               | 0.0                                                                               | 1.1                                                                               | 1.5                                                                               | 0.0                                                                               | 1.8                                                                               | 1.0                                                                                | 11.8                                                                                | 11.8                                                                                | 7.8                                                                                 | 7.5                                                                                 | 7.5                                                                                 |
| Cycle Q Clear(g_c), s        | 1.8                                                                               | 0.0                                                                               | 1.1                                                                               | 1.5                                                                               | 0.0                                                                               | 1.8                                                                               | 1.0                                                                                | 11.8                                                                                | 11.8                                                                                | 7.8                                                                                 | 7.5                                                                                 | 7.5                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.06                                                                              | 1.00                                                                              |                                                                                   | 0.58                                                                              | 1.00                                                                               |                                                                                     | 0.03                                                                                | 1.00                                                                                |                                                                                     | 0.07                                                                                |
| Lane Grp Cap(c), veh/h       | 44                                                                                | 0                                                                                 | 74                                                                                | 39                                                                                | 0                                                                                 | 63                                                                                | 29                                                                                 | 1257                                                                                | 1316                                                                                | 144                                                                                 | 1372                                                                                | 1426                                                                                |
| V/C Ratio(X)                 | 0.61                                                                              | 0.00                                                                              | 0.23                                                                              | 0.57                                                                              | 0.00                                                                              | 0.42                                                                              | 0.51                                                                               | 0.36                                                                                | 0.36                                                                                | 0.81                                                                                | 0.28                                                                                | 0.28                                                                                |
| Avail Cap(c_a), veh/h        | 111                                                                               | 0                                                                                 | 378                                                                               | 111                                                                               | 0                                                                                 | 346                                                                               | 96                                                                                 | 1257                                                                                | 1316                                                                                | 275                                                                                 | 1372                                                                                | 1426                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 57.9                                                                              | 0.0                                                                               | 55.8                                                                              | 58.1                                                                              | 0.0                                                                               | 56.5                                                                              | 58.5                                                                               | 6.9                                                                                 | 6.9                                                                                 | 54.2                                                                                | 4.0                                                                                 | 4.0                                                                                 |
| Incr Delay (d2), s/veh       | 13.0                                                                              | 0.0                                                                               | 1.6                                                                               | 12.6                                                                              | 0.0                                                                               | 4.4                                                                               | 13.3                                                                               | 0.8                                                                                 | 0.8                                                                                 | 10.3                                                                                | 0.5                                                                                 | 0.5                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.0                                                                               | 0.0                                                                               | 0.5                                                                               | 0.8                                                                               | 0.0                                                                               | 0.8                                                                               | 0.6                                                                                | 4.4                                                                                 | 4.6                                                                                 | 3.9                                                                                 | 2.5                                                                                 | 2.6                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 71.0                                                                              | 0.0                                                                               | 57.4                                                                              | 70.7                                                                              | 0.0                                                                               | 60.9                                                                              | 71.8                                                                               | 7.7                                                                                 | 7.6                                                                                 | 64.6                                                                                | 4.5                                                                                 | 4.5                                                                                 |
| LnGrp LOS                    | E                                                                                 | A                                                                                 | E                                                                                 | E                                                                                 | A                                                                                 | E                                                                                 | E                                                                                  | A                                                                                   | A                                                                                   | E                                                                                   | A                                                                                   | A                                                                                   |
| Approach Vol, veh/h          | 44                                                                                |                                                                                   |                                                                                   | 48                                                                                |                                                                                   |                                                                                   | 930                                                                                |                                                                                     |                                                                                     | 893                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 65.7                                                                              |                                                                                   |                                                                                   | 65.4                                                                              |                                                                                   |                                                                                   | 8.7                                                                                |                                                                                     |                                                                                     | 12.3                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | E                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | A                                                                                  |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 14.2                                                                              | 89.4                                                                              | 7.1                                                                               | 9.3                                                                               | 6.5                                                                               | 97.1                                                                              | 7.5                                                                                | 8.9                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                                | 4.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 18.5                                                                              | 51.5                                                                              | 7.5                                                                               | 24.5                                                                              | 6.5                                                                               | 63.5                                                                              | 7.5                                                                                | 24.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 9.8                                                                               | 13.8                                                                              | 3.5                                                                               | 3.1                                                                               | 3.0                                                                               | 9.5                                                                               | 3.8                                                                                | 3.8                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.2                                                                               | 7.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 5.8                                                                               | 0.0                                                                                | 0.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay           | 13.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                  | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.2  |      |      |      |      |      |
| Movement                 | EBL  | EBT  | WBT  | WBR  | SBL  | SBR  |
| Lane Configurations      |      | ↕    | ↕    |      | ↕    | ↕    |
| Traffic Vol, veh/h       | 4    | 772  | 669  | 31   | 7    | 4    |
| Future Vol, veh/h        | 4    | 772  | 669  | 31   | 7    | 4    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Free | Free | Free | Free | Stop | Stop |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | -    | -    | -    | 0    | -    |
| Veh in Median Storage, # | -    | 0    | 0    | -    | 0    | -    |
| Grade, %                 | -    | 0    | 0    | -    | 0    | -    |
| Peak Hour Factor         | 95   | 95   | 95   | 95   | 95   | 95   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 4    | 813  | 704  | 33   | 7    | 4    |

| Major/Minor          | Major1 | Major2 | Minor2        |
|----------------------|--------|--------|---------------|
| Conflicting Flow All | 737    | 0      | 0 1542 721    |
| Stage 1              | -      | -      | - 721 -       |
| Stage 2              | -      | -      | - 821 -       |
| Critical Hdwy        | 4.12   | -      | - 6.42 6.22   |
| Critical Hdwy Stg 1  | -      | -      | - 5.42 -      |
| Critical Hdwy Stg 2  | -      | -      | - 5.42 -      |
| Follow-up Hdwy       | 2.218  | -      | - 3.518 3.318 |
| Pot Cap-1 Maneuver   | 869    | -      | - 127 427     |
| Stage 1              | -      | -      | - 482 -       |
| Stage 2              | -      | -      | - 432 -       |
| Platoon blocked, %   | -      | -      | -             |
| Mov Cap-1 Maneuver   | 869    | -      | - 126 427     |
| Mov Cap-2 Maneuver   | -      | -      | - 126 -       |
| Stage 1              | -      | -      | - 478 -       |
| Stage 2              | -      | -      | - 432 -       |

| Approach             | EB | WB | SB   |
|----------------------|----|----|------|
| HCM Control Delay, s | 0  | 0  | 27.9 |
| HCM LOS              |    |    | D    |

| Minor Lane/Major Mvmt | EBL   | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)      | 869   | -   | -   | -   | 169   |
| HCM Lane V/C Ratio    | 0.005 | -   | -   | -   | 0.069 |
| HCM Control Delay (s) | 9.2   | 0   | -   | -   | 27.9  |
| HCM Lane LOS          | A     | A   | -   | -   | D     |
| HCM 95th %tile Q(veh) | 0     | -   | -   | -   | 0.2   |

HCM 6th Signalized Intersection Summary  
1: Retail Dwy/VA Dwy & Kamokila (No Boxer/Dwy 2)

AM Peak Hour

03/05/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (veh/h)       | 12                                                                                | 5                                                                                 | 7                                                                                 | 9                                                                                 | 5                                                                                 | 154                                                                               | 10                                                                                 | 371                                                                                 | 32                                                                                  | 187                                                                                 | 882                                                                                 | 23                                                                                  |
| Future Volume (veh/h)        | 12                                                                                | 5                                                                                 | 7                                                                                 | 9                                                                                 | 5                                                                                 | 154                                                                               | 10                                                                                 | 371                                                                                 | 32                                                                                  | 187                                                                                 | 882                                                                                 | 23                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                 |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                               | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 13                                                                                | 5                                                                                 | 1                                                                                 | 9                                                                                 | 5                                                                                 | 13                                                                                | 11                                                                                 | 391                                                                                 | 31                                                                                  | 197                                                                                 | 928                                                                                 | 23                                                                                  |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 26                                                                                | 48                                                                                | 10                                                                                | 19                                                                                | 13                                                                                | 33                                                                                | 23                                                                                 | 2264                                                                                | 179                                                                                 | 230                                                                                 | 2816                                                                                | 70                                                                                  |
| Arrive On Green              | 0.01                                                                              | 0.03                                                                              | 0.03                                                                              | 0.01                                                                              | 0.03                                                                              | 0.03                                                                              | 0.01                                                                               | 0.68                                                                                | 0.68                                                                                | 0.13                                                                                | 0.79                                                                                | 0.79                                                                                |
| Sat Flow, veh/h              | 1781                                                                              | 1513                                                                              | 303                                                                               | 1781                                                                              | 460                                                                               | 1195                                                                              | 1781                                                                               | 3336                                                                                | 263                                                                                 | 1781                                                                                | 3544                                                                                | 88                                                                                  |
| Grp Volume(v), veh/h         | 13                                                                                | 0                                                                                 | 6                                                                                 | 9                                                                                 | 0                                                                                 | 18                                                                                | 11                                                                                 | 207                                                                                 | 215                                                                                 | 197                                                                                 | 465                                                                                 | 486                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1781                                                                              | 0                                                                                 | 1816                                                                              | 1781                                                                              | 0                                                                                 | 1655                                                                              | 1781                                                                               | 1777                                                                                | 1823                                                                                | 1781                                                                                | 1777                                                                                | 1855                                                                                |
| Q Serve(g_s), s              | 0.9                                                                               | 0.0                                                                               | 0.4                                                                               | 0.6                                                                               | 0.0                                                                               | 1.3                                                                               | 0.7                                                                                | 5.1                                                                                 | 5.1                                                                                 | 13.0                                                                                | 8.7                                                                                 | 8.7                                                                                 |
| Cycle Q Clear(g_c), s        | 0.9                                                                               | 0.0                                                                               | 0.4                                                                               | 0.6                                                                               | 0.0                                                                               | 1.3                                                                               | 0.7                                                                                | 5.1                                                                                 | 5.1                                                                                 | 13.0                                                                                | 8.7                                                                                 | 8.7                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.17                                                                              | 1.00                                                                              |                                                                                   | 0.72                                                                              | 1.00                                                                               |                                                                                     | 0.14                                                                                | 1.00                                                                                |                                                                                     | 0.05                                                                                |
| Lane Grp Cap(c), veh/h       | 26                                                                                | 0                                                                                 | 57                                                                                | 19                                                                                | 0                                                                                 | 46                                                                                | 23                                                                                 | 1206                                                                                | 1237                                                                                | 230                                                                                 | 1412                                                                                | 1474                                                                                |
| V/C Ratio(X)                 | 0.50                                                                              | 0.00                                                                              | 0.10                                                                              | 0.47                                                                              | 0.00                                                                              | 0.39                                                                              | 0.48                                                                               | 0.17                                                                                | 0.17                                                                                | 0.86                                                                                | 0.33                                                                                | 0.33                                                                                |
| Avail Cap(c_a), veh/h        | 111                                                                               | 0                                                                                 | 386                                                                               | 111                                                                               | 0                                                                                 | 352                                                                               | 111                                                                                | 1206                                                                                | 1237                                                                                | 482                                                                                 | 1412                                                                                | 1474                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 58.7                                                                              | 0.0                                                                               | 56.4                                                                              | 59.0                                                                              | 0.0                                                                               | 57.3                                                                              | 58.8                                                                               | 7.0                                                                                 | 7.0                                                                                 | 51.2                                                                                | 3.4                                                                                 | 3.4                                                                                 |
| Incr Delay (d2), s/veh       | 13.9                                                                              | 0.0                                                                               | 0.8                                                                               | 16.6                                                                              | 0.0                                                                               | 5.3                                                                               | 15.0                                                                               | 0.3                                                                                 | 0.3                                                                                 | 9.0                                                                                 | 0.6                                                                                 | 0.6                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.5                                                                               | 0.0                                                                               | 0.2                                                                               | 0.4                                                                               | 0.0                                                                               | 0.6                                                                               | 0.4                                                                                | 1.9                                                                                 | 2.0                                                                                 | 6.4                                                                                 | 2.7                                                                                 | 2.8                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 72.6                                                                              | 0.0                                                                               | 57.2                                                                              | 75.6                                                                              | 0.0                                                                               | 62.7                                                                              | 73.8                                                                               | 7.3                                                                                 | 7.3                                                                                 | 60.2                                                                                | 4.0                                                                                 | 4.0                                                                                 |
| LnGrp LOS                    | E                                                                                 | A                                                                                 | E                                                                                 | E                                                                                 | A                                                                                 | E                                                                                 | E                                                                                  | A                                                                                   | A                                                                                   | E                                                                                   | A                                                                                   | A                                                                                   |
| Approach Vol, veh/h          | 19                                                                                |                                                                                   |                                                                                   | 27                                                                                |                                                                                   |                                                                                   | 433                                                                                |                                                                                     |                                                                                     | 1148                                                                                |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 67.8                                                                              |                                                                                   |                                                                                   | 67.0                                                                              |                                                                                   |                                                                                   | 9.0                                                                                |                                                                                     |                                                                                     | 13.7                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | E                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | A                                                                                  |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 20.0                                                                              | 85.9                                                                              | 5.8                                                                               | 8.3                                                                               | 6.0                                                                               | 99.9                                                                              | 6.3                                                                                | 7.8                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                                | 4.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 32.5                                                                              | 36.5                                                                              | 7.5                                                                               | 25.5                                                                              | 7.5                                                                               | 61.5                                                                              | 7.5                                                                                | 25.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 15.0                                                                              | 7.1                                                                               | 2.6                                                                               | 2.4                                                                               | 2.7                                                                               | 10.7                                                                              | 2.9                                                                                | 3.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.5                                                                               | 2.6                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 7.7                                                                               | 0.0                                                                                | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay           | 13.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                  | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |



HCM 6th Signalized Intersection Summary  
1: Retail Dwy/VA Dwy & Kamokila (No Boxer/Dwy 2)

03/05/2021

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |                                                                                     |  |  |  |
| Traffic Volume (veh/h)       | 26                                                                                | 15                                                                                | 14                                                                                | 21                                                                                | 10                                                                                | 202                                                                               | 14                                                                                 | 856                                                                                 | 29                                                                                  | 130                                                                                 | 712                                                                                 | 27                                                                                  |
| Future Volume (veh/h)        | 26                                                                                | 15                                                                                | 14                                                                                | 21                                                                                | 10                                                                                | 202                                                                               | 14                                                                                 | 856                                                                                 | 29                                                                                  | 130                                                                                 | 712                                                                                 | 27                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Parking Bus, Adj             | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Work Zone On Approach        | No                                                                                |                                                                                   |                                                                                   | No                                                                                |                                                                                   |                                                                                   | No                                                                                 |                                                                                     |                                                                                     | No                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                               | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 27                                                                                | 16                                                                                | 1                                                                                 | 22                                                                                | 11                                                                                | 15                                                                                | 15                                                                                 | 901                                                                                 | 30                                                                                  | 137                                                                                 | 749                                                                                 | 27                                                                                  |
| Peak Hour Factor             | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                              | 0.95                                                                               | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                | 0.95                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                  | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 44                                                                                | 70                                                                                | 4                                                                                 | 39                                                                                | 26                                                                                | 36                                                                                | 29                                                                                 | 2440                                                                                | 81                                                                                  | 166                                                                                 | 2701                                                                                | 97                                                                                  |
| Arrive On Green              | 0.02                                                                              | 0.04                                                                              | 0.04                                                                              | 0.02                                                                              | 0.04                                                                              | 0.04                                                                              | 0.02                                                                               | 0.70                                                                                | 0.70                                                                                | 0.09                                                                                | 0.77                                                                                | 0.77                                                                                |
| Sat Flow, veh/h              | 1781                                                                              | 1742                                                                              | 109                                                                               | 1781                                                                              | 717                                                                               | 978                                                                               | 1781                                                                               | 3509                                                                                | 117                                                                                 | 1781                                                                                | 3498                                                                                | 126                                                                                 |
| Grp Volume(v), veh/h         | 27                                                                                | 0                                                                                 | 17                                                                                | 22                                                                                | 0                                                                                 | 26                                                                                | 15                                                                                 | 456                                                                                 | 475                                                                                 | 137                                                                                 | 380                                                                                 | 396                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1781                                                                              | 0                                                                                 | 1851                                                                              | 1781                                                                              | 0                                                                                 | 1694                                                                              | 1781                                                                               | 1777                                                                                | 1849                                                                                | 1781                                                                                | 1777                                                                                | 1848                                                                                |
| Q Serve(g_s), s              | 1.8                                                                               | 0.0                                                                               | 1.1                                                                               | 1.5                                                                               | 0.0                                                                               | 1.8                                                                               | 1.0                                                                                | 12.6                                                                                | 12.6                                                                                | 9.1                                                                                 | 7.5                                                                                 | 7.5                                                                                 |
| Cycle Q Clear(g_c), s        | 1.8                                                                               | 0.0                                                                               | 1.1                                                                               | 1.5                                                                               | 0.0                                                                               | 1.8                                                                               | 1.0                                                                                | 12.6                                                                                | 12.6                                                                                | 9.1                                                                                 | 7.5                                                                                 | 7.5                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.06                                                                              | 1.00                                                                              |                                                                                   | 0.58                                                                              | 1.00                                                                               |                                                                                     | 0.06                                                                                | 1.00                                                                                |                                                                                     | 0.07                                                                                |
| Lane Grp Cap(c), veh/h       | 44                                                                                | 0                                                                                 | 74                                                                                | 39                                                                                | 0                                                                                 | 63                                                                                | 29                                                                                 | 1235                                                                                | 1286                                                                                | 166                                                                                 | 1372                                                                                | 1426                                                                                |
| V/C Ratio(X)                 | 0.61                                                                              | 0.00                                                                              | 0.23                                                                              | 0.57                                                                              | 0.00                                                                              | 0.42                                                                              | 0.51                                                                               | 0.37                                                                                | 0.37                                                                                | 0.83                                                                                | 0.28                                                                                | 0.28                                                                                |
| Avail Cap(c_a), veh/h        | 111                                                                               | 0                                                                                 | 378                                                                               | 96                                                                                | 0                                                                                 | 332                                                                               | 96                                                                                 | 1235                                                                                | 1286                                                                                | 304                                                                                 | 1372                                                                                | 1426                                                                                |
| HCM Platoon Ratio            | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 57.9                                                                              | 0.0                                                                               | 55.8                                                                              | 58.1                                                                              | 0.0                                                                               | 56.5                                                                              | 58.5                                                                               | 7.5                                                                                 | 7.5                                                                                 | 53.5                                                                                | 4.0                                                                                 | 4.0                                                                                 |
| Incr Delay (d2), s/veh       | 13.0                                                                              | 0.0                                                                               | 1.6                                                                               | 12.6                                                                              | 0.0                                                                               | 4.4                                                                               | 13.3                                                                               | 0.9                                                                                 | 0.8                                                                                 | 9.9                                                                                 | 0.5                                                                                 | 0.5                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 1.0                                                                               | 0.0                                                                               | 0.5                                                                               | 0.8                                                                               | 0.0                                                                               | 0.8                                                                               | 0.6                                                                                | 4.8                                                                                 | 4.9                                                                                 | 4.5                                                                                 | 2.5                                                                                 | 2.6                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 71.0                                                                              | 0.0                                                                               | 57.4                                                                              | 70.7                                                                              | 0.0                                                                               | 60.9                                                                              | 71.8                                                                               | 8.3                                                                                 | 8.3                                                                                 | 63.4                                                                                | 4.5                                                                                 | 4.5                                                                                 |
| LnGrp LOS                    | E                                                                                 | A                                                                                 | E                                                                                 | E                                                                                 | A                                                                                 | E                                                                                 | E                                                                                  | A                                                                                   | A                                                                                   | E                                                                                   | A                                                                                   | A                                                                                   |
| Approach Vol, veh/h          | 44                                                                                |                                                                                   |                                                                                   | 48                                                                                |                                                                                   |                                                                                   | 946                                                                                |                                                                                     |                                                                                     | 913                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 65.7                                                                              |                                                                                   |                                                                                   | 65.4                                                                              |                                                                                   |                                                                                   | 9.3                                                                                |                                                                                     |                                                                                     | 13.3                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | E                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | A                                                                                  |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 | 3                                                                                 | 4                                                                                 | 5                                                                                 | 6                                                                                 | 7                                                                                  | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 15.7                                                                              | 87.9                                                                              | 7.1                                                                               | 9.3                                                                               | 6.5                                                                               | 97.1                                                                              | 7.5                                                                                | 8.9                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                               | 4.5                                                                                | 4.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | 20.5                                                                              | 50.5                                                                              | 6.5                                                                               | 24.5                                                                              | 6.5                                                                               | 64.5                                                                              | 7.5                                                                                | 23.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 11.1                                                                              | 14.6                                                                              | 3.5                                                                               | 3.1                                                                               | 3.0                                                                               | 9.5                                                                               | 3.8                                                                                | 3.8                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.2                                                                               | 7.2                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 5.8                                                                               | 0.0                                                                                | 0.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay           | 13.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                  | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## **APPENDIX D**

### ***Preliminary Engineering Report and Utility Will-Serve Letters***

***APPENDIX D1***  
***Preliminary Engineering Report***

# Preliminary Engineering Report

for

Gentry Kalaeloa Parcel 1 Residential Development  
Honouliuli, Ewa, Oahu, Hawaii  
TMK: (1) 9-1-013: 002

Prepared for:

Gentry Kalaeloa, LLC  
733 Bishop Street, Suite 1400  
Honolulu, Hawaii 96813

Prepared by:

R.M. Towill Corporation  
2024 N. King St., Suite 200  
Honolulu, Hawaii 96819

July 29, 2021



## Preliminary Engineering Report

PROJECT NAME: Gentry Kalaeloa Parcel 1 Residential Development

LOCATION: Honouliuli, Ewa, Oahu, Hawaii

TAX MAP KEY: (1) 9-1-013: 002

KALAELOA CDD TRANSECT ZONE: T3 – General Urban Zone

PROJECT AREA: 29.81 Acres

OWNER/DEVELOPER: Gentry Kalaeloa, LLC  
733 Bishop Street, Suite 1400  
Honolulu, Hawaii 96813

ENGINEERING CONSULTANT: R.M. Towill Corporation  
2024 North King Street, Suite 200  
Honolulu, HI 96819-3494  
Phone: (808) 842-1133

DATE: July 29, 2021



This work was prepared by me  
or under my supervision

*Brent Nakaoaka*

Signature  
Exp. Date: 4/30/22

7/29/21

Date

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## **1. PROJECT DESCRIPTION**

The project site is located in Kapolei on the island of Oahu, Hawaii (TMK 9-1-013: 002 por.). The project is in the Kalaeloa Community Development District (Kalaeloa), also formerly known as the Naval Air Station Barbers Point. Gentry is planning a residential community within Parcel 1 of Kalaeloa.

The project is bounded by the existing Franklin D. Roosevelt Avenue to the north, Realigned Boxer Road to the south, Copahoe Avenue to the east, and the extension of Kamokila Boulevard to the west. See Figure 1 for the location map.

## **2. PURPOSE AND SCOPE**

The purpose of this study is to establish the infrastructure requirements for the project. It will include information on the existing and proposed conditions, identify potential impacts of the project to the surrounding areas, and mitigation measures to accommodate the proposed development.

## **3. EXISTING CONDITION**

### **A. General**

Parcel 1 is located in the northwest corner of Kalaeloa, primarily on undeveloped land covered with grass, trees, and a few concrete pads. A portion of Boxer Road and existing minor roads Kearsarge Street and Boxer Circle traverse through the project site.

### **B. Topography**

The topography in the area is generally flat with a few small mounds and depressions. The site generally slopes from north to south with an average slope of approximately 1%. Elevations range from approx. 48 ft to 57 ft above Mean Sea Level (MSL). See Figure 2 for the existing topography map.

### **C. Geology and Soils**

As presented in the geotechnical report prepared by Geolabs Inc., entitled “Gentry Kalaeloa Development” dated June 2, 2021, the project site is covered with a thin layer of surface fills consisting of sands, gravels, silts, and clays. The surface fills are underlain by coralline deposits consisting of coralline detritus, coral formation, sandstone, siltstone, and coral-algal limestone.

Existing soils data on the project site were obtained from the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) web soil survey. They consist of Coral outcrop (CR) and Mamala cobbly silty clay loam (Mnc).



#### D. Climate

The project site is located on the leeward side of the island of Oahu. Data obtained from the National Oceanic and Atmospheric Administration (NOAA) indicates that Kalaeloa receives an average annual rainfall of approximately 16 inches. Average low and high temperatures range from mid-60's to low-90's degrees Fahrenheit. Winds are predominantly from the northeast.

#### E. Land use

Zoning designation of the project is T-3 General Urban Zone, under the jurisdiction of Hawaii Community Development Authority (HCDA).

#### F. Site and Roadways

Existing roadways along the perimeter of the project site include Franklin D. Roosevelt Avenue to the north, realigned Boxer Road to the south, Copahee Avenue to the east, and Kamokila Boulevard extension to the west. Improvements to these perimeter roads are being constructed by the Hunt Companies.

Franklin D. Roosevelt Avenue is a two-lane undivided collector road serving the local thoroughfare between Fort Weaver Road and Kamokila Boulevard. Boxer Road is an undivided two-lane road serving local traffic from Franklin D. Roosevelt Avenue to Kalaeloa Airport to the south. Kamokila Boulevard extension is a four-lane divided arterial roadway that serves local thoroughfare as well as a freeway bypass carrying overflow traffic from the H-1 freeway and onto Farrington Highway eastbound. Copahee Avenue is an undivided two-lane road serving local traffic from Franklin D. Roosevelt Avenue to the realigned Boxer Road.

#### G. Flood Hazard Determination

The project site is located in Zone D, areas in which flood hazards are undetermined, but possible. See Figure 4 for the Flood Insurance Rate Map (FIRM) obtained from the Federal Emergency Management Agency (FEMA).

#### H. Drainage System

##### 1. Hydrologic Criteria and Methodology

The design peak flows and runoff volumes for the 10-year and 50-year storm events were calculated using the Rational Method in accordance to the City, Department of Planning and Permitting, Storm Drainage Standards (Reference A).

The recurrence intervals ( $T_m$ ) used in this study are summarized in Table 1.

TABLE 1  
RECURRENCE INTERVAL CRITERIA

| Drainage Area (Acres) | Tm (Years)   | Storm Duration |
|-----------------------|--------------|----------------|
| ≤ 100                 | 10 or 50 (*) | 1-hour         |

\* In sump or tailwater condition, and for roadway culverts and bridges

## 2. Runoff Quantity (Peak Flow)

Drainage areas were determined based on available information from previous drainage studies and available topographic surveys. For drainage areas of 100 acres or less, the Rational Method was used to calculate peak flow rates.

Rational Method:

Q = CIFA

Q = Peak flow rate (cfs)

C = Runoff coefficient (dimensionless)

I = Rainfall intensity for a duration equal to the time of concentration (inches)

F = Correction factor based on time of concentration

A = Drainage area (acres)

Runoff coefficients (C) were obtained using Tables 1 and 2 of the City Storm Drainage Standards. Table 2 summarizes the runoff coefficients used for calculations.

TABLE 2  
RUNOFF COEFFICIENTS

| Land Use                           | Runoff Coefficient (C) |
|------------------------------------|------------------------|
| Paved Roads, and Parking Lots      | 0.90 to 0.95           |
| Mixed Use (Commercial/Residential) | 0.70 to 0.90           |
| Residential                        | 0.55 to 0.70           |
| Undeveloped, Parks and Open Space  | 0.45 to 0.55           |

The rainfall intensity (I) is derived from Plate 1 (10-year storm recurrence) and Plate 2 (50-year storm recurrence) in the City's Storm Drainage Standards and are summarized in Table 3.

TABLE 3  
INTENSITY OF ONE-HOUR RAINFALL

| Storm Recurrence Interval | Rainfall Intensity (in/hr) |
|---------------------------|----------------------------|
| 10-year, 1-hour           | 2.20                       |
| 50-year, 1-hour           | 2.90                       |

### 3. Existing Drainage System

Existing onsite runoff generally flows from north to south with a few pockets of depression that allow runoff to infiltrate into the underground coral subgrade. The project site does not receive any offsite runoff. The exiting drainage system consists of drywells that are not functional due to the lack of proper maintenance. These drywells will be demolished and removed.

### 4. Runoff Analysis

Existing onsite drainage was evaluated in five drainage areas. The peak flows were calculated for the 10-year, 1-hour storm event for each drainage area. See Figure 7 for the existing drainage areas map. See Appendix A for the drainage computations.

#### I. Water System

The potable water system is provided by the Kalaeloa Water Company. Existing water mains in the area consist of 8-inch, 12-inch, and 16-inch in sizes.

#### J. Sewer System

The sanitary sewer system in Kalaeloa is owned and operated by the Kalaeloa Water Company. Downstream of Kalaeloa, sewage discharges to the existing sewer pump station BP-071. From the pump station, wastewater is conveyed to the City and County of Honolulu's Honouliuli Wastewater Treatment Plant (WWTP) for treatment and disposal.

Existing sewer mains consist of 8-inch, 10-inch, and 12-inch in sizes.

#### K. Electrical System

The existing overhead electrical lines along and within the parcel are owned by NAVFAC HAWAII (Navy) and have not been maintained since the closure of Barbers Point Naval Air Station (BPNAS). NAVFAC HAWAII has indicated that they will not permit new electrical loads to be added to their electrical system. North of Roosevelt Avenue and the Kalaeloa District Boundary, Hawaiian Electric (HECO) has three overhead electric lines, a double circuit 138 kV line, a double circuit 46 kV line, and a 12 kV line. The existing overhead HECO 12kV line has minimal capacity and was built to provide service to the Barbers Point Elementary School and the Hawaiian Telcom central office which both lie to the east of the Gentry Kalaeloa subdivision site. In addition, the City and County of Honolulu constructed the Kamokila Boulevard Extension project which extended underground HECO infrastructure along Kamokila Boulevard up to the Kalaeloa District Boundary. This infrastructure has the capability to extend HECO 12 kV cable infrastructure into the Kalaeloa District by extending the duct infrastructure.

#### L. Telecommunication System

The existing overhead telecommunication lines along and within the parcel are owned by Hawaiian Telcom (HT) and possibly by Charter Spectrum (Spectrum). Under agreements with the Navy, HT and Spectrum provided telecommunication services to the area. Most of these lines are currently not in service and may have been vandalized. Hawaiian Telcom's Barbers Point central office was the service demarcation point for BPNAS. Hawaiian Telcom also has an existing underground duct system within Roosevelt Boulevard that may also contain Spectrum cables. The City and County of Honolulu's Kamokila Boulevard Extension project also included construction of HT and Spectrum facilities up to the Kalaeloa District boundary.

### 4. PROPOSED CONDITION

#### A. Site Layout and Access

As part of the Backbone Roadway improvements for the development of Kalaeloa, Kamokila Boulevard is being extended on the west side of the project site, and a portion of Boxer Road is being realigned to conform to the Parcel 1 development boundary. Franklin D. Roosevelt Avenue, and Copahoe Avenue will also be improved to meet the City and County, Department of Planning and Permitting standards.

The proposed residential development consists of single- and multi-family residences. There will be a total of three (3) driveway entrances to the project; one coming off Franklin D. Roosevelt Avenue, one on Boxer Road, and a third on Kamokila Boulevard which will be shared with the adjacent Department of Veterans Affairs facility. A technical memorandum was prepared by Fehr and Peers dated March 17, 2021 to study these driveway operations for Parcel 1. The study concluded that from an operational perspective, the proposed driveways for Parcel 1 will provide desirable overall intersection Level of Service during peak hours at full buildout of Kalaeloa. See Appendix D for the technical memorandum.

#### B. Drainage System

##### 1. Proposed Drainage System

The proposed onsite drainage system will consist of underground drain pipes, drain inlets, and drain manholes to capture and convey runoff. Drain sizes range from 18-inch to 48-inch in size connecting to the existing drain stubs located on Boxer Road.

In accordance with the Kalaeloa Backbone Roadway improvements drainage system, runoff generated onsite will not sheet flow to the adjacent backbone roadways. It will either be retained onsite via subsurface infiltration system or be discharged offsite via an underground drainage system.

The design of the project drainage system will be in conformance with the City storm drainage standards, as well as the City-approved drainage studies entitled “Drainage Report for Kalaeloa (Naval Air Station Barbers Point)” and “Drainage Report for Kalaeloa Parcel 1”.

## 2. Runoff Analysis

Proposed onsite drainage was evaluated in four drainage areas. The peak flows were calculated for the 10-year, 1-hour storm event for each drainage area. See Figure 8 for the existing drainage areas map. See Appendix A for the drainage computations. The results from the computations are summarized in the table below

**TABLE 4**  
**EXISTING AND PROPOSED RUNOFF COMPARISON**

| Existing      |           |                             | Proposed      |           |                             |
|---------------|-----------|-----------------------------|---------------|-----------|-----------------------------|
| Drainage Area | Area (ac) | 10-yr, 1-hr Peak Flow (cfs) | Drainage Area | Area (ac) | 10-yr, 1-hr Peak Flow (cfs) |
| DA 1          | 3.39      | 3.58                        | DA 1          | 8.49      | 36.21                       |
| DA 2          | 4.49      | 4.90                        | DA 2          | 2.49      | 10.62                       |
| DA 3          | 2.21      | 2.94                        | DA 3          | 4.03      | 17.19                       |
| DA 4          | 4.64      | 5.34                        | DA 4          | 15.45     | 65.90                       |
| DA 5          | 15.32     | 15.20                       |               |           |                             |
| Total         |           | 31.96                       | Total         |           | 129.92                      |

The proposed condition peak flows generated from the project was accounted for in the Kalaeloa Backbone Roadway drainage system. As such, the increase in peak flow from the project site does not have an adverse impact to the downstream and adjacent properties.

### C. Storm Water Quality

The design of the project storm water quality system will conform with the drainage master plan as well as the City and County of Honolulu guidelines related to storm water quality.

### D. Water System

The potable water system will be designed in conformance with the Board of Water Supply (BWS) Water System Standards (WWS), dated 2002 and its amendments.

The proposed water system will be designed to accommodate the domestic and fire protection requirements. This will be accomplished by utilizing an 8x2 FM Meter assembly as a single connection for both domestic and fire protection demands. The



project will connect to the Kalaeloa water system at two locations; one on Franklin D. Roosevelt Avenue, and one on Boxer Road. Water mains range from 8-inch to 12-inch in size. See Appendix B for the water computations.

Water service to the project will be provided by Kalaeloa Water Company, which is a subsidiary of Hawaii Water Service. Their letter dated April 30, 2021 stated that they are willing to provide water service to the project.

#### E. Sewer System

The sanitary sewer system will be designed in conformance with the City and County of Honolulu, Department of Environmental Services (ENV) Wastewater System Design Standards, dated July 2017. A Sewer Connection Application (SCA) was submitted to the City and County of Honolulu, Department of Planning and Permitting for approval for the proposed wastewater flow. The SCA was approved on 04/27/2020 and is valid for a 2-year period. See Appendix C for the approved SCA.

The proposed sewer system will connect to one sewer stub out on Boxer Road, one sewer stub out within the project site, and three sewer stub outs on Copahee Avenue. Sewer mains range from 6-inch to 8-inch in size.

Sewer service to the project will be provided Kalaeloa Water Company. Their letter dated April 30, 2021 stated that they are willing to provide sewer service to the project.

#### F. Electrical System

##### 1. Proposed Electrical Improvements

Hunt Communities Hawaii's Kalaeloa Parcel 1 Off-Site Infrastructure Project, which includes underground HECO duct systems connected to the stub-outs provided under the City and County of Honolulu's Kamokila Boulevard Extension project, has been designed and is currently under review by the City and County of Honolulu and Hawaiian Electric.

HECO has provided a "Will Serve" letter dated April 21, 2021 for the Gentry Kalaeloa Subdivision project. In the letter, HECO indicates they have existing distribution circuits along Kamokila Boulevard that may be used to serve the project. New HECO infrastructure will be required to extend the circuits from their existing facility to the project site

##### 2. Proposed Telecommunication Improvements

Hunt Communities Hawaii's Kalaeloa Parcel 1 Off-Site Infrastructure Project, which includes underground HT and Spectrum duct systems connected to the

stub-outs provided under the City and County of Honolulu's Kamokila Boulevard Extension project, has been designed and is currently under review by the City and County of Honolulu, Hawaiian Telcom, and Spectrum.

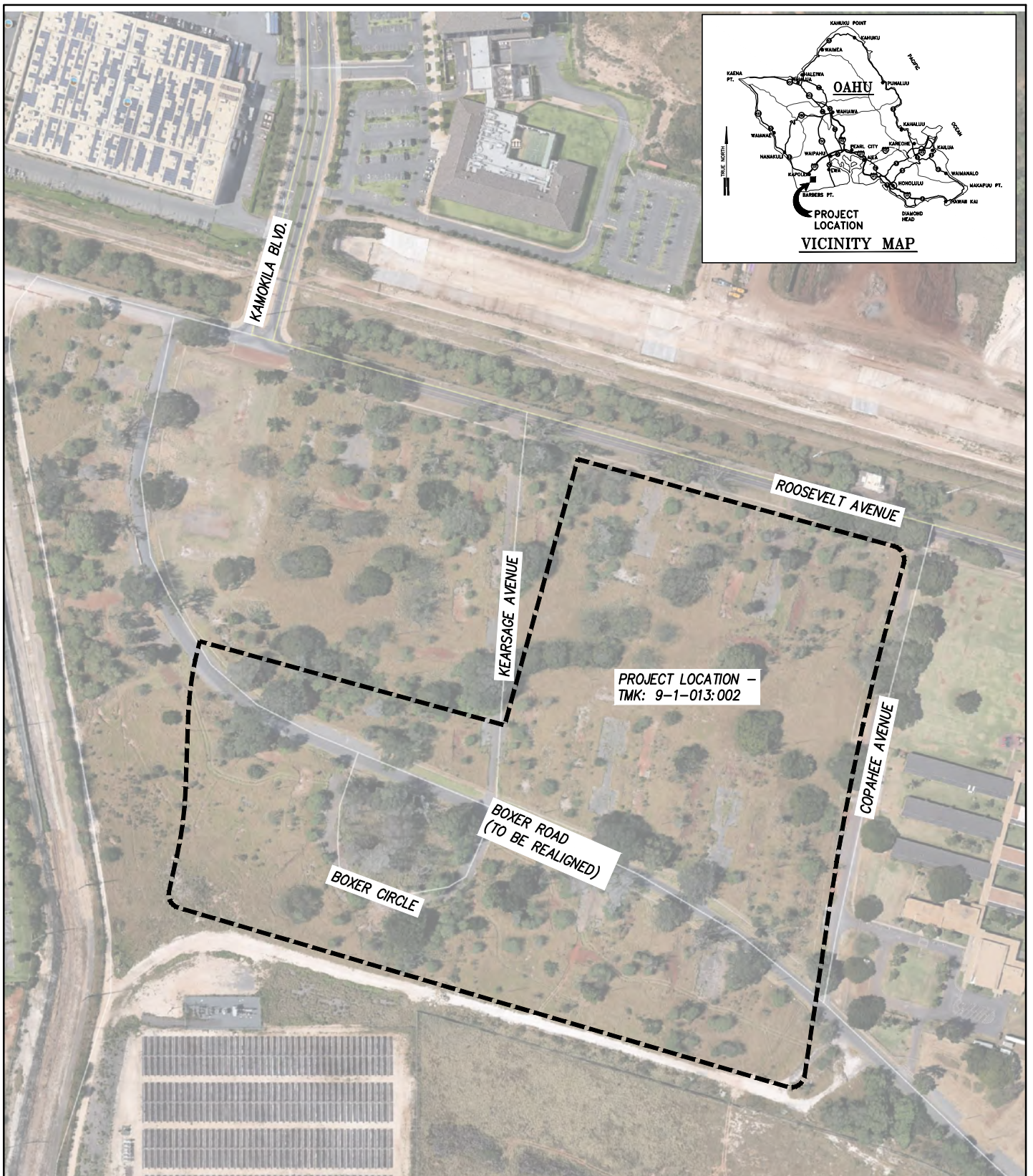
Spectrum has provided a "Will Serve" letter dated February 25, 2021 for the Gentry Kalaeloa Subdivision project. In the letter, Spectrum indicates that they are willing and able to provide services to the project.

## **5. SUMMARY**

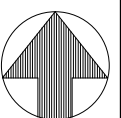
The scope of this study is to establish the infrastructure requirements for Gentry's proposed residential development in Kalaeloa. It has been determined that the existing infrastructure and infrastructure improvements by the Kalaeloa Backbone Roadway Improvements will be adequate to support this project.

## **6. REFERENCES**

- A. Web Soil Survey, United States Department of Agriculture, Natural Resources Conservation Service, (available at website: <http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>, last accessed July 13, 2021).
- B. Rules Relating to Storm Drainage Standards, Department of Planning and Permitting, City and County of Honolulu, August 2017.
- C. NOAA Atlas 14 Precipitation-Frequency Atlas of the United States, Volume 4 Version 3: Hawaiian Islands, 2011, United States Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service.
- D. Flood Map Service Center (website), United States Department of Homeland Security, Federal Emergency Management Agency, last accessed July 15, 2021.
- E. Water System Standards, Board of Water Supply (BWS), City and County of Honolulu, 2002.
- F. Wastewater System Design Standards Volume 1, Department of Environmental Services, City and County of Honolulu, July 2017.
- G. Rules Relating to Water Quality, Department of Planning and Permitting, City and County of Honolulu, Amended July 2017.
- H. Drainage Report for Kalaeloa (Naval Air Station Barbers Point), prepared by R.M. Towill Corporation, June 2017.
- I. Drainage report for Kalaeloa Parcel 1, prepared by R.M. Towill Corporation, May 2021.



SOURCE:  
BACKGROUND IMAGE: GOOGLE EARTH



NORTH

# GENTRY KALAELOA PARCEL 1 RESIDENTIAL DEVELOPMENT

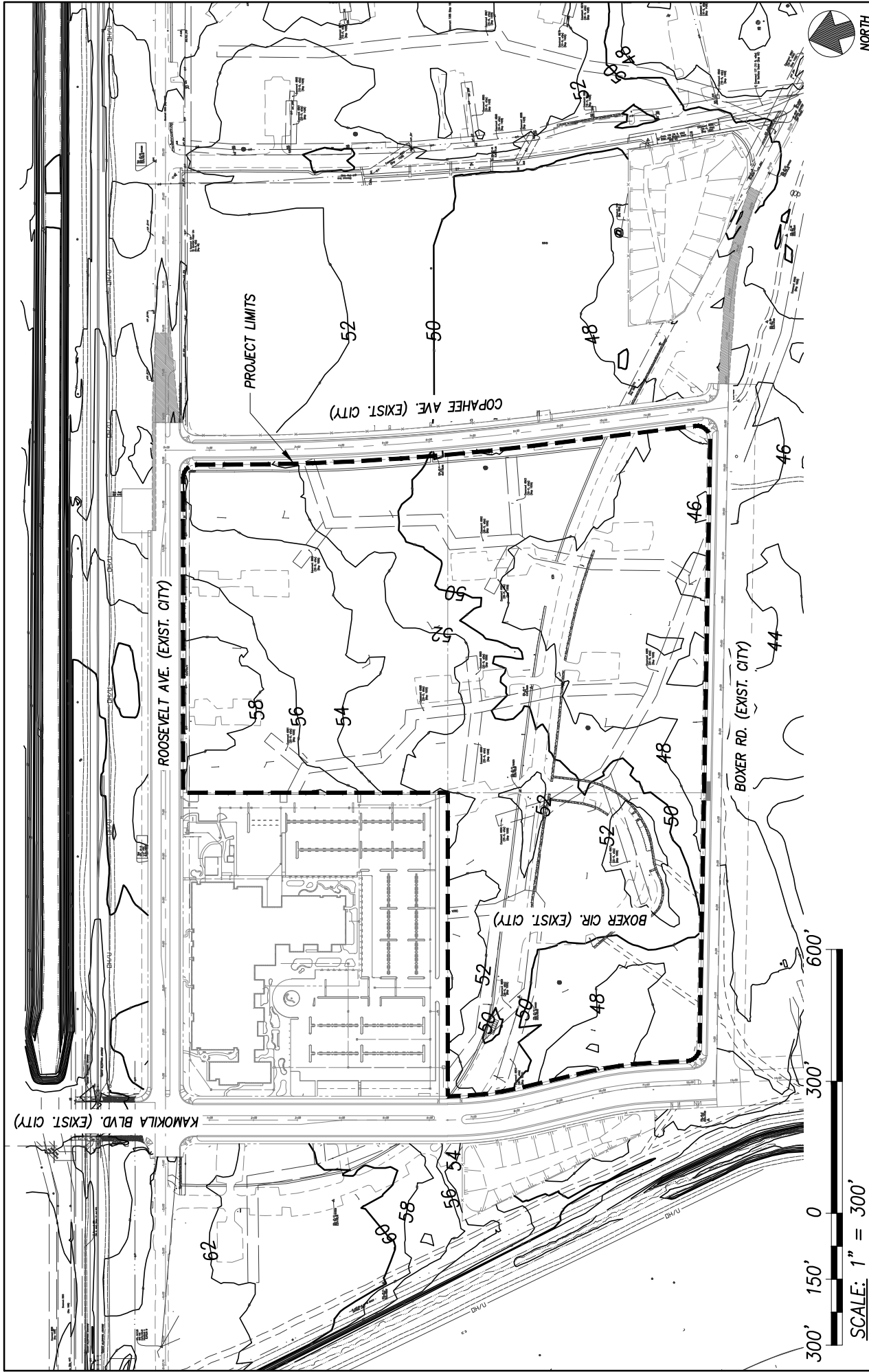


Planning - Engineering - Environmental Services - Photogrammetry - Surveying - Construction Management  
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 808 842 1133 2024 North King Street Suite 200 Honolulu Hawaii 96819-1937

## LOCATION MAP

Figure  
1





# GENTRY KALAELOA PARCEL 1 RESIDENTIAL DEVELOPMENT

## EXISTING TOPOGRAPHY

Figure  
2



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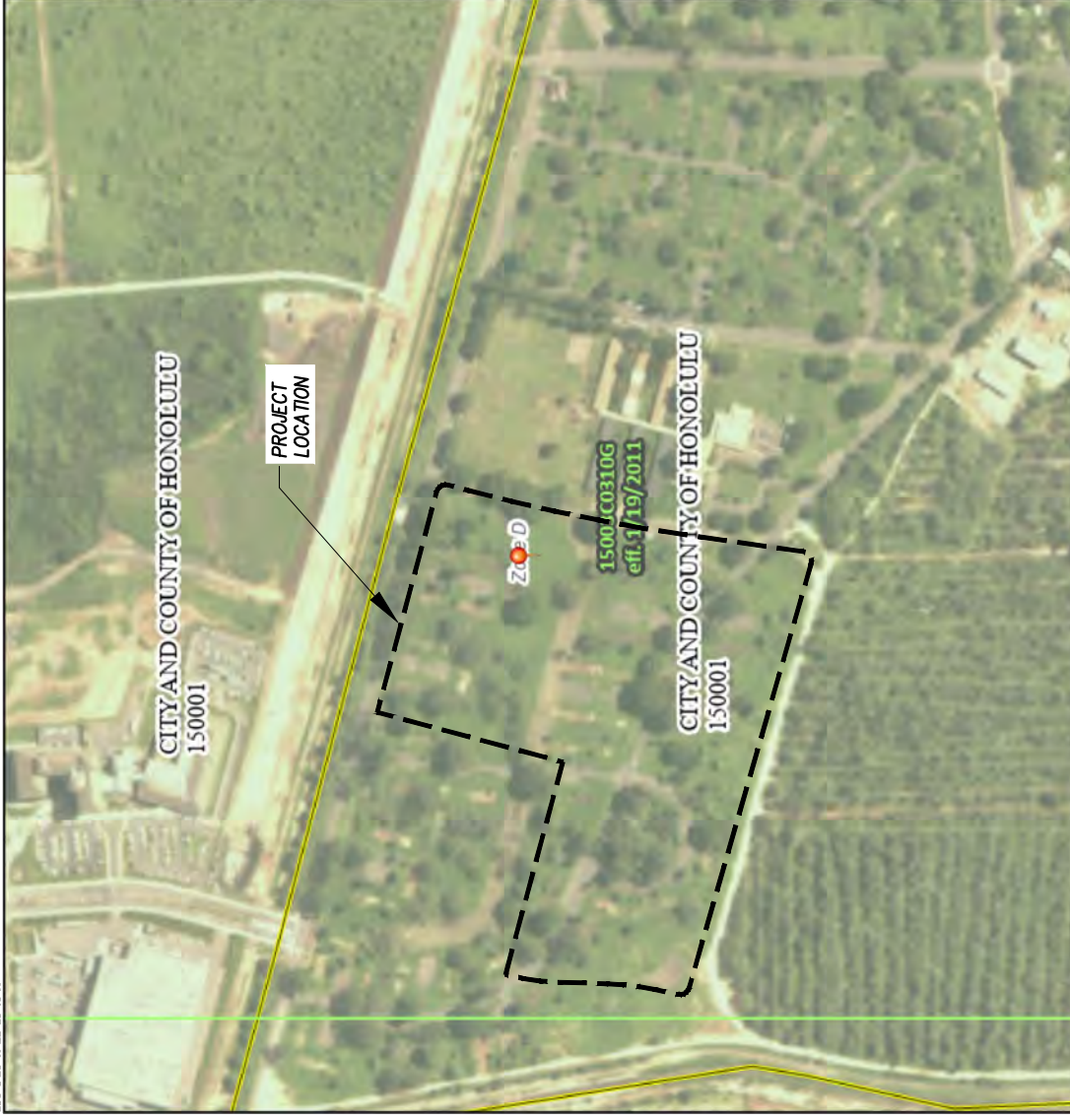
Planning - Engineering - Environmental Services - Photogrammetry - Surveying - Construction Management





# National Flood Hazard Layer FIRMette

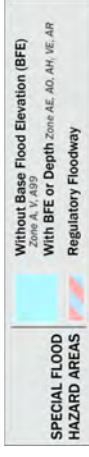
158°5'18"W 21°19'40"N



0 250 500 1,000 1,500 2,000 Feet  
1:6,000  
Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT



0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X

Future Conditions 1% Annual Chance Flood Hazard Zone X

Area with Reduced Flood Risk due to Levee. See Notes. Zone X

Area with Flood Risk due to Levee Zone D

NO SCREEN Area of Minimal Flood Hazard Zone X

Effective LOMRS

Area of Undetermined Flood Hazard Zone D

Channel, Culvert, or Storm Sewer

Levee, Dike, or Floodwall

Cross Sections with 1% Annual Chance

Water Surface Elevation

Coastal Transect

Base Flood Elevation Line (BFE)

Limit of Study

Jurisdiction Boundary

Coastal Transect Baseline

Profile Baseline

Hydrographic Feature

Digital Data Available

No Digital Data Available

Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards.

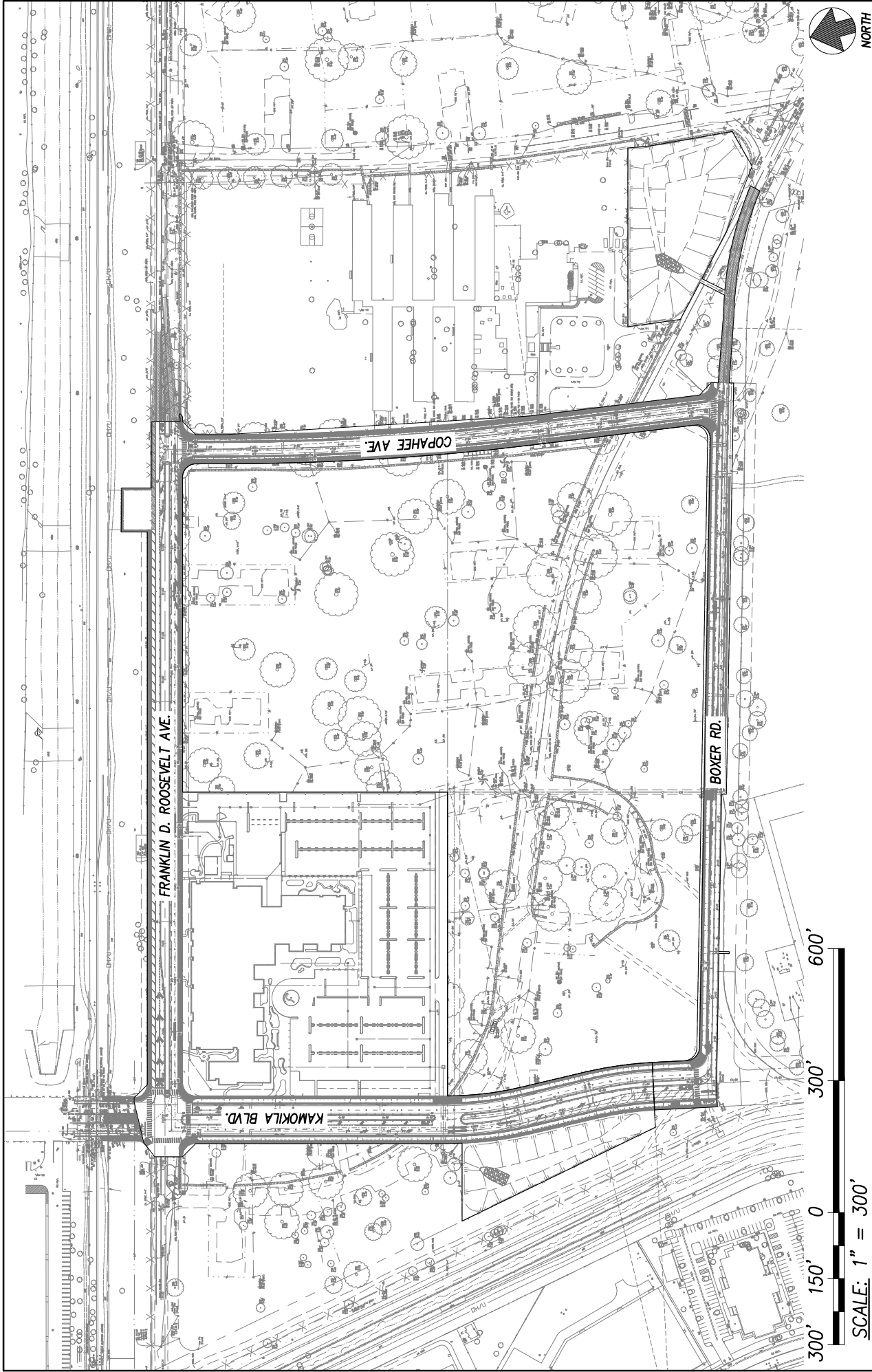
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/15/2021 at 5:52 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

GENTRY KALAELOA PARCEL 1 RESIDENTIAL DEVELOPMENT

FEMA FIRM MAP

Figure 4



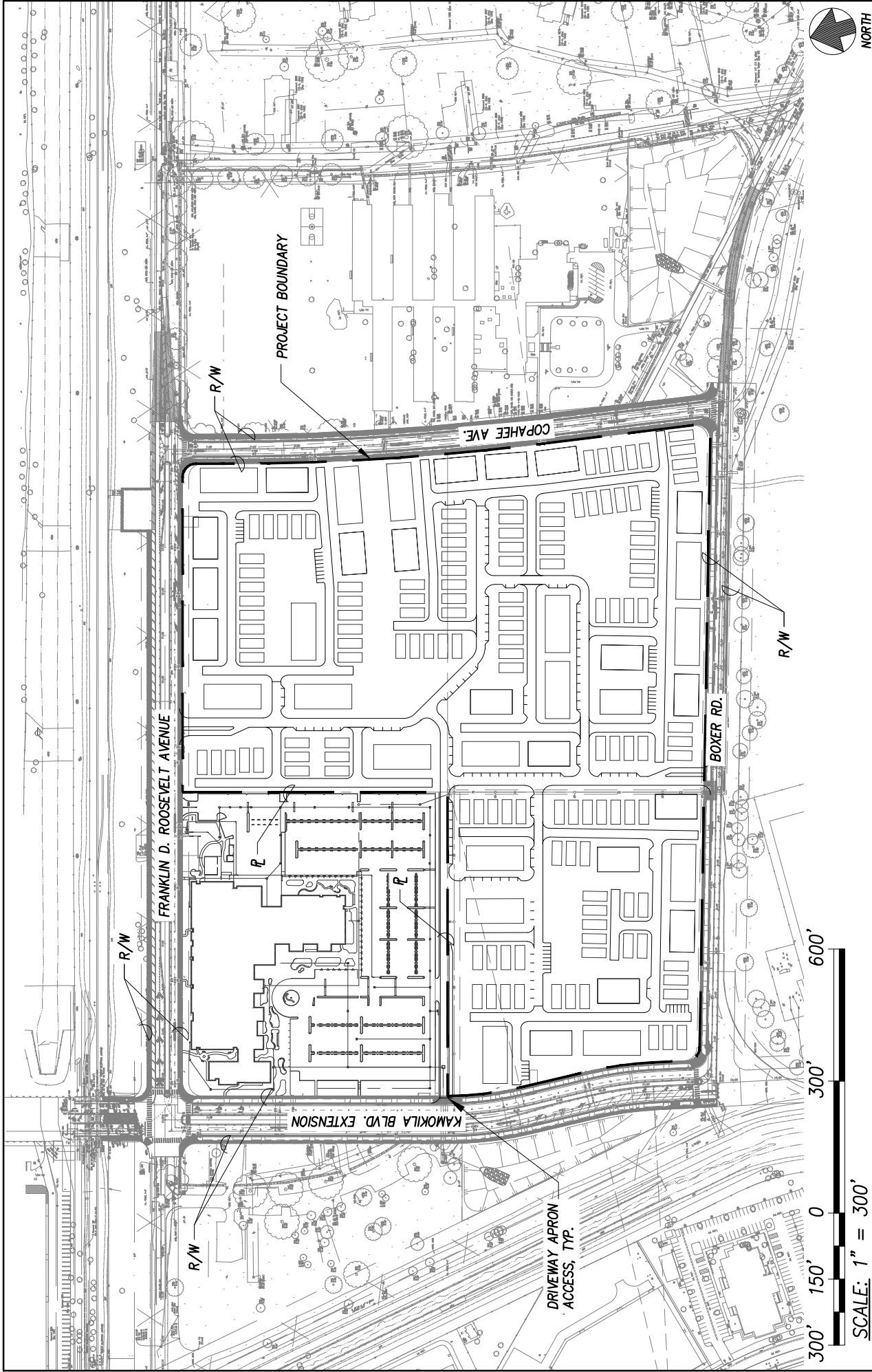
GENTRY KALAELOA PARCEL 1 RESIDENTIAL DEVELOPMENT

EXISTING CONDITIONS

Figure 5



Planning - Engineering - Environmental Services - Photogrammetry - Surveying - Construction Management  
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GENTRY KALAELOA PARCEL 1 RESIDENTIAL DEVELOPMENT

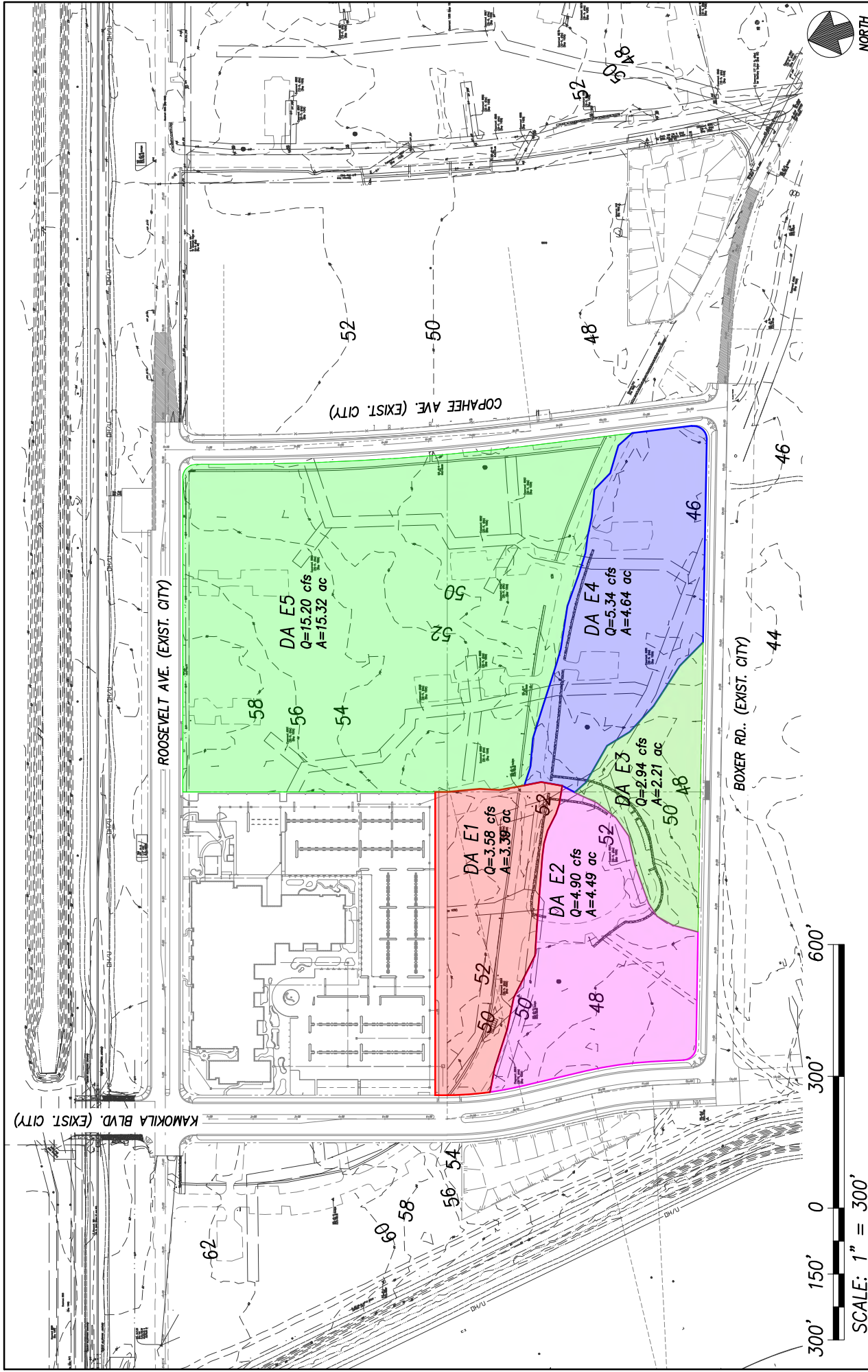
PROPOSED SITE PLAN

Figure  
6



Planning - Engineering - Environmental Services - Photogrammetry - Surveying - Construction Management  
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# GENTRY KALAELOA PARCEL 1 RESIDENTIAL DEVELOPMENT

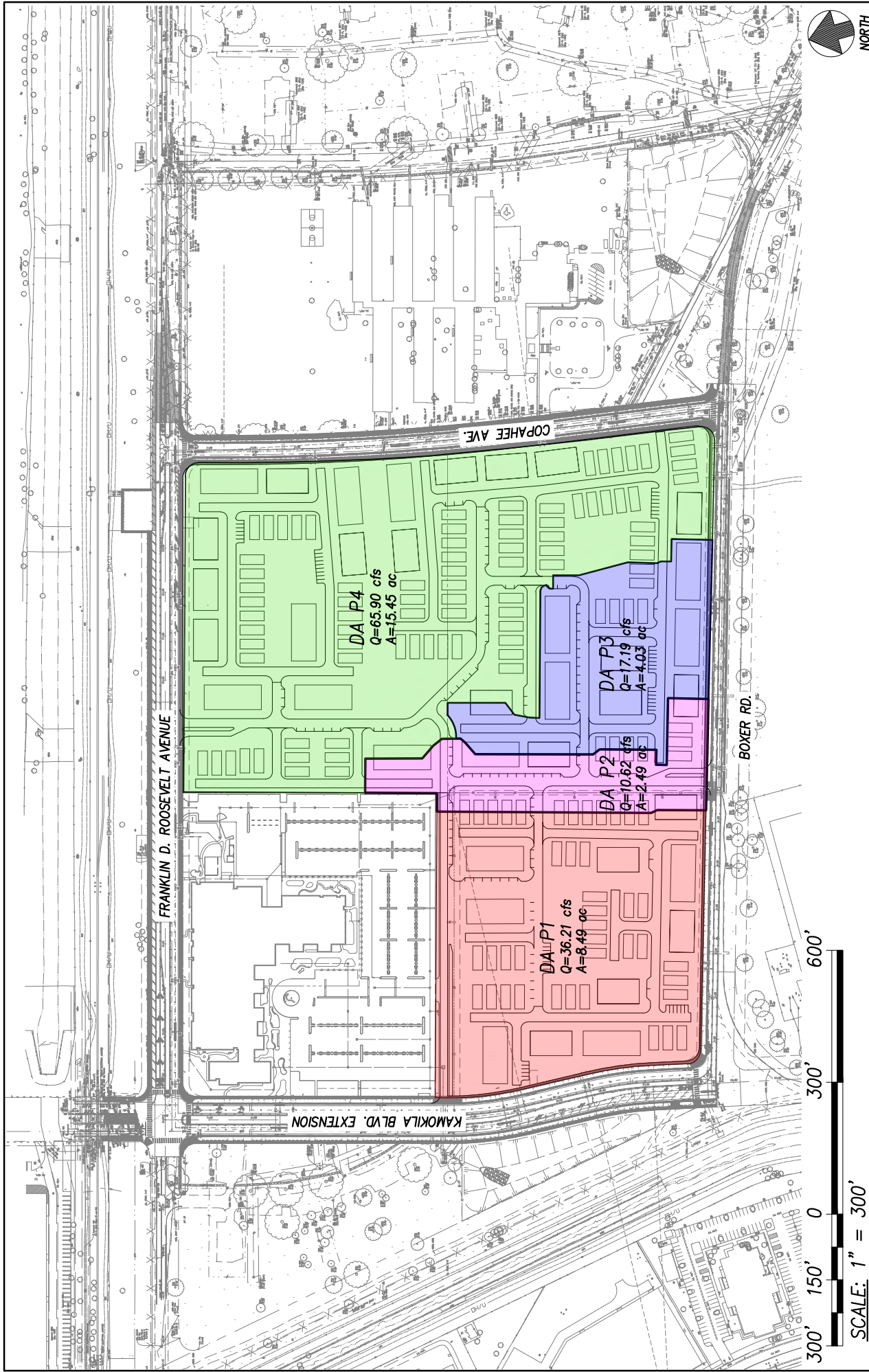
## EXISTING DRAINAGE AREAS

Figure  
7



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Planning - Engineering - Environmental Services - Photogrammetry - Surveying - Construction Management

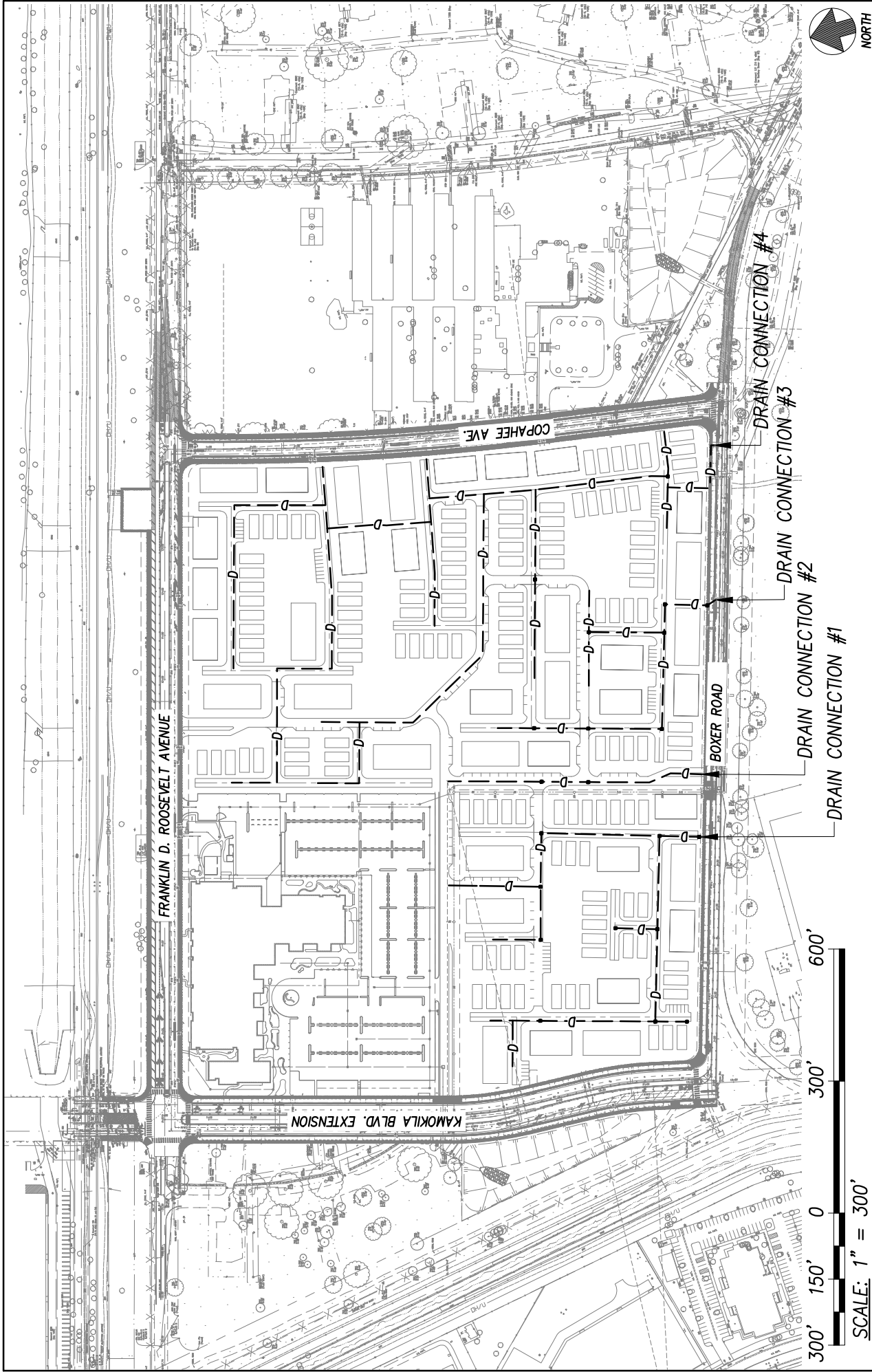


**GENTRY KALAELOA PARCEL 1 RESIDENTIAL DEVELOPMENT**

**PROPOSED DRAINAGE AREAS**

**Figure  
8**



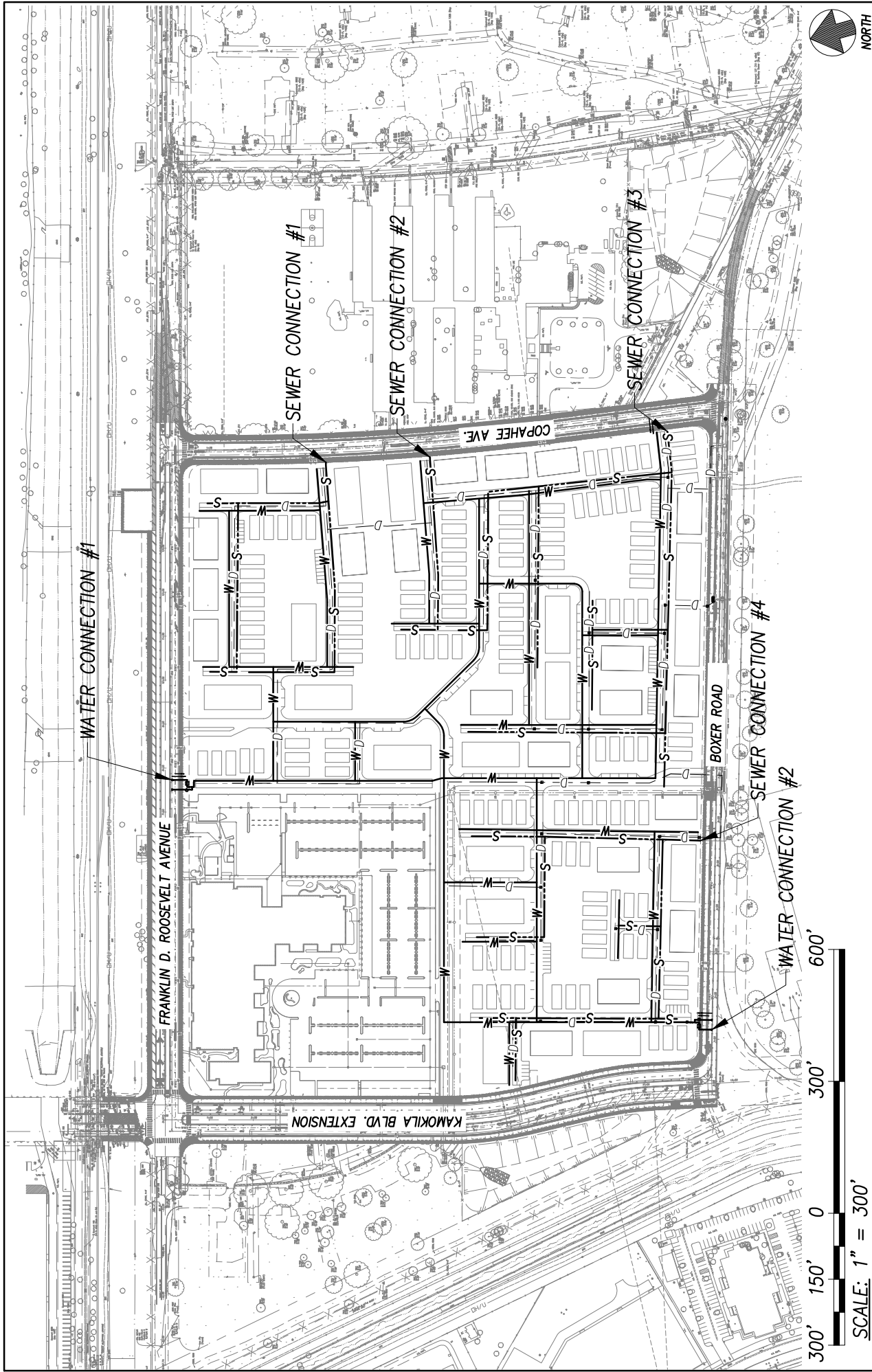


GENTRY KALAELOA PARCEL 1 RESIDENTIAL DEVELOPMENT

PROPOSED DRAINAGE PLAN

Figure  
9


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GENTRY KALAELOA PARCEL 1 RESIDENTIAL DEVELOPMENT

PROPOSED UTILITY PLAN

Figure  
10

Planning - Engineering - Environmental Services - Photogrammetry - Surveying - Construction Management  
**R. M. TOWILL CORPORATION**  
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SCALE: 1" = 300'

R. M. TOWILL CORPORATION

2024 North King Street, Suite 200, Honolulu, Hawaii 96819

File:

Ph. (808) 842-1133 Fax (808) 842-1937

Project: Gentry Kaleahea Subdivision

Location: Honolulu, Ewa, Oahu, Hawaii

Prepared by: CDJ/MN

Date: 7/19/2021

Job No.: 1-23794-0E

Checked by: BN

Date:

ITEM:

GENTRY KALAELOA SUBDIVISION - PROPOSED DRAINAGE CONDITION

1. INTRODUCTION AND PURPOSE

Purpose: To determine the existing and proposed peak flows generated for the Gentry Kaleahea Subdivision.

2. REFERENCES

2.1 "Rules Relating to Storm Drainage Standards", Department of Planning and Permitting City and County of Honolulu, Honolulu, August 2017.

3. COMPUTATIONS

3.1 Design Criteria

Recurrence Interval, Tm

Drainage Area <= 100 acres, Tm = 10-year, 1-hour storm

Runoff Quantity: Rational Method

3.2 Calculations

Rational Method

Q = CIA

Q = flow rate in cubic feet per second (cfs)

C = runoff coefficient

I = rainfall intensity (in/hr), for a duration equal to the time of concentration

A = drainage area in acres (ac.)

3.2.1 Existing Drainage Flow

| D.A   | ID | Tc   | C    | I <sub>30</sub> | F     | A(ac.) | Q <sub>un</sub> (cfs) |
|-------|----|------|------|-----------------|-------|--------|-----------------------|
| 1     | 26 | 0.30 | 2.20 | 1.6             | 3.39  | 3.58   |                       |
| 2     | 24 | 0.30 | 2.20 | 1.7             | 4.49  | 4.90   |                       |
| 3     | 14 | 0.30 | 2.20 | 2.0             | 2.21  | 2.94   |                       |
| 4     | 21 | 0.30 | 2.20 | 1.7             | 4.64  | 5.34   |                       |
| 5     | 30 | 0.30 | 2.20 | 1.5             | 15.32 | 15.20  |                       |
| TOTAL |    |      |      |                 |       |        | 31.96                 |

3.2.2 Proposed Drainage Flow

| D.A   | ID | Tc   | C    | I <sub>30</sub> | F     | A(ac.) | Q <sub>un</sub> (cfs) |
|-------|----|------|------|-----------------|-------|--------|-----------------------|
| 1     | 6  | 0.75 | 2.20 | 2.6             | 8.49  | 36.21  |                       |
| 2     | 6  | 0.75 | 2.20 | 2.6             | 2.49  | 10.62  |                       |
| 3     | 6  | 0.75 | 2.20 | 2.6             | 4.03  | 17.19  |                       |
| 4     | 6  | 0.75 | 2.20 | 2.6             | 15.45 | 65.90  |                       |
| TOTAL |    |      |      |                 |       |        | 129.92                |

APPENDIX A

Drainage Computations



AVERAGE DAILY DEMAND

FlexTable: Reservoir Table

| ID | Label | Elevation<br>(ft) | Zone   | Flow (Out net)<br>(gpm) | Hydraulic Grade<br>(ft) |
|----|-------|-------------------|--------|-------------------------|-------------------------|
| 31 | R-1   | 212.00            | <None> | 753                     | 212.00                  |

AVERAGE DAILY DEMAND

FlexTable: Pipe Table

| ID  | Label                 | Length<br>(Scaled)<br>(ft) | Start<br>Node                            | Stop<br>Node                             | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|-----------------------|----------------------------|------------------------------------------|------------------------------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 715 | Existing P<br>-295(1) | 1,044                      | J-31                                     | BARBER<br>SPT<br>ELEM<br>(EX.<br>PAR. 2) | 12.0             | 110.0                | 211.11                             | 211.11                            | 8             | 0.02               |
| 716 | Existing P<br>-295(2) | 544                        | BARBER<br>SPT<br>ELEM<br>(EX.<br>PAR. 2) | J-22                                     | 12.0             | 110.0                | 211.11                             | 211.11                            | -4            | 0.01               |
| 44  | Existing-P<br>-4      | 2,377                      | J-3                                      | J-4                                      | 24.0             | 130.0                | 211.42                             | 211.30                            | 753           | 0.53               |
| 46  | Existing-P<br>-5      | 239                        | J-4                                      | J-5                                      | 24.0             | 130.0                | 211.30                             | 211.28                            | 753           | 0.53               |
| 67  | Existing-P<br>-14     | 61                         | J-16                                     | EX.<br>PARCEL<br>53                      | 12.0             | 110.0                | 211.21                             | 211.20                            | 101           | 0.29               |
| 69  | Existing-P<br>-15     | 533                        | EX.<br>PARCEL<br>53                      | J-18                                     | 12.0             | 110.0                | 211.20                             | 211.18                            | 101           | 0.29               |
| 75  | Existing-P<br>-18     | 442                        | EX.<br>PARCEL<br>48                      | J-21                                     | 12.0             | 110.0                | 211.15                             | 211.13                            | 72            | 0.20               |
| 77  | Existing-P<br>-19     | 800                        | J-21                                     | J-22                                     | 12.0             | 110.0                | 211.13                             | 211.11                            | 72            | 0.20               |
| 101 | Existing-P<br>-31     | 829                        | J-33                                     | EX.<br>PARCEL<br>55                      | 24.0             | 130.0                | 211.16                             | 211.16                            | -54           | 0.04               |
| 105 | Existing-P<br>-33     | 1,250                      | J-35                                     | J-36                                     | 18.0             | 120.0                | 211.16                             | 211.21                            | -263          | 0.33               |
| 107 | Existing-P<br>-34     | 156                        | J-36                                     | J-37                                     | 18.0             | 120.0                | 211.21                             | 211.21                            | -263          | 0.33               |
| 145 | Existing-P<br>-47     | 8,141                      | R-1                                      | J-3                                      | 24.0             | 130.0                | 212.00                             | 211.42                            | 753           | 0.53               |
| 149 | Existing-P<br>-50     | 1,382                      | J-40                                     | J-42                                     | 24.0             | 130.0                | 211.28                             | 211.27                            | 246           | 0.17               |
| 150 | Existing-P<br>-51     | 594                        | J-42                                     | J-6                                      | 24.0             | 130.0                | 211.27                             | 211.26                            | 246           | 0.17               |
| 152 | Existing-P<br>-53     | 286                        | J-44                                     | J-16                                     | 12.0             | 110.0                | 211.22                             | 211.21                            | 101           | 0.29               |
| 153 | Existing-P<br>-54     | 176                        | J-19                                     | J-49                                     | 12.0             | 110.0                | 211.16                             | 211.15                            | 72            | 0.20               |
| 154 | Existing-P<br>-55     | 221                        | J-49                                     | EX.<br>PARCEL<br>48                      | 12.0             | 110.0                | 211.15                             | 211.15                            | 72            | 0.20               |
| 158 | Existing-P<br>-59     | 249                        | J-47                                     | J-32                                     | 12.0             | 110.0                | 211.15                             | 211.16                            | -77           | 0.22               |
| 178 | Existing-P<br>-71     | 344                        | J-64                                     | EX.<br>PARCEL<br>49                      | 12.0             | 110.0                | 211.13                             | 211.14                            | -56           | 0.16               |



AVERAGE DAILY DEMAND

FlexTable: Pipe Table

| ID  | Label              | Length<br>(Scaled)<br>(ft) | Start<br>Node      | Stop<br>Node       | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|--------------------|----------------------------|--------------------|--------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 182 | Existing-P<br>-73  | 286                        | EX<br>PARCEL<br>49 | J-66               | 12.0             | 110.0                | 211.14                             | 211.14                            | -58           | 0.17               |
| 187 | Existing-P<br>-76  | 140                        | J-32               | J-68               | 24.0             | 130.0                | 211.16                             | 211.16                            | -141          | 0.10               |
| 197 | Existing-P<br>-82  | 850                        | J-68               | J-72               | 24.0             | 130.0                | 211.16                             | 211.16                            | -141          | 0.10               |
| 210 | Existing-P<br>-89  | 239                        | J-5                | EX<br>PARCEL<br>18 | 24.0             | 130.0                | 211.28                             | 211.28                            | 404           | 0.29               |
| 211 | Existing-P<br>-90  | 453                        | EX<br>PARCEL<br>18 | J-40               | 24.0             | 130.0                | 211.28                             | 211.28                            | 246           | 0.17               |
| 215 | Existing-P<br>-92  | 720                        | EX<br>PARCEL<br>57 | J-80               | 24.0             | 130.0                | 211.16                             | 211.16                            | -85           | 0.06               |
| 225 | Existing-P<br>-98  | 440                        | J-57               | J-84               | 24.0             | 130.0                | 211.16                             | 211.16                            | -53           | 0.04               |
| 226 | Existing-P<br>-99  | 609                        | J-84               | EX<br>PARCEL<br>58 | 24.0             | 130.0                | 211.16                             | 211.16                            | -53           | 0.04               |
| 242 | Existing-P<br>-104 | 200                        | J-31               | EX<br>PARCEL<br>51 | 12.0             | 110.0                | 211.11                             | 211.12                            | -43           | 0.12               |
| 246 | Existing-P<br>-107 | 980                        | EX<br>PARCEL<br>51 | EX<br>PARCEL<br>47 | 12.0             | 110.0                | 211.12                             | 211.13                            | -48           | 0.13               |
| 247 | Existing-P<br>-108 | 376                        | EX<br>PARCEL<br>47 | J-64               | 12.0             | 110.0                | 211.13                             | 211.13                            | -56           | 0.16               |
| 251 | Existing-P<br>-111 | 138                        | J-18               | J-88               | 12.0             | 110.0                | 211.18                             | 211.17                            | 101           | 0.29               |
| 255 | Existing-P<br>-114 | 26                         | J-72               | J-89               | 24.0             | 130.0                | 211.16                             | 211.16                            | -141          | 0.10               |
| 259 | Existing-P<br>-117 | 255                        | J-74               | J-90               | 24.0             | 130.0                | 211.16                             | 211.16                            | -54           | 0.04               |
| 260 | Existing-P<br>-118 | 380                        | J-90               | J-33               | 24.0             | 130.0                | 211.16                             | 211.16                            | -54           | 0.04               |
| 263 | Existing-P<br>-120 | 260                        | EX<br>PARCEL<br>55 | J-91               | 24.0             | 130.0                | 211.16                             | 211.16                            | -57           | 0.04               |
| 267 | Existing-P<br>-123 | 437                        | J-91               | J-92               | 24.0             | 130.0                | 211.16                             | 211.16                            | -57           | 0.04               |
| 280 | Existing-P<br>-127 | 2,451                      | J-31               | EX<br>PARCEL<br>42 | 8.0              | 110.0                | 211.11                             | 211.15                            | -19           | 0.12               |
| 284 | Existing-P<br>-129 | 862                        | J-97               | J-98               | 12.0             | 110.0                | 211.16                             | 211.15                            | 26            | 0.07               |
| 286 | Existing-P<br>-130 | 54                         | J-98               | J-99               | 8.0              | 110.0                | 211.15                             | 211.15                            | 26            | 0.17               |
| 290 | Existing-P<br>-132 | 221                        | J-100              | J-101              | 8.0              | 110.0                | 211.15                             | 211.14                            | 26            | 0.17               |

AVERAGE DAILY DEMAND

FlexTable: Pipe Table

| ID  | Label              | Length<br>(Scaled)<br>(ft) | Start<br>Node      | Stop<br>Node            | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|--------------------|----------------------------|--------------------|-------------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 292 | Existing-P<br>-133 | 170                        | J-101              | EX<br>PARCEL<br>6       | 8.0              | 110.0                | 211.14                             | 211.14                            | 26            | 0.17               |
| 294 | Existing-P<br>-134 | 1,222                      | EX<br>PARCEL<br>6  | J-103                   | 8.0              | 110.0                | 211.14                             | 211.10                            | 26            | 0.16               |
| 302 | Existing-P<br>-138 | 2,202                      | J-103              | J-107                   | 8.0              | 110.0                | 211.10                             | 211.04                            | 25            | 0.16               |
| 306 | Existing-P<br>-140 | 1,129                      | J-108              | J-109                   | 8.0              | 110.0                | 211.03                             | 211.00                            | 25            | 0.16               |
| 313 | Existing-P<br>-144 | 21                         | J-99               | J-112                   | 8.0              | 110.0                | 211.15                             | 211.15                            | 26            | 0.17               |
| 314 | Existing-P<br>-145 | 156                        | J-112              | J-100                   | 8.0              | 110.0                | 211.15                             | 211.15                            | 26            | 0.17               |
| 320 | Existing-P<br>-148 | 348                        | EX<br>PARCEL<br>42 | EX<br>PARCEL<br>44      | 8.0              | 110.0                | 211.15                             | 211.16                            | -13           | 0.08               |
| 321 | Existing-P<br>-149 | 13                         | EX<br>PARCEL<br>44 | J-97                    | 24.0             | 130.0                | 211.16                             | 211.16                            | 26            | 0.02               |
| 330 | Existing-P<br>-154 | 548                        | J-119              | J-35                    | 18.0             | 130.0                | 211.16                             | 211.16                            | -141          | 0.18               |
| 334 | Existing-P<br>-156 | 207                        | J-120              | EX<br>PARCEL<br>52      | 24.0             | 130.0                | 211.16                             | 211.16                            | -32           | 0.02               |
| 335 | Existing-P<br>-157 | 383                        | EX<br>PARCEL<br>52 | J-32                    | 24.0             | 130.0                | 211.16                             | 211.16                            | -63           | 0.04               |
| 343 | Existing-P<br>-162 | 210                        | J-124              | J-116                   | 24.0             | 130.0                | 211.16                             | 211.16                            | 1             | 0.00               |
| 346 | Existing-P<br>-164 | 1,677                      | J-125              | J-6                     | 24.0             | 130.0                | 211.26                             | 211.26                            | -102          | 0.07               |
| 348 | Existing-P<br>-165 | 1,472                      | J-119              | J-126                   | 18.0             | 120.0                | 211.16                             | 211.15                            | 96            | 0.12               |
| 354 | Existing-P<br>-168 | 831                        | J-80               | J-129                   | 24.0             | 130.0                | 211.16                             | 211.16                            | -85           | 0.06               |
| 355 | Existing-P<br>-169 | 354                        | J-129              | J-35                    | 24.0             | 130.0                | 211.16                             | 211.16                            | -113          | 0.08               |
| 359 | Existing-P<br>-171 | 1,059                      | J-127              | J-131                   | 12.0             | 110.0                | 211.08                             | 211.03                            | 95            | 0.27               |
| 361 | Existing-P<br>-172 | 93                         | J-126              | J-132                   | 24.0             | 130.0                | 211.15                             | 211.15                            | 96            | 0.07               |
| 366 | Existing-P<br>-175 | 82                         | J-57               | J-134                   | 24.0             | 130.0                | 211.16                             | 211.16                            | 53            | 0.04               |
| 370 | Existing-P<br>-178 | 42                         | J-135              | HCDA<br>Parcel<br>10    | 8.0              | 110.0                | 210.95                             | 210.95                            | 0             | 0.00               |
| 382 | Existing-P<br>-184 | 494                        | J-139              | J-134                   | 24.0             | 130.0                | 211.16                             | 211.16                            | -91           | 0.06               |
| 384 | Existing-P<br>-185 | 106                        | EX<br>PARCEL<br>42 | EX<br>PARCEL<br>39 & 40 | 8.0              | 110.0                | 211.15                             | 211.15                            | -8            | 0.05               |

AVERAGE DAILY DEMAND

FlexTable: Pipe Table

| ID  | Label              | Length<br>(Scaled)<br>(ft) | Start<br>Node        | Stop<br>Node            | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|--------------------|----------------------------|----------------------|-------------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 388 | Existing-P<br>-188 | 740                        | EX<br>PARCEL<br>44   | J-143                   | 24.0             | 130.0                | 211.16                             | 211.16                            | -41           | 0.03               |
| 392 | Existing-P<br>-191 | 314                        | J-124                | EX<br>PARCEL<br>29 & 30 | 12.0             | 110.0                | 211.16                             | 211.16                            | -38           | 0.11               |
| 401 | Existing-P<br>-196 | 858                        | J-116                | J-148                   | 12.0             | 110.0                | 211.16                             | 211.16                            | -4            | 0.01               |
| 410 | Existing-P<br>-203 | 958                        | J-150                | J-125                   | 12.0             | 110.0                | 211.21                             | 211.26                            | -102          | 0.29               |
| 414 | Existing-P<br>-206 | 623                        | J-151                | J-37                    | 12.0             | 110.0                | 211.21                             | 211.21                            | -38           | 0.11               |
| 417 | Existing-P<br>-208 | 2,594                      | J-134                | J-152                   | 12.0             | 110.0                | 211.16                             | 211.18                            | -38           | 0.11               |
| 418 | Existing-P<br>-209 | 3,168                      | J-152                | J-151                   | 12.0             | 110.0                | 211.18                             | 211.21                            | -38           | 0.11               |
| 421 | Existing-P<br>-211 | 170                        | J-103                | EX<br>PARCEL<br>485     | 8.0              | 110.0                | 211.10                             | 211.10                            | 0             | 0.00               |
| 424 | Existing-P<br>-213 | 78                         | J-107                | HCDA<br>Parcel 2        | 8.0              | 110.0                | 211.04                             | 211.04                            | 25            | 0.16               |
| 425 | Existing-P<br>-214 | 178                        | HCDA<br>Parcel 2     | J-108                   | 8.0              | 110.0                | 211.04                             | 211.03                            | 25            | 0.16               |
| 427 | Existing-P<br>-215 | 246                        | J-109                | EX<br>PARCEL<br>9       | 8.0              | 110.0                | 211.00                             | 211.00                            | 25            | 0.16               |
| 433 | Existing-P<br>-218 | 647                        | EX<br>PARCEL<br>9    | J-158                   | 8.0              | 110.0                | 211.00                             | 210.98                            | 23            | 0.15               |
| 434 | Existing-P<br>-219 | 421                        | J-158                | J-110                   | 8.0              | 110.0                | 210.98                             | 210.97                            | 23            | 0.15               |
| 435 | Existing-P<br>-220 | 2,214                      | HCDA<br>Parcel 4     | J-158                   | 8.0              | 110.0                | 210.98                             | 210.98                            | 0             | 0.00               |
| 437 | Existing-P<br>-221 | 225                        | J-116                | EX<br>PARCEL<br>12      | 8.0              | 110.0                | 211.16                             | 211.16                            | 4             | 0.03               |
| 443 | Existing-P<br>-225 | 2,928                      | J-132                | J-161                   | 8.0              | 110.0                | 211.15                             | 211.04                            | 29            | 0.19               |
| 444 | Existing-P<br>-226 | 2,623                      | J-161                | J-135                   | 8.0              | 110.0                | 211.04                             | 210.95                            | 29            | 0.19               |
| 446 | Existing-P<br>-227 | 284                        | J-161                | HCDA<br>Parcel<br>11    | 12.0             | 110.0                | 211.04                             | 211.04                            | 0             | 0.00               |
| 448 | Existing-P<br>-228 | 716                        | J-131                | HCDA<br>Parcel<br>12    | 12.0             | 110.0                | 211.03                             | 211.00                            | 95            | 0.27               |
| 449 | Existing-P<br>-229 | 1,669                      | HCDA<br>Parcel<br>12 | J-138                   | 12.0             | 110.0                | 211.00                             | 210.93                            | 95            | 0.27               |
| 451 | Existing-P<br>-230 | 585                        | J-135                | EX<br>PARCEL<br>24 & 28 | 8.0              | 110.0                | 210.95                             | 210.93                            | 27            | 0.17               |

AVERAGE DAILY DEMAND

FlexTable: Pipe Table

| ID  | Label                 | Length<br>(Scaled)<br>(ft) | Start<br>Node           | Stop<br>Node         | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|-----------------------|----------------------------|-------------------------|----------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 454 | Existing-P<br>-232    | 5,001                      | J-148                   | EX<br>PARCEL<br>32   | 12.0             | 110.0                | 211.16                             | 211.16                            | -4            | 0.01               |
| 455 | Existing-P<br>-233    | 1,397                      | EX<br>PARCEL<br>32      | J-119                | 24.0             | 130.0                | 211.16                             | 211.16                            | -44           | 0.03               |
| 457 | Existing-P<br>-234    | 1,716                      | J-132                   | J-166                | 24.0             | 13.0                 | 211.15                             | 211.08                            | 67            | 0.05               |
| 458 | Existing-P<br>-235    | 507                        | J-166                   | J-127                | 24.0             | 130.0                | 211.08                             | 211.08                            | 95            | 0.07               |
| 459 | Existing-P<br>-236    | 42                         | J-130                   | J-166                | 8.0              | 110.0                | 211.08                             | 211.08                            | 28            | 0.18               |
| 461 | Existing-P<br>-237    | 180                        | J-129                   | HCDA<br>Parcel<br>15 | 8.0              | 110.0                | 211.16                             | 211.16                            | 28            | 0.18               |
| 462 | Existing-P<br>-238    | 2,276                      | Parcel<br>15            | J-130                | 8.0              | 110.0                | 211.16                             | 211.08                            | 28            | 0.18               |
| 465 | Existing-P<br>-239    | 1,783                      | EX<br>PARCEL<br>58      | J-169                | 24.0             | 130.0                | 211.16                             | 211.16                            | -53           | 0.04               |
| 466 | Existing-P<br>-240    | 246                        | J-169                   | EX<br>PARCEL<br>57   | 24.0             | 130.0                | 211.16                             | 211.16                            | -53           | 0.04               |
| 467 | Existing-P<br>-241    | 456                        | HCDA<br>Parcel<br>16    | J-169                | 16.0             | 120.0                | 211.16                             | 211.16                            | 0             | 0.00               |
| 470 | Existing-P<br>-243    | 1,013                      | HCDA<br>Parcel<br>17    | J-139                | 12.0             | 110.0                | 211.12                             | 211.16                            | -91           | 0.26               |
| 475 | Existing-P<br>-246    | 466                        | PARCEL<br>39 & 40       | EX<br>PARCEL<br>35   | 8.0              | 110.0                | 211.15                             | 211.16                            | -13           | 0.08               |
| 718 | Existing-P<br>-249(1) | 656                        | EX<br>PARCEL<br>29 & 30 | EX<br>PARCEL<br>43   | 12.0             | 110.0                | 211.16                             | 211.17                            | -39           | 0.11               |
| 719 | Existing-P<br>-249(2) | 552                        | EX<br>PARCEL<br>43      | EX<br>PARCEL<br>34   | 12.0             | 110.0                | 211.17                             | 211.17                            | -49           | 0.14               |
| 518 | Existing-P<br>-252    | 529                        | J-138                   | EX<br>PARCEL<br>1    | 12.0             | 110.0                | 210.93                             | 210.90                            | 95            | 0.27               |
| 519 | Existing-P<br>-253    | 5,261                      | EX<br>PARCEL<br>1       | HCDA<br>Parcel<br>17 | 12.0             | 110.0                | 210.90                             | 211.12                            | -91           | 0.26               |
| 573 | Existing-P<br>-259    | 571                        | EX<br>PARCEL<br>35      | EX<br>PARCEL<br>36   | 24.0             | 130.0                | 211.16                             | 211.16                            | -24           | 0.02               |
| 574 | Existing-P<br>-260    | 150                        | EX<br>PARCEL<br>36      | J-120                | 24.0             | 130.0                | 211.16                             | 211.16                            | -32           | 0.02               |

AVERAGE DAILY DEMAND

FlexTable: Pipe Table

| ID  | Label              | Length<br>(Scaled)<br>(ft) | Start<br>Node       | Stop<br>Node             | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|--------------------|----------------------------|---------------------|--------------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 575 | Existing-P<br>-261 | 1,343                      | HCDA<br>Parcel 7    | EX.<br>PARCEL<br>36      | 8.0              | 110.0                | 211.16                             | 211.16                            | -3            | 0.02               |
| 579 | Existing-P<br>-263 | 514                        | J-143               | J-181                    | 24.0             | 130.0                | 211.16                             | 211.16                            | -41           | 0.03               |
| 580 | Existing-P<br>-264 | 285                        | J-181               | J-124                    | 24.0             | 130.0                | 211.16                             | 211.16                            | -38           | 0.03               |
| 581 | Existing-P<br>-265 | 603                        | HCDA<br>Parcel 7    | J-181                    | 8.0              | 110.0                | 211.16                             | 211.16                            | 3             | 0.02               |
| 588 | Existing-P<br>-266 | 114                        | J-89                | J-183                    | 24.0             | 130.0                | 211.16                             | 211.16                            | -141          | 0.10               |
| 589 | Existing-P<br>-267 | 503                        | J-183               | J-56                     | 24.0             | 130.0                | 211.16                             | 211.16                            | -97           | 0.07               |
| 590 | Existing-P<br>-268 | 844                        | J-183               | HCDA<br>Parcel 6         | 12.0             | 110.0                | 211.16                             | 211.17                            | -43           | 0.12               |
| 592 | Existing-P<br>-269 | 290                        | EX.<br>PARCEL<br>34 | EX.<br>PARCEL<br>37 & 38 | 12.0             | 110.0                | 211.17                             | 211.18                            | -49           | 0.14               |
| 593 | Existing-P<br>-270 | 734                        | PARCEL<br>37 & 38   | J-150                    | 12.0             | 110.0                | 211.18                             | 211.21                            | -102          | 0.29               |
| 594 | Existing-P<br>-271 | 628                        | HCDA<br>Parcel 6    | EX.<br>PARCEL<br>37 & 38 | 12.0             | 110.0                | 211.17                             | 211.18                            | -43           | 0.12               |
| 599 | Existing-P<br>-272 | 1,522                      | J-37                | J-186                    | 18.0             | 120.0                | 211.21                             | 211.28                            | -300          | 0.38               |
| 600 | Existing-P<br>-273 | 385                        | J-186               | J-5                      | 24.0             | 130.0                | 211.28                             | 211.28                            | -349          | 0.25               |
| 601 | Existing-P<br>-274 | 645                        | J-186               | HCDA<br>Parcel 18        | 8.0              | 110.0                | 211.28                             | 211.22                            | 48            | 0.31               |
| 603 | Existing-P<br>-275 | 643                        | J-92                | J-187                    | 24.0             | 130.0                | 211.16                             | 211.16                            | -57           | 0.04               |
| 604 | Existing-P<br>-276 | 938                        | J-187               | J-35                     | 24.0             | 130.0                | 211.16                             | 211.16                            | -9            | 0.01               |
| 605 | Existing-P<br>-277 | 617                        | HCDA<br>Parcel 18   | J-187                    | 8.0              | 110.0                | 211.22                             | 211.16                            | 48            | 0.31               |
| 608 | Existing-P<br>-278 | 379                        | J-6                 | J-189                    | 24.0             | 130.0                | 211.26                             | 211.26                            | 144           | 0.10               |
| 609 | Existing-P<br>-279 | 852                        | J-189               | J-44                     | 12.0             | 110.0                | 211.26                             | 211.22                            | 101           | 0.29               |
| 610 | Existing-P<br>-280 | 387                        | J-189               | HCDA<br>Parcel 19        | 8.0              | 110.0                | 211.26                             | 211.23                            | 43            | 0.27               |
| 612 | Existing-P<br>-281 | 252                        | J-56                | J-190                    | 24.0             | 130.0                | 211.16                             | 211.16                            | -97           | 0.07               |
| 613 | Existing-P<br>-282 | 713                        | J-190               | J-74                     | 24.0             | 130.0                | 211.16                             | 211.16                            | -54           | 0.04               |
| 614 | Existing-P<br>-283 | 1,012                      | HCDA<br>Parcel 19   | J-190                    | 8.0              | 110.0                | 211.23                             | 211.16                            | 43            | 0.27               |

Kalaheva Water System - Interim Condition at Parcel 19  
1 wk  
7/19/2021  
Bentley Systems, Inc. - Heastad Methods Solution Center  
27 Siemon Company Drive Suite 200 W. Watertown, CT  
08795 USA +1-203-755-1666

WaterCAD  
10.03.03.720  
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AVERAGE DAILY DEMAND

FlexTable: Pipe Table

| ID  | Label              | Length<br>(Scaled)<br>(ft) | Start<br>Node       | Stop<br>Node        | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|--------------------|----------------------------|---------------------|---------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 617 | Existing-P<br>-284 | 249                        | J-88                | J-192               | 12.0             | 110.0                | 211.17                             | 211.16                            | 101           | 0.29               |
| 618 | Existing-P<br>-285 | 48                         | J-192               | J-19                | 12.0             | 110.0                | 211.16                             | 211.16                            | 72            | 0.20               |
| 619 | Existing-P<br>-286 | 604                        | J-192               | EX.<br>PARCEL<br>1A | 8.0              | 110.0                | 211.16                             | 211.14                            | 29            | 0.18               |
| 621 | Existing-P<br>-287 | 43                         | J-66                | J-193               | 24.0             | 130.0                | 211.14                             | 211.14                            | -58           | 0.04               |
| 622 | Existing-P<br>-288 | 193                        | J-193               | J-47                | 12.0             | 110.0                | 211.14                             | 211.15                            | -77           | 0.22               |
| 623 | Existing-P<br>-289 | 502                        | EX.<br>PARCEL<br>1A | J-193               | 8.0              | 110.0                | 211.14                             | 211.14                            | -19           | 0.12               |
| 626 | Existing-P<br>-290 | 743                        | J-22                | J-195               | 12.0             | 110.0                | 211.11                             | 211.10                            | 68            | 0.19               |
| 631 | Existing-P<br>-294 | 625                        | J-196               | J-31                | 12.0             | 110.0                | 211.10                             | 211.11                            | -54           | 0.15               |
| 644 | P-296              | 48                         | J-110               | J-197               | 8.0              | 110.0                | 210.97                             | 210.97                            | 23            | 0.15               |
| 647 | P-298              | 778                        | J-213               | HCDA<br>Parcel 5    | 8.0              | 110.0                | 210.97                             | 210.97                            | 0             | 0.00               |
| 652 | P-299              | 793                        | J-198               | J-199               | 12.0             | 110.0                | 210.97                             | 210.96                            | 23            | 0.07               |
| 654 | P-300              | 789                        | J-199               | J-201               | 12.0             | 110.0                | 210.96                             | 210.96                            | 23            | 0.07               |
| 656 | P-301              | 2,397                      | J-200               | J-201               | 12.0             | 110.0                | 210.96                             | 210.95                            | 23            | 0.07               |
| 658 | P-302              | 778                        | J-201<br>EX.        | J-202               | 12.0             | 110.0                | 210.95                             | 210.95                            | 23            | 0.07               |
| 664 | P-305              | 804                        | PARCEL<br>15        | J-205               | 12.0             | 110.0                | 210.95                             | 210.95                            | -2            | 0.01               |
| 666 | P-306              | 559                        | J-205               | J-206               | 12.0             | 110.0                | 210.95                             | 210.95                            | -2            | 0.01               |
| 668 | P-307              | 1,033                      | J-206               | J-207               | 12.0             | 110.0                | 210.95                             | 210.95                            | -2            | 0.01               |
| 670 | P-308              | 1,683                      | J-207               | J-208               | 12.0             | 110.0                | 210.95                             | 210.95                            | -2            | 0.01               |
| 672 | P-309              | 389                        | J-208               | J-209               | 12.0             | 110.0                | 210.95                             | 210.95                            | -2            | 0.01               |
| 673 | P-310              | 137                        | J-209               | J-135               | 12.0             | 110.0                | 210.95                             | 210.95                            | -2            | 0.01               |
| 660 | P-314              | 390                        | J-202               | EX.<br>PARCEL<br>14 | 12.0             | 110.0                | 210.95                             | 210.95                            | 23            | 0.07               |
| 696 | P-314              | 505                        | J-195               | J-218               | 16.0             | 110.0                | 211.10                             | 211.09                            | 83            | 0.13               |
| 662 | P-315              | 1,185                      | EX.<br>PARCEL<br>14 | EX.<br>PARCEL<br>15 | 12.0             | 110.0                | 210.95                             | 210.95                            | 1             | 0.00               |
| 815 | P-315(1)           | 283                        | J-218               | J-246               | 16.0             | 110.0                | 211.09                             | 211.09                            | 83            | 0.13               |
| 816 | P-315(2)           | 262                        | J-246               | VA<br>CENTER        | 16.0             | 110.0                | 211.09                             | 211.09                            | 38            | 0.06               |
| 694 | P-316              | 555                        | VA<br>CENTER        | J-25                | 16.0             | 110.0                | 211.09                             | 211.09                            | 12            | 0.02               |
| 710 | P-317              | 280                        | J-223               | J-25                | 16.0             | 110.0                | 211.09                             | 211.09                            | -12           | 0.02               |
| 648 | P-318              | 95                         | J-197               | J-213               | 8.0              | 110.0                | 210.97                             | 210.97                            | 23            | 0.15               |
| 709 | P-318              | 304                        | J-213               | J-223               | 16.0             | 110.0                | 211.09                             | 211.09                            | -12           | 0.02               |
| 650 | P-319              | 516                        | J-213               | J-198               | 12.0             | 110.0                | 210.97                             | 210.97                            | 23            | 0.07               |
| 713 | P-319              | 310                        | J-224               | J-213               | 12.0             | 110.0                | 211.09                             | 211.09                            | -12           | 0.03               |
| 712 | P-320              | 316                        | J-212               | J-224               | 12.0             | 110.0                | 211.09                             | 211.09                            | -12           | 0.03               |

Kalaheva Water System - Interim Condition at Parcel 15  
1 wk  
7/19/2021  
Bentley Systems, Inc. - Heastad Methods Solution Center  
27 Siemon Company Drive Suite 200 W. Watertown, CT  
08795 USA +1-203-755-1666

WaterCAD  
10.03.03.720  
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AVERAGE DAILY DEMAND

FlexTable: Pipe Table

| ID  | Label    | Length<br>(Scaled)<br>(ft) | Start<br>Node          | Stop<br>Node           | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|----------|----------------------------|------------------------|------------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 700 | P-321    | 370                        | GENTRY<br>4            | J-212<br>P1 POR.       | 12.0             | 110.0                | 211.09                             | 211.09                            | -12           | 0.03               |
| 703 | P-322    | 776                        | GENTRY<br>P1 POR.<br>3 | J-227<br>P1 POR.<br>4  | 12.0             | 110.0                | 211.09                             | 211.09                            | 39            | 0.11               |
| 774 | P-322(2) | 546                        | J-238                  | J-227                  | 8.0              | 110.0                | 211.09                             | 211.09                            | 0             | 0.00               |
| 702 | P-323    | 415                        | J-211                  | GENTRY<br>P1 POR.<br>3 | 12.0             | 110.0                | 211.10                             | 211.09                            | 39            | 0.11               |
| 737 | P-323    | 191                        | J-227                  | J-228                  | 8.0              | 110.0                | 211.09                             | 211.07                            | 44            | 0.28               |
| 690 | P-324    | 396                        | GENTRY<br>2            | J-211                  | 12.0             | 110.0                | 211.10                             | 211.10                            | -15           | 0.04               |
| 739 | P-324    | 147                        | J-228                  | J-229                  | 8.0              | 110.0                | 211.07                             | 211.06                            | 44            | 0.28               |
| 689 | P-325    | 512                        | GENTRY<br>P1 POR.<br>1 | J-229<br>P1 POR.<br>2  | 12.0             | 110.0                | 211.10                             | 211.10                            | -15           | 0.04               |
| 757 | P-325(1) | 140                        | J-229                  | J-233                  | 8.0              | 110.0                | 211.06                             | 211.05                            | 36            | 0.23               |
| 758 | P-325(2) | 344                        | J-233                  | J-230                  | 8.0              | 110.0                | 211.05                             | 211.05                            | 18            | 0.12               |
| 686 | P-326    | 351                        | J-195                  | GENTRY<br>P1 POR.<br>1 | 12.0             | 110.0                | 211.10                             | 211.10                            | -15           | 0.04               |
| 743 | P-326    | 396                        | J-230                  | J-231                  | 8.0              | 110.0                | 211.05                             | 211.05                            | 4             | 0.02               |
| 678 | P-327    | 400                        | J-196                  | J-211                  | 12.0             | 110.0                | 211.10                             | 211.10                            | 54            | 0.15               |
| 745 | P-327    | 490                        | J-231                  | J-232                  | 8.0              | 110.0                | 211.05                             | 211.05                            | 4             | 0.02               |
| 746 | P-328    | 400                        | J-229                  | J-232                  | 8.0              | 110.0                | 211.06                             | 211.05                            | 28            | 0.18               |
| 760 | P-329    | 91                         | J-230                  | J-234                  | 8.0              | 110.0                | 211.05                             | 211.05                            | 14            | 0.09               |
| 763 | P-331    | 88                         | J-235                  | J-233                  | 8.0              | 110.0                | 211.05                             | 211.05                            | -17           | 0.11               |
| 765 | P-332    | 77                         | J-235                  | J-236                  | 8.0              | 110.0                | 211.05                             | 211.05                            | 0             | 0.00               |
| 771 | P-333    | 344                        | J-234                  | J-235                  | 8.0              | 110.0                | 211.05                             | 211.05                            | -17           | 0.11               |
| 776 | P-334    | 44                         | J-229                  | J-239                  | 8.0              | 110.0                | 211.06                             | 211.06                            | -19           | 0.12               |
| 778 | P-335    | 142                        | J-239                  | J-240                  | 8.0              | 110.0                | 211.06                             | 211.06                            | -19           | 0.12               |
| 780 | P-336    | 191                        | J-240                  | J-241                  | 8.0              | 110.0                | 211.06                             | 211.07                            | -19           | 0.12               |
| 782 | P-337    | 429                        | J-241                  | J-242                  | 8.0              | 110.0                | 211.07                             | 211.07                            | -1            | 0.00               |
| 785 | P-338(1) | 224                        | J-242                  | J-243                  | 8.0              | 110.0                | 211.07                             | 211.08                            | -32           | 0.21               |
| 786 | P-338(2) | 120                        | J-243                  | GENTRY<br>P1 POR.<br>4 | 8.0              | 110.0                | 211.08                             | 211.09                            | -51           | 0.32               |
| 788 | P-339    | 224                        | J-241                  | J-244                  | 8.0              | 110.0                | 211.07                             | 211.07                            | -18           | 0.12               |
| 789 | P-340    | 423                        | J-244                  | J-243                  | 8.0              | 110.0                | 211.07                             | 211.08                            | -18           | 0.12               |
| 791 | P-341    | 160                        | J-242                  | J-245                  | 8.0              | 110.0                | 211.07                             | 211.06                            | 32            | 0.20               |
| 817 | P-342    | 317                        | J-246                  | J-227                  | 12.0             | 110.0                | 211.09                             | 211.09                            | 44            | 0.13               |
| 819 | P-343    | 241                        | J-238                  | J-247                  | 8.0              | 110.0                | 211.09                             | 211.09                            | 0             | 0.00               |

AVERAGE DAILY DEMAND

FlexTable: Junction Table

| ID  | Label                              | Elevation<br>(ft) | Demand<br>(gpm) | Hydraulic Grade<br>(ft) | Pressure<br>(psi) |
|-----|------------------------------------|-------------------|-----------------|-------------------------|-------------------|
| 714 | BARBERS PT<br>ELEM (EX. PAR.<br>2) | 52.04             | 12              | 211.11                  | 69                |
| 517 | EX. PARCEL 1                       | 26.45             | 186             | 210.90                  | 80                |
| 615 | EX. PARCEL 1A                      | 45.78             | 48              | 211.14                  | 72                |
| 209 | EX. PARCEL 1B                      | 48.86             | 158             | 211.28                  | 70                |
| 420 | EX. PARCEL 485                     | 45.94             | 0               | 211.10                  | 71                |
| 291 | EX. PARCEL 6                       | 42.71             | 0               | 211.14                  | 73                |
| 426 | EX. PARCEL 9                       | 19.80             | 2               | 211.00                  | 83                |
| 436 | EX. PARCEL 12                      | 31.39             | 4               | 211.16                  | 78                |
| 659 | EX. PARCEL 14                      | 8.45              | 22              | 210.95                  | 88                |
| 661 | EX. PARCEL 15                      | 6.50              | 4               | 210.95                  | 88                |
| 450 | EX. PARCEL 24 &<br>28              | 12.82             | 27              | 210.93                  | 86                |
| 391 | EX. PARCEL 29 &<br>30              | 32.48             | 1               | 211.16                  | 77                |
| 453 | EX. PARCEL 32                      | 48.64             | 41              | 211.16                  | 70                |
| 478 | EX. PARCEL 34                      | 39.80             | 0               | 211.17                  | 74                |
| 474 | EX. PARCEL 35                      | 43.45             | 11              | 211.16                  | 73                |
| 572 | EX. PARCEL 36                      | 41.84             | 6               | 211.16                  | 73                |
| 591 | EX. PARCEL 37 &<br>38              | 41.72             | 10              | 211.18                  | 73                |
| 383 | EX. PARCEL 39 &<br>40              | 42.58             | 5               | 211.15                  | 73                |
| 279 | EX. PARCEL 42                      | 42.39             | 2               | 211.15                  | 73                |
| 717 | EX. PARCEL 43                      | 36.45             | 9               | 211.17                  | 76                |
| 319 | EX. PARCEL 44                      | 37.50             | 1               | 211.16                  | 75                |
| 245 | EX. PARCEL 47                      | 36.97             | 9               | 211.13                  | 75                |
| 72  | EX. PARCEL 48                      | 50.16             | 0               | 211.15                  | 70                |
| 134 | EX. PARCEL 49                      | 39.06             | 2               | 211.14                  | 74                |
| 241 | EX. PARCEL 51                      | 48.63             | 5               | 211.12                  | 70                |
| 333 | EX. PARCEL 52                      | 33.20             | 31              | 211.16                  | 77                |
| 66  | EX. PARCEL 53                      | 55.51             | 1               | 211.20                  | 67                |
| 100 | EX. PARCEL 55                      | 52.56             | 3               | 211.16                  | 69                |
| 162 | EX. PARCEL 57                      | 47.61             | 32              | 211.16                  | 71                |
| 219 | EX. PARCEL 58                      | 45.81             | 0               | 211.16                  | 72                |
| 685 | GENTRY P1 POR.<br>1                | 46.61             | 0               | 211.10                  | 71                |
| 688 | GENTRY P1 POR.<br>2                | 43.85             | 0               | 211.10                  | 72                |
| 701 | GENTRY P1 POR.<br>3                | 39.82             | 0               | 211.09                  | 74                |
| 698 | GENTRY P1 POR.<br>4                | 43.33             | 0               | 211.09                  | 73                |
| 423 | HCDA Parcel 2                      | 23.30             | 0               | 211.04                  | 81                |
| 431 | HCDA Parcel 4                      | 11.40             | 0               | 210.98                  | 86                |
| 429 | HCDA Parcel 5                      | 11.90             | 0               | 210.97                  | 86                |
| 586 | HCDA Parcel 6                      | 44.20             | 0               | 211.17                  | 72                |
| 571 | HCDA Parcel 7                      | 35.10             | 0               | 211.16                  | 76                |
| 363 | HCDA Parcel 10                     | 14.87             | 0               | 210.95                  | 85                |

AVERAGE DAILY DEMAND

FlexTable: Junction Table

| ID  | Label          | Elevation<br>(ft) | Demand<br>(gpm) | Hydraulic Grade<br>(ft) | Pressure<br>(psi) |
|-----|----------------|-------------------|-----------------|-------------------------|-------------------|
| 445 | HCDA Parcel 11 | 24.60             | 0               | 211.04                  | 81                |
| 447 | HCDA Parcel 12 | 26.80             | 0               | 211.00                  | 80                |
| 460 | HCDA Parcel 15 | 50.42             | 0               | 211.16                  | 70                |
| 463 | HCDA Parcel 16 | 46.04             | 0               | 211.16                  | 71                |
| 468 | HCDA Parcel 17 | 36.77             | 0               | 211.12                  | 75                |
| 597 | HCDA Parcel 18 | 50.12             | 0               | 211.23                  | 68                |
| 606 | HCDA Parcel 19 | 54.37             | 0               | 211.22                  | 68                |
| 41  | J-3            | 55.77             | 0               | 211.42                  | 67                |
| 43  | J-4            | 52.83             | 0               | 211.30                  | 69                |
| 45  | J-5            | 49.13             | 0               | 211.28                  | 70                |
| 47  | J-6            | 52.96             | 0               | 211.26                  | 68                |
| 64  | J-16           | 54.75             | 0               | 211.21                  | 68                |
| 68  | J-18           | 52.90             | 0               | 211.18                  | 68                |
| 70  | J-19           | 50.67             | 0               | 211.16                  | 69                |
| 74  | J-21           | 51.93             | 0               | 211.13                  | 69                |
| 76  | J-22           | 53.98             | 0               | 211.11                  | 68                |
| 82  | J-25           | 56.33             | 0               | 211.09                  | 67                |
| 94  | J-31           | 48.31             | 0               | 211.11                  | 70                |
| 96  | J-32           | 37.39             | 0               | 211.16                  | 75                |
| 98  | J-33           | 47.50             | 0               | 211.16                  | 71                |
| 102 | J-35           | 52.20             | 0               | 211.16                  | 69                |
| 104 | J-36           | 54.29             | 0               | 211.21                  | 68                |
| 106 | J-37           | 54.66             | 0               | 211.21                  | 68                |
| 111 | J-40           | 48.34             | 0               | 211.28                  | 70                |
| 114 | J-42           | 45.08             | 0               | 211.27                  | 72                |
| 117 | J-44           | 54.85             | 0               | 211.22                  | 68                |
| 123 | J-47           | 37.68             | 0               | 211.15                  | 75                |
| 126 | J-49           | 50.30             | 0               | 211.15                  | 70                |
| 138 | J-56           | 46.48             | 0               | 211.16                  | 71                |
| 161 | J-57           | 35.90             | 0               | 211.16                  | 76                |
| 176 | J-64           | 35.71             | 0               | 211.13                  | 76                |
| 181 | J-66           | 38.30             | 0               | 211.14                  | 75                |
| 186 | J-68           | 31.70             | 0               | 211.16                  | 78                |
| 196 | J-72           | 29.60             | 0               | 211.16                  | 79                |
| 201 | J-74           | 46.49             | 0               | 211.16                  | 71                |
| 214 | J-80           | 49.20             | 0               | 211.16                  | 70                |
| 224 | J-84           | 40.83             | 0               | 211.16                  | 74                |
| 250 | J-88           | 52.19             | 0               | 211.17                  | 69                |
| 254 | J-89           | 30.29             | 0               | 211.16                  | 78                |
| 258 | J-90           | 46.80             | 0               | 211.16                  | 71                |
| 262 | J-91           | 52.52             | 0               | 211.16                  | 69                |
| 266 | J-92           | 51.26             | 0               | 211.16                  | 69                |
| 281 | J-97           | 37.48             | 0               | 211.16                  | 75                |
| 283 | J-98           | 44.88             | 0               | 211.15                  | 72                |
| 285 | J-99           | 45.26             | 0               | 211.15                  | 72                |
| 287 | J-100          | 45.30             | 0               | 211.15                  | 72                |
| 289 | J-101          | 45.20             | 0               | 211.14                  | 72                |
| 293 | J-103          | 45.66             | 0               | 211.10                  | 72                |
| 301 | J-107          | 24.34             | 0               | 211.04                  | 81                |

AVERAGE DAILY DEMAND

FlexTable: Junction Table

| ID  | Label | Elevation<br>(ft) | Demand<br>(gpm) | Hydraulic Grade<br>(ft) | Pressure<br>(psi) |
|-----|-------|-------------------|-----------------|-------------------------|-------------------|
| 303 | J-108 | 19.54             | 0               | 211.03                  | 83                |
| 305 | J-109 | 21.20             | 0               | 211.00                  | 82                |
| 307 | J-110 | 13.52             | 0               | 210.97                  | 85                |
| 312 | J-112 | 45.36             | 0               | 211.15                  | 72                |
| 322 | J-116 | 30.94             | 0               | 211.16                  | 78                |
| 328 | J-119 | 47.63             | 0               | 211.16                  | 71                |
| 331 | J-120 | 38.48             | 0               | 211.16                  | 75                |
| 341 | J-124 | 31.16             | 0               | 211.16                  | 78                |
| 344 | J-125 | 48.70             | 0               | 211.26                  | 70                |
| 347 | J-126 | 38.90             | 0               | 211.15                  | 75                |
| 349 | J-127 | 27.50             | 0               | 211.08                  | 79                |
| 353 | J-129 | 51.10             | 0               | 211.16                  | 69                |
| 356 | J-130 | 30.16             | 0               | 211.08                  | 78                |
| 358 | J-131 | 25.12             | 0               | 211.03                  | 80                |
| 360 | J-132 | 38.94             | 0               | 211.15                  | 75                |
| 365 | J-134 | 35.50             | 0               | 211.16                  | 76                |
| 368 | J-135 | 15.22             | 0               | 210.95                  | 85                |
| 375 | J-138 | 25.41             | 0               | 210.93                  | 80                |
| 378 | J-139 | 34.10             | 0               | 211.16                  | 77                |
| 387 | J-143 | 34.76             | 0               | 211.16                  | 76                |
| 400 | J-148 | 31.95             | 0               | 211.16                  | 78                |
| 408 | J-150 | 43.28             | 0               | 211.21                  | 73                |
| 412 | J-151 | 51.90             | 0               | 211.21                  | 69                |
| 416 | J-152 | 49.41             | 0               | 211.18                  | 70                |
| 432 | J-158 | 14.10             | 0               | 210.98                  | 85                |
| 442 | J-161 | 23.87             | 0               | 211.04                  | 81                |
| 456 | J-166 | 28.69             | 0               | 211.08                  | 79                |
| 464 | J-169 | 47.70             | 0               | 211.16                  | 71                |
| 578 | J-181 | 32.56             | 0               | 211.16                  | 77                |
| 587 | J-183 | 32.19             | 0               | 211.16                  | 77                |
| 598 | J-186 | 48.17             | 0               | 211.28                  | 71                |
| 602 | J-187 | 50.93             | 0               | 211.16                  | 69                |
| 607 | J-189 | 46.47             | 0               | 211.26                  | 71                |
| 611 | J-190 | 48.53             | 0               | 211.16                  | 70                |
| 616 | J-192 | 50.92             | 0               | 211.16                  | 69                |
| 620 | J-193 | 38.19             | 0               | 211.14                  | 75                |
| 625 | J-195 | 54.03             | 0               | 211.10                  | 68                |
| 629 | J-196 | 47.40             | 0               | 211.10                  | 71                |
| 643 | J-197 | 0.00              | 0               | 210.97                  | 91                |
| 649 | J-198 | 13.60             | 0               | 210.97                  | 85                |
| 651 | J-199 | 11.92             | 0               | 210.96                  | 86                |
| 653 | J-200 | 10.47             | 0               | 210.96                  | 87                |
| 655 | J-201 | 5.50              | 0               | 210.95                  | 89                |
| 657 | J-202 | 8.56              | 0               | 210.95                  | 88                |
| 663 | J-205 | 0.00              | 0               | 210.95                  | 91                |
| 665 | J-206 | 7.40              | 0               | 210.95                  | 88                |
| 667 | J-207 | 7.71              | 0               | 210.95                  | 88                |
| 669 | J-208 | 13.35             | 0               | 210.95                  | 85                |
| 671 | J-209 | 15.56             | 0               | 210.95                  | 85                |



AVERAGE DAILY DEMAND

FlexTable: Junction Table

| ID  | Label     | Elevation<br>(ft) | Demand<br>(gpm) | Hydraulic Grade<br>(ft) | Pressure<br>(psi) |
|-----|-----------|-------------------|-----------------|-------------------------|-------------------|
| 677 | J-211     | 0.00              | 0               | 211.10                  | 91                |
| 679 | J-212     | 45.83             | 0               | 211.09                  | 71                |
| 645 | J-213     | 13.04             | 0               | 210.97                  | 86                |
| 681 | J-218     | 50.26             | 0               | 211.09                  | 70                |
| 695 | J-218     | 50.97             | 0               | 211.09                  | 69                |
| 708 | J-223     | 54.54             | 0               | 211.09                  | 68                |
| 711 | J-224     | 46.93             | 0               | 211.09                  | 71                |
| 734 | J-227     | 46.00             | 0               | 211.09                  | 71                |
| 736 | J-228     | 45.50             | 0               | 211.07                  | 72                |
| 738 | J-229     | 44.00             | 0               | 211.06                  | 72                |
| 740 | J-230     | 42.00             | 0               | 211.05                  | 73                |
| 742 | J-231     | 40.00             | 0               | 211.05                  | 74                |
| 744 | J-232     | 40.00             | 32              | 211.05                  | 74                |
| 756 | J-233     | 43.42             | 0               | 211.05                  | 73                |
| 759 | J-234     | 44.00             | 32              | 211.05                  | 72                |
| 761 | J-235     | 44.00             | 0               | 211.05                  | 72                |
| 764 | J-236     | 45.00             | 0               | 211.05                  | 72                |
| 772 | J-238     | 46.18             | 0               | 211.09                  | 71                |
| 775 | J-239     | 44.00             | 0               | 211.06                  | 72                |
| 777 | J-240     | 44.00             | 0               | 211.06                  | 72                |
| 779 | J-241     | 43.80             | 0               | 211.07                  | 72                |
| 781 | J-242     | 45.00             | 0               | 211.07                  | 72                |
| 784 | J-243     | 44.00             | 0               | 211.08                  | 72                |
| 787 | J-244     | 43.50             | 0               | 211.07                  | 72                |
| 790 | J-245     | 46.00             | 32              | 211.06                  | 71                |
| 814 | J-246     | 52.62             | 0               | 211.09                  | 69                |
| 818 | J-247     | 48.00             | 0               | 211.09                  | 71                |
| 692 | VA CENTER | 54.15             | 27              | 211.09                  | 68                |

PEAK HOUR DEMAND

FlexTable: Reservoir Table

| ID | Label | Elevation<br>(ft) | Zone   | Flow (Out net)<br>(gpm) | Hydraulic Grade<br>(ft) |
|----|-------|-------------------|--------|-------------------------|-------------------------|
| 31 | R-1   | 212.00            | <None> | 2,258                   | 212.00                  |

## PEAK HOUR DEMAND

FlexTable: Pipe Table

| ID  | Label                 | Length<br>(Scaled)<br>(ft) | Start<br>Node                             | Stop<br>Node                              | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|-----------------------|----------------------------|-------------------------------------------|-------------------------------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 715 | Existing P<br>-295(1) | 1,044                      | J-31                                      | BARBER<br>S PT<br>ELEM<br>(EX.<br>PAR. 2) | 12.0             | 110.0                | 205.22                             | 205.22                            | 23            | 0.06               |
| 716 | Existing P<br>-295(2) | 544                        | BARBER<br>S PT<br>ELEM<br>(EX.<br>PAR. 2) | J-22                                      | 12.0             | 110.0                | 205.22                             | 205.22                            | -13           | 0.04               |
| 44  | Existing-P<br>-4      | 2,377                      | J-3                                       | J-4                                       | 24.0             | 130.0                | 207.54                             | 206.61                            | 2,258         | 1.60               |
| 46  | Existing-P<br>-5      | 239                        | J-4                                       | J-5                                       | 24.0             | 130.0                | 206.61                             | 206.51                            | 2,258         | 1.60               |
| 67  | Existing-P<br>-14     | 61                         | J-16                                      | EX.<br>PARCEL<br>53                       | 12.0             | 110.0                | 205.93                             | 205.90                            | 304           | 0.86               |
| 69  | Existing-P<br>-15     | 533                        | EX.<br>PARCEL<br>53                       | J-18                                      | 12.0             | 110.0                | 205.90                             | 205.70                            | 302           | 0.86               |
| 75  | Existing-P<br>-18     | 442                        | EX.<br>PARCEL<br>48                       | J-21                                      | 12.0             | 110.0                | 205.47                             | 205.38                            | 215           | 0.61               |
| 77  | Existing-P<br>-19     | 800                        | J-21                                      | J-22                                      | 12.0             | 110.0                | 205.38                             | 205.22                            | 215           | 0.61               |
| 101 | Existing-P<br>-31     | 829                        | J-33                                      | EX.<br>PARCEL<br>55                       | 24.0             | 130.0                | 205.59                             | 205.59                            | -163          | 0.12               |
| 105 | Existing-P<br>-33     | 1,250                      | J-35                                      | J-36                                      | 18.0             | 120.0                | 205.60                             | 205.93                            | -788          | 0.99               |
| 107 | Existing-P<br>-34     | 156                        | J-36                                      | J-37                                      | 18.0             | 120.0                | 205.93                             | 205.97                            | -788          | 0.99               |
| 145 | Existing-P<br>-47     | 8,141                      | R-1                                       | J-3                                       | 24.0             | 130.0                | 212.00                             | 207.54                            | 2,258         | 1.60               |
| 149 | Existing-P<br>-50     | 1,382                      | J-40                                      | J-42                                      | 24.0             | 130.0                | 206.46                             | 206.39                            | 738           | 0.52               |
| 150 | Existing-P<br>-51     | 594                        | J-42                                      | J-6                                       | 24.0             | 130.0                | 206.39                             | 206.37                            | 738           | 0.52               |
| 152 | Existing-P<br>-53     | 286                        | J-44                                      | J-16                                      | 12.0             | 110.0                | 206.03                             | 205.93                            | 304           | 0.86               |
| 153 | Existing-P<br>-54     | 176                        | J-19                                      | J-49                                      | 12.0             | 110.0                | 205.55                             | 205.51                            | 216           | 0.61               |
| 154 | Existing-P<br>-55     | 221                        | J-49                                      | EX.<br>PARCEL<br>48                       | 12.0             | 110.0                | 205.51                             | 205.47                            | 216           | 0.61               |
| 158 | Existing-P<br>-59     | 249                        | J-47                                      | J-32                                      | 12.0             | 110.0                | 205.50                             | 205.56                            | -232          | 0.66               |
| 178 | Existing-P<br>-71     | 344                        | J-64                                      | EX.<br>PARCEL<br>49                       | 12.0             | 110.0                | 205.37                             | 205.42                            | -168          | 0.48               |

## PEAK HOUR DEMAND

FlexTable: Pipe Table

| ID  | Label              | Length<br>(Scaled)<br>(ft) | Start<br>Node       | Stop<br>Node        | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|--------------------|----------------------------|---------------------|---------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 182 | Existing-P<br>-73  | 286                        | EX.<br>PARCEL<br>49 | J-66                | 12.0             | 110.0                | 205.42                             | 205.46                            | -175          | 0.50               |
| 187 | Existing-P<br>-76  | 140                        | J-32                | J-68                | 24.0             | 130.0                | 205.56                             | 205.56                            | -422          | 0.30               |
| 197 | Existing-P<br>-82  | 850                        | J-68                | J-72                | 24.0             | 130.0                | 205.56                             | 205.58                            | -422          | 0.30               |
| 210 | Existing-P<br>-89  | 239                        | J-5                 | EX.<br>PARCEL<br>18 | 24.0             | 130.0                | 206.51                             | 206.49                            | 1,211         | 0.86               |
| 211 | Existing-P<br>-90  | 453                        | EX.<br>PARCEL<br>18 | J-40                | 24.0             | 130.0                | 206.49                             | 206.46                            | 738           | 0.52               |
| 215 | Existing-P<br>-92  | 720                        | EX.<br>PARCEL<br>57 | J-80                | 24.0             | 130.0                | 205.58                             | 205.59                            | -255          | 0.18               |
| 225 | Existing-P<br>-98  | 440                        | J-57                | J-84                | 24.0             | 130.0                | 205.57                             | 205.57                            | -159          | 0.11               |
| 226 | Existing-P<br>-99  | 609                        | J-84                | EX.<br>PARCEL<br>58 | 24.0             | 130.0                | 205.57                             | 205.58                            | -159          | 0.11               |
| 242 | Existing-P<br>-104 | 200                        | J-31                | EX.<br>PARCEL<br>51 | 12.0             | 110.0                | 205.22                             | 205.24                            | -128          | 0.36               |
| 246 | Existing-P<br>-107 | 980                        | EX.<br>PARCEL<br>51 | EX.<br>PARCEL<br>47 | 12.0             | 110.0                | 205.24                             | 205.33                            | -143          | 0.40               |
| 247 | Existing-P<br>-108 | 376                        | EX.<br>PARCEL<br>47 | J-64                | 12.0             | 110.0                | 205.33                             | 205.37                            | -168          | 0.48               |
| 251 | Existing-P<br>-111 | 138                        | J-18                | J-88                | 12.0             | 110.0                | 205.70                             | 205.65                            | 302           | 0.86               |
| 255 | Existing-P<br>-114 | 26                         | J-72                | J-89                | 24.0             | 130.0                | 205.58                             | 205.58                            | -422          | 0.30               |
| 259 | Existing-P<br>-117 | 255                        | J-74                | J-90                | 24.0             | 130.0                | 205.59                             | 205.59                            | -163          | 0.12               |
| 260 | Existing-P<br>-118 | 380                        | J-90                | J-33                | 24.0             | 130.0                | 205.59                             | 205.59                            | -163          | 0.12               |
| 263 | Existing-P<br>-120 | 260                        | EX.<br>PARCEL<br>55 | J-91                | 24.0             | 130.0                | 205.59                             | 205.59                            | -172          | 0.12               |
| 267 | Existing-P<br>-123 | 437                        | J-91                | J-92                | 24.0             | 130.0                | 205.59                             | 205.60                            | -172          | 0.12               |
| 280 | Existing-P<br>-127 | 2,451                      | J-31                | EX.<br>PARCEL<br>42 | 8.0              | 110.0                | 205.22                             | 205.53                            | -57           | 0.37               |
| 284 | Existing-P<br>-129 | 862                        | J-97                | J-98                | 12.0             | 110.0                | 205.55                             | 205.52                            | 78            | 0.22               |
| 286 | Existing-P<br>-130 | 54                         | J-98                | J-99                | 8.0              | 110.0                | 205.52                             | 205.51                            | 78            | 0.50               |
| 290 | Existing-P<br>-132 | 221                        | J-100               | J-101               | 8.0              | 110.0                | 205.47                             | 205.42                            | 78            | 0.50               |

## PEAK HOUR DEMAND

FlexTable: Pipe Table

| ID  | Label              | Length<br>(Scaled)<br>(ft) | Start<br>Node       | Stop<br>Node             | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|--------------------|----------------------------|---------------------|--------------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 292 | Existing-P<br>-133 | 170                        | J-101               | EX.<br>PARCEL<br>6       | 8.0              | 110.0                | 205.42                             | 205.38                            | 78            | 0.50               |
| 294 | Existing-P<br>-134 | 1,222                      | EX.<br>6            | J-103                    | 8.0              | 110.0                | 205.38                             | 205.12                            | 77            | 0.49               |
| 302 | Existing-P<br>-138 | 2,202                      | J-103               | J-107                    | 8.0              | 110.0                | 205.12                             | 204.66                            | 76            | 0.48               |
| 306 | Existing-P<br>-140 | 1,129                      | J-108               | J-109                    | 8.0              | 110.0                | 204.60                             | 204.37                            | 76            | 0.48               |
| 313 | Existing-P<br>-144 | 21                         | J-99                | J-112                    | 8.0              | 110.0                | 205.51                             | 205.51                            | 78            | 0.50               |
| 314 | Existing-P<br>-145 | 156                        | J-112               | J-100                    | 8.0              | 110.0                | 205.51                             | 205.47                            | 78            | 0.50               |
| 320 | Existing-P<br>-148 | 348                        | EX.<br>PARCEL<br>42 | EX.<br>PARCEL<br>44      | 8.0              | 110.0                | 205.53                             | 205.55                            | -39           | 0.25               |
| 321 | Existing-P<br>-149 | 13                         | EX.<br>44           | J-97                     | 24.0             | 130.0                | 205.55                             | 205.55                            | 78            | 0.06               |
| 330 | Existing-P<br>-154 | 548                        | J-119               | J-35                     | 18.0             | 130.0                | 205.56                             | 205.60                            | -422          | 0.53               |
| 334 | Existing-P<br>-156 | 207                        | J-120               | EX.<br>PARCEL<br>52      | 24.0             | 130.0                | 205.56                             | 205.56                            | -97           | 0.07               |
| 335 | Existing-P<br>-157 | 383                        | EX.<br>52           | J-32                     | 24.0             | 130.0                | 205.56                             | 205.56                            | -190          | 0.13               |
| 343 | Existing-P<br>-162 | 210                        | J-124               | J-116                    | 24.0             | 130.0                | 205.55                             | 205.55                            | 2             | 0.00               |
| 346 | Existing-P<br>-164 | 1,677                      | J-125               | J-6                      | 24.0             | 130.0                | 206.35                             | 206.37                            | -306          | 0.22               |
| 348 | Existing-P<br>-165 | 1,472                      | J-119               | J-126                    | 18.0             | 120.0                | 205.56                             | 205.50                            | 288           | 0.36               |
| 354 | Existing-P<br>-168 | 831                        | J-80                | J-129                    | 24.0             | 130.0                | 205.59                             | 205.59                            | -255          | 0.18               |
| 355 | Existing-P<br>-169 | 354                        | J-129               | J-35                     | 24.0             | 130.0                | 205.59                             | 205.60                            | -339          | 0.24               |
| 359 | Existing-P<br>-171 | 1,059                      | J-127               | J-131                    | 12.0             | 110.0                | 204.95                             | 204.60                            | 284           | 0.81               |
| 361 | Existing-P<br>-172 | 93                         | J-126               | J-132                    | 24.0             | 130.0                | 205.50                             | 205.50                            | 288           | 0.20               |
| 366 | Existing-P<br>-175 | 82                         | J-57                | J-134                    | 24.0             | 130.0                | 205.57                             | 205.57                            | 159           | 0.11               |
| 370 | Existing-P<br>-178 | 42                         | J-135               | HCDA<br>Parcel<br>10     | 8.0              | 110.0                | 203.97                             | 203.97                            | 0             | 0.00               |
| 382 | Existing-P<br>-184 | 494                        | J-139               | J-134                    | 24.0             | 130.0                | 205.57                             | 205.57                            | -273          | 0.19               |
| 384 | Existing-P<br>-185 | 106                        | EX.<br>42           | EX.<br>PARCEL<br>39 & 40 | 8.0              | 110.0                | 205.53                             | 205.53                            | -24           | 0.15               |

Kalaheva Water System - Interim Condition at Parcel  
1 wk  
7/19/2021

Bentley Systems, Inc. Heastad Methods Solution Center  
27 Siemon Company Drive Suite 200 W. Watertown, CT  
08795 USA +1-203-755-1666

WaterCAD  
10.03.03.720  
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## PEAK HOUR DEMAND

FlexTable: Pipe Table

| ID  | Label              | Length<br>(Scaled)<br>(ft) | Start<br>Node        | Stop<br>Node             | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|--------------------|----------------------------|----------------------|--------------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 388 | Existing-P<br>-188 | 740                        | EX.<br>44            | J-143                    | 24.0             | 130.0                | 205.55                             | 205.55                            | -122          | 0.09               |
| 392 | Existing-P<br>-191 | 314                        | J-124                | EX.<br>PARCEL<br>29 & 30 | 12.0             | 110.0                | 205.55                             | 205.57                            | -115          | 0.33               |
| 401 | Existing-P<br>-196 | 858                        | J-116                | J-148                    | 12.0             | 110.0                | 205.55                             | 205.55                            | -11           | 0.03               |
| 410 | Existing-P<br>-203 | 958                        | J-150                | J-125                    | 12.0             | 110.0                | 205.98                             | 206.35                            | -306          | 0.87               |
| 414 | Existing-P<br>-206 | 623                        | J-151                | J-37                     | 12.0             | 110.0                | 205.93                             | 205.97                            | -114          | 0.32               |
| 417 | Existing-P<br>-208 | 2,594                      | J-134                | J-152                    | 12.0             | 110.0                | 205.57                             | 205.73                            | -114          | 0.32               |
| 418 | Existing-P<br>-209 | 3,168                      | J-152                | J-151                    | 12.0             | 110.0                | 205.73                             | 205.93                            | -114          | 0.32               |
| 421 | Existing-P<br>-211 | 170                        | J-103                | EX.<br>PARCEL<br>485     | 8.0              | 110.0                | 205.12                             | 205.12                            | 1             | 0.01               |
| 424 | Existing-P<br>-213 | 78                         | J-107                | HCDA<br>Parcel 2         | 8.0              | 110.0                | 204.66                             | 204.64                            | 76            | 0.48               |
| 425 | Existing-P<br>-214 | 178                        | HCDA<br>Parcel 2     | J-108                    | 8.0              | 110.0                | 204.64                             | 204.60                            | 76            | 0.48               |
| 427 | Existing-P<br>-215 | 246                        | J-109                | EX.<br>PARCEL<br>9       | 8.0              | 110.0                | 204.37                             | 204.32                            | 76            | 0.48               |
| 433 | Existing-P<br>-218 | 647                        | EX.<br>9             | J-158                    | 8.0              | 110.0                | 204.32                             | 204.20                            | 69            | 0.44               |
| 434 | Existing-P<br>-219 | 421                        | J-158                | J-110                    | 8.0              | 110.0                | 204.20                             | 204.13                            | 69            | 0.44               |
| 435 | Existing-P<br>-220 | 2,214                      | HCDA<br>Parcel 4     | J-158                    | 8.0              | 110.0                | 204.20                             | 204.20                            | 0             | 0.00               |
| 437 | Existing-P<br>-221 | 225                        | J-116                | EX.<br>PARCEL<br>12      | 8.0              | 110.0                | 205.55                             | 205.55                            | 13            | 0.08               |
| 443 | Existing-P<br>-225 | 2,928                      | J-132                | J-161                    | 8.0              | 110.0                | 205.50                             | 204.69                            | 88            | 0.56               |
| 444 | Existing-P<br>-226 | 2,623                      | J-161                | J-135                    | 8.0              | 110.0                | 204.69                             | 203.97                            | 88            | 0.56               |
| 446 | Existing-P<br>-227 | 284                        | J-161                | HCDA<br>Parcel<br>11     | 12.0             | 110.0                | 204.69                             | 204.69                            | 0             | 0.00               |
| 448 | Existing-P<br>-228 | 716                        | J-131                | HCDA<br>Parcel<br>12     | 12.0             | 110.0                | 204.60                             | 204.36                            | 284           | 0.81               |
| 449 | Existing-P<br>-229 | 1,669                      | HCDA<br>Parcel<br>12 | J-138                    | 12.0             | 110.0                | 204.36                             | 203.80                            | 284           | 0.81               |
| 451 | Existing-P<br>-230 | 585                        | J-135                | EX.<br>PARCEL<br>24 & 28 | 8.0              | 110.0                | 203.97                             | 203.83                            | 81            | 0.52               |

Kalaheva Water System - Interim Condition at Parcel  
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WaterCAD  
10.03.03.720  
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PEAK HOUR DEMAND

FlexTable: Pipe Table

| ID  | Label                 | Length<br>(Scaled)<br>(ft) | Start<br>Node            | Stop<br>Node         | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|-----------------------|----------------------------|--------------------------|----------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 454 | Existing-P<br>-232    | 5,001                      | J-148                    | EX.<br>PARCEL<br>32  | 12.0             | 110.0                | 205.55                             | 205.56                            | -11           | 0.03               |
| 455 | Existing-P<br>-233    | 1,397                      | EX.<br>PARCEL<br>32      | J-119                | 24.0             | 130.0                | 205.56                             | 205.56                            | -133          | 0.09               |
| 457 | Existing-P<br>-234    | 1,716                      | J-132                    | J-166                | 24.0             | 13.0                 | 205.50                             | 204.96                            | 200           | 0.14               |
| 458 | Existing-P<br>-235    | 507                        | J-166                    | J-127                | 24.0             | 130.0                | 204.96                             | 204.95                            | 284           | 0.20               |
| 459 | Existing-P<br>-236    | 42                         | J-130                    | J-166                | 8.0              | 110.0                | 204.97                             | 204.96                            | 84            | 0.54               |
| 461 | Existing-P<br>-237    | 180                        | J-129                    | HCDA<br>Parcel<br>15 | 8.0              | 110.0                | 205.59                             | 205.55                            | 84            | 0.54               |
| 462 | Existing-P<br>-238    | 2,276                      | HCDA<br>Parcel<br>15     | J-130                | 8.0              | 110.0                | 205.55                             | 204.97                            | 84            | 0.54               |
| 465 | Existing-P<br>-239    | 1,783                      | EX.<br>PARCEL<br>58      | J-169                | 24.0             | 130.0                | 205.58                             | 205.58                            | -160          | 0.11               |
| 466 | Existing-P<br>-240    | 246                        | J-169                    | EX.<br>PARCEL<br>57  | 24.0             | 130.0                | 205.58                             | 205.58                            | -160          | 0.11               |
| 467 | Existing-P<br>-241    | 456                        | HCDA<br>Parcel<br>16     | J-169                | 16.0             | 120.0                | 205.58                             | 205.58                            | 0             | 0.00               |
| 470 | Existing-P<br>-243    | 1,013                      | HCDA<br>Parcel<br>17     | J-139                | 12.0             | 110.0                | 205.25                             | 205.57                            | -273          | 0.77               |
| 475 | Existing-P<br>-246    | 466                        | EX.<br>PARCEL<br>39 & 40 | EX.<br>PARCEL<br>35  | 8.0              | 110.0                | 205.53                             | 205.56                            | -39           | 0.25               |
| 718 | Existing-P<br>-249(1) | 656                        | EX.<br>PARCEL<br>29 & 30 | EX.<br>PARCEL<br>43  | 12.0             | 110.0                | 205.57                             | 205.61                            | -118          | 0.33               |
| 719 | Existing-P<br>-249(2) | 552                        | EX.<br>PARCEL<br>43      | EX.<br>PARCEL<br>34  | 12.0             | 110.0                | 205.61                             | 205.67                            | -146          | 0.41               |
| 518 | Existing-P<br>-252    | 529                        | J-138                    | EX.<br>PARCEL<br>1   | 12.0             | 110.0                | 203.80                             | 203.62                            | 284           | 0.81               |
| 519 | Existing-P<br>-253    | 5,261                      | EX.<br>PARCEL<br>1       | HCDA<br>Parcel<br>17 | 12.0             | 110.0                | 203.62                             | 205.25                            | -273          | 0.77               |
| 573 | Existing-P<br>-259    | 571                        | EX.<br>PARCEL<br>35      | EX.<br>PARCEL<br>36  | 24.0             | 130.0                | 205.56                             | 205.56                            | -71           | 0.05               |
| 574 | Existing-P<br>-260    | 150                        | EX.<br>PARCEL<br>36      | J-120                | 24.0             | 130.0                | 205.56                             | 205.56                            | -97           | 0.07               |

PEAK HOUR DEMAND

FlexTable: Pipe Table

| ID  | Label              | Length<br>(Scaled)<br>(ft) | Start<br>Node            | Stop<br>Node             | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|--------------------|----------------------------|--------------------------|--------------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 575 | Existing-P<br>-261 | 1,343                      | HCDA<br>Parcel 7         | EX.<br>PARCEL<br>36      | 8.0              | 110.0                | 205.55                             | 205.56                            | -9            | 0.05               |
| 579 | Existing-P<br>-263 | 514                        | J-143                    | J-181                    | 24.0             | 130.0                | 205.55                             | 205.55                            | -122          | 0.09               |
| 580 | Existing-P<br>-264 | 285                        | J-181                    | J-124                    | 24.0             | 130.0                | 205.55                             | 205.55                            | -113          | 0.08               |
| 581 | Existing-P<br>-265 | 603                        | HCDA<br>Parcel 7         | J-181                    | 8.0              | 110.0                | 205.55                             | 205.55                            | 9             | 0.05               |
| 588 | Existing-P<br>-266 | 114                        | J-89                     | J-183                    | 24.0             | 130.0                | 205.58                             | 205.58                            | -422          | 0.30               |
| 589 | Existing-P<br>-267 | 503                        | J-183                    | J-56                     | 24.0             | 130.0                | 205.58                             | 205.58                            | -291          | 0.21               |
| 590 | Existing-P<br>-268 | 844                        | J-183                    | HCDA<br>Parcel 6         | 12.0             | 110.0                | 205.58                             | 205.65                            | -130          | 0.37               |
| 592 | Existing-P<br>-269 | 290                        | EX.<br>PARCEL<br>34      | EX.<br>PARCEL<br>37 & 38 | 12.0             | 110.0                | 205.67                             | 205.70                            | -147          | 0.42               |
| 593 | Existing-P<br>-270 | 734                        | EX.<br>PARCEL<br>37 & 38 | J-150                    | 12.0             | 110.0                | 205.70                             | 205.98                            | -306          | 0.87               |
| 594 | Existing-P<br>-271 | 628                        | HCDA<br>Parcel 6         | EX.<br>PARCEL<br>37 & 38 | 12.0             | 110.0                | 205.65                             | 205.70                            | -130          | 0.37               |
| 599 | Existing-P<br>-272 | 1,522                      | J-37                     | J-186                    | 18.0             | 120.0                | 205.97                             | 206.48                            | -901          | 1.14               |
| 600 | Existing-P<br>-273 | 385                        | J-186                    | J-5                      | 24.0             | 130.0                | 206.48                             | 206.51                            | -1,046        | 0.74               |
| 601 | Existing-P<br>-274 | 645                        | J-186                    | HCDA<br>Parcel<br>18     | 8.0              | 110.0                | 206.48                             | 206.03                            | 145           | 0.93               |
| 603 | Existing-P<br>-275 | 643                        | J-92                     | J-187                    | 24.0             | 130.0                | 205.60                             | 205.60                            | -172          | 0.12               |
| 604 | Existing-P<br>-276 | 938                        | J-187                    | J-35                     | 24.0             | 130.0                | 205.60                             | 205.60                            | -27           | 0.02               |
| 605 | Existing-P<br>-277 | 617                        | HCDA<br>Parcel<br>18     | J-187                    | 8.0              | 110.0                | 206.03                             | 205.60                            | 145           | 0.93               |
| 608 | Existing-P<br>-278 | 379                        | J-6                      | J-189                    | 24.0             | 130.0                | 206.37                             | 206.36                            | 432           | 0.31               |
| 609 | Existing-P<br>-279 | 852                        | J-189                    | J-44                     | 12.0             | 110.0                | 206.36                             | 206.03                            | 304           | 0.86               |
| 610 | Existing-P<br>-280 | 387                        | J-189                    | HCDA<br>Parcel<br>19     | 8.0              | 110.0                | 206.36                             | 206.14                            | 128           | 0.82               |
| 612 | Existing-P<br>-281 | 252                        | J-56                     | J-190                    | 24.0             | 130.0                | 205.58                             | 205.59                            | -291          | 0.21               |
| 613 | Existing-P<br>-282 | 713                        | J-190                    | J-74                     | 24.0             | 130.0                | 205.59                             | 205.59                            | -163          | 0.12               |
| 614 | Existing-P<br>-283 | 1,012                      | HCDA<br>Parcel<br>19     | J-190                    | 8.0              | 110.0                | 206.14                             | 205.59                            | 128           | 0.82               |

PEAK HOUR DEMAND

FlexTable: Pipe Table

| ID  | Label              | Length<br>(Scaled)<br>(ft) | Start<br>Node      | Stop<br>Node     | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|--------------------|----------------------------|--------------------|------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 617 | Existing-P<br>-284 | 249                        | J-88               | J-192            | 12.0             | 110.0                | 205.65                             | 205.56                            | 302           | 0.86               |
| 618 | Existing-P<br>-285 | 48                         | J-192              | J-19             | 12.0             | 110.0                | 205.56                             | 205.55                            | 216           | 0.61               |
| 619 | Existing-P<br>-286 | 604                        | J-192              | PARCEL<br>1A     | 8.0              | 110.0                | 205.56                             | 205.40                            | 86            | 0.55               |
| 621 | Existing-P<br>-287 | 43                         | J-66               | J-193            | 24.0             | 130.0                | 205.46                             | 205.46                            | -175          | 0.12               |
| 622 | Existing-P<br>-288 | 193                        | J-193              | J-47             | 12.0             | 110.0                | 205.46                             | 205.50                            | -232          | 0.66               |
| 623 | Existing-P<br>-289 | 502                        | PARCEL<br>EX<br>1A | J-193            | 8.0              | 110.0                | 205.40                             | 205.46                            | -57           | 0.37               |
| 626 | Existing-P<br>-290 | 743                        | J-22               | J-195            | 12.0             | 110.0                | 205.22                             | 205.08                            | 203           | 0.57               |
| 631 | Existing-P<br>-294 | 625                        | J-196              | J-31             | 12.0             | 110.0                | 205.15                             | 205.22                            | -162          | 0.46               |
| 644 | P-296              | 48                         | J-110              | J-197            | 8.0              | 110.0                | 204.13                             | 204.12                            | 69            | 0.44               |
| 647 | P-298              | 778                        | J-213              | HCDA<br>Parcel 5 | 8.0              | 110.0                | 204.10                             | 204.10                            | 0             | 0.00               |
| 652 | P-299              | 793                        | J-198              | J-199            | 12.0             | 110.0                | 204.09                             | 204.07                            | 69            | 0.20               |
| 654 | P-300              | 789                        | J-199              | J-200            | 12.0             | 110.0                | 204.07                             | 204.05                            | 69            | 0.20               |
| 656 | P-301              | 2,397                      | J-200              | J-201            | 12.0             | 110.0                | 204.05                             | 203.99                            | 69            | 0.20               |
| 658 | P-302              | 778                        | J-201<br>EX        | J-202            | 12.0             | 110.0                | 203.99                             | 203.97                            | 69            | 0.20               |
| 664 | P-305              | 804                        | PARCEL<br>15       | J-205            | 12.0             | 110.0                | 203.96                             | 203.96                            | -7            | 0.02               |
| 666 | P-306              | 559                        | J-205              | J-206            | 12.0             | 110.0                | 203.96                             | 203.97                            | -7            | 0.02               |
| 668 | P-307              | 1,033                      | J-206              | J-207            | 12.0             | 110.0                | 203.97                             | 203.97                            | -7            | 0.02               |
| 670 | P-308              | 1,683                      | J-207              | J-208            | 12.0             | 110.0                | 203.97                             | 203.97                            | -7            | 0.02               |
| 672 | P-309              | 389                        | J-208              | J-209            | 12.0             | 110.0                | 203.97                             | 203.97                            | -7            | 0.02               |
| 673 | P-310              | 137                        | J-209              | J-135            | 12.0             | 110.0                | 203.97                             | 203.97                            | -7            | 0.02               |
| 660 | P-314              | 390                        | J-202              | PARCEL<br>14     | 12.0             | 110.0                | 203.97                             | 203.96                            | 69            | 0.20               |
| 696 | P-314              | 505                        | J-195              | J-218            | 16.0             | 110.0                | 205.08                             | 205.05                            | 248           | 0.40               |
| 662 | P-315              | 1,185                      | PARCEL<br>EX<br>14 | PARCEL<br>15     | 12.0             | 110.0                | 203.96                             | 203.96                            | 4             | 0.01               |
| 815 | P-315(1)           | 283                        | J-218              | J-246            | 16.0             | 110.0                | 205.05                             | 205.03                            | 248           | 0.40               |
| 816 | P-315(2)           | 262                        | J-246              | VA<br>CENTER     | 16.0             | 110.0                | 205.03                             | 205.03                            | 115           | 0.18               |
| 694 | P-316              | 555                        | VA<br>CENTER       | J-25             | 16.0             | 110.0                | 205.03                             | 205.03                            | 35            | 0.06               |
| 710 | P-317              | 280                        | J-223              | J-25             | 16.0             | 110.0                | 205.03                             | 205.03                            | -35           | 0.06               |
| 648 | P-318              | 95                         | J-197              | J-213            | 8.0              | 110.0                | 204.12                             | 204.10                            | 69            | 0.44               |
| 709 | P-318              | 304                        | J-213              | J-223            | 16.0             | 110.0                | 205.03                             | 205.03                            | -35           | 0.06               |
| 650 | P-319              | 516                        | J-213              | J-198            | 12.0             | 110.0                | 204.10                             | 204.09                            | 69            | 0.20               |
| 713 | P-319              | 310                        | J-224              | J-213            | 12.0             | 110.0                | 205.03                             | 205.03                            | -35           | 0.10               |
| 712 | P-320              | 316                        | J-212              | J-224            | 12.0             | 110.0                | 205.02                             | 205.03                            | -35           | 0.10               |

PEAK HOUR DEMAND

FlexTable: Pipe Table

| ID  | Label    | Length<br>(Scaled)<br>(ft) | Start<br>Node          | Stop<br>Node           | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|----------|----------------------------|------------------------|------------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 700 | P-321    | 370                        | GENTRY<br>4<br>PI POR. | J-212                  | 12.0             | 110.0                | 205.02                             | 205.02                            | -35           | 0.10               |
| 703 | P-322    | 776                        | GENTRY<br>PI POR.<br>3 | PI POR.<br>4           | 12.0             | 110.0                | 205.07                             | 205.02                            | 117           | 0.33               |
| 774 | P-322(2) | 546                        | J-228                  | J-227                  | 8.0              | 110.0                | 205.01                             | 205.01                            | 0             | 0.00               |
| 702 | P-323    | 415                        | J-211                  | GENTRY<br>PI POR.<br>3 | 12.0             | 110.0                | 205.10                             | 205.07                            | 117           | 0.33               |
| 737 | P-323    | 191                        | J-227                  | J-228                  | 8.0              | 110.0                | 205.01                             | 204.89                            | 133           | 0.85               |
| 690 | P-324    | 396                        | GENTRY<br>PI POR.<br>2 | J-211                  | 12.0             | 110.0                | 205.09                             | 205.10                            | -45           | 0.13               |
| 739 | P-324    | 147                        | J-228                  | J-229                  | 8.0              | 110.0                | 204.89                             | 204.81                            | 133           | 0.85               |
| 689 | P-325    | 512                        | GENTRY<br>PI POR.<br>1 | PI POR.<br>2           | 12.0             | 110.0                | 205.09                             | 205.09                            | -45           | 0.13               |
| 757 | P-325(1) | 140                        | J-229                  | J-233                  | 8.0              | 110.0                | 204.81                             | 204.75                            | 107           | 0.68               |
| 758 | P-325(2) | 344                        | J-233                  | J-230                  | 8.0              | 110.0                | 204.75                             | 204.71                            | 54            | 0.35               |
| 686 | P-326    | 351                        | J-195                  | PI POR.<br>1           | 12.0             | 110.0                | 205.08                             | 205.09                            | -45           | 0.13               |
| 743 | P-326    | 396                        | J-230                  | J-231                  | 8.0              | 110.0                | 204.71                             | 204.71                            | 12            | 0.07               |
| 678 | P-327    | 400                        | J-196                  | J-211                  | 12.0             | 110.0                | 205.15                             | 205.10                            | 162           | 0.46               |
| 745 | P-327    | 490                        | J-231                  | J-232                  | 8.0              | 110.0                | 204.71                             | 204.71                            | 12            | 0.07               |
| 746 | P-328    | 400                        | J-229                  | J-232                  | 8.0              | 110.0                | 204.81                             | 204.71                            | 83            | 0.53               |
| 760 | P-329    | 91                         | J-230                  | J-234                  | 8.0              | 110.0                | 204.71                             | 204.71                            | 43            | 0.27               |
| 763 | P-331    | 88                         | J-235                  | J-233                  | 8.0              | 110.0                | 204.74                             | 204.75                            | -52           | 0.33               |
| 765 | P-332    | 77                         | J-235                  | J-236                  | 8.0              | 110.0                | 204.74                             | 204.74                            | 0             | 0.00               |
| 771 | P-333    | 344                        | J-234                  | J-235                  | 8.0              | 110.0                | 204.71                             | 204.71                            | -52           | 0.33               |
| 776 | P-334    | 44                         | J-229                  | J-239                  | 8.0              | 110.0                | 204.81                             | 204.81                            | -57           | 0.37               |
| 778 | P-335    | 142                        | J-239                  | J-240                  | 8.0              | 110.0                | 204.81                             | 204.83                            | -57           | 0.37               |
| 780 | P-336    | 191                        | J-240                  | J-241                  | 8.0              | 110.0                | 204.83                             | 204.85                            | -57           | 0.37               |
| 782 | P-337    | 429                        | J-241                  | J-242                  | 8.0              | 110.0                | 204.85                             | 204.85                            | -2            | 0.01               |
| 785 | P-338(1) | 224                        | J-242                  | J-243                  | 8.0              | 110.0                | 204.85                             | 204.93                            | -97           | 0.62               |
| 786 | P-338(2) | 120                        | J-243                  | PI POR.<br>4           | 8.0              | 110.0                | 204.93                             | 205.02                            | -152          | 0.97               |
| 788 | P-339    | 224                        | J-241                  | J-244                  | 8.0              | 110.0                | 204.85                             | 204.88                            | -55           | 0.35               |
| 789 | P-340    | 423                        | J-244                  | J-243                  | 8.0              | 110.0                | 204.88                             | 204.93                            | -55           | 0.35               |
| 791 | P-341    | 160                        | J-242                  | J-245                  | 8.0              | 110.0                | 204.85                             | 204.80                            | 95            | 0.61               |
| 817 | P-342    | 317                        | J-246                  | J-227                  | 12.0             | 110.0                | 205.03                             | 205.01                            | 133           | 0.38               |
| 819 | P-343    | 241                        | J-238                  | J-247                  | 8.0              | 110.0                | 205.01                             | 205.01                            | 0             | 0.00               |



PEAK HOUR DEMAND

FlexTable: Junction Table

| ID  | Label                              | Elevation<br>(ft) | Demand<br>(gpm) | Hydraulic Grade<br>(ft) | Pressure<br>(psi) |
|-----|------------------------------------|-------------------|-----------------|-------------------------|-------------------|
| 714 | BARBERS PT<br>ELEM (EX. PAR.<br>2) | 52.04             | 35              | 205.22                  | 66                |
| 517 | EX. PARCEL 1                       | 26.45             | 557             | 203.62                  | 77                |
| 615 | EX. PARCEL 1A                      | 45.78             | 143             | 205.40                  | 69                |
| 209 | EX. PARCEL 1B                      | 48.86             | 473             | 206.49                  | 68                |
| 420 | EX. PARCEL 4&5                     | 45.94             | 1               | 205.12                  | 69                |
| 291 | EX. PARCEL 6                       | 42.71             | 1               | 205.38                  | 70                |
| 426 | EX. PARCEL 9                       | 19.80             | 7               | 204.32                  | 80                |
| 436 | EX. PARCEL 12                      | 31.39             | 13              | 205.55                  | 75                |
| 659 | EX. PARCEL 14                      | 8.45              | 65              | 203.96                  | 85                |
| 661 | EX. PARCEL 15                      | 6.50              | 11              | 203.96                  | 85                |
| 450 | EX. PARCEL 24 &<br>28              | 12.82             | 81              | 203.83                  | 83                |
| 391 | EX. PARCEL 29 &<br>30              | 32.48             | 2               | 205.57                  | 75                |
| 453 | EX. PARCEL 32                      | 48.64             | 123             | 205.56                  | 68                |
| 478 | EX. PARCEL 34                      | 39.80             | 1               | 205.67                  | 72                |
| 474 | EX. PARCEL 35                      | 43.45             | 32              | 205.56                  | 70                |
| 572 | EX. PARCEL 36                      | 41.84             | 18              | 205.56                  | 71                |
| 591 | EX. PARCEL 37 &<br>38              | 41.72             | 29              | 205.70                  | 71                |
| 383 | EX. PARCEL 39 &<br>40              | 42.58             | 15              | 205.53                  | 71                |
| 279 | EX. PARCEL 42                      | 42.39             | 6               | 205.53                  | 71                |
| 717 | EX. PARCEL 43                      | 36.45             | 28              | 205.61                  | 73                |
| 319 | EX. PARCEL 44                      | 37.50             | 4               | 205.55                  | 73                |
| 245 | EX. PARCEL 47                      | 36.97             | 26              | 205.33                  | 73                |
| 72  | EX. PARCEL 48                      | 50.16             | 1               | 205.47                  | 67                |
| 134 | EX. PARCEL 49                      | 39.06             | 6               | 205.42                  | 72                |
| 241 | EX. PARCEL 51                      | 48.63             | 15              | 205.24                  | 68                |
| 333 | EX. PARCEL 52                      | 33.20             | 92              | 205.56                  | 75                |
| 66  | EX. PARCEL 53                      | 55.51             | 2               | 205.90                  | 65                |
| 100 | EX. PARCEL 55                      | 52.56             | 9               | 205.59                  | 66                |
| 162 | EX. PARCEL 57                      | 47.61             | 95              | 205.58                  | 68                |
| 219 | EX. PARCEL 58                      | 45.81             | 1               | 205.58                  | 69                |
| 685 | ENTRY P1 POR.<br>1                 | 46.61             | 0               | 205.09                  | 69                |
| 688 | ENTRY P1 POR.<br>2                 | 43.85             | 0               | 205.09                  | 70                |
| 701 | ENTRY P1 POR.<br>3                 | 39.82             | 0               | 205.07                  | 71                |
| 698 | ENTRY P1 POR.<br>4                 | 43.33             | 0               | 205.02                  | 70                |
| 423 | HCDA Parcel 2                      | 23.30             | 0               | 204.64                  | 78                |
| 431 | HCDA Parcel 4                      | 11.40             | 0               | 204.20                  | 83                |
| 429 | HCDA Parcel 5                      | 204.10            | 0               | 204.10                  | 83                |
| 586 | HCDA Parcel 6                      | 44.20             | 0               | 205.65                  | 74                |
| 571 | HCDA Parcel 7                      | 35.10             | 0               | 205.55                  | 70                |
| 363 | HCDA Parcel 10                     | 14.87             | 0               | 203.97                  | 82                |

PEAK HOUR DEMAND

FlexTable: Junction Table

| ID  | Label          | Elevation<br>(ft) | Demand<br>(gpm) | Hydraulic Grade<br>(ft) | Pressure<br>(psi) |
|-----|----------------|-------------------|-----------------|-------------------------|-------------------|
| 445 | HCDA Parcel 11 | 24.60             | 0               | 204.69                  | 78                |
| 447 | HCDA Parcel 12 | 26.80             | 0               | 204.36                  | 77                |
| 460 | HCDA Parcel 15 | 50.42             | 0               | 205.55                  | 67                |
| 463 | HCDA Parcel 16 | 46.04             | 0               | 205.58                  | 69                |
| 597 | HCDA Parcel 17 | 36.77             | 0               | 205.25                  | 73                |
| 606 | HCDA Parcel 18 | 50.12             | 0               | 206.03                  | 67                |
| 606 | HCDA Parcel 19 | 54.37             | 0               | 206.14                  | 66                |
| 41  | J-3            | 55.77             | 0               | 207.54                  | 66                |
| 43  | J-4            | 52.83             | 0               | 206.61                  | 67                |
| 45  | J-5            | 49.13             | 0               | 206.51                  | 68                |
| 47  | J-6            | 52.96             | 0               | 206.37                  | 66                |
| 64  | J-16           | 54.75             | 0               | 205.93                  | 65                |
| 68  | J-18           | 52.90             | 0               | 205.70                  | 66                |
| 70  | J-19           | 50.67             | 0               | 205.55                  | 67                |
| 74  | J-21           | 51.93             | 0               | 205.38                  | 66                |
| 76  | J-22           | 53.98             | 0               | 205.22                  | 65                |
| 82  | J-25           | 56.33             | 0               | 205.03                  | 64                |
| 94  | J-31           | 48.31             | 0               | 205.22                  | 68                |
| 96  | J-32           | 37.39             | 0               | 205.56                  | 73                |
| 98  | J-33           | 47.50             | 0               | 205.59                  | 68                |
| 102 | J-35           | 52.20             | 0               | 205.60                  | 66                |
| 104 | J-36           | 54.29             | 0               | 205.93                  | 66                |
| 106 | J-37           | 54.66             | 0               | 205.97                  | 65                |
| 111 | J-40           | 48.34             | 0               | 206.46                  | 68                |
| 114 | J-42           | 45.08             | 0               | 206.39                  | 70                |
| 117 | J-44           | 54.85             | 0               | 206.03                  | 65                |
| 123 | J-47           | 37.68             | 0               | 205.50                  | 73                |
| 126 | J-49           | 50.30             | 0               | 205.51                  | 67                |
| 138 | J-56           | 46.48             | 0               | 205.58                  | 69                |
| 161 | J-57           | 35.90             | 0               | 205.57                  | 73                |
| 178 | J-64           | 35.71             | 0               | 205.37                  | 73                |
| 181 | J-66           | 38.30             | 0               | 205.46                  | 72                |
| 186 | J-68           | 31.70             | 0               | 205.56                  | 75                |
| 196 | J-72           | 29.60             | 0               | 205.58                  | 76                |
| 201 | J-74           | 46.49             | 0               | 205.59                  | 69                |
| 214 | J-80           | 49.20             | 0               | 205.59                  | 68                |
| 224 | J-84           | 40.83             | 0               | 205.57                  | 71                |
| 250 | J-88           | 52.19             | 0               | 205.65                  | 66                |
| 254 | J-89           | 30.29             | 0               | 205.58                  | 76                |
| 258 | J-90           | 46.80             | 0               | 205.59                  | 69                |
| 262 | J-91           | 52.52             | 0               | 205.59                  | 66                |
| 266 | J-92           | 51.26             | 0               | 205.60                  | 67                |
| 281 | J-97           | 37.48             | 0               | 205.55                  | 73                |
| 283 | J-98           | 44.88             | 0               | 205.52                  | 70                |
| 285 | J-99           | 45.26             | 0               | 205.51                  | 69                |
| 287 | J-100          | 45.30             | 0               | 205.47                  | 69                |
| 289 | J-101          | 45.20             | 0               | 205.42                  | 69                |
| 293 | J-103          | 45.66             | 0               | 205.12                  | 78                |
| 301 | J-107          | 24.34             | 0               | 204.66                  | 69                |

PEAK HOUR DEMAND

FlexTable: Junction Table

| ID  | Label | Elevation<br>(ft) | Demand<br>(gpm) | Hydraulic Grade<br>(ft) | Pressure<br>(psi) |
|-----|-------|-------------------|-----------------|-------------------------|-------------------|
| 303 | J-108 | 19.54             | 0               | 204.60                  | 80                |
| 305 | J-109 | 21.20             | 0               | 204.37                  | 79                |
| 307 | J-110 | 13.52             | 0               | 204.13                  | 82                |
| 312 | J-112 | 45.36             | 0               | 205.51                  | 69                |
| 322 | J-116 | 30.94             | 0               | 205.55                  | 76                |
| 328 | J-119 | 47.63             | 0               | 205.56                  | 68                |
| 331 | J-120 | 38.48             | 0               | 205.56                  | 72                |
| 341 | J-124 | 31.16             | 0               | 205.55                  | 75                |
| 344 | J-125 | 48.70             | 0               | 206.35                  | 68                |
| 347 | J-126 | 38.90             | 0               | 205.50                  | 72                |
| 349 | J-127 | 27.50             | 0               | 204.95                  | 77                |
| 353 | J-129 | 51.10             | 0               | 205.59                  | 67                |
| 356 | J-130 | 30.16             | 0               | 204.97                  | 76                |
| 358 | J-131 | 25.12             | 0               | 204.60                  | 78                |
| 360 | J-132 | 38.94             | 0               | 205.50                  | 72                |
| 365 | J-134 | 35.50             | 0               | 205.57                  | 74                |
| 368 | J-135 | 15.22             | 0               | 203.97                  | 82                |
| 375 | J-138 | 25.41             | 0               | 203.80                  | 77                |
| 378 | J-139 | 34.10             | 0               | 205.57                  | 74                |
| 387 | J-143 | 34.76             | 0               | 205.55                  | 74                |
| 400 | J-148 | 31.95             | 0               | 205.55                  | 75                |
| 408 | J-150 | 43.28             | 0               | 205.98                  | 70                |
| 412 | J-151 | 51.90             | 0               | 205.93                  | 67                |
| 416 | J-152 | 49.41             | 0               | 205.73                  | 68                |
| 432 | J-158 | 14.10             | 0               | 204.20                  | 82                |
| 442 | J-161 | 23.87             | 0               | 204.69                  | 78                |
| 456 | J-166 | 28.69             | 0               | 204.96                  | 76                |
| 464 | J-169 | 47.70             | 0               | 205.58                  | 68                |
| 578 | J-181 | 32.56             | 0               | 205.55                  | 75                |
| 587 | J-183 | 32.19             | 0               | 205.58                  | 75                |
| 598 | J-186 | 48.17             | 0               | 206.48                  | 68                |
| 602 | J-187 | 50.93             | 0               | 205.60                  | 67                |
| 607 | J-189 | 46.47             | 0               | 206.36                  | 69                |
| 611 | J-190 | 48.53             | 0               | 205.59                  | 68                |
| 616 | J-192 | 50.92             | 0               | 205.56                  | 67                |
| 620 | J-193 | 38.19             | 0               | 205.46                  | 72                |
| 625 | J-195 | 54.03             | 0               | 205.08                  | 65                |
| 629 | J-196 | 47.40             | 0               | 205.15                  | 68                |
| 643 | J-197 | 0.00              | 0               | 204.12                  | 88                |
| 649 | J-198 | 13.60             | 0               | 204.09                  | 82                |
| 651 | J-199 | 11.92             | 0               | 204.07                  | 83                |
| 653 | J-200 | 10.47             | 0               | 204.05                  | 84                |
| 655 | J-201 | 5.50              | 0               | 203.99                  | 86                |
| 657 | J-202 | 8.56              | 0               | 203.97                  | 85                |
| 663 | J-205 | 0.00              | 0               | 203.96                  | 88                |
| 665 | J-206 | 7.40              | 0               | 203.97                  | 85                |
| 667 | J-207 | 7.71              | 0               | 203.97                  | 85                |
| 669 | J-208 | 13.35             | 0               | 203.97                  | 82                |
| 671 | J-209 | 15.56             | 0               | 203.97                  | 82                |

PEAK HOUR DEMAND

FlexTable: Junction Table

| ID  | Label     | Elevation<br>(ft) | Demand<br>(gpm) | Hydraulic Grade<br>(ft) | Pressure<br>(psi) |
|-----|-----------|-------------------|-----------------|-------------------------|-------------------|
| 677 | J-211     | 0.00              | 0               | 205.10                  | 89                |
| 679 | J-212     | 45.83             | 0               | 205.02                  | 69                |
| 645 | J-213     | 13.04             | 0               | 204.10                  | 83                |
| 681 | J-213     | 50.26             | 0               | 205.03                  | 67                |
| 695 | J-218     | 50.97             | 0               | 205.05                  | 67                |
| 708 | J-223     | 54.54             | 0               | 205.03                  | 65                |
| 711 | J-224     | 46.93             | 0               | 205.03                  | 68                |
| 734 | J-227     | 46.00             | 0               | 205.01                  | 69                |
| 736 | J-228     | 45.50             | 0               | 204.89                  | 69                |
| 738 | J-229     | 44.00             | 0               | 204.81                  | 70                |
| 740 | J-230     | 42.00             | 0               | 204.71                  | 70                |
| 742 | J-231     | 40.00             | 0               | 204.71                  | 71                |
| 744 | J-232     | 40.00             | 95              | 204.71                  | 71                |
| 756 | J-233     | 43.42             | 0               | 204.75                  | 70                |
| 759 | J-234     | 44.00             | 95              | 204.71                  | 70                |
| 761 | J-235     | 44.00             | 0               | 204.74                  | 70                |
| 764 | J-236     | 45.00             | 0               | 204.74                  | 69                |
| 772 | J-238     | 46.18             | 0               | 205.01                  | 69                |
| 775 | J-239     | 44.00             | 0               | 204.81                  | 70                |
| 777 | J-240     | 44.00             | 0               | 204.83                  | 70                |
| 779 | J-241     | 43.80             | 0               | 204.85                  | 70                |
| 781 | J-242     | 45.00             | 0               | 204.85                  | 69                |
| 784 | J-243     | 44.00             | 0               | 204.93                  | 70                |
| 787 | J-244     | 43.50             | 0               | 204.88                  | 70                |
| 790 | J-245     | 46.00             | 95              | 204.80                  | 69                |
| 814 | J-246     | 52.62             | 0               | 205.03                  | 66                |
| 818 | J-247     | 48.00             | 0               | 205.01                  | 68                |
| 692 | VA CENTER | 54.15             | 80              | 205.03                  | 65                |

MAXIMUM DAILY DEMAND + FIRE FLOW AT JUNCTION J-245

**FlexTable: Reservoir Table**

| ID | Label | Elevation<br>(ft) | Zone   | Flow (Out net)<br>(gpm) | Hydraulic Grade<br>(ft) |
|----|-------|-------------------|--------|-------------------------|-------------------------|
| 31 | R-1   | 212.00            | <None> | 2,629                   | 212.00                  |

MAXIMUM DAILY DEMAND + FIRE FLOW AT JUNCTION J-245

**FlexTable: Pipe Table**

| ID  | Label                 | Length<br>(Scaled)<br>(ft) | Start<br>Node                            | Stop<br>Node                             | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|-----------------------|----------------------------|------------------------------------------|------------------------------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 715 | Existing P<br>-295(1) | 1,044                      | J-31                                     | BARBER<br>SPT<br>ELEM<br>(EX.<br>PAR. 2) | 12.0             | 110.0                | 197.95                             | 197.81                            | 173           | 0.49               |
| 716 | Existing P<br>-295(2) | 544                        | BARBER<br>SPT<br>ELEM<br>(EX.<br>PAR. 2) | J-22                                     | 12.0             | 110.0                | 197.81                             | 197.75                            | 155           | 0.44               |
| 44  | Existing-P<br>-4      | 2,377                      | J-3                                      | J-4                                      | 24.0             | 130.0                | 206.09                             | 204.85                            | 2,629         | 1.86               |
| 46  | Existing-P<br>-5      | 239                        | J-4                                      | J-5                                      | 24.0             | 130.0                | 204.85                             | 204.73                            | 2,629         | 1.86               |
| 67  | Existing-P<br>-14     | 61                         | J-16                                     | EX.<br>PARCEL<br>53                      | 12.0             | 110.0                | 202.65                             | 202.56                            | 643           | 1.82               |
| 69  | Existing-P<br>-15     | 533                        | EX.<br>PARCEL<br>53                      | J-18                                     | 12.0             | 110.0                | 202.56                             | 201.75                            | 642           | 1.82               |
| 75  | Existing-P<br>-18     | 442                        | EX.<br>PARCEL<br>48                      | J-21                                     | 12.0             | 110.0                | 200.26                             | 199.37                            | 749           | 2.12               |
| 77  | Existing-P<br>-19     | 800                        | J-21                                     | J-22                                     | 12.0             | 110.0                | 199.37                             | 197.75                            | 749           | 2.12               |
| 101 | Existing-P<br>-31     | 829                        | J-33                                     | EX.<br>PARCEL<br>55                      | 24.0             | 130.0                | 203.37                             | 203.41                            | -701          | 0.50               |
| 105 | Existing-P<br>-33     | 1,250                      | J-35                                     | J-36                                     | 18.0             | 120.0                | 203.49                             | 203.94                            | -927          | 1.17               |
| 107 | Existing-P<br>-34     | 156                        | J-36                                     | J-37                                     | 18.0             | 120.0                | 203.94                             | 203.99                            | -927          | 1.17               |
| 145 | Existing-P<br>-47     | 8,141                      | R-1                                      | J-3                                      | 24.0             | 130.0                | 212.00                             | 206.09                            | 2,629         | 1.86               |
| 149 | Existing-P<br>-50     | 1,382                      | J-40                                     | J-42                                     | 24.0             | 130.0                | 204.64                             | 204.48                            | 1,163         | 0.83               |
| 150 | Existing-P<br>-51     | 594                        | J-42                                     | J-6                                      | 24.0             | 130.0                | 204.48                             | 204.41                            | 1,163         | 0.83               |
| 152 | Existing-P<br>-53     | 286                        | J-44                                     | J-16                                     | 12.0             | 110.0                | 203.09                             | 202.65                            | 643           | 1.82               |
| 153 | Existing-P<br>-54     | 176                        | J-19                                     | J-49                                     | 12.0             | 110.0                | 201.07                             | 200.71                            | 749           | 2.12               |
| 154 | Existing-P<br>-55     | 221                        | J-49                                     | EX.<br>PARCEL<br>48                      | 12.0             | 110.0                | 200.71                             | 200.26                            | 749           | 2.12               |
| 158 | Existing-P<br>-59     | 249                        | J-47                                     | J-32                                     | 12.0             | 110.0                | 202.46                             | 203.16                            | -895          | 2.54               |
| 178 | Existing-P<br>-71     | 344                        | J-64                                     | EX.<br>PARCEL<br>49                      | 12.0             | 110.0                | 200.75                             | 201.38                            | -713          | 2.02               |

MAXIMUM DAILY DEMAND + FIRE FLOW AT JUNCTION J-245

FlexTable: Pipe Table

| ID  | Label              | Length<br>(Scaled)<br>(ft) | Start<br>Node      | Stop<br>Node       | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|--------------------|----------------------------|--------------------|--------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 182 | Existing-P<br>-73  | 286                        | EX<br>PARCEL<br>49 | J-66               | 12.0             | 110.0                | 201.38                             | 201.91                            | -716          | 2.03               |
| 187 | Existing-P<br>-76  | 140                        | J-32               | J-68               | 24.0             | 130.0                | 203.16                             | 203.17                            | -1,035        | 0.73               |
| 197 | Existing-P<br>-82  | 850                        | J-68               | J-72               | 24.0             | 130.0                | 203.17                             | 203.25                            | -1,035        | 0.73               |
| 210 | Existing-P<br>-89  | 239                        | J-5                | EX<br>PARCEL<br>18 | 24.0             | 130.0                | 204.73                             | 204.69                            | 1,400         | 0.99               |
| 211 | Existing-P<br>-90  | 453                        | EX<br>PARCEL<br>18 | J-40               | 24.0             | 130.0                | 204.69                             | 204.64                            | 1,163         | 0.83               |
| 215 | Existing-P<br>-92  | 720                        | EX<br>PARCEL<br>57 | J-80               | 24.0             | 130.0                | 203.49                             | 203.49                            | -56           | 0.04               |
| 225 | Existing-P<br>-98  | 440                        | J-57               | J-84               | 24.0             | 130.0                | 203.49                             | 203.49                            | -8            | 0.01               |
| 226 | Existing-P<br>-99  | 609                        | J-84               | EX<br>PARCEL<br>58 | 24.0             | 130.0                | 203.49                             | 203.49                            | -8            | 0.01               |
| 242 | Existing-P<br>-104 | 200                        | J-31               | EX<br>PARCEL<br>51 | 12.0             | 110.0                | 197.95                             | 198.30                            | -693          | 1.97               |
| 246 | Existing-P<br>-107 | 980                        | EX<br>PARCEL<br>51 | EX<br>PARCEL<br>47 | 12.0             | 110.0                | 198.30                             | 200.05                            | -700          | 1.99               |
| 247 | Existing-P<br>-108 | 376                        | EX<br>PARCEL<br>47 | J-64               | 12.0             | 110.0                | 200.05                             | 200.75                            | -713          | 2.02               |
| 251 | Existing-P<br>-111 | 138                        | J-18               | J-88               | 12.0             | 110.0                | 201.75                             | 201.54                            | 642           | 1.82               |
| 255 | Existing-P<br>-114 | 26                         | J-72               | J-89               | 24.0             | 130.0                | 203.25                             | 203.25                            | -1,035        | 0.73               |
| 259 | Existing-P<br>-117 | 255                        | J-74               | J-90               | 24.0             | 130.0                | 203.34                             | 203.35                            | -701          | 0.50               |
| 260 | Existing-P<br>-118 | 380                        | J-90               | J-33               | 24.0             | 130.0                | 203.35                             | 203.37                            | -701          | 0.50               |
| 263 | Existing-P<br>-120 | 260                        | EX<br>PARCEL<br>55 | J-91               | 24.0             | 130.0                | 203.41                             | 203.42                            | -706          | 0.50               |
| 267 | Existing-P<br>-123 | 437                        | J-91               | J-92               | 24.0             | 130.0                | 203.42                             | 203.44                            | -706          | 0.50               |
| 280 | Existing-P<br>-127 | 2,451                      | J-31               | EX<br>PARCEL<br>42 | 8.0              | 110.0                | 197.95                             | 202.94                            | -259          | 1.65               |
| 284 | Existing-P<br>-129 | 862                        | J-97               | J-98               | 12.0             | 110.0                | 203.25                             | 203.24                            | 34            | 0.10               |
| 286 | Existing-P<br>-130 | 54                         | J-98               | J-99               | 8.0              | 110.0                | 203.24                             | 203.24                            | 34            | 0.21               |
| 290 | Existing-P<br>-132 | 221                        | J-100              | J-101              | 8.0              | 110.0                | 203.23                             | 203.22                            | 34            | 0.21               |

MAXIMUM DAILY DEMAND + FIRE FLOW AT JUNCTION J-245

FlexTable: Pipe Table

| ID  | Label              | Length<br>(Scaled)<br>(ft) | Start<br>Node      | Stop<br>Node            | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|--------------------|----------------------------|--------------------|-------------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 292 | Existing-P<br>-133 | 170                        | J-101              | EX<br>PARCEL<br>6       | 8.0              | 110.0                | 203.22                             | 203.21                            | 34            | 0.21               |
| 294 | Existing-P<br>-134 | 1,222                      | EX<br>PARCEL<br>6  | J-103                   | 8.0              | 110.0                | 203.21                             | 203.16                            | 33            | 0.21               |
| 302 | Existing-P<br>-138 | 2,202                      | J-103              | J-107                   | 8.0              | 110.0                | 203.16                             | 203.06                            | 32            | 0.21               |
| 306 | Existing-P<br>-140 | 1,129                      | J-108              | J-109                   | 8.0              | 110.0                | 203.05                             | 203.00                            | 32            | 0.21               |
| 313 | Existing-P<br>-144 | 21                         | J-99               | J-112                   | 8.0              | 110.0                | 203.24                             | 203.24                            | 34            | 0.21               |
| 314 | Existing-P<br>-145 | 156                        | J-112              | J-100                   | 8.0              | 110.0                | 203.24                             | 203.23                            | 34            | 0.21               |
| 320 | Existing-P<br>-148 | 348                        | EX<br>PARCEL<br>42 | EX<br>PARCEL<br>44      | 8.0              | 110.0                | 202.94                             | 203.25                            | -165          | 1.05               |
| 321 | Existing-P<br>-149 | 13                         | EX<br>PARCEL<br>44 | J-97                    | 24.0             | 130.0                | 203.25                             | 203.25                            | 34            | 0.02               |
| 330 | Existing-P<br>-154 | 548                        | J-119              | J-35                    | 18.0             | 130.0                | 203.47                             | 203.49                            | -295          | 0.37               |
| 334 | Existing-P<br>-156 | 207                        | J-120              | EX<br>PARCEL<br>52      | 24.0             | 130.0                | 203.16                             | 203.16                            | -94           | 0.07               |
| 335 | Existing-P<br>-157 | 383                        | EX<br>PARCEL<br>52 | J-32                    | 24.0             | 130.0                | 203.16                             | 203.16                            | -140          | 0.10               |
| 343 | Existing-P<br>-162 | 210                        | J-124              | J-116                   | 24.0             | 130.0                | 203.26                             | 203.26                            | -79           | 0.06               |
| 346 | Existing-P<br>-164 | 1,677                      | J-125              | J-6                     | 24.0             | 130.0                | 204.39                             | 204.41                            | -367          | 0.26               |
| 348 | Existing-P<br>-165 | 1,472                      | J-119              | J-126                   | 18.0             | 120.0                | 203.47                             | 203.46                            | 148           | 0.19               |
| 354 | Existing-P<br>-168 | 831                        | J-80               | J-129                   | 24.0             | 130.0                | 203.49                             | 203.49                            | -56           | 0.04               |
| 355 | Existing-P<br>-169 | 354                        | J-129              | J-35                    | 24.0             | 130.0                | 203.49                             | 203.49                            | -99           | 0.07               |
| 359 | Existing-P<br>-171 | 1,059                      | J-127              | J-131                   | 12.0             | 110.0                | 203.31                             | 203.21                            | 141           | 0.40               |
| 361 | Existing-P<br>-172 | 93                         | J-126              | J-132                   | 24.0             | 130.0                | 203.46                             | 203.46                            | 148           | 0.11               |
| 366 | Existing-P<br>-175 | 82                         | J-57               | J-134                   | 24.0             | 130.0                | 203.49                             | 203.49                            | 8             | 0.01               |
| 370 | Existing-P<br>-178 | 42                         | J-135              | HCDA<br>Parcel<br>10    | 8.0              | 110.0                | 202.93                             | 202.93                            | 0             | 0.00               |
| 382 | Existing-P<br>-184 | 494                        | J-139              | J-134                   | 24.0             | 130.0                | 203.49                             | 203.49                            | -137          | 0.10               |
| 384 | Existing-P<br>-185 | 106                        | EX<br>PARCEL<br>42 | EX<br>PARCEL<br>39 & 40 | 8.0              | 110.0                | 202.94                             | 202.98                            | -97           | 0.62               |

MAXIMUM DAILY DEMAND + FIRE FLOW AT JUNCTION J-245

**FlexTable: Pipe Table**

| ID  | Label              | Length<br>(Scaled)<br>(ft) | Start<br>Node        | Stop<br>Node            | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|--------------------|----------------------------|----------------------|-------------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 388 | Existing-P<br>-188 | 740                        | EX<br>PARCEL<br>44   | J-143                   | 24.0             | 130.0                | 203.25                             | 203.25                            | -200          | 0.14               |
| 392 | Existing-P<br>-191 | 314                        | J-124                | EX<br>PARCEL<br>29 & 30 | 12.0             | 110.0                | 203.26                             | 203.29                            | -156          | 0.44               |
| 401 | Existing-P<br>-196 | 858                        | J-116                | J-148                   | 12.0             | 110.0                | 203.26                             | 203.29                            | -86           | 0.24               |
| 410 | Existing-P<br>-203 | 958                        | J-150                | J-125                   | 12.0             | 110.0                | 203.87                             | 204.39                            | -367          | 1.04               |
| 414 | Existing-P<br>-206 | 623                        | J-151                | J-37                    | 12.0             | 110.0                | 203.94                             | 203.99                            | -129          | 0.37               |
| 417 | Existing-P<br>-208 | 2,594                      | J-134                | J-152                   | 12.0             | 110.0                | 203.49                             | 203.70                            | -129          | 0.37               |
| 418 | Existing-P<br>-209 | 3,168                      | J-152                | J-151                   | 12.0             | 110.0                | 203.70                             | 203.94                            | -129          | 0.37               |
| 421 | Existing-P<br>-211 | 170                        | J-103                | EX<br>PARCEL<br>485     | 8.0              | 110.0                | 203.16                             | 203.16                            | 1             | 0.00               |
| 424 | Existing-P<br>-213 | 78                         | J-107                | HCDA<br>Parcel 2        | 8.0              | 110.0                | 203.06                             | 203.06                            | 32            | 0.21               |
| 425 | Existing-P<br>-214 | 178                        | HCDA<br>Parcel 2     | J-108                   | 8.0              | 110.0                | 203.06                             | 203.05                            | 32            | 0.21               |
| 427 | Existing-P<br>-215 | 246                        | J-109                | EX<br>PARCEL<br>9       | 8.0              | 110.0                | 203.00                             | 202.99                            | 32            | 0.21               |
| 433 | Existing-P<br>-218 | 647                        | EX<br>PARCEL<br>9    | J-158                   | 8.0              | 110.0                | 202.99                             | 202.97                            | 29            | 0.18               |
| 434 | Existing-P<br>-219 | 421                        | J-158                | J-110                   | 8.0              | 110.0                | 202.97                             | 202.96                            | 29            | 0.18               |
| 435 | Existing-P<br>-220 | 2,214                      | HCDA<br>Parcel 4     | J-158                   | 8.0              | 110.0                | 202.97                             | 202.97                            | 0             | 0.00               |
| 437 | Existing-P<br>-221 | 225                        | J-116                | EX<br>PARCEL<br>12      | 8.0              | 110.0                | 203.26                             | 203.26                            | 6             | 0.04               |
| 443 | Existing-P<br>-225 | 2,928                      | J-132                | J-161                   | 8.0              | 110.0                | 203.46                             | 203.18                            | 50            | 0.32               |
| 444 | Existing-P<br>-226 | 2,623                      | J-161                | J-135                   | 8.0              | 110.0                | 203.18                             | 202.93                            | 50            | 0.32               |
| 446 | Existing-P<br>-227 | 284                        | J-161                | HCDA<br>Parcel<br>11    | 12.0             | 110.0                | 203.18                             | 203.18                            | 0             | 0.00               |
| 448 | Existing-P<br>-228 | 716                        | J-131                | HCDA<br>Parcel<br>12    | 12.0             | 110.0                | 203.21                             | 203.15                            | 141           | 0.40               |
| 449 | Existing-P<br>-229 | 1,669                      | HCDA<br>Parcel<br>12 | J-138                   | 12.0             | 110.0                | 203.15                             | 202.99                            | 141           | 0.40               |
| 451 | Existing-P<br>-230 | 585                        | J-135                | EX<br>PARCEL<br>24 & 28 | 8.0              | 110.0                | 202.93                             | 202.89                            | 41            | 0.26               |

MAXIMUM DAILY DEMAND + FIRE FLOW AT JUNCTION J-245

**FlexTable: Pipe Table**

| ID  | Label                 | Length<br>(Scaled)<br>(ft) | Start<br>Node           | Stop<br>Node         | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|-----------------------|----------------------------|-------------------------|----------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 454 | Existing-P<br>-232    | 5,001                      | J-148                   | EX<br>PARCEL<br>32   | 12.0             | 110.0                | 203.29                             | 203.47                            | -86           | 0.24               |
| 455 | Existing-P<br>-233    | 1,397                      | EX<br>PARCEL<br>32      | J-119                | 24.0             | 130.0                | 203.47                             | 203.47                            | -147          | 0.10               |
| 457 | Existing-P<br>-234    | 1,716                      | J-132                   | J-166                | 24.0             | 13.0                 | 203.46                             | 203.31                            | 98            | 0.07               |
| 458 | Existing-P<br>-235    | 507                        | J-166                   | J-127                | 24.0             | 130.0                | 203.31                             | 203.31                            | 141           | 0.10               |
| 459 | Existing-P<br>-236    | 42                         | J-130                   | J-166                | 8.0              | 110.0                | 203.31                             | 203.31                            | 43            | 0.27               |
| 461 | Existing-P<br>-237    | 180                        | J-129                   | HCDA<br>Parcel<br>15 | 8.0              | 110.0                | 203.49                             | 203.48                            | 43            | 0.27               |
| 462 | Existing-P<br>-238    | 2,276                      | Parcel<br>15            | J-130                | 8.0              | 110.0                | 203.48                             | 203.31                            | 43            | 0.27               |
| 465 | Existing-P<br>-239    | 1,783                      | EX<br>PARCEL<br>58      | J-169                | 24.0             | 130.0                | 203.49                             | 203.49                            | -8            | 0.01               |
| 466 | Existing-P<br>-240    | 246                        | J-169                   | EX<br>PARCEL<br>57   | 24.0             | 130.0                | 203.49                             | 203.49                            | -8            | 0.01               |
| 467 | Existing-P<br>-241    | 456                        | HCDA<br>Parcel<br>16    | J-169                | 16.0             | 120.0                | 203.49                             | 203.49                            | 0             | 0.00               |
| 470 | Existing-P<br>-243    | 1,013                      | HCDA<br>Parcel<br>17    | J-139                | 12.0             | 110.0                | 203.40                             | 203.49                            | -137          | 0.39               |
| 475 | Existing-P<br>-246    | 466                        | PARCEL<br>39 & 40       | EX<br>PARCEL<br>35   | 8.0              | 110.0                | 202.98                             | 203.15                            | -105          | 0.67               |
| 718 | Existing-P<br>-249(1) | 656                        | EX<br>PARCEL<br>29 & 30 | EX<br>PARCEL<br>43   | 12.0             | 110.0                | 203.29                             | 203.36                            | -157          | 0.45               |
| 719 | Existing-P<br>-249(2) | 552                        | EX<br>PARCEL<br>43      | EX<br>PARCEL<br>34   | 12.0             | 110.0                | 203.36                             | 203.44                            | -171          | 0.49               |
| 518 | Existing-P<br>-252    | 529                        | J-138                   | EX<br>PARCEL<br>1    | 12.0             | 110.0                | 202.99                             | 202.94                            | 141           | 0.40               |
| 519 | Existing-P<br>-253    | 5,261                      | EX<br>PARCEL<br>1       | HCDA<br>Parcel<br>17 | 12.0             | 110.0                | 202.94                             | 203.40                            | -137          | 0.39               |
| 573 | Existing-P<br>-259    | 571                        | EX<br>PARCEL<br>35      | EX<br>PARCEL<br>36   | 24.0             | 130.0                | 203.15                             | 203.16                            | -121          | 0.09               |
| 574 | Existing-P<br>-260    | 150                        | EX<br>PARCEL<br>36      | J-120                | 24.0             | 130.0                | 203.16                             | 203.16                            | -94           | 0.07               |



MAXIMUM DAILY DEMAND + FIRE FLOW AT JUNCTION J-245

FlexTable: Pipe Table

| ID  | Label              | Length<br>(Scaled)<br>(ft) | Start<br>Node       | Stop<br>Node             | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|--------------------|----------------------------|---------------------|--------------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 575 | Existing-P<br>-261 | 1,343                      | HCDA<br>Parcel 7    | EX.<br>PARCEL<br>36      | 8.0              | 110.0                | 203.22                             | 203.16                            | 35            | 0.22               |
| 579 | Existing-P<br>-263 | 514                        | J-143               | J-181                    | 24.0             | 130.0                | 203.25                             | 203.25                            | -200          | 0.14               |
| 580 | Existing-P<br>-264 | 285                        | J-181               | J-124                    | 24.0             | 130.0                | 203.25                             | 203.26                            | -235          | 0.17               |
| 581 | Existing-P<br>-265 | 603                        | HCDA<br>Parcel 7    | J-181                    | 8.0              | 110.0                | 203.22                             | 203.25                            | -35           | 0.22               |
| 588 | Existing-P<br>-266 | 114                        | J-89                | J-183                    | 24.0             | 130.0                | 203.25                             | 203.26                            | -1,035        | 0.73               |
| 589 | Existing-P<br>-267 | 503                        | J-183               | J-56                     | 24.0             | 130.0                | 203.26                             | 203.29                            | -854          | 0.61               |
| 590 | Existing-P<br>-268 | 844                        | J-183               | HCDA<br>Parcel 6         | 12.0             | 110.0                | 203.26                             | 203.38                            | -181          | 0.51               |
| 592 | Existing-P<br>-269 | 290                        | EX.<br>PARCEL<br>34 | EX.<br>PARCEL<br>37 & 38 | 12.0             | 110.0                | 203.44                             | 203.48                            | -172          | 0.49               |
| 593 | Existing-P<br>-270 | 734                        | PARCEL<br>37 & 38   | J-150                    | 12.0             | 110.0                | 203.48                             | 203.87                            | -367          | 1.04               |
| 594 | Existing-P<br>-271 | 628                        | HCDA<br>Parcel 6    | EX.<br>PARCEL<br>37 & 38 | 12.0             | 110.0                | 203.38                             | 203.48                            | -181          | 0.51               |
| 599 | Existing-P<br>-272 | 1,522                      | J-37                | J-186                    | 18.0             | 120.0                | 203.99                             | 204.68                            | -1,056        | 1.33               |
| 600 | Existing-P<br>-273 | 385                        | J-186               | J-5                      | 24.0             | 130.0                | 204.68                             | 204.73                            | -1,229        | 0.87               |
| 601 | Existing-P<br>-274 | 645                        | J-186               | HCDA<br>Parcel 18        | 8.0              | 110.0                | 204.68                             | 204.06                            | 172           | 1.10               |
| 603 | Existing-P<br>-275 | 643                        | J-92                | J-187                    | 24.0             | 130.0                | 203.44                             | 203.47                            | -706          | 0.50               |
| 604 | Existing-P<br>-276 | 938                        | J-187               | J-35                     | 24.0             | 130.0                | 203.47                             | 203.49                            | -533          | 0.38               |
| 605 | Existing-P<br>-277 | 617                        | HCDA<br>Parcel 18   | J-187                    | 8.0              | 110.0                | 204.06                             | 203.47                            | 172           | 1.10               |
| 608 | Existing-P<br>-278 | 379                        | J-6                 | J-189                    | 24.0             | 130.0                | 204.41                             | 204.39                            | 796           | 0.56               |
| 609 | Existing-P<br>-279 | 852                        | J-189               | J-44                     | 12.0             | 110.0                | 204.39                             | 203.09                            | 643           | 1.82               |
| 610 | Existing-P<br>-280 | 387                        | J-189               | HCDA<br>Parcel 19        | 8.0              | 110.0                | 204.39                             | 204.09                            | 153           | 0.98               |
| 612 | Existing-P<br>-281 | 252                        | J-56                | J-190                    | 24.0             | 130.0                | 203.29                             | 203.31                            | -854          | 0.61               |
| 613 | Existing-P<br>-282 | 713                        | J-190               | J-74                     | 24.0             | 130.0                | 203.31                             | 203.34                            | -701          | 0.50               |
| 614 | Existing-P<br>-283 | 1,012                      | HCDA<br>Parcel 19   | J-190                    | 8.0              | 110.0                | 204.09                             | 203.31                            | 153           | 0.98               |

Kalamia Water System - Interim Condition at Parcel  
1 wk  
7/19/2021  
Bentley Systems, Inc. - Heastad Methods Solution Center  
27 Siemon Company Drive Suite 200 W. Watertown, CT  
08795 USA +1-203-755-1666  
WaterCAD  
10.03.03.720  
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MAXIMUM DAILY DEMAND + FIRE FLOW AT JUNCTION J-245

FlexTable: Pipe Table

| ID  | Label              | Length<br>(Scaled)<br>(ft) | Start<br>Node       | Stop<br>Node        | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|--------------------|----------------------------|---------------------|---------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 617 | Existing-P<br>-284 | 249                        | J-88                | J-192               | 12.0             | 110.0                | 201.54                             | 201.16                            | 642           | 1.82               |
| 618 | Existing-P<br>-285 | 48                         | J-192               | J-19                | 12.0             | 110.0                | 201.16                             | 201.07                            | 749           | 2.12               |
| 619 | Existing-P<br>-286 | 604                        | J-192               | EX.<br>PARCEL<br>1A | 8.0              | 110.0                | 201.16                             | 201.40                            | -107          | 0.68               |
| 621 | Existing-P<br>-287 | 43                         | J-66                | J-193               | 24.0             | 130.0                | 201.91                             | 201.92                            | -716          | 0.51               |
| 622 | Existing-P<br>-288 | 193                        | J-193               | J-47                | 12.0             | 110.0                | 201.92                             | 202.46                            | -895          | 2.54               |
| 623 | Existing-P<br>-289 | 502                        | EX.<br>PARCEL<br>1A | J-193               | 8.0              | 110.0                | 201.40                             | 201.92                            | -179          | 1.14               |
| 626 | Existing-P<br>-290 | 743                        | J-22                | J-195               | 12.0             | 110.0                | 197.75                             | 195.63                            | 903           | 2.56               |
| 631 | Existing-P<br>-294 | 625                        | J-196               | J-31                | 12.0             | 110.0                | 196.59                             | 197.95                            | -779          | 2.21               |
| 644 | P-296              | 48                         | J-110               | J-197               | 8.0              | 110.0                | 202.96                             | 202.96                            | 29            | 0.18               |
| 647 | P-298              | 778                        | J-213               | HCDA<br>Parcel 5    | 8.0              | 110.0                | 202.95                             | 202.95                            | 0             | 0.00               |
| 652 | P-299              | 793                        | J-198               | J-199               | 12.0             | 110.0                | 202.95                             | 202.95                            | 29            | 0.08               |
| 654 | P-300              | 789                        | J-199               | J-201               | 12.0             | 110.0                | 202.95                             | 202.94                            | 29            | 0.08               |
| 656 | P-301              | 2,397                      | J-200               | J-202               | 12.0             | 110.0                | 202.94                             | 202.93                            | 29            | 0.08               |
| 658 | P-302              | 778                        | J-201               | J-202               | 12.0             | 110.0                | 202.93                             | 202.93                            | 29            | 0.08               |
| 664 | P-305              | 804                        | EX.<br>PARCEL<br>15 | J-205               | 12.0             | 110.0                | 202.92                             | 202.92                            | -9            | 0.03               |
| 666 | P-306              | 559                        | J-205               | J-206               | 12.0             | 110.0                | 202.92                             | 202.92                            | -9            | 0.03               |
| 668 | P-307              | 1,033                      | J-206               | J-207               | 12.0             | 110.0                | 202.92                             | 202.93                            | -9            | 0.03               |
| 670 | P-308              | 1,683                      | J-207               | J-208               | 12.0             | 110.0                | 202.93                             | 202.93                            | -9            | 0.03               |
| 672 | P-309              | 389                        | J-208               | J-209               | 12.0             | 110.0                | 202.93                             | 202.93                            | -9            | 0.03               |
| 673 | P-310              | 137                        | J-209               | J-135               | 12.0             | 110.0                | 202.93                             | 202.93                            | -9            | 0.03               |
| 660 | P-314              | 390                        | J-202               | EX.<br>PARCEL<br>14 | 12.0             | 110.0                | 202.93                             | 202.92                            | 29            | 0.08               |
| 696 | P-314              | 505                        | J-195               | J-218               | 16.0             | 110.0                | 195.63                             | 195.17                            | 1,031         | 1.64               |
| 662 | P-315              | 1,185                      | EX.<br>PARCEL<br>14 | EX.<br>PARCEL<br>15 | 12.0             | 110.0                | 202.92                             | 202.92                            | -3            | 0.01               |
| 815 | P-315(1)           | 283                        | J-218               | J-246               | 16.0             | 110.0                | 195.17                             | 194.92                            | 1,031         | 1.64               |
| 816 | P-315(2)           | 262                        | J-246               | VA<br>CENTER        | 16.0             | 110.0                | 194.92                             | 194.86                            | 488           | 0.78               |
| 694 | P-316              | 555                        | VA<br>CENTER        | J-25                | 16.0             | 110.0                | 194.86                             | 194.75                            | 448           | 0.71               |
| 710 | P-317              | 280                        | J-223               | J-25                | 16.0             | 110.0                | 194.70                             | 194.75                            | -448          | 0.71               |
| 648 | P-318              | 95                         | J-197               | J-213               | 8.0              | 110.0                | 202.96                             | 202.95                            | 29            | 0.18               |
| 709 | P-318              | 304                        | J-213               | J-223               | 16.0             | 110.0                | 194.64                             | 194.70                            | -448          | 0.71               |
| 650 | P-319              | 516                        | J-213               | J-198               | 12.0             | 110.0                | 202.95                             | 202.95                            | 29            | 0.08               |
| 713 | P-319              | 310                        | J-224               | J-213               | 12.0             | 110.0                | 194.40                             | 194.64                            | -448          | 1.27               |
| 712 | P-320              | 316                        | J-213               | J-224               | 12.0             | 110.0                | 194.15                             | 194.40                            | -448          | 1.27               |

Kalamia Water System - Interim Condition at Parcel  
1 wk  
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27 Siemon Company Drive Suite 200 W. Watertown, CT  
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WaterCAD  
10.03.03.720  
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MAXIMUM DAILY DEMAND + FIRE FLOW AT JUNCTION J-245

FlexTable: Pipe Table

| ID  | Label    | Length<br>(Scaled)<br>(ft) | Start<br>Node          | Stop<br>Node           | Diameter<br>(in) | Hazen-<br>Williams C | Hydraulic<br>Grade (Start)<br>(ft) | Hydraulic<br>Grade (Stop)<br>(ft) | Flow<br>(gpm) | Velocity<br>(ft/s) |
|-----|----------|----------------------------|------------------------|------------------------|------------------|----------------------|------------------------------------|-----------------------------------|---------------|--------------------|
| 700 | P-321    | 370                        | GENTRY<br>4            | J-212<br>P1 POR.       | 12.0             | 110.0                | 193.86                             | 194.15                            | -448          | 1.27               |
| 703 | P-322    | 776                        | GENTRY<br>P1 POR.<br>3 | J-227<br>P1 POR.<br>4  | 12.0             | 110.0                | 195.08                             | 193.86                            | 652           | 1.85               |
| 774 | P-322(2) | 546                        | J-238                  | J-227                  | 8.0              | 110.0                | 194.57                             | 194.57                            | 0             | 0.00               |
| 702 | P-323    | 415                        | J-211                  | GENTRY<br>P1 POR.<br>3 | 12.0             | 110.0                | 195.72                             | 195.08                            | 652           | 1.85               |
| 737 | P-323    | 191                        | J-227                  | J-228                  | 8.0              | 110.0                | 194.57                             | 193.03                            | 543           | 3.47               |
| 690 | P-324    | 396                        | GENTRY<br>2            | J-211                  | 12.0             | 110.0                | 195.69                             | 195.72                            | -127          | 0.36               |
| 739 | P-324    | 147                        | J-228                  | J-229                  | 8.0              | 110.0                | 193.03                             | 191.85                            | 543           | 3.47               |
| 689 | P-325    | 512                        | GENTRY<br>P1 POR.<br>1 | J-229<br>P1 POR.<br>2  | 12.0             | 110.0                | 195.66                             | 195.69                            | -127          | 0.36               |
| 757 | P-325(1) | 140                        | J-229                  | J-233                  | 8.0              | 110.0                | 191.85                             | 191.83                            | 53            | 0.34               |
| 758 | P-325(2) | 344                        | J-233                  | J-230                  | 8.0              | 110.0                | 191.83                             | 191.82                            | 27            | 0.17               |
| 686 | P-326    | 351                        | J-195                  | GENTRY<br>P1 POR.<br>1 | 12.0             | 110.0                | 195.63                             | 195.66                            | -127          | 0.36               |
| 743 | P-326    | 396                        | J-230                  | J-231                  | 8.0              | 110.0                | 191.82                             | 191.82                            | 6             | 0.04               |
| 678 | P-327    | 400                        | J-196                  | J-211                  | 12.0             | 110.0                | 196.59                             | 195.72                            | 779           | 2.21               |
| 745 | P-327    | 490                        | J-231                  | J-232                  | 8.0              | 110.0                | 191.82                             | 191.82                            | 6             | 0.04               |
| 746 | P-328    | 400                        | J-229                  | J-232                  | 8.0              | 110.0                | 191.85                             | 191.82                            | 42            | 0.27               |
| 760 | P-329    | 91                         | J-230                  | J-234                  | 8.0              | 110.0                | 191.82                             | 191.82                            | 21            | 0.14               |
| 763 | P-331    | 88                         | J-235                  | J-233                  | 8.0              | 110.0                | 191.83                             | 191.83                            | -26           | 0.17               |
| 765 | P-332    | 77                         | J-235                  | J-236                  | 8.0              | 110.0                | 191.83                             | 191.83                            | 0             | 0.00               |
| 771 | P-333    | 344                        | J-234                  | J-235                  | 8.0              | 110.0                | 191.82                             | 191.83                            | -26           | 0.17               |
| 776 | P-333    | 44                         | J-229                  | J-239                  | 8.0              | 110.0                | 191.85                             | 191.80                            | 448           | 2.86               |
| 778 | P-335    | 142                        | J-239                  | J-240                  | 8.0              | 110.0                | 190.80                             | 190.80                            | 448           | 2.86               |
| 780 | P-336    | 191                        | J-240                  | J-241                  | 8.0              | 110.0                | 190.80                             | 189.72                            | 448           | 2.86               |
| 782 | P-337    | 429                        | J-241                  | J-242                  | 8.0              | 110.0                | 189.72                             | 185.40                            | 614           | 3.92               |
| 785 | P-338(1) | 224                        | J-242                  | J-243                  | 8.0              | 110.0                | 185.40                             | 190.30                            | -934          | 5.96               |
| 786 | P-338(2) | 120                        | J-243                  | GENTRY<br>P1 POR.<br>4 | 8.0              | 110.0                | 190.30                             | 193.86                            | -1,099        | 7.02               |
| 788 | P-339    | 224                        | J-241                  | J-244                  | 8.0              | 110.0                | 189.72                             | 189.92                            | -166          | 1.06               |
| 789 | P-340    | 423                        | J-244                  | J-243                  | 8.0              | 110.0                | 189.92                             | 190.30                            | -166          | 1.06               |
| 791 | P-341    | 160                        | J-242                  | J-245                  | 8.0              | 110.0                | 185.40                             | 176.44                            | 1,548         | 9.88               |
| 817 | P-342    | 317                        | J-246                  | J-227                  | 12.0             | 110.0                | 194.92                             | 194.57                            | 543           | 1.54               |
| 819 | P-343    | 241                        | J-238                  | J-247                  | 8.0              | 110.0                | 194.57                             | 194.57                            | 0             | 0.00               |

MAXIMUM DAILY DEMAND + FIRE FLOW AT JUNCTION J-245

FlexTable: Junction Table

| ID  | Label                              | Elevation<br>(ft) | Demand<br>(gpm) | Hydraulic Grade<br>(ft) | Pressure<br>(psi) |
|-----|------------------------------------|-------------------|-----------------|-------------------------|-------------------|
| 714 | BARBERS PT<br>ELEM (EX. PAR.<br>2) | 52.04             | 18              | 197.81                  | 63                |
| 517 | EX. PARCEL 1                       | 26.45             | 279             | 202.94                  | 76                |
| 615 | EX. PARCEL 1A                      | 45.78             | 72              | 201.40                  | 67                |
| 209 | EX. PARCEL 1B                      | 48.86             | 237             | 204.69                  | 67                |
| 420 | EX. PARCEL 485                     | 45.94             | 1               | 203.16                  | 68                |
| 291 | EX. PARCEL 6                       | 42.71             | 1               | 203.21                  | 69                |
| 426 | EX. PARCEL 9                       | 19.80             | 3               | 202.99                  | 79                |
| 436 | EX. PARCEL 12                      | 31.39             | 6               | 203.26                  | 74                |
| 659 | EX. PARCEL 14                      | 8.45              | 32              | 202.92                  | 84                |
| 661 | EX. PARCEL 15                      | 6.50              | 6               | 202.92                  | 85                |
| 450 | EX. PARCEL 24 &<br>28              | 12.82             | 41              | 202.89                  | 82                |
| 391 | EX. PARCEL 29 &<br>30              | 32.48             | 1               | 203.29                  | 74                |
| 453 | EX. PARCEL 32                      | 48.64             | 61              | 203.47                  | 67                |
| 478 | EX. PARCEL 34                      | 39.80             | 1               | 203.44                  | 71                |
| 474 | EX. PARCEL 35                      | 43.45             | 16              | 203.15                  | 69                |
| 572 | EX. PARCEL 36                      | 41.84             | 9               | 203.16                  | 70                |
| 591 | EX. PARCEL 37 &<br>38              | 41.72             | 15              | 203.48                  | 70                |
| 383 | EX. PARCEL 39 &<br>40              | 42.58             | 7               | 202.98                  | 69                |
| 279 | EX. PARCEL 42                      | 42.39             | 3               | 202.94                  | 69                |
| 717 | EX. PARCEL 43                      | 36.45             | 14              | 203.36                  | 72                |
| 319 | EX. PARCEL 44                      | 37.50             | 2               | 203.25                  | 72                |
| 245 | EX. PARCEL 47                      | 36.97             | 13              | 200.05                  | 71                |
| 72  | EX. PARCEL 48                      | 50.16             | 0               | 200.26                  | 65                |
| 134 | EX. PARCEL 49                      | 39.06             | 3               | 201.38                  | 70                |
| 241 | EX. PARCEL 51                      | 48.63             | 7               | 198.30                  | 65                |
| 333 | EX. PARCEL 52                      | 33.20             | 46              | 203.16                  | 74                |
| 66  | EX. PARCEL 53                      | 55.51             | 1               | 202.56                  | 64                |
| 100 | EX. PARCEL 55                      | 52.56             | 5               | 203.41                  | 65                |
| 162 | EX. PARCEL 57                      | 47.61             | 48              | 203.49                  | 67                |
| 219 | EX. PARCEL 58                      | 45.81             | 0               | 203.49                  | 68                |
| 685 | GENTRY P1 POR.<br>1                | 46.61             | 0               | 195.66                  | 64                |
| 688 | GENTRY P1 POR.<br>2                | 43.85             | 0               | 195.69                  | 66                |
| 701 | GENTRY P1 POR.<br>3                | 39.82             | 0               | 195.08                  | 67                |
| 698 | GENTRY P1 POR.<br>4                | 43.33             | 0               | 193.86                  | 65                |
| 423 | HCDA Parcel 2                      | 23.30             | 0               | 203.06                  | 78                |
| 431 | HCDA Parcel 4                      | 11.40             | 0               | 202.97                  | 83                |
| 429 | HCDA Parcel 5                      | 11.90             | 0               | 202.95                  | 83                |
| 586 | HCDA Parcel 6                      | 44.20             | 0               | 203.38                  | 69                |
| 571 | HCDA Parcel 7                      | 35.10             | 0               | 203.22                  | 73                |
| 363 | HCDA Parcel 10                     | 14.87             | 0               | 203.93                  | 81                |

MAXIMUM DAILY DEMAND + FIRE FLOW AT JUNCTION J-245

FlexTable: Junction Table

| ID  | Label          | Elevation<br>(ft) | Demand<br>(gpm) | Hydraulic Grade<br>(ft) | Pressure<br>(psi) |
|-----|----------------|-------------------|-----------------|-------------------------|-------------------|
| 445 | HCDA Parcel 11 | 24.60             | 0               | 203.18                  | 77                |
| 447 | HCDA Parcel 12 | 26.80             | 0               | 203.15                  | 76                |
| 460 | HCDA Parcel 15 | 50.42             | 0               | 203.48                  | 66                |
| 463 | HCDA Parcel 16 | 46.04             | 0               | 203.49                  | 68                |
| 468 | HCDA Parcel 17 | 36.77             | 0               | 203.40                  | 72                |
| 597 | HCDA Parcel 18 | 50.12             | 0               | 204.06                  | 67                |
| 606 | HCDA Parcel 19 | 54.37             | 0               | 204.09                  | 65                |
| 41  | J-3            | 55.77             | 0               | 206.09                  | 65                |
| 43  | J-4            | 52.83             | 0               | 204.85                  | 66                |
| 45  | J-5            | 49.13             | 0               | 204.73                  | 67                |
| 47  | J-6            | 52.96             | 0               | 204.41                  | 66                |
| 64  | J-16           | 54.75             | 0               | 202.65                  | 64                |
| 68  | J-18           | 52.90             | 0               | 201.75                  | 64                |
| 70  | J-19           | 50.67             | 0               | 201.07                  | 65                |
| 74  | J-21           | 51.93             | 0               | 199.37                  | 64                |
| 76  | J-22           | 53.98             | 0               | 197.75                  | 62                |
| 82  | J-25           | 56.33             | 0               | 194.75                  | 60                |
| 94  | J-31           | 48.31             | 0               | 197.95                  | 65                |
| 96  | J-32           | 37.39             | 0               | 203.16                  | 72                |
| 98  | J-33           | 47.50             | 0               | 203.37                  | 67                |
| 102 | J-35           | 52.20             | 0               | 203.49                  | 65                |
| 104 | J-36           | 54.29             | 0               | 203.94                  | 65                |
| 106 | J-37           | 54.66             | 0               | 203.99                  | 65                |
| 111 | J-40           | 48.34             | 0               | 204.64                  | 68                |
| 114 | J-42           | 45.08             | 0               | 204.48                  | 69                |
| 117 | J-44           | 54.85             | 0               | 203.09                  | 64                |
| 123 | J-47           | 37.68             | 0               | 202.46                  | 71                |
| 126 | J-49           | 50.30             | 0               | 200.71                  | 65                |
| 138 | J-56           | 46.48             | 0               | 203.29                  | 68                |
| 161 | J-57           | 35.90             | 0               | 203.49                  | 73                |
| 176 | J-64           | 35.71             | 0               | 200.75                  | 71                |
| 181 | J-66           | 38.30             | 0               | 201.91                  | 71                |
| 186 | J-68           | 31.70             | 0               | 203.17                  | 74                |
| 196 | J-72           | 29.60             | 0               | 203.25                  | 75                |
| 201 | J-74           | 46.49             | 0               | 203.34                  | 68                |
| 214 | J-80           | 49.20             | 0               | 203.49                  | 67                |
| 224 | J-84           | 40.83             | 0               | 203.49                  | 70                |
| 250 | J-88           | 52.19             | 0               | 201.54                  | 65                |
| 254 | J-89           | 30.29             | 0               | 203.25                  | 75                |
| 258 | J-90           | 46.80             | 0               | 203.35                  | 68                |
| 262 | J-91           | 52.52             | 0               | 203.42                  | 65                |
| 266 | J-92           | 51.26             | 0               | 203.44                  | 66                |
| 281 | J-97           | 37.48             | 0               | 203.25                  | 72                |
| 283 | J-98           | 44.88             | 0               | 203.24                  | 69                |
| 285 | J-99           | 45.26             | 0               | 203.24                  | 68                |
| 287 | J-100          | 45.30             | 0               | 203.23                  | 68                |
| 289 | J-101          | 45.20             | 0               | 203.22                  | 68                |
| 293 | J-103          | 45.66             | 0               | 203.16                  | 68                |
| 301 | J-107          | 24.34             | 0               | 203.06                  | 77                |

MAXIMUM DAILY DEMAND + FIRE FLOW AT JUNCTION J-245

FlexTable: Junction Table

| ID  | Label | Elevation<br>(ft) | Demand<br>(gpm) | Hydraulic Grade<br>(ft) | Pressure<br>(psi) |
|-----|-------|-------------------|-----------------|-------------------------|-------------------|
| 303 | J-108 | 19.54             | 0               | 203.05                  | 79                |
| 305 | J-109 | 21.20             | 0               | 203.00                  | 79                |
| 307 | J-110 | 13.52             | 0               | 202.96                  | 82                |
| 312 | J-112 | 45.36             | 0               | 203.24                  | 68                |
| 322 | J-116 | 30.94             | 0               | 203.26                  | 75                |
| 328 | J-119 | 47.63             | 0               | 203.47                  | 67                |
| 331 | J-120 | 38.48             | 0               | 203.16                  | 71                |
| 341 | J-124 | 31.16             | 0               | 203.26                  | 74                |
| 344 | J-125 | 48.70             | 0               | 204.39                  | 67                |
| 347 | J-126 | 38.90             | 0               | 203.46                  | 71                |
| 349 | J-127 | 27.50             | 0               | 203.31                  | 76                |
| 353 | J-129 | 51.10             | 0               | 203.49                  | 66                |
| 356 | J-130 | 30.16             | 0               | 203.31                  | 75                |
| 358 | J-131 | 25.12             | 0               | 203.21                  | 77                |
| 360 | J-132 | 38.94             | 0               | 203.46                  | 71                |
| 365 | J-134 | 35.50             | 0               | 203.49                  | 73                |
| 368 | J-135 | 15.22             | 0               | 202.93                  | 81                |
| 375 | J-138 | 25.41             | 0               | 202.99                  | 77                |
| 378 | J-139 | 34.10             | 0               | 203.49                  | 73                |
| 387 | J-143 | 34.76             | 0               | 203.25                  | 73                |
| 400 | J-148 | 31.95             | 0               | 203.29                  | 74                |
| 408 | J-150 | 43.28             | 0               | 203.87                  | 69                |
| 412 | J-151 | 51.90             | 0               | 203.94                  | 66                |
| 416 | J-152 | 49.41             | 0               | 203.70                  | 67                |
| 432 | J-158 | 14.10             | 0               | 202.97                  | 82                |
| 442 | J-161 | 23.87             | 0               | 203.18                  | 78                |
| 456 | J-166 | 28.69             | 0               | 203.31                  | 76                |
| 464 | J-169 | 47.70             | 0               | 203.49                  | 67                |
| 578 | J-181 | 32.56             | 0               | 203.25                  | 74                |
| 587 | J-183 | 32.19             | 0               | 203.26                  | 74                |
| 598 | J-186 | 48.17             | 0               | 204.68                  | 68                |
| 602 | J-187 | 50.93             | 0               | 203.47                  | 66                |
| 607 | J-189 | 46.47             | 0               | 204.39                  | 68                |
| 611 | J-190 | 48.53             | 0               | 203.31                  | 67                |
| 616 | J-192 | 50.92             | 0               | 201.16                  | 65                |
| 620 | J-193 | 38.19             | 0               | 201.92                  | 71                |
| 625 | J-195 | 54.03             | 0               | 195.63                  | 61                |
| 629 | J-196 | 47.40             | 0               | 196.59                  | 65                |
| 643 | J-197 | 0.00              | 0               | 202.96                  | 88                |
| 649 | J-198 | 13.60             | 0               | 202.95                  | 82                |
| 651 | J-199 | 11.92             | 0               | 203.95                  | 83                |
| 653 | J-200 | 10.47             | 0               | 202.94                  | 83                |
| 655 | J-201 | 5.50              | 0               | 202.93                  | 85                |
| 657 | J-202 | 8.56              | 0               | 202.93                  | 84                |
| 663 | J-205 | 0.00              | 0               | 202.92                  | 88                |
| 665 | J-206 | 7.40              | 0               | 202.92                  | 85                |
| 667 | J-207 | 7.71              | 0               | 202.93                  | 84                |
| 669 | J-208 | 13.35             | 0               | 202.93                  | 82                |
| 671 | J-209 | 15.56             | 0               | 202.93                  | 81                |

MAXIMUM DAILY DEMAND + FIRE FLOW AT JUNCTION J-245

FlexTable: Junction Table

| ID  | Label     | Elevation<br>(ft) | Demand<br>(gpm) | Hydraulic Grade<br>(ft) | Pressure<br>(psi) |
|-----|-----------|-------------------|-----------------|-------------------------|-------------------|
| 677 | J-211     | 0.00              | 0               | 195.72                  | 85                |
| 679 | J-212     | 45.83             | 0               | 194.15                  | 64                |
| 645 | J-213     | 13.04             | 0               | 202.95                  | 82                |
| 681 | J-213     | 50.26             | 0               | 194.64                  | 62                |
| 695 | J-218     | 50.97             | 0               | 195.17                  | 62                |
| 708 | J-223     | 54.54             | 0               | 194.70                  | 61                |
| 711 | J-224     | 46.93             | 0               | 194.40                  | 64                |
| 734 | J-227     | 46.00             | 0               | 194.57                  | 64                |
| 736 | J-228     | 45.50             | 0               | 193.03                  | 64                |
| 738 | J-229     | 44.00             | 0               | 191.85                  | 64                |
| 740 | J-230     | 42.00             | 0               | 191.82                  | 65                |
| 742 | J-231     | 40.00             | 0               | 191.82                  | 66                |
| 744 | J-232     | 40.00             | 48              | 191.82                  | 66                |
| 756 | J-233     | 43.42             | 0               | 191.83                  | 64                |
| 759 | J-234     | 44.00             | 48              | 191.82                  | 64                |
| 761 | J-235     | 44.00             | 0               | 191.83                  | 64                |
| 764 | J-236     | 45.00             | 0               | 191.83                  | 64                |
| 772 | J-238     | 46.18             | 0               | 194.57                  | 64                |
| 775 | J-239     | 44.00             | 0               | 191.60                  | 64                |
| 777 | J-240     | 44.00             | 0               | 190.80                  | 64                |
| 779 | J-241     | 43.80             | 0               | 189.72                  | 63                |
| 781 | J-242     | 45.00             | 0               | 185.40                  | 61                |
| 784 | J-243     | 44.00             | 0               | 190.30                  | 63                |
| 787 | J-244     | 43.50             | 0               | 189.92                  | 63                |
| 790 | J-245     | 46.00             | 1,548           | 176.44                  | 56                |
| 814 | J-246     | 52.62             | 0               | 194.92                  | 62                |
| 818 | J-247     | 48.00             | 0               | 194.57                  | 63                |
| 692 | VA CENTER | 54.15             | 40              | 194.86                  | 61                |



DEPARTMENT OF PLANNING AND PERMITTING  
CITY AND COUNTY OF HONOLULU  
650 SOUTH KING STREET • HONOLULU, HAWAII 96813  
Phone: (808) 768-8200 • Fax: (808) 768-4210

## SEWER CONNECTION APPLICATION

|                                                                                                           |                                  |                                                                          |
|-----------------------------------------------------------------------------------------------------------|----------------------------------|--------------------------------------------------------------------------|
| APPLICATION NO.: 2020/SCA-0513                                                                            | STATUS: Approved with conditions | <b>\$1,888,792.00</b><br>Estimated Wastewater<br>System Facility Charge* |
| DATE RECEIVED: 04/20/2020                                                                                 | (WDP APP. NO.)                   |                                                                          |
| PROJECT NAME: 2020/SCA-0513 Kalaheo Parcel 1 (Areas 1A, 1B, 1C) Excluding<br>Veterans Affairs (VA) Parcel |                                  |                                                                          |

|                   |         |      |        |
|-------------------|---------|------|--------|
| LOCATION:         |         |      |        |
| Zone              | Section | Plot | Parcel |
| 9                 | 1       | 013  | 002    |
| 2,164,017 Sq. Ft. |         |      |        |
| Zone              | Section | Plot | Parcel |
| 9                 | 1       | 013  | 002    |
| 2,398,021 Sq. Ft. |         |      |        |

|                                                                                                   |                                                 |
|---------------------------------------------------------------------------------------------------|-------------------------------------------------|
| APPLICANT: LUKE CRAIG W L<br>RM Towill Corp<br>2024 N King Street Suite 200<br>Honolulu, HI 96818 | SPECIFIC LOCATION: Franklin D. Roosevelt Avenue |
|---------------------------------------------------------------------------------------------------|-------------------------------------------------|

|                                           |                                 |
|-------------------------------------------|---------------------------------|
| DEVELOPMENT TYPE: Dwelling, Single-family | SEWER CONNECTION WORK DESIRED:  |
| OTHER USES: For Subdivision Purpose       |                                 |
| NON-RESIDENTIAL AREA: s.f.                | APPROXIMATE DATE OF CONNECTION: |
| PROPOSED UNITS                            | EXISTING UNITS                  |
| No. of New Units: 410                     | No. of Existing Units: 0        |
| Studios:                                  | Studios:                        |
| 1-Bedroom:                                | 1-Bedroom:                      |
| 2-Bedroom:                                | 2-Bedroom:                      |
| 3-Bedroom:                                | 3-Bedroom:                      |
| 4-Bedroom:                                | 4-Bedroom:                      |
| 5-Bedroom:                                | 5-Bedroom:                      |
| 6-Bedroom:                                | 6-Bedroom:                      |

|                                                                                                    |                                  |
|----------------------------------------------------------------------------------------------------|----------------------------------|
| REMARKS: Approval letter from Kalaheo Water Company (KWC) is required. Submit KWC approval letter. | UNITS TO BE DEMOLISHED           |
|                                                                                                    | No. of Units to be Demolished: 0 |

APPROVAL DATE: 04/27/2020  
EXPIRATION DATE: 04/24/2022

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. Applicable WSP-C 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: Jing Meng

Site Development Division, Wastewater Branch





## TECHNICAL MEMORANDUM

Date: March 17, 2021  
To: Brent Nakaoka, R.M. Towill Corporation  
From: Andrew Scher and Sohrab Rashid  
**Subject:** *Hunt Parcel 1 in Kalaeloa – Residential Driveway Operations Evaluation* SD21-0379

### APPENDIX D

#### Technical Memorandum for Hunt Parcel 1 in Kalaeloa – Residential Driveway Operations Evaluation

This memorandum presents the revised driveway operations evaluation for Hunt Parcel 1 within the Kalaeloa area of the Ewa Region of Oahu, Hawaii. Parcel 1 is planned to include a total of 389 dwelling units, an 88,675 square-foot (sf) Veterans Administration (VA) medical facility, and approximately 51,000 sf of retail/commercial uses. The residential uses and VA facility will be on land bound by Roosevelt Avenue, Copahoe Street, realigned Boxer Road, and the Kamokila Boulevard extension, while the retail uses will be located on the west side of the Kamokila Boulevard extension. The purpose of this study is to determine if the proposed access layout including driveways and streets will provide acceptable traffic operations.

#### STUDY BACKGROUND

Fehr & Peers originally studied the overall circulation impacts of the proposed Hunt Parcel 1 development as documented in *Development of Parcels 1, 2, and 3 in Kalaeloa Transportation Impact Analysis Report* (Fehr & Peers, December 2017). After that study, we prepared a September 13, 2019 *Hunt Parcel 1 Access Evaluation in Kalaeloa* technical memorandum prepared for R. M. Towill that documented the anticipated operations of the proposed driveways serving the site. More recently, the Parcel 1 site plan has been revised to consolidate site access and remove two driveways on Copahoe Avenue, as well as removal of a right-turn only driveway on Kamokila Boulevard serving the residential uses.

Accordingly, City & County of Honolulu Department of Planning & Permitting (DPP) Traffic Review Branch (TRB) staff have requested that an updated access evaluation be conducted to verify that the proposed driveway configurations will provide adequate access to and circulation around the site. In addition, DPP TRB is requesting that an analysis justifying the driveway proposed for Boxer Road on the makai side of the site given the plan to only improve the mauka side of the road along the project frontage between Kamokila Boulevard and Copahoe Street. The results of the revised driveway operations study are presented below.

#### PROPOSED PARCEL 1 RESIDENTIAL DRIVEWAY ACCESS

The current site plan is dated June 24, 2020 as shown on **Figure 1**, which illustrates the location of the three proposed driveways that will serve Parcel 1 residential uses and provide access to the adjacent public streets. Each driveway is described in detail below and illustrated and numbered on the site plan:



- On Kamokila Boulevard: Driveway 1: This proposed full-access driveway will be 56' wide with a median and will be a provide shared access to both the VA facility and the residential uses on the east side of Kamokila Boulevard, as well as access to the retail uses on the west side of the street;
- On Boxer Road: Driveway 2: This proposed full-access driveway will be 34' wide and primarily serve the residential uses, although some VA facility-generated traffic could use it to access Boxer Road to and from the east; and
- On Franklin D. Roosevelt Avenue: Driveway 3: This proposed right-turn only access driveway will be 34' wide and will serve the residential uses only.

It should be noted that with the development of Parcel 1, only the mauka side of Boxer Road along the site frontage between Kamokila Boulevard and Copahoe Avenue is proposed to be improved by the project. In addition, a right-turn only driveway on Roosevelt Avenue will serve the VA site, but will not be accessed by residential traffic. Lastly, the retail uses will be served by the west leg of the Driveway 1 intersection, as well as the west leg of the Kamokila Boulevard/Roosevelt Avenue intersection.

Initially, all the driveway approaches serving the residential uses are expected to be stop-controlled, and traffic on the intersecting public street will not be required to stop. The assumed lane configuration for Driveway 1 is two outbound lanes (one left and one shared through/right lane) and two inbound lanes, while Driveways 2 and 3 are assumed to include one lane inbound and outbound. The west leg of the Driveway 1 intersection serving the retail uses is also expected to include one left and one shared through/right lane on the approach to the Kamokila Boulevard extension.

All full access driveway intersections are expected to operate acceptably in the near-term where: 1) existing traffic volumes are very low on Kamokila Boulevard and Boxer Road, and 2) where the Roosevelt Avenue driveway will include a channelized left-turn lane in and refuge lane for outbound traffic, thereby minimizing delay for all vehicles.

With additional redevelopment within the Kalaeloa area and increased traffic on the streets adjacent to Parcel 1, delays for traffic entering and existing the site will incrementally increase and modified traffic control devices at the driveway intersections will be needed as described in the next section. At Driveway 3, only the mauka-bound right-turn movement out will be controlled by a stop sign and this control will not change, regardless of the volume of through traffic on Roosevelt Avenue.

## OPERATIONS ANALYSIS

To ensure that adequate operations can be provided with the proposed access layout, traffic volumes generated by the project site uses were assigned to each of the driveway intersections using trip rates from the December 2017 TIA cited above and the current unit counts (133 single-family and 256 multi-family illustrated on the current site plan).

Through traffic volumes on each of the public streets fronting the project were obtained from the *Kalaeloa Roadway Master Plan Buildout Update and Hunt Parcel Consistency Evaluation* (Fehr & Peers, September 13, 2019). Use of volumes from this document ensure that the access points analysis is based on long-term forecasts of traffic expected to use these streets with buildout of the Kalaeloa area.

Traffic operations were analyzed using Synchro 10 software for each of the full-access driveway intersections (1 through 3) for two scenarios: 1) with all driveways, and 2) for Driveway 1 and 3 only



assuming the Boxer Road driveway (Driveway 2) is not constructed, and traffic at that driveway is diverted to the other site driveways. For Driveway 1 on Kamokila Boulevard, this intersection was assumed to be signalized with Kalaeloa area buildout using an initial cycle length of 120 seconds and assumed coordination with the signal at Roosevelt Avenue. No analysis is provided for Driveway 3 because right-turn only movements are not typically analyzed for private driveways, and the maximum projected volume for the outbound right turn under either driveway scenario is 42 vehicles in the AM peak hour.

The operations results in terms of level of service (LOS) for both driveway scenarios are presented in **Table 1** below, and the Synchro calculation worksheets for the driveway intersections are attached as an exhibit to this report.

**Table 1: Full Access Driveway Operations Summary (Kalaeloa Area Buildout Conditions)**

| Driveway Intersection        | Traffic Control          | Peak Hour | All Driveways      |                  |                             |                    | Without Boxer Rd Driveway |                             |                    |                             |
|------------------------------|--------------------------|-----------|--------------------|------------------|-----------------------------|--------------------|---------------------------|-----------------------------|--------------------|-----------------------------|
|                              |                          |           | Delay <sup>1</sup> | LOS <sup>2</sup> | Worst Movement <sup>3</sup> | Delay <sup>1</sup> | LOS <sup>2</sup>          | Worst Movement <sup>3</sup> | Delay <sup>1</sup> | Worst Movement <sup>3</sup> |
| 1. Kamokila Blvd/ Driveway 1 | Signal                   | AM        | 13.7               | B                |                             | 13.9               |                           | B                           |                    |                             |
|                              |                          | PM        | 13.1               | B                |                             | 13.8               |                           | B                           |                    |                             |
| 2. Boxer Rd/ Driveway 2      | Side Street Stop Control | AM        | 23.6               | C                | SB Left                     |                    |                           |                             |                    |                             |
|                              |                          | PM        | 27.9               | D                | SB Left                     |                    |                           |                             |                    |                             |

Source: Fehr & Peers, March 2021

Notes:

<sup>1</sup> Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized intersections. Worst-case movement delay expressed in seconds per vehicle for unsignalized (i.e., side street stop control) intersections.

<sup>2</sup> LOS = Level of service. Delay ranges are different for signalized and unsignalized traffic control.

<sup>3</sup> Worst Movement = indicates the directional movement with the worst-case delay for unsignalized intersections.

As shown in **Table 1**, both the study locations under the "All Driveways" scenario are projected to operate at desirable operating levels (i.e., LOS D or better) with buildout of the Kalaeloa area. Overall, each location is expected to operate within a reasonable operating range for driveways on arterial and collector streets. The results of the Driveway 2 operations are considered conservative in that no separate left- or right-turn lanes are assumed on Boxer Road, and they are not warranted based on low volumes of four (4) and 31 vehicles, respectively, during any peak hour.

If Driveway 2 on Boxer Road is not provided, the residential traffic originally projected to use that driveway would use the two remaining driveways. That diversion would have a negligible effect on Driveway 1 operations as shown in the "Without Boxer Road Driveway" scenario in **Table 1**. Similarly, the addition of fewer than 15 vehicles during the peak hour to the outbound right-turn movement at Driveway 3 would not substantially impact traffic operations compared to the "All Driveways" scenario.

## SUMMARY OF PARCEL 1 PROPOSED DRIVEWAY OPERATIONS

From an operational perspective, the project site access points will function at a desirable overall intersection LOS during the peak hours at Kalaeloa area buildout. If Driveway 2 on Boxer Road were not provided, driveway access to the site would still be adequate from an operations standpoint. However, we recommend including Driveway 2 as part of site development to increase overall neighborhood connectivity, minimize circuitous travel, and enhance emergency access to the site.

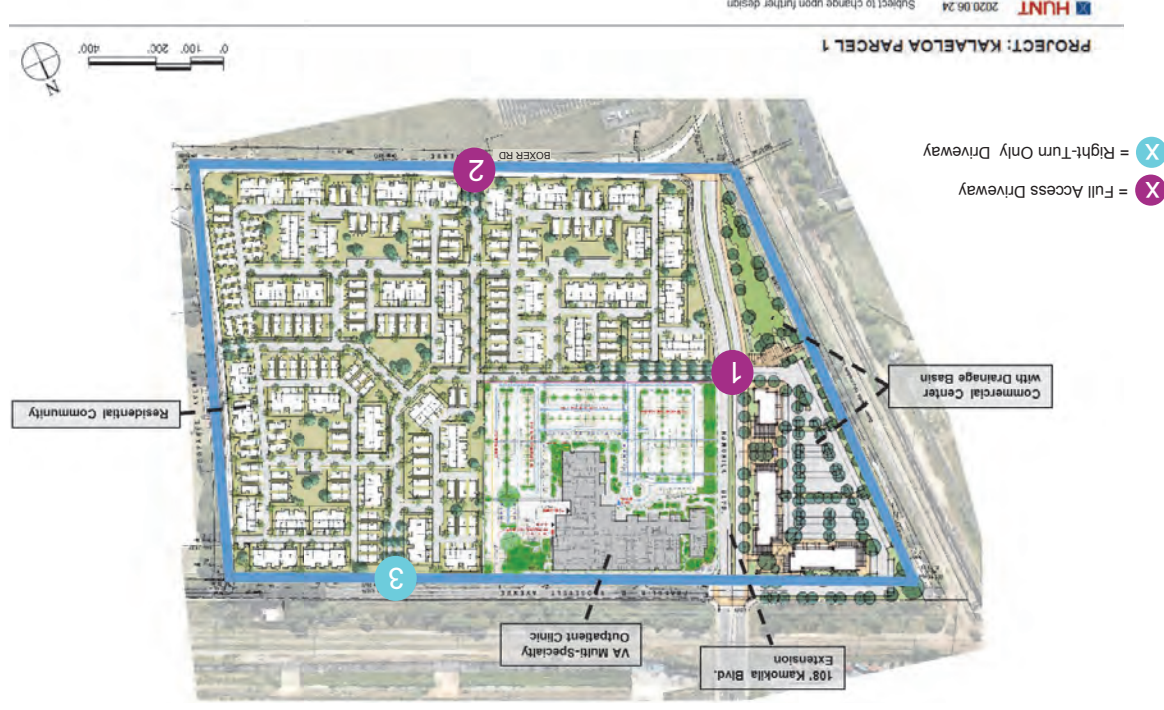


In the case of the Copahue Avenue driveways that were included on a previous version of the site plan, their removal does not significantly compromise site access or negatively affect overall area circulation. This is due in part to the relatively low volumes that would have used these driveways during the peak hours. In addition, elimination of these driveways also minimizes traffic adjacent to Barbers Point Elementary School and reduces potential conflicts between vehicles and pedestrians/bicyclists accessing the school. At a minimum, however, an on-site pedestrian and bicycle access connection should be provided from Parcel 1 to Copahue Avenue, and this non-auto access point should be generally aligned with the existing crosswalk to the school. This configuration would minimize the potential for jaywalking and focus crossing activity at one location. The crosswalk should be enhanced with signage and an appropriate warning beacon, and ideally it would be configured as a raised crosswalk to increase visibility of pedestrians and bicyclists to drivers, as well as managing vehicle speeds next to the school.

Attachments:

- Figure 1 – Project Site Plan – Driveway Locations
- LOS Calculation Worksheets

## Figure 1 PARCEL 1 RESIDENTIAL DRIVEWAY ACCESS



HCM 6th Signalized Intersection Summary  
 1: Retail Dwy/VA Dwy & Kamokila

AM Peak Hour  
 03/05/2021

| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR   | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|-------|------|------|------|------|------|------|
| Lane Configurations          | 12   | 5    | 7    | 9    | 5    | 147   | 10   | 371  | 27   | 181  | 882  | 23   |
| Traffic Volume (veh/h)       | 12   | 5    | 7    | 9    | 5    | 147   | 10   | 371  | 27   | 181  | 882  | 23   |
| Future Volume (veh/h)        | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Q (Qb), veh          | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A_pbT)          | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Parking Bus, Adj             | No   | No   | No   | No   | No   | No    | No   | No   | No   | No   | No   | No   |
| Work Zone On Approach        | No   | No   | No   | No   | No   | No    | No   | No   | No   | No   | No   | No   |
| Adj Sat Flow, veh/h          | 1870 | 1870 | 1870 | 1870 | 1870 | 1870  | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h         | 13   | 5    | 1    | 9    | 5    | 11    | 11   | 391  | 26   | 191  | 928  | 23   |
| Peak Hour Factor             | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95  | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 2    | 2    | 2     | 2    | 2    | 2    | 2    | 2    | 2    |
| Cap, veh/h                   | 26   | 46   | 9    | 19   | 14   | 31    | 23   | 2311 | 153  | 223  | 2820 | 70   |
| Arrive On Green              | 0.01 | 0.03 | 0.03 | 0.01 | 0.03 | 0.03  | 0.01 | 0.68 | 0.68 | 0.13 | 0.80 | 0.80 |
| Sat Flow, veh/h              | 1781 | 1513 | 303  | 1781 | 520  | 1144  | 1781 | 3383 | 224  | 1781 | 3544 | 88   |
| Grp Volume(v), veh/h         | 13   | 0    | 6    | 9    | 0    | 16    | 11   | 205  | 212  | 191  | 465  | 486  |
| Grp Sat Flow(s), veh/h       | 1781 | 0    | 1816 | 1781 | 0    | 1664  | 1781 | 1777 | 1830 | 1781 | 1777 | 1855 |
| Q Serve(g, s), s             | 0.9  | 0.0  | 0.4  | 0.6  | 0.0  | 1.1   | 0.7  | 5.0  | 5.0  | 12.6 | 8.7  | 8.7  |
| Cycle Q Clear(g, s)          | 0.9  | 0.0  | 0.4  | 0.6  | 0.0  | 1.1   | 0.7  | 5.0  | 5.0  | 12.6 | 8.7  | 8.7  |
| Prop In Lane                 | 1.00 | 0.07 | 1.00 | 0.69 | 1.00 | 0.69  | 1.00 | 0.12 | 1.00 | 0.05 | 1.00 | 0.05 |
| Lane Grp Cap(c), veh/h       | 26   | 0    | 56   | 19   | 0    | 45    | 23   | 1214 | 1250 | 223  | 1414 | 1476 |
| V/C Ratio(X)                 | 0.50 | 0.00 | 0.11 | 0.47 | 0.00 | 0.36  | 0.48 | 0.17 | 0.17 | 0.86 | 0.33 | 0.33 |
| Avail Cap(c, a), veh/h       | 111  | 0    | 386  | 111  | 0    | 354   | 111  | 1214 | 1250 | 468  | 1414 | 1476 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(i)           | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 58.7 | 0.0  | 56.6 | 59.0 | 0.0  | 57.4  | 58.8 | 6.8  | 6.8  | 51.4 | 3.4  | 3.4  |
| Incr Delay (d2), s/veh       | 13.9 | 0.0  | 0.8  | 16.6 | 0.0  | 4.8   | 15.0 | 0.3  | 0.3  | 9.0  | 0.6  | 0.6  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%), veh/h     | 0.5  | 0.0  | 0.2  | 0.4  | 0.0  | 0.5   | 0.4  | 1.9  | 1.9  | 6.2  | 2.7  | 2.8  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |       |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh        | 72.6 | 0.0  | 57.4 | 75.6 | 0.0  | 62.2  | 73.8 | 7.1  | 7.1  | 60.4 | 4.0  | 4.0  |
| LnGrp LOS                    | E    | A    | E    | E    | A    | E     | E    | A    | A    | E    | A    | A    |
| Approach Vol, veh/h          | 19   |      |      | 25   |      |       |      | 428  |      |      | 1142 |      |
| Approach Delay, s/veh        | 67.8 |      |      | 67.0 |      |       |      | 8.8  |      |      | 13.4 |      |
| Approach LOS                 | E    |      |      | E    |      |       |      | A    |      |      | B    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6     | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 19.5 | 86.5 | 5.8  | 8.2  | 6.0  | 100.0 | 6.3  | 7.7  |      |      |      |      |
| Change Period (Y+Rc), s      | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5   | 4.5  | 4.5  |      |      |      |      |
| Max Green Sating (Gmax), s   | 31.5 | 37.5 | 7.5  | 25.5 | 7.5  | 61.5  | 7.5  | 25.5 |      |      |      |      |
| Max Q Clear Time (g_c+H), s  | 14.6 | 7.0  | 2.6  | 2.4  | 2.7  | 10.7  | 2.9  | 3.1  |      |      |      |      |
| Green Ext Time (p_c), s      | 0.5  | 2.6  | 0.0  | 0.0  | 0.0  | 7.7   | 0.0  | 0.0  |      |      |      |      |
| Intersection Summary         |      |      |      |      |      |       |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      |      |      |       |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      |      |      |      |       |      |      |      |      |      |      |

HCM 6th TWSC  
 2: Boxer & Parcel 1 Res Dwy

AM Peak Hour  
 03/09/2021

| Intersection                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR   | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|-------|------|------|------|------|------|------|
| Int Delay, s/veh             | 0.4  |      |      |      |      |       |      |      |      |      |      |      |
| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR   | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations          | 4    | 4    | 4    | 4    | 4    | 4     | 4    | 4    | 4    | 4    | 4    | 4    |
| Traffic Vol, veh/h           | 1    | 685  | 579  | 10   | 14   | 7     |      |      |      |      |      |      |
| Future Vol, veh/h            | 1    | 685  | 579  | 10   | 14   | 7     |      |      |      |      |      |      |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    |
| Parking Bus, Adj             | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    |
| Work Zone On Approach        | 0    | 0    | 0    | 0    | 0    | 0     | 0    | 0    | 0    | 0    | 0    | 0    |
| Adj Sat Flow, veh/h          | 1870 | 1870 | 1870 | 1870 | 1870 | 1870  | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h         | 13   | 5    | 1    | 9    | 5    | 11    | 11   | 391  | 26   | 191  | 928  | 23   |
| Peak Hour Factor             | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95  | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 2    | 2    | 2     | 2    | 2    | 2    | 2    | 2    | 2    |
| Cap, veh/h                   | 26   | 46   | 9    | 19   | 14   | 31    | 23   | 2311 | 153  | 223  | 2820 | 70   |
| Arrive On Green              | 0.01 | 0.03 | 0.03 | 0.01 | 0.03 | 0.03  | 0.01 | 0.68 | 0.68 | 0.13 | 0.80 | 0.80 |
| Sat Flow, veh/h              | 1781 | 1513 | 303  | 1781 | 520  | 1144  | 1781 | 3383 | 224  | 1781 | 3544 | 88   |
| Grp Volume(v), veh/h         | 13   | 0    | 6    | 9    | 0    | 16    | 11   | 205  | 212  | 191  | 465  | 486  |
| Grp Sat Flow(s), veh/h       | 1781 | 0    | 1816 | 1781 | 0    | 1664  | 1781 | 1777 | 1830 | 1781 | 1777 | 1855 |
| Q Serve(g, s), s             | 0.9  | 0.0  | 0.4  | 0.6  | 0.0  | 1.1   | 0.7  | 5.0  | 5.0  | 12.6 | 8.7  | 8.7  |
| Cycle Q Clear(g, s)          | 0.9  | 0.0  | 0.4  | 0.6  | 0.0  | 1.1   | 0.7  | 5.0  | 5.0  | 12.6 | 8.7  | 8.7  |
| Prop In Lane                 | 1.00 | 0.07 | 1.00 | 0.69 | 1.00 | 0.69  | 1.00 | 0.12 | 1.00 | 0.05 | 1.00 | 0.05 |
| Lane Grp Cap(c), veh/h       | 26   | 0    | 56   | 19   | 0    | 45    | 23   | 1214 | 1250 | 223  | 1414 | 1476 |
| V/C Ratio(X)                 | 0.50 | 0.00 | 0.11 | 0.47 | 0.00 | 0.36  | 0.48 | 0.17 | 0.17 | 0.86 | 0.33 | 0.33 |
| Avail Cap(c, a), veh/h       | 111  | 0    | 386  | 111  | 0    | 354   | 111  | 1214 | 1250 | 468  | 1414 | 1476 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(i)           | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 58.7 | 0.0  | 56.6 | 59.0 | 0.0  | 57.4  | 58.8 | 6.8  | 6.8  | 51.4 | 3.4  | 3.4  |
| Incr Delay (d2), s/veh       | 13.9 | 0.0  | 0.8  | 16.6 | 0.0  | 4.8   | 15.0 | 0.3  | 0.3  | 9.0  | 0.6  | 0.6  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%), veh/h     | 0.5  | 0.0  | 0.2  | 0.4  | 0.0  | 0.5   | 0.4  | 1.9  | 1.9  | 6.2  | 2.7  | 2.8  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |       |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh        | 72.6 | 0.0  | 57.4 | 75.6 | 0.0  | 62.2  | 73.8 | 7.1  | 7.1  | 60.4 | 4.0  | 4.0  |
| LnGrp LOS                    | E    | A    | E    | E    | A    | E     | E    | A    | A    | E    | A    | A    |
| Approach Vol, veh/h          | 19   |      |      | 25   |      |       |      | 428  |      |      | 1142 |      |
| Approach Delay, s/veh        | 67.8 |      |      | 67.0 |      |       |      | 8.8  |      |      | 13.4 |      |
| Approach LOS                 | E    |      |      | E    |      |       |      | A    |      |      | B    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6     | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 19.5 | 86.5 | 5.8  | 8.2  | 6.0  | 100.0 | 6.3  | 7.7  |      |      |      |      |
| Change Period (Y+Rc), s      | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5   | 4.5  | 4.5  |      |      |      |      |
| Max Green Sating (Gmax), s   | 31.5 | 37.5 | 7.5  | 25.5 | 7.5  | 61.5  | 7.5  | 25.5 |      |      |      |      |
| Max Q Clear Time (g_c+H), s  | 14.6 | 7.0  | 2.6  | 2.4  | 2.7  | 10.7  | 2.9  | 3.1  |      |      |      |      |
| Green Ext Time (p_c), s      | 0.5  | 2.6  | 0.0  | 0.0  | 0.0  | 7.7   | 0.0  | 0.0  |      |      |      |      |
| Intersection Summary         |      |      |      |      |      |       |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      |      |      |       |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      |      |      |      |       |      |      |      |      |      |      |

# HCM 6th Signalized Intersection Summary

## 1: Retail Dwy/VA Dwy & Kamokila

03/05/2021

| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    |
| Traffic Volume (veh/h)       | 26   | 15   | 14   | 21   | 10   | 198  | 14   | 856  | 13   | 111  | 712  | 27   |
| Future Volume (veh/h)        | 26   | 15   | 14   | 21   | 10   | 198  | 14   | 856  | 13   | 111  | 712  | 27   |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   | No   | No   | No   | No   | No   | No   | No   | No   | No   | No   | No   |
| Adj Sat Flow, veh/h          | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h         | 27   | 16   | 1    | 22   | 11   | 15   | 15   | 901  | 14   | 117  | 749  | 27   |
| Peak Hour Factor             | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    |
| Cap, veh/h                   | 44   | 70   | 4    | 39   | 26   | 36   | 29   | 2534 | 39   | 144  | 2701 | 97   |
| Arrive On Green              | 0.02 | 0.04 | 0.04 | 0.02 | 0.04 | 0.04 | 0.02 | 0.71 | 0.71 | 0.08 | 0.77 | 0.77 |
| Sat Flow, veh/h              | 1781 | 1742 | 109  | 1781 | 1717 | 1781 | 1781 | 3582 | 56   | 1781 | 3498 | 126  |
| Grp Volume(v), veh/h         | 27   | 0    | 17   | 22   | 0    | 26   | 15   | 447  | 468  | 117  | 380  | 396  |
| Grp Sat Flow(s), veh/h       | 1781 | 0    | 1851 | 1781 | 0    | 1694 | 1781 | 1777 | 1860 | 1781 | 1777 | 1848 |
| Q Serve(g, s), s             | 1.8  | 0.0  | 1.1  | 1.5  | 0.0  | 1.8  | 1.0  | 11.8 | 11.8 | 7.8  | 7.5  | 7.5  |
| Cycle Q Clear(g, s)          | 1.8  | 0.0  | 1.1  | 1.5  | 0.0  | 1.8  | 1.0  | 11.8 | 11.8 | 7.8  | 7.5  | 7.5  |
| Prop In Lane                 | 1.00 | 0.06 | 1.00 | 0.58 | 1.00 | 0.58 | 1.00 | 0.03 | 1.00 | 0.03 | 1.00 | 0.07 |
| Lane Grp Cap(c), veh/h       | 44   | 0    | 74   | 39   | 0    | 63   | 29   | 1257 | 1316 | 144  | 1372 | 1426 |
| V/C Ratio(X)                 | 0.61 | 0.00 | 0.23 | 0.57 | 0.00 | 0.42 | 0.51 | 0.36 | 0.36 | 0.81 | 0.28 | 0.28 |
| Avail Cap(c, a), veh/h       | 111  | 0    | 378  | 111  | 0    | 346  | 96   | 1257 | 1316 | 275  | 1372 | 1426 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(i)           | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 57.9 | 0.0  | 55.8 | 58.1 | 0.0  | 56.5 | 58.5 | 6.9  | 6.9  | 54.2 | 4.0  | 4.0  |
| Incr Delay (d2), s/veh       | 13.0 | 0.0  | 1.6  | 12.6 | 0.0  | 4.4  | 13.3 | 0.8  | 10.3 | 0.3  | 0.5  | 0.5  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%), veh/h     | 1.0  | 0.0  | 0.5  | 0.8  | 0.0  | 0.8  | 0.6  | 4.4  | 4.6  | 3.9  | 2.5  | 2.6  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh        | 71.0 | 0.0  | 57.4 | 70.7 | 0.0  | 60.9 | 71.8 | 7.7  | 7.6  | 64.6 | 4.5  | 4.5  |
| LnGrp LOS                    | E    | A    | E    | E    | A    | E    | E    | A    | A    | E    | A    | A    |
| Approach Vol, veh/h          | 44   |      |      | 48   |      |      |      | 930  |      |      | 893  |      |
| Approach Delay, s/veh        | 65.7 |      |      | 65.4 |      |      |      | 8.7  |      |      | 12.3 |      |
| Approach LOS                 | E    |      |      | E    |      |      |      | A    |      |      | B    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 14.2 | 89.4 | 7.1  | 9.3  | 6.5  | 97.1 | 7.5  | 8.9  |      |      |      |      |
| Change Period (Y+Rc), s      | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  |      |      |      |      |
| Max Green Sating (Gmax), s   | 18.5 | 51.5 | 7.5  | 24.5 | 6.5  | 63.5 | 7.5  | 24.5 |      |      |      |      |
| Max Q Clear Time (g_c+H), s  | 9.8  | 13.8 | 3.5  | 3.1  | 3.0  | 9.5  | 3.8  | 3.8  |      |      |      |      |
| Green Ext Time (p_c), s      | 0.2  | 7.0  | 0.0  | 0.0  | 0.0  | 5.8  | 0.0  | 0.1  |      |      |      |      |
| Intersection Summary         |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      | 131  |      |      |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      |      | B    |      |      |      |      |      |      |      |      |

Parcel 1 Access Analysis With Boxer 03/05/2021 PM Peak Hour

Synchro 10 Report

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# HCM 6th TWSC

## 2: Boxer & Parcel 1 Res Dwy

03/09/2021

| Intersection                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh             | 0.2  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations          | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    | 4    |
| Traffic Vol, veh/h           | 4    | 772  | 669  | 31   | 7    | 4    |      |      |      |      |      |      |
| Future Vol, veh/h            | 4    | 772  | 669  | 31   | 7    | 4    |      |      |      |      |      |      |
| Initial Q (Qb), veh          | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Parking Bus, Adj             | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach        | No   | No   | No   | No   | No   | No   | No   | No   | No   | No   | No   | No   |
| Adj Sat Flow, veh/h          | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h         | 27   | 16   | 1    | 22   | 11   | 15   | 15   | 901  | 14   | 117  | 749  | 27   |
| Peak Hour Factor             | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    |
| Cap, veh/h                   | 44   | 70   | 4    | 39   | 26   | 36   | 29   | 2534 | 39   | 144  | 2701 | 97   |
| Arrive On Green              | 0.02 | 0.04 | 0.04 | 0.02 | 0.04 | 0.04 | 0.02 | 0.71 | 0.71 | 0.08 | 0.77 | 0.77 |
| Sat Flow, veh/h              | 1781 | 1742 | 109  | 1781 | 1717 | 1781 | 1781 | 3582 | 56   | 1781 | 3498 | 126  |
| Grp Volume(v), veh/h         | 27   | 0    | 17   | 22   | 0    | 26   | 15   | 447  | 468  | 117  | 380  | 396  |
| Grp Sat Flow(s), veh/h       | 1781 | 0    | 1851 | 1781 | 0    | 1694 | 1781 | 1777 | 1860 | 1781 | 1777 | 1848 |
| Q Serve(g, s), s             | 1.8  | 0.0  | 1.1  | 1.5  | 0.0  | 1.8  | 1.0  | 11.8 | 11.8 | 7.8  | 7.5  | 7.5  |
| Cycle Q Clear(g, s)          | 1.8  | 0.0  | 1.1  | 1.5  | 0.0  | 1.8  | 1.0  | 11.8 | 11.8 | 7.8  | 7.5  | 7.5  |
| Prop In Lane                 | 1.00 | 0.06 | 1.00 | 0.58 | 1.00 | 0.58 | 1.00 | 0.03 | 1.00 | 0.03 | 1.00 | 0.07 |
| Lane Grp Cap(c), veh/h       | 44   | 0    | 74   | 39   | 0    | 63   | 29   | 1257 | 1316 | 144  | 1372 | 1426 |
| V/C Ratio(X)                 | 0.61 | 0.00 | 0.23 | 0.57 | 0.00 | 0.42 | 0.51 | 0.36 | 0.36 | 0.81 | 0.28 | 0.28 |
| Avail Cap(c, a), veh/h       | 111  | 0    | 378  | 111  | 0    | 346  | 96   | 1257 | 1316 | 275  | 1372 | 1426 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(i)           | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 57.9 | 0.0  | 55.8 | 58.1 | 0.0  | 56.5 | 58.5 | 6.9  | 6.9  | 54.2 | 4.0  | 4.0  |
| Incr Delay (d2), s/veh       | 13.0 | 0.0  | 1.6  | 12.6 | 0.0  | 4.4  | 13.3 | 0.8  | 10.3 | 0.3  | 0.5  | 0.5  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%), veh/h     | 1.0  | 0.0  | 0.5  | 0.8  | 0.0  | 0.8  | 0.6  | 4.4  | 4.6  | 3.9  | 2.5  | 2.6  |
| Unsig. Movement Delay, s/veh |      |      |      |      |      |      |      |      |      |      |      |      |
| LnGrp Delay(d), s/veh        | 71.0 | 0.0  | 57.4 | 70.7 | 0.0  | 60.9 | 71.8 | 7.7  | 7.6  | 64.6 | 4.5  | 4.5  |
| LnGrp LOS                    | E    | A    | E    | E    | A    | E    | E    | A    | A    | E    | A    | A    |
| Approach Vol, veh/h          | 44   |      |      | 48   |      |      |      | 930  |      |      | 893  |      |
| Approach Delay, s/veh        | 65.7 |      |      | 65.4 |      |      |      | 8.7  |      |      | 12.3 |      |
| Approach LOS                 | E    |      |      | E    |      |      |      | A    |      |      | B    |      |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 14.2 | 89.4 | 7.1  | 9.3  | 6.5  | 97.1 | 7.5  | 8.9  |      |      |      |      |
| Change Period (Y+Rc), s      | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  |      |      |      |      |
| Max Green Sating (Gmax), s   | 18.5 | 51.5 | 7.5  | 24.5 | 6.5  | 63.5 | 7.5  | 24.5 |      |      |      |      |
| Max Q Clear Time (g_c+H), s  | 9.8  | 13.8 | 3.5  | 3.1  | 3.0  | 9.5  | 3.8  | 3.8  |      |      |      |      |
| Green Ext Time (p_c), s      | 0.2  | 7.0  | 0.0  | 0.0  | 0.0  | 5.8  | 0.0  | 0.1  |      |      |      |      |
| Intersection Summary         |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th LOS                  |      |      |      |      |      |      |      |      |      |      |      |      |

Parcel 1 Access Analysis With Boxer 03/05/2021 PM Peak Hour

Synchro 10 Report

Page 1



HCM 6th Signalized Intersection Summary  
 1: Retail Dwy/VA Dwy & Kamokila (No Boxer/Dwy 2)

AM Peak Hour  
 03/05/2021

| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          | 12   | 5    | 7    | 9    | 5    | 154  | 10   | 371  | 32   | 187  | 882  | 23   |
| Traffic Volume (veh/h)       | 12   | 5    | 7    | 9    | 5    | 154  | 10   | 371  | 32   | 187  | 882  | 23   |
| Future Volume (veh/h)        | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Q (Qb), veh          | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A, pbT)         | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Parking Bus, Adj             | No   | No   | No   | No   | No   | No   | No   | No   | No   | No   | No   | No   |
| Adj Sat Flow, veh/h          | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h         | 13   | 5    | 1    | 9    | 5    | 13   | 11   | 391  | 31   | 197  | 928  | 23   |
| Peak Hour Factor             | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    |
| Cap, veh/h                   | 26   | 48   | 10   | 19   | 13   | 33   | 23   | 2264 | 179  | 230  | 2816 | 70   |
| Arrive On Green              | 0.01 | 0.03 | 0.03 | 0.01 | 0.03 | 0.03 | 0.01 | 0.68 | 0.68 | 0.13 | 0.79 | 0.79 |
| Sat Flow, veh/h              | 1781 | 1513 | 303  | 1781 | 460  | 1195 | 1781 | 3336 | 263  | 1781 | 3544 | 88   |
| Grp Volume(V), veh/h         | 13   | 0    | 6    | 9    | 0    | 18   | 11   | 207  | 215  | 197  | 465  | 486  |
| Grp Sat Flow(s), veh/h       | 1781 | 0    | 1816 | 1781 | 0    | 1655 | 1781 | 1777 | 1823 | 1781 | 1777 | 1855 |
| Q Serve(g, s), s             | 0.9  | 0.0  | 0.4  | 0.6  | 0.0  | 1.3  | 0.7  | 5.1  | 5.1  | 13.0 | 8.7  | 8.7  |
| Cycle Q Clear(g, c), s       | 0.9  | 0.0  | 0.4  | 0.6  | 0.0  | 1.3  | 0.7  | 5.1  | 5.1  | 13.0 | 8.7  | 8.7  |
| Prop In Lane                 | 1.00 | 0.17 | 1.00 | 0.72 | 1.00 | 0.72 | 1.00 | 0.14 | 1.00 | 0.14 | 1.00 | 0.05 |
| Lane Grp Cap(c), veh/h       | 26   | 0    | 57   | 19   | 0    | 46   | 23   | 1206 | 1237 | 230  | 1412 | 1474 |
| V/C Ratio(X)                 | 0.50 | 0.00 | 0.10 | 0.47 | 0.00 | 0.39 | 0.48 | 0.17 | 0.17 | 0.86 | 0.33 | 0.33 |
| Avail Cap(c, a), veh/h       | 111  | 0    | 386  | 111  | 0    | 352  | 111  | 1206 | 1237 | 482  | 1412 | 1474 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(i)           | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 58.7 | 0.0  | 56.4 | 59.0 | 0.0  | 57.3 | 58.8 | 7.0  | 7.0  | 51.2 | 3.4  | 3.4  |
| Incr Delay (d2), s/veh       | 13.9 | 0.0  | 0.8  | 16.6 | 0.0  | 5.3  | 15.0 | 0.3  | 0.3  | 9.0  | 0.6  | 0.6  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%), veh/h     | 0.5  | 0.0  | 0.2  | 0.4  | 0.0  | 0.6  | 0.4  | 1.9  | 2.0  | 6.4  | 2.7  | 2.8  |
| Unsig. Movement Delay, s/veh | 72.6 | 0.0  | 57.2 | 75.6 | 0.0  | 62.7 | 73.8 | 7.3  | 7.3  | 60.2 | 4.0  | 4.0  |
| LnGrp Delay(d), s/veh        | E    | A    | E    | E    | A    | E    | E    | A    | A    | E    | A    | A    |
| LnGrp LOS                    | 19   | A    | E    | E    | A    | E    | E    | A    | A    | E    | A    | A    |
| Approach Vol, veh/h          | 67.8 | 27   | 67.0 | 67.0 | 27   | 67.0 | 67.0 | 433  | 9.0  | 1148 | 13.7 | 13.7 |
| Approach Delay, s/veh        | E    | E    | E    | E    | E    | E    | E    | A    | A    | B    | B    | B    |
| Approach LOS                 | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 8    | 8    | 8    | 8    |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 8    | 8    | 8    | 8    |
| Phs Duration (G+Y+Rc), s     | 20.0 | 85.9 | 5.8  | 8.3  | 6.0  | 99.9 | 6.3  | 7.8  | 7.8  | 7.8  | 7.8  | 7.8  |
| Change Period (Y+Rc), s      | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  |
| Max Green Seling (Gmax), s   | 32.5 | 36.5 | 7.5  | 25.5 | 7.5  | 61.5 | 7.5  | 25.5 | 25.5 | 25.5 | 25.5 | 25.5 |
| Max Q Clear Time (g, c+H), s | 15.0 | 7.1  | 2.6  | 2.4  | 2.7  | 10.7 | 2.9  | 3.3  | 3.3  | 3.3  | 3.3  | 3.3  |
| Green Ext Time (p, c), s     | 0.5  | 2.6  | 0.0  | 0.0  | 0.0  | 7.7  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Intersection Summary         |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           | 13.9 |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th LOS                  | B    |      |      |      |      |      |      |      |      |      |      |      |

HCM 6th Signalized Intersection Summary  
 1: Retail Dwy/VA Dwy & Kamokila (No Boxer/Dwy 2)

03/05/2021

| Movement                     | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations          | 26   | 15   | 14   | 21   | 10   | 202  | 14   | 856  | 29   | 130  | 712  | 27   |
| Traffic Volume (veh/h)       | 26   | 15   | 14   | 21   | 10   | 202  | 14   | 856  | 29   | 130  | 712  | 27   |
| Future Volume (veh/h)        | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Initial Q (Qb), veh          | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj(A, pbT)         | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Parking Bus, Adj             | No   | No   | No   | No   | No   | No   | No   | No   | No   | No   | No   | No   |
| Adj Sat Flow, veh/h          | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| Adj Flow Rate, veh/h         | 27   | 16   | 1    | 22   | 11   | 15   | 15   | 901  | 30   | 137  | 749  | 27   |
| Peak Hour Factor             | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Percent Heavy Veh, %         | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    |
| Cap, veh/h                   | 44   | 70   | 4    | 39   | 26   | 36   | 29   | 2440 | 81   | 166  | 2701 | 97   |
| Arrive On Green              | 0.02 | 0.04 | 0.04 | 0.02 | 0.04 | 0.04 | 0.02 | 0.70 | 0.70 | 0.09 | 0.77 | 0.77 |
| Sat Flow, veh/h              | 1781 | 1742 | 109  | 1781 | 717  | 978  | 1781 | 3509 | 117  | 1781 | 3498 | 126  |
| Grp Volume(V), veh/h         | 27   | 0    | 17   | 22   | 0    | 26   | 15   | 456  | 475  | 137  | 380  | 396  |
| Grp Sat Flow(s), veh/h       | 1781 | 0    | 1851 | 1781 | 0    | 1694 | 1781 | 1777 | 1849 | 1781 | 1777 | 1848 |
| Q Serve(g, s), s             | 1.8  | 0.0  | 1.1  | 1.5  | 0.0  | 1.8  | 1.0  | 12.6 | 12.6 | 9.1  | 7.5  | 7.5  |
| Cycle Q Clear(g, c), s       | 1.8  | 0.0  | 1.1  | 1.5  | 0.0  | 1.8  | 1.0  | 12.6 | 12.6 | 9.1  | 7.5  | 7.5  |
| Prop In Lane                 | 1.00 | 0.06 | 1.00 | 0.58 | 1.00 | 0.58 | 1.00 | 0.06 | 1.00 | 0.06 | 1.00 | 0.07 |
| Lane Grp Cap(c), veh/h       | 44   | 0    | 74   | 39   | 0    | 63   | 29   | 1235 | 1286 | 166  | 1372 | 1426 |
| V/C Ratio(X)                 | 0.61 | 0.00 | 0.23 | 0.57 | 0.00 | 0.42 | 0.51 | 0.37 | 0.37 | 0.83 | 0.28 | 0.28 |
| Avail Cap(c, a), veh/h       | 111  | 0    | 378  | 96   | 0    | 332  | 96   | 1235 | 1286 | 304  | 1372 | 1426 |
| HCM Platoon Ratio            | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(i)           | 1.00 | 0.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 57.9 | 0.0  | 55.8 | 58.1 | 0.0  | 56.5 | 58.5 | 7.5  | 7.5  | 53.5 | 4.0  | 4.0  |
| Incr Delay (d2), s/veh       | 13.0 | 0.0  | 1.6  | 12.6 | 0.0  | 4.4  | 13.3 | 0.9  | 0.8  | 9.9  | 0.5  | 0.5  |
| Initial Q Delay(d3), s/veh   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%), veh/h     | 1.0  | 0.0  | 0.5  | 0.8  | 0.0  | 0.8  | 0.6  | 4.8  | 4.9  | 4.5  | 2.5  | 2.6  |
| Unsig. Movement Delay, s/veh | 71.0 | 0.0  | 57.4 | 70.7 | 0.0  | 60.9 | 71.8 | 8.3  | 8.3  | 63.4 | 4.5  | 4.5  |
| LnGrp Delay(d), s/veh        | E    | A    | E    | E    | A    | E    | E    | A    | A    | E    | A    | A    |
| LnGrp LOS                    | 44   | A    | E    | E    | A    | E    | E    | A    | A    | E    | A    | A    |
| Approach Vol, veh/h          | 65.7 | 48   | 65.4 | 65.4 | 48   | 65.4 | 9.3  | 946  | 9.3  | 13.3 | 13.3 | 13.3 |
| Approach Delay, s/veh        | E    | E    | E    | E    | E    | E    | A    | A    | A    | B    | B    | B    |
| Approach LOS                 | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 8    | 8    | 8    | 8    |
| Timer - Assigned Phs         | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 8    | 8    | 8    | 8    |
| Phs Duration (G+Y+Rc), s     | 15.7 | 87.9 | 7.1  | 9.3  | 6.5  | 97.1 | 7.5  | 8.9  | 8.9  | 8.9  | 8.9  | 8.9  |
| Change Period (Y+Rc), s      | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  | 4.5  |
| Max Green Seling (Gmax), s   | 20.5 | 50.5 | 6.5  | 24.5 | 6.5  | 64.5 | 7.5  | 23.5 | 23.5 | 23.5 | 23.5 | 23.5 |
| Max Q Clear Time (g, c+H), s | 11.1 | 14.6 | 3.5  | 3.1  | 3.0  | 9.5  | 3.8  | 3.8  | 3.8  | 3.8  | 3.8  | 3.8  |
| Green Ext Time (p, c), s     | 0.2  | 7.2  | 0.0  | 0.0  | 0.0  | 5.8  | 0.0  | 0.1  | 0.1  | 0.1  | 0.1  | 0.1  |
| Intersection Summary         |      |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th Ctrl Delay           | 13.8 |      |      |      |      |      |      |      |      |      |      |      |
| HCM 6th LOS                  | B    |      |      |      |      |      |      |      |      |      |      |      |

## ***APPENDIX D2***

### ***Utility Will-Serve Letters***



## HAWAII WATER SERVICE

P.O. Box 384809

Waikoloa, HI 96738 Tel: (877) 886-7784 toll-free

April 30, 2021

Gentry Homes, Ltd.

Attn: Brian Maja

**Re: Water and Wastewater Service Request  
Residential Development located in Kalaeloa Parcel 1  
Kalaeloa, Oahu, Hawaii**

Mr. Maja:

Kalaeloa Water Company, LLC, ("KWC") a subsidiary of Hawaii Water Service Company, Inc., is authorized by the Hawaii Public Utilities Commission of the State of Hawaii ("HPUC") to provide water and wastewater services in the Kalaeloa area of Oahu, State of Hawaii

Gentry Homes, Ltd., ("Applicant"), in an arrangement with the Hunt Companies has requested water and wastewater service for a development in a portion of Kalaeloa Parcel 1. The development will include a total of 389 homes consisting of 256 multi-family attached and 133 single-family detached homes.

Applicant has identified average daily demand for water at 0.17 million gallons per day (MGD) and wastewater average flow at 0.10 MGD.

This letter constitutes Kalaeloa Water Company, LLC ("KWC") willingness to provide water and wastewater services to your proposed development referenced above.

Applicant will be required to execute an Extension Agreement with KWC for the project within one (1) year after the date of this Will Serve Letter or it will automatically terminate and become void.

The full amount of any contribution in aid of construction ("CIAC") fees shall be payable when the extension agreement is executed and based on the tariff in effect at the time. The Extension Agreement itself will automatically terminate as to any unused capacity if the Project is not completed within two (2) years after the date of the Extension Agreement.

Sincerely,

Julian Gandara

Manager, Technical and Regulatory Matters





DEPARTMENT OF PLANNING AND PERMITTING  
**CITY AND COUNTY OF HONOLULU**

650 SOUTH KING STREET \* HONOLULU, HAWAII 96813  
Phone: (808) 768-8209 \* Fax: (808) 768-4210

# SEWER CONNECTION APPLICATION

APPLICATION NO.: **2020/SCA-0513**

STATUS: **Approved with conditions**

**\$1,898,792.00**

DATE RECEIVED: **04/20/2020**

IWDP APP. NO.:

Estimated Wastewater  
System Facility Charge\*

PROJECT NAME: **2020/SCA-0513 Kalaeloa Parcel 1 (Areas 1A, 1B, 1C) Excluding  
Veterans Affairs (VA) Parcel**

**LOCATION:**

| Zone | Section | Plat | Parcel |
|------|---------|------|--------|
| 9    | 1       | 013  | 002    |
| Zone | Section | Plat | Parcel |
| 9    | 1       | 013  | 002    |

2,164,017 Sq. Ft.

2,398,021 Sq. Ft.

**SPECIFIC LOCATION: Franklin D. Roosevelt Avenue**

APPLICANT: **LUKE CRAIG W. L.  
RM Towlli Corp  
2024 N. King Street Suite 200  
Honolulu, HI 96816**

DEVELOPMENT TYPE: **Dwelling, Single-family**

SEWER CONNECTION WORK DESIRED:

OTHER USES: **For Subdivision Purpose**

NON-RESIDENTIAL AREA: s.f.

APPROXIMATE DATE OF CONNECTION:

PROPOSED UNITS

No. of New Units: **410**

Studios:  
1-Bedroom:  
2-Bedroom: **280**  
3-Bedroom:  
4-Bedroom: **130**  
5-Bedroom:  
6-Bedroom:

EXISTING UNITS

No. of Existing Units: **0**

Studios:  
1-Bedroom:  
2-Bedroom:  
3-Bedroom:  
4-Bedroom:  
5-Bedroom:  
6-Bedroom:

UNITS TO BE DEMOLISHED

No. of Units to be Demolished: **0**

Studios:  
1-Bedroom:  
2-Bedroom:  
3-Bedroom:  
4-Bedroom:  
5-Bedroom:  
6-Bedroom:

REMARKS **Approval letter from Kalaeloa Water Company (KWC) is required. Submit KWC approval letter.**

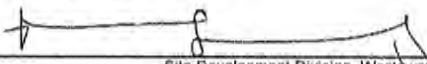
APPROVAL DATE: **04/27/2020**

*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: **04/24/2022**

*\* 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: **Jing Meng**

  
Site Development Division, Wastewater Branch

## Debbie Luning

---

**From:** Kuniyoshi, Todd <tkuniyoshi1@honolulu.gov>  
**Sent:** Thursday, September 16, 2021 2:41 PM  
**To:** 'Brent Nakaoka'  
**Cc:** Brian Maja; Takakura, Mel  
**Subject:** RE: Gentry Kalaeloa Parcel 1 Subdivision

Hi Brent,

The construction plans for the Development of Kalaeloa Parcel 1 – Backbone Roadway Improvements (2020/CP-112) prepared by the RMTC and approved by the DPP is based on the RMTC drainage report for the design of proposed drainage system and compliance with the City's drainage standard. The design meets criteria established by RMTC and City drainage standards and is adequate to meet those standards.

Thank you,  
Todd S. Kuniyoshi  
Civil Engineering Branch  
Dept. of Planning and Permitting  
City and County of Honolulu  
650 South King Street, 8th floor  
Honolulu, HI 96813

Phone: 808-768-8109  
email: [tkuniyoshi1@honolulu.gov](mailto:tkuniyoshi1@honolulu.gov)  
Website: [www.honolulu.dpp.org](http://www.honolulu.dpp.org)

**From:** Brent Nakaoka [mailto:[BrentN@rmtowill.com](mailto:BrentN@rmtowill.com)]  
**Sent:** Thursday, September 16, 2021 11:14 AM  
**To:** Kuniyoshi, Todd  
**Cc:** Brian Maja (BrianM@GENTRYHAWAII.com)  
**Subject:** Gentry Kalaeloa Parcel 1 Subdivision

|                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------|
| CAUTION: Email received from an EXTERNAL sender. Please confirm the content is safe prior to opening attachments or links. |
|----------------------------------------------------------------------------------------------------------------------------|

Hi Todd,  
Gentry is in the process of sending in their Kalaeloa Parcel 1 application to HCDA. As part of that submittal they need to provide a response from DPP that the drainage for this project is adequate. This can just be a reply to this email confirming that there will be adequate drainage to support this project.

As you know, RMTC has been working on the Kalaeloa Parcel 1 Backbone Roadway Improvements project. As part of that project they are providing the ultimate drainage treatment and storage for the entire Gentry parcel. Since those plans have been approved would you be able to reply to this email confirming that we have adequate drainage?

Let me know if you have any questions.

Thanks.

Brent Nakaoka, P.E., LEED AP BD+C  
Project Manager  
<mailto:BrentN@rmtowill.com>



## Debbie Luning

---

**From:** Watanabe, Lance K. <lkwatanabe@honolulu.gov>  
**Sent:** Wednesday, September 15, 2021 12:10 PM  
**To:** 'Brent Nakaoka'  
**Cc:** Brian Maja  
**Subject:** RE: Gentry Kalaeloa Parcel 1

Brent – TRB has accepted the traffic analysis to date. We are ok with the locations of the access points. Yes, standard dropped driveways on Boxer & FDR. Modified curb return on Kamokila Ext. It should also be noted that there is a 14' road widening setback on FDR, and a 6' road widening setback on Boxer.

Thanks,  
Lance

*Lance Watanabe, P.E.  
Traffic Review Branch, DPP  
Phone: 768-8079  
eMail: lkwatanabe@honolulu.gov*

**From:** Brent Nakaoka [mailto:BrentN@rmtowill.com]  
**Sent:** Wednesday, September 15, 2021 11:49 AM  
**To:** Watanabe, Lance K. <lkwatanabe@honolulu.gov>  
**Cc:** Brian Maja (BrianM@GENTRYHAWAII.com) <brianm@gentryhawaii.com>  
**Subject:** Gentry Kalaeloa Parcel 1

CAUTION: Email received from an EXTERNAL sender. Please confirm the content is safe prior to opening attachments or links.

Lance,  
Gentry is in the process of getting approval from HCDA to move forward with this subdivision. HCDA is requesting confirmation from TRB that you are okay with the traffic analyses that have been done to date. Attached is a previous email that I sent to you with the F&P driveway justification and also an updated site plan (the internal units shifted around due to HCD comments. Also, note that on Boxer and FDR it will be a standard driveway apron and not a curb return type as shown on the architects drawing). HCD will accept an email acknowledgement that you are okay with this so it could just be a reply to this email. Please let me know if you have any concerns or questions. Thanks.

Brent Nakaoka, P.E., LEED AP BD+C  
Project Manager  
<mailto:BrentN@rmtowill.com>

R. M. Towill Corporation  
2024 North King Street Suite 200  
Honolulu, Hawaii 96819  
voice: 808 842 1133 ext. 427 fax: 808 842 1937 web: [www.rmtowill.com](http://www.rmtowill.com)

Click [here](#) to report this email as spam to the Gentry filter.



April 21, 2021

Mr. Steve Sakai  
Ronald N.S. Ho & Associates  
2153 N. King Street #201  
Honolulu, HI. 96819

Dear Mr. Sakai:

Re: Gentry Kalaeloa Parcel 1 Subdivision  
Hawaiian Electric Project No. 6080171/3001470  
Roosevelt Avenue

This is in response to your request for a "Will Serve" letter for the above project location.

We have existing distribution circuits along Kamokila Boulevard that may be used to serve your future project. Please keep in mind that these circuits may need to be upgraded or additional circuits may be required to serve this project's load. We are currently reviewing the information provided in your service request to make this determination. Please note that new electrical infrastructure will be required to extend the circuits from our existing facility to your project site.

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,

Shimono,  
Eric

Digitally signed by  
Shimono, Eric  
Date: 2021.04.21  
11:27:03 -10'00'

Eric Shimono  
Acting Supervisor  
Transmission and Distribution Engineering Department  
Engineering Division

ES:es



2/25/2021

Gentry Homes, Ltd.  
P.O. Box 295  
Honolulu, HI 96809  
Attention: Brian Maja

**Re: Will Serve Letter for Kalaeloa Parcel 1**

Dear Brian Maja

Oceanic Time Warner Cable LLC ("Spectrum"), directly or through its parent or affiliate companies, is an innovative provider of cable television, video, data, voice and other services (collectively, the "Services"). Gentry Homes, Ltd. ("Developer") is the developer of a proposed project located at TMK: 9-1-013: por 002. Oceanic's understanding is that the Developer wishes to make the Services available to residents and/or commercial tenants at the Project.

This is confirm that Spectrum is willing and able to provide the Services to the Project subject to all of the terms and conditions of its applicable franchise agreement with the State of Hawaii, all applicable federal, state and county laws, rules and regulations, and all other terms and conditions stated in this letter. Developer and/or its successors in interest will enter into a mutually agreeable services agreement with Spectrum, which shall specify the provision of equipment and facilities for the provision of the Services, the specific type(s) of Services provided, and other terms and conditions (which may include terms relating to the provision of easements, conduits, and accommodations for equipment

The issuance of this letter by Spectrum, inclusive of the foregoing terms and conditions, is based upon the representations of the Developer to Spectrum with respect to the location and scope of the Project as of the date of this letter. Please contact us should you have any questions regarding the foregoing.

A handwritten signature in black ink, appearing to read "DB", with a long horizontal line extending to the left and a diagonal line extending to the right.

Douglas Bassett  
200 Akamainui St. | Mililani, HI | 96789  
Director, Spectrum Community Solutions  
Cell: 310.863.6524

# **APPENDIX E**

***Makakilo / Kapolei / Honokai Hale***

***Neighborhood Board No. 34***

***Meeting Agendas and Minutes***

# ***APPENDIX E1***

***Makakilo / Kapolei / Honokai Hale***

***Neighborhood Board No. 34***

***Meeting Agenda and Minutes***

***March 24, 2021***





## MAKAKILO/ KAPOLEI/ HONOKAI HALE NEIGHBORHOOD BOARD NO. 34

c/o NEIGHBORHOOD COMMISSION • 925 DILLINGHAM BOULEVARD, SUITE 160 • HONOLULU, HAWAII 96817  
TEL: (808) 768-3710 • FAX: (808) 768-3711 • INTERNET: <http://www.honolulu.gov/nco>

### **REGULAR MEETING AGENDA**

WEDNESDAY, MARCH 24, 2021

WEBEX APPLICATION

MEETING LINK: <https://cchnl.webex.com/cchnl/j.php?MTID=m4331f485b81dc2540c201c481ed4e0b4>

MEETING NUMBER: 187 867 2439

MEETING PASSWORD: 6sMPTUdh88 (67678834 from phones and video systems)

7:00 P.M. – 9:45 P.M.

### **MEETING POLICIES**

**RULES OF SPEAKING:** Makakilo/Kapolei/Honokai Hale Neighborhood Board No. 34 asks if anyone wishing to speak is asked to raise their hand, and when recognized by the Chair to address comments to the Chair. §2-14-117 Order and decorum. (a) All board members shall promote and preserve the order and decorum of the commission's proceedings. Time allowances will prevail at the noted limits and anyone wanting to comment on multiple items will be allowed to do so with the same time limit allowed per issue/item when the issue/item is called. All speakers are asked to be first recognized by the Chair, and address comments through the Chair. Speakers (community and Board), must keep their comments under one (1) minute (adopted December 5, 2005), and those giving reports are urged to keep their reports under three (3) minutes unless otherwise noted. Written reports, flyers, information pertinent to reports are to be handed out PRIOR to presentation/discussion. Please silence all electronic devices. Please adhere to time limits.

**NOTE:** The Board may take action on any agenda item. As required by the State Sunshine Law (HRS 92), specific issues not noted on this agenda cannot be voted on unless added to the agenda.

**ORDER AND DECORUM:** Our meetings are intended to act with fairness and order, and according to the 2008 Neighborhood Plan. Everyone is asked to treat each speaker with respect and keep their comments on **agenda subjects** within the time allowed. Your kokua is appreciated to avoid delays or timely adjournment of the meeting. Rules of decorum will be strictly enforced.

### **WELCOME**

#### **I. CALL TO ORDER**

#### **II. ROLL CALL – Neighborhood Board Assistant**

#### **III. CITY MONTHLY REPORTS**

1. Honolulu Fire Department (HFD) – Duty Officer
2. Honolulu Police Department (HPD) – Duty Officer
3. Mayor Rick Blangiardi Representative- Jerry Pupillo
4. Councilmember Andria Tupola and/or Representative -Louis Galdeira
5. Board of Water Supply (BWS) – Rian Adachi
6. Oahu Metropolitan Planning Organization (OMPO) Report- Frank Genadio

#### **IV. APPROVAL OF MINUTES FROM THE WEDNESDAY, FEBRUARY 24, 2021 BOARD MEETING**

- V. COMMUNITY/BOARD CONCERNS & ANNOUNCEMENTS** (Limited to one (1) minute each per person in totality. Issues concerning and/or needing elected official's or agency input/comments and related issues are to be discussed at the relative portion of the agenda. Issues and concerns not listed elsewhere on the Board's agenda may be raised, but HRS Chapter 92 ("Sunshine Law") prohibits Board action from being taken during this meeting.)

- VI. STATE MONTHLY REPORTS – (Limited to two (2) minutes each, unless otherwise requested) If there are any printed reports and/or flyers that need to be disseminated, please do so before start of meeting (or as early as possible) so Board members have adequate time to brief themselves with your material and information.**

1. U.S. Congressman Ed Case- Nestor Garcia
2. U.S. Congressman Kai Kahele and/or Representative

3. Governor David Ige's Representative – Robert Yu, Department of Budget and Finance
4. Highways Division, State Department of Transportation (HDOT)- Karen Chun, Design Branch Head
5. State Senator Mike Gabbard or designated office representative
6. State Senator Maile Shimabukuro or designated office representative
7. State Representative Sharon Har or designated office representative
8. State Representative Ty Cullen or designated office representative
9. State Representative Stacelynn K.M. Eli or designated office representative
10. Hawaii Community Development Authority (HCDA)- Tesha Malama

**VII. BOARD BUSINESS (10 minutes limit unless otherwise noted) Discussion and Action**

1. New Residential Development on Kalaeloa Parcel 1- Debbie Luning / John Shaw
2. Kapolei Transit Center & Mobility Hub- Linda Frysztacki
3. City Department of Transportation (DTS) Update- Makakilo Drive Speed Mitigation Project & Kunehi Intersection in Kapolei
4. Kapolei Dog Park Resolution (Action)- Michael Ferreira
5. Resolution to Stop Rail at Bishop Street or Chinatown (Action) – Kioni Dudley

**VIII. TREASURER'S REPORT**

**IX. COMMITTEE REPORTS – (Limited to two (2) minutes each)**

**X. ANNOUNCEMENTS**

- Next Scheduled Meeting – The Makakilo/Kapolei/Honokai Hale Neighborhood Board No. 34's next scheduled meeting is on Wednesday, April 28, 2021.

**XI. ADJOURNMENT**

'Olelo Community Television Cablecast of Board Meetings: The Makakilo/Kapolei/Honokai Hale Neighborhood Board regular meetings are video recorded and later on 'Olelo Community Television Channel 49 at 9:00 p.m. on the second Friday of the month and on Channel 49 with a schedule of the 1st and 3rd Saturday of the month at 12:00 p.m. determined by 'Olelo. There may be a week or two (2) delay after a meeting date before the first cablecast of that meeting's video. The 'Olelo program schedule is posted at <http://www.olelo.org/programming/default.html>

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## MAKAKILO/KAPOLEI/HONOKAI HALE NEIGHBORHOOD BOARD NO. 34

NEIGHBORHOOD COMMISSION • 925 DILLINGHAM BOULEVARD, SUITE 160 • HONOLULU, HAWAII, 96817  
PHONE (808) 768-3710 • FAX (808) 768-3711 • INTERNET: <http://www.honolulu.gov/nco>

### **REGULAR MEETING MINUTES WEDNESDAY, MARCH 24, 2021 WEBEX APPLICATION**

**CALL TO ORDER:** Chair Legal called the meeting to order at 7:01 p.m. **Quorum was established with five (5) board members present.** Note – This nine (9) member board requires five (5) members to establish quorum and take official Board action.

**Board Members Present:** Jack Legal, Thad Spreg, Mick Ferreira, Moon Kahele, Robert Helsham, Kioni Dudley (arrived at 7:10 p.m.), Scott Strensrud (arrived at 7:10 p.m.), Troy Cullen (arrived at 7:43 p.m.), and Mike Frank (arrived at 7:49 p.m.).

**Board Members Absent:** None were absent.

**Guests:** Corporal Roland Pagan (Honolulu Police Department); Captain Geoffrey Chang (Honolulu Fire Department); Ikaika Mahoe (Deputy Chief of Staff of Kai Kahele); Patrice Tanna (Senator Maile Shimabukuro's Office); Louis Galdeira (Councilmember Andria Tupola's Office); Frank Genadio (Oahu Metropolitan Planning Organization); Tesha Malama, Craig Nakamoto (Hawaii Community Development Authority); Meg Turner (Community Liaison for Senator Mike Gabbard); Kim Scott (Legislative Aide for State Representative Sharon Har); Peter Moala (Legislative Aide for State Representative Stacelynn Eli); Debbie Luning (Director, Governmental Affairs and Community Relations at Gentry Pacific Design Center), John Shaw (Gentry Pacific Design Center); Resident MC Timson; Brandy Clark (Neighborhood Commission Office).

**RULES:** Chair Legal read rules and guidelines to adhere to the meeting.

**ROLL CALL:** The Neighborhood Assistant carried out a roll call. Quorum was established with five (5) members present.

**Strensrud entered the meeting at 7:10 p.m., six (6) board members present.**

**Dudley entered the meeting at 7:10 p.m., seven (7) board members present.**

### CITY MONTHLY REPORTS

**Honolulu Fire Department (HFD):** Captain Chang read the following report:

- **February 2021:** There was one (1) structure fire, four (4) brush fires, two (2) nuisance fires, seven (7) activated alarms with no fire, 123 medical calls, six (6) motor vehicle crashes and two (2) hazardous materials incidents.
- **Safety tip:** Captain Chang spoke of home fire sprinkler tips.

**Questions, comments and concerns followed:** **Fires:** Chair Legal inquired and Captain Chang answered about the brush fire in Kailua. Captain Chang explained further the fires in Kalaeloa lasted for three (3) days with no property damage involved. Tesha Malama stated the Navy owns property and is aware of the fire.

**Honolulu Police Department (HPD):** Corporal Roland Pagan was present and gave the following report:

- **February 2021:** There were 42 auto thefts, 47 burglaries, 181 thefts, 110 unauthorized entry into motor vehicles (UEMVs), with a total of 9,017 calls for service.
- **Catalytic Converters:** Corporal Pagan spoke of an increase in catalytic converter thefts, stated individuals stealing converters are selling them to mechanics in their garages and gave anti-theft tips.

**Questions, comments and concerns followed:**

1. **Stolen Cars:** Spreg expressed concerns about stolen vehicles.
2. **Honolulu 311 Application:** Chair Legal asked and Corporal Pagan responded of the utilization of the 311 application.
3. **Ticketing:** Ferreira expressed ticketing concerns and stated HPD's presence should be lessened in the Kapolei Parkway area.

4. Homeless: Resident MC Timson noted concerns regarding homeless by Seagull School and those individuals allegedly doing drugs, suggested police presence there. Corporal Pagan noted that HPD goes to Fort Barrette Road to offer services to the homeless encampment there but stressed HPD cannot force individuals to obtain the help to get them off the streets nor enforce removal.
5. Catalytic Converters: Helsham inquired and Corporal Pagan answered about gathering evidence of vehicles that need to be recorded for HPD to obtain evidence of converter theft.
6. Manpower: Resident Ed Ryglewicz asked about additional manpower, Corporal Pagan deferred the question to Councilmember Tupola's office (Louis Galdeira).
7. Speeding Concerns: Stensrud expressed speeding concerns on Kama'aha Street, noted there is no enforcement there. Ferreira noted no enforcement seen on Makakilo Drive to mitigate speeding.

Mayor Rick Blangiardi's Representative: Jerry Pupillo was present but there were no concerns to address. Questions, comments and concerns followed: Registration Amnesty: Ferreira inquired about registration amnesty due to the pandemic.

Councilmember Andria Tupola – Legislative Aide Louis Galdeira read report and took questions.

Questions, comments and concerns followed:

1. Registration Amnesty: Ferreira inquired about registration amnesty due to the pandemic. Galdeira responded he will connect with the policy advisor.
2. Thanks: Stensrud thanked Councilmember Tupola and Pupillo for their involvement in returning youth sports to parks.
3. Traffic Light: Resident Tesha Malama inquired and Galdeira responded about the necessity of having a traffic light on Shangri-La Road. Malama mentioned the HDOT light schedule for the intersection on Enterprise and Roosevelt.
4. Landscaping: Cullen asked about grass cutting in the median of Makakilo Drive, also asked how often does the grass get cut and who the stakeholders are. Galdeira responded the department to ask would be the Department of Urban Forestry, under the Department of Parks and Recreation (DPR). Chair Legal noted said median was cut last week and expressed support for regular maintenance there.

Board of Water Supply (BWS) – Rian Adachi gave report which included two (2) main breaks, importance of rain barrels, metal obtained for catalytic converters, and took questions.

Questions, comments, and concerns followed: Makakilo Drive Project: Spreg queried and Adachi responded of extending the project by another year. Adachi explained the details behind obtaining contractors and piping alignment for said project. Ferreira asked how emergency vehicles would navigate Makakilo Drive Extension, stated the importance of emergency vehicles navigating the extension.

Oahu Metropolitan Planning Organization (OMPO): Frank Genadio gave report and took questions.

#### APPROVAL OF MINUTES

Chair Legal opened the floor for discussion, Helsham noted the following amendment:

Page 2, under "Makakilo Drive Update": strike "the Department of Transportation (DTS)", and add "State Department of Transportation (HDOT)".

**Helsham MOVED and Ferreira SECONDED the MOTION to APPROVE the Wednesday, February 24, 2021 Draft Meeting Minutes AS CORRECTED. The February 2021 draft meeting minutes were ADOPTED as corrected by UNANIMOUS CONSENT, (7-0-0). (Aye: Legal, Spreg, Stensrud, Ferreira, Moon, Helsham, Dudley; Nay: None; Abstain: None.)**

**The corrected change is as follows:** Page 2, under "Makakilo Drive Update": strike "the Department of Transportation (DTS)", and add "State Department of Transportation (HDOT)".

COMMUNITY/BOARD CONCERNS AND ANNOUNCEMENTS: Ferreira explained details behind the P3 permanent monument erected at Barbers' Point.

#### STATE REPORTS

Governor David Ige's Representative – No representative was present, no report was given.

Representative Kai Kahele: Legislative Aide Ikaika Mahoe gave report and took questions.

Questions, comments and concerns followed:

1. Technology: Genadio noted of an email received by Representative Ed Case stating how magnetic levitation is a promising technology. Genadio inquired of Mahoe to convey to US Representative Ed Case about how magnetic levitation technology should be utilized and evaluated fully for the rail project.
2. Gas Increase: Ryglewicz asked about the increase in gas, noted gas increased \$0.65 from February 18, 2021 to March 18, 2021.
3. National Guard Funding: Ryglewicz inquired about funding the Hawaii National Guard, stated their funding should be cut.

Highways Division, Hawaii Department of Transportation (HDOT): Karen Chun reported to the Board that the Farrington Highway Project Design is still in the planning stages, took questions.

Questions, comments and concerns followed: Availability: Chair Legal inquired and Chun responded about coming to the Board meetings to report on a quarterly basis.

Senator Mike Gabbard: Community Liaison Meg Turner gave report and took questions.

Questions, comments and concerns followed: Concerns: Ryglewicz expressed concerns about broken lights and guardrails

**Cullen arrived at 7:43 p.m., eight (8) board members present.**

Senator Maile Shimabukuro – Legislative Aide Patrice Tanna gave report and took questions.

Questions, comments and concerns followed: Vaccination: Dudley commented on his process to get inoculated for COVID-19. Ferreira noted his process for obtaining the vaccine via CVS Pharmacy.

State Representative Sharon Har – Legislative Aide Kim Scott gave report and took questions, however no questions were asked.

State Representative Ty Cullen: No representative was present; no report was given.

State Representative Stacelynn Eli – Legislative Aide Peter Moala gave report and took questions.

Questions, comments and concerns followed: Solar Projects: Dudley expressed interest in future collaborations with Moala regarding future solar projects. Moon inquired about where Representative Eli stood regarding solar funding. Moala responded that Representative Eli is supportive of solar ideas, noted further that 150 families would benefit with HECO benefitting from the rest of the solar projects.

Hawaii Community Development Authority (HCDA): Tesha Malama gave report and took questions.

Questions, comments and concerns followed: Race Track Projects: Dudley inquired and Malama answered about no race tracks in progression of being built. Malama noted utilization on 230 acres of Coral Sea Road.

**Frank arrived at 7:49 p.m., nine (9) board members present.**

#### **BOARD BUSINESS**

Kalaeloa by Gentry Residential Project, Debbie Luning: Luning presented residential development in Kalaeloa and took questions.

Questions, comments and concerns followed:

1. Solar Panels: Dudley queried and Luning responded all homes will have solar panels on their roof.
2. Rail: Genadio noted the City and County developer chose Saratoga Road for the rail end point.
3. Residential Access: Luning noted three (3) access points for the residents to access their homes, however they need to go through City and County for adequate road space.
4. Expansion Plans: Ferreira inquired and Luning replied of plans to mitigate freeway traffic; Luning noted expansion plans are being developed by HUD.
5. Trash: Kahele inquired about the future trash site for 389 homes on the west side, Luning responded there are no plans.

Kapolei Transit Center & Mobility Hub, Linda Frysztacki: Chair Legal notified the Board and Community that this presentation has been cancelled; hearing no objections, this item was deferred until April 2021's meeting.



City Department of Transportation (DTS) Update, Makakilo Drive Speed Mitigation Project & Kunehi Intersection in Kapolei, Layson Akasaki, Traffic Engineer for DTS: Akasaki updated the Board on the following: Speeding Mitigation: Akasaki noted the speeding mitigation measures performed on Makakilo Drive are limited to encourage to speed compliance. Akasaki stated the gateway treatment is similar to Pali Highway in four (4) intersections.

Questions, comments and concerns followed:

1. Mitigation Methods: Dudley, Ferreira, and Spreg noted their disagreement to the updates and disagreements towards the installations of speed bumps and delineators. Ferreira noted his disagreement to the delineators. Chair Legal suggested to come up with another plan for speeding mitigation purposes. Akasaki stated there are guidelines and warrants that need to be adhered to under the Federal Government. Akasaki noted further the limits under City and County within the updates for what is and is not allowed to be changed in these plans.
2. Crosswalk Installations: Dudley noted that crosswalks should be reinstalled and to add flashing lights.
3. Makakilo Extension: Genadio asked and Akasaki replied of no designs to report for the Makakilo Extension.
4. Representative: Ferreira requested a representative from RM Towill to speak on this, noted it should be called the North to South Extension instead.

**The MOTION to Oppose Delineators on Makakilo Drive was MOVED by Spreg and SECONDED by Ferreira, the motion was PASSED with UNANIMOUS CONSENT, (9-0-0) (Aye: Legal, Spreg, Ferreira, Helsham, Frank, Dudley, Kahele, Stensrud, Cullen; Nay: None; Abstain: None.)**

Kapolei Dog Park Resolution (Action), Michael Ferreira: Ferreira read the resolution. Discussion ensued: Location: Stensrud noted the park being overused, asked Ferreira where the dog park would be. Ferreira responded it would be near the skate park. Stensrud stated there was no specific location listed within the resolution; both he and Kahele noted discomfort with voting on a resolution without specifics. Ferreira agreed to make the motion as an amended resolution.

**The MOTION to APPROVE an AMENDED Resolution for the Kapolei Dog Park was MOVED by Helsham and SECONDED by Spreg, the motion was APPROVED with UNANIMOUS CONSENT, (9-0-0) (Aye: Legal, Spreg, Ferreira, Helsham, Frank, Dudley, Kahele, Stensrud, Cullen; Nay: None; Abstain: None.)**

Resolution to Stop Rail at Bishop Street or Chinatown, Kioni Dudley: Dudley presented the resolution to the Board.

**Frank departed the meeting at 9:44 p.m., eight (8) board members remaining.**

**The MOTION to ADOPT the Resolution to Stop Rail at Bishop Street or Chinatown was MOVED by Dudley and SECONDED by Kahele, the MOTION was ADOPTED by MAJORITY VOTE, (5-0-3) (Aye: Legal, Spreg, Ferreira, Dudley, Kahele; Nay: None; Abstain: Cullen, Helsham, Stensrud,)**

**Frank returned to the meeting at 9:47 p.m., nine (9) board members present.**

**TREASURER'S REPORT** – Ferreira reported the same balance as the last three (3) months, however the Neighborhood Assistant (NA) explained that due to staffing shortages, this item needed to be deferred to next month. Hearing no objections, Chair Legal deferred the item to April 2021's meeting.

COMMITTEE REPORTS: None to report.

#### ANNOUNCEMENTS

- Next Scheduled Meeting – The next scheduled board meeting will be held on Wednesday, April 28, 2021, 7:00 p.m. via Webex.
- COVID-19 Hygiene: Chair Legal stressed the importance of upholding mask-wearing and social distancing practices.

**ADJOURNMENT** – The meeting adjourned at 9:49 p.m.

Submitted by: Brandy Clark, Neighborhood Assistant  
Reviewed by: Spencer Johnson, Neighborhood Assistant  
Finalized by:

## ***APPENDIX E2***

***Makakilo / Kapolei / Honokai Hale***

***Neighborhood Board No. 34***

***Meeting Agenda and Minutes***

***May 26, 2021***



**MAKAKILO/ KAPOLEI/ HONOKAI HALE NEIGHBORHOOD BOARD NO. 34**

c/o NEIGHBORHOOD COMMISSION • 925 DILLINGHAM BOULEVARD, SUITE 160 • HONOLULU, HAWAII 96817  
TEL: (808) 768-3710 • FAX: (808) 768-3711 • INTERNET: <http://www.honolulu.gov/nco>

**REGULAR MEETING AGENDA**  
**WEDNESDAY, MAY 26, 2021**  
**7:00 P.M. – 9:45 P.M.**

**Meeting link: <https://cchnl.webex.com/cchnl/j.php?MTID=m5c82c5cc01432e4636da5be39051b6ec>**

**Meeting number: 187 537 4361**

**Password: NB34 (6234 from phones and video systems)**

**Join by video system: Dial [1875374361@cchnl.webex.com](mailto:1875374361@cchnl.webex.com)**

**Join by phone: +1-408-418-9388 United States Toll**

**MEETING POLICIES**

**RULES OF SPEAKING:** Makakilo/Kapolei/Honokai Hale Neighborhood Board No. 34 asks if anyone wishing to speak is asked to raise their hand, and when recognized by the Chair to address comments to the Chair. §2-14-117 Order and decorum. (a) All board members shall promote and preserve the order and decorum of the commission's proceedings. Time allowances will prevail at the noted limits and anyone wanting to comment on multiple items will be allowed to do so with the same time limit allowed per issue/item when the issue/item is called. All speakers are asked to be first recognized by the Chair, and address comments through the Chair. Speakers (community and Board), must keep their comments under one (1) minute (adopted December 5, 2005), and those giving reports are urged to keep their reports under three (3) minutes unless otherwise noted. Written reports, flyers, information pertinent to reports are to be handed out PRIOR to presentation/discussion. Please silence all electronic devices. Please adhere to time limits.

**NOTE:** The Board may take action on any agenda item. As required by the State Sunshine Law (HRS 92), specific issues not noted on this agenda cannot be voted on unless added to the agenda.

**ORDER AND DECORUM:** Our meetings are intended to act with fairness and order, and according to the 2008 Neighborhood Plan. Everyone is asked to treat each speaker with respect and keep their comments on **agenda subjects** within the time allowed. Your kokua is appreciated to avoid delays or timely adjournment of the meeting. Rules of decorum will be strictly enforced.

**WELCOME**

**I. CALL TO ORDER**

**II. ROLL CALL – Neighborhood Board Assistant**

**III. CITY MONTHLY REPORTS**

1. Honolulu Fire Department (HFD) – Duty Officer
2. Honolulu Police Department (HPD) – Duty Officer
3. Board of Water Supply - Rian Adachi
4. Mayor Rick Blangiardi Representative - Jerry Pupillo
5. Councilmember Andria Tupola and/or Representative - Louis Galdeira
6. OMPO Report- Frank Genadio

**IV. APPROVAL OF MINUTES FROM THE APRIL 28, 2021 BOARD MEETING**

- V. COMMUNITY/BOARD CONCERNS & ANNOUNCEMENTS** (Limited to one (1) minute each per person in totality. Issues concerning and/or needing elected official's or agency input/comments and related issues are to be discussed at the relative portion of the agenda. Issues and concerns not listed elsewhere on the Board's agenda may be raised, but HRS Chapter 92 ("Sunshine Law") prohibits Board action from being taken during this meeting.)

- VI. STATE MONTHLY REPORTS – (Limited to two (2) minutes each, unless otherwise requested) If there are any printed reports and/or flyers that need to be disseminated, please do so before start of meeting (or as early as possible) so Board members have adequate time to brief themselves with your material and information.**

1. U.S. Congressman Ed Case - Nestor Garcia
2. U.S. Congressman Kai Kahele and/or Representative

3. Governor David Ige's Representative – Robert Yu, Department of Budget and Finance
4. Highways Division, DOT - Karen Chun, Design Branch Head
5. State Senator Mike Gabbard or designated office representative
6. State Senator Maile Shimabukuro or designated office representative
7. State Representative Sharon Har or designated office representative
8. State Representative Ty Cullen or designated office representative
9. State Representative Stacelynn K.M. Eli or designated office representative
10. Hawaii Community Development Authority (HCDA) - Tesha Malama

**VII. BOARD BUSINESS (10 minutes limit unless otherwise noted) Discussion and Action**

1. Element Hotel Project- Jim Stone and Tracy Camuno (G70)
2. Mahi Solar Project- Wren Wescoatt (Longroad Energy)
3. Install Removal School Crossing Sign at School Crosswalk- Pastor Mel Corpuz
4. VA Clinic Project Update: Tony Gaston (Hunt Companies)

**VIII. TREASURER'S REPORT**

**IX. COMMITTEE REPORTS – (Limited to two (2) minutes each)**

**X. ANNOUNCEMENTS**

- Next Scheduled Meeting – The Makakilo/Kapolei/Honokai Hale Neighborhood Board No.34's next scheduled meeting- Wednesday, June 23, 2021.

**XI. ADJOURNMENT**

'Olelo Community Television Cablecast of Board Meetings: The Makakilo/Kapolei/Honokai Hale Neighborhood Board regular meetings are video recorded and later on 'Olelo Community Television Channel 49 at 9:00 p.m. on the second Friday of the month and on Channel 49 with a schedule of the 1st and 3rd Saturday of the month at 12:00 p.m. determined by 'Olelo. There may be a week or two (2) delay after a meeting date before the first cablecast of that meeting's video. The 'Olelo program schedule is posted at <http://www.olelo.org/programming/default.html>

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## MAKAKILO/KAPOLEI/HONOKAI HALE NEIGHBORHOOD BOARD NO. 34

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PHONE (808) 768-3710 • FAX (808) 768-3711 • INTERNET: <http://www.honolulu.gov/hco>

### DRAFT REGULAR MEETING MINUTES WEDNESDAY, MAY 26, 2021 VIA WEBEX

**CALL TO ORDER:** Chair Legal called the meeting to order at 7:00 p.m. **Quorum was established with eight (8) members present.** Note – This nine (9) member board requires five (5) members to establish quorum and take official Board action.

**Board Members Present:** Jack Legal, Scott Stensrud, Thad Spreg, Mick Ferreira, Troy Cullen, Kioni Dudley, Robert Helsham, Moon Kahele.

**Board Members Absent:** Mike Frank.

**Guests:** Captain JC Bisch (Honolulu Fire Department); Corporal Roland Pagan (Honolulu Police Department); Rian Adachi (Honolulu Board of Water Supply); Louis Galdeira (Councilmember Andria Tupola's Office); Jerry Pupillo (Mayor Rick Blangiardi's Representative); Ikaika Mahoe (United States Congressman Kai Kahele's Office); Karen Chun (Head of Design Branch, Department of Transportation); Meg Turner (Senator Mike Gabbard's Office); Patrice Tanna (Senator Maile Shimabukuro's Office); Frank Genadio (Oahu Metropolitan Planning Organization); Jeannie Hirabara (Representative Sharon Har's Office); Soana Tupua-Fanoga (Representative Stacelynn K.M. Eli's Office); Tesha Malama, Craig Nakamoto (Hawaii Community Development Authority); Jim Stone, Tracy Camuso (Element Hotel Project, G70); Wren Wescoatt (Longroad Energy); Pastor Mel Corpuz (Elementary School Committee Council); Tony Gaston (Hunt Companies Hawaii); (Residents) Kara England, Noelle Wright, Mike Golojuch, Ku'u Kauanoë, Viola Genadio, Kiran Polk, Debbie Luning, John Rogers, Steve Vendt; Dylan Buck (Neighborhood Assistant).

**ROLL CALL:** The Neighborhood Assistant carried out a roll call. Quorum was established with eight (8) members present.

### CITY MONTHLY REPORTS

**Honolulu Fire Department (HFD):** Captain JC Bisch reported the following.

- **April 2021 Statistics:** There were two (2) structure fires, three (3) wildland/brush fires, nine (9) nuisance fires, nine (9) activated alarms, 165 medical calls, two (2) motor vehicle collisions, and two (2) hazardous material incident.
- **Safety tip:** Captain JC Bisch shared hiking safety tips.

**Honolulu Police Department (HPD):** Corporal Roland Pagan reported the following.

- **April 2021 Statistics:** There were 47/11 auto thefts, 38/10 burglaries, 162/42 thefts, 67/27 unauthorized entry into motor vehicles (UEMVs), with the total calls for service of 10,252/2,128 (Total offenses/Kapolei offense).

**Questions, comments and concerns followed:**

1. **Nu'uano Shooting:** Dudley asked why three (3) HPD Officers could not subdue one (1) adult male. Corporal Pagan responded that the suspect was not effectively subdued by the Taser, continued to fight the Officers, and in these situations non-lethal weapons are not always effective and Officers have to be prepared to use lethal weapons next.
2. **Homeless Camp:** Spreg asked about the homeless camp located at Fort Barrett Road and Kapolei Skate Park. Corporal Pagan responded that the homeless were previously removed from City-owned land then relocated to the current State-owned land. HPD works on getting the homeless into shelters, but those services are often declined by the homeless individuals.
3. **Homeless Camp Details:** England asked how many individuals reside in the homeless camp mentioned above. Corporal Pagan responded that it varies from five (5) to nine (9) people.

**Board of Water Supply (BWS):** Rian Adachi reported the following.

- **Breaks:** There were no water main breaks.
- **Water Conservation Reminder:** Heading into the hot summer months, it is important to conserve water.



Questions, comments and concerns followed: Kanehili Hawaiian Homestead: Kahele complained about reduced water pressure for over a year and are requesting an investigation for answers. Adachi responded he will look into the complaint.

Mayor Rick Blangiardi's Representative: Jerry Pupillo reported the following.

- Haiku Stairs Update: City Council has been working with organized groups, residents of Kaneohe and the public to learn more about issues like trespassing liability, public safety, invasive species and other concerns.

Questions, comments and concerns followed:

- Haiku Stairs: Dudley commented that the City and State could use a section of nearby parking lots and shuttle hikers to the trail from early morning to late at night.
- Mask Update: Chair Legal asked about the details of the new mask mandate. Pupillo responded that the official language can be found at: [https://www.honolulu.gov/rep/site/may/may\\_docs/2105100-CCH\\_Emergency\\_Order\\_No.\\_2021-07\\_certified\\_-\\_signed.pdf](https://www.honolulu.gov/rep/site/may/may_docs/2105100-CCH_Emergency_Order_No._2021-07_certified_-_signed.pdf)

Councilmember Andria Tupola's Representative: Louis Galdeira reported the following.

- Resolution 21103: Tupola is opposed to the replacement landfill being dismissed from the agenda and stated that every landfill site is in her District and some should be relocated to other map codes.
- Makakilo Drive Extension: The Town Hall meeting will be held virtually on Thursday, June 24, 2021 from 6:00 p.m. to 8:00 p.m. Tupola expects an open discussion from the involved community in order to gather more information before the project begins.
- Pride Baseball Field: Tupola is searching for a new managing entity to rehabilitate and maintain the park.
- Homeless: Tupola is aware that the homeless encampments in Kapolei have been working with HPD and outreach services to provide support with resources and increase enforcement. The three (3) sites they are working on are; (1) open land bushes along Kapolei Parkway from the Federal buildings to Foodland, (2) ditch behind Walmart parking lot, (3) surrounding area around Kapolei Regional Park.
- Raised Crosswalk: Installation of a raised crosswalk at the intersection of Palailai Street and Anipeahi Street.

Questions, comments and concerns followed:

- Registration Amnesty: Ferreira asked for an update on the registration amnesty issue. Galdeira responded that he will speak with the policy supervisor and send Ferreira an email.
- Landfill Budget: Kahele asked if the Landfill budget will come out of the 2020, 2021 or 2022 state budget. Galdeira responded that it is unclear at the moment as Tupola's office does not know how long the Mayor has to identify a new location for the Waimanalo Gulch.

O'ahuMPO (OMPO) Report: Frank Genadio reported that the OMPO Executive Director Alvin Au reported that the policy board approved the O'ahu Regional Transportation Plan (ORTP 2045) and will receive the fiscal year 2022. Genadio reported that there was a discussion concerning the planned pedestrian bridge over the Ala Wai and comments are still being received on the project, which has been approved for the Transportation Improvement Program (TIP). Genadio reported that Nikki Smith of OMPO briefed that \$2.1 million dollars in federal funds will be applied to the total cost of \$2.6 million dollars for the next fiscal year. A new OMPO project will be the collection and management of active transportation data and allow for monitoring of regional trends, bicycle and pedestrian travel.

Questions, comments and concerns followed: Project Priority: Ferreira opined that projects seem to move very quickly on the South side of the island and projects on the West side take a very long time, while every resident pays taxes that fund these projects.

#### APPROVAL OF MINUTES

April 28, 2021, Regular Meeting: A correction was noted.

**The Board approved the April 28, 2021, meeting minutes as corrected by UNANIMOUS CONSENT 8-0-0 (Aye: Cullen, Dudley, Spreg, Legal, Helsham, Stensrud, Kahele, Ferreira; Nay: None; Abstain: None).**

Correction: Page 4 Hawaii Community Development Authority (HCDA) – Strike out all instances of “Francine Murray” and replace with “Tessa Malama”.

March 24, 2021, Regular Meeting: A number of corrections were noted.

**The Board approved the March 24, 2021, meeting minutes as corrected by UNANIMOUS CONSENT 8-0-0**  
(**Aye:** Cullen, Dudley, Spreg, Legal, Helsham, Stensrud, Kahele, Ferreira; **Nay:** None; **Abstain:** None).

Corrections:

1. Page 1 Guests – Strike out all instances of “Gentry Pacific Design Center” and replace with “Gentry Homes”.
2. Page 1 Guests – Following “John Shaw” include “(Senior VP – Architecture, Gentry Homes).”
3. Page 3 Board Business – Strike out “by Gentry”.
4. Page 3 Board Business – Following “Debbie Luning” include “and John Shaw: Luning and Shaw presented information on a new residential development in Kalaeloa and took questions.”
5. Page 3 Board Business – Following “City and County” strike “developer”.
6. Page 3 Board Business – Following “three (3)” include “vehicular”.
7. Page 3 Board Business – Strike out “however they need to go through City and County for adequate road space”.
8. Page 3 Board Business – Following “Expansion Plans:” strike the sentence and replace with “Ferreira inquired and Luning replied plans to improve surrounding roadways are being developed by HUNT.”
9. Page 3 Board Business – Strike out “about the future trash site” and replace with “whether Gentry has plans to build a landfill”.

COMMUNITY/BOARD CONCERNS & ANNOUNCEMENTS

Radical Hale: England announced that Radical Hale is a new outreach program for the homeless community. For more information visit or call: [www.radicalhale.org](http://www.radicalhale.org), [theradicalhale@gmail.com](mailto:theradicalhale@gmail.com) or (808) 277-4536.

Barber’s Point Memorial Dedication: Ferreira announced that Sunday, June 6, 2021 at 9:00 a.m. there is a Barber’s Point Memorial dedication at the Control Tower for completion of the project.

Hawaii Housing Finance & Development Corporation (HHFDC): Stensrud reported that the community is concerned with HHFDC’s operations. Witnesses have reported that the contractors working on repairing sidewalks have closed down both sides of the street sidewalks, forcing pedestrians and children to walk in the road. Another complaint was that contractors damaged residents’ irrigation systems and covered up the damage with dirt, only to be discovered by the residents later on.

Hurricanes: Dudley commented that hurricane season starts next month and is concerned that no one is well-prepared for a large natural disaster. Dudley recommended that some of the incoming federal funding be used for hurricane preparations.

Senior Tricycle Rides: Rodgers announced that the Senior Tricycle Rides on the Pearl Harbor historic trail have begun regular operations for those 50 years-of-age and older. To view the schedule and more information visit or call: [www.hbl.org/seniors](http://www.hbl.org/seniors) or (808) 735-5756 (John Rodgers).

Kapolei Regional Park: Residents have complained that the park’s maintenance standards are diminishing and would like to see the park in better conditions. Residents have sent emails to the Parks Department without success.

STATE MONTHLY REPORTS

U.S. Congressman Ed Case: There was no representative, no report given.

U.S. Congressman Kai Kahele’s Representative: Ikaika Mahoe reported the following.

- House Representatives (HR) 2878: Congress voted yes, allowing eligible veterans to use G.I. Bill style benefits to attend innovative job training programs and prepare them for future employment in the technology industry.
- Covid-19 Hate Crimes Act: Congressman Kahele attended President Biden’s signing of the Covid-19 Hate Crimes Act into law.
- Memorial: Congressman Kahele visited the Arlington National cemetery to lay memorial wreaths on the tomb of unknown soldiers with fellow congressional colleagues.
- Wounded Warrior Fellowship: Hawaii District Office granted a two (2) year fellowship for eligible wounded warriors. For more information and to apply you can visit: <https://kahele.house.gov/woundedwarrior>.

Governor David Ige's Representative: Robert Yu (Department of Budget and Finance) was unable to attend the meeting. Chair Legal reported the following.

- Interisland vaccination travel protocol: Beginning May 11, 2021, only vaccinated individuals who received their shots in Hawaii will be able to fly between the islands without travel testing or quarantine.
- Rebuild, Redefined & Recept: Hawaii Tourism Authority's new CEO makes it clear that the new strategic plan will emphasize addressing issues in a sustainable way including: destination management actions plans and taking specific, restorative actions in designated hotspots.
- Capital Improvement: Governor Ige release \$443 million dollars in capital improvement funding over the past few months for affordable rental housing, modernization of the unemployment insurance system, major innovations for schools, upgrades to public housing, upgrades to airports and for state emergencies.

Highways Division, Department of Transportation (DOT): Karen Chun (Design Branch Head) reported that the Farrington Highway Widening Project is moving forward with operations and they are getting ready to bid on the project in August 2021.

State Senator Mike Gabbard's Representative: Meg Turner (Community Liaison) reported the following.

- Legislative Session: The 2021 Legislative Session has ended. Leading into the session we were facing a \$1.4 billion dollar deficit over the next four (4) years, however, due to the American Rescue Plan funds we received over \$1.2 billion dollars which prevented a financial catastrophe at the capital. For 2021, the total bills introduced in the House and Senate were 2,820, and of those 265 passed the legislature and 19 have been signed by the governor. Of the remaining bills, the Governor has three (3) options: (1) sign the bills by July 6, 2021, and they become law and are given a number and act number; (2) notify the legislature by June 21, 2021, if he plans to veto the bill; (3) do neither, in which case the bill becomes law.

Questions, comments and concerns followed: Money: Dudley asked when the legislative session has ended, is there anyway organizations or individuals can get help to apply for grants to get that federal money. Turner responded that she and the Senator will work with those who reach out to them to get some form of assistance.

State Senator Maile Shimabukuro's Representative: Patrice Tanna reported the following.

- Food Pick-Up: Waianae Coast Comprehensive Health Center is still offering the keiki and kapuna food options Monday thru Friday.
- Hawaii P-EBT: Operational again and provides up to \$143/per child per month and goes back to October 1, 2021. The number to apply is: 1(888) 975-7328.
- Vaccinations: Kaiser is offering Covid-19 vaccinations at Consolidated Theaters in Kapolei.
- More Information: View the newsletter at: <http://bitly.com/NB-2021-05-Kapolei>.

State Representative Sharon Har's Representative: Jeannie Hirabara reported the following.

- New Medical Office: Kaiser Permanente's West O'ahu Medical Office in Kapolei.
- Hawai'i State Veterans Home: Blessing will be held on Monday, May 31, 2021, and it will be named after Daniel K. Akaka. The project will begin in June 2021 and is estimated to be completed in 2023.
- Legislative Survey: Thank you to everyone who filled out the survey. The top three (3) issues to the public are: (1) affordable housing and rentals; (2) job creation in a robust economy; (3) homeless issues.

State Representative Ty Cullen: There was no representative. The report was shared and included the following.

- New Humane Society: The Hawaiian Humane Society West O'ahu is a five (5)-acre parcel on Fort Weaver Road and is expected to open to the public in the beginning of 2023.
- Kupuna Hotline: O'ahu kupuna, age 65 and above, can now call 211 between 7:00 a.m. to 10:00 p.m. seven (7) days a week to set an appointment for their Covid-19 vaccine.

State Representative Stacelynn K.M. Eli's Representative: Soana Tupua-Fanoga reported the following.

- New Humane Society: The Hawaiian Humane Society West O'ahu is a five (5)-acre parcel on Fort Weaver Road and is expected to open to the public in the beginning of 2023.
- House Concurrent Resolution (HCR) 11: Creation of a task force to study missing and murdered native Hawaiian women and girls. HCR 11 was passed.
- More Information: View the newsletter at:  
<https://www.capitol.hawaii.gov/memberpage.aspx?member=Eli&year=2021>

Hawaii Community Development Authority (HCDA): Tesha Malama reported an update on the Kalaeloa development plan. The developers continued to meet with stakeholders and intend to have their consultants on island in the last week of June or first week of July, so they will announce that meeting date and more information soon. The stakeholder group regarding the Kalaeloa Tenants and Public Safety groups were combined into one meeting which will be held virtually on June 10, 2021. Those interested in participating can contact Tesha Malama at: [tesha.malama@hawaii.gov](mailto:tesha.malama@hawaii.gov) or (808) 372-3562.

#### BOARD BUSINESS

Element Hotel Project: Jim Stone and Tracy Camuso (G70) reported the following.

- Project Purpose: Hotel lodging service (205 units) in Kapolei aimed at providing accommodation in a residential-type setting at affordable rates for locals and visitors. To meet the demand for hotels in the growing Kapolei area.
- Location: Manawai Street in Kapolei, Hawai'i, within the Leihano at Kapolei mixed use community. The landowner is Kapolei Hotel Partners III LLC. Surrounding uses include Business and Residential.
- Zoning: State Land Use District: Urban. City & County of Honolulu: BMX-3, Community Business Mixed Use. 'Ewa Development Plan (2013) Urban Land Use Map: City of Kapolei (Medium & High Density Residential & Commercial).
- Design: 205 lodging units, Multi-functional lobby area, Breakfast area, Motion Fitness Center, Swimming pool and whirlpool, Retail, Meeting space with storage, Administration Facilities, Maintenance Facilities, Laundry services.
- Next Steps: Submit CUP application (June 2021) then the Department of Permitting & Planning (DPP) will review and approve or decline the project (September 2021).

Questions, comments and concerns followed. Solar & Handicap: Dudley asked about solar panels and handicap accessibility. Stone responded that Marriott will follow all guidelines and restrictions for handicap accessibility and the latest idea for solar panels is to build them above the parking lot to provide shading for vehicles.

Mahi Solar Project: Wren Wescoatt (Longroad Energy) reported the following.

- Transition to Clean Energy: Hawai'i has set a goal of generating 100% of electricity from renewable energy. Replacing coal-burning power plant in 2022. Replacing all oil-burning generation by 2045. Hawaiian Electric RFP in 2019 and selected 8 solar/battery projects on O'ahu. Mahi Solar was selected as the largest project with lowest energy prices. Residents will be using cleaner energy and at a cheaper cost.
- Location: West of Kunia Road, Mauka of Royal Kunia and downhill from Kunia Loa Ridge Farmlands.
- Benefits: 120 mega-watts (MW) of energy, powering about 37,000 homes. Farmers will continue to farm their best land, while leasing the less productive area for solar farming.
- Studies: Traffic study, Reflective analysis, Geotechnical investigations, Boundary survey, Archaeological assessment, Analysis of cultural practices, Biological assessment, Hydrology analysis, Visual simulations.
- Permits: Special Use Permit, Conditional Use Permit (Minor), Grading Permits, Building Permits.
- Schedule: Permitting and Planning in 2021, Construction in 2022, Testing and Opening in 2023.
- Contact: visit [www.longroadenergy.com/mahi](http://www.longroadenergy.com/mahi) or email [mahisolar@longroadenergy.com](mailto:mahisolar@longroadenergy.com).

Questions, comments and concerns followed. Opposed: Dudley opined that the farm land should be reserved for farming and solar should be installed on roofs.

Install Removable School Crossing Sign at School Crosswalk: Pastor Mel Corpuz requested the approval of the Makakilo/Kapolei/Honokai Hale Neighborhood Board for Makakilo Elementary School to install pedestrian crossing signs in the middle of the road and a raised crosswalk on Palailai Street and Anipeahi Street.

**Helsham MOVED and Kahele SECONDED the Motion in support of Pastor Mel Corpuz's efforts to install crossing signs, raised crosswalks &/or crosswalk lighting to make crossing safer and to help mitigate traffic speed on Palailai Street and Anipeahi Street.**

Discussion: Opposed: Dudley opined that there are other options and a raised crosswalk would not solve the problem.

**The Motion was ADOPTED 8-1-0 (Aye: Cullen, Spreng, Legal, Helsham, Stensrud, Kahele, Ferreira; Nay: Dudley; Abstain: None).**

VA Clinic Project Update: Tony Gaston (Hunt Companies) gave an update on the traffic route and Barber's Point Elementary School bus route during construction beginning late June 2021.

Questions, comments and concerns followed. Contractor: Genadio asked if the roadway improvements will involve TIP. Gaston responded that TIP is not involved, the improvements are being installed and paid for by HUNT.

**Helsham MOVED and Kahele SECONDED the Motion to support the approval and accelerated development of the Advanced Leeward Outpatient Healthcare Access Clinic in Kalaeloa to meet the required VA timeline. The Motion was ADOPTED by UNANIMOUS CONSENT 7-0-0 (Aye: Cullen, Dudley, Speg, Legal, Helsham, Stensrud, Kahele; Nay: None; Abstain: None).**

TREASURER'S REPORTS: The remaining balance was \$231.93.

COMMITTEE REPORTS: There were no reports.

#### ANNOUNCEMENTS

Next Scheduled Meeting: The Makakilo/Kapolei/Honokai Hale Neighborhood Board No.34's next scheduled meeting will be held on Wednesday, June 23, 2021 via Webex.

ADJOURNMENT: The meeting adjourned at 9:28 p.m.

Submitted by: Dylan Buck, Neighborhood Assistant

Reviewed by: Spencer Johnson, Neighborhood Assistant

Finalized by:



# ***APPENDIX E3***

***Makakilo / Kapolei / Honokai Hale***

***Neighborhood Board No. 34***

***Meeting Agenda***

***September 22, 2021***



## MAKAKILO/ KAPOLEI/ HONOKAI HALE NEIGHBORHOOD BOARD NO. 34

c/o NEIGHBORHOOD COMMISSION • 925 DILLINGHAM BOULEVARD, SUITE 160 • HONOLULU, HAWAII 96817  
TEL: (808) 768-3710 • FAX: (808) 768-3711 • INTERNET: <http://www.honolulu.gov/nco>

### **REGULAR MEETING AGENDA** **WEDNESDAY, SEPTEMBER 22, 2021** **7:00 P.M. – 9:45 P.M.** **VIRTUAL VIA WEBEX**

Meeting Link: <https://cchnl.webex.com/cchnl/j.php?MTID=m886254e7b52ddddd7d3ae603d00af05d9>

Meeting Number: 2484 851 6773

Password: NB34 (6234 from phones and video systems)

Join by video system: Dial [24848516773@cchnl.webex.com](mailto:24848516773@cchnl.webex.com)

Join by phone: +1-408-418-9388 United States Toll

#### **MEETING POLICIES**

**RULES OF SPEAKING:** Makakilo/Kapolei/Honokai Hale Neighborhood Board No. 34 asks if anyone wishing to speak is asked to raise their hand, and when recognized by the Chair to address comments to the Chair. §2-14-117 Order and decorum. (a) All board members shall promote and preserve the order and decorum of the commission's proceedings. Time allowances will prevail at the noted limits and anyone wanting to comment on multiple items will be allowed to do so with the same time limit allowed per issue/item when the issue/item is called. All speakers are asked to be first recognized by the Chair, and address comments through the Chair. Speakers (community and Board), must keep their comments under one (1) minute (adopted December 5, 2005), and those giving reports are urged to keep their reports under three (3) minutes unless otherwise noted. Written reports, flyers, information pertinent to reports are to be handed out PRIOR to presentation/discussion. Please silence all electronic devices. Please adhere to time limits.

**NOTE:** The Board may take action on any agenda item. As required by the State Sunshine Law (HRS 92), specific issues not noted on this agenda cannot be voted on unless added to the agenda.

**ORDER AND DECORUM:** Our meetings are intended to act with fairness and order, and according to the 2008 Neighborhood Plan. Everyone is asked to treat each speaker with respect and keep their comments on **agenda subjects** within the time allowed. Your kokua is appreciated to avoid delays or timely adjournment of the meeting. Rules of decorum will be strictly enforced.

#### **WELCOME**

##### **I. CALL TO ORDER – Chair Anthony Makana Paris**

##### **II. ROLL CALL – Neighborhood Board Assistant**

##### **III. INITIAL MEETING PROCEDURES**

- A. Election of Board Officers [Vice Chair]
- B. Formation of Committees [Environmental Justice Committee]

##### **IV. CITY MONTHLY REPORTS**

- A. Honolulu Fire Department (HFD) - Duty Officer
- B. Honolulu Police Department (HPD) - Duty Officer
- C. Board of Water Supply - Rian Adachi
- D. Mayor Rick Blangiardi Representative - Jerry Pupillo
- E. Councilmember Andria Tupola and/or Representative
- F. OMPO Report - Frank Genadio

##### **V. APPROVAL OF MINUTES FROM THE AUGUST 25, 2021 BOARD MEETING**

- VI. COMMUNITY/BOARD CONCERNS & ANNOUNCEMENTS** (Limited to one (1) minute each per person in totality. Issues concerning and/or needing elected official's or agency input/comments and related issues are to be discussed at the relative portion of the agenda. Issues and concerns not listed elsewhere on the Board's agenda may be raised, but HRS Chapter 92 ("Sunshine Law") prohibits Board action from being taken during this meeting).

**VII. STATE MONTHLY REPORTS – (Limited to two (2) minutes each, unless otherwise requested) *If there are any printed reports and/or flyers that need to be disseminated, please do so before start of meeting (or as early as possible) so Board members have adequate time to brief themselves with your material and information.***

- A. U.S. Congressman Ed Case - Nestor Garcia
- B. U.S. Congressman Kai Kahele and/or Representative
- C. Governor David Ige's Representative - Robert Yu, Department of Budget and Finance
- D. Highways Division, DOT - Karen Chun, Design Branch Head
- E. State Senator Mike Gabbard or designated office representative
- F. State Senator Maile Shimabukuro or designated office representative
- G. State Representative Sharon Har or designated office representative
- H. State Representative Ty Cullen or designated office representative
- I. State Representative Stacelynn K.M. Eli or designated office representative
- J. Hawaii Community Development Authority (HCDA) - Tesha Malama

**VIII. BOARD BUSINESS (10 minutes limit unless otherwise noted) Discussion and Action**

- A. Supporting the liquor license application for the Consolidated Hawaii's Theatres' Olino Theatre in Kapolei

**IX. PRESENTATIONS**

- A. Update by Tritium3 on the Palailai Solar Project - Ryan McCauley
- B. Update by Gentry Kalaeloa, LLC on a planned 390-unit residential community in Kalaeloa - Debra M. A. Luning

**X. TREASURER'S REPORT**

**XI. COMMITTEE REPORTS – (Limited to two (2) minutes each)**

- A. Transportation Committee - Michael Ferreira
- B. Parks & Recreation – Mikiala Lidstone

**XII. ANNOUNCEMENTS**

- Next Scheduled Meeting – The Makakilo/Kapolei/Honokai Hale Neighborhood Board No. 34's next scheduled meeting will be held on Wednesday, October 27, 2021.

**XIII. ADJOURNMENT**

'Olelo Community Television Cablecast of Board Meetings: The Makakilo/Kapolei/Honokai Hale Neighborhood Board regular meetings are video recorded and later on 'Olelo Community Television Channel 49 at 9:00 p.m. on the second Friday of the month and on Channel 49 with a schedule of the 1st and 3rd Saturday of the month at 12:00 p.m. determined by 'Olelo. There may be a week or two (2) delay after a meeting date before the first cablecast of that meeting's video. The 'Olelo program schedule is posted at <http://www.olelo.org/programming/default.html>

A mailing list is maintained for interested persons and agencies to receive this board's agenda and minutes. Additions, corrections, and deletions to the mailing list may be directed to the Neighborhood Commission Office (NCO) at Kapalama Hale, 925 Dillingham Boulevard, Suite 160 Honolulu, Hawaii 96817; Telephone (808) 768-3710 Fax (808) 768-3711. Agendas and minutes are also available on the internet at [www.honolulu.gov/nco](http://www.honolulu.gov/nco).

All written testimony must be received in the Neighborhood Commission Office 48 hours prior to the meeting. If within 48 hours, written and/or oral testimony may be submitted directly to the board at the meeting. If submitting written testimony, please note the board and agenda item(s) your testimony concerns. Send to: Neighborhood Commission Office, 925 Dillingham Boulevard, Suite 160 Honolulu, Hawaii 96817. Fax: (808) 768-3711. Email: [nbtestimony@honolulu.gov](mailto:nbtestimony@honolulu.gov).

If you require special assistance, auxiliary aid and/or service to participate in this event (i.e. sign language interpreter; interpreter for language other than English, or wheelchair accessibility), please contact the NCO at (808) 768-3710 or email your request to [nco@honolulu.gov](mailto:nco@honolulu.gov) at least three (3) business days prior to the meeting.

# ***APPENDIX E4***

***Makakilo / Kapolei / Honokai Hale***

***Neighborhood Board No. 34***

***October 27, 2021 Meeting Agenda***



## MAKAKILO/ KAPOLEI/ HONOKAI HALE NEIGHBORHOOD BOARD NO. 34

c/o NEIGHBORHOOD COMMISSION • 925 DILLINGHAM BOULEVARD, SUITE 160 • HONOLULU, HAWAII 96817  
TEL: (808) 768-3710 • FAX: (808) 768-3711 • INTERNET: <http://www.honolulu.gov/nco>

### **REGULAR MEETING AGENDA** **WEDNESDAY, OCTOBER 27, 2021** **7:00 P.M. – 9:45 P.M.** **VIRTUAL VIA WEBEX**

Meeting Link: <https://cchnl.webex.com/cchnl/j.php?MTID=m3f5f85d972a18fb21b76e59e1310152f>

Meeting Number: 2493 917 8002

Password: NB34 (6234 from phones and video systems)

Join by video system: Dial [24939178002@cchnl.webex.com](mailto:24939178002@cchnl.webex.com)

Join by phone: +1-408-418-9388 United States Toll

#### **MEETING POLICIES**

**RULES OF SPEAKING:** Makakilo/Kapolei/Honokai Hale Neighborhood Board No. 34 asks if anyone wishing to speak is asked to raise their hand, and when recognized by the Chair to address comments to the Chair. §2-14-117 Order and decorum. (a) All board members shall promote and preserve the order and decorum of the commission's proceedings. Time allowances will prevail at the noted limits and anyone wanting to comment on multiple items will be allowed to do so with the same time limit allowed per issue/item when the issue/item is called. All speakers are asked to be first recognized by the Chair, and address comments through the Chair. Speakers (community and Board), must keep their comments under one (1) minute (adopted December 5, 2005), and those giving reports are urged to keep their reports under three (3) minutes unless otherwise noted. Written reports, flyers, information pertinent to reports are to be handed out PRIOR to presentation/discussion. Please silence all electronic devices. Please adhere to time limits.

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**ORDER AND DECORUM:** Our meetings are intended to act with fairness and order, and according to the 2008 Neighborhood Plan. Everyone is asked to treat each speaker with respect and keep their comments on **agenda subjects** within the time allowed. Your kokua is appreciated to avoid delays or timely adjournment of the meeting. Rules of decorum will be strictly enforced.

#### **WELCOME**

##### **I. CALL TO ORDER – Chair Anthony Makana Paris**

##### **II. ROLL CALL – Neighborhood Board Assistant**

##### **III. CITY MONTHLY REPORTS**

- A. Honolulu Fire Department (HFD) - Duty Officer
- B. Honolulu Police Department (HPD) - Duty Officer
- C. Board of Water Supply - Rian Adachi
- D. Mayor Rick Blangiardi Representative - Jerry Pupillo
- E. Councilmember Andria Tupola and/or Representative - Braedon Wilkerson
- F. OMPO Report - Frank Genadio

##### **IV. APPROVAL OF MINUTES FROM THE SEPTEMBER 22, 2021 BOARD MEETING**

- V. COMMUNITY/BOARD CONCERNS & ANNOUNCEMENTS** (Limited to one (1) minute each per person in totality. Issues concerning and/or needing elected official's or agency input/comments and related issues are to be discussed at the relative portion of the agenda. Issues and concerns not listed elsewhere on the Board's agenda may be raised, but HRS Chapter 92 ("Sunshine Law") prohibits Board action from being taken during this meeting.)

- VI. STATE MONTHLY REPORTS – (Limited to two (2) minutes each, unless otherwise requested) If there are any printed reports and/or flyers that need to be disseminated, please do so before start of meeting (or as early as possible) so Board members have adequate time to brief themselves with your material and information.**

- A. U.S. Congressman Ed Case - Nestor Garcia



- B. U.S. Congressman Kai Kahele and/or Representative
- C. Governor David Ige's Representative - Robert Yu, Department of Budget and Finance
- D. Highways Division, DOT - Karen Chun, Design Branch Head
- E. State Senator Mike Gabbard or designated office representative
- F. State Senator Maile Shimabukuro or designated office representative
- G. State Representative Sharon Har or designated office representative
- H. State Representative Ty Cullen or designated office representative
- I. State Representative Stacelynn K.M. Eli or designated office representative
- J. Hawaii Community Development Authority (HCDA) - Tesha Malama

**VII. BOARD BUSINESS (10 minutes limit unless otherwise noted) Discussion and Action**

**VIII. PRESENTATIONS**

- A. Proposed Storm Water Utility - Roger Babcock, Director for the City and County Storm Water Quality Division, and Juli Beth "JB" Hinds of Birchline Planning
- B. Update by Gentry Kalaeloa, LLC on a planned 390-unit residential community in Kalaeloa - Debra M. A. Luning
- C. Update by HECO on a new substation to be built in the developing Ho'opili community - Weston Nakoa Garcia, PMP
- D. Update on AT&T Small Cell Deployment on Street Lights - Paul Alderete

**IX. TREASURER'S REPORT**

**X. COMMITTEE REPORTS – (Limited to two (2) minutes each)**

- A. Transportation Committee - Michael Ferreira
- B. Parks & Recreation – Mikiala Lindstone
- C. Environmental Justice – Dr. Kioni Dudley

**XI. ANNOUNCEMENTS**

- Next Scheduled Meeting – The Makakilo/Kapolei/Honokai Hale Neighborhood Board No. 34 will be recessing in November 2021, the next scheduled meeting will be held on Wednesday, December 1, 2021 at 7:00 p.m.

**XII. ADJOURNMENT**

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# **APPENDIX F**

## ***HCDA Interpretation Relating to the State of Hawaii Requirements for Visual Light Transmission and Solar Heat Gain Coefficient***



# HAWAII COMMUNITY DEVELOPMENT AUTHORITY

547 Queen Street, Honolulu, Hawaii 96813  
Telephone: (808) 594-0300 Fax: (808) 587-0299  
Web site: <http://dbedt.hawaii.gov/hcda/>

DAVID Y. IGE  
GOVERNOR

JASON OKUHAMA  
CHAIR

DEEPAK NEUPANE, P.E., AIA  
EXECUTIVE DIRECTOR

Ref No. INT 2-21

October 21, 2021

## INTERPRETATION RELATING TO THE STATE OF HAWAII REQUIREMENTS FOR VISUAL LIGHT TRANSMISSION AND SOLAR HEAT GAIN COEFFICIENT

Kalaeloa Community Development District (“KCDD”) Rules  
Hawaii Administrative Rules (“HAR”) Chapter 215

### Rule References:

KCDD Rules, HAR §15-215-43(h)(2), establishes visual light transmission (“VLT”) levels for new building windows in the KCDD. VLT indexes the percentage of visible light that can pass through a window. A higher VLT percentage indicates more visual light transmission, which makes glass more transparent. Pursuant to the KCDD Rules, the VLT for ground level windows is required to be seventy percent (70%) or greater and the VLT for all other floors shall be fifty percent (50%) or greater.

State Energy Conservation Code, HAR, §3-181.1 (“Energy Code”), establishes solar heat gain coefficient (“SHGC”) requirements for new building windows in Hawaii. SHGC indexes the percentage of solar heat that can pass through a window. A lower SHGC indicates less solar heat transmission, which reduces the potential of a building’s interior from warming up from the sun. The Energy Code requirement for SHGC varies, depending on several building conditions such as a window location and window overhang projections, but the Energy Code generally requires a lower SHGC.

### Problem Statement:

The VLT requirements in KCDD Rules are intended to allow for an increased visual connection between the outside and the inside of a building. However, an increase in the amount of visual light that passes through a window also correlates with an increase in the amount of solar heat that passes through the glass. As a result, windows that have higher VLT also tend to have a higher SHGC.

Since the KCDD Rules require higher VLT and the Energy Code requires a lower SHGC, this results in a very limited number of window products available for use on a building in the KCDD. In the case of ground level windows, HCDA staff has yet to find a window product that complies with both the KCDD Rules and the Energy Code requirements. Therefore, flexibility is needed from the strict compliance of the VLT provisions in HAR, §15-215-43(h)(2).

Statement of Interpretation and Justification:

HAR §15-215-5(i), Rules of Interpretation provides that:

*“Whenever the executive director determines that the meaning or applicability of any requirement of the rules is subject to interpretation generally or as applied to a specific case, the executive director may issue an official interpretation.”*

The following KCDD Rules interpretation is established to allow for reasonable reduction in the VLT requirements, while still meeting the intent of the KCDD Rules and allowing for Energy Code compliance:

Windows shall have the highest reasonably possible VLT level, while still complying with the Energy Code requirements for SHGC. Applicants shall submit, for the executive director’s review and acceptance, all window specifications for buildings that propose reducing the window VLT level below seventy (70%) at ground level and fifty percent (50%) for all other floors.



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Deepak Neupane, P.E., AIA  
Executive Director

## **APPENDIX G**

***Letter from Hunt Communities Hawaii, LLC***





Hunt Communities Hawaii, LLC  
737 Bishop Street, Suite 2750  
Honolulu, Hawaii 96813  
808-585-7900

October 25, 2021

Mr. Deepak Neupane, PE, AIA, MBA  
Executive Director  
Hawaii Community Development Authority  
547 Queen Street  
Honolulu, HI 96813

**RE: SUBDIVISION ROADWAY IMPROVEMENTS** Surrounding Hunt's Parcel 1 in Kalaeloa (TMK: 9-1-13:002)

Dear Mr. Neupane:

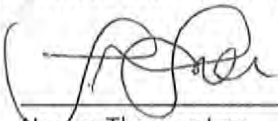
This is to confirm that Hunt Communities Hawaii has agreed to complete the improvements for roadways surrounding Parcel 1 within the Kalaeloa Community Development District, including planting of street trees ("subdivision improvements"). These roadways, including Franklin D. Roosevelt Avenue, Copahee Avenue, Realigned Boxer Road (future Saratoga Avenue extension) and West Perimeter Road (Kamokila Boulevard extension), will be built to City standards and will be dedicated to the City upon completion.

Roadway improvements are anticipated to be completed prior to the issuance of the first Certificate of Occupancy in Ka'ulu in 2023.

If you have questions or need additional information, please feel free to call me at (808) 792- 3760 or by email at [Thomas.lee@huntcompanies.com](mailto:Thomas.lee@huntcompanies.com).

Sincerely,

**Hunt Communities Hawaii, LLC**  
a Hawaii limited liability company

By:   
Name: Thomas Lee  
Its: Vice President

Enclosures

cc: Quentin Machida, Gentry Homes  
Tessa Malama, HCDA  
Tom Schnell, PBR HAWAII