PM TOW-AWAY ZONE HOURS MODIFICATION STUDY

DOWNTOWN/CHINATOWN AND URBAN CORE STUDY AREAS

HONOLULU, OAHU, HAWAII

FINAL

April 27, 2021

Prepared for:
City and County of Honolulu
Department of Transportation Services
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Prepared by Austin, Tsutsumi and Associates in Cooperation with the Oahu Metropolitan Planning Organization and the United States Department of Transportation.

This report was funded in part through grants from the Federal Highway Administration and Federal Transit Administration, U.S. Department of Transportation. The views and opinions of the agency expressed herein do not necessarily state or reflect those of the U.S. Department of Transportation.

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DISCLAIMER

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EXECUTIVE SUMMARY

The city of Honolulu currently has PM Tow-Away Zone (TAZ) restrictions active between 3:30 PM – 5:30 PM at various locations throughout the Downtown and Urban Core. These TAZ restrictions are intended to provide additional travel lane capacity during the busy afternoon peak hour. The purpose of this study is to determine if traffic conditions may be improved by extending the PM TAZ hours past its current end at 5:30 PM in specific areas where they currently exist, if appropriate.

Due to differing traffic patterns and community needs, this study divides Honolulu into two distinct study areas – the Downtown/Chinatown Study Area, which includes the dense central business district in the region bound by River Street to the west, Beretania Street to the north, Richards Street to the east, and Nimitz Highway to the south – and the Urban Core Study Area, which includes a mix of commercial and high-density residential uses in the area bound by Kinau Street to the north, University Avenue to the east, Kapiolani Boulevard to the south, and Punchbowl Street to the west.

For each of the Study Areas, a parking inventory was taken to determine locations that PM TAZs currently exist. Data collection was then performed and included turning movement counts at 35 locations over the course of 3 work days, Travel Time Runs (TTR) in 20-minute intervals between 3:00 PM – 6:40 PM, and field observations over the course of the afternoon and evening. These data and observations were analyzed and synthesized to determine locations within the Study Areas where traffic operations may be improved by the extension of the PM TAZ.

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DOWNTOWN/CHINATOWN STUDY AREA

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TRAFFIC STUDY

PM PEAK TOW-AWAY ZONE TIME MODIFICATION STUDY

DOWNTOWN/CHINATOWN STUDY AREA

Honolulu, Oahu, Hawaii

1. INTRODUCTION

1.1 Location

The Downtown/Chinatown Study Area includes the region bound by River Street to the west, Beretania to the north, Richards Street to the east, and Nimitz Highway to the south. King Street, Hotel Street and Beretania Street were not studied as additional planning studies will be completed in the future for these corridors. See Figure 1.1 for the Downtown/Chinatown Study Area, hereinafter referred to as the "Study Area".

1.2 Project Description

Currently, curbside (on-street) parking is available at various locations throughout the Study Area. However, in certain locations, parking is restricted during posted hours to accommodate loading zones and high volumes during peak hours of traffic. This report will take inventory of the existing parking allowances and evaluate the operational impact of extending the PM Tow-Away Zone hours, which currently lasts from 3:30 PM – 5:30 PM. The purpose is to improve traffic operations within the Study Area while ensuring that valid parking alternatives are available to support residents and businesses who may be affected by the extension of the parking restriction.

The conditions that are reported were of the prevailing conditions as of the original writing of this report in November 2018.

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PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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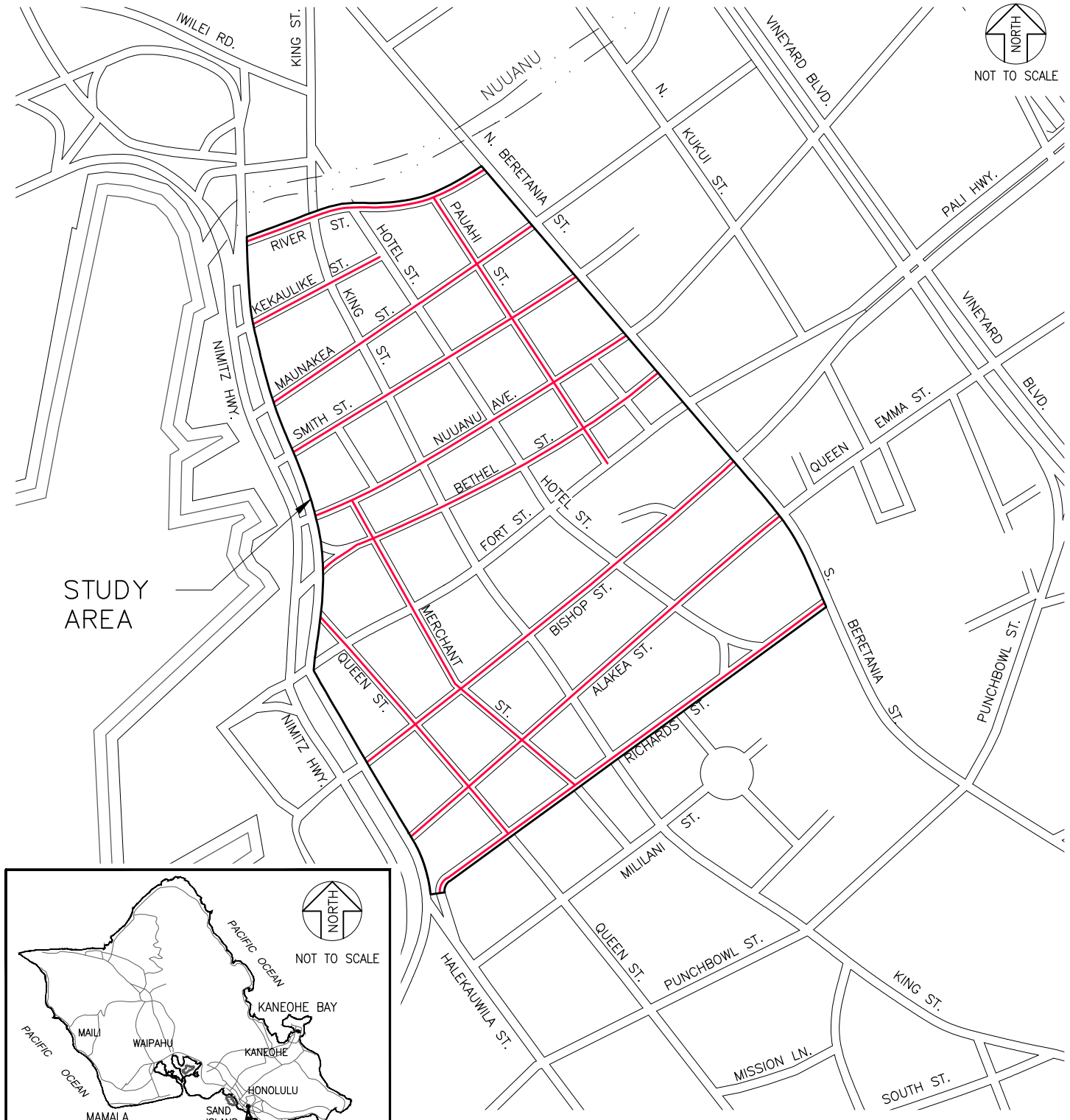

FIGURE 1.1

LOCATION MAP - DOWNTOWN

2. STUDY AREA DESCRIPTION AND VISION

The Study Area encompasses Chinatown, one of the oldest and culture-rich communities on Oahu, and Downtown, the central business district of Honolulu. The density of corporate offices, markets, bars, restaurants, local vendors, and housing in the area generates high vehicle and pedestrian traffic for the majority of the day. Toward the end of the business day, the afternoon peak traffic tends to encompass both the tail end of commuter peak traffic leaving the Downtown area and the evening dinner rush, leaving the Chinatown and Downtown streets congested and overcrowded. Throughout the day, the value of parking in the area (both on- and off-street parking) is at a premium due to high real estate value and its potentially significant impact to traffic in the high-volume area.

The density and diversity of land uses make the area an ideal hub for transit-oriented development, which will incorporate the future Honolulu Rail Transit Project to improve travel reliability and enhance the pedestrian and commuter experience while maintaining the vibrancy and culture of the community.

2.1 Rail and Transit-Oriented Development

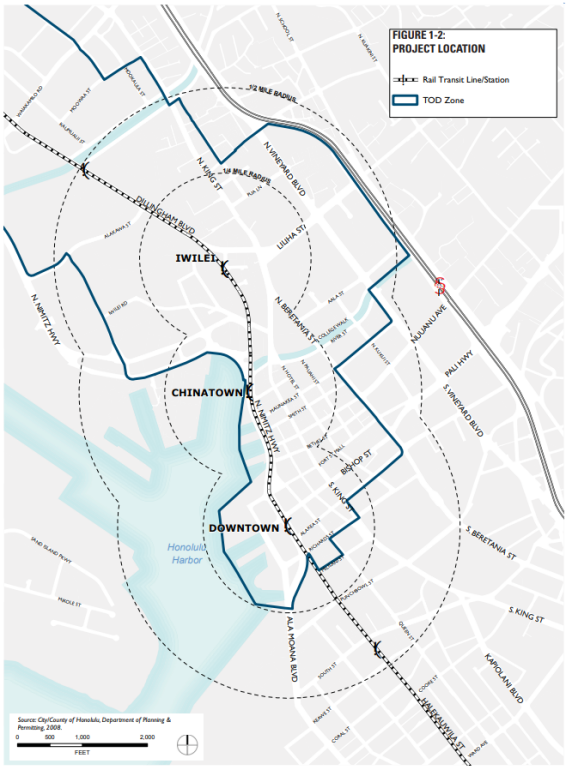

Figure 2.1: Location of Transit-Oriented (TOD) Zone and Rail Stations (from Downtown Neighborhood TOD Plan (adopted) August 2017)

The planned transformation of area into a Transit-Oriented region is detailed in the Downtown Neighborhood TOD Plan. This Plan addresses opportunities for growth and adaptive use of existing infrastructure. Community input was an important aspect of the development of the plan so that development occurs in a way that is sustainable and preserves the character and culture of the community and its members.

A community survey revealed that members perceive bicycle facilities as limited, traffic as congested, parking as lacking, and support more on-street parking. These considerations were taken into account in the development of the TOD plan for the area.

The rail line managed by the Honolulu Authority for Rapid Transportation (HART) is anticipated to extend through the Study Area and play an integral part in the connectivity and development of Chinatown/Downtown as a Transit-Oriented community. Construction on the rail is ongoing, with several rail stations in West Oahu already completed.

The Chinatown rail station will be located on the Makai side of Nimitz Highway near Kekaulike Street and the Downtown rail station will be located on the Makai side of Nimitz Highway near Alakea Street, making the majority of Chinatown and Downtown “walkable” from these stations, thereby reducing the need for commuters to use their personal vehicles to travel to and from the area.

The improved multimodal options throughout the TOD area will encourage commuters to utilize the rail lines, busses, bike lanes, and other alternate modes of transport and reduce the need for car ownership and usage in the crowded and congested streets of Chinatown and Downtown.

2.2 Complete Streets Improvements

In 2016, the City and County finalized the Complete Streets Design Manual, which was intended to guide physical design of streetscape and aims to "create a comprehensive, integrated network of streets that is safe and convenient for all people". According to the City & County of Honolulu website, the following improvements within the Study Area will be installed in the 2019-2020 construction phase, many in conjunction with road repaving projects[1]:

- Richards Street
    - Sharrows from S Beretania Street to S Hotel Street and One-way (Makai-bound) bike lane from S Hotel Street to Halekauwila Boulevard.
- Alakea Street
    - One-way (Mauka-bound) protected bike lane connecting the Hotel Street Bikeway to the King Street protected bike lane.
- Bishop Street
    - Two-way protected bicycle lane along the Diamond Head side of the street between Beretania Street and Nimitz Highway.
- Nuuanu Avenue
    - Sharrows from Merchant Street to School Street.
- Pauahi Street
    - Curb extensions to shorten crossing distances at the intersections of Pauahi Street/Smith Street, Pauahi Street/Nuuanu Avenue, and Pauahi Street/Maunakea Street.
- South King Street
    - Extension of the existing two-way protected bike lane along the mauka side of the road, between Alapai Street and Alakea Street.

Figure 2.2: Rendering of curb extensions, from the Honolulu City & County Website

As of the writing of this report, designs for these improvements have not yet been finalized, and the above proposed design features were not included in analysis. See Figure 2.3 for a map of improvements, duplicated from the Honolulu City & County Website.

[1] 'Downtown, Chinatown, and Kakaako Projects', City and County of Honolulu, October 4, 2019, http://www.honolulu.gov/completestreets/urbancore. Accessed November 5, 2019.

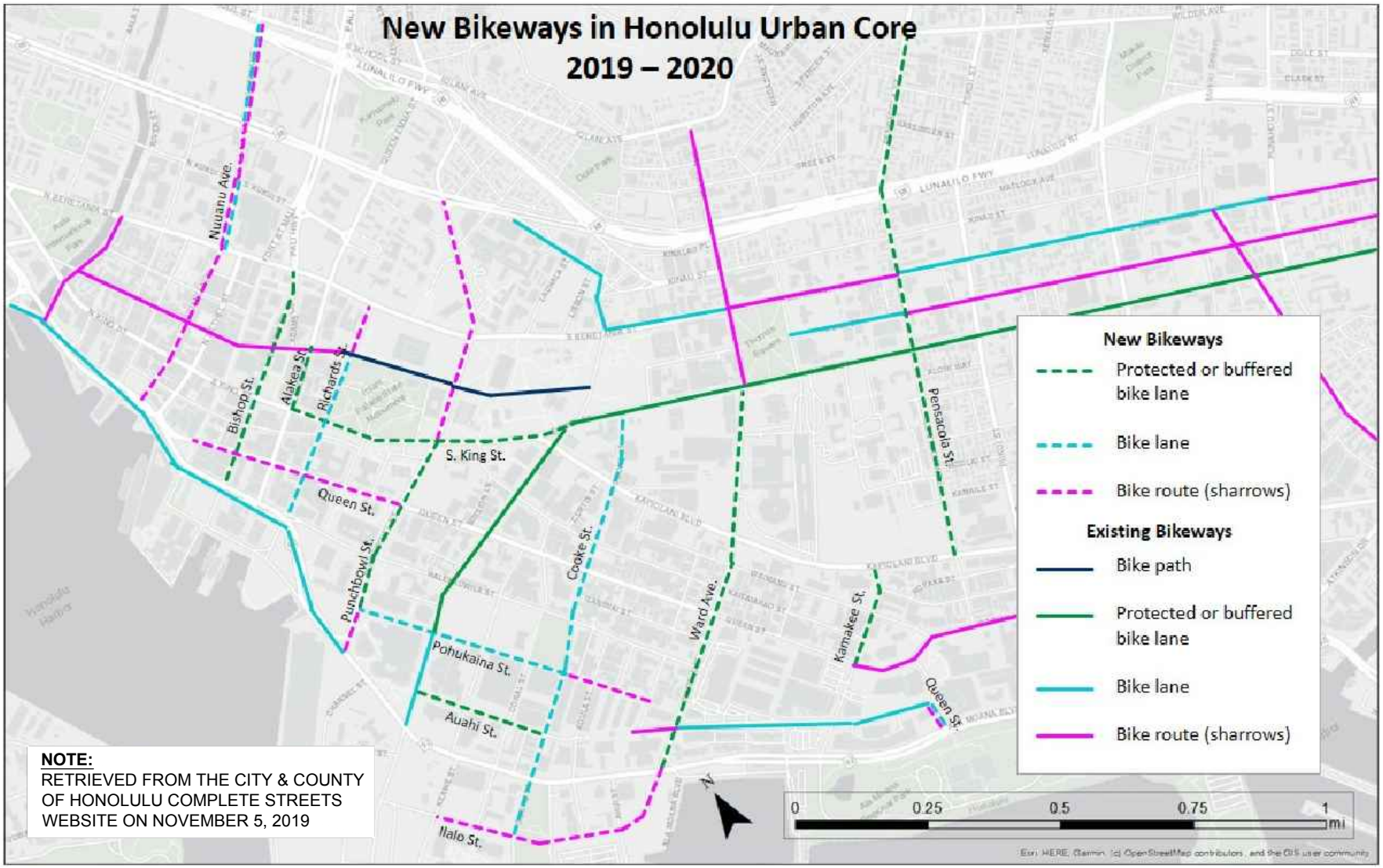

FIGURE 2.3

COMPLETE STREETS
IMPROVEMENTS

3. LITERATURE REVIEW

To date, there are no national or state-established guidelines that provide thresholds or guidance on the extension of commuter tow-away zone hours for on-street parking, though numerous major U.S. cities also enforce afternoon commuter peak parking restrictions.

A Parking Master Plan study, which was performed by Walker Parking Consultants (Walker), gives context and additional information about the existing parking ecosystem in Honolulu, which may be affected by changes in the PM Tow-Away Zone hours.

3.1 Honolulu Urban Core Parking Master Plan

In 2010, Walker Parking Consultants (Walker) was contracted by the City and County of Honolulu Department of Transportation Services (DTS) to perform analysis of parking conditions within the Urban Core of Honolulu. This study analyzed several aspects of the parking system, including inventory, enforcement and financials, and provided recommendations to improve its efficiency and revenue.

Recommendations from the Walker study which may impact the parking ecosystem in the Study Area include:

- Create a Single Source Responsibility Center: Single management would allow more consistent enforcement of management fees and audit procedures between parking garages, and allow for coordination of on-street and off-street parking.
- Upgrade Technology: Upgrade technology in parking meters to accept credit cards, and automate off-street revenue collection to reduce cashier wages and provide 24-hour revenue collection.
- Develop a Marketing and Public Relations Program: This program would allow for communication and engagement with the public to inform them of key events impacting Honolulu parking, transit and access issues through events, activities, publications, press releases and maps. Branding and the ambassador approach model would assist in recognition.
- Extend Meter Hours: Extension of the parking meter to include Sundays and public holidays was considered but not analyzed because of a lack of precedence in other major U.S. cities.
- Increase Parking Rates: Increasing parking rates would encourage use of public transportation, discourage the use of single occupancy vehicles, and increase parking revenue.
- Establish paid parking for all on-street spaces within the area including loading zone spaces
- Periodically adjust parking fees for on-street parking with a target of 85%-90% occupancy of on-street spaces on each block
- Avoid time limits and use pricing as much as possible to encourage turnover of on-street parking spaces

While the recommendations contained within the Walker study may not have direct influence or impact on the findings of this study, it is important to understand that these recommendations may

have an effect on the parking ecosystem as a whole. For example, unification of the parking enterprise, changes in meter rates and hours and upgraded pay stations may decrease utilization of on-street parking naturally, as off-street parking becomes a more viable option.

As the Honolulu parking ecosystem transforms and the needs of the Study Area changes, the locations and duration of parking restrictions should continue to be monitored for efficiency and effectiveness.

4. TASKS AND METHODOLOGY

4.1 Study Tasks

The following tasks will be completed as part of the Study:

1. Take inventory of all existing street parking stalls and hours of restriction (if any) along all streets within the Study Area as noted in Figure 1.1 and generate a comprehensive map of inventory for each Study Area.
2. Conduct travel-time-runs (TTR) throughout the corridors noted below to identify locations that should be further evaluated to determine if extension of the PM Tow-Away Zone hour restriction is feasible.
    a. Maunakea Street – Beretania Street to Nimitz Highway
    b. Nuuanu Avenue – Beretania Street to Nimitz Highway
    c. Bethel Street – Nimitz Highway to Beretania Street
    d. Bishop Street – Beretania Street to Nimitz Highway
    e. Alakea Street – Nimitz Highway to Beretania Street
3. Conduct 4-hour traffic volume counts, at one location each, along corridors listed above at five (5) consecutive days over the course of a typical work week (Monday through Friday). The volume counts collected at this time are referred to in this report as “Phase 1” counts.
4. Based on TTR data and field observations, determine up to ten (10) critical intersections within the Study Area based on TTR data and field observations and collect turning movement data counts at the critical intersections. In addition, if relevant, turning movement counts were also conducted at the next downstream signalized intersection from the critical intersections for a maximum of up to twenty (20) intersections. The volume counts collected at this time are referred to in this report as “Phase 2” counts.
5. Identify areas where modifications PM Tow-Away Zone hours may be applicable based upon results from baseline analyses.
6. Based on the above analysis, propose recommendations for modifications to existing PM Tow-Away Zone hours, where applicable. Where possible, impacts to surrounding businesses as a result of extension to the PM Tow-Away Zone hours will be determined and alternate parking locations in the surrounding area will be identified.
7. If any modifications are proposed, generate a new map of proposed parking inventory and Tow-Away Zone hours for the Study Area, highlighting areas of change or modification from existing conditions.

4.2 Study Logic and Methodology

4.2.1 Selection of Phase 1 Study Intersections

As described in (3) above, volume counts were collected at one intersection along each of the five (5) specified corridors over the course of a typical work week (Monday through Friday). Generally, these intersections were based on queueing and congestion observed in initial field

inspection. The intersections that were determined to be studied in Phase 1 along each corridor are listed below, and a map showing Phase 1 Study intersections may be found in Figure 4.1.

- Maunakea Street Corridor: Maunakea Street & King Street
- Nuuanu Avenue Corridor: Nuuanu Avenue & King Street
- Bethel Street Corridor: Bethel Street & Pauahi Street
- Bishop Street Corridor: Bishop Street & Queen Street
- Alakea Street Corridor: Alakea Street & Beretania Street

4.2.2 Selection of Phase 2 Study Intersections

As specified in (4) above, several critical intersections were determined during Phase 1, primarily based on field observations, to be studied further in Phase 2. Phase 2 intersections were specified based on two primary considerations as listed below.

- Existing Parking: Locations where on-street parking exists, which could be restricted to improve operations.
- Observed Queueing or Operational Concerns: Intersections with queues for turning movements that spill out of the "pockets" created by curbside on-street parking and into through lanes may benefit from the restriction of street parking until congestion during the afternoon peak hour subsides. However in certain cases, queueing and spillback may be a result of upstream congestion or operational issues, and restriction of on-street parking may not provide significant benefit.

After consideration, 4-hour manual turning movements were performed at the following thirteen (13) intersections. A map showing Phase 1 and Phase 2 Study intersections may be found in Figure 4.1.

- Nuuanu Street & Merchant Street
- Bethel Street & Merchant Street
- Bethel Street & King Street
- Bethel Street & Hotel Street
- Bethel Street & Pauahi Street
- Bethel Street & Beretania Street
- Bishop Street & Beretania Street
- Bishop Street & Hotel Street
- Bishop Street & King Street
- Bishop Street & Merchant Street
- Bishop Street & Queen Street
- Alakea Street & Beretania Street
- Alakea Street & Hotel Street

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

Austin Tsutsumi & ASSOCIATES, INC.
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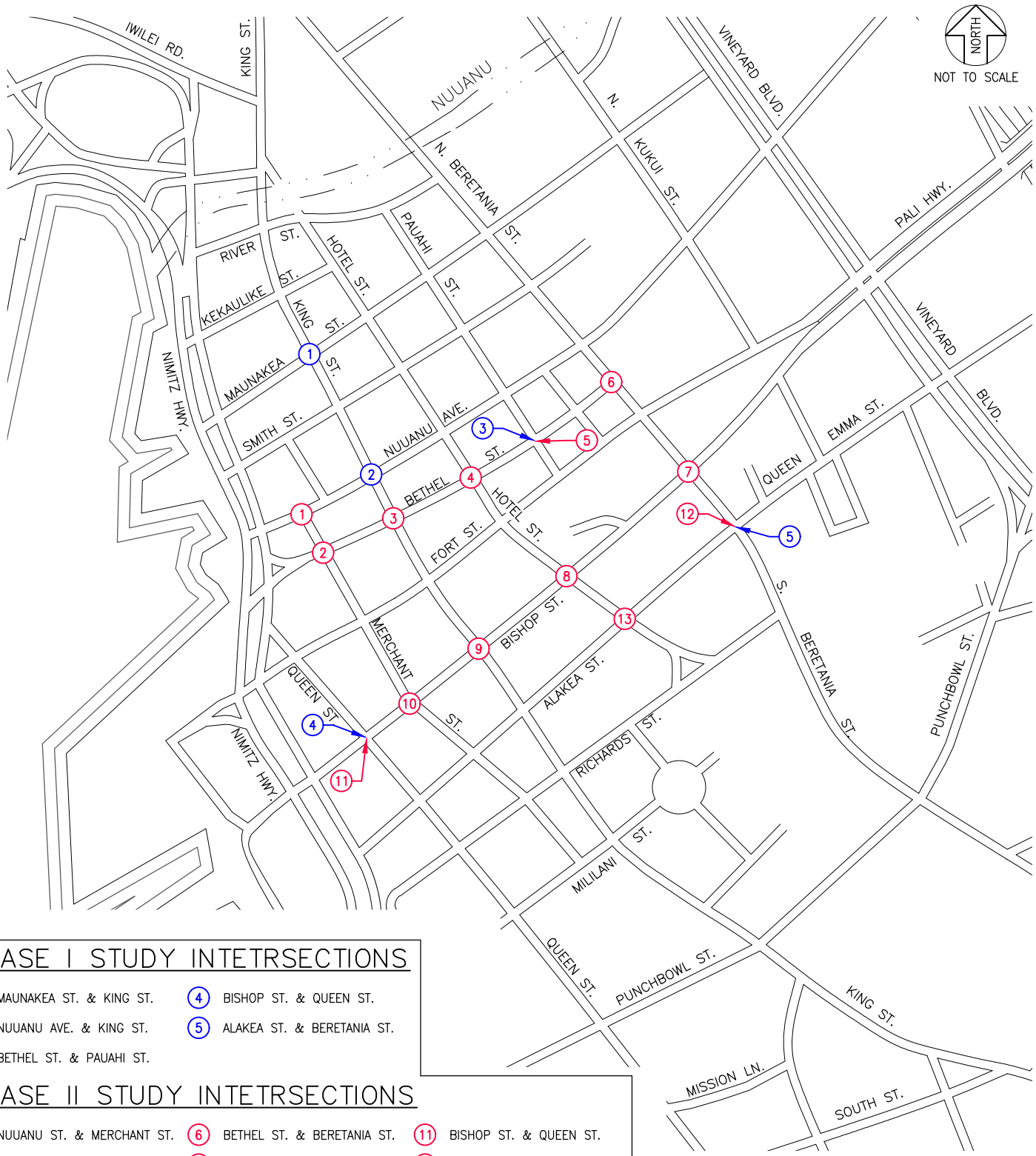


PHASE I STUDY INTETRSECTIONS

1. MAUNAKEA ST. & KING ST.
2. NUUANU AVE. & KING ST.
3. BETHEL ST. & PAUAHI ST.
4. BISHOP ST. & QUEEN ST.
5. ALAKEA ST. & BERETANIA ST.

PHASE II STUDY INTETRSECTIONS

1. NUUANU ST. & MERCHANT ST.
2. BETHEL ST. & MERCHANT ST.
3. BETHEL ST. & KING ST.
4. BETHEL ST. & HOTEL ST.
5. BETHEL ST. & PAUAHI ST.
6. BETHEL ST. & BERETANIA ST.
7. BISHOP ST. & BERETANIA ST.
8. BISHOP ST. & HOTEL ST.
9. BISHOP ST. & KING ST.
10. BISHOP ST. & MERCHANT ST.
11. BISHOP ST. & QUEEN ST.
12. ALAKEA ST. & BERETANIA ST.
13. ALAKEA ST. & HOTEL ST.

FIGURE 4.1

PHASE 1 AND 2 STUDY INTERSECTION MAP

4.2.3 Tow-Away Zone Hours Modification Analysis Methodology

Evaluation to determine if PM Tow-Away Zone hours should be extended was performed on an individual basis, due to the unique nature of each of the roadways in their capacity, utilization, and role in the network.

Note that this study focuses only on extending existing PM Tow-Away Zone (3:30 PM – 5:30 PM) hourly restrictions, and does not consider any proposed or future PM Tow-Away Zone locations, or any other Tow-Away Zone restrictions, including any AM or "Daytime" Tow-Away Zones (Tow-Away Zone restrictions during the daytime hours between 6:00 AM and 6:30 PM or 6:30 AM to 5:30 PM).

Key metrics that the roadways were evaluated against include travel time and the volume-to-capacity (v/c) ratio as described below. Significant queuing observed in the field, if any, was also a consideration.

- Travel time: The lowest travel time that was observed over all intervals throughout the three days of data collection for each corridor was assumed to be the "ideal" travel time, and represents the best possible operational scenario. Significant differences between the ideal travel time and the travel times near the current end of the PM Tow-Away Zone hours (3:30 PM – 5:30 PM) may suggest that extension of the PM Tow-Away Zone hours may improve operations.
- v/c Ratio: The v/c ratio refers to the ratio of the actual volume (v) observed on the roadway to the capacity (c) of the roadway. Lower v/c ratios indicate that the roadway is able to accommodate more vehicles with less impact to operations, while v/c ratios nearing 1.0 indicate that the roadway or intersection is already accommodating as many vehicles as possible, and increased volume would lead to breakdown of operations.

  The capacity of segments of roadway throughout the network was determined using methodology included in the Highway Capacity Manual, 6th Edition. This methodology takes into account adjustment factors which are characteristic of the roadway, including lane width, heavy vehicle percentage, grade, existence of a parking lane and parking activity adjacent to the lane group, blocking effect of busses, and area type.

  Outside of Tow-Away Zone hours, capacity is reduced by parked cars in what could potentially be a travel lane. The extension of PM Tow-Away Zone hours may decrease the v/c ratio as capacity is increased by the additional travel lane while the parking restriction is active.

- Queueing: Some lanes throughout the network which are affected by PM Tow-Away Zones are turning lanes, or shared through/turn lanes. During peak hours, the storage length for turning vehicles may be reduced by vehicles parked along the curb, and extensive queues for turning movements can spill back and affect operations of other lane groups. The extension of PM Tow-Away Zone hours may increase the storage length for these turning vehicles by restricting curbside parking until volumes abate at the end of the commuter peak hours, which can reduce queue spillback into other lanes.

Recommendations to change PM Tow-Away Zone hours, if any, aims to improve traffic operations within the Study Area while balancing its current and future needs.

5. EXISTING CONDITIONS

5.1 Roadway System

Beretania Street is a major arterial roadway that begins to the east at the intersection of University Avenue and King Street and runs westward through the Urban Core of Honolulu, Downtown and Chinatown until it terminates to the west at its intersection with North King Street. Beretania Street is a one-way westbound street which runs parallel and counter to the eastbound South King Street. In addition to regional westbound thoroughfare, Beretania Street provides access to many commercial and residential uses along its stretch. In the vicinity of the Study Area, Beretania Street is 4-6 lanes across.

Pauahi Street is an east-west, two-way, two lane, undivided roadway that provides local access within the Downtown and Chinatown area. It begins to the west at its T-intersection with River Street and ends to the east at an access alley near Fort Street Mall.

Hotel Street is an east-west, two-way, two-lane undivided bus roadway that begins to the east at its intersection with Richards Street and runs westward where it terminates at its intersection with North King Street. Hotel Street is mainly restricted to busses and bikes.

North/South King Street is a major one-way arterial roadway that begins to the west at its intersection with Puuloa Road as North King Street and extends eastward through Chinatown until its intersection with Nuuanu Avenue, where it becomes South King Street. South King Street continues eastward through the Urban Core of Honolulu until its intersection with Kapiolani Boulevard. North/South King Street provides east-west regional access and serves many businesses and residences along its stretch.

Merchant Street is a one-way, three-lane, east-west roadway that begins to the west at its intersection with Nuuanu Avenue and runs eastward through the Urban Core of Honolulu and Downtown until it terminates at its intersection with Mililani Street near Aliiolani Hale. Merchant Street becomes a two-lane roadway at its intersection with Richards Street.

Queen Street is an east-west, two-way roadway that extends from Nimitz Highway through the Downtown and Kakaako areas until its intersection with Waimanu Street near Ala Moana Shopping Center. In the vicinity of the Study Area, Queen Street is 2-4 lanes across.

North/South Nimitz Highway is a two-way divided highway that begins to the east at the intersection of Fort Street and Ala Moana Boulevard near Aloha Tower and extends westward to its intersection with Nuuanu Avenue where it becomes North Nimitz Highway. North Nimitz Highway continues westward and then curves northward along the coastline through Iwilei, Kalihi, the Airport area until its intersection with South Avenue at the Joint Base Pearl Harbor-Hickam. In the vicinity of the Study Area, Nimitz Highway is 6-8 lanes across.

River Street is a north-south, undivided roadway that provides connectivity between Beretania and Nimitz Highway along the west perimeter of Chinatown. It begins to the north at North Beretania Street and extends southward where it terminates at its intersection with Nimitz Highway.

Kekaulike Street is a one-way, one-lane road which begins at its intersection with North King Street near Kekaulike Market and extends Makai until its intersection with Nimitz Highway.

Loading zones are available both sides of Kekaulike Street and is heavily utilized by delivery vehicles throughout daytime hours.

Maunakea Street is a north-south, two-lane roadway. Maunakea Street begins to the north at North Vineyard Boulevard as a two-way roadway and extends southward until its intersection with North Beretania Street where it transitions to a one-way roadway. Maunakea Street continues southward from North Beretania Street through Chinatown where it terminates in a "T" intersection with North Nimitz Highway.

Smith Street is a north-south, two-lane roadway providing access through Chinatown. It begins at its intersection with Nimitz Highway as a two-way street and extends Mauka to North King Street, where it transitions into a one-way street. Smith Street continues as a one-way roadway until its termination at its intersection with North Beretania Street.

Nuuanu Avenue is a north-south roadway which begins to the north at the Pali Highway off-ramp near Wyllie Street and runs southward through Nuuanu and Chinatown, ultimately terminating at its intersection with Nimitz Highway. Nuuanu Avenue is a 4-6 lane two-way roadway from its northern terminus to its intersection with North Beretania Street, where it becomes a Makai-bound one-way roadway. Within the Study Area, Nuuanu Avenue is a 2-4 lane roadway which provides access to many residential and commercial uses along its stretch.

Bethel Street is a two-lane, one-way Mauka-bound roadway which runs parallel and counter to the adjacent Nuuanu Avenue. Bethel Street begins to the south at its intersection with Nimitz Highway and runs northward, where it terminates at a T-intersection with Beretania Street. Within the Study Area, Bethel Street is 2-3 lanes across.

Fort Street Mall is a heavily-trafficked pedestrian mall providing access through Downtown. General vehicle and bicycle access is restricted on Fort Street Mall.

Bishop Street is a five-lane, one-way Makai-bound roadway that runs parallel and counter to the adjacent Bethel Street and Alakea Street. Bishop Street begins to the north with its intersection with Pali Highway and South Beretania Street and extends Makai through Downtown until its termination at Ala Moana Boulevard.

Alakea Street is a north-south, 5-6 lane Mauka-bound roadway that runs parallel and counter to the Makai bound Bishop Street. It begins at its intersection with Ala Moana Boulevard and continues Mauka through Downtown until its terminus at the intersection of South Beretania and Queen Emma Street.

Richards Street is a north-south, one-way Makai-bound roadway which runs parallel to the adjacent Alakea Street. Richards Street begins to the north at a T-intersection with Beretania Street and continues southward until it curves eastward and merges with Halekauwila Street near Ala Moana Boulevard.

5.2 Parking Allowances

Throughout the network, there are several types of parking restrictions which are indicated by signs posted along the roadway, and supplemented in many locations with painted curbs. Guidelines which describe the types of parking restrictions are found in the City and County of Honolulu Traffic Code, Revised Ordinances Chapter 15, Article 14. Restrictions which are relevant to the Study Area are described below:

Prohibited Parking within the City and County of Honolulu, Sec. 15-14.5

Figure 5.1(a) No Parking Any Time Sign on Bishop Street

Figure 5.1(b) No Parking Any Time Sign, Prohibiting Stopping, Standing, Loading or Unloading on Bishop Street

stopping, standing, loading

(a) "When official signs are erected giving notice of the prohibition against parking, no person shall stop, stand or park a vehicle any longer than is absolutely necessary to take on or discharge passengers or freight upon any of the streets or portions thereof…"

(b) "No vehicle shall stop, stand or park upon any of the streets or portions thereof for any reason when official signs prohibiting or unloading thereon are erected."

Parking Prohibited During Certain Hours Within the City and County of Honolulu, Sec. 15-14.6

R7-2

R7-2a

Figure 5.2 (a) and (b) Signs Prohibiting Parking During Certain Hours, from the Manual on Uniform Traffic Control Devices (MUCTD), 2009.

(a) "When official signs are erected giving notice thereof, no person shall stop, stand or park a vehicle any longer than is absolutely necessary to take on or discharge passengers or freight, upon any of the streets or portions thereof within the City and County, between the hours indicated on such signs."

(b) "When official signs are erected specifying the hours of restricted parking during the morning peak traffic and/or afternoon peak traffic hours, no person shall stop, stand or park a vehicle, even momentarily, upon any of the streets or portions thereof between the hours indicated on such signs."

Parking Prohibited in Tow or Tow-Away Zones, Sec. 15-14.8

When official signs are erected designating a street or portions thereof as a tow or tow-away zone, no person shall stop, stand or park a vehicle, even momentarily, between the hours indicated on such signs; provided that:

- *During hours other than the morning and afternoon peak traffic hours as defined in this code:*
  - *Stops may be made by a vehicle displaying valid decal pursuant to the provisions of Section 15-15.5 for the expeditious loading or unloading of freight,*
  - *Stops may be made by bus in an official bus stop for the expeditious loading or unloading of passengers, and,*

Figure 5.3 Tow-Away Zone Sign for the Afternoon Peak Hour on Bethel Street

- *Stops, in other than an official bus stop, may be made by a special transit service vehicle for the expeditious loading or unloading of a mobility handicapped passenger"*

In no case shall the stop for the loading or unloading of freight exceed 30 minutes, and for the loading and unloading of passengers, three minutes; except that a special transit vehicle may stop, stand or park for not more than 15 minutes when loading or unloading a mobility handicapped passenger.

Time Limit Parking Within the City and County of Honolulu, Sec. 15-16.1

Figure 5.4(a) 1-Hour Time Limit on Metered Stalls on Bishop Street

Figure 5.4(b) 2-Hour Time Limit on Metered Stalls on Pauahi Street

When official signs are erected giving notice thereof, no person shall stop, stand or park a vehicle for a period of time longer than the period of time indicated on such sign, unless provided by law or by or official permits or decals along any of the streets or portions thereof within the City and County of Honolulu…

5.3 Parking Inventory by Corridor

Figure 5.5: At the conclusion of Loading Zone hours (except in TAZ), these zones become unmarked, unmetered stalls.

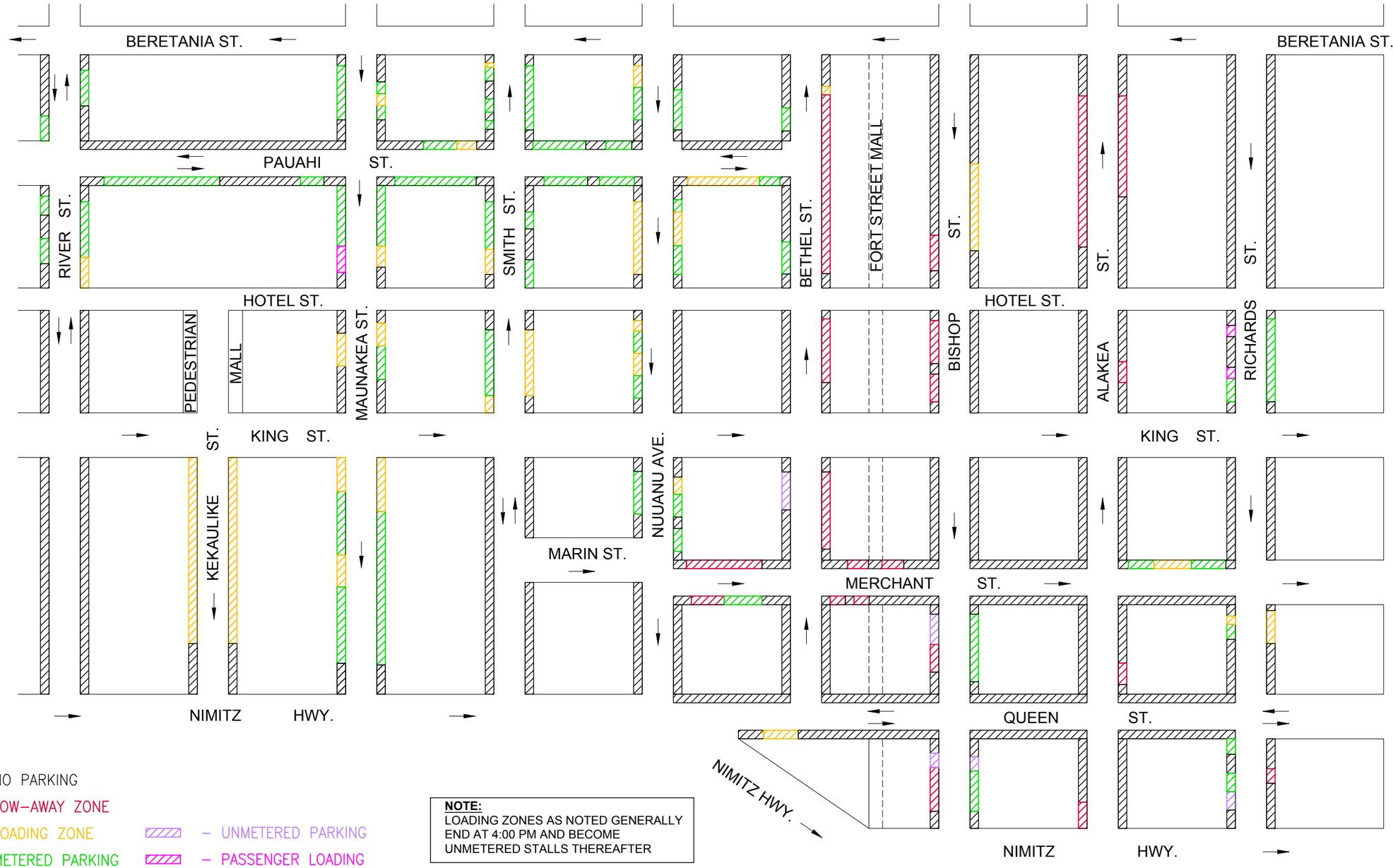
As indicated in Section 4, an inventory of parking restrictions throughout the Study Area was performed. The restrictions shown in the Detail Inventory Figures reflect interpretation of parking restrictions by the field engineer based on curbside signage. A summary of parking inventory within the Study Area during the PM Tow-Away Zone (3:30 PM – 5:30 PM) may be found in Figure 5.6. A summary of parking inventory within the Study Area at the current conclusion of the PM Tow-Away Zone (3:30 PM – 5:30 PM) can be found in Figure 5.7.

The following sections detail the parking allowances of each corridor. A Detail Inventory Figure, which indicates parking restrictions along the roadway, follows the description of each corridor. If a PM Tow-Away Zone exists along the corridor, a PM Tow-Away Zone Detail figure which details parking conditions during the PM Tow-Away Zone (3:30 PM – 5:30 PM) follows the Corridor Detail Inventory Figure. A reference figure which summarizes figure numbers for the Corridor Detail Inventory and PM Tow-Away Zone Detail for each corridor can be found in Figure 5.8.

"No Parking Anytime" zones and 24-hour Tow-Away Zones were listed as "24 Hour No Parking" areas. At the conclusion of the posted loading zone hours ends, these loading zone areas become unmarked, unmetered stalls. Unless otherwise noted, AM Tow-Away Zone hours are 6:30 AM – 8:30 AM.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

Austin Tsutsumi & ASSOCIATES, INC.
Engineers & Surveyors



LEGEND:

- NO PARKING
- TOW-AWAY ZONE
- LOADING ZONE
- METERED PARKING
- UNMETERED PARKING
- PASSENGER LOADING

NOTE:
LOADING ZONES AS NOTED GENERALLY END AT 4:00 PM AND BECOME UNMETERED STALLS THEREAFTER

FIGURE 5.6

EXISTING STUDY AREA CONDITIONS
DURING PM TAZ (3:30PM-5:30PM)

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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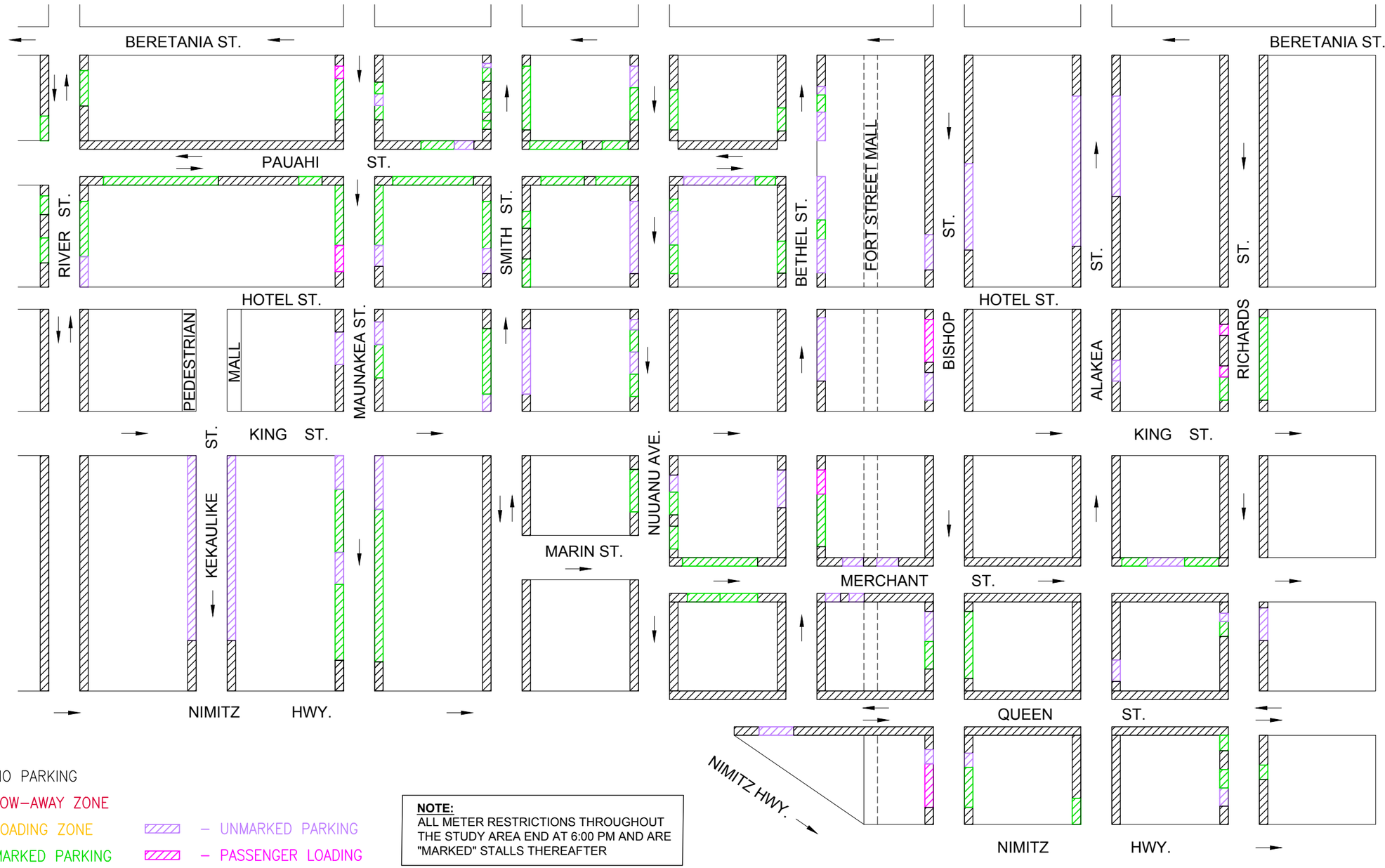

LEGEND:

- NO PARKING
- TOW-AWAY ZONE
- LOADING ZONE
- MARKED PARKING
- UNMARKED PARKING
- PASSENGER LOADING

NOTE:
ALL METER RESTRICTIONS THROUGHOUT THE STUDY AREA END AT 6:00 PM AND ARE "MARKED" STALLS THEREAFTER

FIGURE 5.7

EXISTING STUDY AREA CONDITIONS AT CONCLUSION OF CURRENT PM TAZ HOURS (3:30PM-5:30PM)

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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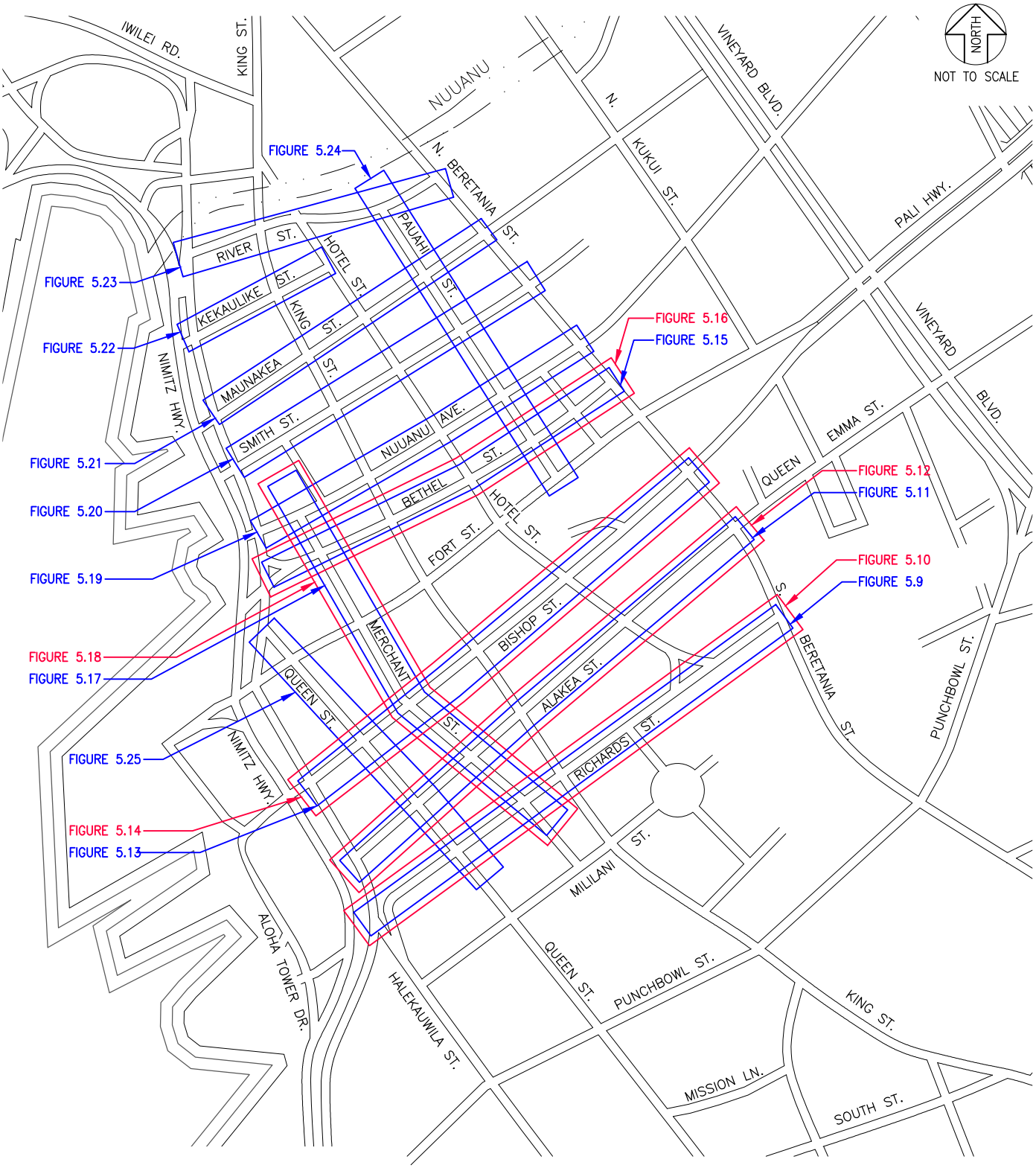

LEGEND:

CORRIDOR DETAIL INVENTORY MAP

CORRIDOR PM TAZ DETAIL

FIGURE 5.8

STUDY AREA REFERENCE MAP-CORRIDOR DETAIL FIGURES

5.3.1 Richards Street Parking Allowances

- 24 Hour No Parking Zone
    - Between Halekauwila Street and Queen Street
    - Between Queen Street and Merchant Street
    - Between Merchant Street and South King Street
    - Between South King Street and South Hotel Street
    - Between South Hotel Street and South Beretania Street
- AM Tow-Away Zone
    - Between Queen Street and Merchant Street
- PM Tow-Away Zone
    - Between Halekauwila Street and Queen Street
- Freight Loading Areas
    - Between Queen Street and Merchant Street
- 3-Minute Passenger Loading Areas
    - Between Halekauwila Street and Queen Street
    - Between South King Street and South Hotel Street
- Metered Parking
    - Between Halekauwila Street and King Street
    - Between Queen Street and Merchant Street
    - Between South King Street and South Hotel Street

The Corridor Parking Inventory Detail for Richards Street can be found in Figure 5.9. The PM Tow-Away Zone Detail can be found in Figure 5.10.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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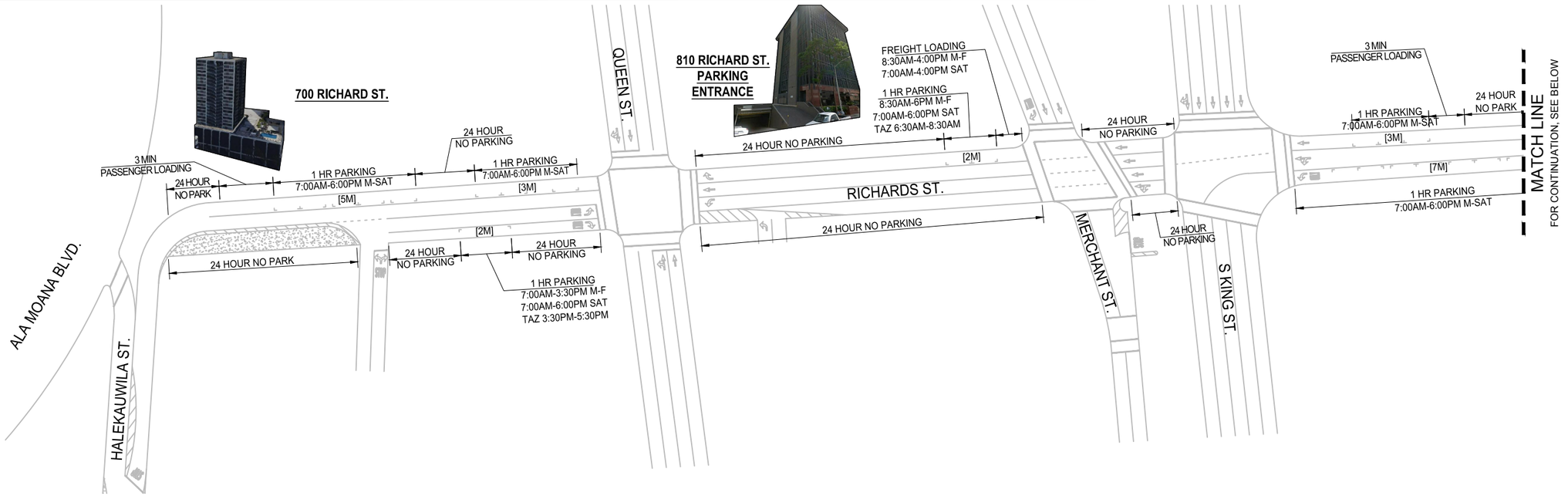

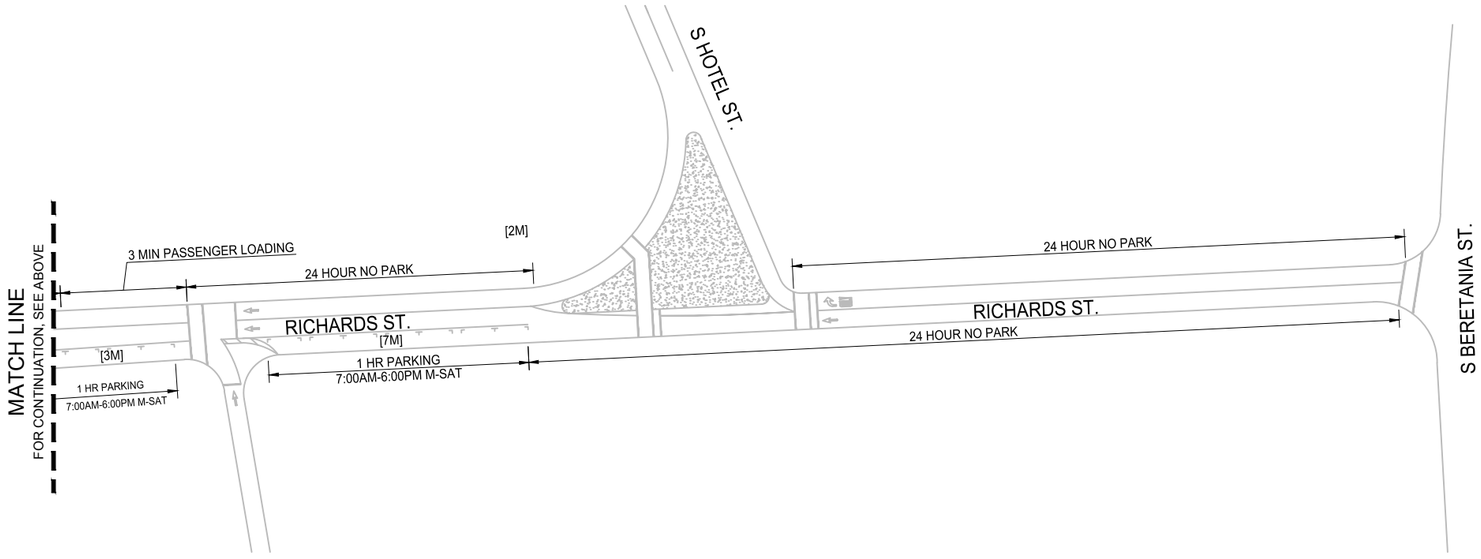

NOTE:
THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY. DO NOT USE FOR CONSTRUCTION.

FIGURE 5.9

RICHARDS STREET CORRIDOR-
DETAIL INVENTORY

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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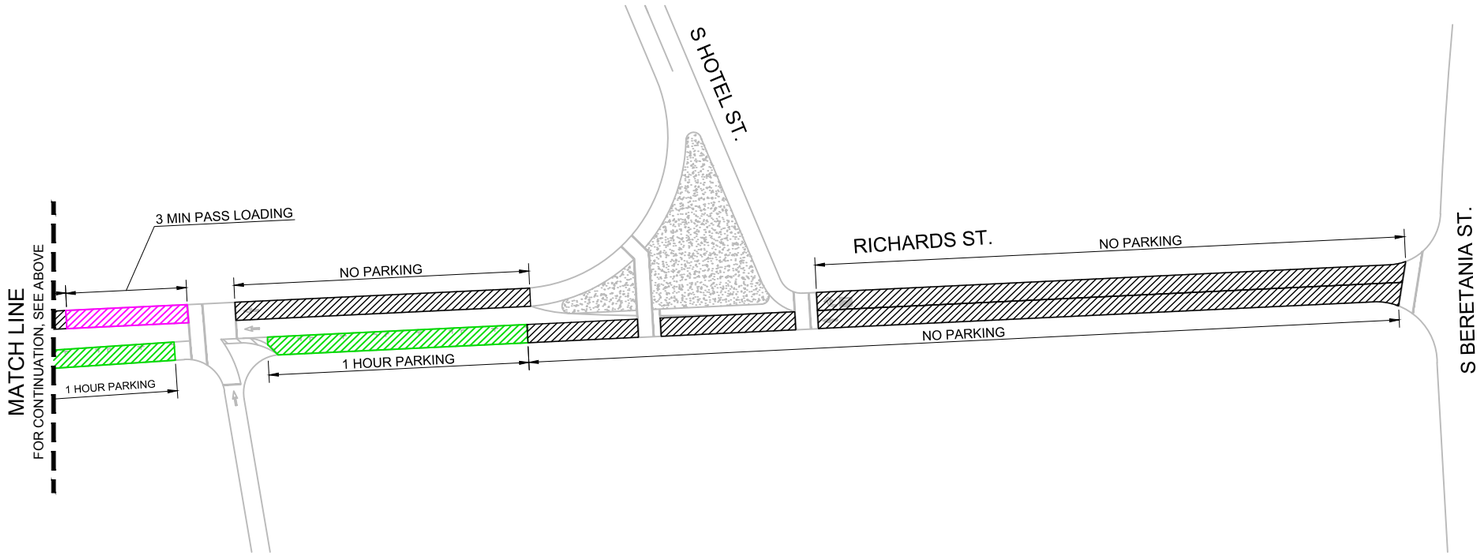

NOTE:
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DO NOT USE FOR CONSTRUCTION.

LEGEND:
- NO PARKING
- PM TAZ (3:30PM - 5:30PM)
- METERED PARKING
- PASSENGER LOADING ZONE
- LOADING ZONE

FIGURE 5.10

RICHARDS STREET CORRIDOR-
AFTERNOON TAZ DETAIL (3:30PM-5:30PM)

5.3.2 Alakea Street Parking Allowances

- 24 Hour No Parking
    - Between Nimitz Highway and Queen Street
    - Between Queen Street and Merchant Street
    - Between Merchant Street and King Street
    - Between King Street and Hotel Street
    - Between Hotel Street and Beretania Street
- AM Tow-Away Zone
    - Between King Street and Hotel Street
- PM Tow-Away Zone
    - Between Nimitz Highway and Queen Street
    - Between King Street and Hotel Street
    - Between Hotel Street and Beretania Street
- Other Tow-Away Zone
    - Between Queen Street and Merchant Street (6:00 AM – 6:30 PM)
- Freight Loading Areas
    - Between King Street and Hotel Street
    - Between Hotel Street and Beretania Street
- Special Restrictions
    - Between Hotel Street and Beretania Street – Reserved for Police (6:00 AM – 3:30 PM)

The Corridor Parking Inventory Detail for Alakea Street can be found in Figure 5.11. The PM Tow-Away Zone Detail can be found in Figure 5.12.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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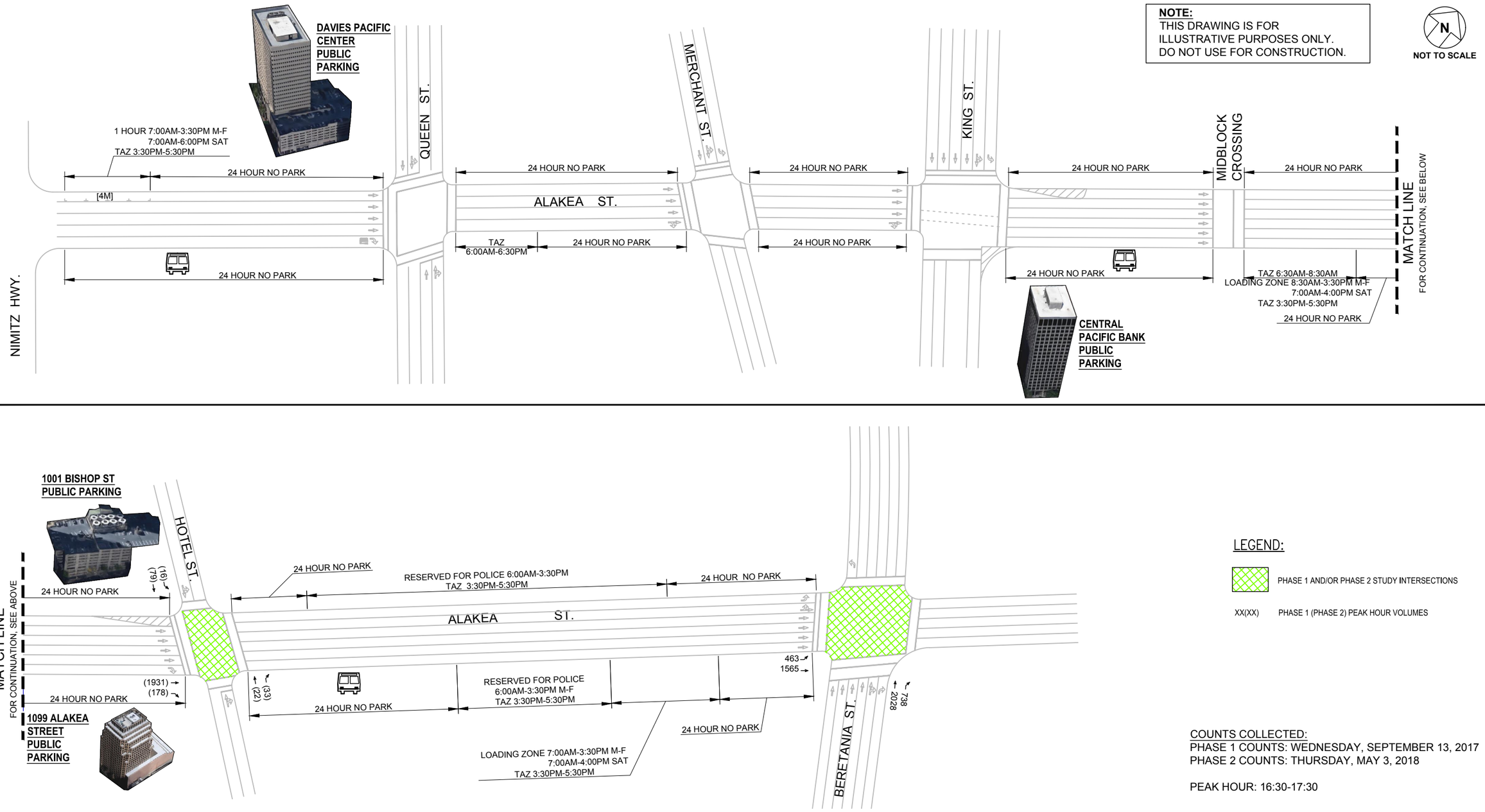

FIGURE 5.11

ALAKEA STREET CORRIDOR-
DETAIL INVENTORY

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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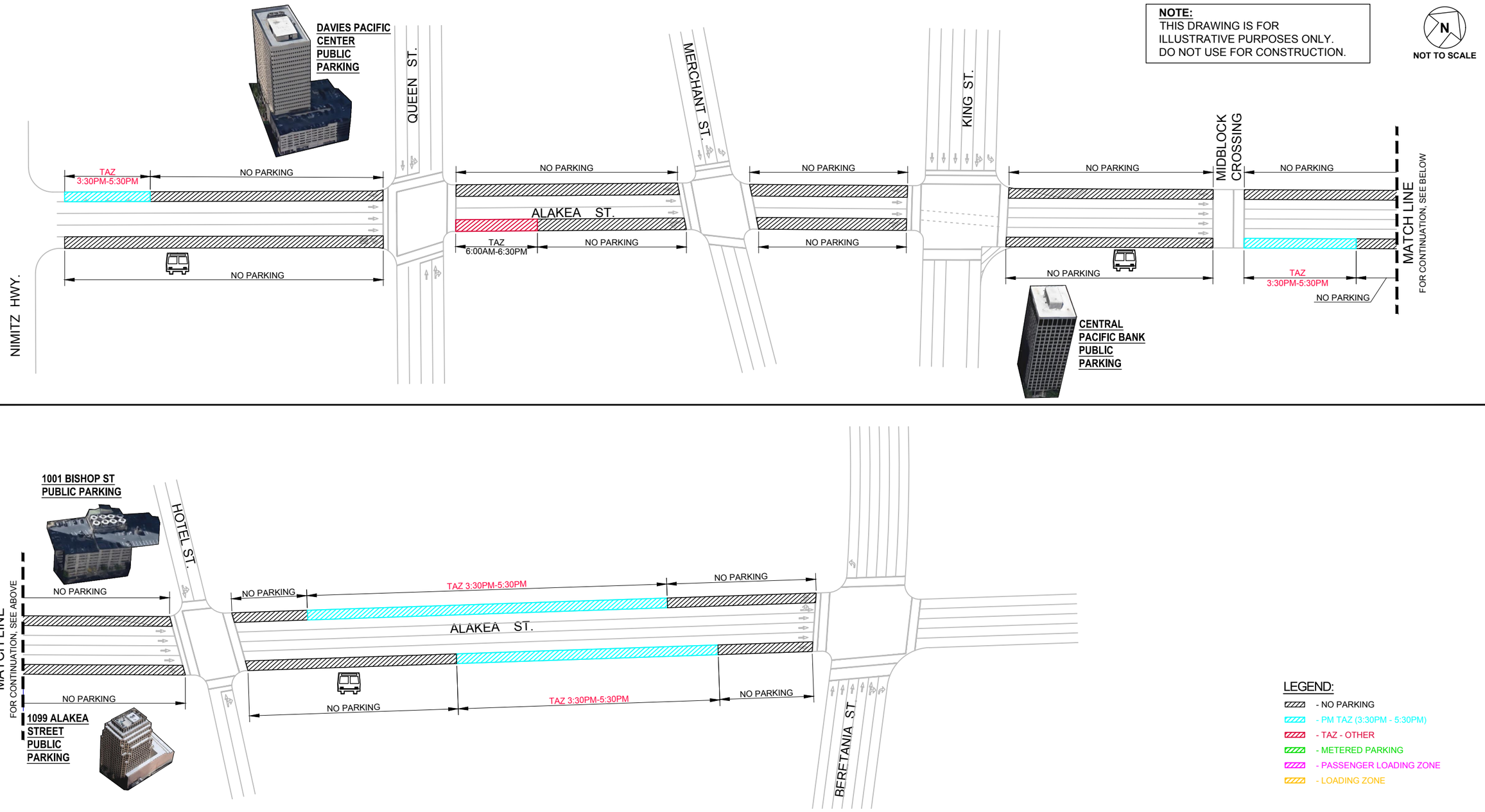

FIGURE 5.12

ALAKEA STREET CORRIDOR-
AFTERNOON TAZ DETAIL (3:30PM-5:30PM)

5.3.3 Bishop Street Parking Allowances

- 24 Hour No Parking
    - Between Nimitz Highway and Queen Street
    - Between Merchant Street and King Street
    - Between King Street and Hotel Street
    - Between Hotel Street and Beretania Street
- AM Tow-Away Zone
    - Between Nimitz Highway and Queen Street (6:30 AM – 9:00 AM)
    - Between Queen Street and Merchant Street (6:30 AM – 9:00 AM)
    - Between King Street and Hotel Street (6:30 AM – 9:00 AM)
    - Between Hotel Street and Beretania Street (6:30 AM – 9:00 AM)
- PM Tow-Away Zone
    - Between Nimitz Highway and Queen Street
    - Between Queen Street and Merchant Street
    - Between King Street and Hotel Street
    - Between Hotel Street and Beretania Street
- Other Tow-Away Zone
    - Between King Street and Hotel Street (6:00 AM – 6:30 PM)
- Freight Loading Areas
    - Between Nimitz Highway and Queen Street
    - Between Queen Street and Merchant Street
    - Between Hotel Street and Beretania Street
- 3-minute Passenger Loading Areas
    - Between Nimitz Highway and Queen Street
    - Between King Street and Hotel Street
- Metered Parking
    - Between Nimitz Highway and Queen Street
    - Between Queen Street and Merchant Street
- Special Restrictions
    - Parking Reserved for Taxicabs: Between Queen Street and Merchant Street

A parking inventory for Bishop Street can be found in Figure 5.13. A figure showing parking conditions along Bishop Street during the PM Tow-Away Zone hours can be found in Figure 5.14.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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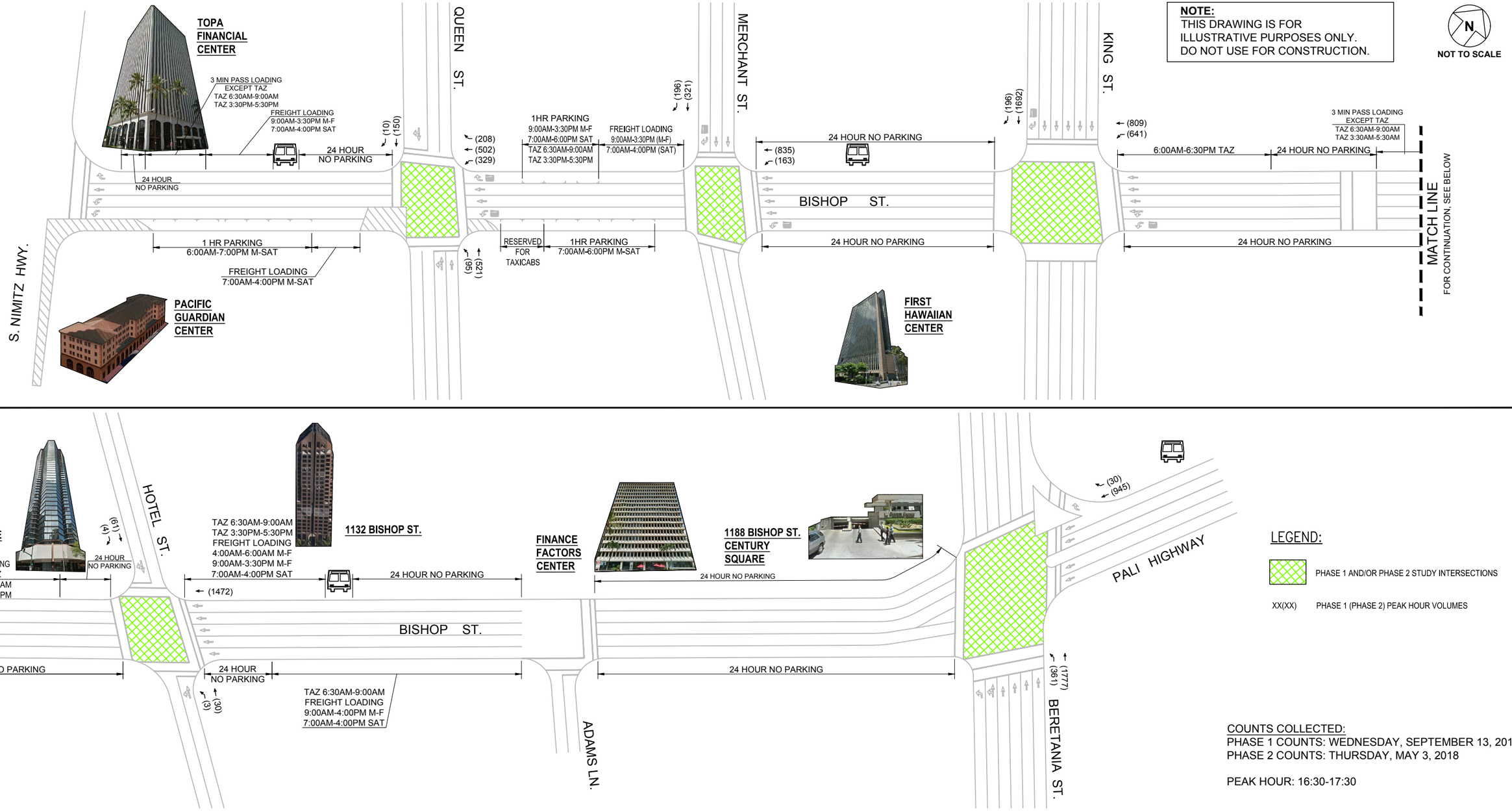

FIGURE 5.13

BISHOP STREET CORRIDOR - DETAIL INVENTORY

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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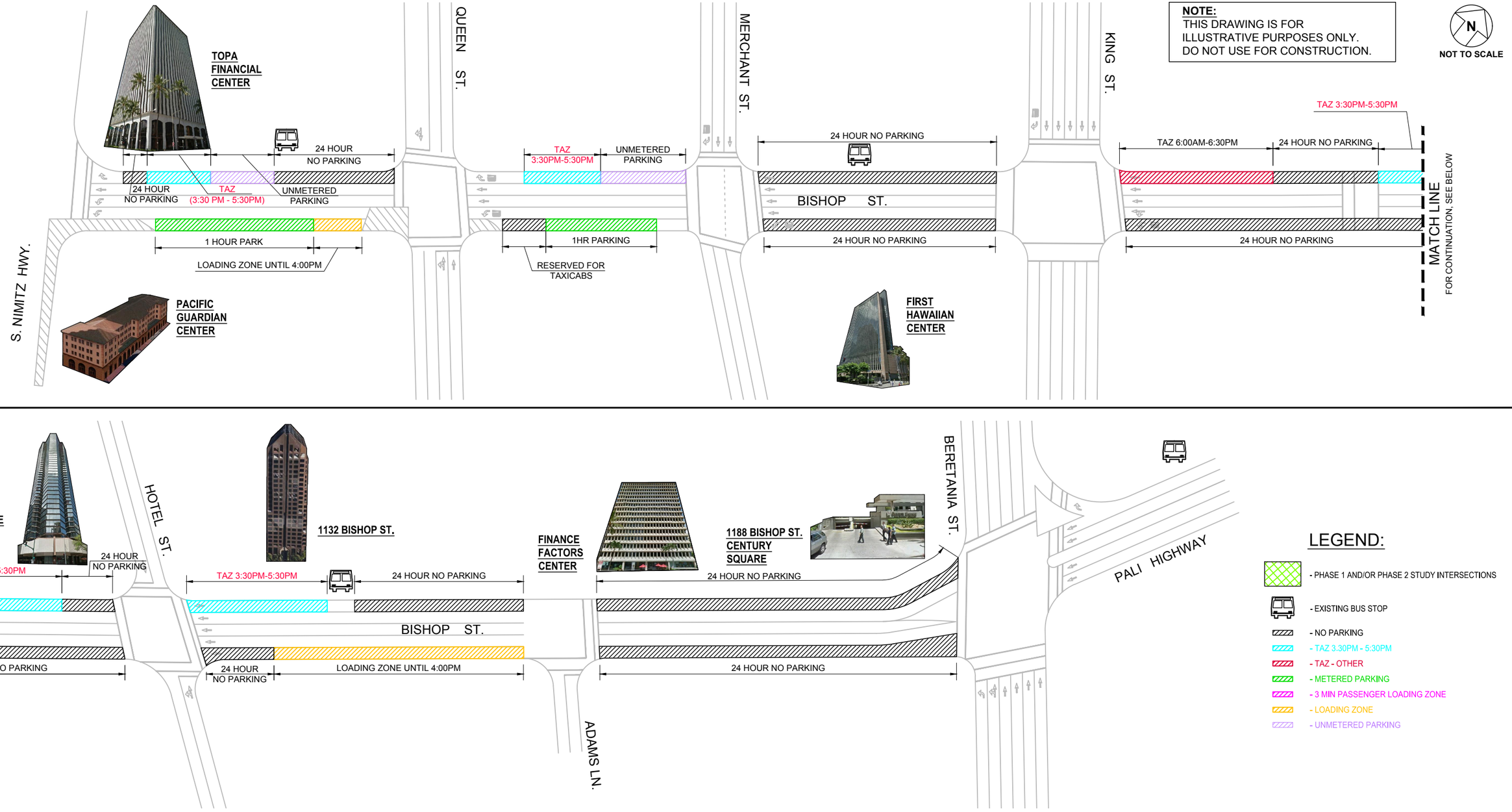

FIGURE 5.14

BISHOP STREET CORRIDOR - AFTERNOON TAZ DETAIL (3:30PM-5:30PM)

5.3.4 Bethel Street Parking Allowances

- 24 Hour No Parking
    - Between Nimitz Highway and Merchant Street
    - Between Merchant Street and King Street
    - Between King Street and Hotel Street
    - Between Hotel Street and Pauahi Street
    - Between Pauahi Street and Beretania Street
- PM Tow-Away Zone
    - Between Merchant Street and King Street
    - Between Hotel Street and Pauahi Street
    - Between Pauahi Street and Beretania Street
- Other Tow-Away Zone
    - Between King Street and Hotel Street (6:30 AM – 5:30 PM)
- Freight Loading Area
    - Between Merchant Street and King Street
    - Between Hotel Street and Pauahi Street
    - Between Pauahi Street and Beretania Street
- 3-minute Passenger Loading Areas
    - Between Merchant Street and King Street
- Metered Parking
    - Between Merchant Street and King Street
    - Between Hotel Street and Pauahi Street
    - Between Pauahi Street and Beretania Street

A parking inventory for Bethel Street can be found in Figure 5.15. A figure showing parking conditions along Bethel Street during the PM Tow-Away Zone hours can be found in Figure 5.16.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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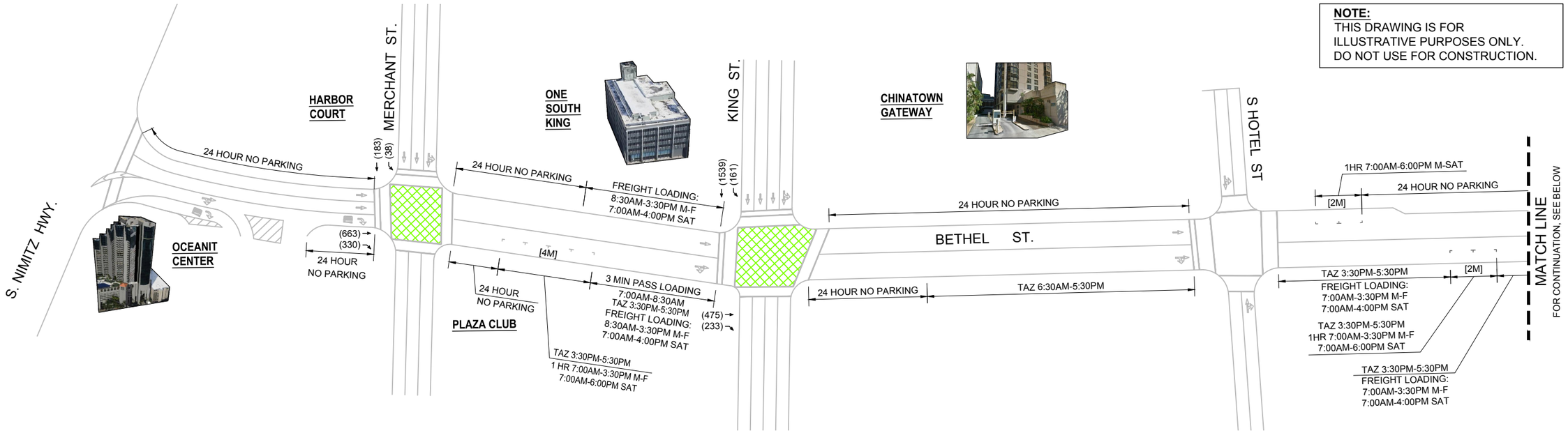

FIGURE 5.15

BETHEL STREET CORRIDOR - DETAIL INVENTORY

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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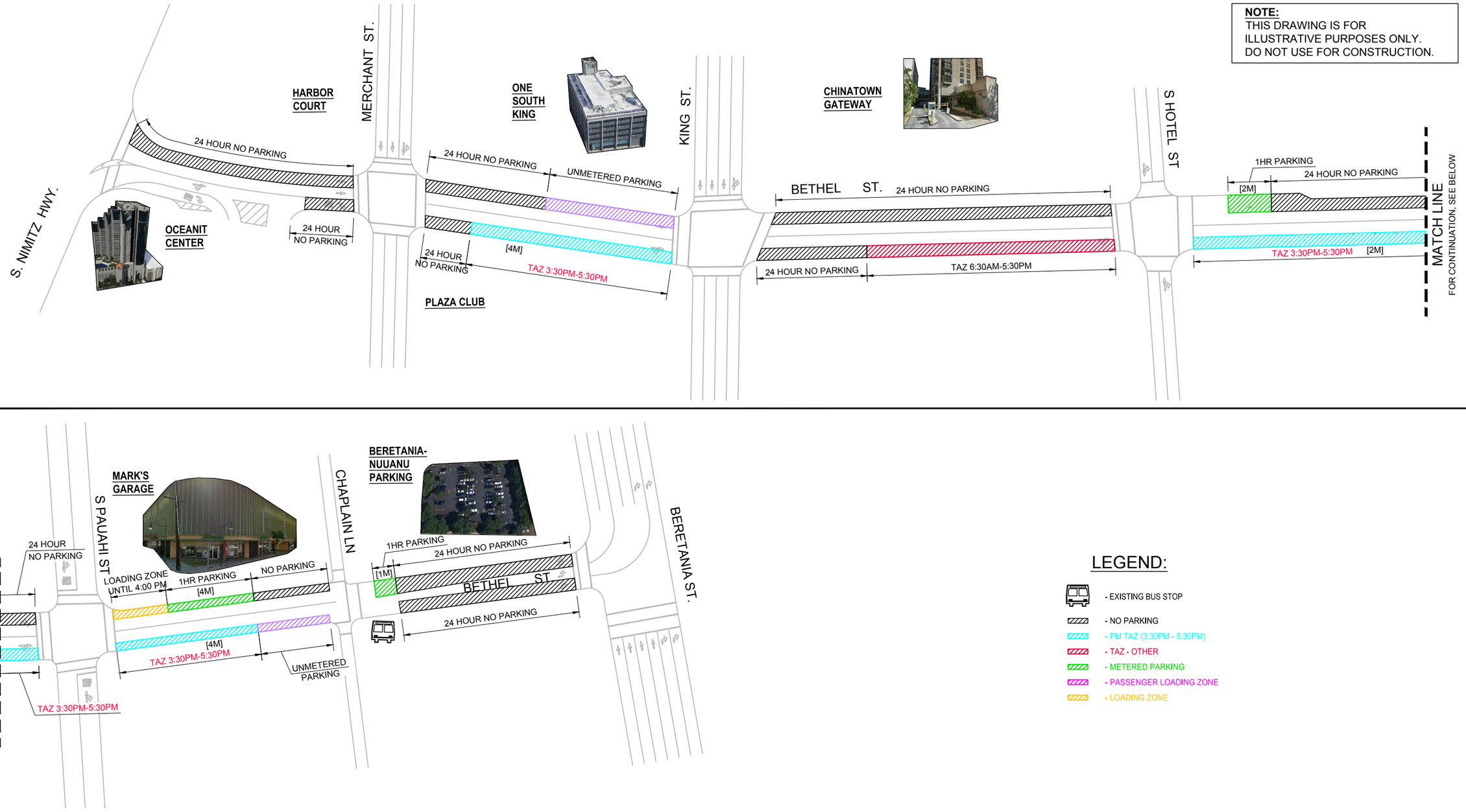

LEGEND:

- EXISTING BUS STOP
- NO PARKING
- PM TAZ (3:30PM - 5:30PM)
- TAZ - OTHER
- METERED PARKING
- PASSENGER LOADING ZONE
- LOADING ZONE

FIGURE 5.16

BETHEL STREET CORRIDOR -
AFTERNOON TAZ DETAIL (3:30PM-5:30PM)

5.3.5 Merchant Street Parking Allowances

- 24 Hour No Parking
    - Between Nuuanu Avenue and Bethel Street
    - Between Bethel Street and Bishop Street
    - Between Bishop Street and Alakea Street
    - Between Alakea Street and Richards Street
- AM Tow-Away Zone
    - Between Nuuanu Avenue and Bethel Street
    - Between Bethel Street and Bishop Street
- PM Tow-Away Zone
    - Between Nuuanu Avenue and Bethel Street
    - Between Bethel Street and Bishop Street
- Other Tow-Away Zone
    - Between Nuuanu Avenue and Bethel Street (6:30 AM – 5:30 PM)
    - Between Bethel Street and Bishop Street (6:30 AM – 5:30 PM)
- Freight Loading Areas
    - Between Bethel Street and Bishop Street
    - Between Alakea Street and Richards Street
- Metered Parking
    - Between Alakea Street and Richards Street

A parking inventory for Merchant Street can be found in Figure 5.17. A figure showing parking conditions along Merchant Street during the PM Tow-Away Zone hours can be found in Figure 5.18.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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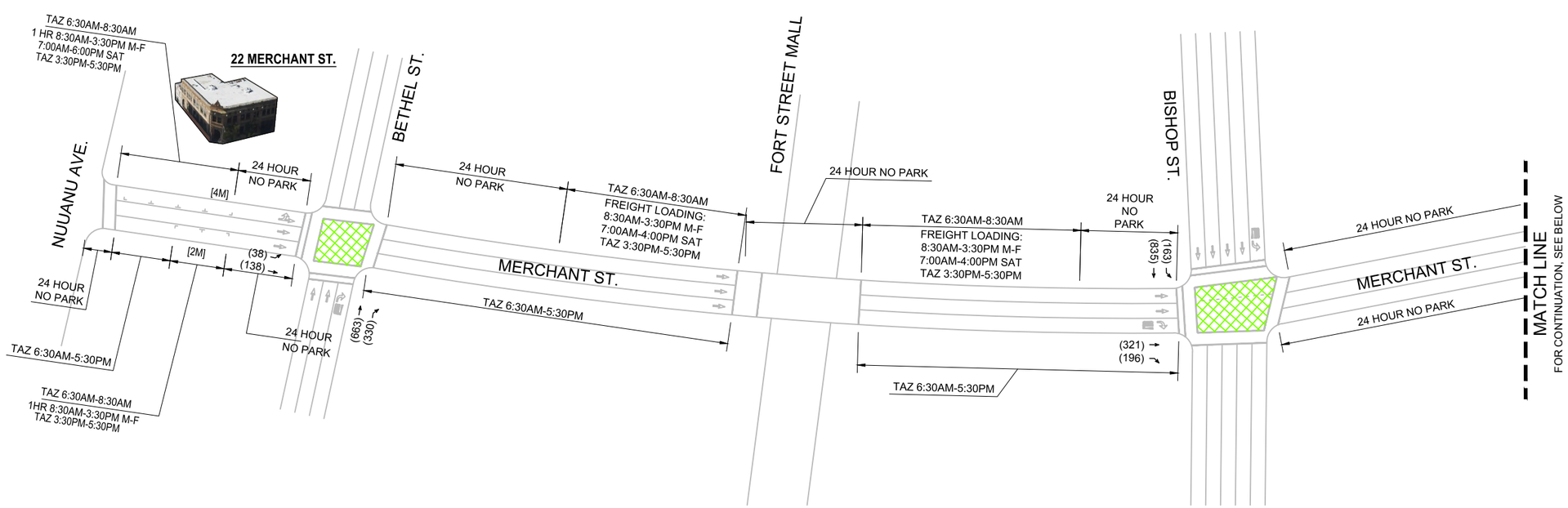

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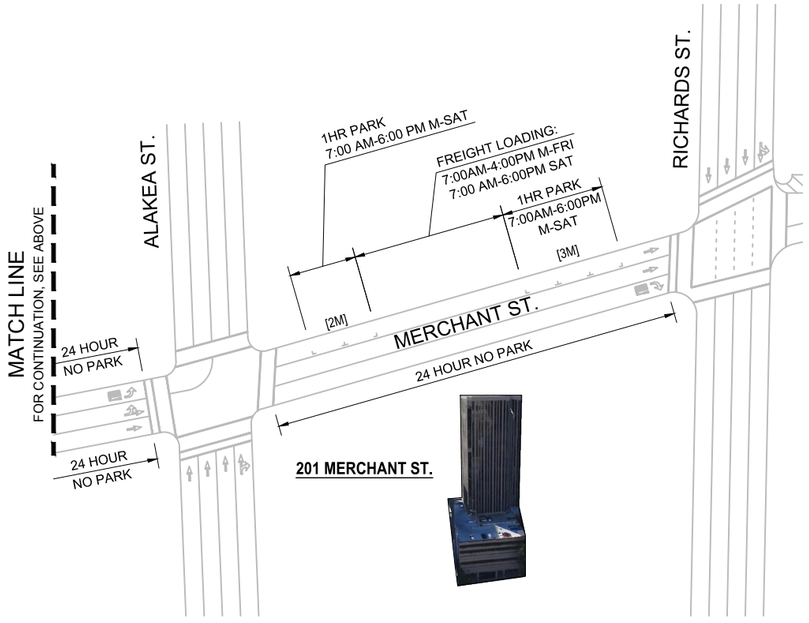

LEGEND:

PHASE 1 AND/OR PHASE 2 STUDY INTERSECTIONS

XX(XX) PHASE 1 (PHASE 2) PEAK HOUR VOLUMES

COUNTS COLLECTED:
PHASE 1 COUNTS: WEDNESDAY, SEPTEMBER 13, 2017
PHASE 2 COUNTS: THURSDAY, MAY 3, 2018

PEAK HOUR: 16:30-17:30

FIGURE 5.17

MERCHANT STREET CORRIDOR - DETAIL INVENTORY

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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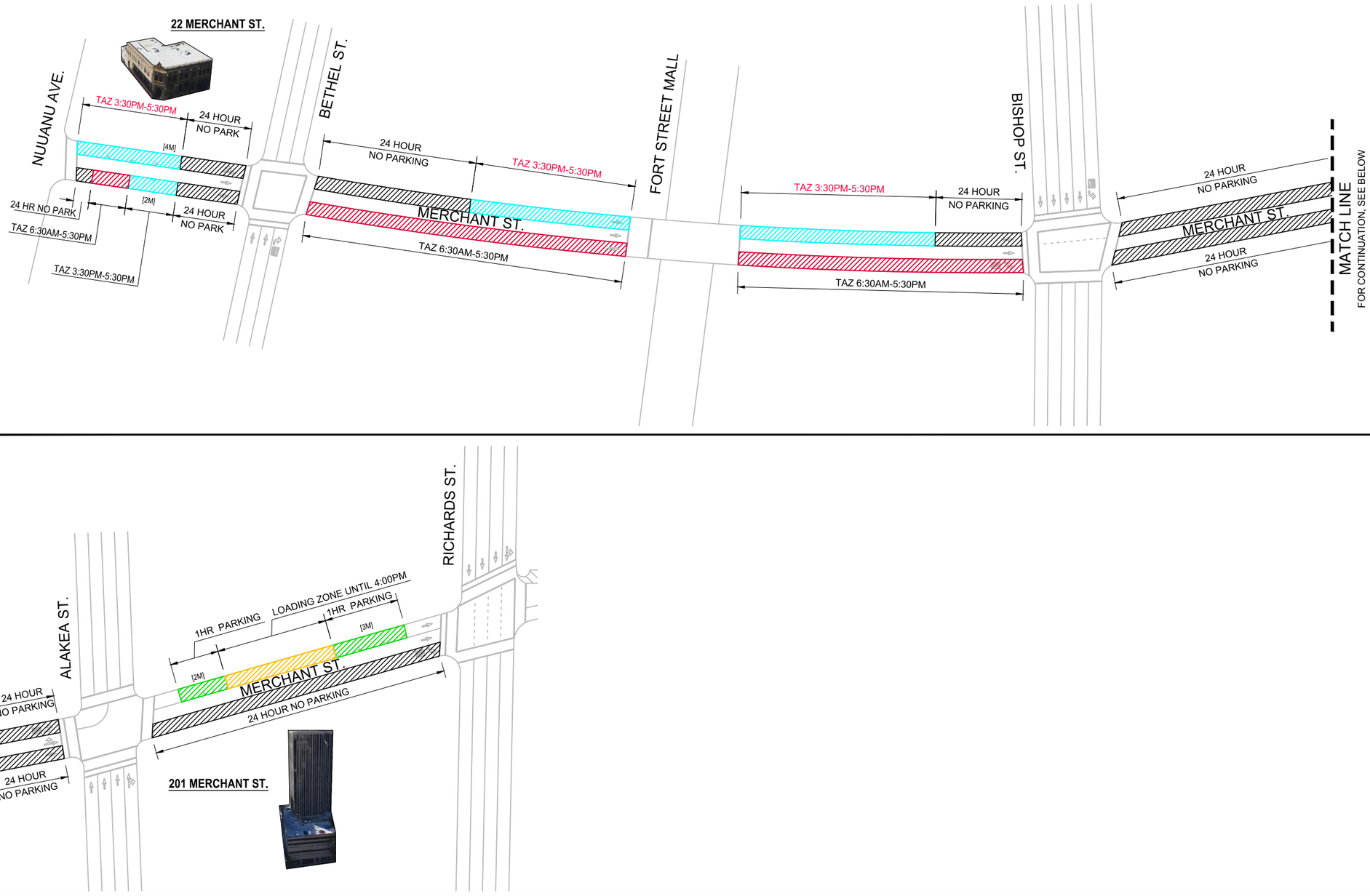

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LEGEND:

- EXISTING BUS STOP
- NO PARKING
- PM TAZ (3:30PM - 5:30PM)
- TAZ - OTHER
- METERED PARKING
- PASSENGER LOADING ZONE
- LOADING ZONE

FIGURE 5.18

MERCHANT STREET CORRIDOR - AFTERNOON TAZ DETAIL (3:30PM-5:30PM)

5.3.6 Nuuanu Avenue Parking Allowances

- 24 Hour No Parking
    - Between Nimitz Highway and Merchant Street
    - Between Merchant Street and King Street
    - Between King Street and Hotel Street
    - Between Pauahi Street and Beretania Street
- AM Tow-Away Zone
    - Between Merchant Street and King Street
    - Between King Street and Hotel Street
    - Between Hotel Street and Pauahi Street
    - Between Pauahi Street and Beretania Street
- Freight Loading Areas
    - Between Merchant Street and King Street
    - Between King Street and Hotel Street
    - Between Hotel Street and Pauahi Street
    - Between Pauahi Street and Beretania Street
- Metered Parking
    - Between Merchant Street and King Street
    - Between King Street and Hotel Street
    - Between Hotel Street and Pauahi Street
    - Between Pauahi Street and Beretania Street

A parking inventory for Nuuanu Avenue can be found in Figure 5.19.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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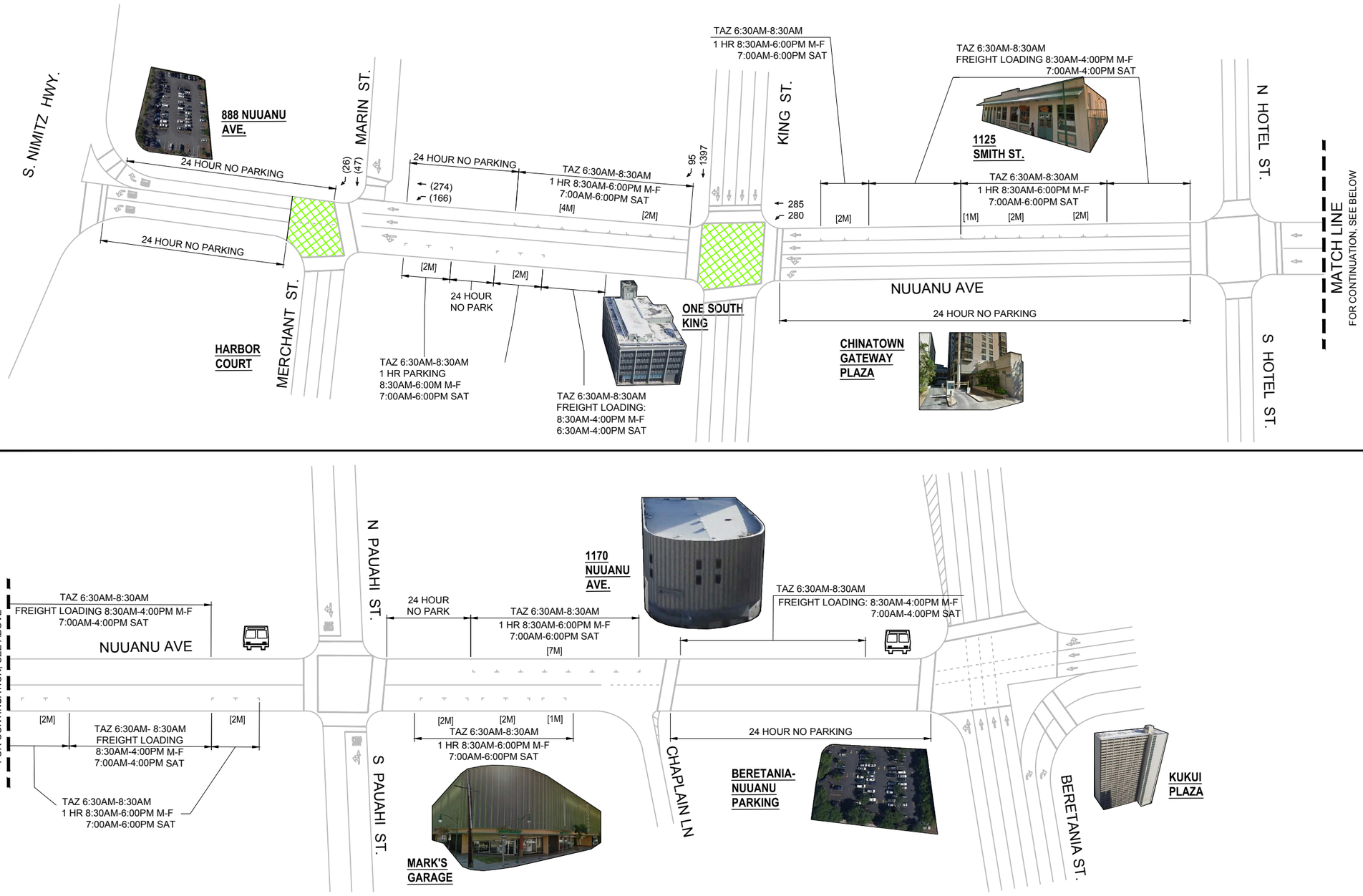

LEGEND:

PHASE 1 AND/OR PHASE 2 STUDY INTERSECTIONS

XX(XX) PHASE 1 (PHASE 2) PEAK HOUR VOLUMES

COUNTS COLLECTED:
PHASE 1 COUNTS: WEDNESDAY, SEPTEMBER 13, 2017
PHASE 2 COUNTS: THURSDAY, MAY 3, 2018

PEAK HOUR: 16:30-17:30

FIGURE 5.19

NUUANU AVENUE CORRIDOR - DETAIL INVENTORY

5.3.7 Smith Street Parking Allowances

- 24 Hour No Parking
    - Between Nimitz Highway and King Street
    - Between King Street and Hotel Street
    - Between Hotel Street and Pauahi Street
    - Between Pauahi Street and Beretania Street
- Freight Loading Areas
    - Between King Street and Hotel Street
    - Between Hotel Street and Pauahi Street
    - Between Pauahi Street and Beretania Street
- Metered Parking
    - Between King Street and Hotel Street
    - Between Hotel Street and Pauahi Street
    - Between Pauahi Street and Beretania Street

A parking inventory for Smith Street can be found in Figure 5.20.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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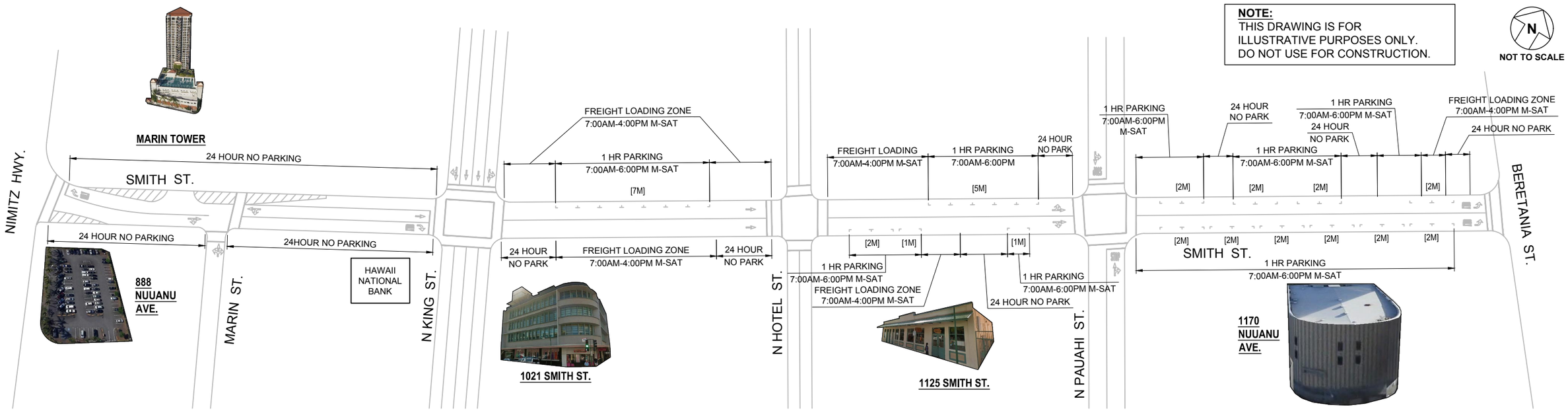

FIGURE 5.20

SMITH STREET CORRIDOR - DETAIL INVENTORY

5.3.8 Maunakea Street Parking Allowances

- 24 Hour No Parking
    - Between Nimitz Highway and King Street
    - Between King Street and Hotel Street
    - Between Hotel Street and Pauahi Street
    - Between Pauahi Street and Beretania Street
- Freight Loading Areas
    - Between Nimitz Highway and King Street
    - Between King Street and Hotel Street
    - Between Hotel Street and Pauahi Street
    - Between Pauahi Street and Beretania Street
- 3-minute Passenger Loading Areas
    - Between Hotel Street and Pauahi Street
    - Between Pauahi Street and Beretania Street
- Metered Parking
    - Between Nimitz Highway and King Street
    - Between King Street and Hotel Street
    - Between Hotel Street and Pauahi Street
    - Between Pauahi Street and Beretania Street
- Special Restrictions
    - Between Hotel Street and Pauahi Street – Reserved for Police (24 hours)

A parking inventory for Maunakea Street can be found in Figure 5.21.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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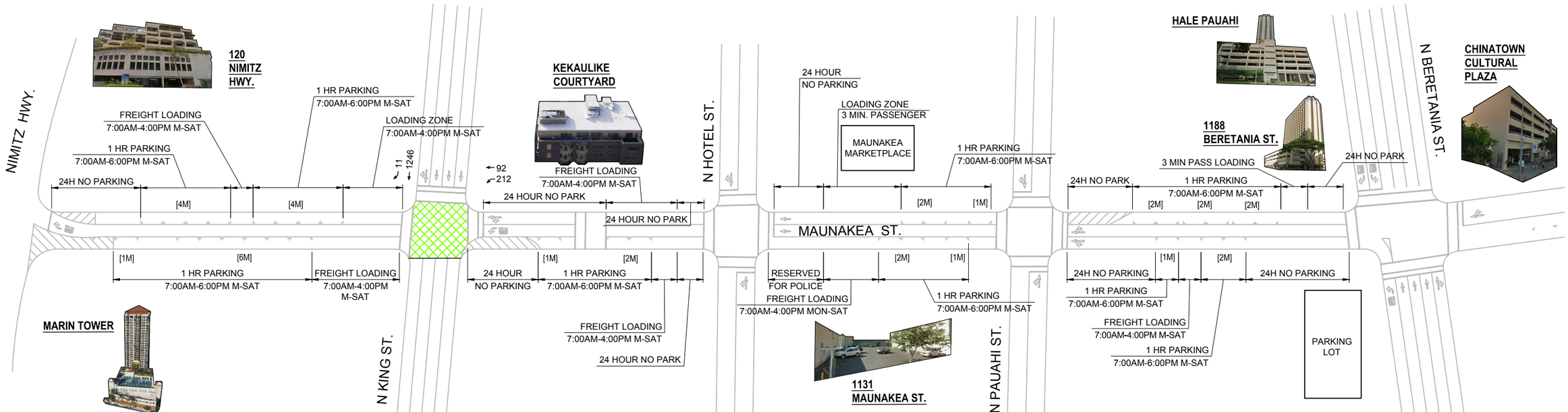

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PHASE 1 AND/OR PHASE 2 STUDY INTERSECTIONS

XX(XX) PHASE 1 (PHASE 2) PEAK HOUR VOLUMES

COUNTS COLLECTED:
PHASE 1 COUNTS: WEDNESDAY, SEPTEMBER 13, 2017
PHASE 2 COUNTS: THURSDAY, MAY 3, 2018

PEAK HOUR: 16:30-17:30

FIGURE 5.21

MAUNAKEA STREET CORRIDOR - DETAIL INVENTORY

5.3.9 Kekaulike Street Parking Allowances

- 24 Hour No Parking
    - Between Nimitz Highway and King Street
- Freight Loading Areas
    - Between Nimitz Highway and King Street

A parking inventory for Kekaulike Street can be found in Figure 5.22.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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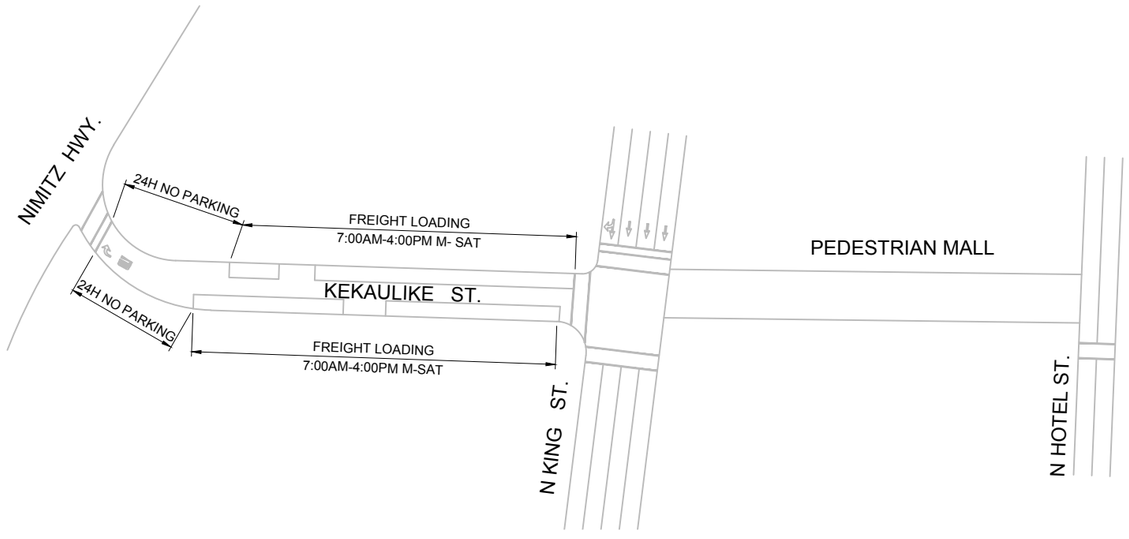

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FIGURE 5.22

KEKAULIKE STREET CORRIDOR - DETAIL INVENTORY

5.3.10 River Street Parking Allowances

- 24 Hour No Parking
    - Between Nimitz Highway and King Street
    - Between King Street and Hotel Street
    - Between Hotel Street and Pauahi Street
    - Between Pauahi Street and Beretania Street
- Metered Parking
    - Between Hotel Street and Pauahi Street
    - Between Pauahi Street and Beretania Street
- Freight Loading Areas
    - Between Hotel Street and Pauahi Street

A parking inventory for River Street can be found in Figure 5.23.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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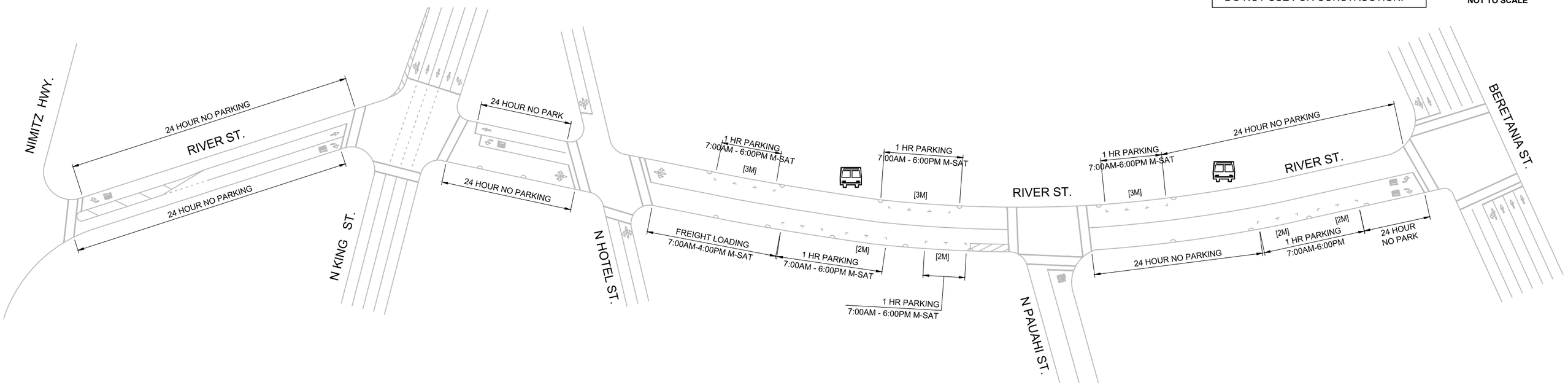

LEGEND:

- EXISTING BUS STOP

FIGURE 5.23

RIVER STREET CORRIDOR - DETAIL INVENTORY

5.3.11 Pauahi Street Parking Allowances

- 24 Hour No Parking
    - Between River Street and Maunakea Street
    - Between Maunakea Street and Smith Street
    - Between Smith Street and Nuuanu Avenue
    - Between Nuuanu Avenue and Bethel Street
- Freight Loading Areas
    - Between Maunakea Street and Smith Street
    - Between Nuuanu Avenue and Bethel Street
- Metered Parking
    - Between River Street and Maunakea Street
    - Between Maunakea Street and Smith Street
    - Between Smith Street and Nuuanu Avenue
    - Between Nuuanu Avenue and Bethel Street

A parking inventory for Pauahi Street can be found in Figure 5.24.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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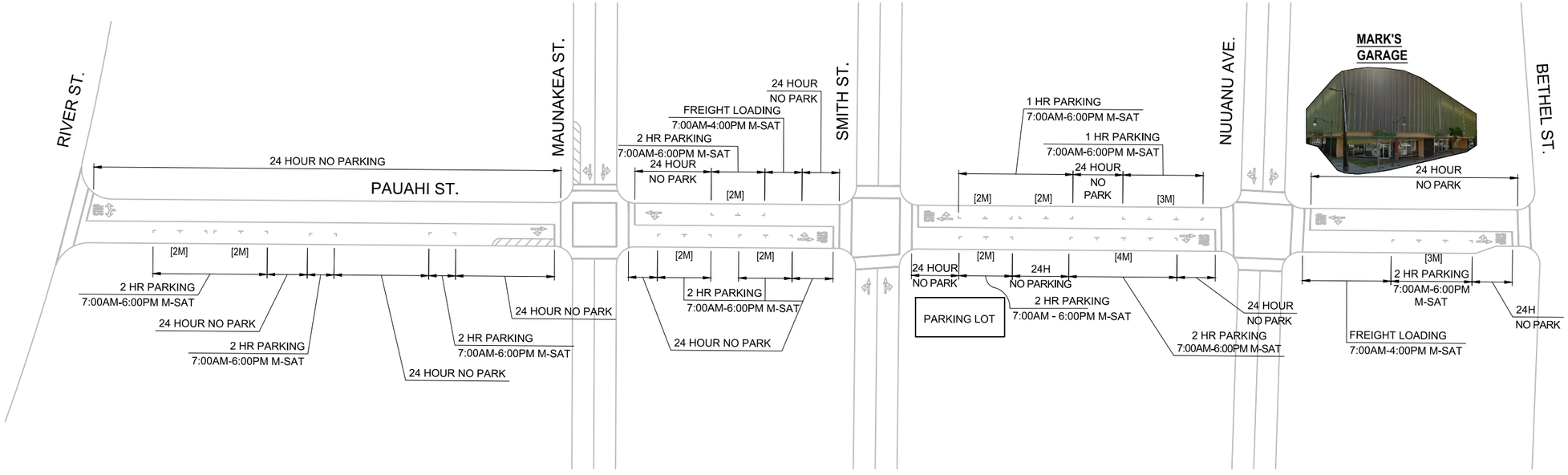

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FIGURE 5.24

PAUAHI STREET CORRIDOR -
DETAIL INVENTORY

5.3.12 Queen Street Parking Allowances

- 24 Hour No Parking
    - Between Nimitz Highway and Bishop Street
    - Between Bishop Street and Alakea Street
    - Between Alakea Street and Richards Street
- Freight Loading Zone
    - Between Nimitz Highway and Bishop Street

A parking inventory for Queen Street can be found in Figure 5.25.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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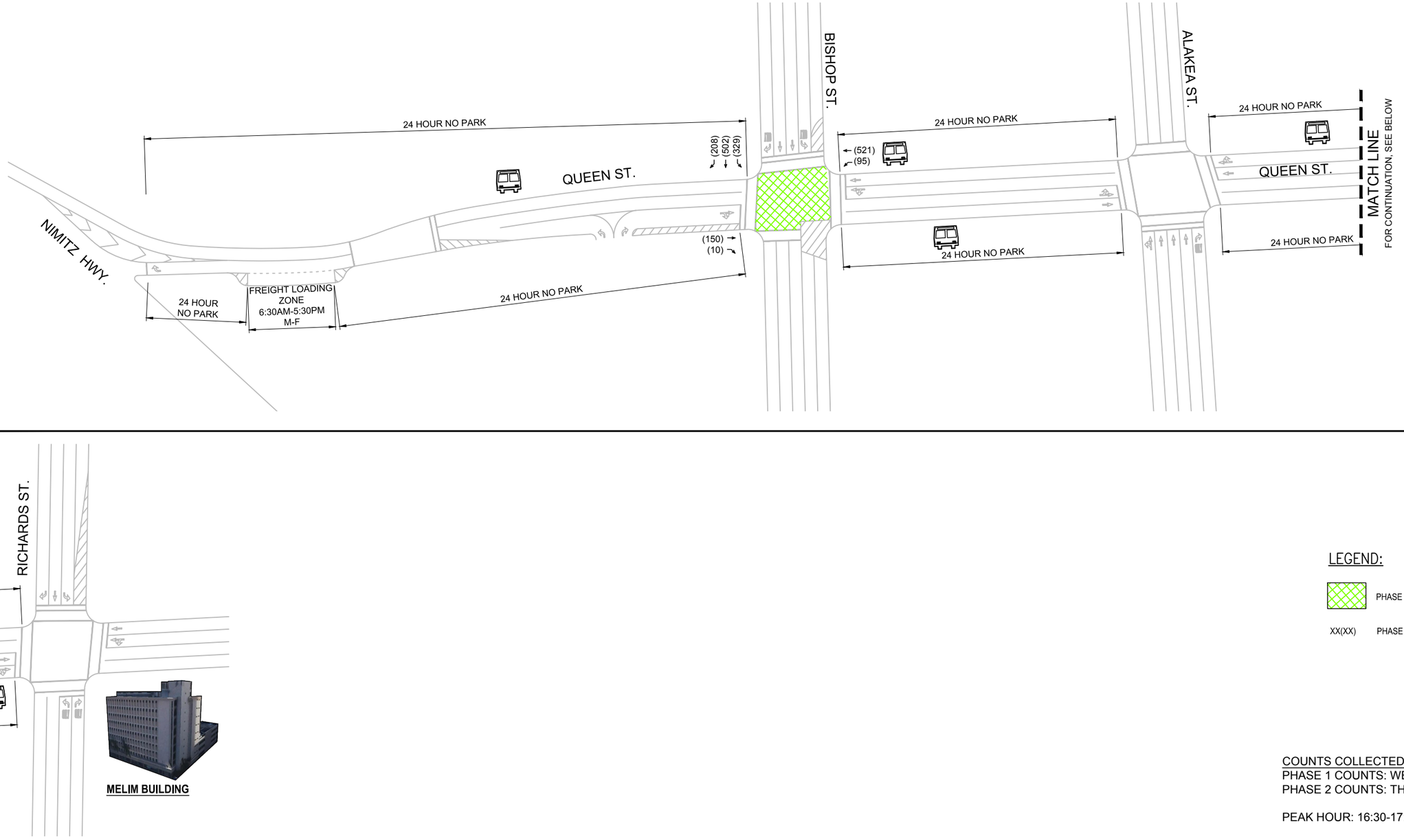

LEGEND:

PHASE 1 AND/OR PHASE 2 STUDY INTERSECTIONS

XX(XX) PHASE 1 (PHASE 2) PEAK HOUR VOLUMES

COUNTS COLLECTED:
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PHASE 2 COUNTS: THURSDAY, MAY 3, 2018

PEAK HOUR: 16:30-17:30

FIGURE 5.25

QUEEN STREET CORRIDOR - DETAIL INVENTORY

5.4 Tow-Away Zone and On-Street Parking Enforcement

The Parking Enforcement and Collections Section of the Honolulu Police Department (HPD) is currently responsible for meter maintenance and the issuance of parking citations in the Study Area.

Generally, as noted in corridor observations, there was widespread and frequent violation of parking restrictions throughout the day. This may be due to lack of maintenance for informational street signs and painted curbs which may result in confusion for drivers, and lack of adequate passenger loading and unloading areas especially within the Downtown area. Throughout the Study Area, vehicles were frequently observed to park in No Parking, Stopping, Loading or Unloading areas and Tow-Away Zones and wait for passengers.

As noted in the Walker Master Plan report, HPD is responsible for issuance of parking citations; however, the State of Hawaii receives all parking violation citations income and does not reimburse HPD for any costs related to the issuance of parking violations, including labor and processing expenses, which reduces the incentive and priority for HPD to issue parking citations.

5.5 Existing Complete Streets & Transit Elements

Several modal alternatives are offered throughout the Study Area, including bicycle and pedestrian facilities, the City and County TheBus system, and the future rail transit project which hopes to reduce the need to find parking in the area.

Figure 5.26: Bulbouts and street furniture, including planters, provide refuge for parked cars and also shortens pedestrian crossing distances

5.5.1 Bicycle and Pedestrian Facilities

Sidewalks are provided for pedestrians on every street studied within the network. In addition, Hotel Street is a transit road, and access is restricted to busses and bicycles only. Hotel Street connects to pathways that serve the King Street cycle track, which provides connectivity to the Urban Core of Honolulu, making cycling a viable option for those who live in the residential neighborhoods surrounding the Downtown/Chinatown area.

Additional streetscape attributes including bulb-outs and textured crosswalks can be seen throughout the Chinatown area, and are intended to shorten the crossing distance and increase pedestrian comfort and visibility.

5.5.2 TheBus

The City and County of Honolulu offers a bus system, called TheBus, which provides service to most major areas of Oahu. The Downtown/Chinatown area is a major hub for transit activity, and many routes offer connectivity within the Chinatown/Downtown area, and many others offer routes between the Chinatown/Downtown area and major suburban areas with “commuter” routes, which run straight into and out of downtown with minimal stops in between during the morning and afternoon peak.

6. CORRIDOR OBSERVATIONS AND ANALYSIS

6.1 Pauahi Street Corridor

6.1.1 Pauahi Street Observations

There are a number of metered stalls along Pauahi Street, with either a 1-hour or 2-hour time limit. During the PM commuter peak hour, it was observed that there was consistently higher utilization of metered stalls near Nuuanu Street than near River Street. Generally, there were metered parking stalls available throughout the Study Period, including during the peak hour.

Operationally, Pauahi Street did not experience any significant queueing at any point during the Study Period. There are no PM tow-away zone restrictions along Pauahi Street.

6.2 Queen Street Corridor

6.2.1 Queen Street Observations

During the busiest 30 minutes of the day, which occurred from approximately 4:45 PM to 5:15 PM, westbound Queen Street traffic was affected by spillback on the Alakea Street which extended to Nimitz Highway during this time. Alakea Street spillback blocked the right lane on Queen Street at the Alakea Street and Queen Street intersection, which operates as a shared through/right lane. This blocking in the right lane of Queen Street resulted in spillback in both lanes along Queen Street through the Queen Street and Richards Street intersection and about 100 feet beyond.

Additionally, some queueing was observed in the left lane of Queen Street as Queen Street merges with the congested Nimitz Highway. This queue was observed to extend to the crosswalk at Fort Street Mall at its peak.

Otherwise, Queen Street appeared to operate acceptably within the Study Area. During the peak hour of traffic, some drivers were observed to utilize Queen Street as alternative route to travel eastbound when major thoroughfares, including King Street, became congested.

Within the Study Area, most of Queen Street has 24-hour parking restrictions. The segment of Queen Street between Alakea Street and Richards Street did not have any signage restricting parking, though no vehicles were observed to park in this area. Generally, there were no violations of the parking restrictions along Queen Street. There are no PM Tow-Away Zone restrictions along Queen Street.

6.3 River Street Corridor

6.3.1 River Street Observations

A number of metered parking stalls are available along River Street along both sides of the street. It was observed that on-street parking was available throughout the Study Period, even during the peak, mostly on the west side of River Street.

Figure 6.1: Curbing along River Street visually aids drivers in locating available parking.

It was observed that delivery trucks would frequently park on the curbside in areas where it is restricted. However, the lanes on River Street are wide enough that the trucks parking along the curb are out of the travel lane, and do not affect thoroughfare. There was no major queuing or operational issues observed on River Street. There are no PM Tow-Away Zone restrictions along River Street.

6.4 Kekaulike Street Corridor

6.4.1 Kekaulike Street Observations

Kekaulike Street has freight loading zones for most of its length, which was observed to be heavily utilized throughout the Study Period. There were no significant queueing or operational issues observed. There are no PM Tow-Away Zone restrictions along Kekaulike Street.

6.5 Maunakea Street Corridor

6.5.1 Maunakea Street Observations

Maunakea Street is wide enough to accommodate 1-hour metered parking on both sides of the street between 7:00 AM and 6:00 PM, and two travel lanes. Bulbouts are present at several intersections along Maunakea Street, and serve to shorten the crossing distances for the numerous pedestrians in the area, and provide refuge for on-street parking.

On-street parking was generally at or near 100% utilization, and the frequent turnover resulted in some interruption to the travel lanes, though this interruption was temporary and generally did not result in persistent queuing or operational issues. Due to high utilization, several other parking violations were observed, including vehicles parking in no-parking areas, or double-parking in travel lanes. Large trucks, even those parked legally in loading zones, made it difficult for some larger cars to pass in the travel lane.

Figure 6.2 Bulbouts and delineators can make pedestrians more visible, and shorten the crossing distance. These bulbouts also provide refuge for on-street parking. Photo from Google Maps.

Some queueing was observed at the Maunakea Street and King Street intersection, primarily due to the lengthy cycle times which prioritized thoroughfare on the major King Street. This queue was regularly observed to spill back to the midblock crosswalk, and during the busiest peak, to Hotel Street. There are no PM tow-away zones on Maunakea Street.

6.6 Smith Street Corridor

6.6.1 Smith Street Corridor Observations

During the busiest hour of the afternoon, which occurred approximately between 4:30 PM and 5:30 PM, some queueing was observed in the Mauka-bound direction, as a result of spillback of King Street traffic, and occasionally extended to Marin Street. Occasionally, it was observed that King Street traffic queued through the intersection and blocked the progression of Mauka-bound Smith Street traffic, though this occurrence was not observed to cause significant impact to Smith Street queueing, and Mauka-bound queues were generally observed to clear every cycle. Smith Street has a number of metered on-street parking stalls between King Street and Beretania Street, and were observed to have relatively high utilization throughout the peak hour, especially between Pauahi Street and Beretania Street. There was no significant or prolonged queueing observed between King Street and Beretania Street as a result of the presence of parking.

6.7 Nuuanu Avenue Corridor

6.7.1 Nuuanu Avenue Observations

North of King Street, Nuuanu Avenue traffic was not observed to be significantly affected by the available metered parking offered on both sides of the roadway. Slight delay and queueing was observed as a result of drivers parallel parking into the metered parking, but these queues dissipated within 1 minute.

Some queueing was observed on Nuuanu Avenue between King Street and Marin Street when drivers were parallel parking into the marked on-street parking stalls, due to Nuuanu Avenue being only two lanes in this area, with marked on-street stalls on both sides. When this occurred, Makai-bound Nuuanu Avenue traffic occasionally queued through the King Street intersection, though this occurrence was infrequent and did not have lasting consequences on the operations of Nuuanu Avenue traffic.

6.8 Richards Street Corridor

6.8.1 Richards Street Corridor

It was observed that utilization of Richards Street as a southbound thoroughfare was low compared to adjacent southbound streets within the Study Area including Nuuanu Avenue and Bishop Street, presumably because it does not have outlet to the major Nimitz Highway at its southern terminus, and instead continues eastward as Halekauwila Street.

North of King Street, Richards Street was uncongested throughout the afternoon, including the peak hours. The segment of Richards Street between Hotel Street and King Street saw high volumes of traffic from TheBus, as busses exited the Hotel Street transit roadway and mixed back into regular traffic on King Street via Richards Street.

Queueing and spillback of the Richards Street southbound right turn lane and northbound left-turn lane was observed at the Richards Street and Queen Street intersection during the busiest 30 minutes of the afternoon between 4:45 PM and 5:15 PM and sometimes took 3-4 cycles to clear. At times, only 0-1 car was processed by the intersection. It appears that this queue was a result of blocked progression at the adjacent upstream Alakea Street and Queen Street intersection. This queue was alleviated as Alakea Street congestion diminished over the course of the evening. Low volumes on the congested northbound left-turn and southbound right-turn approach minimized the effects of blocking as a result of the queue, and allowed other northbound and southbound lanes to operate normally.

6.8.2 Richards Street Tow-Away Zone Modification Analysis

Figure 6.3: Frequent violation of the PM Tow-Away Zone was observed. However, storage space for northbound right-turn traffic appeared to be adequate despite the violations during the afternoon peak.

The only segment affected by a PM Tow-Away restriction was located on the east side of Richards Street between Halekauwila Street and Queen Street. Two metered stalls are affected. Some violations of these restrictions were observed throughout the PM peak hour; however it appeared that the storage space allotted for northbound right-turn vehicles was adequate even with these stalls occupied during the peak hour. Even during the busiest 30 minutes of the PM peak hour when northbound left-turn progression is blocked as previously discussed, it was not observed that any right-turn vehicles were blocked by the vehicles in violation of the PM Tow-Away Zone.

Therefore, no extension of the existing PM Tow-Away Zone hours is recommended at this time along Richards Street though consistent enforcement of existing PM Tow-Away Zone restrictions may be beneficial. Summary of analysis for PM Tow-Away Zone extension for Richards Street can be found in Figure 6.4.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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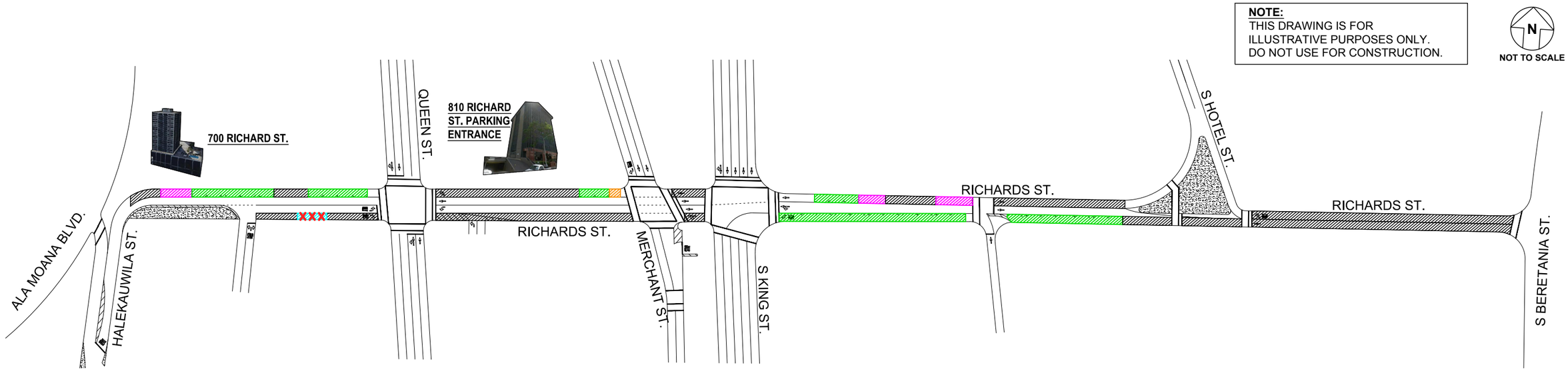

Tow-Away Zone Time Extension Considerations:

- Two metered stalls are affected by the PM Tow-Away Zones
- Storage space for northbound right-turn vehicles is adequate even with these stalls occupied during the peak hour.

Recommendations:

- **Extension of Tow-Away Zone hours not recommended**

LEGEND:
- NO PARKING
- PM TAZ (3:30PM - 5:30PM)
- TAZ - OTHER
- METERED PARKING
- PASSENGER LOADING ZONE
- LOADING ZONE
- X - OBSERVED FREQUENT TAZ VIOLATION AREAS - APPROXIMATE SEGMENT

FIGURE 6.4

RICHARDS STREET CORRIDOR - PM TOW-AWAY ZONE ANALYSIS

6.9 Alakea Street Corridor

6.9.1 Alakea Street Observations

Alakea Street has several types of parking restrictions along its stretch, including AM Tow-Away Zones, PM Tow-Away Zones, 24-hour no parking zones, no-parking zones between 6:00 AM and 6:30 PM, and parking reserved for police between the hours of 6:30 AM – 3:30 PM near Beretania Street. Four metered parking stalls are available on the Ewa side of Alakea Street near Nimitz Highway for one-hour parking between 7:00 AM and 6:00 PM.

Figure 6.5: Lane extension striping guides left-turn King Street vehicles into the second-from-the-left lane on Alakea Street, which alleviates interruption from frequent Tow-Away Zone violations in the far left lane on Alakea Street.

Frequent violations of the 24-hour no parking zones and PM Tow-Away Zones were observed throughout the Alakea Corridor, primarily on the Ewa curb between King Street and Hotel Street, as many vehicles stopped curbside to pick up passengers near the business offices during the afternoon commuter peak between 4:30 PM – 5:30 PM, sometimes waiting at the curb for several minutes. However, the frequent stopping of cars for pickup did not seem to affect operations significantly, as the striped bulbout near King Street creates a bay for vehicles to pull up to the curb, out of the flow of traffic, and the lane extension striping guides oncoming vehicles into the adjacent travel lane.

Congestion north of Beretania Street, where Alakea Street transitions to Queen Emma Street, appears to be a result of a combination of the merge where the two left-most lanes neck down into the single channelized left-turn lane onto Kukui Street, and weaving as Pail Highway-bound drivers cross multiple lanes to access Kukui Street while drivers continuing along Queen Emma weave out. Additionally, congestion at the Queen Emma Street and Vineyard Boulevard intersection contributes to the queue that spills back on Queen Emma Street and extends onto Alakea Street.

The King Street and Alakea Street intersection is coordinated with adjacent King Street intersections and prioritizes King Street thoroughfare at the expense of Alakea Street progression, contributing to the extensive queuing along Alakea Street. At its peak, the queue extends entire length of Alakea Street to Nimitz Highway. During the busiest 30 minutes, which appeared to be from about 4:45 PM to 5:15 PM, it took several cycles for Mauka bound Alakea Street vehicles to clear intersections and at times processed only 2-3 vehicles per lane. Drivers along Alakea Street were also observed to yield to the steady stream of vehicles exiting the numerous parking garages along Alakea Street, which also appeared to contribute to congestion and further spillback of queue. This queue was also observed to impact operations along the minor streets which intersect with Alakea Street. The queue along Alakea Street continued to spill back repeatedly from King Street to Nimitz Street for most of the evening, and was not observed to alleviate significantly until approximately 5:45 PM.

The four marked stalls near Nimitz Highway, which are affected by 1-hour parking between 7:00 AM 6:00 PM, were also observed to be used as loading zones. Vehicles were observed to park as early as 4:30 PM, in violation of the existing PM Tow-Away Zone period.

6.9.2 Alakea Street PM Tow-Away Zone Considerations

As previously described, Alakea Street queue was observed to spill back to Nimitz Highway for a significant portion of the evening. During this time on Alakea Street near Nimitz Highway, utilization of the leftmost Mauka-bound lane which serves as a shared left/through lane was lowest, possibly due to the downstream blocking from persistent PM Tow-Away Zone violations in the metered stalls.

As queues extended down Alakea Street to Nimitz Highway, eastbound left-turn and westbound right-turn vehicles from Nimitz Highway were observed to attempt to turn into the leftmost Mauka-bound lanes as the other lanes queued back, however, the available storage space could not be accessed because vehicles parked on the west curb blocked drivers from turning into the lane from Nimitz Highway. Because the metered stalls were constantly occupied by commercial vehicles loading/unloading or PM Tow-Away Zone violations, this condition persisted until the queue along Alakea Street diminished and Nimitz Highway vehicles were able to turn into any lane on Alakea Street, around 5:45 PM.

Therefore, in order to utilize the available storage space in the leftmost Mauka-bound lane made available by lower lane utilization, it is recommended that the PM Tow-Away Zone hours be actively enforced, and extended until 6:00 PM to account for fluctuations in daily traffic conditions. Additionally, to maintain consistency along the corridor, it is recommended that all other PM Tow-Away hours along Alakea Street also be extended until 6:00 PM. For the few vehicles that will be impacted by the 30-minute extension, alternative parking can be found in Davies Pacific Center, 1001 Bishop Street, Alii Place, or the Central Pacific Bank building.

Summary of analysis for PM Tow-Away Zone extension for Alakea Street can be found in Figure 6.6.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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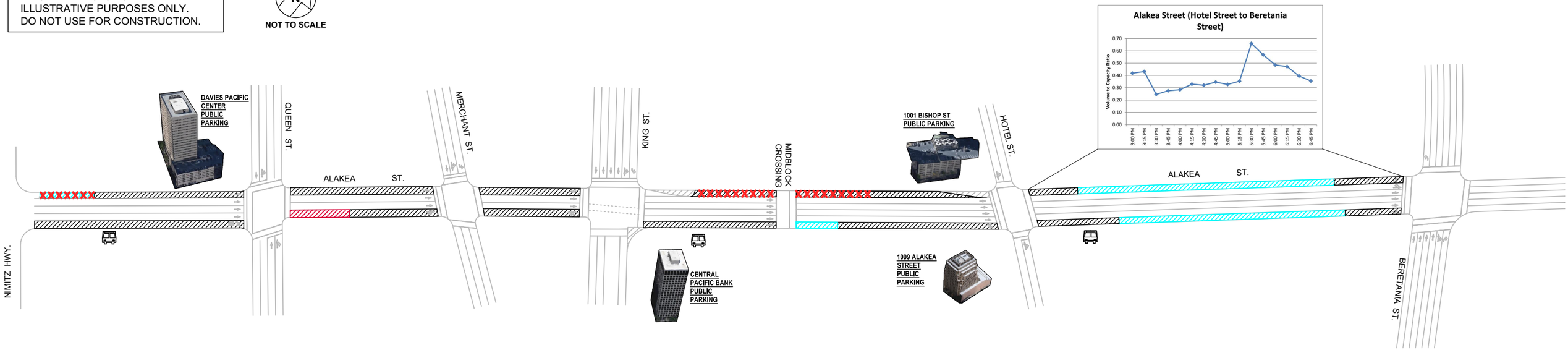
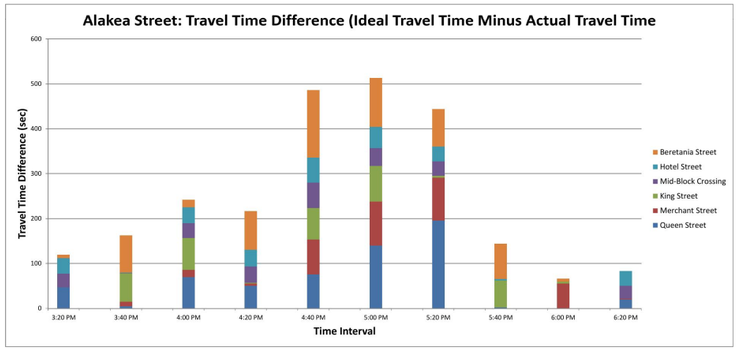


Occupancy of Allowed On-Street Parking along Alakea Street

Time	Percent Occupancy
3:20 PM	100%
3:40 PM	**50%**
4:00 PM	**50%**
4:20 PM	**700%**
4:40 PM	**75%**
5:00 PM	**100%**
5:20 PM	**50%**
5:40 PM	75%
6:00 PM	100%
6:20 PM	75%
6:40 PM	50%

Indicates TAZ In Effect



Actual Travel Times										
	Interval									
Segment	3:20 PM	3:40 PM	4:00 PM	4:20 PM	4:40 PM	5:00 PM	5:20 PM	5:40 PM	6:00 PM	6:20 PM
Queen Street	62	20	85	65	91	155	211	17	15	35
Merchant Street	9	19	25	14	86	107	104	9	64	10
King Street	7	70	78	9	77	86	11	67	11	7
Mid-Block Crosswalk	40	11	43	46	67	50	42	10	10	39
Hotel Street	51	17	51	53	72	63	49	19	16	49
Beretania Street	20	95	30	100	163	122	97	92	20	13

Indicates "Ideal" Travel Time
Indicates TAZ In Effect

Tow-Away Zone Time Extension Considerations:

- As queue extends down Alakea Street to Nimitz Highway, available storage space in the leftmost lane could not be accessed because vehicles parked on the west curb blocked drivers from turning into the lane from Nimitz Highway.

Recommendations:

- **Strict enforcement of PM TAZ**
- **Extension of PM Tow-Away Zone hours from 3:30PM-5:30PM to 3:30PM-6:00 PM throughout the Alakea Street Corridor**

LEGEND:

X - OBSERVED FREQUENT PARKING VIOLATION AREAS - APPROXIMATE SEGMENT
- NO PARKING
- PM TAZ (3:30PM - 5:30PM)
- TAZ - OTHER
- METERED PARKING
- PASSENGER LOADING ZONE
- LOADING ZONE

FIGURE 6.6

ALAKEA STREET CORRIDOR - PM TOW-AWAY ZONE ANALYSIS

6.10 Bishop Street Corridor

6.10.1 Bishop Street Observations

Bishop Street is the major Makai-bound roadway which serves the Downtown area and provides connection between the major regional thoroughfares of Beretania Street, King Street, and Nimitz Highway. There are a total of 13 metered parking stalls on the Makai side of Bishop Street, though 2 of those are reserved for taxis. These metered parking stalls are not in a travel lane.

Along Bishop Street, several areas have parking restrictions that change depending on the time of day. For example, a segment on the west side of Bishop Street fronting the Topa Financial Center serves as a 3-minute passenger loading zone except when it is a Tow-Away Zone, which is 6:30 AM – 9:00 AM and 3:30 PM – 5:30 PM. Similarly, a segment on the west side of Bishop Street near Queen Street serves as 1-hour parking between 9:00 AM – 3:30 PM, Monday through Friday and 7:00 AM – 6:00 PM Saturdays, except when it is a tow-away zone, which is 6:30 AM – 9:00 AM and 3:30 PM – 5:30 PM. These time-based parking restrictions are shown on signs which are stacked on poles near the roadway.

Throughout the afternoon, progression for through traffic along Bishop Street generally appeared to be smooth, even during the peak hour which heavily impacts the adjacent Alakea Street between 4:45 PM – 5:30 PM. Some queueing and spillback were observed in the two left lanes at King Street, though these queues were observed to clear with 1-2 cycles.

6.10.2 Bishop Street PM Tow-Away Zone Considerations

It seems that the frequent and widespread violations of the PM Tow-Away Zone contributed to driver habit of utilizing the middle through lanes to travel down Bishop Street. Because of the lower utilization of the curbside lanes, the Tow-Away Zone violations were less impactful to operations.

Travel time data showed that there was noticeable delay at the Ala Moana Boulevard intersection, which can be attributed to the long cycles which prioritizes the mainline Ala Moana Boulevard. There was also significant delay recorded during the 5:20 PM interval at the Mid-Block crossing which may be attributed to congestion at the Bishop Street and King Street intersection. However, data collected on consecutive days suggests that this condition may not be indicative of typical conditions and have only existed temporarily, as data for other intervals across several consecutive days do not show the same conditions. Otherwise, travel time data shows that conditions during peak hours, even with the extensive Tow-Away Zone violations, are generally similar to “ideal conditions”.

Therefore, no extension of the Tow-Away Zone hours is recommended for any segment on Bishop Street; however operations may benefit from consistent enforcement of the Tow-Away Zones. It should be noted that DTS is considering plans for the implementation of a protected bike lane along Bishop Street, which would remove a travel lane would result in Bishop Street being 4 lanes across between Beretania Street and Hotel Street, 3 through lanes between Hotel Street and Merchant Street, and 2 through lanes between Merchant Street and Queen Street. Parking restrictions in this scenario are unknown, and should be evaluated as Bishop Street transforms. Summary of analysis for PM Tow-Away Zone extension for Bishop Street can be found in Figure 6.7.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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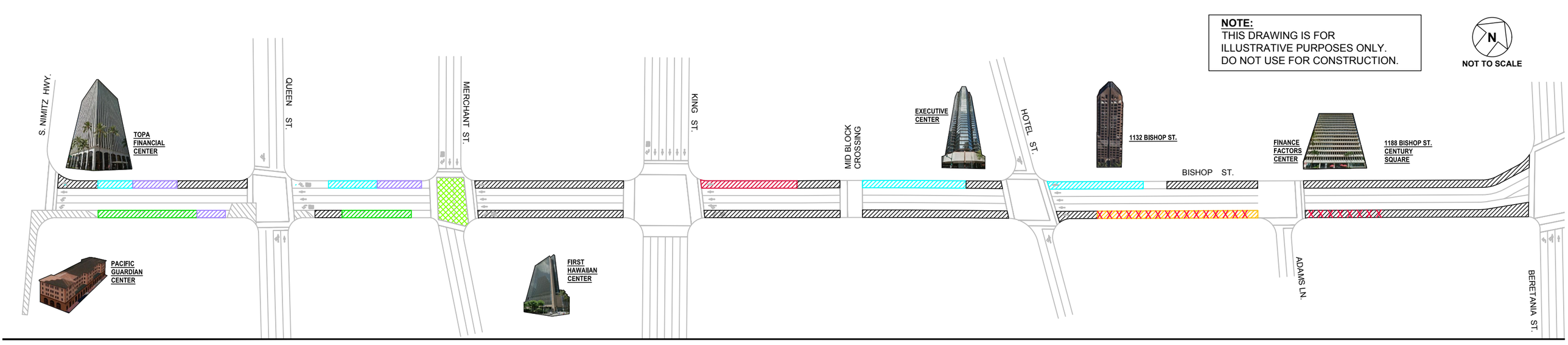

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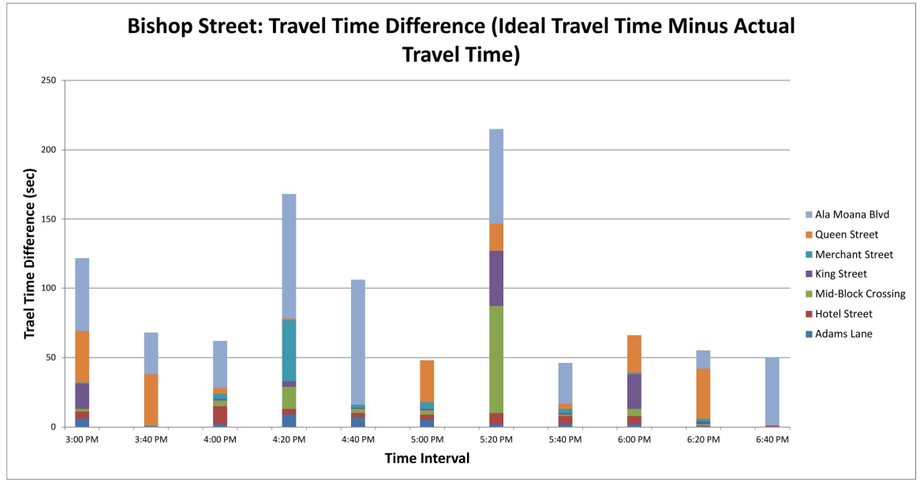

Occupancy of Allowed On-Street Parking along Bishop Street

Time	Percent Occupancy
3:20 PM	100%
3:40 PM	**86%**
4:00 PM	**64%**
4:20 PM	**93%**
4:40 PM	**93%**
5:00 PM	**93%**
5:20 PM	**71%**
5:40 PM	57%
6:00 PM	79%
6:20 PM	71%
6:40 PM	93%

Indicates TAZ In Effect

Tow-Away Zone Time Extension Considerations:

- Spike in travel time during 5:20 PM interval does not appear to be representative of typical conditions and can be attributed to congestion at the King Street and Bishop Street intersection, which temporarily resulted in vehicles taking 2 cycles to clear the intersection. Travel time across consecutive intervals and days are consistent with this assumption.
- Existing frequent violation of Tow-Away Zone times for pickup/drop off of passengers does not appear to affect operations of the corridor due to driver habit of heavy utilization of middle lanes, and lower utilization of curbside lanes

Recommendations:

- **Extension of Tow-Away Zone hours not recommended**

LEGEND:

- NO PARKING
- PM TAZ (3:30PM - 5:30PM)
- TAZ - OTHER
- METERED PARKING
- PASSENGER LOADING ZONE
- LOADING ZONE
- UNMETERED PARKING

FIGURE 6.7

BISHOP STREET CORRIDOR - PM TOW-AWAY ZONE ANALYSIS

6.11 Bethel Street Corridor

6.11.1 Bethel Street Observations

Between Nimitz Highway and Merchant Street, significant queueing was observed due to weaving of vehicles entering and exiting the right-turn-only lane on Merchant Street, and lasted from approximately 4:30 PM until 5:45 PM. This queue spilled back to Nimitz Highway, and into the protected right-turn lane from Queen Street, though it was not observed to significantly or consistently affect Nimitz Highway operations.

Between Merchant Street and King Street, the rightmost lane was often utilized as a through lane and a right-turn lane, resulting in two lanes of traffic narrowly fitting into one. Between approximately 4:30 PM to 5:45 PM, the northbound right-turn traffic was observed to consistently queue through the marked stalls on the east curb, and sometimes extend to Merchant Street during the busiest 30 minutes. King Street traffic was observed to occasionally queue through the Bethel Street and King Street intersection, blocking progression of Bethel Street traffic.

At the time that field observations were recorded, roadway striping between Pauahi Street and Beretania Street was completely faded and intended laneage was unclear. When there were no cars parked in the marked stalls on the east curb, the right lane was observed to sometimes be utilized as two lanes as drivers attempted to get into the appropriate lane before downstream striping at the Beretania Street intersection separated the right lane into two lanes. At times, this led to conflict and confusion for drivers.

At the Bethel Street and Hotel Street intersection, short cycle lengths and relatively long crossing times to serve busses and high volumes of pedestrians led to frequent disruption of vehicle progression along Bethel Street. Pedestrian crossings were also frequent at the Chaplain Lane and the unsignalized Pauahi Street crosswalks, and drivers were generally observed to yield immediately to waiting pedestrians.

During the busiest 30 minutes at the Beretania Street and Bethel Street intersection, northbound Bethel Street queue was observed to be extensive, in some instances extending to Pauahi Street. This appeared to be primarily due to the high pedestrian traffic within crosswalks at Pauahi Street and Chaplain Lane, and long cycle lengths at the Beretania Street and Bethel Street intersection, which prioritizes the mainline Beretania Street traffic.

6.11.2 Bethel Street PM Tow-Away Zone Considerations

The travel time difference plot shows that throughout the day, travel time is relatively consistent and “ideal” for Bethel Street between Nimitz Highway and King Street, with a few sporadic exceptions at 3:20 PM, 4:40 PM and 5:20 PM, which reflected conditions with a red light at King Street. However, this travel time reflects conditions in the through lane, and does not accurately represent conditions experienced by traffic in the right lane, which consistently spilled back past the four metered stalls on the east curb to Merchant Street. This queue was not observed to alleviate until about 5:45 PM.

Due to the observed extensive queueing between Merchant Street and King Street, which extends through the PM Tow-Away Zone on the east curb and does not alleviate until approximately 5:45 PM, it is recommended that the Tow-Away Zone on this segment be extended to 6:00 PM, which is timed to accommodate fluctuations for day-to-day differences in operations and queueing.

On the segment between Hotel Street and Pauahi Street, and Pauahi Street and Beretania Street, extension of the PM Tow-Away Zone should not technically add lane capacity, as the curbside parking is in the travel lane. In this case, the benefit of extending the Tow-Away Zone hours may be increased driver comfort and slightly higher speeds as drivers have wider lanes without the presence of the parked cars and less interference of drivers pulling in and out of the curbside parking. These benefits are not expected to be significant or prolonged as the interruption to traffic as drivers pull into and out of stalls are sporadic and temporary. However, for consistency along the corridor, it is recommended that all PM Tow-Away Zones along Bethel Street be extended to 6:00 PM.

For the 10 metered stalls that may be impacted by the 30-minute TAZ extension, nearby off-street parking may be found at OceanIt Center, One South King, Chinatown Gateway, Marks Garage, or the Beretania-Nuuanu parking lot. Metered parking stalls will still be available at various locations along the west curb of Bethel Street throughout the day. Summary of analysis for PM Tow-Away Zone extension for Bethel Street can be found in Figure 6.8.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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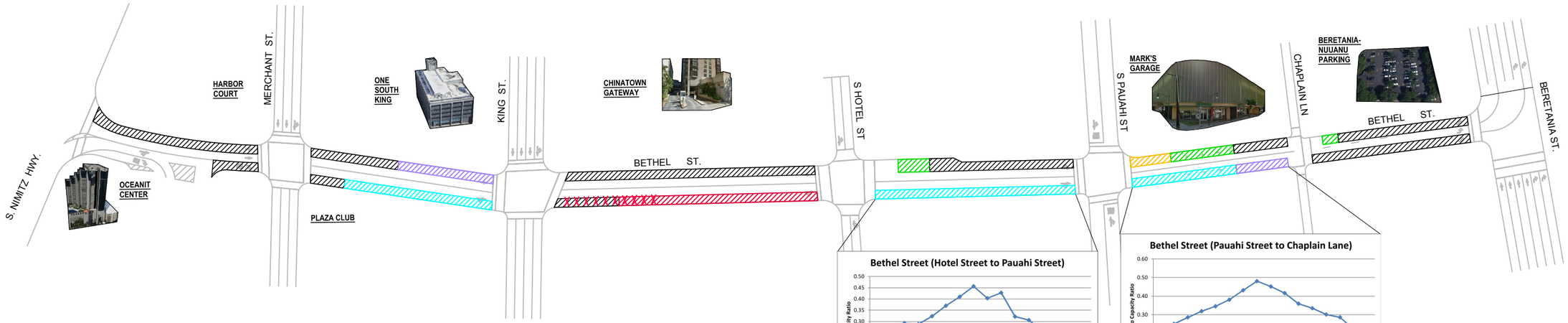

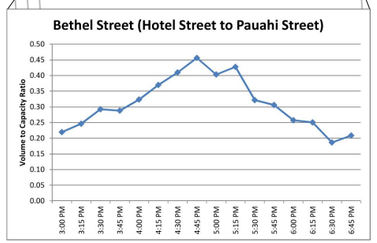

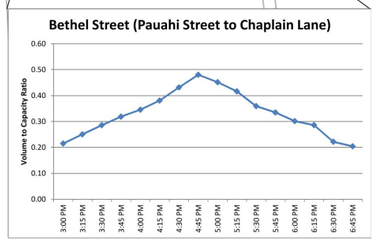

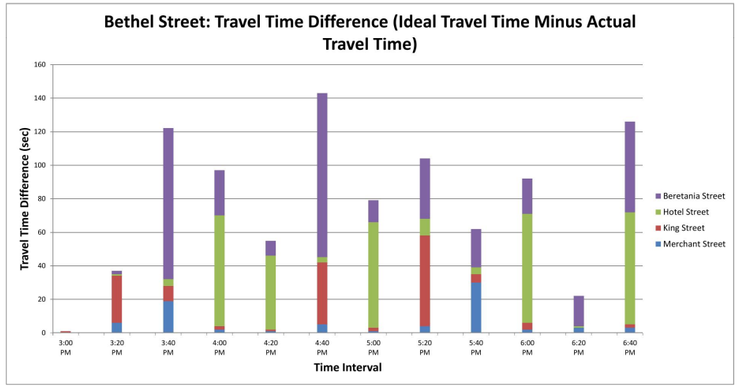

Occupancy of Allowed On-Street Parking along Bethel Street

Time	Percent Occupancy
3:20 PM	82%
3:40 PM	88%
4:00 PM	88%
4:20 PM	35%
4:40 PM	59%
5:00 PM	41%
5:20 PM	53%
5:40 PM	82%
6:00 PM	94%
6:20 PM	76%
6:40 PM	100%

Indicates TAZ In Effect

Actual Travel Times												
	Interval											
Interval	3:00 PM	3:20 PM	3:40 PM	4:00 PM	4:20 PM	4:40 PM	5:00 PM	5:20 PM	5:40 PM	6:00 PM	6:20 PM	6:40 PM
Merchant Street	11	17	30	13	12	16	12	15	41	13	14	14
King Street	10	37	18	11	10	46	11	63	14	13	9	11
Hotel Street	11	12	15	77	55	14	74	21	15	76	12	78
Beretania Street	27	29	117	54	36	125	40	63	50	48	45	81

Indicates "Ideal" Travel Time
Indicates TAZ In Effect

Tow-Away Zone Time Extension Considerations:

- Observations show that the northbound queue at King Street spills back along the east curb, through the current PM TAZ segment sometimes to Merchant Street and does not alleviate until approximately 5:45PM.

Recommendations:

- **Strict enforcement of PM TAZ**
- **Extension of Tow-Away Zone hours from 3:30PM-5:30PM to 3:30PM-6:00PM throughout the Bethel Street corridor**

LEGEND:

- NO PARKING
- PM TAZ (3:30PM - 5:30PM)
- TAZ - OTHER
- METERED PARKING
- PASSENGER LOADING ZONE
- LOADING ZONE
- UNMETERED PARKING
- X - OBSERVED FREQUENT PARKING VIOLATION AREAS - APPROXIMATE SEGMENT

FIGURE 6.8

BETHEL STREET CORRIDOR - PM TOW-AWAY ZONE ANALYSIS

6.12 Merchant Street Corridor

6.12.1 Merchant Street Observations

Merchant Street has 4 metered stalls on the north side of the street and 2 on the south side of the street between Nuuanu Avenue and Bethel Street, which are affected by the PM Tow-Away Zone restrictions. The rest of the street is restricted to freight loading zones or 24-hour no parking restrictions and are denoted by painted curbs and signage.

Figure 6.9: Parking violations are widespread due to lack of enforcement.

Field observations revealed a significant number of parking violations by passenger cars and delivery trucks, especially between 4:00 PM and 4:30 PM as vehicles pulled over to the curb for passenger pick up primarily on the north side of Merchant Street between Bethel Street and Bishop Street. It was observed that vehicles sometimes were parked for several minutes while waiting for passengers. These violations resulted in driver confusion and interruption to the through traffic, as these cars parked in the leftmost and rightmost lanes, making Merchant Street operate as essentially a 1-lane roadway. The large crosswalk at Fort Street Mall had a consistent flow of pedestrians sporadically approaching the intersection, making it difficult for drivers to find a gap to proceed through the crosswalk. This resulted in a queue that sometimes spilled back to Bethel Street and blocked right-turns from Bethel Street onto Merchant Street.

Figure 6.10: Parking violations on both sides of the street results in Merchant Street operating as a one-lane roadway.

Persistent violations of the 24-hour no parking areas were also observed on Merchant Street between Bishop Street and Alakea Street, which made this segment operate as a one- or two-lane roadway throughout the afternoon. During the busiest peak between 4:45 PM and 5:15 PM, Alakea Street traffic was observed to spill back past Merchant Street due to upstream signal timing and congestion, only processing 1-2 vehicles per lane during some cycles. This affected the two left lanes on Merchant Street turning onto Alakea Street. Utilization was high in the shared left-through lane due to high regional eastbound volumes attempting to access King Street via Alakea Street, resulting in queues along Merchant Street that sometimes spilled back to Bishop Street and blocked progression of Merchant Street traffic. At this time along the segment, Merchant Street through traffic was unable to access the right-most through lane due to consistent parking violations in the lane.

6.12.2 Merchant Street PM Tow-Away Zone Considerations

Field observations suggest that in general, queueing along Merchant Street is a primarily a result of spillback on Alakea

Street, which would not be alleviated by the extension of PM Tow-Away Zone hours along Merchant Street. Therefore, no extension of the PM Tow-Away Zone is recommended; however the corridor may benefit from consistent enforcement of no parking and Tow-Away Zones especially on the segment of Merchant Street between Bishop Street and Alakea Street, where eastbound through vehicles are unable to access the dedicated through lane due to persistent violations. Without the Tow-Away Zone violations in the through lane, eastbound through vehicles could proceed along Merchant Street through the intersection unimpeded, and free storage space in the overcapacity shared left/through lane. Summary of analysis for PM Tow-Away Zone extension for Merchant Street can be found in Figure 6.11.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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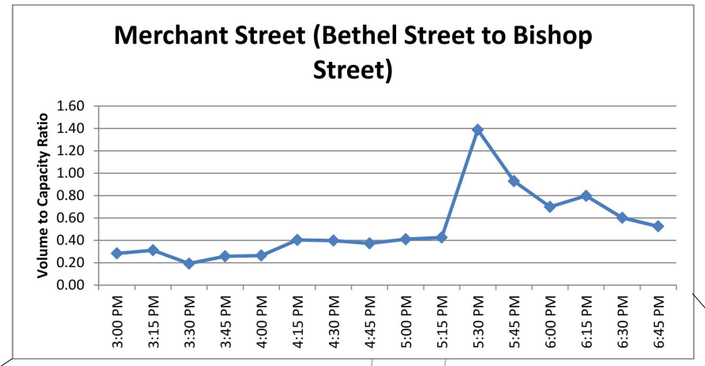

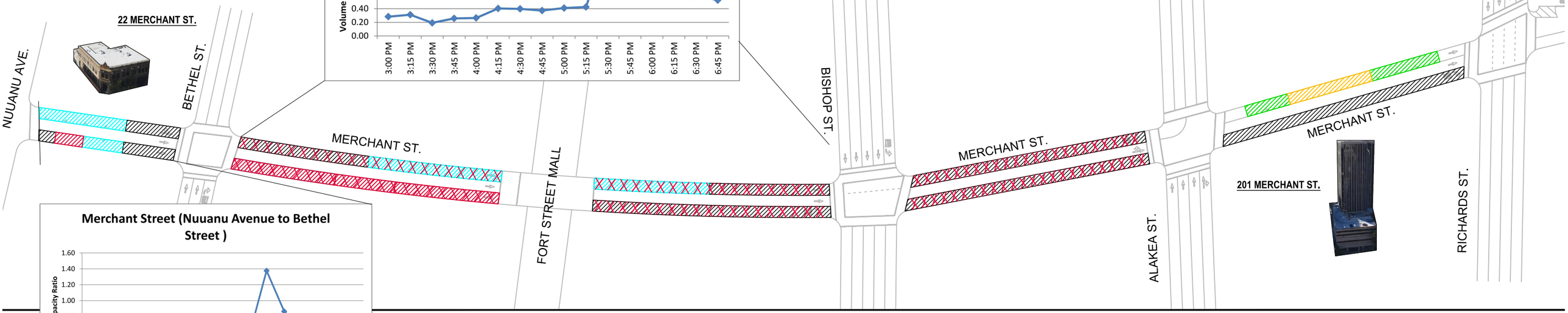

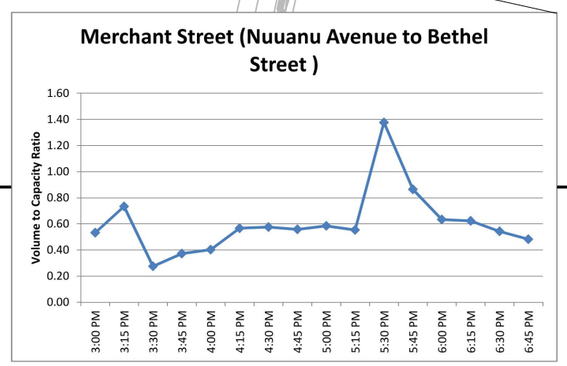

Tow-Away Zone Time Extension Considerations:

- Field observations reveal that queueing along Merchant Street is a result of upstream traffic congestion and progression along Merchant Street is acceptable even with frequent and widespread Tow-Away Zone violations.

Recommendations:

- **Extension of Tow-Away Zone hours not recommended**

LEGEND:

- NO PARKING
- PM TAZ (3:30PM - 5:30PM)
- TAZ - OTHER
- METERED PARKING
- PASSENGER LOADING ZONE
- LOADING ZONE
- X - OBSERVED FREQUENT PARKING VIOLATION AREAS - APPROXIMATE SEGMENT

FIGURE 6.11

MERCHANT STREET CORRIDOR - PM TOW-AWAY ZONE ANALYSIS

7. RECOMMENDATIONS

7.1 PM Tow-Away Zone Hours Extension

Bethel Street Extension

Due to the observed extensive queueing between Merchant Street and King Street, which extends through the PM Tow-Away Zone on the east curb and does not alleviate until approximately 5:45 PM, it is recommended that the Tow-Away Zone on this segment be extended to 6:00 PM, which is timed to accommodate fluctuations for day-to-day differences in operations and queueing. For consistency along the corridor, it is recommended that all Tow-Away Zones along Bethel Street be extended to 6:00 PM.

For vehicles displaced by the 30-minute extension of the PM TAZ, additional off-street parking is available at the nearby OceanIt Center, One South King, Chinatown Gateway, Marks Garage, and Beretania-Nuuanu parking lot. The existing metered parking stalls on the west curb will continue to be available throughout the day.

Alakea Street Extension

As discussed in Section 6.9.2, currently, the leftmost Mauka-bound lane has lower utilization than the adjacent through lanes along Alakea Street, with available storage space in the leftmost lane as the other lanes queued back to Nimitz Highway. This may be due to commercial vehicles loading and unloading and PM Tow-Away Zone violations near Nimitz Highway, which blocks vehicles turning from Nimitz Highway from entering the lane, especially as the adjacent Alakea Street lanes queued back. This condition persisted until the queue along Alakea Street diminished and Nimitz Highway vehicles were able to turn into any lane on Alakea Street, around 5:45 PM.

Therefore, in order to utilize the available storage space in the leftmost Mauka-bound lane due to lower lane utilization, it is recommended that the PM Tow-Away Zone hours be actively enforced, and extended until 6:00 PM to account for fluctuations in daily traffic conditions. Additionally, to maintain consistency along the corridor, it is recommended that all other PM Tow-Away Zone hours along Alakea Street also be extended until 6:00 PM.

For vehicles displaced by the 30-minute extension of the PM TAZ, additional off-street parking may be found in the Davies Pacific Center, 1001 Bishop Street, Alii Place, or the Central Pacific Bank building.

7.2 Operational

7.2.1 Enforcement of Tow-Away Zones

As stated in previous sections, observations suggest that parking restrictions within the Study Area are rarely enforced. Though operationally, tow-away zone violations were not observed to significantly affect operations throughout the typical weekday due to a number of reasons including driver adjustment behavior, adherence to parking laws should be enforced. In special cases, including days that a traffic incident affects operations, its impact may be alleviated by additional capacity provided by travel lanes unobstructed by PM Tow-Away Zone violations. Additionally, enforcement of parking restrictions may lead to increased revenue to the State and more compliance to general parking restrictions, including time restrictions, which may increase turnover of parking stalls to serve a greater number of people. Increased compliance with parking

restrictions may also lead to more sustainable and predictable operational conditions for planning purposes, as parking violations are sporadic and unpredictable and can skew volume data and quantitative results.

7.3 Visual

7.3.1 Maintenance of Signage

It was observed that throughout the Study Area, there are some signs that are faded or vandalized, which can make the information on the signs difficult to read. To enable the public to be observant of parking restrictions, signage should be clear and well-maintained.

Figure 7.1: Faded Signs along Alakea Street which are difficult to read.

7.3.2 Painting Curbs to indicate Tow-Away Zones

Painted curbs can be a great asset to drivers searching for on-street parking, as drivers are able to quickly determine if parking is allowed, and can reduce slowing or stopping in the travel lanes as drivers try to read curbside parking signage.

Some curbs throughout the Study Area were painted red to indicate no-parking areas including bus stops, and yellow curbing to indicate freight loading zones. Many of these painted curbs are dilapidated and difficult to see.

Consistent painting and maintenance of red or yellow curbing, as appropriate, throughout the Study Area may help drivers locate available parking more quickly and park with less interference to traffic in the travel lanes. Painted curbs also add more clarity to the exact length and location of parking restrictions.

Additionally, these painted curbs will also assist parking enforcement staff to quickly and easily determine whether or not a vehicle is parked in a no-parking zone, as the curb is clearly painted red.

Figure 7.2: Fading yellow paint on a curb in Chinatown

7.3.3 Colored Parking Meters

Colored parking meters may also assist drivers in quickly determining acceptable locations for parking. In the city of San Francisco, meters are clearly colored to reflect parking restrictions, with

green meters for short-term parking, yellow meters for loading for smaller commercial vehicles, and red meters to designate loading areas for commercial vehicles for 6 or more wheels. Though loading zone areas are not currently metered within the Study Area, the Walker Study referenced in Section 3 of this report suggested that greater revenue may be generated from metered loading zones, and may be a consideration that would also provide clarity for available on-street parking locations.

Figure 7.3: Yellow parking meter in San Francisco, indicating a loading zone only for commercial vehicles. Photo fromlcalwiki.org

7.3.4 Comprehensive and/or Real-Time Parking Map for Trip Planning

A publicly accessible comprehensive map showing exact locations of parking restrictions should be available for drivers to plan their trips, with information on available stalls, meter prices, time restrictions, and other relevant information. The availability of this information would help drivers plan out their trips and become more familiar with the area before driving, and may reduce the amount of time that drivers spend circling congested areas in search of parking.

7.3.5 Create marked, metered stalls where it is currently unrestricted for consistency and increased revenue

Currently, certain areas that are restricted by loading zones which end in the early evening during weekdays, typically 3:30 PM or 4:00 PM, become unmarked, unmetered on-street parking after the restriction ends. Marking stalls can help drivers utilize available curbside space in the most efficient way. Metering stalls can generate revenue from passenger vehicles after loading zone hours.

8. CONCLUSIONS

Austin, Tsutsumi & Associates, Inc. (ATA) has conducted a traffic study to evaluate existing parking inventory and identify potential modifications to existing PM Tow-Away-Zone (TAZ) hour restriction. The purpose of the traffic study is to improve traffic conditions within the Study Area, which includes the region bound by River Street to the west, Beretania to the north, Richards Street to the east, and Nimitz Highway to the south. King Street, Hotel Street and Beretania Street were not studied as additional planning studies will be completed in the future for these corridors.

Segments of roadway that are currently affected by PM Tow-Away Zone hours (3:30 PM – 5:30 PM) were evaluated for extension to improve traffic operations within the Study Area, while ensuring that valid parking alternatives are available to support residents and businesses who may be affected by the extension of the parking restriction.

8.1 Methodology

Travel time runs and one intersection count were conducted along five corridors throughout the study route, including Maunakea Street, Nuuanu Avenue, Bethel Street, Bishop Street and Alakea Street and constituted what is referred to as “Phase 1” data. This data provided the basis for additional turning movement data counts, referred to as “Phase 2” data, at thirteen (13) intersections throughout the Study Area.

Evaluation to determine if PM Tow-Away Zone hours should be extended was performed on an individual basis, due to the unique nature of each of the roadways in their capacity, utilization, and role in the network. Key metrics in analysis included travel time, which considered the difference in actual travel time to the “ideal” travel time, volume-to-capacity (v/c) ratio, which considered how close to capacity the relevant segment was operating, and queueing.

8.2 Analysis of Tow-Away Zone Hours Extension

Of all the corridors in the Study Area, only five (5) corridors were affected by PM Tow-Away Zone hours, including Richards Street, Alakea Street, Bishop Street, Bethel Street and Merchant Street.

8.2.1 Richards Street

The only segment affected by a PM Tow-Away restriction was located on the east side of Richards Street between Halekauwila Street and Queen Street. Two metered stalls are affected. Frequent violations of these restrictions were observed throughout the PM peak hour; however it was observed that the storage space allotted for northbound right-turn vehicles even with these stalls occupied during the peak hour was adequate. Even during the busiest 30 minutes of the PM peak hour when northbound left-turn progression is blocked as previously discussed, it was not observed that any right-turn vehicles were blocked by the vehicles in violation of the PM Tow-Away Zone.

Therefore, no extension of the existing PM Tow-Away Zone hours is recommended at this time.

8.2.2 Alakea Street

As previously described, Alakea Street queue was observed to spill back to Nimitz Highway for a portion of the evening. During this time on Alakea Street near Nimitz Highway, utilization of the leftmost Mauka-bound lane which serves as a shared left/through lane was lowest, possibly due to the downstream blocking from persistent PM Tow-Away Zone violations in the metered stalls.

As queue extended down Alakea Street to Nimitz Highway, the available storage space in the leftmost Mauka-bound lane could not be accessed because vehicles parked on the west curb blocked drivers from turning into the lane from Nimitz Highway. Because the metered stalls were constantly occupied by commercial vehicles loading/unloading or PM Tow-Away Zone violations, this condition persisted until the queue along Alakea Street diminished and Nimitz Highway vehicles were able to turn into any lane on Alakea Street, around 5:45 PM.

Therefore, in order to utilize the available storage space in the leftmost Mauka-bound lane due to lower lane utilization, it is recommended that the PM Tow-Away Zone hours be actively enforced, and extended until 6:00 PM to account for fluctuations in daily traffic conditions. Additionally, to maintain consistency along the corridor, it is recommended that all other PM Tow-Away hours along Alakea Street also be extended until 6:00 PM.

See Figure 8.1 for the Alakea Street Parking Inventory with the recommended PM TAZ extension.

8.2.3 Bishop Street

Travel time data showed that there was noticeable delay at the Ala Moana Boulevard intersection, which can be attributed to the long cycles which prioritizes the mainline Ala Moana Boulevard. There was also significant delay recorded during the 5:20 PM interval at the Mid-Block crossing which may be attributed to congestion at the Bishop Street and King Street intersection, though data collected on consecutive days suggests that this condition may not be indicative of typical conditions and have only existed temporarily, as data for other intervals across several consecutive days do not show the same conditions. Otherwise, travel time data shows that conditions during peak hours, even with the extensive Tow-Away Zone violations, are generally similar to “ideal conditions”.

Therefore, no extension of the Tow-Away Zone hours is recommended for any segment on Bishop Street; however operations may benefit from consistent enforcement of the Tow-Away Zones.

8.2.4 Bethel Street

The travel time difference plot shows that throughout the day, travel time is relatively consistent and “ideal” for Bethel Street between Nimitz Highway and King Street, with a few sporadic exceptions at 3:20 PM, 4:40 PM and 5:20 PM, which reflected conditions with a red light at King Street. However, this travel time reflects conditions in the through lane, and does not accurately represent conditions experienced by traffic in the right lane, which spills back past the four metered stalls on the east curb to Merchant Street. This queue was not observed to alleviate until about 5:45 PM.

Due to the observed extensive queueing between Merchant Street and King Street, which extends through the PM Tow-Away Zone on the east curb and does not alleviate until approximately 5:45 PM, it is recommended that the Tow-Away Zone on this segment be extended to 6:00 PM, which is timed to accommodate fluctuations for day-to-day differences in operations and queueing.

On the segment between Hotel Street and Pauahi Street, and Pauahi Street and Beretania Street, extension of the PM Tow-Away Zone should not technically add lane capacity, as the curbside parking is in the travel lane. In this case, the benefit of extending the Tow-Away Zone hours may be increased driver comfort and slightly higher speeds as drivers have wider lanes without the presence of the parked cars and less interference of drivers pulling in and out of the curbside parking. These benefits are not expected to be significant or prolonged as the interruption to traffic

as drivers pull into and out of stalls are sporadic and temporary. However, for consistency along the corridor, it is recommended that all Tow-Away Zones along Bethel Street be extended to 6:00 PM.

See Figure 8.2 for the Bethel Street Parking Inventory with the recommended PM TAZ extension.

8.2.5 Merchant Street

Field observations suggest that in general, queueing along Merchant Street is a result of upstream traffic congestion, and Merchant Street operates acceptably even with the Tow-Away Zone violations during the peak hour. Therefore, no changes to the Tow Away Zone hours is recommended, however operations may benefit from consistent enforcement of the Tow-Away Zones.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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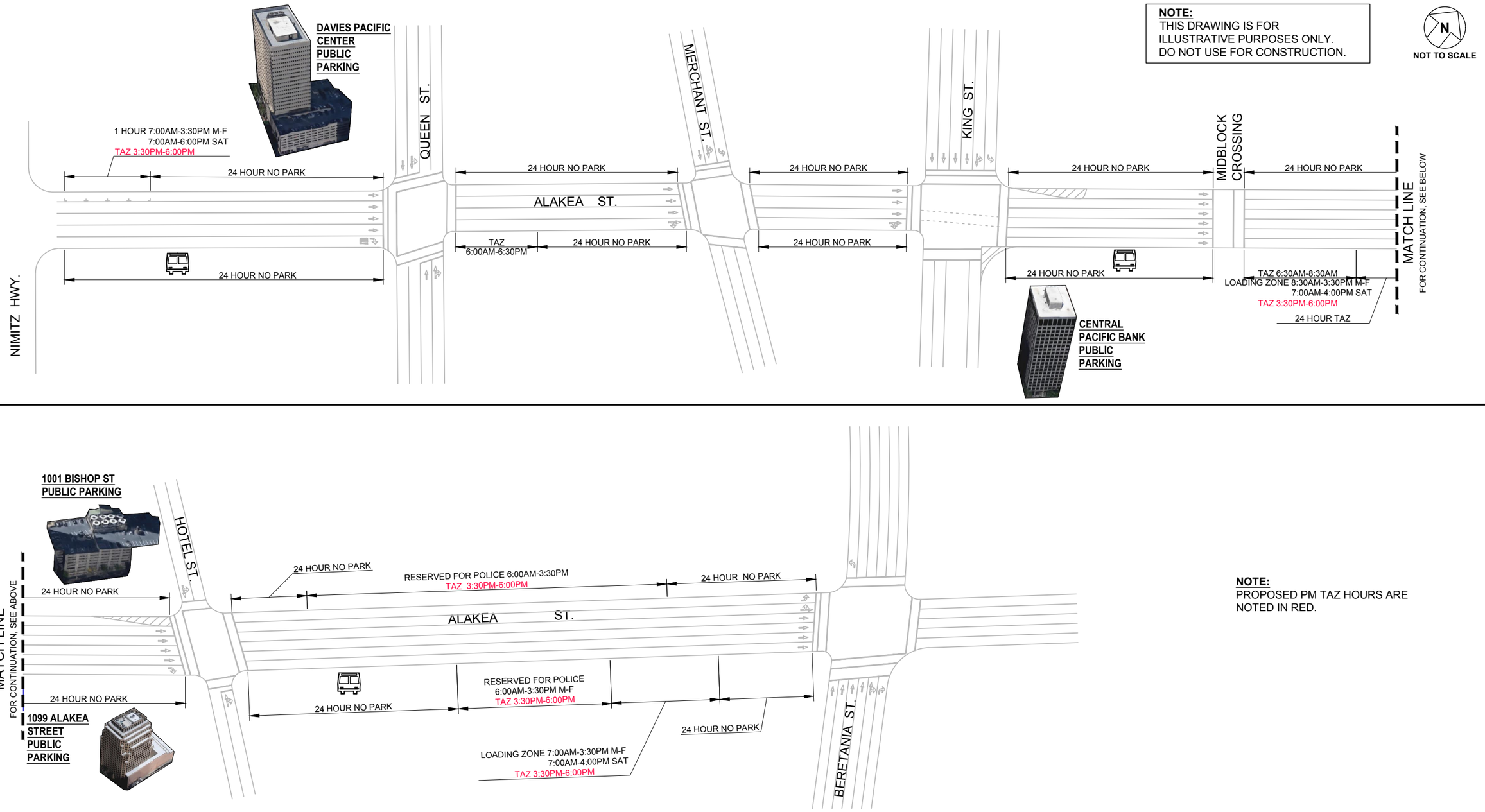

FIGURE 8.1

ALAKEA STREET CORRIDOR- DETAIL INVENTORY WITH RECOMMENDED TAZ HOUR EXTENSION

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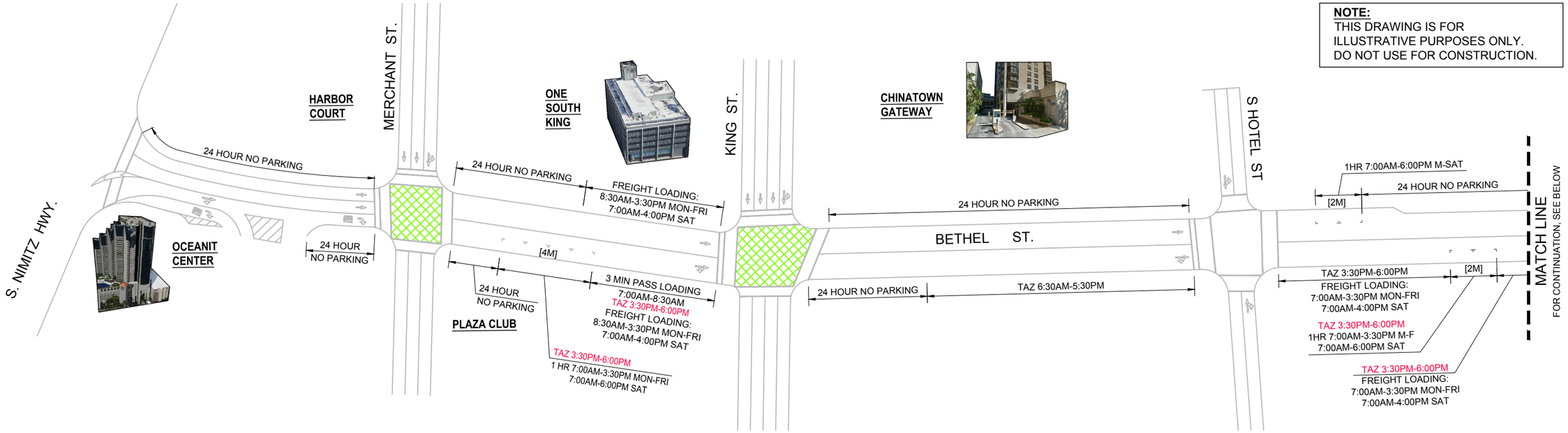

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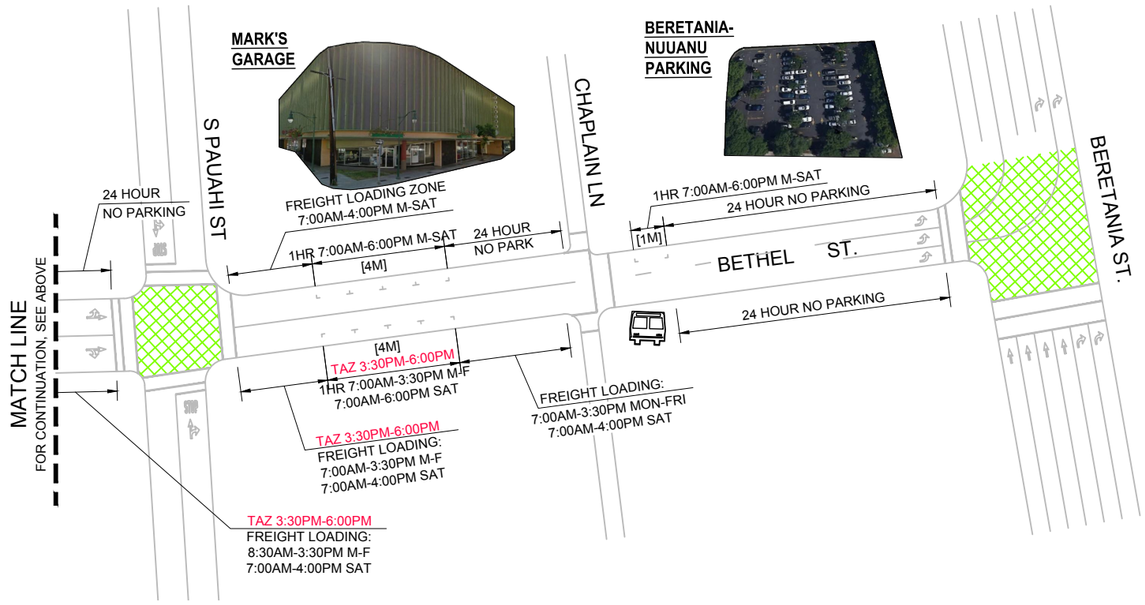

NOTE:
PROPOSED PM TAZ HOURS ARE NOTED IN RED.

FIGURE 8.2

BETHEL STREET CORRIDOR - DETAIL INVENTORY WITH RECOMMENDED TAZ HOUR EXTENSION

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PM TOW-AWAY ZONE HOURS MODIFICATION STUDY

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TRAFFIC STUDY

PM PEAK TOW-AWAY ZONE TIME MODIFICATION STUDY

URBAN CORE STUDY AREA

Honolulu, Oahu, Hawaii

1. INTRODUCTION

1.1 Location

The Honolulu Urban Core Study Area includes the region bound by Kinau Street to the north, University Avenue to the east, Kapiolani Boulevard to the south, and Punchbowl Street to the west. Kapiolani Boulevard and King Street were not studied as additional planning studies will be completed in the future for these corridors. See Figure 1.1 for the Honolulu Urban Core Study Area, hereinafter referred to as the "Study Area".

1.2 Project Description

Currently, on-street (curbside) parking is available throughout the Study Area. In some areas, marked stalls had time limits of anywhere between 1-3 hours which are indicated on signs adjacent to the curb, and other marked stalls did not have any posted hourly restriction. On corridors with high commuter traffic volumes, some segments are affected by AM and PM peak Tow-Away Zone restrictions so that the curbside parking lane can be used as a travel lane. This report will take inventory of the existing parking conditions and evaluate the operational impact of extending the PM peak commuter parking restriction past its current end time of 5:30 PM. The objective of this report is to provide recommendations, if appropriate, to extend the duration of existing PM Tow-Away Zone hours to improve traffic operations within the Study Area, while ensuring that valid parking alternatives are available to support residents and businesses who may be affected by the extension of thpe parking restriction.

The conditions that are reported were of the prevailing conditions as of the original writing of this report in November 2018.

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PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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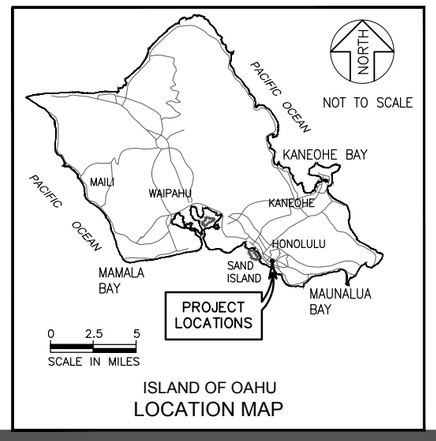


ISLAND OF OAHU
LOCATION MAP

PROJECT SITE

FIGURE 1.1

LOCATION MAP - URBAN CORE

2. STUDY AREA DESCRIPTION AND VISION

2.1 Study Area Neighborhoods

The Study Area encompasses several loosely defined neighborhoods, including Punchbowl, Kakaako, Ala Moana, Makiki, and McCully/Moiliili. Within the study area, there are a number of different land uses; this includes residential uses particularly in the Makiki and Punchbowl area, industrial and residential uses in the Kakaako area, and commercial uses throughout.

In general, the development and redevelopment Urban Core of Honolulu tends toward Transit-Oriented Development (TOD). Due to the unique character of the various neighborhoods, implementation of these strategies will differ slightly, but all generally promote the concept of safe and convenient transit options which synthesize to create a network of transit that reduces the need to own and operate personal vehicles in the crowded and congested Urban Core area.

2.1.1 Punchbowl Neighborhood

The Punchbowl neighborhood is located between the Downtown and Kakaako areas, and is home to residences and several Federal, State and City buildings, including the State Capitol, the US District Court, the Honolulu City Hall, and the Hawaii State Public Library. Punchbowl Street also serves the Queens Medical Center. Most of Punchbowl Street is within a ¼ mile radius (approximately 5 minute walk) of the planned Civic Center rail station, and the entirety of Punchbowl Street is within a ½ mile radius (approximately 10 minute walk) of the planned Downtown rail station and the Civic Center rail station.

2.1.2 Kakaako Neighborhood

Figure 2.1: Mixed-Use Building Keauhou Lane in Kakaako, Offering Affordable Rental Units with Retail on First Floor. Photo from keauhoulane.com

The Kakaako neighborhood is generally located between the Punchbowl neighborhood and the Ala Moana neighborhood, and Makai of South King Street. The area generally has a mix of parks, residential, and low-density industrial and commercial uses which remained unchanged for many years, but significant redevelopment in the area that Kamehameha Schools refers to as “Our Kakaako” has recently occurred, and more redevelopment and revitalization is planned for the neighborhood. The planned improvements are intended to operate cohesively to support a vibrant, transit-oriented community.

There has been significant urban renewal in recent years between South Street and Kamani Street, Ala Moana Boulevard and Halekauwila Street, and the area is rapidly transforming from a low-density industrial area to a high-density mixed-use area. This includes the developments of Six Eighty, The Collection, 400 Keawe, Keauhou Place, SALT at our Kakaako, which are mixed-use and mixed-income housing and commercial projects aimed at transforming Kakaako into the “new social epicenter” of Honolulu. South of Ala Moana Boulevard, the Kakaako community parks are also anticipated to undergo revitalization. A conceptual master plan for the Kakaako Waterfront Park, Kakaako Gateway Park and Kewalo Basin Park has been developed, and is detailed in the April 2011 Conceptual Master Plan Final Report and the 2017 Kakaako Makai Area Parks Master Plan. The Master Plan aims to upgrade

and enhance park facilities for family-friendly uses and is planned to include family activity areas, a community garden, comfort stations, a food and beverage pavilion, and a venue to host food trucks, farmers markets and other special events.

Further west, the Thomas Square Master Plan incorporates the King Street bicycle track, restoration of existing British Jack Paths, the 1932 fountain and other historical features, and installation of new shaded seating areas to make Thomas Square an inviting area for community engagement. The nearby Blaisdell Concert Hall is also anticipated to undergo major changes as part of the Blaisdell Center Master Plan.

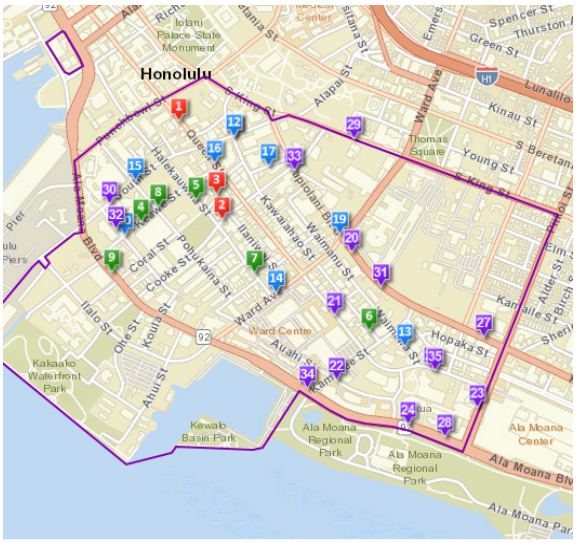


Figure 2.2: Anticipated Kakaako Housing Projects, from the Hawaii Community Development Authority (HCDA)

Figure 2.3: The Blaisdell Master Plan Envisions Significant Changes to the Blaisdell Center and the Surrounding Streetscapes, Photo from the Blaisdell Master Plan Report

The Neal S. Blaisdell Center, built in 1964, is currently one of Honolulu's main venues for performances and community events, hosting approximately 800,000 visitors per year. Due to its age and capacity, the Center is facing increasing maintenance and renovation needs to meet the demands of today's users. The City and County of Honolulu has prepared the Blaisdell Master Plan, which embodies an extensive effort to incorporate stakeholder and public opinion to create a plan that would update and revitalize the Center while maintaining its character and distinction as one of Honolulu's iconic features. The plan includes renovation of the arena and concert hall, building of a new concert hall, parking structures, and new public and commercial spaces on the site. The January 2018 draft traffic study completed by AECOM for the Blaisdell Master Plan states that the future configuration of Ward Avenue will involve the removal of on-street parallel parking on both sides of Ward Avenue, and the potential loss of the Makai-bound to Ewa-bound exclusive right-turn lane at Kapiolani Boulevard. As of the writing of this report, the Imagine Blaisdell website states that construction could begin as early as the second half of 2020, pending acceptance of bids for public-private partnerships from developers. However, since funding has not yet been secured, analysis within this report was performed for existing laneage of Ward Avenue.

The Kakaako neighborhood will be served by the Ala Moana Center, Kakaako and Civic Center rail stations, and is within a ¼ mile radius (5 minute walk) of a rail stop, leaving the neighborhood well-connected with access to Downtown, Waikiki, the University district, and other major destinations.

2.1.3 Ala Moana Neighborhood

The Ala Moana area is home to the well-known Ala Moana Center, one of the island's major economic drivers and the largest open-air mall in the world, boasting over 350 shops and restaurants, including four department stores, first-class boutiques and more than 100 dining options. With the 118-acre Ala Moana Beach Park located just across the street of the mall and even more shops and eateries in the neighborhood, the Ala Moana area draws thousands of locals and visitors each day.

Figure 2.4: The Ala Moana Center, with over 350 shops and restaurants, is one of the island's major economic drivers.

Single-family and multi-family residences are scattered throughout the Ala Moana area. Kapiolani Boulevard, Keeaumoku Street, Sheridan Street, Kalakaua Avenue and King Street are the significant arterial and collector roadways which serve the neighborhood. These roadways are currently lined with low-rise, low-density commercial uses though this area has been identified to have significant redevelopment potential. In the coming years, these low-rise, low-density buildings will gradually be replaced by newer, higher-density mixed-use buildings. These new developments in the Ala Moana area have placed high priority on mixed-use residential and commercial spaces in alignment with the Transit-Oriented Development vision for the area, including a high percentage of affordable housing for the workforce buyer. Several high-density housing developments are planned, with some being completed. The completed towers include Kapiolani Residence which offers 485 units, 60% of which are designated as "affordable". Hale Kewalo, is a 128-unit affordable rental project on the corner of Piikoi Street and Kona Street. These units are priced for households making 60% or less of Honolulu's median income. The Azure Ala Moana Condo project, a 41-story affordable mixed-use residence on the corner of Keeamoku Street and Makaloa Street is expected to begin construction in 2019 and finish in 2021. It is planned to have 78 rental units as well as two floors of commercial space.

The Ala Moana Beach Park Master Plan aims to revitalize and enhance the existing features of the historic Ala Moana Beach Park, while activating areas of the park that are currently underutilized. Improvements include enhanced pond edges and paths, a new entrance plaza, a new pavilion, increased irrigation, paths and trees, reconfigured parking with no loss of stalls, and a park drive with a bike lane. A Draft EIS for the improvements project was published in July 2018, and minor improvements have already begun.

Figure 2.5 : A Rendering of the Proposed Magic Island Promenade in the Ala Moana Beach Park Master Plan. Photo from WCIT Architecture

As the neighborhood further transforms to a Transit Oriented Development (TOD) district, development is planned to tend toward high-density, mixed-use character with complementary land uses including retail, restaurants, hotels, kiss-and-ride drop-off accommodations and a bus transfer station, which aims to encourage transit ridership and multimodal transportation. The development is planned to center around the Ala Moana Center rail station, which will be located on Kona Street near Kona Iki Street, just Mauka of Ala Moana Center. The planned transformation of the area is detailed in the Ala Moana Neighborhood

TOD Plan and addresses opportunities for growth and adaptive use of existing infrastructure. Community input was an important aspect of the development of the plan so that development occurs in a way that is sustainable and adds character to the area.

2.1.4 Makiki Neighborhood

The Makiki neighborhood generally extends between Ward Avenue and Kalakaua Avenue, and Mauka of South King Street. This neighborhood is largely single-family homes and low- and high-rise condos, with some retail and restaurants. Some residences in the area are not sold with enough parking stalls for its residents, and on-street parking is at a premium, especially in the evenings when residents come home from work.

2.1.5 McCully/Moiliili Neighborhood

The McCully/Moiliili Neighborhood generally extends between Kalakaua Avenue and the Manoa-Palolo Drainage Canal, and Ala Wai Boulevard and the H-1 Freeway. This area has a wide range of land uses, including single-family and multi-family homes and commercial uses. This area lies between the University of Hawaii which draws thousands of students each day for classes, and Waikiki, the major tourist hub of Oahu.

Rail officials hope to extend the rail line from Ala Moana to the University of Hawaii, though discussion on the feasibility of the extension is ongoing and no formal plans have been made for the extension.

2.2 Urban Core Special Events

Honolulu hosts a wide range of social, academic and cultural events like concerts, conferences and demonstrations for entertainment and the celebration of culture and community. For large indoor events, the Neal. S. Blaisdell Center in the Kakaako neighborhood and the Hawaii Convention Center near the Ala Moana neighborhood are popular locations to host. Other events may take place outdoors in various other locations throughout the Urban Core. These special events range in size and location, and will have varying impacts on the traffic operations on streets in the vicinity of the event. When traffic operations may be substantially impacted by these events, temporary modifications to parking allowances and traffic control should be considered.

2.2.1 Neal S. Blaisdell Center

The existing Neal S. Blaisdell Center is a popular location for community events, and currently features a concert hall with a 2,174-person seating capacity, an arena with a 8,800-person seating capacity, and a 65,000 SF exhibition hall. These three major facilities are heavily utilized throughout the year for organizations and events like the Hawaii Symphony, Ballet Hawaii, High School Graduations, Concerts, Family shows, trade shows and festivals, fundraising events and even large parties. The three major facilities were rented out approximately 200 days a year, and in addition to these special events, the Blaisdell Arena parking lot also hosts the popular Hawaii Farm Bureau Farmer's Market, which occurs on Wednesdays from 4:00 PM to 7:00 PM.

These events have a variable impact on traffic congestion on the adjacent Kapiolani Boulevard, Ward Avenue, and South King Street depending on the time of day and magnitude of the event. Streets in the vicinity, including Beretania Street and Kinau Street may also be affected by larger events or events that occur during the peak hours of traffic.

2.2.2 Convention Center

The existing Hawaii Convention Center is Hawaii's largest meeting facility and is located near Ala Moana and Waikiki, near the intersection of Kalakaua Avenue and Kapiolani Boulevard. The Hawaii Convention Center features a 35,000 SF ballroom which is the largest in the state and 47 meeting rooms, and space which can also be converted into sport courts. The Hawaii Convention Center has historically hosted large and highly publicized events including the Honolulu Festival, Kawaii Kon and the culminating meetings of the Asia-Pacific Economic Cooperation which hosted leaders from across the Pacific Rim.

These events have a variable impact on congestion on the adjacent Atkinson Drive, Kapiolani Boulevard, and Kalakaua Avenue, depending on the time of day and magnitude of the event. Other streets, including the major Ala Moana Boulevard may also be affected.

2.2.3 Other Urban Core Events

A multitude of events take place throughout the Urban Core and are large attractions for visitors and locals alike, including the Honolulu Marathon, Great Aloha Run, Hawaii Food and Wine Festival, the Honolulu Festival, the Honolulu City Lights Parade and many more. Some of these events result in road closures and temporary traffic control which may result in additional congestion depending on the time of day and magnitude of the event.

2.3 Pedestrian and Bicycle Safety Improvements

The State of Hawaii and the City and County of Honolulu are in the process of creating documents which guide the implementation of bike and pedestrian improvements. While these plans may identify specific segments of roadway which improvements are proposed, it does not confirm plans for improvement. As these planning documents become finalized and implementation of these improvements begin, the streetscape is anticipated to change and will affect drivers, pedestrians and bicyclists as they travel through the area, as well as residents and business owners living or operating in the neighborhood. As the transit ecosystem changes, locations and duration of parking restrictions and its effect on the community should continue to be monitored for efficiency and effectiveness.

2.3.1 Oahu Pedestrian Plan

The City and County of Honolulu is currently developing the Oahu Pedestrian Plan, which is a long-term action plan which will define the steps needed to make Honolulu a more walkable and healthy city. As part of the development of the Plan, a study will be conducted to inventory existing conditions, propose pedestrian improvement projects and programs, and prioritize those improvements facilitating multimodal travel consistent with the City and County of Honolulu Complete Streets Ordinance. The Oahu Pedestrian Plan website has an interactive map that invites the public to indicate areas where they feel the pedestrian experience can be improved. The Plan is anticipated to be finalized in May 2021.

2.3.2 Bike Plan Hawaii

Bike Plan Hawaii is a plan by the State Department of Transportation which details their plan to integrate bicycling into the state's transportation system. This plan also identified proposed bicycle facilities by priority level, though identification of locations for improvement does not confirm that the project will be completed.

2.3.3 Oahu Bike Plan

The City and County of Honolulu completed the most recent update of the Oahu Bike Plan, their plan to integrate bikeways into the transportation system, in December 2019.

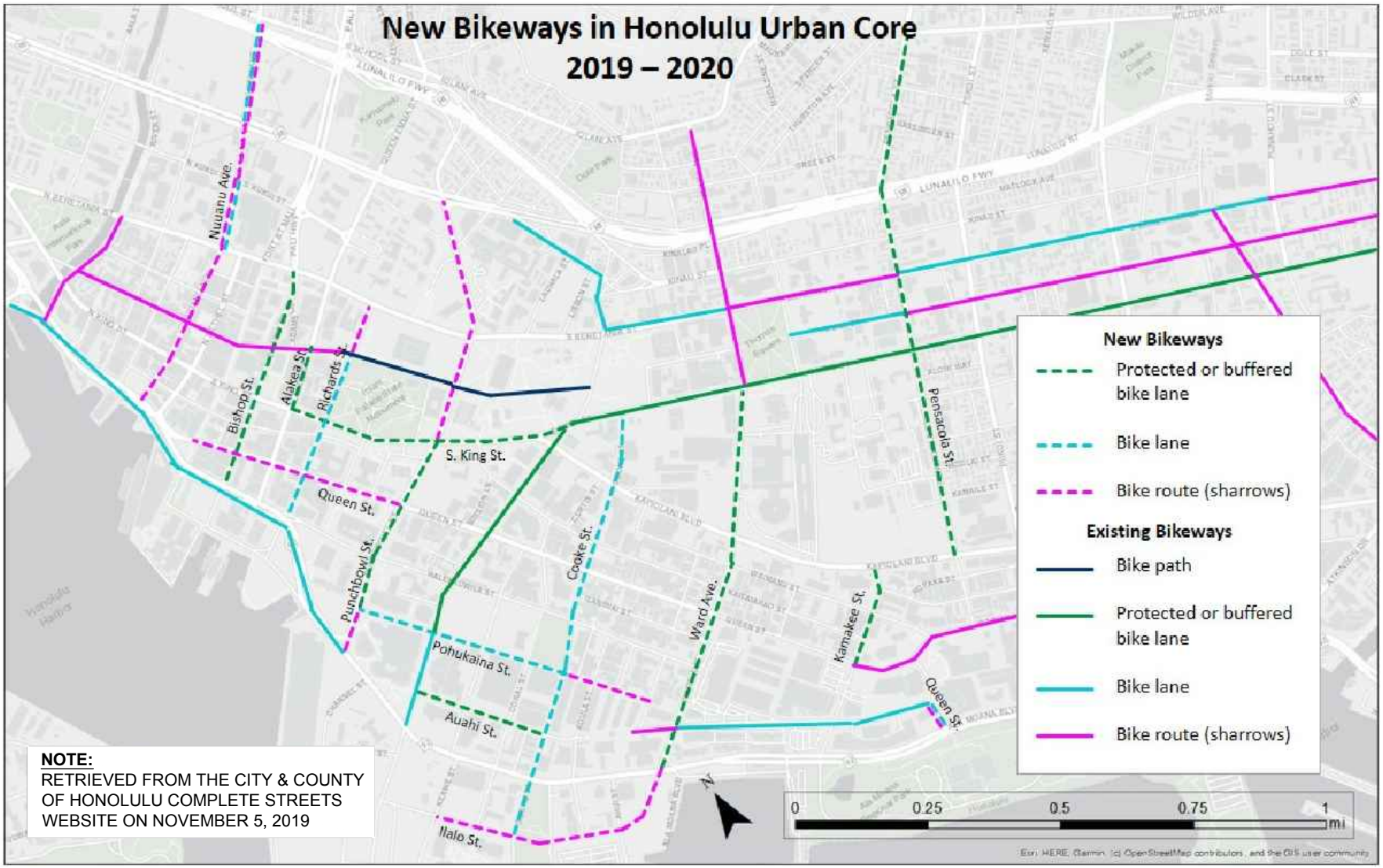
2.3.4 Complete Streets Improvements

In 2016, the City and County finalized the Complete Streets Design Manual, which was intended to guide physical design of streetscape and aims to "create a comprehensive, integrated network of streets that is safe and convenient for all people". According to the City & County of Honolulu website, the following improvements within the Study Area will be installed in the 2019-2020 construction phase, many in conjunction with road repaving projects[2]:

- Punchbowl Street
  - (Mauka-bound) Sharrows between South King Street and Vineyard Boulevard
  - (Makai-bound) One-way protected bike lane between Pohukaina Street and South King Street and sharrows from Vineyard Boulevard to South King Street
- South King Street
  - Extension of the existing two-way protected bicycle lane along the mauka side of the road, between Alapai Street and Alakea Street
- Ward Avenue
  - Protected bike lanes – one in each direction from South King Street to Ala Mona Boulevard.
- Pensacola Street
  - Two-way protected bike lane from Wilder Street to Kapiolani Boulevard on the Diamond Head side of the Street

At the time that data collection and observations were performed for this study in 2018, designs for improvements along the corridors listed above had not yet been finalized and were not included in figures or analysis. However, after analysis had already been completed, the Pensacola Street and Ward Avenue bike lanes opened in 2020 and 2021, respectively. See Figure 2.6 for a map of improvements, duplicated from the Honolulu City & County Website.

[2] 'Downtown, Chinatown, and Kakaako Projects', City and County of Honolulu, October 4, 2019, http://www.honolulu.gov/completestreets/urbancore. Accessed November 5, 2019.


New Bikeways in Honolulu Urban Core
2019 – 2020
Nuuanu Ave.
Alakea St.
Richards St.
Bishop St.
S. King St.
Queen St.
Punchbowl St.
Cooke St.
Ward Ave.
Pensacola St.
Kamakee St.
Pohukaina St.
Auahi St.
Queen St.
Halo St.
New Bikeways
Protected or buffered bike lane
Bike lane
Bike route (sharrows)
Existing Bikeways
Bike path
Protected or buffered bike lane
Bike lane
Bike route (sharrows)
N
0
0.25
0.5
0.75
1
mi
NOTE:
RETRIEVED FROM THE CITY & COUNTY OF HONOLULU COMPLETE STREETS WEBSITE ON NOVEMBER 5, 2019

3. LITERATURE REVIEW

To date, there are no national or state-established guidelines that provide thresholds or guidance on the extension of commuter tow-away zone hours for on-street parking, though numerous major U.S. cities also enforce afternoon commuter peak parking restrictions.

A Parking Master Plan study, which was performed by Walker Parking Consultants (Walker), gives context and additional information about the existing parking ecosystem in Honolulu, which may be affected by changes in the PM Tow-Away Zone hours.

3.1 Honolulu Urban Core Parking Master Plan

In 2010, Walker Parking Consultants (Walker) was contracted by the City and County of Honolulu Department of Transportation Services (DTS) to perform analysis of parking conditions within the Urban Core of Honolulu. This study analyzed several aspects of the parking system, including inventory, enforcement and financials, and provided recommendations to improve its efficiency and revenue.

Recommendations from the Walker study which may impact the parking ecosystem in the Study Area include:

- Create a Single Source Responsibility Center: Single management would allow more consistent enforcement of management fees and audit procedures between parking garages, and allow for coordination of on-street and off-street parking.
- Upgrade Technology: Upgrade technology in parking meters to accept credit cards, and automate off-street revenue collection to reduce cashier wages and provide 24-hour revenue collection.
- Develop a Marketing and Public Relations Program: This program would allow for communication and engagement with the public to inform them of key events impacting Honolulu parking, transit and access issues through events, activities, publications, press releases and maps.

While the recommendations contained within the Walker study may not have direct influence or impact on the findings of this study, it is important to understand that these recommendations may have an effect on the parking ecosystem as a whole.

As the Honolulu parking ecosystem transforms and the needs of the Study Area changes, the locations and duration of parking restrictions should continue to be monitored for efficiency and effectiveness.

4. TASKS AND METHODOLOGY

4.1 Study Tasks

The following tasks will be completed as part of the Study:

1. Take inventory of all existing street parking stalls and hours of restriction (if any) along all streets within the Study Area as noted in Figure 1.1 and generate a comprehensive map of inventory for each Study Area.
2. Conduct travel-time-runs (TTR) throughout the corridors noted below to identify locations that should be further evaluated to determine if extension of the PM Tow-Away Zone hour restriction is desirable.
    a. Kinau Street – Ward Avenue to Waiau Place
    b. Beretania Street – University Avenue to Alapai Street
    c. South Street – Pohukaina Street to King Street
    d. Pensacola Street – Kinau Street to Kapiolani Boulevard
    e. Piikoi Street – Kapiolani Boulevard to Beretania Street
3. Conduct 4-hour traffic volume counts, at one location each, along corridors listed above at five (5) consecutive days over the course of a typical work week (Monday through Friday). The volume counts collected at this time are referred to in this report as “Phase 1” counts.
4. Based on TTR data and field observations, determine up to ten (10) critical intersections within the Study Area based on TTR data and field observations and collect turning movement data counts at the critical intersections. In addition, if relevant, turning movement counts will also be conducted at the next downstream signalized intersection from the critical intersections for a maximum of up to twenty (20) intersections. The volume counts collected at this time are referred to in this report as “Phase 2” counts.
5. Identify areas where modifications to PM Tow-Away Zone hours may be applicable.
6. Propose recommendations for modifications to existing PM Tow-Away Zone hours, where applicable. Where possible, impacts to surrounding businesses as a result of extension to the PM Tow-Away Zone hours will be determined and alternate parking locations in the surrounding area will be identified.
7. If any modifications are proposed, generate a new map of proposed parking inventory and Tow-Away Zone hours for the Study Area, highlighting areas of change or modification from existing conditions.

4.2 Study Logic and Methodology

4.2.1 Selection of Phase 1 Study Intersections

As described in 4.1-3 above, volume counts were collected at one intersection along each of the five (5) specified corridors over the course of a typical work week (Monday through Friday). Generally, these intersections were selected based on queueing and congestion observed in initial field inspection. The intersections that were determined to be studied in Phase 1 along each

corridor are listed below, and a map showing Phase 1 Study intersections may be found in Figure 4.1.

- Kinau Street Corridor: Kinau Street and Ward Avenue
- Beretania Street Corridor: Beretania Street and Keeaumoku Street
- South Street Corridor: South Street and Queen Street
- Pensacola Street Corridor: Pensacola Street and Young Street
- Piikoi Street Corridor: Piikoi Street and King Street

4.2.2 Selection of Phase 2 Study Intersections

As specified in 4.1-4 above, several critical intersections were determined during Phase 1, primarily based on field observations, to be studied further in Phase 2. Phase 2 intersections were specified based on two primary considerations as listed below.

- Existing Parking: Locations where on-street parking exists, which could be restricted to improve operations.
- Observed Queueing or Operational Concerns: Intersections with queues for turning movements that spill out of the "pockets" created by curbside on-street parking and into through lanes may benefit from the restriction of street parking until congestion during the afternoon peak subsides. However in certain cases, queueing and spillback may be a result of upstream congestion or operational issues, and restriction of on-street parking may not provide significant benefit.

After consideration, 4-hour manual turning movements were performed at the following eighteen (18) intersections. A map showing Phase 1 and Phase 2 Study intersections may be found in Figure 4.1.

- Alapai Street and Beretania Street
- Alapai Street and Kinau Street
- Alapai Street and King Street
- Isenberg Street and King Street
- Keeaumoku Street and Beretania Street
- Keeaumoku Street and Kapiolani Boulevard
- Keeaumoku Street and Kinau Street
- Keeaumoku Street and King Street
- Pensacola Street and Beretania Street
- Pensacola Street and Kinau Street
- Pensacola Street and King Street
- Piikoi Street and Kinau Street
- Piikoi Street and King Street
- University Avenue and King Street/Beretania Street
- Ward Avenue and Beretania Street

- Ward Avenue and Kapiolani Boulevard
- Ward Avenue and Kinau Street
- Ward Avenue and King Street

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

AustinTsutsumi & ASSOCIATES, INC.
Engineers & Surveyors

NOT TO SCALE

PHASE I STUDY INTERSECTIONS

1. KINAU ST. & WARD AVE.
2. BERETANIA ST. & KEEAUMOKU ST.
3. SOUTH ST. & QUEEN ST.
4. PENSACOLA ST. & YOUNG ST.
5. PIIKOI ST. & KING ST.

PHASE II STUDY INTERSECTIONS

1. ALAPAI ST. & BERETANIA ST.
2. ALAPAI ST. & KINAU ST.
3. ALAPAI ST. & KING ST.
4. ISENBERG ST. & KING ST.
5. KEEAUMOKU ST. & BERETANIA ST.
6. KEEAUMOKU ST. & KAPIOLANI BLVD.
7. KEEAUMOKU ST. & KINAU ST.
8. KEEAUMOKU ST. & KING ST.
9. PENSACOLA ST. & BERETANIA ST.
10. PENSACOLA ST. & KINAU ST.
11. PENSACOLA ST. & KING ST.
12. PIIKOI ST. & KINAU ST.
13. PIIKOI ST. & KING ST.
14. UNIVERSITY AVE. & KING ST./BERETANIA ST.
15. WARD AVE. & BERETANIA ST.
16. WARD AVE. & KAPIOLANI BLVD.
17. WARD AVE. & KINAU ST.
18. WARD AVE. & KING ST.

FIGURE 4.1

PHASE 1 AND 2 STUDY INTERSECTION MAP

4.2.3 Tow-Away Zone Hours Modification Analysis Methodology

Evaluations to determine if PM Tow-Away Zone hours should be extended were performed on a corridor basis, due to the unique nature of each of the roadways in their capacity, utilization, and role in the network.

Note that this study focuses only on extending existing PM Tow-Away Zone (3:30 PM – 5:30 PM) hourly restriction, and does not consider any proposed or future PM Tow-Away Zone locations, or any other Tow-Away Zone restrictions, including any AM or "Daytime" Tow-Away Zones (Tow-Away Zone restrictions during the daytime hours between 6:00 AM and 6:30 PM or 6:30 AM to 5:30 PM).

Key metrics that the roadways were evaluated against included travel time and volume-to-capacity (v/c) ratio as described below. Significant queuing observed in the field, if any, was also a consideration.

- Travel time: The lowest travel time that was observed over all intervals throughout the three days of data collection for each corridor was assumed to be the "ideal" travel time, and represents the best possible operational scenario during the studied period. Significant differences between the ideal travel time and the travel times near the current end of the PM Tow-Away Zone hours (3:30 PM – 5:30 PM) may suggest that extension of the PM Tow-Away Zone hours may improve operations.
- v/c Ratio: The v/c ratio refers to the ratio of the actual volume (v) observed on the roadway to the capacity (c) of the roadway. Lower v/c ratios indicate that the roadway is able to accommodate more vehicles with less impact to operations, while v/c ratios nearing 1.0 indicate that the roadway or intersection is already accommodating as many vehicles as possible, and increases in volume would lead to a breakdown of operations.

  The capacity of segments of roadway throughout the network was determined using methodology included in the Highway Capacity Manual, 6th Edition. This methodology takes into account adjustment factors which are characteristic of the roadway, including lane width, heavy vehicle percentage, grade, existence of a parking lane and parking activity adjacent to the lane group, blocking effect of busses, and area type.

  Outside of Tow-Away Zone hours, capacity is reduced by parked cars in what could potentially be a travel lane. The extension of PM Tow-Away Zone hours may decrease the v/c ratio as capacity is increased by the additional travel lane while the parking restriction is active.

- Queueing: Some lanes throughout the network which are affected by PM Tow-Away Zones are turning lanes, or shared through/turn lanes. During peak hours, the storage length for turning vehicles may be reduced by vehicles parked along the curb, and extensive queues for turning movements can spill back and affect operations of other lane groups. The extension of PM Tow-Away Zone hours may increase the storage length for these turning vehicles by restricting curbside parking until volumes abate at the end of the commuter peak hours, which can reduce queue spillback into other lanes.

Recommendations to change PM Tow-Away Zone hours, if any, aims to improve traffic operations within the Study Area while balancing its current and future needs. The extension of PM Tow-Away Zone hours may encourage those who currently use street parking to choose alternative modes of transportation.

5. EXISTING CONDITIONS

5.1 Roadway System

Punchbowl Street is a major arterial roadway that provides Mauka-Makai access to and from Lunalilo Freeway through the Urban Core of Honolulu. It begins to the north at the Lunalilo Freeway offramp and continues as a two-way four-lane roadway through residential area, past Queen's Medical Center, the State Capitol, and Honolulu Hale until South King Street where it transitions into a Makai-bound one-way street. From its intersection with South King Street, it extends past the Department of Transportation – Highways Section and Waterfront Plaza along with many other City and State buildings until its intersection with Ala Moana Boulevard. Two-hour metered street parking is available on Punchbowl Street.

Alapai Street is an arterial roadway that begins at the intersection of South Street and South King Street near the Frank F. Fasi Municipal Building and provides access to South Beretania Street. Alapai Street continues on the mauka side of the H1-Freeway until it reaches a dead end shortly after its intersection with Prospect Street. Within the Study Area, Alapai Street is a one-way, mauka bound, four-lane roadway. The road is heavily used by busses accessing the Alapai Transit Center. On-street parking is allowed on some stretches of Alapai Street, but not within the Study Area.

Ward Avenue is a two-way, 4-6 lane major arterial roadway that begins at the intersection of Ilalo Street and Ahui Street and extends mauka through the Urban Core of Honolulu until it terminates at its intersection with Prospect Street. Ward Avenue provides access to the Blaisdell Arena and Thomas Square, as well as the H1-Freeway. Metered parking is available along some parts of Ward Avenue.

Pensacola Street is a four-lane, one-way major arterial roadway that begins at the intersection of Nehoa Street and Auwaiolimu Street and extends Makai, parallel to Ward Avenue, until its intersection with Waimanu Street. Pensacola Street is heavily utilized by westbound drivers to enter the Urban Core of Honolulu from the H-1 Freeway. Pensacola Street provides access to McKinley High School and residential and commercial uses within the area. Within the study area, metered street parking is available on Pensacola Street. Slightly outside of the study area, unmetered parking is also available.

Piikoi Street is a 4-6 lane major arterial roadway that begins at its intersection with Ala Moana Boulevard adjacent to Ala Moana Shopping Center and extends mauka, parallel to Pensacola Street, until its intersection with Pensacola Street mauka of the H1-Freeway. It becomes a one-way maukabound arterial at its intersection with Kapiolani Boulevard. Piikoi Street is often subject to heavy traffic, especially during the PM peak hour due to the entrance to the westbound H-1 Freeway on-ramp at Lunalilo Street via Piikoi Street. On-street metered and unmetered parking is available along Piikoi Street.

Keeaumoku Street is a two-way mauka-makai major arterial roadway that extends from its intersection with Kapiolani Boulevard to its intersection with Keeaumoku Place near the base of Makiki Heights. Keeaumoku Street provides access from Makiki to the Urban Core of Honolulu and hosts Walmart, Sam's Club, and access to Ala Moana Shopping Center. Metered parking is available along some parts of Keeaumoku Street.

Kalakaua Avenue is a mauka-makai arterial roadway which provides access from Diamond Head through Waikiki into the Urban Core of Honolulu. It begins in the south at its intersection with Coconut Avenue and extends north along the Makai side of Waikiki, past Kapiolani Park, the Moana Surfrider, and the Hawaii Convention Center along with a number of other hotels, boutiques, and eateries until its intersection with South Beretania Street. Kalakaua Avenue is a southbound one-way street from its intersection with Kuhio Avenue until its intersection with Monsarrat Avenue near Kapiolani Park. Metered parking is available along portions of Kalakaua Avenue.

McCully Street is a 4-5 lane, two-way major arterial roadway which extends Mauka from its intersection with Kalakaua Avenue to the intersection of Metcalf Street and Dole Street. McCully Street connects Waikiki to the Urban Core of Honolulu. Unmetered-unmarked parking is available along parts of McCully Street.

Isenberg Street is a four-lane, two-way arterial roadway that runs parallel to McCully Street. Isenberg Street begins at its intersection with Kapiolani Boulevard and extends mauka past Honolulu Stadium Park and Mo'ili'ili Neighborhood Park to its intersection with Bingham Street. Isenberg Street provides access through the Urban Core of Honolulu to Moiliili. Unmarked-unmetered and marked-unmetered parking is available along Isenberg Street. Meters are planned for installation along Isenberg Street from Kapiolani Boulevard to King Street.

University Avenue is a 4-6 lane two-way divided arterial roadway that connects Manoa Valley and the University of Hawaii at Manoa to the Urban Core of Honolulu. University Avenue extends from its intersection with Kapiolani Boulevard mauka through commercial and residential areas to the intersection of Alaula Way and Oahu Avenue. Unmarked-unmetered parking is available along University Avenue.

Kinau Street is a four-lane, east-west arterial roadway that runs parallel to Beretania Street. It begins with its intersection with Lisbon Street near the Kinau Street offramp and continues east through commercial and residential areas until it terminates at its intersection with Waiau Place. Kinau Street provides regional access to residential and commercial areas. Marked and unmarked-unmetered parking is available along much of Kinau Street.

South Street is a 4-5 lane Mauka-Makai arterial roadway that runs parallel to Punchbowl Street. It begins at the intersection of Forrest Avenue and Ala Moana Boulevard near Pier 1 and Waterfront Plaza and extends in the mauka direction to the intersection of Alapai Street and South King Street near the Frank F. Fasi Municipal Building. South Street is a two-way roadway from its intersection with Ala Moana Boulevard until its intersection with Pohukaina Street. From its intersection with Pohukaina Street, South Street continues Mauka as a one-way roadway until its termination at Alapai Street and South King Street. Metered and unmarked-unmetered parking is available along much of South Street.

South King Street is a major one-way arterial roadway that begins to the west at its intersection with Puuloa Road as North King Street and extends eastward through Chinatown until its intersection with Nuuanu Avenue, where it becomes South King Street. South King Street continues eastward through the Urban Core of Honolulu until its intersection with Kapiolani Boulevard. North/South King Street provides east-west regional access for many businesses and residents along its stretch. As a major arterial, South King Street often experiences heavy traffic, especially during the PM Peak traffic hours. South King Street has a separated bike lane on the

mauka side of the road as well as metered parking. Curbside parking is restricted during certain hours of the day in order to maintain steady flow.

Beretania Street is a major arterial roadway that begins to the east at the intersection of University Avenue and King Street and runs westward through the Urban Core of Honolulu, Downtown and Chinatown until it terminates to the west at its intersection with North King Street. Beretania Street is a one-way westbound street which runs parallel and counter to the eastbound South King Street. In addition to regional westbound thoroughfare, Beretania Street provides access to many commercial and residential uses along its stretch. Within the Study Area, Beretania Street is 4-6 lanes across. Metered and unmarked, unmetered parking is allowed along Beretania Street except during designated hours in specified locations

Kapiolani Boulevard is a 4-6 lane two-way major arterial roadway that begins to the west at its intersection with South King Street and continues east through the Urban Core of Honolulu until it transitions into Waialae Avenue at its east intersection with South King Street. Kapiolani Boulevard is one of the major thoroughfares providing east-west regional access throughout the Urban Core of Honolulu. Kapiolani Boulevard has a contraflow lane on weekday mornings and afternoons from 7:00 AM to 8:30 AM and from 3:30 PM to 6:45 PM. Unmetered on-street parking is available from 6:30 PM to 6:00 AM along Kapiolani Boulevard.

5.2 Parking Guidelines

Throughout the network, there are several areas where parking is specifically allowed or restricted by curbside signage, and in some areas, painted curbs. In other areas, no curbside signage exists, and curbside parking is generally allowed, provided adherence to Chapter 15, Article 14 of the Honolulu Traffic Code.

5.2.1 Parking in Areas with Curbside Signage

Figure 5.1: Signs Prohibiting Parking on Kinau Street

Prohibited Parking within the City and County of Honolulu, Sec. 15-14.5

(a) "When official signs are erected giving notice of the prohibition against parking, no person shall stop, stand or park a vehicle any longer than is absolutely necessary to take on or discharge passengers or freight upon any of the streets or portions thereof…"

(b) "No vehicle shall stop, stand or park upon any of the streets or portions thereof for any reason when official signs prohibiting stopping, standing, loading or unloading thereon are erected."

Parking Prohibited During Certain Hours Within the City and County of Honolulu, Sec. 15-14.6

(a) "When official signs are erected giving notice thereof, no person shall stop, stand or park a vehicle any longer than is absolutely necessary to take on or discharge passengers or freight, upon any of the streets or portions thereof within the City and County, between the hours indicated on such signs."

Figure 5.2 (a) and (b) Signs Prohibiting Parking During Certain Hours, from the Manual on Uniform Traffic Control Devices (MUCTD), 2009.

(b) "When official signs are erected specifying the hours of restricted parking during the morning peak traffic and/or afternoon peak traffic hours, no person shall stop, stand or park a vehicle, even momentarily, upon any of the streets or portions thereof between the hours indicated on such signs."

Parking Prohibited in Tow or Tow-Away Zones, Sec. 15-14.8

When official signs are erected designating a street or portions thereof as a tow or tow-away zone, no person shall stop, stand or park a vehicle, even momentarily, between the hours indicated on such signs; provided that:

Figure 5.3: PM Tow-Away Zone Signs on Kinau Street

- *During hours other than the morning and afternoon peak traffic hours as defined in this code:*
  - *Stops may be made by a vehicle displaying valid decal pursuant to the provisions of Section 15-15.5 for the expeditious loading or unloading of freight,*
  - *Stops may be made by bus in an official bus stop for the expeditious loading or unloading of passengers, and,*
  - *Stops, in other than an official bus stop, may be made by a special transit service vehicle for the expeditious loading or unloading of a mobility handicapped passenger"*

In no case shall the stop for the loading or unloading of freight exceed 30 minutes, and for the loading and unloading of passengers, three minutes; except that a special transit vehicle may stop, stand or park for not more than 15 minutes when loading or unloading a mobility handicapped passenger.

Time Limit Parking Within the City and County of Honolulu, Sec. 15-16.1

When official signs are erected giving notice thereof, no person shall stop, stand or park a vehicle for a period of time longer than the period of time indicated on such sign, unless provided by law or by or official permits or decals along any of the streets or portions thereof within the City and County of Honolulu…

Figure 5.4: 2-Hour Parking Limits on Pensacola Street

5.2.2 Parking in Areas with No Signage

Streets in areas that tend toward residential uses tend to lack signage and/or time-based parking restrictions. Some areas without signage had marked stalls, and others had neither signage nor marked stalls. For locations which did not have marked curbside stalls, the following guidelines applied to determine whether or not parking was allowed in those areas without marked stalls or signage.

Figure 5.5: Two Marked Stalls on Kinau Street Without Signage, Photo from Google

<u>Stopping, Standing or Parking Prohibited in Specific Places – No Signs Required, Sec. 15-14.1</u>

Note that the following list includes only instances which are considered to be applicable to the Study Area. The complete list is located in Chapter 15, Article 14, Section 1 of the Honolulu Traffic Code.

- *No person shall stop, stand or park a vehicle, except when necessary to avoid conflict with other traffic or in compliance with the law or the directions of a police officer or traffic control device, in any of the following places:*
    - *On a sidewalk;*
    - *In front of a public or private driveway or within four feet of either side of a public or private driveway;*
    - *Within an intersection, along the edges or curbsides around corners and in channelized areas of any two intersecting streets;*
    - *Within 10 feet of a fire hydrant;*
    - *On a crosswalk;*
    - *Within 20 feet of a crosswalk at an intersection or within 20 feet upon the approach to any midblock crosswalk;*
    - *Within 30 feet upon the approach to any flashing beacon or stop sign located at the side of the roadway;*
    - *Within 75 feet upon the approach to any traffic control signal*
    - *On the far side of the street at any signalized intersection, within 30 feet of the curb line of the intersecting street. As used herein, the term "signalized intersection" means an intersection at which traffic is controlled by official traffic control signals;*
    - *On the roadway side of any vehicle stopped or parked at the edge or curb of a roadway;*
    - *Any place where official signs prohibit stopping;*
    - *On either side of any street with a roadway width of 18 feet or less, when official signs are erected giving notice thereof*

5.3 Parking Inventory by Corridor

As indicated in Section 4, an inventory of parking restrictions throughout the Study Area was performed. The restrictions shown in the Detail Inventory Figures reflect interpretation of parking restrictions by the field engineer based on curbside signage. In areas which lacked curbside signage, the rules in aforementioned Section 5.2.2 of this report and the Honolulu Traffic Code Sec. 15-4.1 were applied to determine if parking was allowed. A summary of parking inventory within the Study Area while PM TAZ restrictions are active (3:30 PM – 5:30 PM) may be found in Figure 5.6. A summary of parking inventory within the Study Area at the current conclusion of the PM Tow-Away Zone (3:30 PM – 5:30 PM) can be found in Figure 5.7.

The following sections detail the parking allowances of each corridor. For each corridor, a Detail Inventory Figure indicates parking restrictions along the roadway. If applicable, a PM Tow-Away Zone Detail figure which details parking conditions while PM TAZ restrictions are active (3:30 PM – 5:30 PM) follows the Corridor Detail Inventory Figure. A reference figure which summarizes figure numbers for the Corridor Detail Inventory and PM Tow-Away Zone Detail for each corridor can be found in Figure 5.8.

“No Parking Anytime” zones and 24-hour Tow-Away Zones were listed as “24 Hour No Parking” areas. At the conclusion of the posted loading zone hours ends, these loading zone areas become unmarked, unmetered stalls. Unless otherwise noted, AM Tow-Away Zone hours are 6:30 AM – 8:30 AM.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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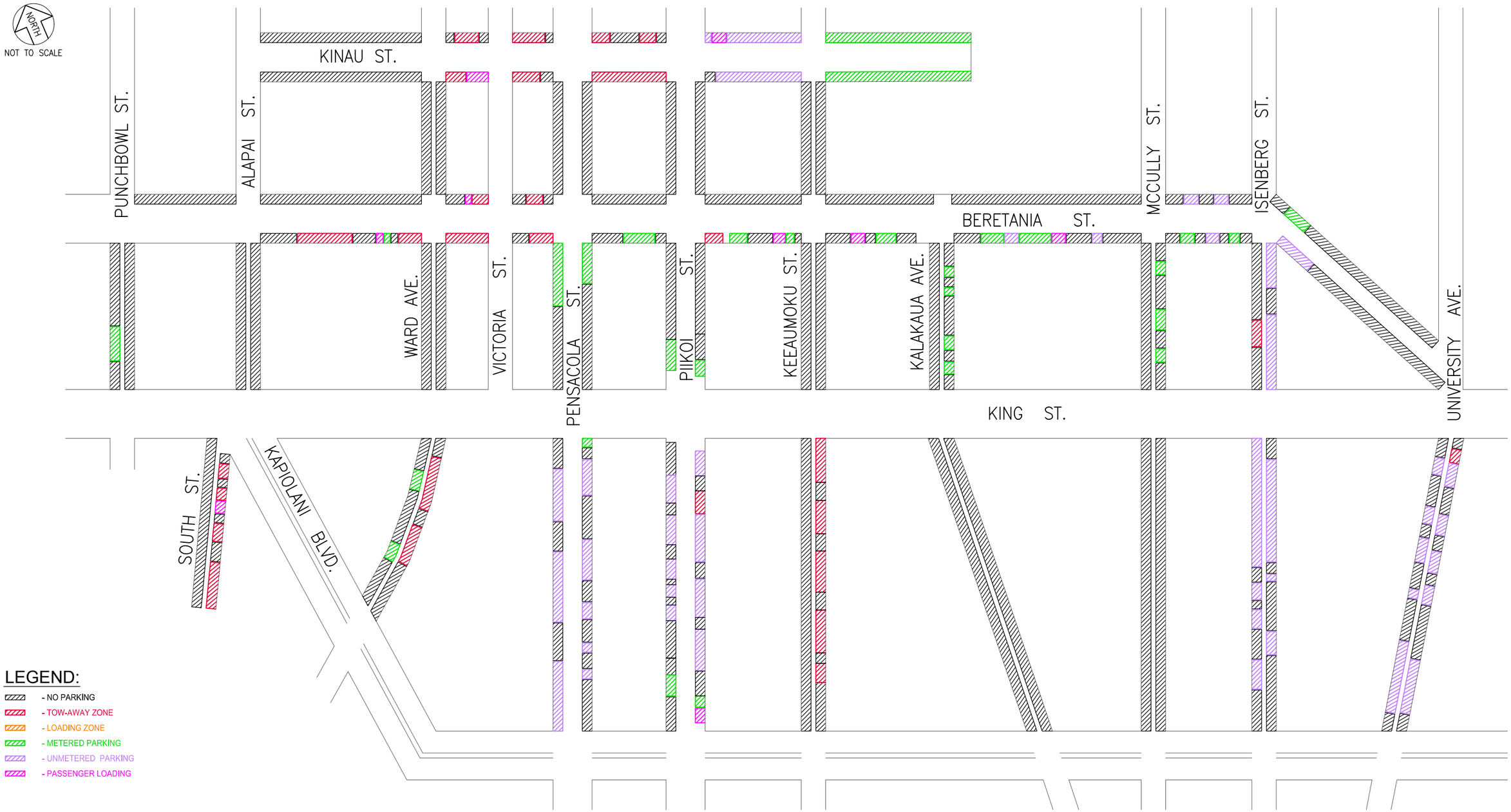

FIGURE 5.6

EXISTING ON-STREET PARKING
PM TAZ (3:30 PM - 5:30 PM)

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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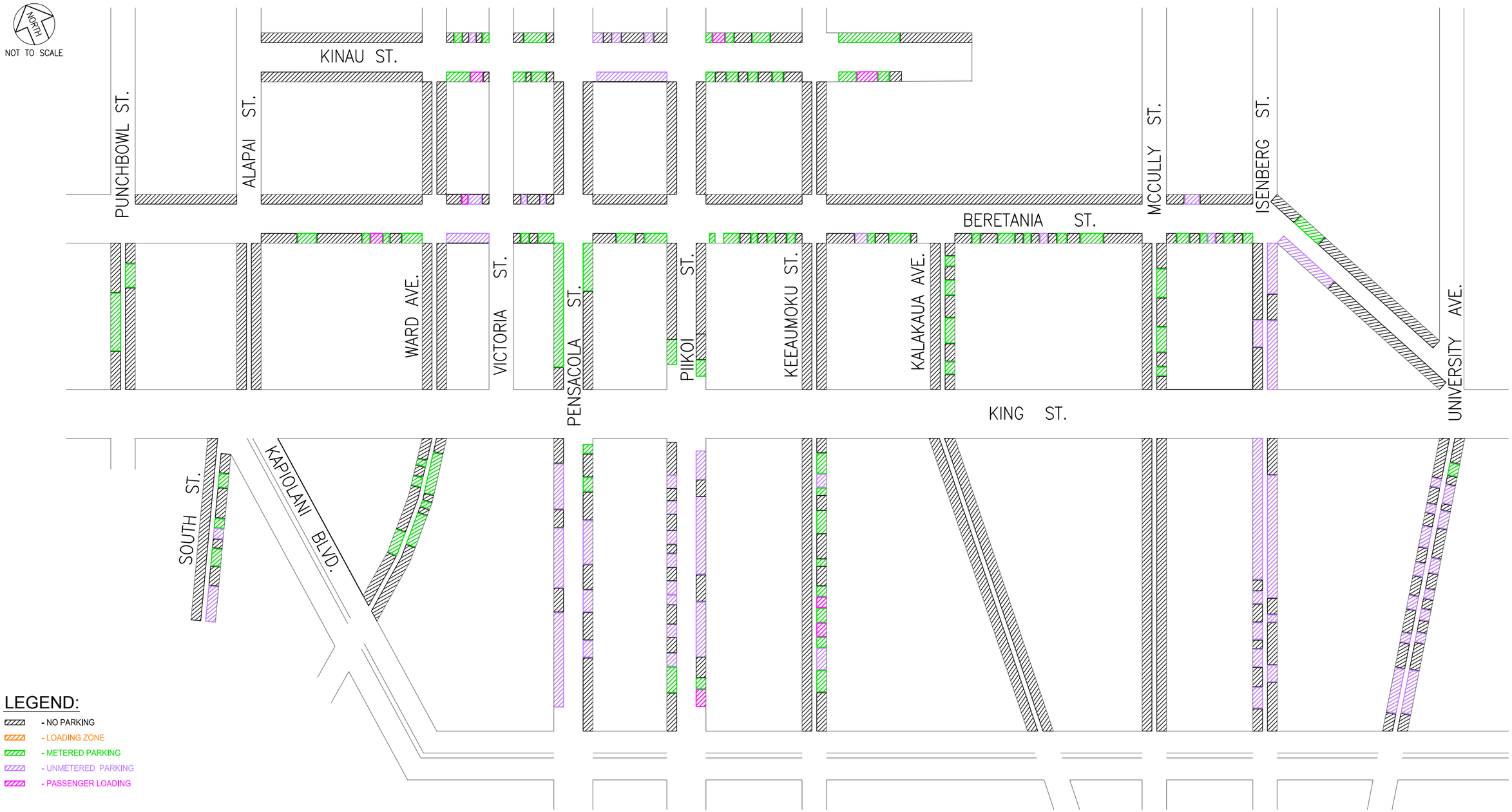

FIGURE 5.7

EXISTING ON-STREET PARKING
AFTER PM TAZ

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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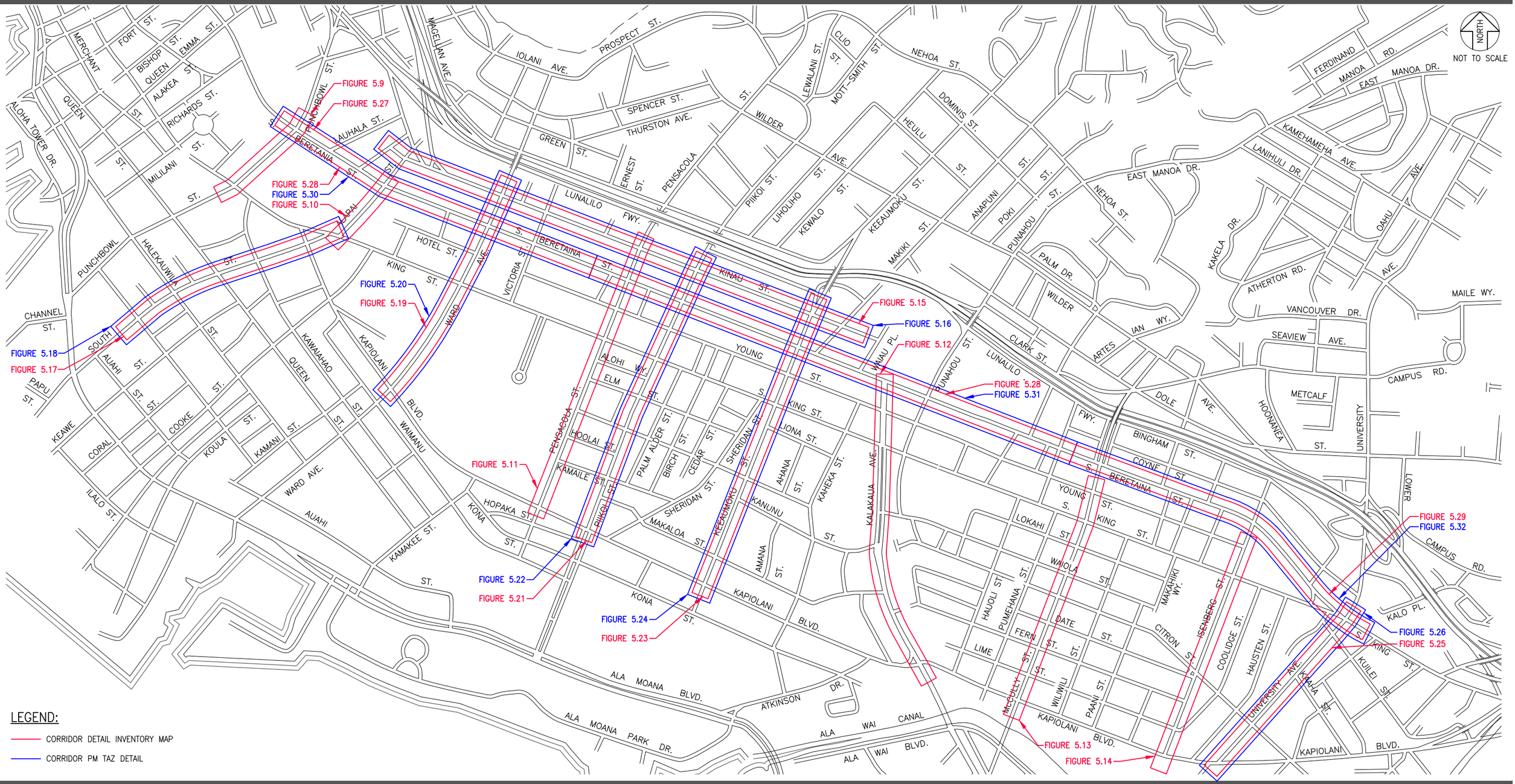

FIGURE 5.8

STUDY AREA REFERENCE MAP-CORRIDOR DETAIL FIGURES

5.3.1 Punchbowl Street Parking Allowances

- 24 Hour No Parking Zone
    - Between South King Street and Beretania Street
- AM Tow-Away Zone
    - Between South King Street and Beretania Street
- Metered Parking
    - Between South King Street and Beretania Street

The corridor parking inventory figure for Punchbowl Street can be found in Figure 5.9

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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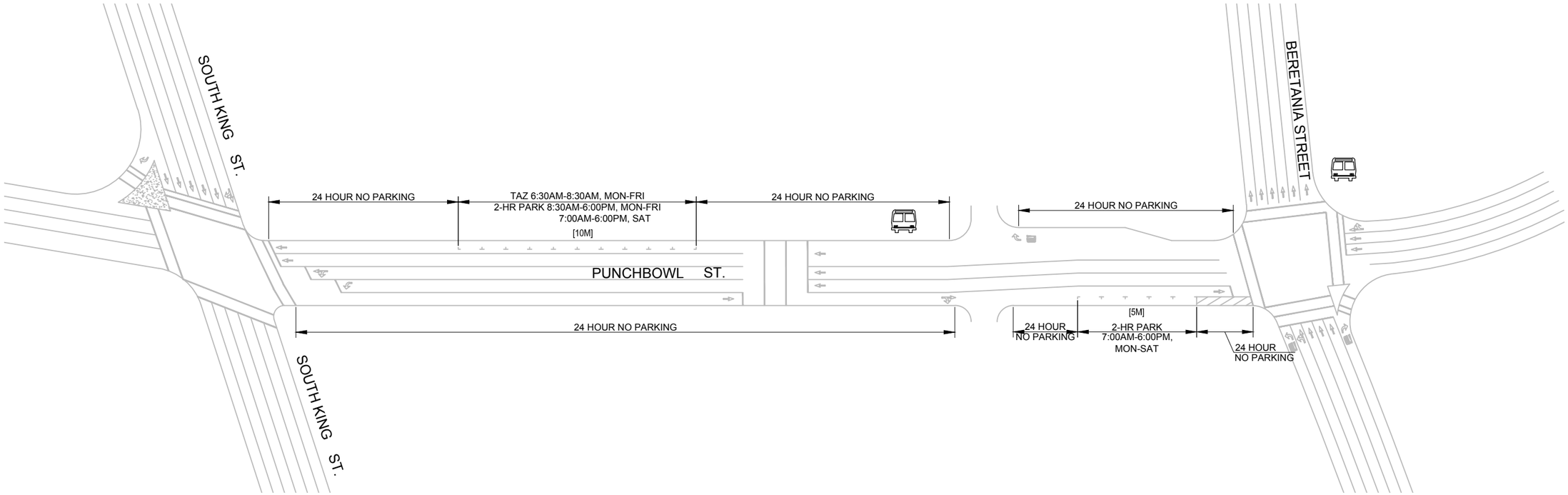

LEGEND:

[#M] METERED PARKING STALLS
[#U] UNMETERED PARKING STALLS
BUS STOP

FIGURE 5.9

PUNCHBOWL STREET CORRIDOR-
DETAIL INVENTORY

5.3.2 Alapai Street Parking Allowances

- 24 Hour No Parking Zone (No signage)
    - Between South King Street and Beretania Street
- Metered Parking
    - Between Beretania Street and Kinau Street

Note that no signange exists on Alapai Street to inform drivers of the 24-Hour Tow-Away Zone parking restriction, though the location is identified in City & County of Honolulu Traffic Schedules 17-21. The corridor parking inventory figure for Alapai Street can be found in Figure 5.10

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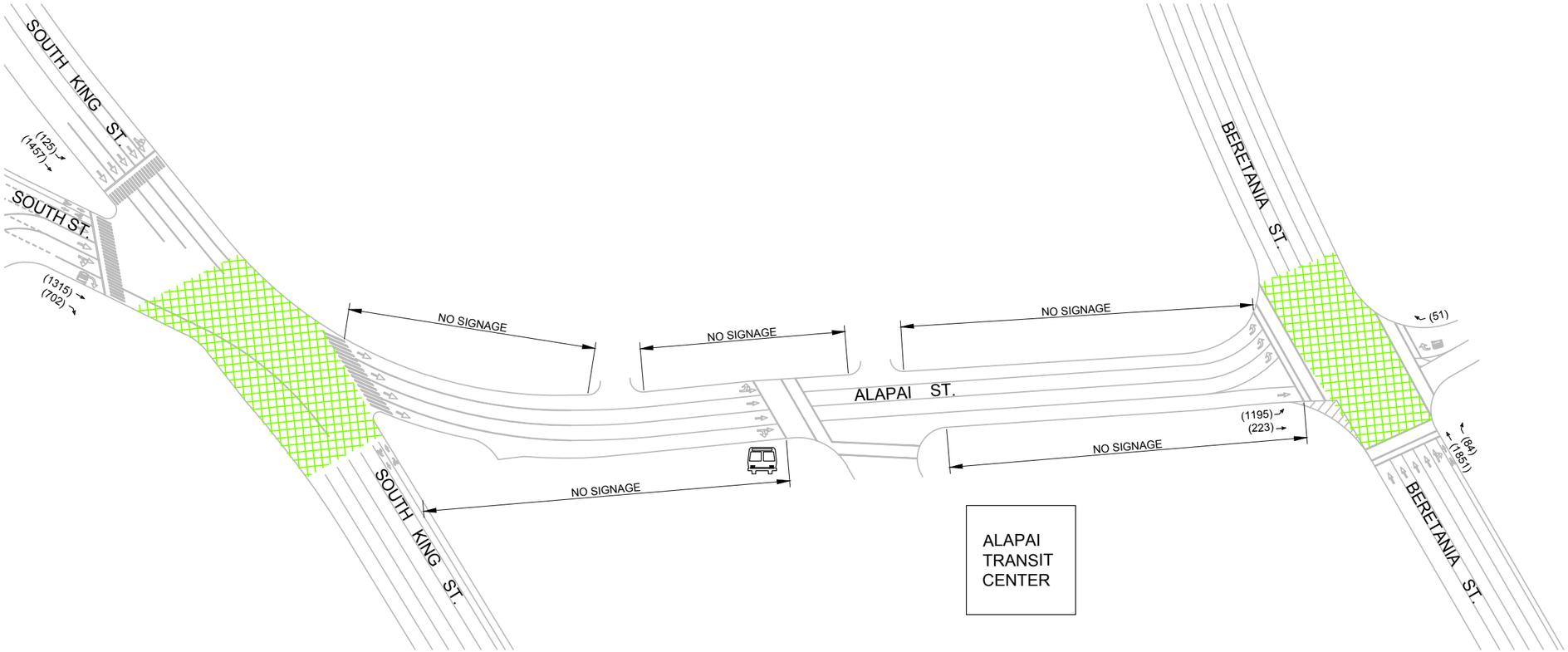

LEGEND:

PHASE 1 AND/OR PHASE 2 STUDY INTERSECTIONS

BUS STOP

XX(XX) PHASE 1 (PHASE 2) PEAK HOUR VOLUMES
PEAK HOUR: 4:00-5:00 PM

FIGURE 5.10

ALAPAI STREET CORRIDOR-
DETAIL INVENTORY

5.3.3 Pensacola Street Parking Allowances

- 24 Hour No Parking Zone
    - Between Kapiolani Boulevard and Kamaile Street
    - Between Kaimale Street & Hoolai Street
    - Between Hoolai Street & Rycroft Street
    - Between Rycroft Street & Elm Street
    - Between Elm Street & Alohi Way
    - Between Alohi Way & South King Street
    - Between South King Street & Young Street
    - Between Young Street & Beretania Street
    - Between Beretania Street & Kinau Street
- AM Tow-Away Zone
    - Between Young Street and Beretania Street
- Unmarked, Unmetered Parking
    - Between Kapiolani Boulevard and Kamaile Street
    - Between Kamaile Street and Hoolai Street
    - Between Hoolai Street and Rycroft Street
    - Between Rycroft Street and Elm Street
- Marked, Unmetered Parking
    - Between Elm Street and Alohi Way
- Metered Parking
    - Between Alohi Way and South King Street
    - Between Young Street and Beretania Street.

The corridor parking inventory figure for Pensacola Street can be found in Figure 5.11.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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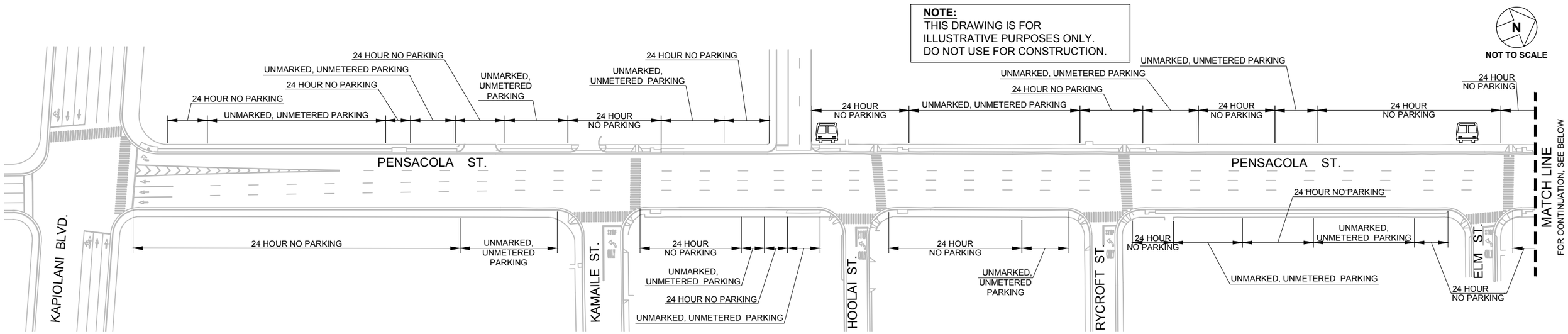

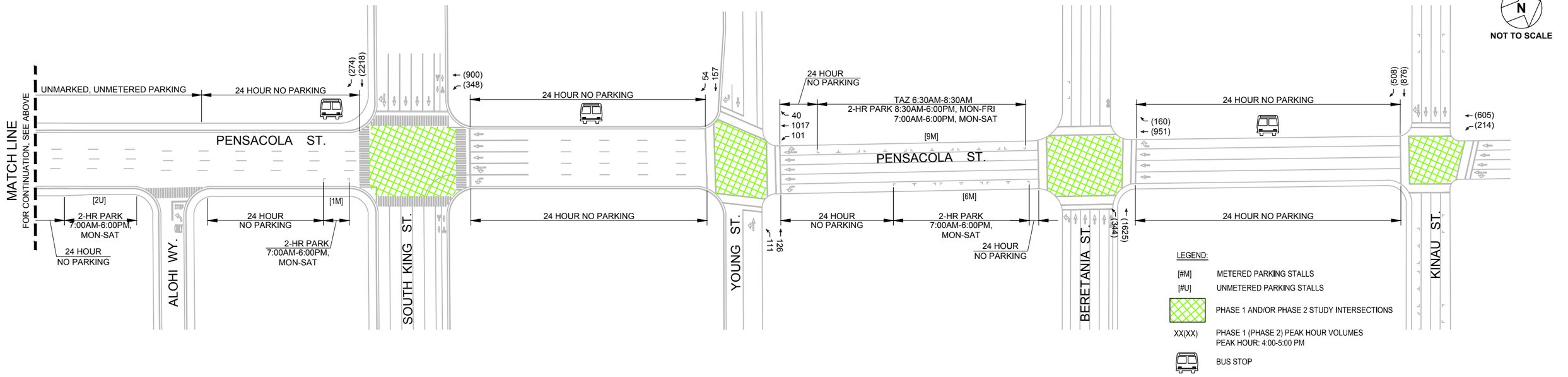

FIGURE 5.11

PENSACOLA STREET CORRIDOR-
DETAIL INVENTORY

5.3.4 Kalakaua Avenue Parking Allowances

- 24 Hour No Parking Zone
    - Between Kapiolani Boulevard & Fern Street
    - Between Fern Street & Makaloa Street
    - Between Makaloa Street & Kanunu Street
    - Between Kanunu Street & Philip Street
    - Between Philip Street & South King Street
    - Between South King Street & Young Street
    - Between Young Street & Beretania Street
- Freight Loading Areas
    - Between South King Street & Young Street
- Metered Parking
    - Between South King Street & Young Street
    - Between Young Street & Beretania Street

The corridor parking inventory figure for Kalakaua Avenue can be found in Figure 5.12.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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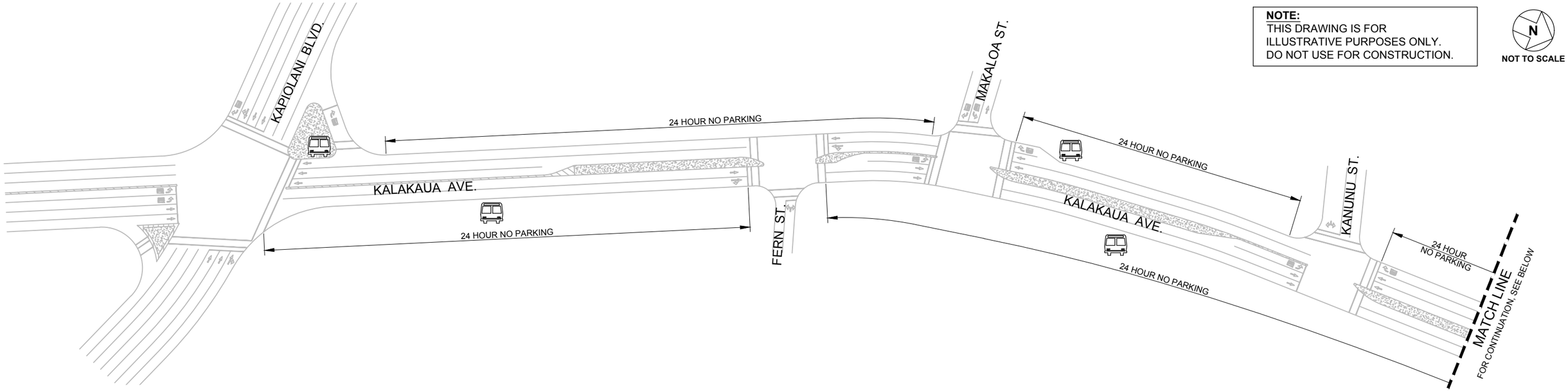

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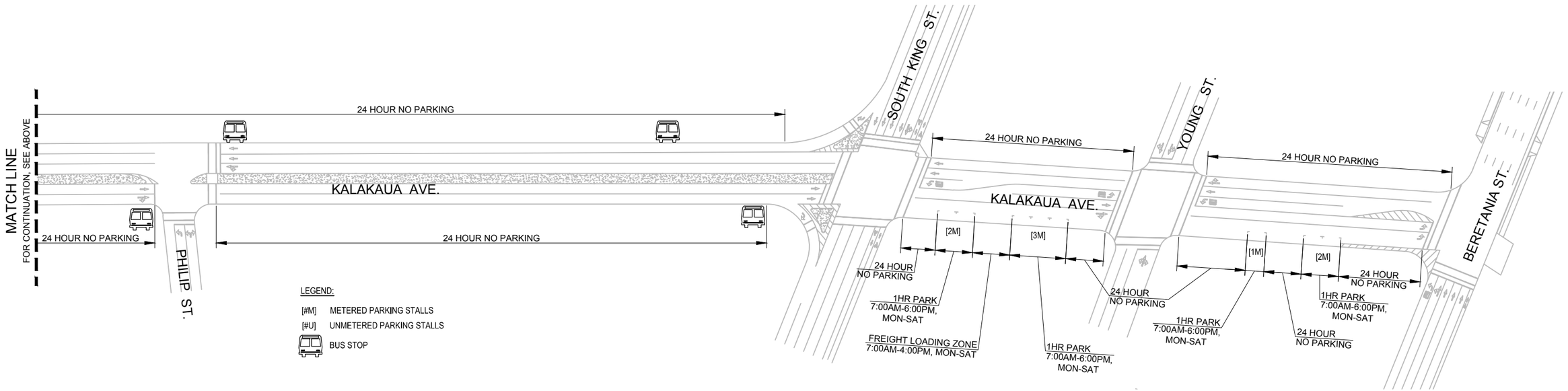

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FIGURE 5.12

KALAKAUA AVENUE CORRIDOR-
DETAIL INVENTORY

5.3.5 McCully Street Parking Allowances

- 24 Hour No Parking Zone
    - Between Kapiolani Boulevard & Lime Street
    - Between Lime Street & Fern Street
    - Between Fern Street & Date Street
    - Between Date Street & Citron Street
    - Between Citron Street & Waiola Street
    - Between Waiola Street & Algaroba Street
    - Between Algaroba Street & South King Street
    - Between South King Street & Young Street
    - Between Young Street & Beretania Street
- Metered Parking
    - Between South King Street & Young Street
    - Between Young Street & Beretania Street

The corridor parking inventory for McCully Street can be found in Figure 5.13.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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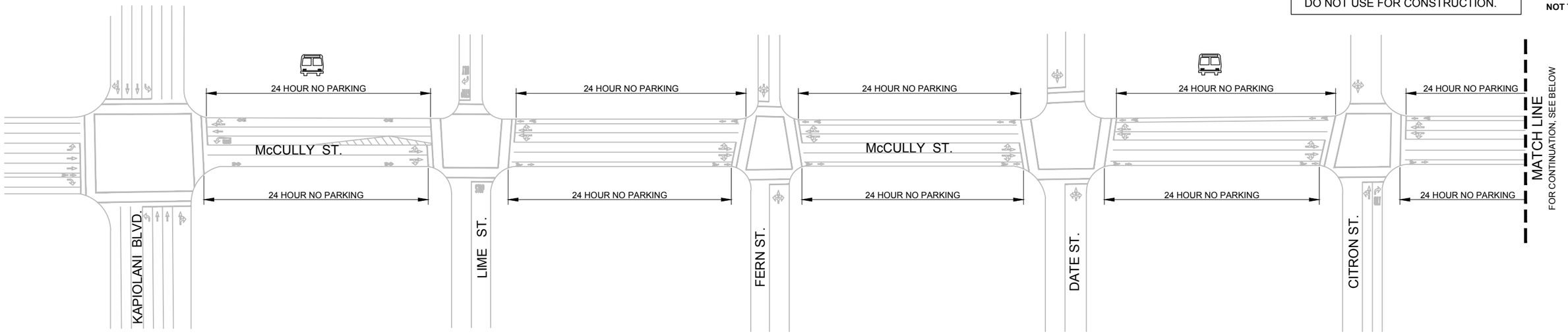

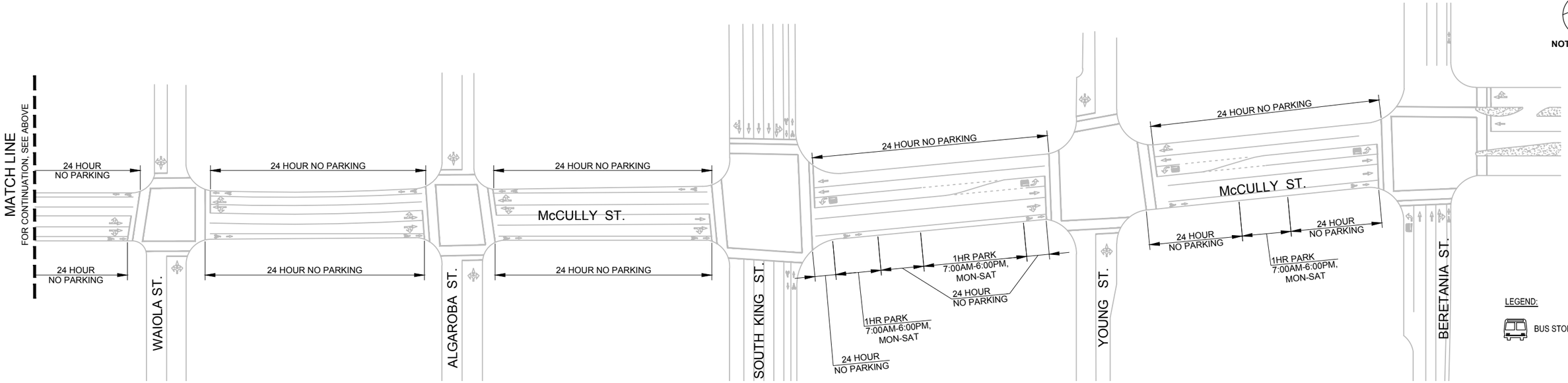

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FIGURE 5.13

McCULLY STREET CORRIDOR-
DETAIL INVENTORY

5.3.6 Isenberg Street Parking Allowances

- 24 Hour No Parking Zone
    - Between Kapiolani Boulevard & Lime Street/Coolidge Street
    - Between Lime/Coolidge Street & Fern Street
    - Between Fern Street & Date Street
    - Between Date Street & South King Street
    - Between South King Street & Young Street
    - Between Young Street & Beretania Street
- Marked, Unmetered Parking
    - Between Kapiolani Boulevard & Lime Street/Coolidge Street
    - Between Lime Street/Coolidge Street & Fern Street
    - Between Fern Street & Date Street
    - Between Date Street & South King Street
    - Between South King Street & Young Street
    - Between Young Street & Beretania Street

The corridor parking inventory for Isenberg Street can be found in Figure 5.14. The PM TAZ detail can be found in Figure 5.15.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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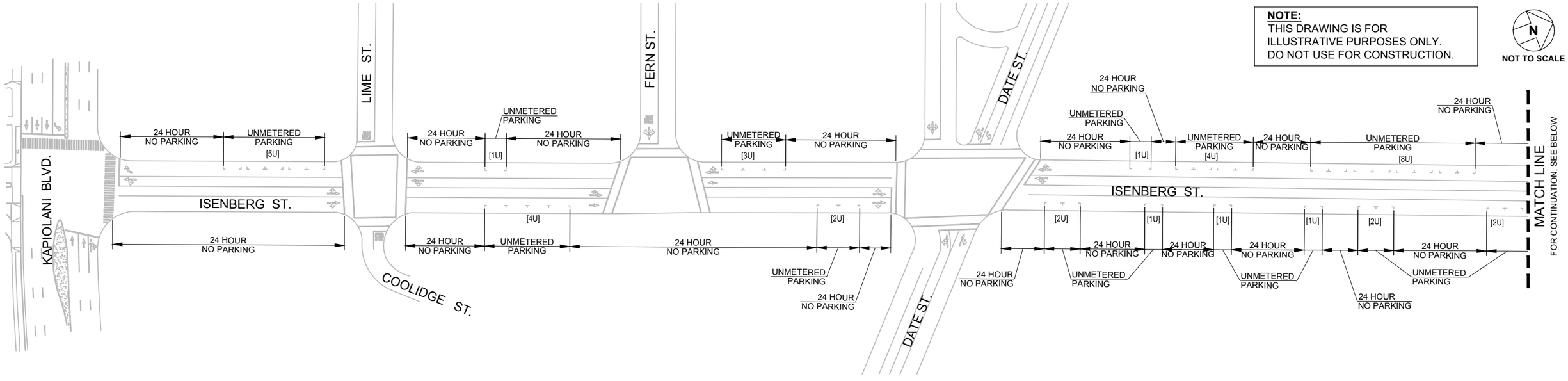

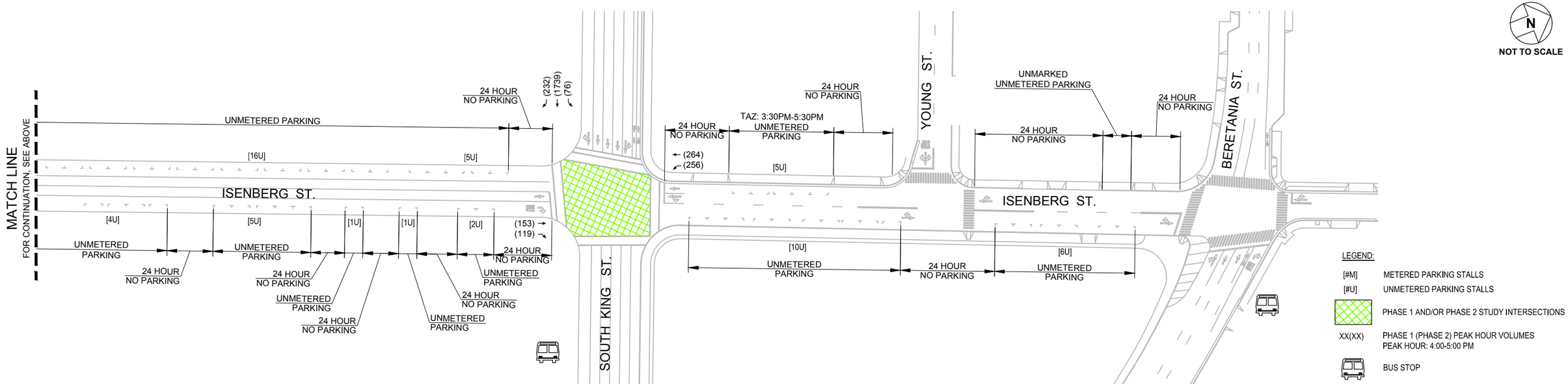

FIGURE 5.14

ISENBERG STREET CORRIDOR-
DETAIL INVENTORY

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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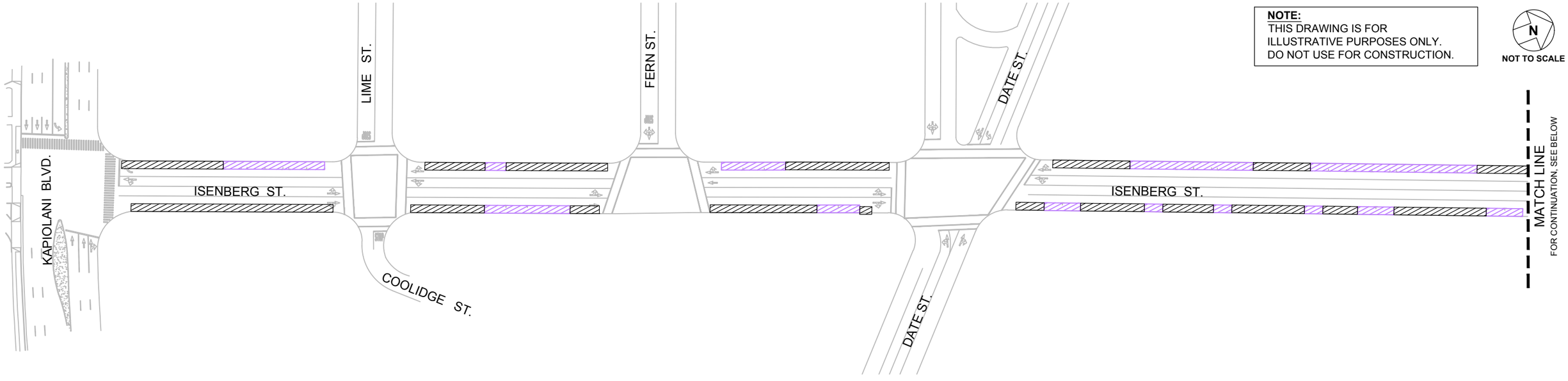

FIGURE 5.15

ISENBERG STREET CORRIDOR-
PM TAZ DETAIL

5.3.7 Kinau Street Parking Allowances

- 24 Hour No Parking Zone
    - Between Alapai Street & Ward Avenue
    - Between Ward Avenue & Victoria Street
    - Between Victoria Street & Pensacola Street
    - Between Pensacola Street & Piikoi Street
    - Between Piikoi Street & Keeaumoku Street
    - Between Keeaumoku Street & Makiki Street
    - Between Makiki Street & east terminus of Kinau Street
- AM Tow-Away Zone
    - Between Ward Avenue & Victoria Street
- PM Tow-Away Zone
    - Between Ward Avenue & Victoria Street
    - Between Victoria Street & Pensacola Street
    - Between Pensacola Street & Piikoi Street
    - Between Piikoi Street & Keeaumoku Street
- Passenger Loading Areas
    - Between Ward Avenue & Victoria Street
    - Between Pensacola Street & Piikoi Street
    - Between Piikoi Street & Keeaumoku Street
- Marked, Unmetered Parking
    - Between Ward Avenue & Victoria Street
    - Between Victoria Street & Pensacola Street
    - Between Pensacola Street & Piikoi Street
    - Between Piikoi Street & Keeaumoku Street
    - Between Keeaumoku Street & Makiki Street
- Metered Parking
    - Between Keeaumoku Street and Makiki Street

The corridor parking inventory for Kinau Street can be found in Figure 5.16. The PM TAZ detail can be found in Figure 5.17.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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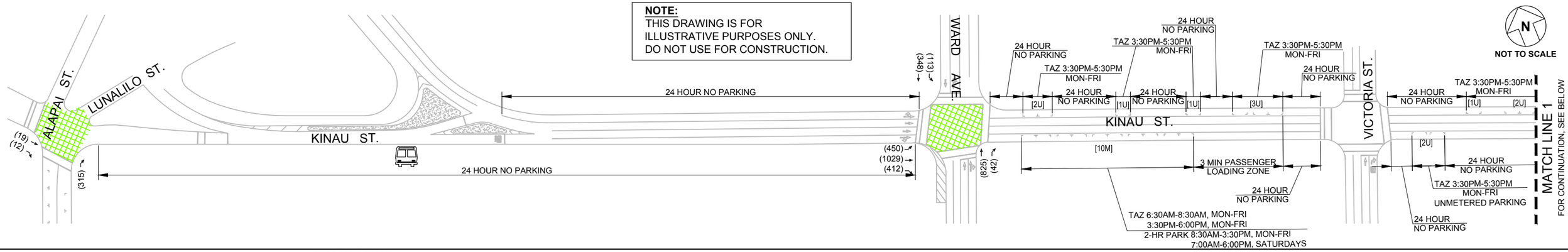

FIGURE 5.16

KINAU STREET CORRIDOR-
DETAIL INVENTORY

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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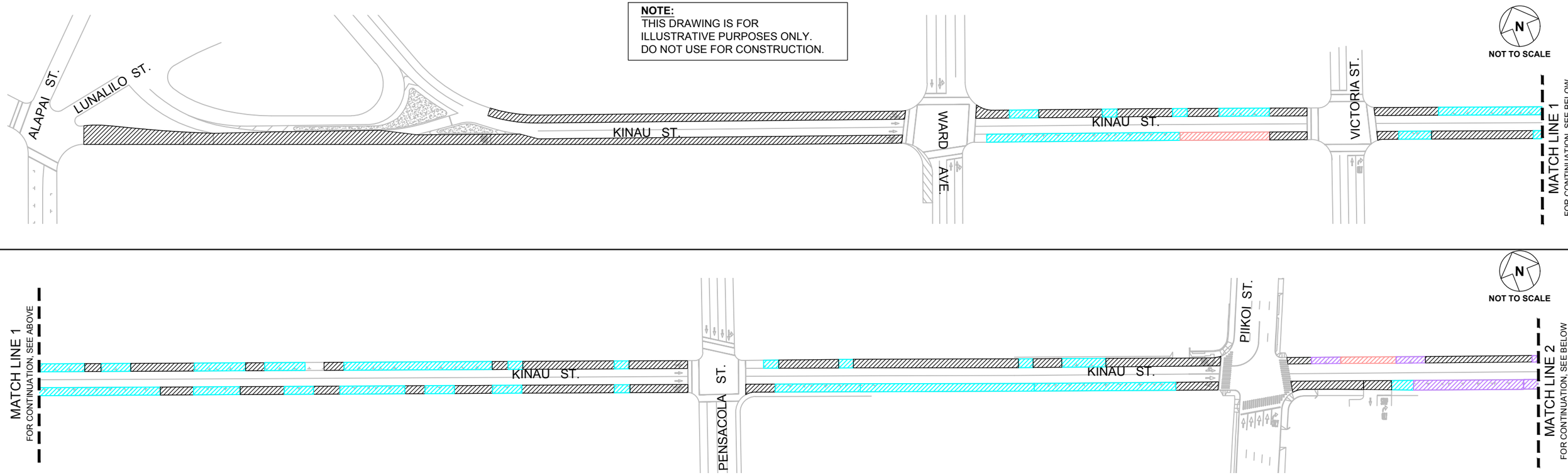

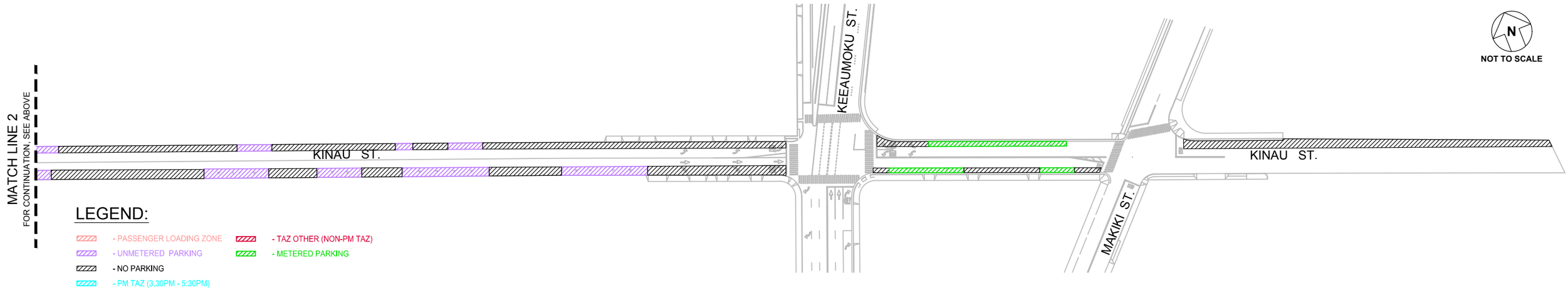

FIGURE 5.17

KINAU STREET PM TAZ DETAIL

5.3.8 South Street Parking Allowances

- 24 Hour No Parking Zone
    - Between Pohukaina Street & Reed Lane
    - Between Reed Lane & Halekauwila Street
    - Between Halekauwila Street & Queen Street
    - Between Queen Street & Kawaihao Street
    - Between Kawaihao Street & Kapiolani Boulevard
- PM Tow-Away Zone
    - Between Pohukaina Street & Reed Lane
    - Between Reed Lane & Halekauwila Street
    - Between Halekauwila Street & Quinn Lane
    - Between Quinn Lane & Queen Street
    - Between Queen Street & Kawaihao Street
    - Between Kawaihao Street & Kapiolani Boulevard
- Freight Loading Areas
    - Between Pohukaina Street & Reed Lane
    - Between Quinn Lane & Queen Street
- Unmetered Parking
    - Between Pohukaina Street & Reed Lane
    - Between Reed Lane & Halekauwila Street
- Metered Parking
    - Between Halekauwila Street & Queen Street
    - Between Queen Street & Kawaihao Street
    - Between Kawaihao Street & Kapiolani Boulevard

The corridor parking inventory for South Street can be found in Figure 5.18. The PM TAZ detail can be found in Figure 5.19.

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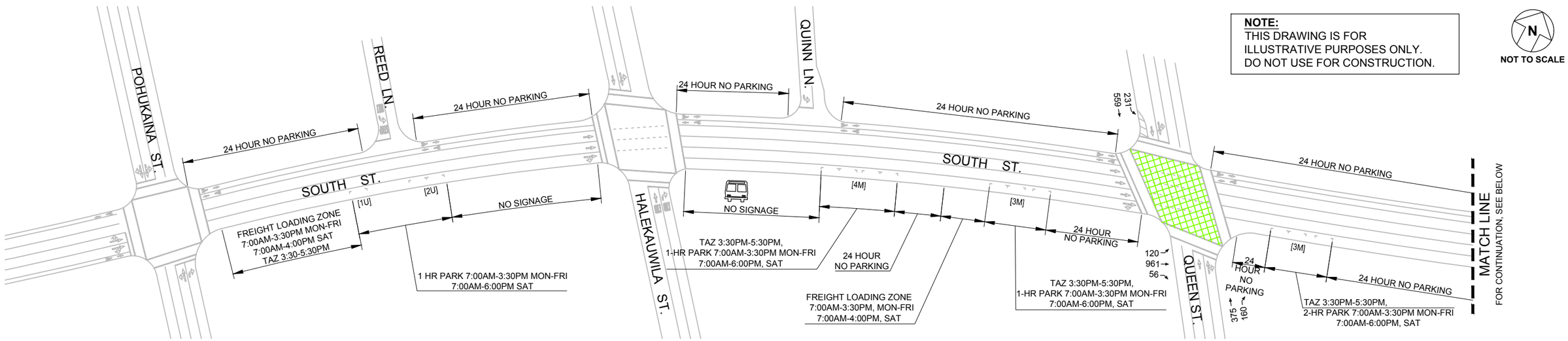

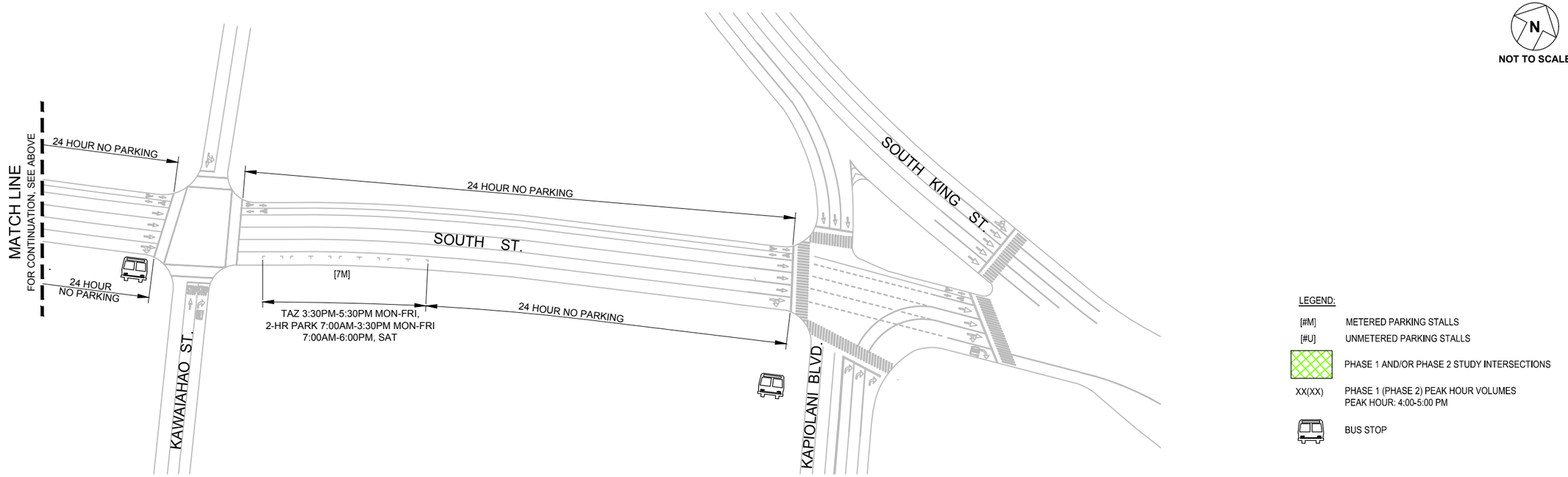

FIGURE 5.18

SOUTH STREET CORRIDOR- DETAIL INVENTORY

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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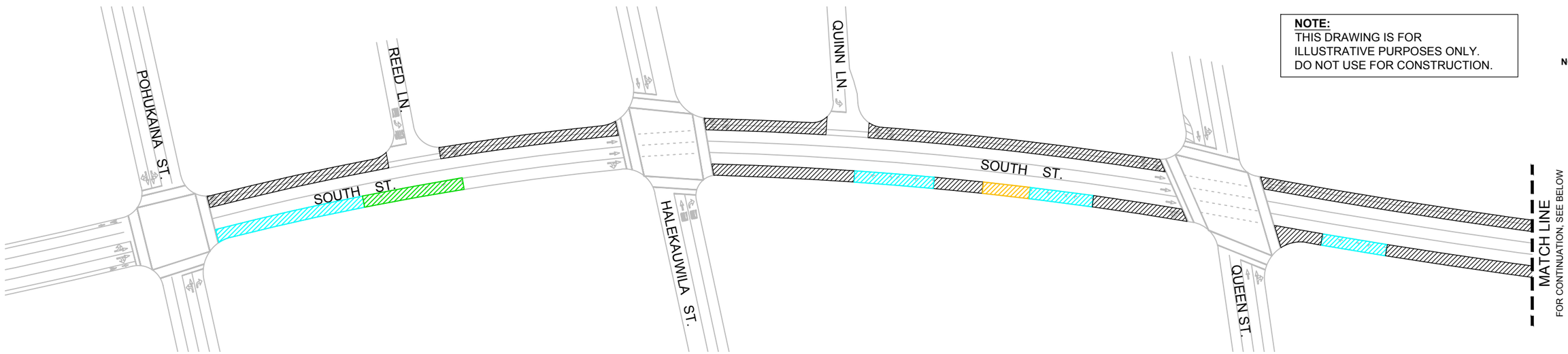

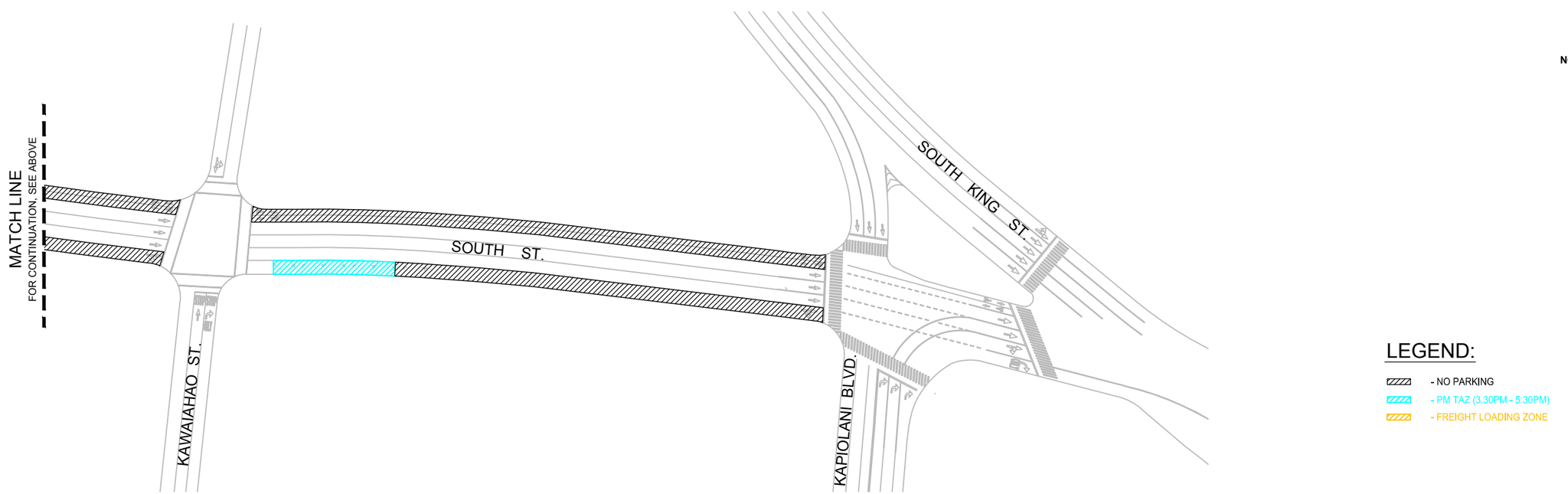

FIGURE 5.19

SOUTH STREET PM TAZ DETAIL

5.3.9 Ward Avenue Parking Allowances

- 24 Hour No Parking Zone
    - Between Kapiolani Boulevard & South King Street
    - Between South King Street & South Hotel Street
    - Between South Hotel Street & Beretania Street
    - Between Beretania Street & Kinau Street
- AM Tow-Away Zone (6:30AM – 9:00 AM)
    - Between Kapiolani Boulevard & South King Street
- PM Tow-Away Zone
    - Between Kapiolani Boulevard & South King Street
- Metered Parking
    - Between Kapiolani Boulevard & South King Street

The corridor parking inventory for Ward Avenue can be found in Figure 5.20. The PM TAZ detail can be found in Figure 5.21.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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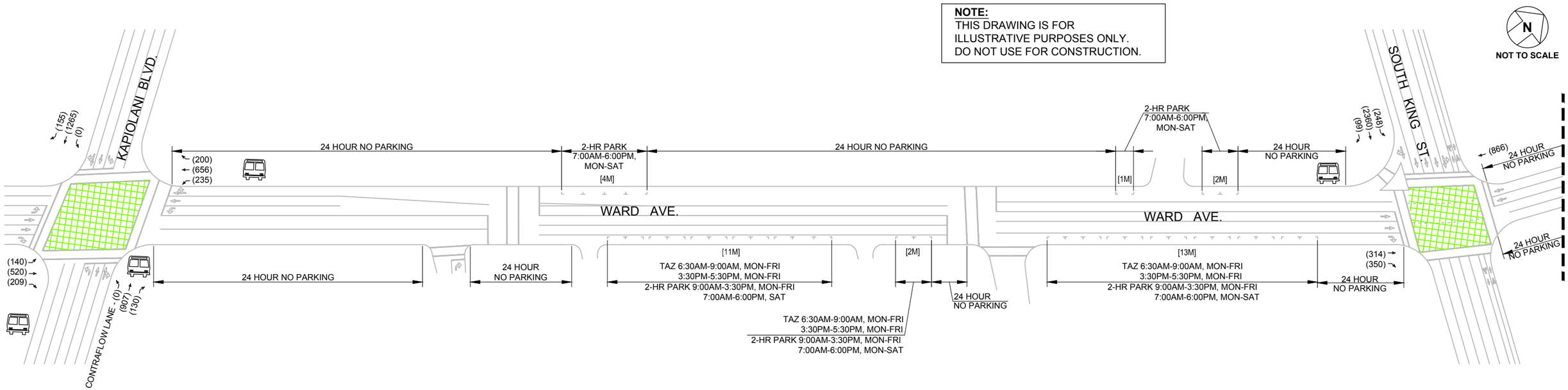

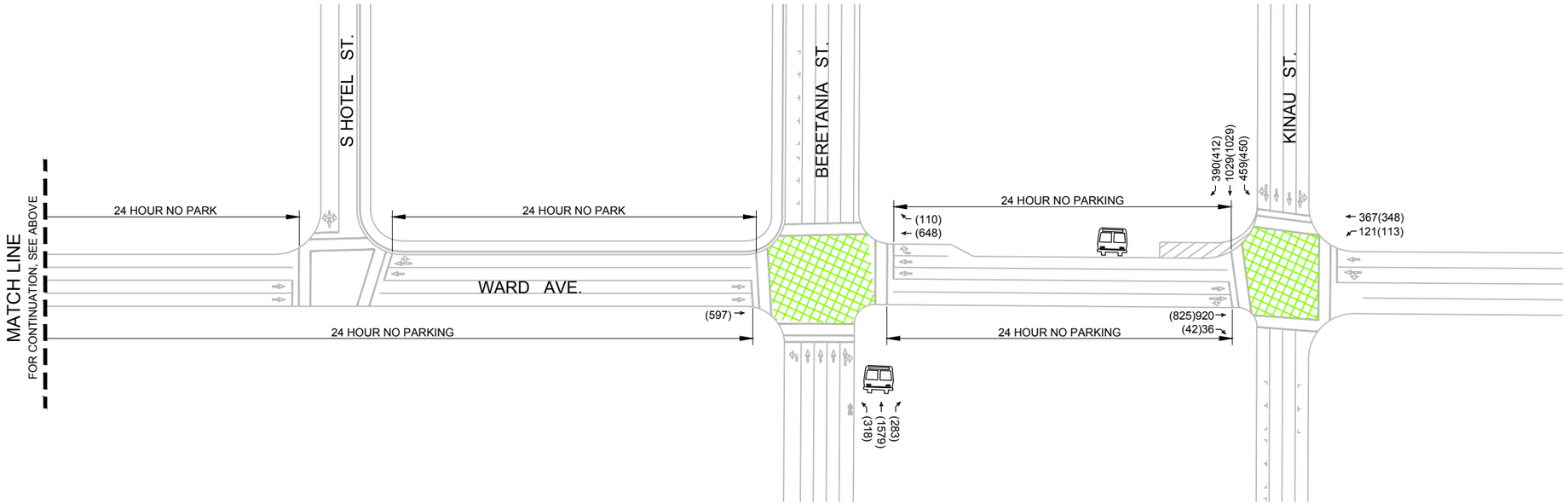

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LEGEND:

[#M]	METERED PARKING STALLS
[#U]	UNMETERED PARKING STALLS
	PHASE 1 AND/OR PHASE 2 STUDY INTERSECTIONS
XX(XX)	PHASE 1 (PHASE 2) PEAK HOUR VOLUMES PEAK HOUR: 4:00-5:00 PM
	BUS STOP

FIGURE 5.20

WARD AVENUE CORRIDOR-DETAIL INVENTORY

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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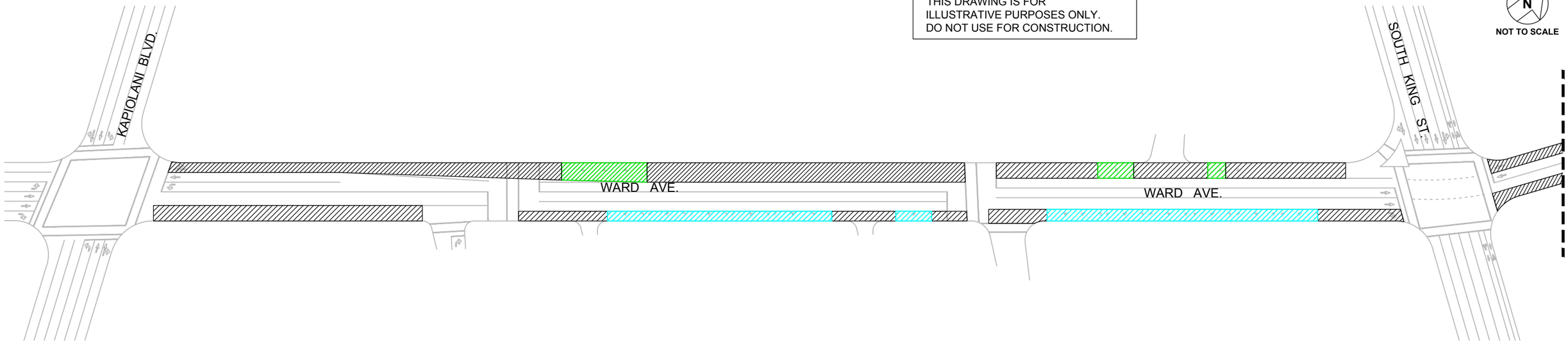

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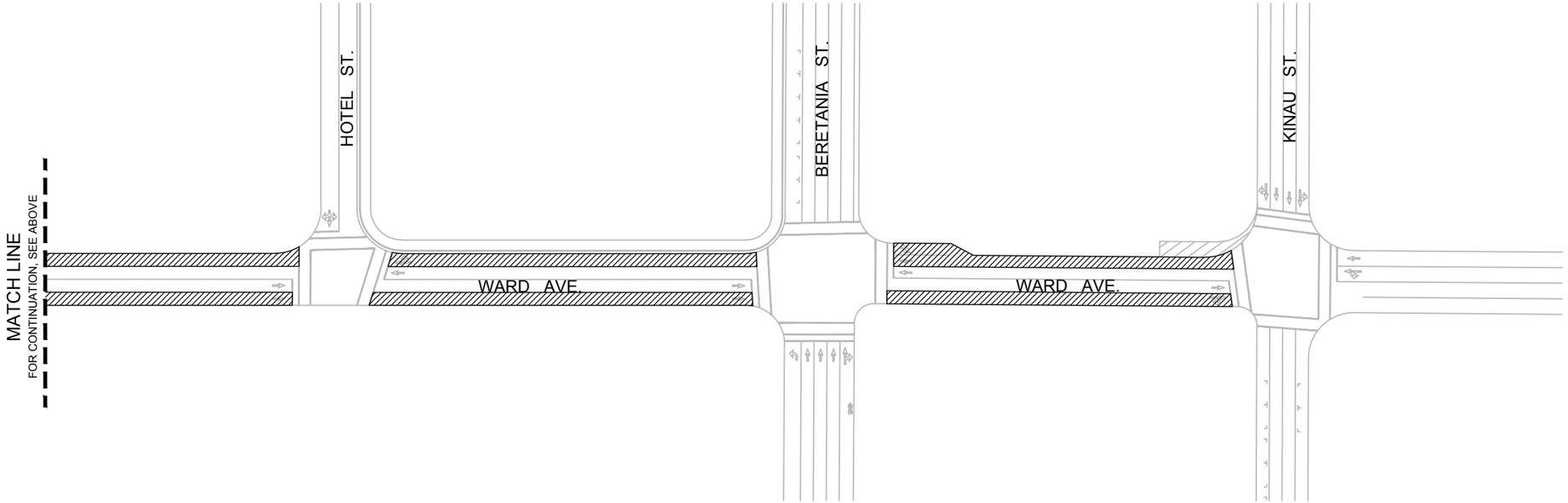

LEGEND:

- NO PARKING
- PM TAZ (3.30PM - 5:30PM)
- METERED PARKING

FIGURE 5.21

WARD AVENUE PM TAZ DETAIL

5.3.10 Piikoi Street Parking Allowances

- 24 Hour No Parking Zone
    - Between Kapiolani Boulevard & Makaloa Street
    - Between Makaloa Street & Kamaile Street
    - Between Kamaile Street & Hoolai Street
    - Between Hoolai Street & Rycroft Street
    - Between Rycroft Street & Elm Street
    - Between Elm Street & Alohi Way
    - Between Alohi Way & South King Street
    - Between South King Street & Young Street
    - Between Young Street & Beretania Street
    - Between Beretania Street & Kinau Street
- Passenger Loading Areas
    - Between Kapiolani Boulevard & Makaloa Street
- Unmarked, Unmetered Parking
    - Between Kamaile Street & Hoolai Street
    - Between Hoolai Street & Rycroft Street
    - Between Rycroft Street & Elm Street
    - Between Elm Street & Alohi Way
    - Between Alohi Way & South King Street
- Metered Parking
    - Between Kapiolani Boulevard & Makaloa Street
    - Between Makaloa Street & Kamaile Street
    - Between South King Street & Young Street

The corridor parking inventory for Piikoi Street can be found in Figure 5.22. The PM TAZ detail can be found in Figure 5.23.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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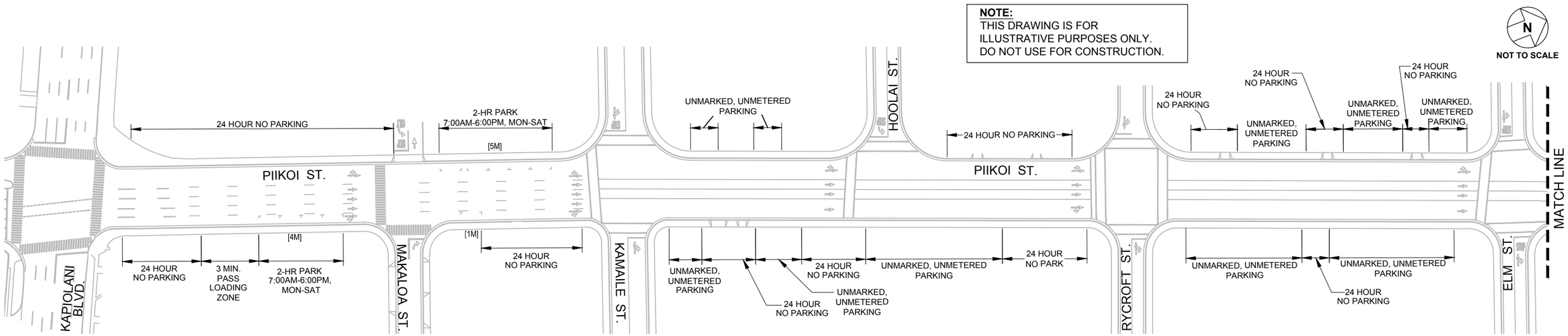

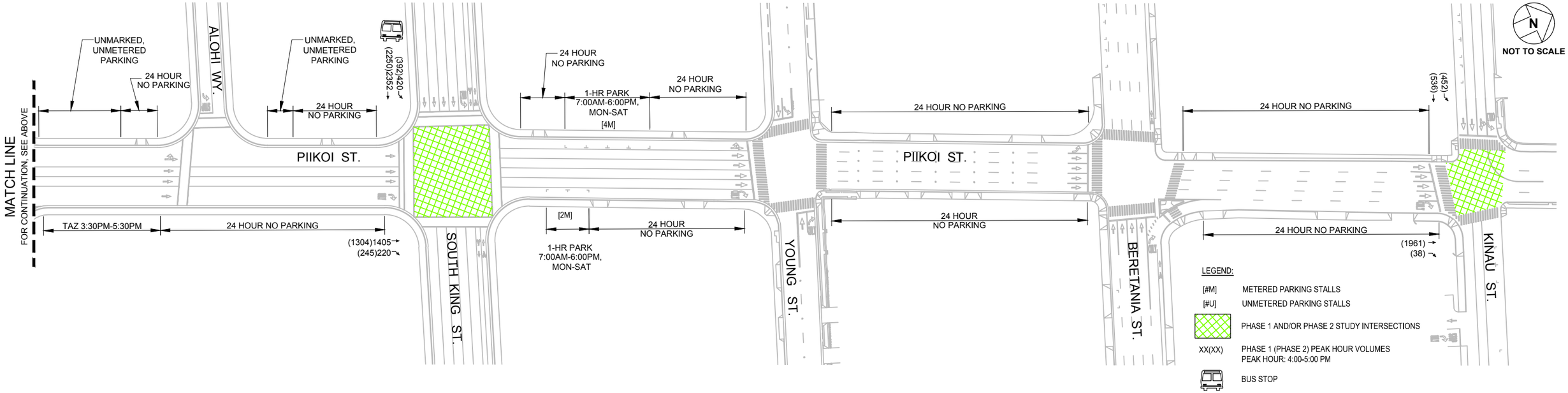

FIGURE 5.22

PIIKOI STREET CORRIDOR-
DETAIL INVENTORY

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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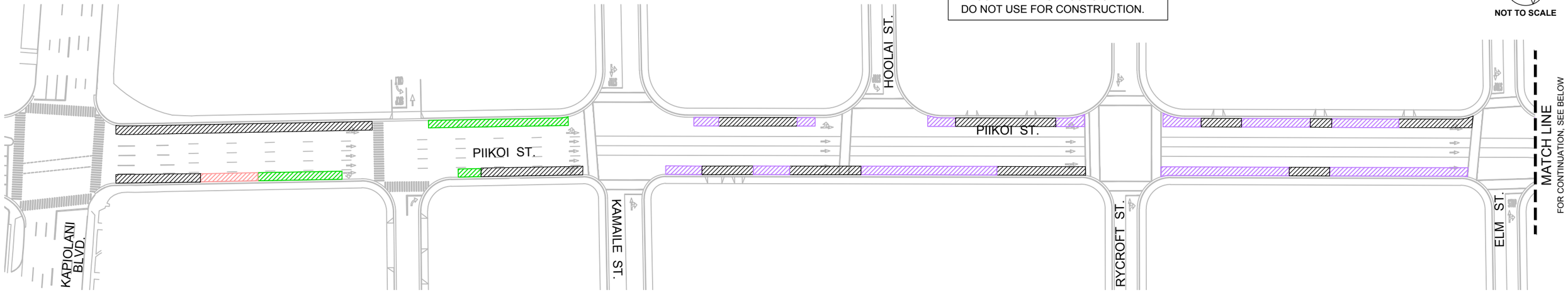

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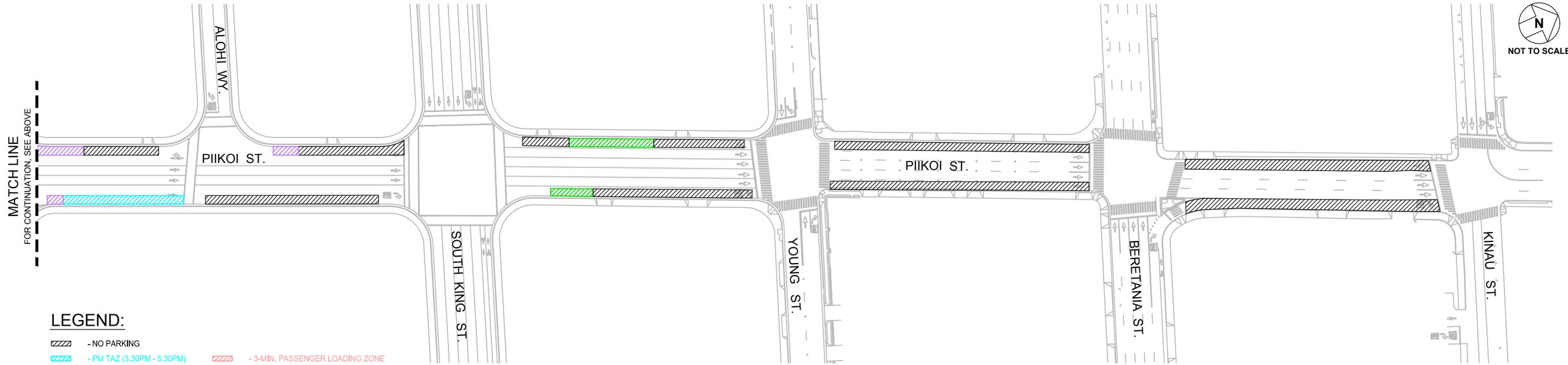

FIGURE 5.23

PIIKOI STREET PM TAZ DETAIL

5.3.11 Keeaumoku Street Parking Allowances

- 24 Hour No Parking Zone
    - Between Kapiolani Boulevard & Makaloa Street
    - Between Makaloa Street & Kanunu Street
    - Between Kanunu Street & Rycroft Street
    - Between Rycroft Street & Liona Street
    - Between Liona Street & South King Street
    - Between South King Street & Young Street
    - Between Young Street & Beretania Street
    - Between Beretania Street & Kinau Street
- PM Tow-Away Zone
    - Between Makaloa Street & Kanunu Street
    - Between Kanunu Street & Rycroft Street
    - Between Rycroft Street & Liona Street
- Freight Loading Areas
    - Between Makaloa Street and Kanunu Street
    - Between Rycroft Street and Liona Street
- Passenger Loading Areas
    - Between Makaloa Street and Kanunu Street
- Metered Parking
    - Between Makaloa Street and Kanunu Street
    - Between Kanunu Street & Rycroft Street
    - Between Rycroft Street & Liona Street

The corridor parking inventory for Keeaumoku Street can be found in Figure 5.24. The PM TAZ detail can be found in Figure 5.25.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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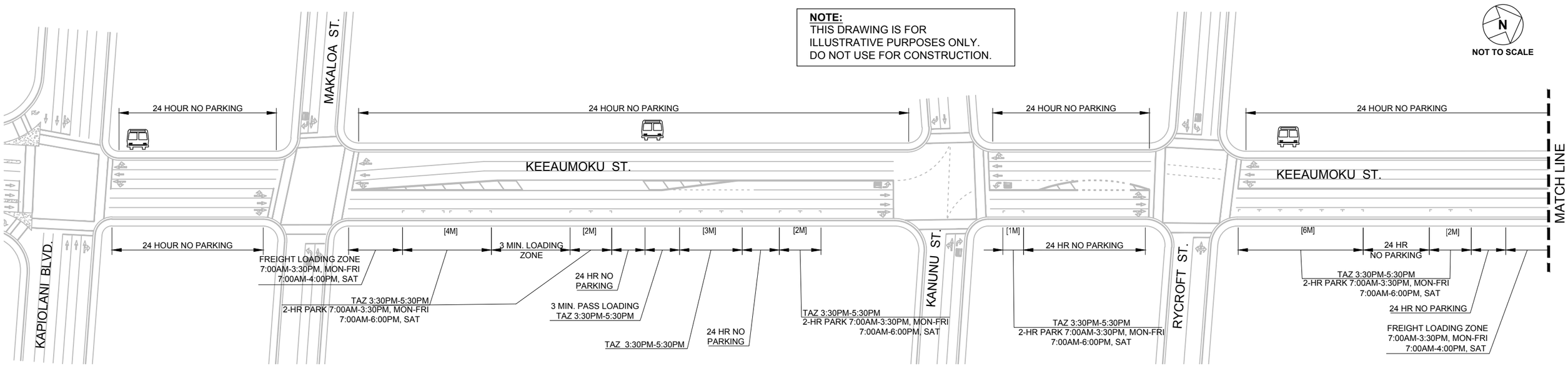

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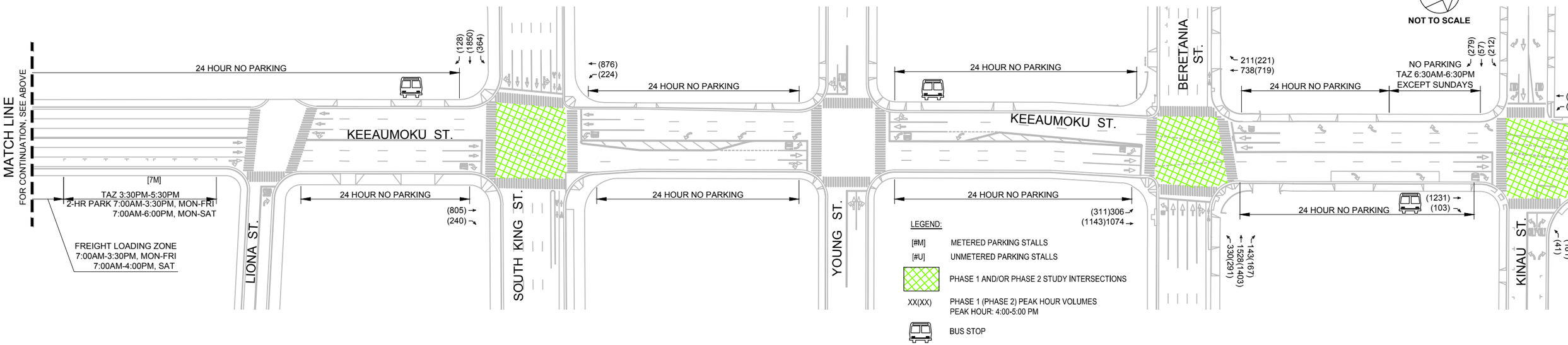

FIGURE 5.24

KEEAUMOKU STREET CORRIDOR-
DETAIL INVENTORY

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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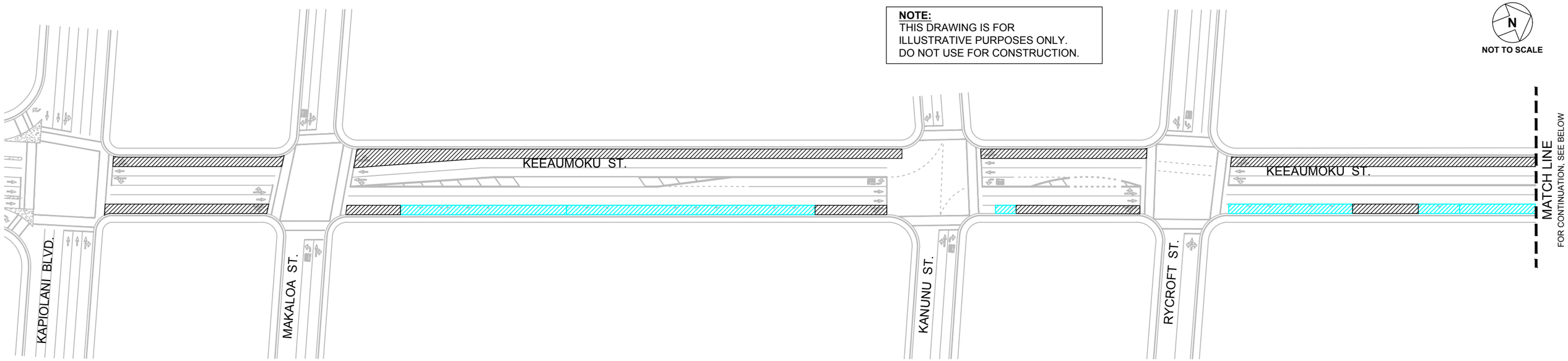

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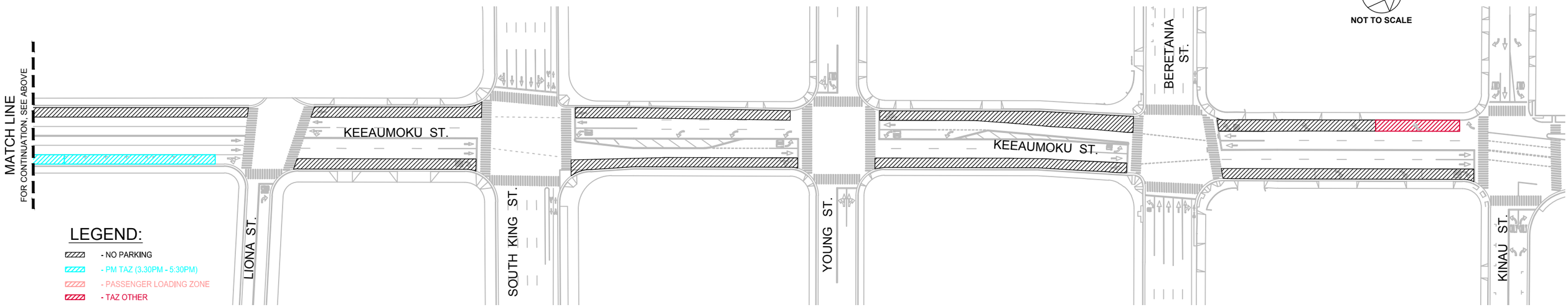

FIGURE 5.25

KEEAUMOKU STREET CORRIDOR-
PM TAZ DETAIL

5.3.12 University Avenue Parking Allowances

- 24 Hour No Parking Zone
    - Between Kapiolani Boulevard & Date Street
    - Between Date Street & Kuilei Street
    - Between Kuilei Street & South King Street
- PM Tow-Away Zone
    - Between Kuilei Street & South King Street
- Unmarked, Unmetered Parking
    - Between Kapiolani Boulevard & Date Street
    - Between Date Street & Kuilei Street
    - Between Kuilei Street & South King Street

The corridor parking inventory for University Avenue can be found in Figure 5.26. The PM TAZ detail can be found in Figure 5.27.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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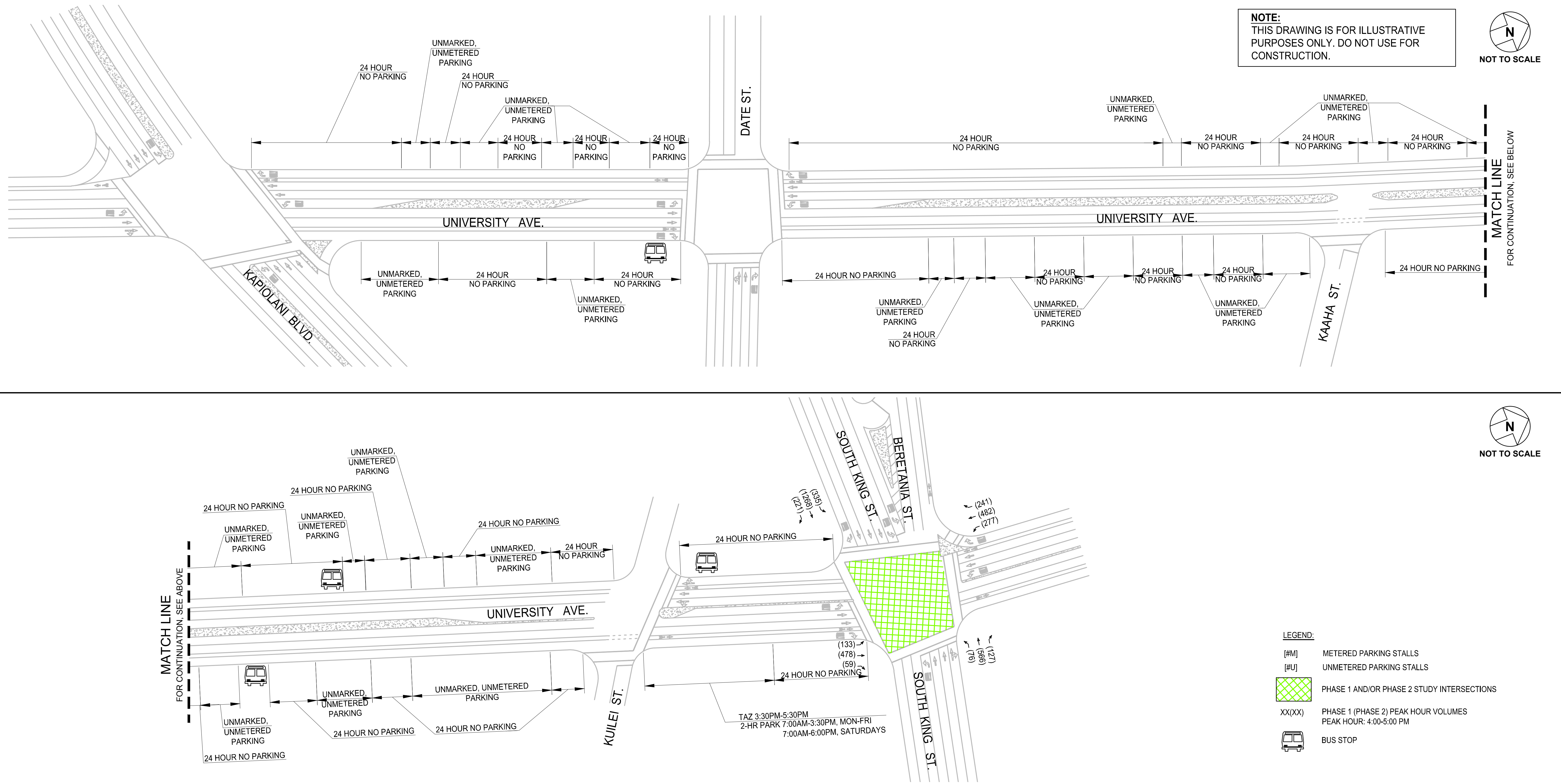

FIGURE 5.26

UNIVERSITY AVENUE CORRIDOR- DETAIL INVENTORY

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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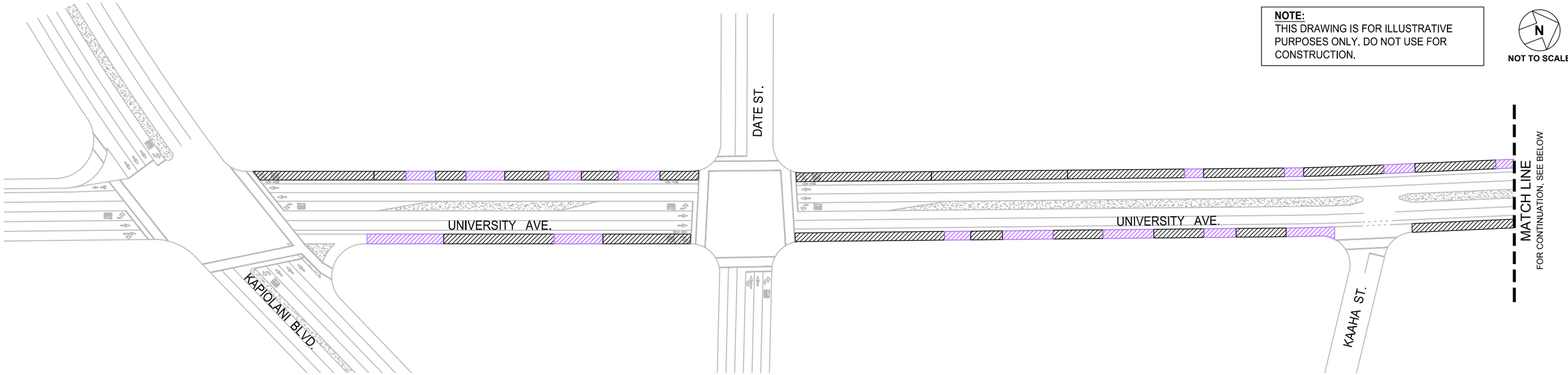

FIGURE 5.27

UNIVERSITY AVENUE PM TAZ DETAIL

5.3.13 Beretania Street Parking Allowances

- 24 Hour No Parking Zone
    - Between Beretania Street & Kaialiu Street
    - Between Kaialiu Street & Isenberg Street
    - Between Isenberg Street & Griffiths Street
    - Between Griffiths Street & Farrington Street
    - Between Farrington Street & McCully Street
    - Between McCully Street & Artesian Street
    - Between Artesian Street & Alexander Street
    - Between Alexander Street & Punahou Street
    - Between Punahou Street & Makiki Street
    - Between Makiki Street & Keeaumoku Street
    - Between Keeaumoku Street & Piikoi Street
    - Between Piikoi Street & Pensacola Street
    - Between Pensacola Street & Victoria Street
    - Between Victoria Street & Ward Avenue
    - Between Ward Avenue & Alapai Street
    - Between Alapai Street & Lisbon Street
    - Between Lisbon Street & Lauhala Street
    - Between Lauhala Street & Punchbowl Street
- AM Tow-Away Zone
    - Between Isenberg Street & Griffiths Street
    - Between Griffiths Street & Farrington Street
    - Between Farrington Street & McCully Street
    - Between Artesian Street & Alexander Street
    - Between Alexander Street & Punahou Street
    - Between Keeaumoku Street & Piikoi Street
    - Between Piikoi Street & Pensacola Street
    - Between Pensacola Street & Victoria Street
    - Between Ward Avenue & Alapai Street
- PM Tow-Away Zone
    - Between Ward Avenue & Alapai Street
    - Between Pensacola Street & Victoria Street

- Tow-Away Zones (Other)
    - Between Pensacola Street & Victoria Street (6:00AM – 6:00PM)
    - Between Victoria Street & Ward Street (6:00AM – 6:00PM)
- Freight Loading Areas
    - Between Farrington Street & Griffiths Street
    - Between Artesian Street & Villa Lane
    - Between Kalakaua Avenue & Keeaumoku Street
    - Between Keeaumoku Street & Piikoi Street
    - Between Piikoi Street & Pensacola Street
    - Between Pensacola Street & Victoria Street
- Passenger Loading Areas
    - Between Victoria Street & Ward Avenue
    - Between Ward Avenue & Alapai Street
- Unmarked, Unmetered Parking
    - Between Kaialiu Street & Isenberg Street
    - Between Isenberg Street & Griffiths Street
    - Between Griffiths Street & Farrington Street
    - Between Farrington Street & McCully Street
    - Between McCully Street & Artesian Street
    - Between Pawaa Lane & Punahou Street
    - Between Keeaumoku Street & Piikoi Street
- Metered Parking
    - Between Punahou Street & Kalakaua Avenue
    - Between Kalakaua Avenue & Makiki Street
    - Between Keeaumoku Street & Piikoi Street
    - Between Piikoi Street & Pensacola Street
    - Between Pensacola Street & Victoria Street
    - Between Ward Avenue & Alapai Street

The corridor parking inventory for Beretania Street can be found in Figures 5.28-5.30. The PM TAZ detail can be found in Figures 5.31-5.33.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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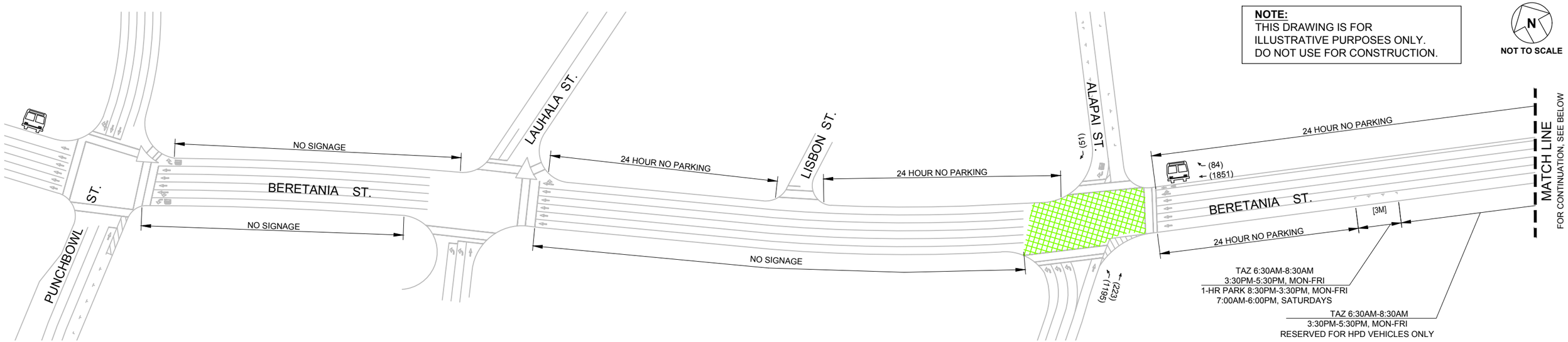

FIGURE 5.28

BERETANIA STREET CORRIDOR
DETAIL INVENTORY - 1

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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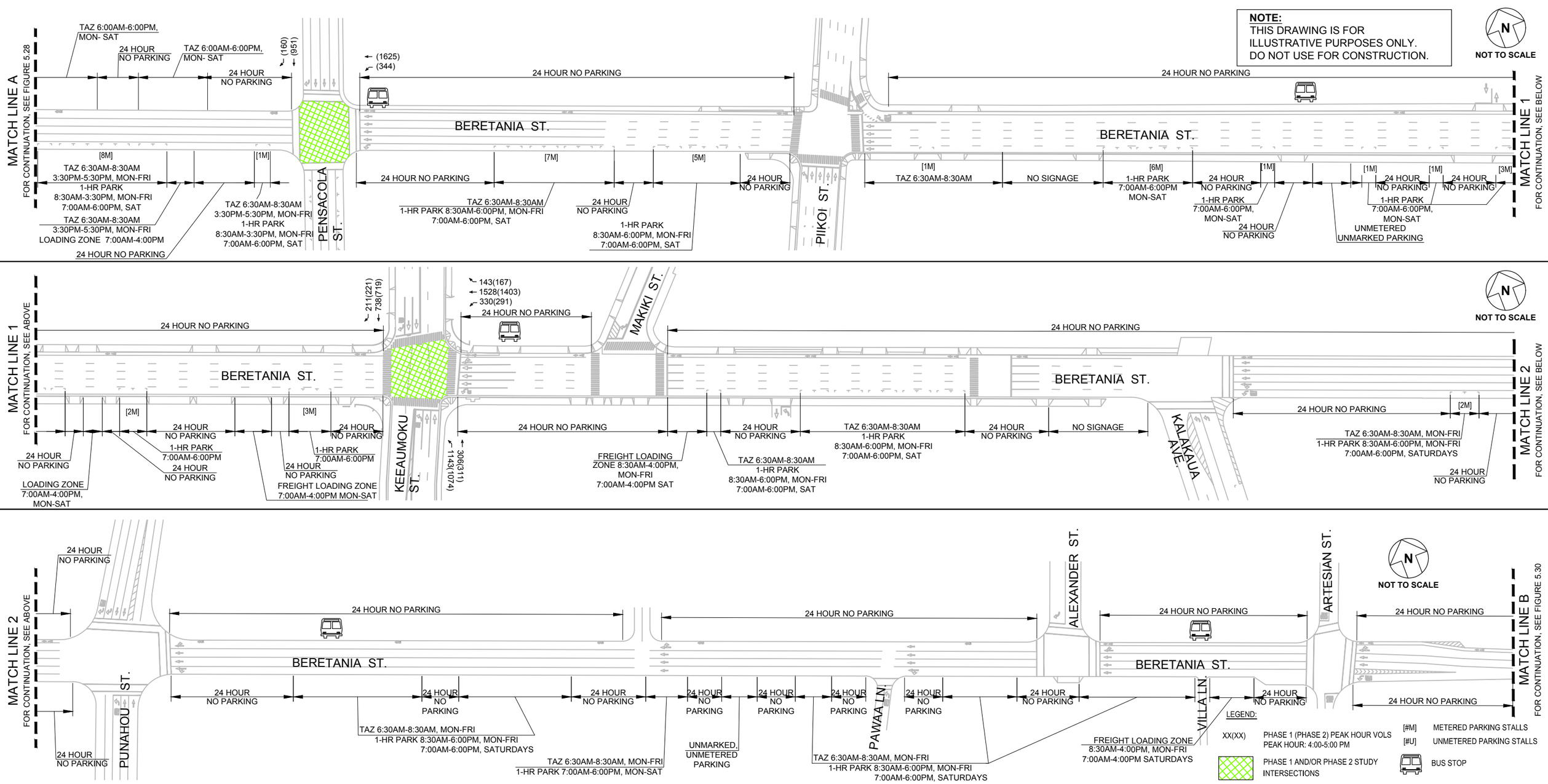

FIGURE 5.29

BERETANIA STREET CORRIDOR-
DETAIL INVENTORY - 2

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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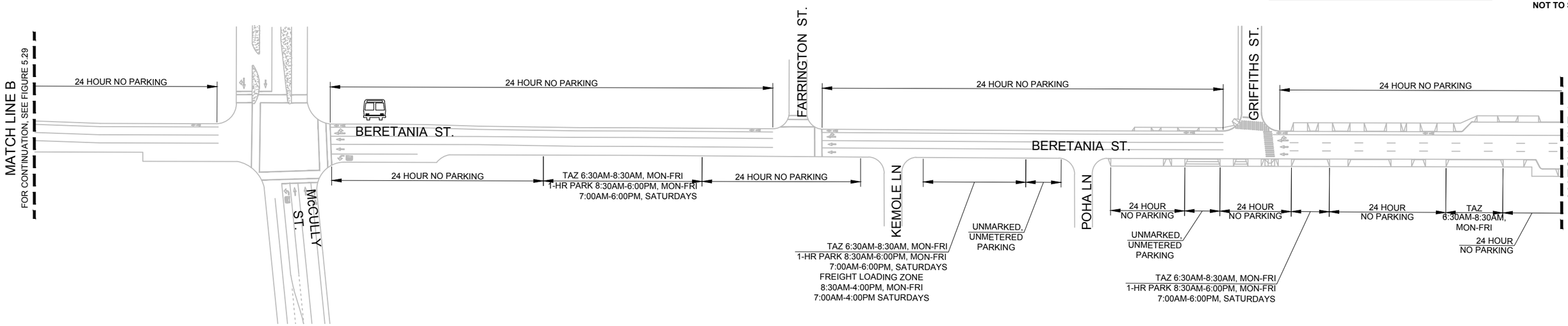

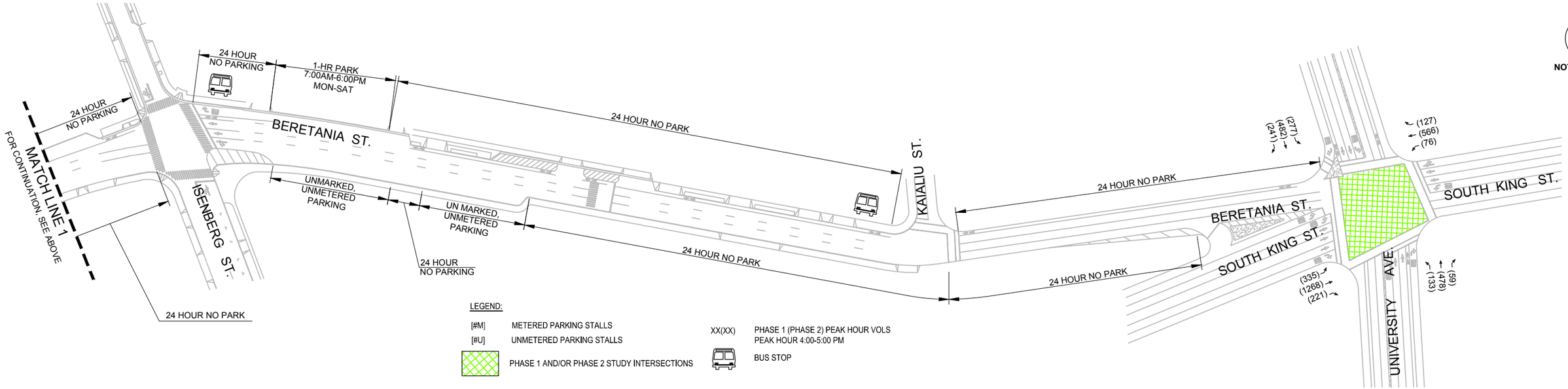

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FIGURE 5.30

BERETANIA STREET CORRIDOR-
DETAIL INVENTORY - 3

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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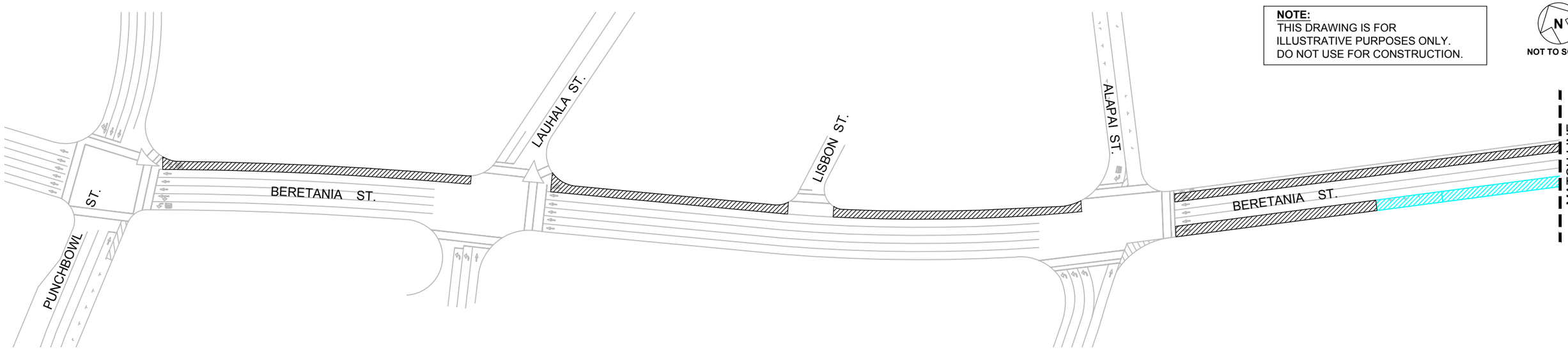

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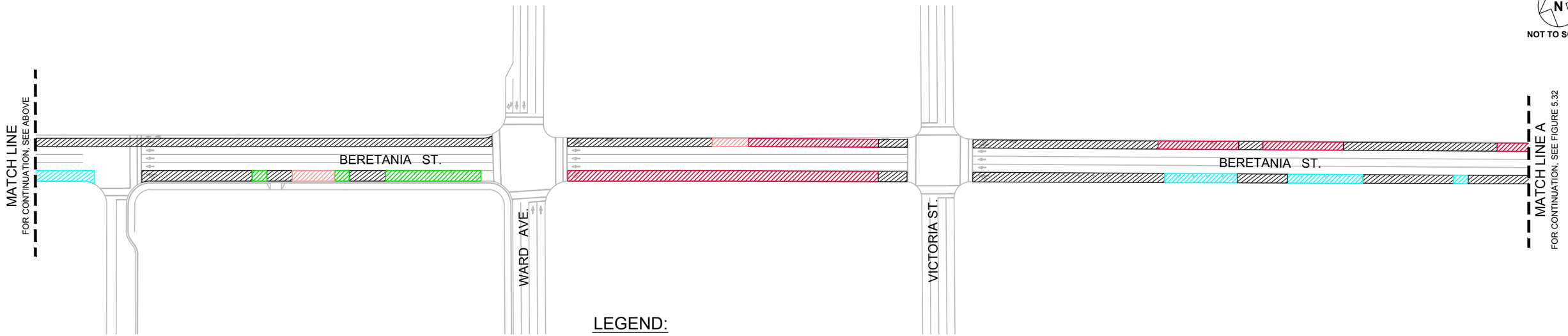

FIGURE 5.31

BERETANIA STREET PM TAZ DETAIL – 1

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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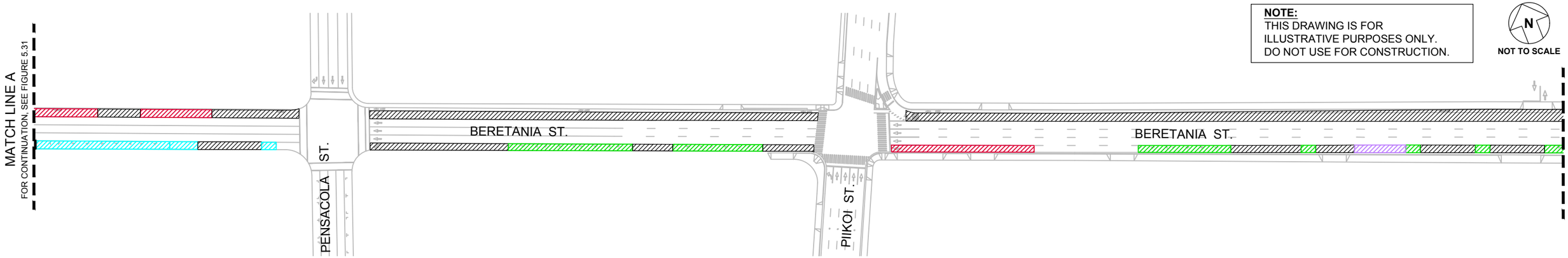

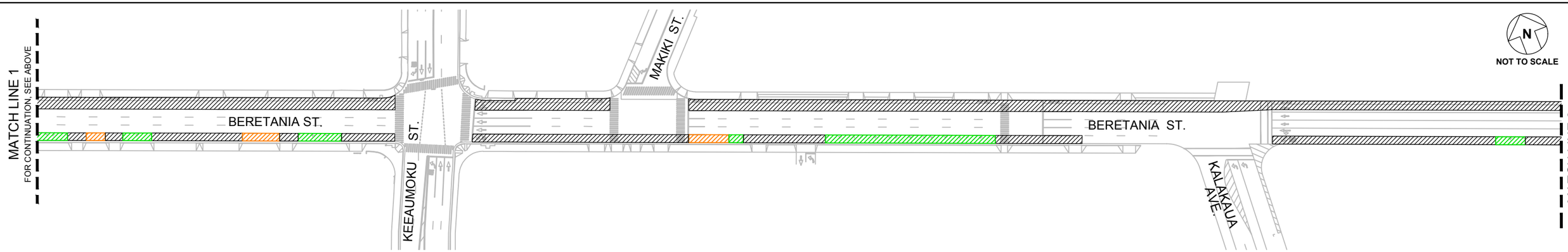

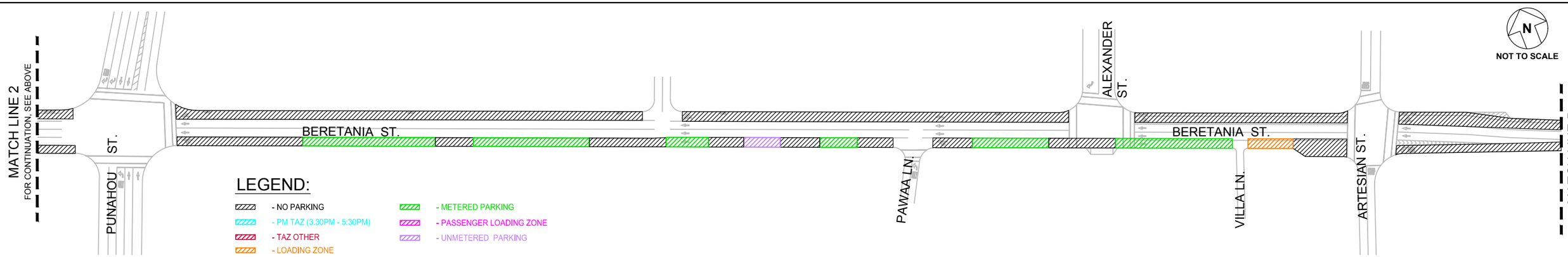

FIGURE 5.32

BERETANIA STREET PM TAZ DETAIL – 2

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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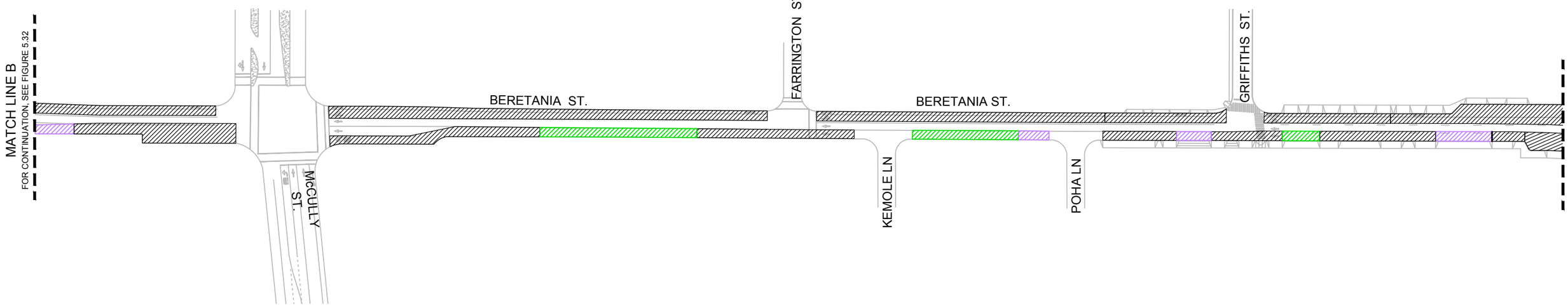

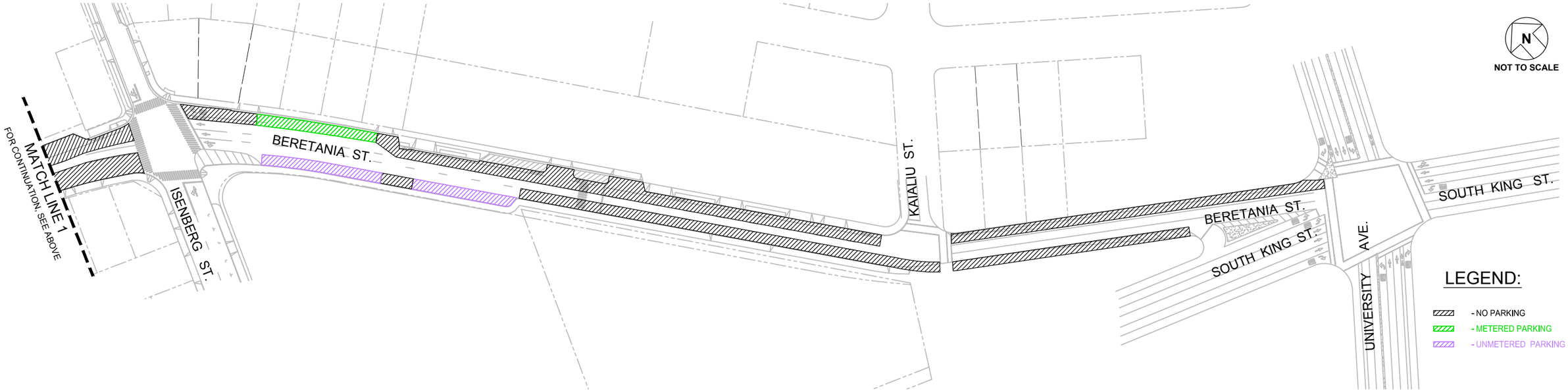

FIGURE 5.33

BERETANIA STREET PM TAZ DETAIL – 3

5.4 Tow-Away Zone and On-Street Parking Enforcement

The Parking Enforcement and Collections Section of the Honolulu Police Department (HPD) is currently responsible for meter maintenance and the issuance of parking citations in the Study Area.

Generally, as noted in corridor observations, there was widespread and frequent violation of parking restrictions throughout the day. As noted in the Walker Master Plan report, HPD is responsible for issuance of parking citations; however, the State of Hawaii receives all parking violation citations income and does not reimburse HPD for any costs related to the issuance of parking violations, including labor and processing expenses, which reduces the incentive and priority for HPD to issue parking citations. It was observed during the parking inventory, especially in residential areas, that a number of cars were parked in unmarked, unmetered stalls inappropriately, as they were too close to driveways, intersections, or crosswalks outlined in Article 14 of the City and County of Honolulu Traffic Code.

Additionally, incomplete or unmaintained signage can be confusing to drivers who may then accidentally or unknowingly park in restricted areas. During the parking inventory, a number of areas were noted to be missing signage throughout the Study Area, such as a segment of metered stalls on Kalakaua Avenue which had marked stalls and meters, but no signage.

To date, there is no Hawaii state law which specifies the “enforceable” distance of parking signs which can also lead to confusion. For example, on Alapai Street, a “No Parking” sign exists on the west curb on a signal pole at the intersection of King Street and Alapai Street, and another on the west curb of Beretania Street and Alapai Street, but no indication of the beginning or end of the length of curb for which it applies. This can cause confusion and frustration if drivers are expected to adhere to parking restrictions listed on signs a significant way downstream of them or significant distances upstream.

5.5 Existing Complete Streets & Transit Elements

Several modal alternatives are offered throughout the Study Area, including bicycle and pedestrian facilities, the City and County of Honolulu TheBus system, and the future rail transit project which hopes to reduce the need to find parking in the area.

5.5.1 Bicycle and Pedestrian Facilities

Sidewalks are provided for pedestrians on every street studied within the network. The King Street protected bike lane provides connectivity to the Urban Core of Honolulu, making cycling a viable option throughout the Study Area. The South Street, Pensacola Street, and Ward Avenue bike lanes provide mauka-makai connectivity throughout the Study Area.

Figure 5.34: King Street Cycle Track, Photo from KHON

5.5.2 TheBus

The City and County of Honolulu offers a bus system, called TheBus, which provides service to most major areas of Oahu. Bus stops are spread throughout the Study Area, and many are covered and have seating areas for rider comfort.

Figure 5.35: Bus Stop on Pensacola Street. Photo from Google

6. CORRIDOR OBSERVATIONS AND ANALYSIS

The analysis and observations described below are based on prevailing conditions during the time at which the travel time runs and turning movement data was collected. Some supplementary analysis and observations were subsequently performed. These observations show that traffic conditions throughout the Urban Core are extremely variable and change day-by-day. Traffic incidents and congestion on the H-1 Freeway in both directions throughout the afternoon can have significant impacts on major and minor arterials throughout the network and Study Area. Afternoon events such as those described in Section 2.2 may also have notable impacts on traffic conditions throughout the Study Area.

6.1 Punchbowl Street Corridor

6.1.1 Punchbowl Street Observations

The midblock crosswalk near the State Capitol between South King Street and Beretania Street was observed to be heavily utilized during the commuter peak by bicyclists and pedestrians, and resulted in frequent interruption of vehicle progression along Punchbowl Street. Occasionally, queue from the midblock crossing spills back and blocks southbound left-turns from South King Street onto Punchbowl Street, though this condition does not appear to be persistent and clears with the next 1-2 cycles.

There are no PM TAZ restrictions on Punchbowl Street between South King Street and Beretania Street.

6.2 Alapai Street Corridor

6.2.1 Alapai Street Observations

Starting at 4:45 PM, queue was observed to spill back from the Beretania Street/Alapai Street intersection to the Kapiolani Boulevard/South Street intersection and sometimes beyond, depending on the cycle at the Beretania Street/Alapai Street intersection. By 5:00 PM, congestion on Beretania Street and spillback of the rightmost lane on Beretania Street, which services the heavily utilized right-turn lane bound for the westbound H-1 Freeway via Punchbowl Street, began to affect progression of Alapai Street traffic onto Beretania Street. Throughout the evening, busses weaving in and out of lanes to exit the Alapai Transit Center cause turbulence that contributes to the already lengthy queueing along Alapai Street. As the evening progressed, queueing along Alapai Street was observed to diminish as queuing along Beretania Street alleviated.

There are no PM TAZ restrictions on Alapai Street between South King Street and Beretania Street.

6.3 Pensacola Street Corridor

6.3.1 Pensacola Street Observations

Progression of Makai bound traffic along Pensacola Street was observed to frequently be interrupted by signals at Kinau Street, Beretania Street, Young Street and South King Street, though this was not observed to create any significant queue. Between South King Street and Kapiolani Boulevard, delay was minimal as no signals exist on this segment.

Some violations of the no-parking areas near crosswalks near the McKinley High School cut the available sight distance to pedestrians waiting at the curb.

There are no PM TAZ restrictions on Pensacola Street between Kinau Street and Kapiolani Boulevard.

6.4 Kalakaua Avenue Corridor

6.4.1 Kalakaua Avenue Observations

Queueing along Kalakaua Avenue was observed to be persistent and extensive for most of the afternoon in the Makai direction, especially between South King Street and Kapiolani Boulevard. At its peak, the Makai-bound queue was observed to extend from the Kalakaua Avenue and Kapiolani Boulevard intersection to approximately 350 feet Mauka of Waiola Street, and can take 3-5 cycles to clear the Kalakaua Avenue and Kanunu Street intersection. It appeared that long cycle lengths at the Kapiolani Boulevard intersection, and right-turn lane and lane drop at the Kanunu Street intersections were contributing factors to this congestion.

There are no PM TAZ restrictions on Kalakaua Avenue between Beretania Street and Kapiolani Boulevard.

6.5 McCully Street Corridor

6.5.1 McCully Street Observations

Throughout the afternoon, queuing along McCully Street in the Makai bound direction was observed to consistently queue to Lime Street and as far back as Date Street. This queue was also observed to impact the minor streets as turns from the minor street were blocked. This queue appears to be due mostly to long cycle times at the Kapiolani Boulevard/McCully Street intersection, which prioritizes the mainline Kapiolani Boulevard traffic.

Mauka bound traffic was observed to be congested due to high volumes of traffic bound for the residential Manoa neighborhood and the nearby westbound H-1 Freeway on-ramp at Alexander Street. There were short left-turn pockets for minor streets between King Street and Beretania Street, but these pockets were observed to frequently be blocked due to queues in the through lane. These left-turn movements are permissive, with the exception of the left-turn from McCully Street onto King Street, which has a lagging protected phase. Left turns for intersections Makai of King Street were from shared lanes with permissive phases.

There are no PM TAZ restrictions on McCully Street between Kapiolani Boulevard and Beretania Street.

6.6 Isenberg Street Corridor

6.6.1 Isenberg Observations

Isenberg serves a mix of single-family homes, condos, and commercial uses. Parking is available on both curbs for the majority of its stretch, and the curbside lanes are wide enough to accommodate the travel lane with curbside parking, side-by-side. Some queueing was observed at the intersection of Kapiolani Boulevard and Isenberg Street due to long cycle lengths, which sometimes took 1-2 cycles to clear due to congestion on Kapiolani Boulevard.

At the Isenberg Street and South King Street intersection, the leftmost lane, which operates as a shared left/through lane, was observed to have the highest utilization, with queuing frequently extending to Young Street, and sometimes beyond. When queue spillback occurred, progression along Young Street was blocked, though this blockage only affected a few vehicles, due to low volumes along Young Street in this area.

Otherwise, no significant or persistent queueing was observed along Isenberg Street.

6.6.2 Isenberg Street Tow-Away Zone Modification Analysis

Currently, several unmetered stalls are restricted by the PM TAZ on the west curb of Isenberg near the intersection of Isenberg Street and South King Street.

Generally by the end of the PM TAZ restriction at 6:30 PM, queueing had subsided enough that through vehicles were able to access the through lane for the majority of the Isenberg cycle, and the queue cleared completely with each cycle.

Therefore, no extension of the existing PM TAZ hours is recommended, though operations may benefit from strict enforcement of PM TAZ restrictions.

A summary of analysis for the Isenberg Street PM TAZ extension can be found in Figure 6.1.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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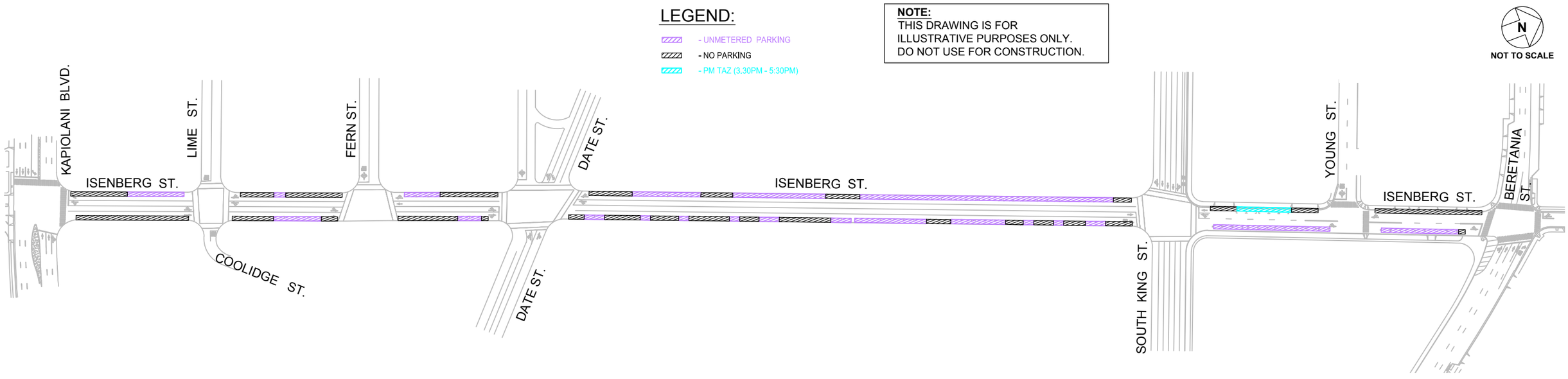

Tow-Away Zone Time Extension Considerations:

- By the end of the PM TAZ restriction at 5:30 PM, queue had subsided enough that through vehicles were able to access the through lane, and queue consistently cleared with each cycle.

Recommendations:

- **No extension of the existing PM Tow-Away Zone hours from 3:30PM-5:30PM is recommended at this time.**
- **Strict enforcement of PM TAZ.**

FIGURE 6.1

ISENBERG STREET PM TAZ ANALYSIS

6.7 Kinau Street Corridor

6.7.1 Kinau Street Observations

Near the west terminus of Kinau Street, Kinau Street merges with Lusitana Street just before Kinau Street merges with the H-1 Freeway Eastbound off-ramp. While striping showed that traffic from Lusitana Street and Kinau Street should merge, traffic continues as two lanes until it merges with the Kinau Street offramp.

The right-turn-only lane at the intersection of Kinau Street and Ward Avenue creates an approximate 500-foot weaving segment, which was observed to result in congestion in the two rightmost lanes of Kinau Street at its intersection at Ward Avenue. As drivers in the lane second from the right found gaps in the right-turn lane, they were observed to attempt to maneuver into the lane and block both lanes, leaving unused storage in the lane second from the right. Further east, at the Kinau Street and Piikoi Street intersection, queue due to the downstream Piikoi Street and Lunalilo Street intersection was observed to spill back through the intersection, frequently blocking progression of eastbound Kinau Street left turn and through vehicles. At times, 0-1 Kinau Street vehicles would be processed per cycle. As a result of the blocking and spillback along Piikoi Street, westbound Kinau Street traffic was observed to spill back as far as Pensacola Street and sometimes beyond. The extent of the queueing along Kinau Street between Victoria Street and Piikoi Street was variable throughout the afternoon, and seemed to depend on the conditions at the Kinau Street and Piikoi Street intersection. Occasional and sporadic violations of the PM TAZ were observed in the early afternoon on both curbs of Kinau Street between Pensacola and Piikoi Street. It was observed that utilization of the westbound shared left/through lane (second from the left) was highest, due to it being the sole lane which directly serves the afternoon commuter traffic bound for the houses and condos Mauka of the freeway. Utilization of the leftmost lane, which directly serves traffic bound for the westbound Lunalilo Street on-ramp, was observed to be comparatively low.

The eastbound right-turn at the Kinau Street/Keeaumoku Street has limited storage with curbside parking on the Makai side of Kinau Street and can spill back and block the center through lane as vehicles queue. At approximately 6:00 PM, the maximum queue was observed to extend to the Times Supermarket driveways and block entry/exit at the driveways. This queue was not observed to be persistent, and was clear by 6:20 PM.

It was observed that vehicles arrived early and parked in marked stalls prior to the conclusion of the PM TAZ restriction, which ends at 6:00 PM on the Makai curb between Ward Avenue and Victoria Street, and 5:30 PM on the Mauka curb and the rest of the Makai curb. By 5:25 PM, approximately one-third of the marked stalls available between Ward Avenue and Piikoi Street were already occupied.

At the end of the PM TAZ, marked stalls filled quickly between Ward Avenue and Piikoi Street. At the Kinau Street/Pensacola Street intersection, parking in the metered stalls in the right-most lane blocked thoroughfare for the vehicles turning right on Pensacola Street. Queue was observed to spill out of the “pocket” created by the parked vehicles in the right lane and into the adjacent lane. This queue was variable in length and was observed to extend approximately 300 feet, and generally persisted through the end of the study period at 7:00 PM.

6.7.2 Kinau Street Tow-Away Zone Modification Analysis

Note that travel time runs were recorded in the through lane of Kinau Street (second from the right) lane, and does not reflect the queue that was observed in the third from the right lane, which is bound for the houses and condos Mauka of the H-1 Freeway.

By the conclusion of the PM TAZ at 5:30 PM, the queue spillback along Piikoi Street had begun to reduce, and more Kinau Street vehicles could be processed with each cycle. By this time, queue along Kinau Street at the Kinau Street and Piikoi Street intersection had reduced significantly.

At the Kinau Street and Pensacola Street intersection, right-turn volumes were still high at the end of the PM TAZ at 5:30 PM. The parked cars in the marked stalls created a “turn pocket” that was too short to accommodate all of the right-turn vehicles turning onto Pensacola Street and the right-turn queue was observed to spill into the adjacent through lane. The extension of PM TAZ hours will allow the heavy right-turn volumes to queue in the right-turn lane, removing them from the though lane and reducing queue. Travel time runs show close-to-ideal travel times throughout the corridor by 6:40 PM. As TAZ restrictions should stay consistent throughout the corridor for consistency and clarity, it is recommended that the PM TAZ along Kinau Street be extended until 6:30 PM for operational benefit. However, high utilization of marked stalls immediately after the PM TAZ currently concludes at 5:30 PM shows that parking is at a premium for the residents in the area. Extension of the PM TAZ may be problematic for residents who rely on street parking.

When evaluating extension of PM TAZ hours, consideration of operational benefit should be weighed against community needs.

A summary of analysis for the Kinau Street PM TAZ extension can be found in Figure 6.2.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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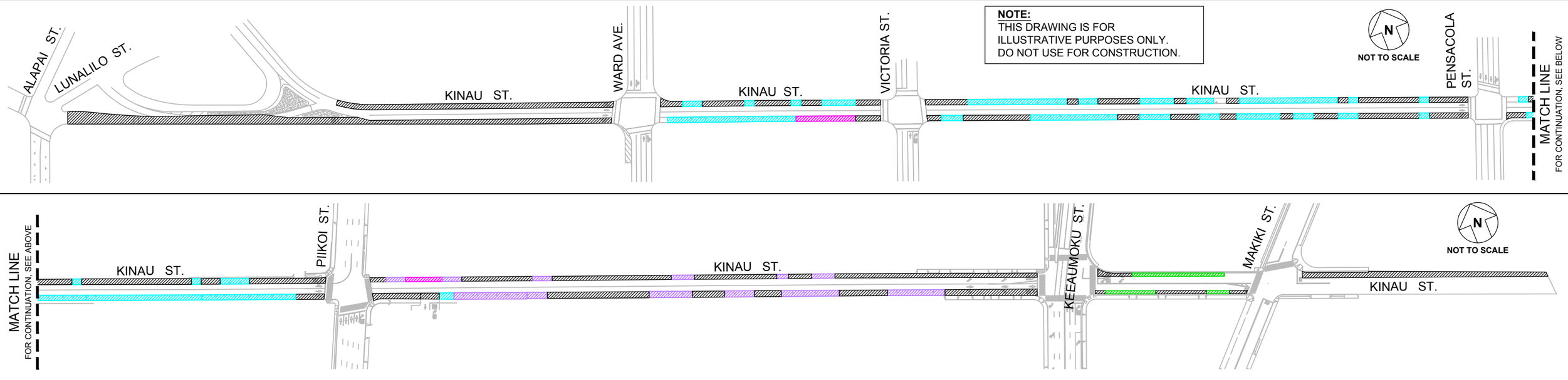

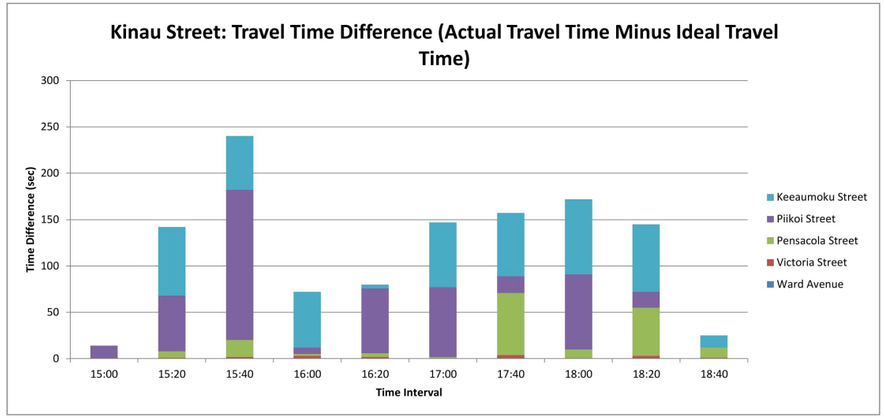

Travel Time Difference (Actual Travel Time Minus Ideal Travel Time), in seconds										
	Interval									
	3:00 PM	3:20 PM	**3:40 PM**	**4:00 PM**	**4:20 PM**	**5:00 PM**	5:40 PM	6:00 PM	6:20 PM	6:40 PM
Victoria Street	1	1	2	3	2	0	4	0	3	1
Pensacola Street	0	7	18	2	4	2	67	10	52	11
Piikoi Street	13	60	162	7	70	75	18	81	17	0
Keeaumoku Street	0	74	58	60	4	70	68	81	73	13

Indicates "Ideal" Travel Time
Indicates PM TAZ in effect

Tow-Away Zone Time Extension Considerations:

- At the Kinau Street/Pensacola Street intersection, right-turn volumes were still high at the end of the PM TAZ at 5:30 PM. The parked cars in the marked stalls in the rightmost lane created a "turn pocket" that was too short to accommodate all of the right-turn vehicles onto Pensacola Street, resulting in queue that spilled into the adjacent through lane.
- Extended TAZ hours would eliminate the "turn pocket" until volumes alleviate in the late evening
- Travel TIme Runs show close-to-ideal travel times by approximately 6:40 PM.

Recommendations:

- **Extend PM TAZ from 3:30 PM - 5:30 PM to 3:30 PM - 6:30 PM along the entire Kinau Street corridor.**
- **Strict enforcement of PM TAZ.**

LEGEND:

- EXISTING BUS STOP
- NO PARKING
- PM TAZ (3.30PM - 5:30PM)
- TAZ OTHER
- METERED PARKING
- PASSENGER LOADING ZONE
- UNMETERED PARKING

FIGURE 6.2

KINAU STREET PM TAZ ANALYSIS

6.8 South Street Corridor

6.8.1 South Street Corridor

Along South Street, the lack of coordination between the successive Pohukaina Street, Halekauwila Street, and Queen Street signals resulted in poor progression for through vehicles, though it does not appear that this resulted in significant operational consequences even during the busiest hour of traffic.

The pedestrian crosswalk at Kawaihao Street was observed to be heavily utilized, and drivers were observed to yield to pedestrians immediately. No operational issues were observed as a result of the intermittent stopping to yield to pedestrians.

By 4:45 PM, high utilization of two rightmost lanes, which serve the heavily utilized Kapiolani Boulevard, causes queues that spill back from the South Street/Kapiolani Boulevard intersection to Halekauwila Street at its maximum. At this time, queue from the downstream Beretania Street/Alapai Street intersection was also observed to spill back through the South Street/Kapiolani Boulevard intersection and block South Street progression onto Alapai Street. This condition persisted until about 5:45 PM, when queues began to dissipate. Metered stalls on the east curb near Kawaiaho Street were immediately occupied following the conclusion of the existing PM TAZ at 5:30 PM, and the parking sometimes blocked access to storage in the rightmost lane until queues dissipated at around 5:45 PM. By 6:00 PM, the queue had dissipated completely and was no longer affected by parking in the marked stalls near Kawaihao Street.

6.8.2 South Street Tow-Away Zone Modification Analysis

As described in the above section, queue at the South Street and Kapiolani Boulevard intersection was observed to consistently spill back into the marked stalls on the east curb near Kawaihao Street until approximately 5:45 PM. During existing conditions, when the PM TAZ ends at 5:30 PM, it was observed that thoroughfare and storage in the right lane were observed to be interrupted as the queue in the adjacent lane continued to spill back and blocked access to storage in the right lane. Therefore, it is recommended that the PM TAZ be extended to end at 6:00 PM instead of its current end time at 5:30 PM.

At other PM TAZ locations, the queue in the right lane was not observed to spill back into marked stalls from downstream intersections, and it appeared that the remaining travel lanes had adequate capacity to accommodate the through traffic along South Street.

For consistency throughout the corridor, it is recommended that the PM TAZ times be extended until 6:00 PM. For the small amount of vehicles that may be temporarily displaced by the 30-minute extension, street parking is available with no PM TAZ restrictions along the nearby Kawaihao Street, Emily Street, Halekauwila Street and most of the Kakaako neighborhood.

A summary of analysis for the South Street PM TAZ extension can be found in Figure 6.3.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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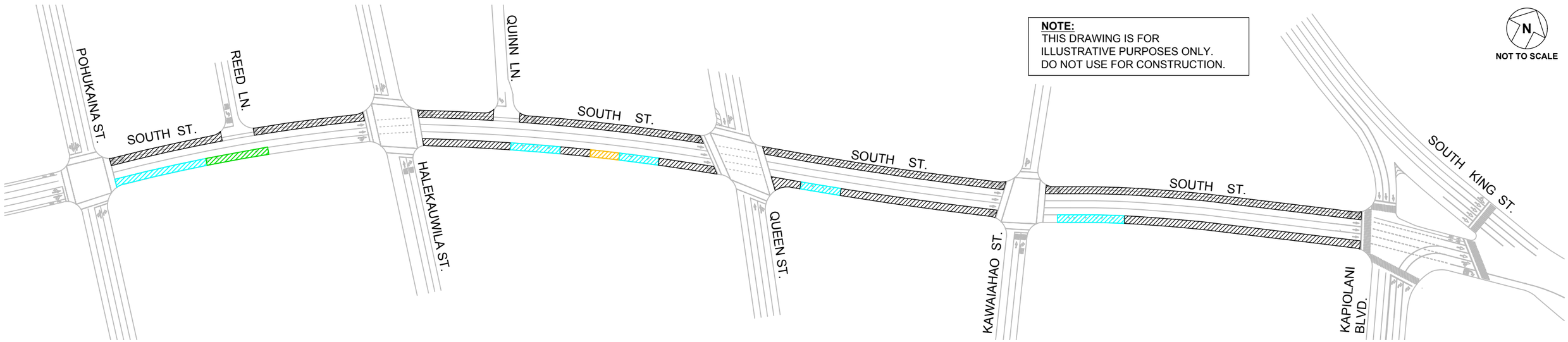

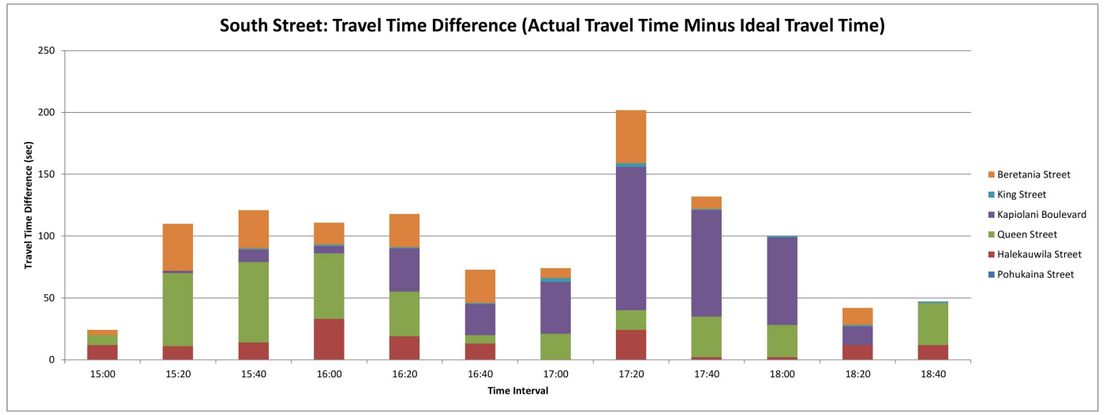

Travel Time Difference (Actual Travel Time Minus Ideal Travel Time), in seconds												
	Interval											
Segment	3:00 PM	3:20 PM	**3:40 PM**	**4:00 PM**	**4:20 PM**	**4:40 PM**	**5:00 PM**	**5:20 PM**	5:40 PM	6:00 PM	6:20 PM	6:40 PM
Halekauwila Street	12	11	14	33	19	13	0	24	2	2	12	12
Queen Street	8	59	65	53	36	7	21	16	33	26	0	34
Kapiolani Boulevard	0	2	10	6	35	25	42	116	86	71	15	0
King Street	0	0	1	1	1	1	3	3	1	1	1	1
Beretania Street	4	38	31	18	27	27	8	43	10	0	14	0

Indicates "Ideal" Travel Time
Indicates PM TAZ in effect

Tow-Away Zone Time Extension Considerations:

- Queue in the right lane at the South Street/Kapiolani Boulevard intersection was observed to spill back into the marked stalls on the east curb near Kawaihao Street until approximately 5:45 PM.
- With existing conditions, when the PM TAZ ends at 5:30 PM, thoroughfare in the right lane and storage length was cut due to parking in the lane.

Recommendations:

- **Strict enforcement of PM TAZ**
- **Extension of PM Tow-Away Zone hours from 3:30 PM - 5:30 PM to 3:30 PM - 6:00 PM throughout the South Street corridor**

LEGEND:

- NO PARKING
- METERED PARKING
- PM TAZ (3:30PM - 5:30PM)
- FREIGHT LOADING ZONE

FIGURE 6.3

SOUTH STREET PM TAZ ANALYSIS

6.9 Ward Avenue

6.9.1 Ward Avenue Observations

For most of the evening, queueing in Mauka-bound lanes along Ward Avenue was extensive, and would take numerous cycles to travel between Kapiolani Boulevard and Kinau Street. At the peak of traffic, approximately 4:45 PM, queue was observed to spill back approximately 700 feet from the South King Street intersection in the middle lane and was observed to take 3-5 cycles just to clear the South King Street intersection, and over 7 cycles to travel between Kapiolani Boulevard and Kinau Street. The extensive queue appeared to be due to high volumes of traffic traveling Mauka for the eastbound H-1 Freeway on-ramp at Kinalau Place and the residences Mauka of the H-1 Freeway.

Long cycles at the intersections with Beretania Street and South King Street allowed high volumes of right-turns from Beretania Street and left-turns from South King Street onto Ward Avenue, filling the storage space and blocking Mauka-bound Ward Avenue vehicles. Storage space in the Mauka-bound lanes was observed to be 100% utilized between Kinau Street and South King Street, resulting in queue spilling back several hundred feet past the South King Street intersection. As the storage space on Ward Avenue filled, turning lanes on Beretania Street and South King Street were also observed to be blocked.

Figure 6.4: Farmer's Market at Blaisdell Center, which occurs every Wednesday evening. Photo from: Time.ly

Because it was taking multiple cycles to clear the Ward Avenue and King Street intersection, drivers were observed to pull out of the queue in the middle lane, and use the rightmost lane to turn onto King Street, choosing to use other routes to avoid the congestion on Ward Avenue.

When observations were recorded on a Wednesday afternoon (when the Farmers Market at the Blaisdell Center was taking place), it was observed that there were early arrivals (approximately 15 minutes early) in the metered parking stalls on the east curb near South King Street. These parked cars along the east curb blocked the progression and storage of the right-turn lane at South King Street, and contributed to the lengthy queue in the through lane. By 7:00 PM, queue in the through lanes had decreased, though was still taking approximately 3 cycles to clear the South King Street intersection. This condition persisted past the end of the study period.

When observations were recorded on a Thursday afternoon, the same extensive queue and spillback conditions occurred, though conditions had reduced to taking 3 cycles to clear South King Street by approximately 5:45 PM, instead of 7:00 PM on Wednesday. It was also observed that the metered stalls along the east curb filled slowly, with no arrivals until approximately 5:45 PM, and stalls near the Hawaiian Electric Company filled first. By 7:00 PM, there were still vacant stalls near the King Street intersection; however the storage space allowed by these empty stalls was still not accessible to vehicles due to many vehicles turning onto South King Street, due to blocking from parked cars. Because it still took 1-3 cycles to clear the South King Street intersection, delay experienced by vehicles turning right onto South King Street due to the blocked curbside lane was more extensive than would initially appear.

6.9.2 Ward Avenue PM Tow-Away Zone Considerations

All metered stalls on the east curb between Kapiolani Boulevard and Ward Avenue are affected by the PM TAZ. Observations suggest that traffic conditions on Ward Avenue are generally variable and can be heavily impacted by events at the Blaisdell Center. There seems to be a preference for street parking, which can be cheaper than the daily or event parking offered by the Blaisdell Center for their parking structure. The PM TAZ segment near South King Street was shown to be critical, because when volumes increase due to the commuter peak or events at the Blaisdell Center and metered parking fills, progression in the right-turn lane onto King Street is interrupted and necessary storage length gets cut during critical times. Observations show that the right-turn lane is heavily utilized and queues into the marked stalls until past the end of the study period at 7:00 PM.

To accommodate the right-turn queue at King Street, it is recommended that the PM TAZ hours be extended, though it may be infeasible to extend it to accommodate the right-turns as this condition persists into the night, which would significantly impact the residents and patrons in the area. Therefore, it is recommended that the PM TAZ restriction be extended until 6:00 PM, which was the observed time that queueing along Ward Avenue generally seemed to alleviate on non-event days. For consistency, it is recommended that all PM TAZ hours along Ward Avenue be extended, even in locations that may not affect right-turn lane storage.

Because access to the right-turn lane onto South King Street was observed to be so critical, it may be beneficial to consider relocation or removal of multiple marked stalls nearest South King Street to expand storage space and access for vehicles turning right onto South King Street.

On days that the Blaisdell Center hosts events, it may be beneficial to traffic operations to consider special parking restrictions past the extended 6:00 PM TAZ, as observations suggest that queueing would be more extensive on event days.

A summary of analysis for the Ward Avenue PM TAZ extension can be found in Figure 6.5.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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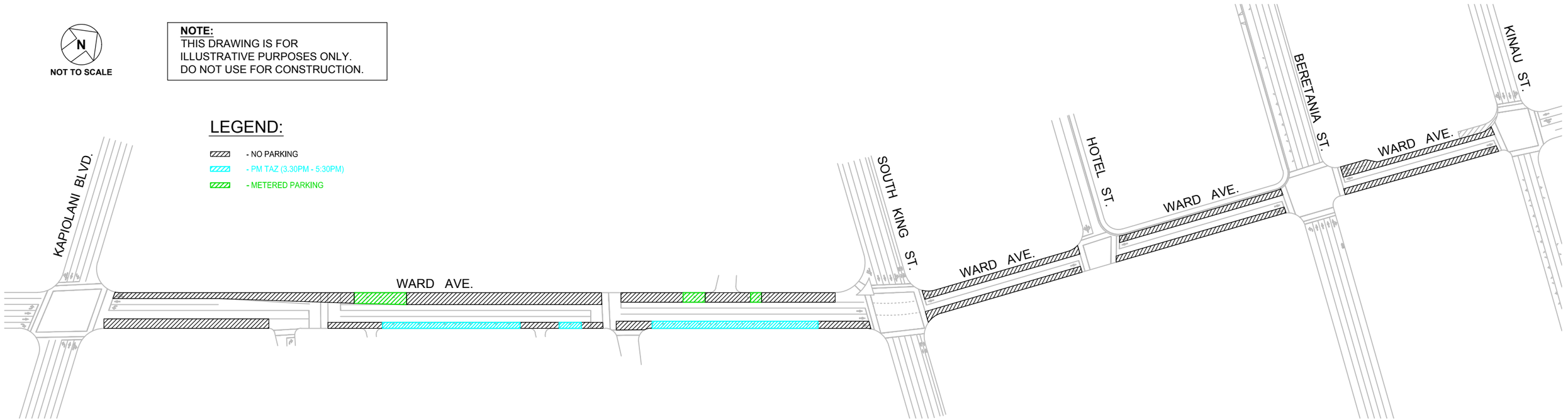

Tow-Away Zone Time Extension Considerations:

- Existing queue is extensive at the Ward Avenue and South King Street intersection in the through lanes and takes several cycles to clear.
- Right-turn lane queues into the marked stalls past the end of the study period at 7:00 PM, even on non-event days at the Blaisdell Center.

Recommendations:

- **Extension of PM TAZ hours from 3:30PM-5:30PM to 3:30PM-6:00PM throughout the Ward Avenue Corridor**
- **Consider the relocation or removal of marked stalls nearest South King Street to expand storage space and access for vehicles turning right onto South King Street.**
- **Consider special parking restrictions for parking along Ward Avenue on event days, which experiences worse conditions than non-event days at the Blaisdell Center.**
- **Strict enforcement of PM TAZ**

FIGURE 6.5

WARD AVENUE PM TAZ ANALYSIS

6.10 Piikoi Street Corridor

6.10.1 Piikoi Street Observations

At the time that travel time data was collected and initial field observations were performed, the eastbound Piikoi on-ramp was still open. Since then, the on-ramp has been closed on weekdays from 3:00 PM to 6:30 PM. Signage is posted near the intersection of Kapiolani Boulevard and Piikoi Street, and near the intersection of South King Street and Piikoi Street to inform drivers.

Figure 6.6: Signage informing drivers of closure of H-1 Freeway Eastbound on-ramp at Piikoi Street on weekdays, 3:00 PM–6:30 PM

Metered and unmetered parking is available along the east curb, in lanes which are wide enough to accommodate parking side-by-side with the travel lane. Along the west curb, the leftmost lane was wide enough for parking side-by-side with the travel lane until South King Street, where the lane separated into two lanes, transitioning into one through lane and one shared through and left-turn lane with curbside parking. Travel time runs were performed in the rightmost through lane down Piikoi Street, but the most extensive queue was observed to be in the lane which serves the westbound H-1 Freeway Lunalilo Street on-ramp. This queue was observed to spill back through successive intersections until Young Street by 3:00 PM. By 5:00 PM, the queue had extended to Rycroft Street. Drivers were observed to frequently be caught in the intersection and unable to move because of the spillback of queues, which blocked thoroughfare along Young Street, Beretania Street and Kinau Street, also causing extensive queueing along those intersecting streets. By 6:00 PM, the queue spillback had reduced to Beretania Street, and by 6:20 PM, had dissipated completely.

Figure 6.7: Curbside lanes on Piikoi Street on the Mauka side of King Street are wide enough to accommodate a travel lane with curbside parking.

Generally, eastbound and westbound left turn maneuvers from minor streets onto Piikoi Street were observed to be difficult, and most drivers waited for an upstream red light to stop Piikoi Street traffic, to make their turn. Relatively lengthy cycles at Beretania Street and South King Street also led to queue buildup. The extensive queue created confusing situations at midblock pedestrian crossings and crossings at unsignalized intersections where drivers were not able to determine if vehicles in adjacent lanes are stopped due to spillback or an unexpected pedestrian crossing. Generally, drivers were not observed to immediately yield to pedestrians waiting at the curbside at crosswalks.

6.10.2 Piikoi Street PM Tow-Away Zone Considerations

The only segment affected by PM TAZ restrictions on Piikoi Street is on the east curb between Elm Street and the crosswalk at the Alohi Way intersection. On this segment, this lane is a wide through lane which is able to accommodate through vehicles and curbside parking, side by side, and transitions into a right-turn only lane at the downstream South King Street intersection. While some queueing was observed in the right-turn lane at South King Street, this queue was not observed to be significant. Therefore, no extension of the existing PM TAZ hours is recommended.

A summary of analysis for the Piikoi Street PM TAZ extension can be found in Figure 6.8.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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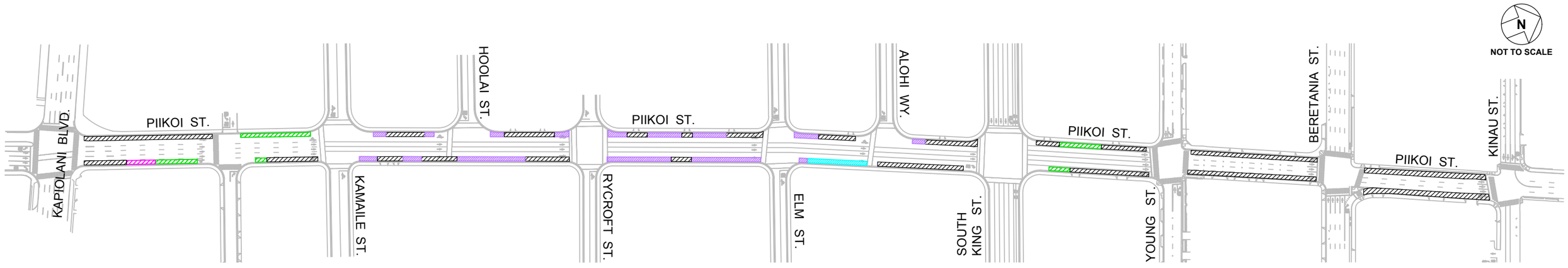

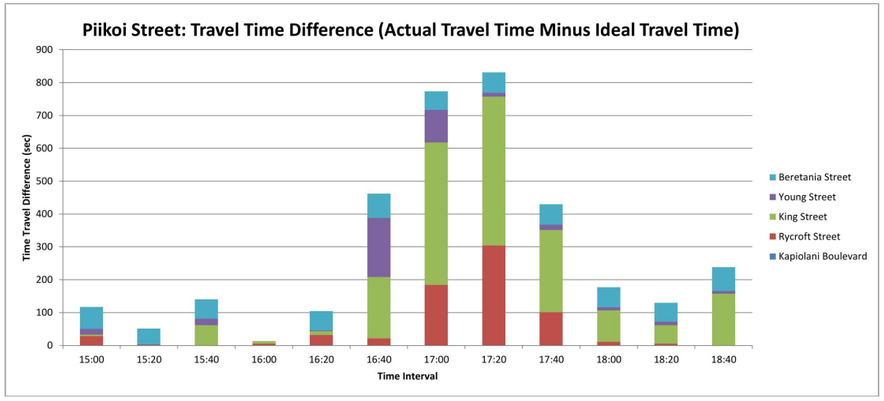

Travel Time Difference (Actual Travel Time Minus Ideal Travel Time), in seconds												
	Interval											
Segment	3:00 PM	3:20 PM	**3:40 PM**	**4:00 PM**	**4:20 PM**	**4:40 PM**	**5:00 PM**	**5:20 PM**	5:40 PM	6:00 PM	6:20 PM	6:40 PM
Rycroft Street	28	2	0	6	32	21	184	304	101	11	6	1
King Street	5	0	62	7	11	187	434	453	250	95	56	156
Young Street	17	1	19	0	2	180	99	12	16	10	10	8
Beretania Street	67	48	59	0	59	74	56	62	63	61	58	73

Indicates "Ideal" Travel Time
Indicates PM TAZ in effect

Tow-Away Zone Time Extension Considerations:

- Existing queue in downstream right-turn lane at Piikoi Street/King Street intersection is not extensive
- Should queue spill back, queue is not affected by curb side parking as the lane is wide enough to accommodate queue and parking side-by-side within lane

Recommendations:

- **No extension of the existing PM Tow-Away Zone hours from 3:30PM-5:30PM is recommended at this time**

LEGEND:

- NO PARKING
- PM TAZ (3.30PM - 5:30PM)
- METERED PARKING
- 3-MIN. PASSENGER LOADING ZONE
- UNMETERED PARKING

NOTE:
THIS DRAWING IS FOR ILLUSTRATIVE PURPOSES ONLY.
DO NOT USE FOR CONSTRUCTION.

FIGURE 6.8

PIIKOI STREET PM TAZ ANALYSIS

6.11 Keeaumoku Street Corridor

6.11.1 Keeaumoku Street Observations

At the intersection of Kinau Street and Keeaumoku Street, there is an approximate 275-foot weaving segment in the Makai-bound right-turn only lane at Beretania Street, which causes some congestion as Makai-bound volumes along Keeaumoku Street increase.

During the peak hour of afternoon traffic, it was observed that left-turn queues sometimes spills out of the pocket at Young Street and South King Street. Sometimes, it took 2 cycles for vehicles to make the left turn onto South King Street.

On the Makai side of South King Street, it was observed that there were a significant number of left-turns into numerous driveways along Keeaumoku Street, or onto minor streets at signalized intersections with permissive left-turn phasing. These left-turns from the shared left/through lane was observed to temporarily affect progression as sometimes turning vehicles were forced to wait for the downstream red light to find an adequate gap for the turn, though the turbulence was not observed to persistently or significantly affect operations.

At the intersections of Keeaumoku Street with Kapiolani Boulevard and Makaloa Street, large volumes of pedestrians which were observed to cross even after the walk phase (during the flashing hand phase) made it difficult for turning vehicles at all approaches to make their turns. As a result, permissive left- and right-turns at both intersections were sometimes observed to take multiple cycles to clear.

By 5:30 PM at the ending of the PM TAZ restriction, it was observed that metered stalls were quickly occupied. It appeared that volumes had alleviated enough that this curbside parking within the travel lane did not cause significant congestion.

6.11.2 Keeaumoku Street PM Tow-Away Zone Considerations

PM TAZ restrictions affect all metered stalls on the east curb of Keeaumoku Street between Kapiolani Boulevard and Beretania Street.

As previously discussed, observations show that curbside parking within the travel lane did not cause significant congestion.

As a result, no extension of the existing PM TAZ restrictions is recommended.

A summary of analysis for the Keeaumoku Street PM TAZ extension can be found in Figure 6.9.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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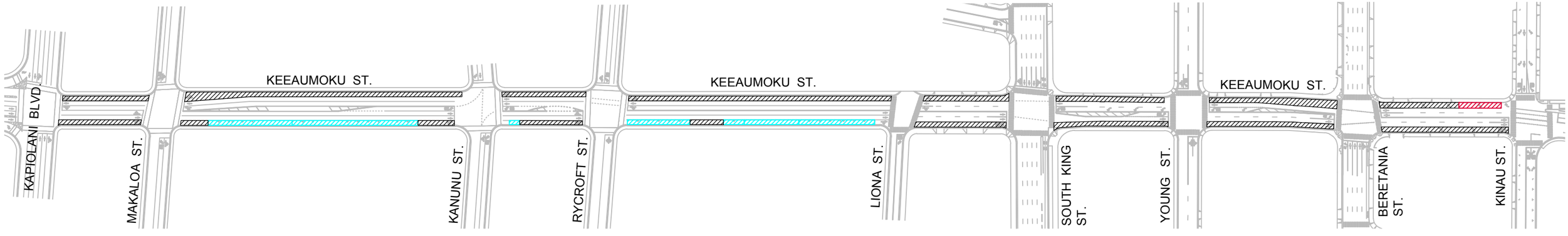

Tow-Away Zone Time Extension Considerations:

- Field observations suggest that by the current ending of the PM TAZ hours at 5:30 PM, volumes had alleviated so that the remaining travel lanes have adequate capacity for traffic volumes.
- No operational concerns along Keeaumoku Street was observed as a result of the exsiting curbside parking

Recommendations:

- **No extension of the existing PM Tow-Away Zone hours from 3:30PM-5:30PM is recommended at this time**

LEGEND:

- NO PARKING
- PM TAZ (3.30PM - 5:30PM)
- TAZ OTHER

FIGURE 6.9

KEEAUMOKU STREET CORRIDOR-
PM TAZ ANALYSIS

6.12 University Avenue Corridor

6.12.1 University Avenue Observations

Conditions along University Avenue can be extremely variable and depend heavily on the academic schedule by the nearby University of Hawaii, which has a total enrollment of almost 18,000 students. University sporting events which take place on campus can also have a huge impact on traffic in the area, with queues sometimes extending along University Avenue, onto the University Avenue freeway exits, and several hundred feet in travel lanes or shoulders of the H-1 Freeway.

Within the study area, it was observed that there was some queue spillback along University Avenue in the northbound direction due to long cycle lengths at the intersection of University Avenue and Beretania Street. At its maximum during the evening peak hour, the queue was observed to extend beyond Kuilei Street. In the southbound direction, there was moderate queueing due to long cycle lengths at the University Avenue and Kapiolani Boulevard intersection, though queues were observed to clear with each cycle.

6.12.2 University Avenue PM Tow-Away Zone Considerations

The existing PM TAZ restriction affects approximately 4-5 unmarked stalls on the east curb of University Avenue, just Mauka of Kuilei Street. By the end of the PM TAZ restriction at 5:30 PM, right-turn volumes at South King Street had alleviated enough that it generally did not queue past these unmetered stalls.

Therefore, no extension of the existing PM Tow-Away Zone hours from 3:30PM – 5:30PM is recommended at this time.

A summary of analysis for the University Avenue PM TAZ extension can be found in Figure 6.10.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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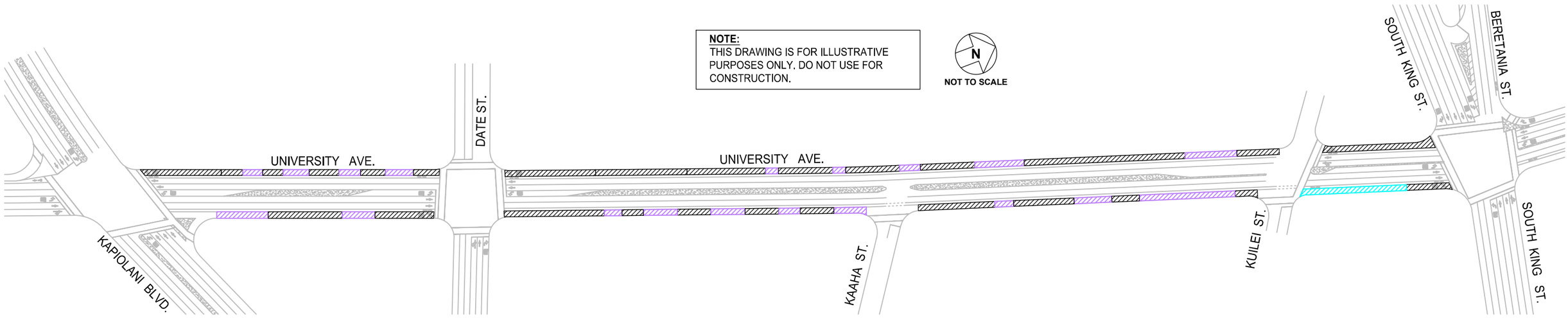

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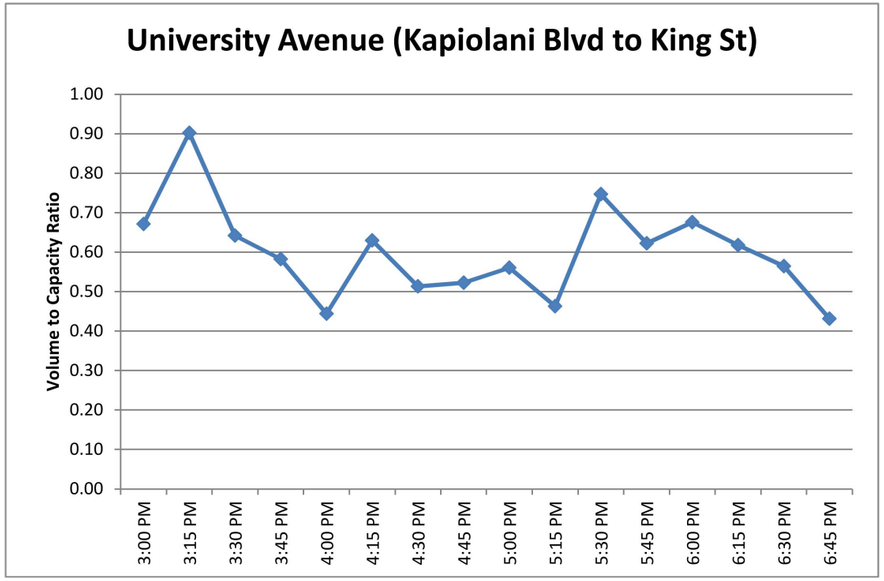

Tow-Away Zone Time Extension Considerations:

- Current PM TAZ affects 4-5 unmarked stalls on the east curb near Kuilei Street.
- By the end of the PM TAZ restriction at 5:30 PM, right-turn volumes at King Street had alleviated enough that it generally did not queue past these unmetered stalls.

Recommendations:

- **No extension of the existing PM Tow-Away Zone hours from 3:30PM-5:30PM is recommended at this time**

LEGEND:

- NO PARKING
- PM TAZ (3:30PM - 5:30PM)
- UNMETERED PARKING

FIGURE 6.10

UNIVERSITY AVENUE PM TAZ ANALYSIS

6.13 Beretania Street Corridor

6.13.1 Beretania Street Observations

Generally, progression on Beretania Street was smooth throughout the afternoon until the intersection of Beretania Street and Alapai Street, where queue in the heavily utilized rightmost lane bound for the H-1 Freeway westbound was observed to queue back from Punchbowl Street around 3:00 PM. By 4:45 PM, this spillback had extended about 200 feet past the Beretania Street/Alapai Street intersection. This spillback in the rightmost lane also affected movements on Alapai Street, which in turn queued back through the South Street/Kapiolani Boulevard intersection. This queue was observed to have alleviated by 5:45 PM.

Frequent driveways for businesses on both sides of Beretania Street caused some sporadic congestion on the outermost lanes as drivers turned in and out of driveways throughout the day.

Spillback along cross streets, including Ward Avenue and University Avenue, sometimes blocked thoroughfare of Beretania Street traffic.

The heavily utilized bus stop on the north curb near the now-closed Foodland on Beretania Street between Kalakaua Avenue and Keeaumoku Street was observed to cause some turbulence in the rightmost lane as drivers weaved around the busses, though no lasting operational issues were observed as a result of the bus stops.

6.13.2 Beretania Street PM Tow-Away Zone Considerations

PM TAZ restrictions affect metered stalls on the Makai curb of Beretania Street between Alapai Street and Pensacola Street. In general, on this segment, utilization of the leftmost lanes are lower than the rightmost lanes, due to the few minor streets on this segment that allow left-turns off of Beretania Street. Additionally, metered parking on upstream segments, which are not affected by PM TAZ restrictions, block the curbside travel lanes, leading many drivers to choose the adjacent lane for travel. By the conclusion of the existing PM TAZ restriction at 5:30 PM, volumes were observed to alleviate significantly and no operational issues as a result of parking within these metered stalls was observed. Therefore, no extension of the existing PM TAZ is recommended at this time.

A summary of analysis for the Beretania Street PM TAZ extension can be found in Figures 6.11-6.14. Blocking by cross-street vehicles impeded Beretania Street thoroughfare at the University Avenue and Ward Avenue intersections during the last travel time run, which occurred at 6:40 PM.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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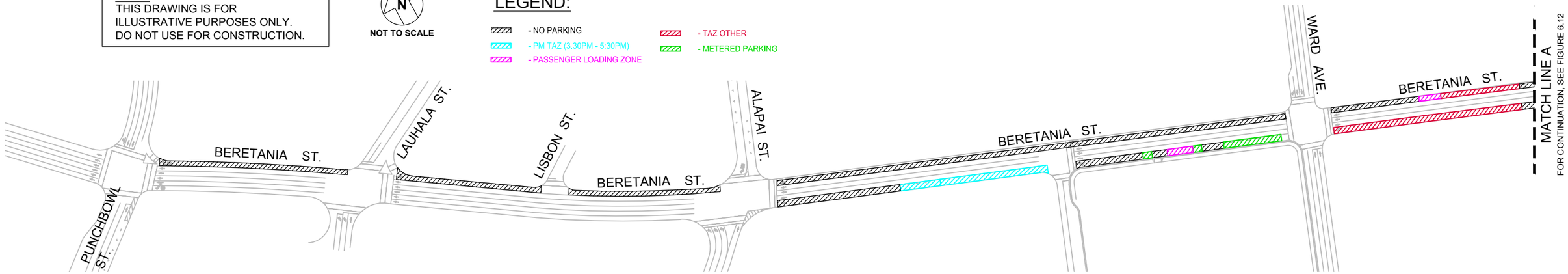
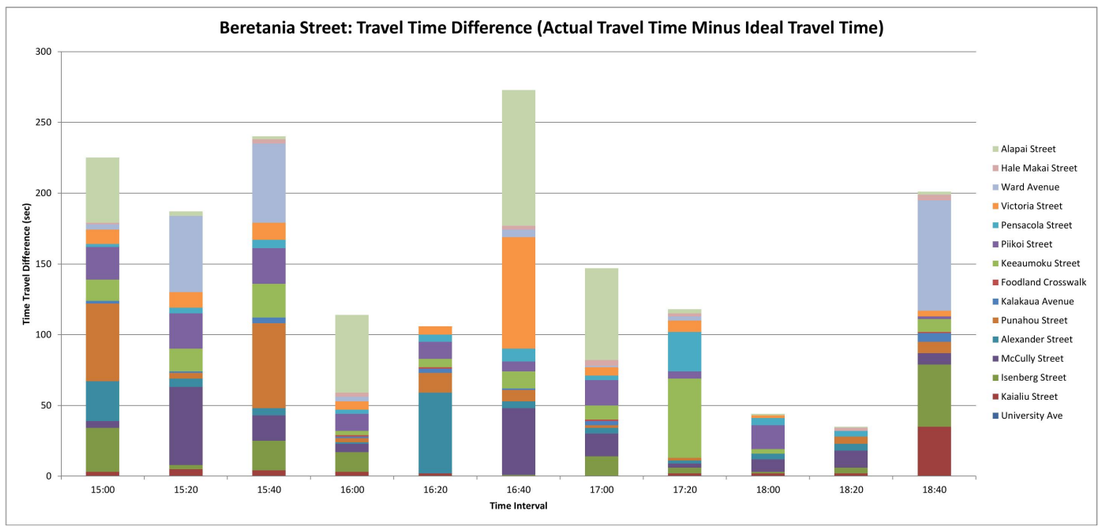
LEGEND:

- NO PARKING
- PM TAZ (3:30PM - 5:30PM)
- PASSENGER LOADING ZONE
- TAZ OTHER
- METERED PARKING





Travel Time Difference (Actual Travel Time Minus Ideal Travel Time), in seconds											
	Interval										
	3:00 PM	3:20 PM	**3:40 PM**	**4:00 PM**	**4:20 PM**	**4:40 PM**	**5:00 PM**	**5:20 PM**	6:00 PM	6:20 PM	6:40 PM
Kaialiu Street	3	5	4	3	2	0	0	2	2	2	35
Isenberg Street	31	3	21	14	0	1	14	4	1	4	44
McCully Street	5	55	18	6	0	47	16	3	9	12	8
Alexander Street	28	6	5	1	57	5	4	2	4	5	0
Punahou Street	55	4	60	3	14	8	2	2	0	5	8
Kalakaua Avenue	2	1	4	1	3	1	3	0	0	0	6
Foodland Crosswalk	0	0	0	1	1	0	1	0	0	0	1
Keeaumoku Street	15	16	24	3	6	12	10	56	3	0	9
Piikoi Street	23	25	25	12	12	7	18	5	17	0	2
Pensacola Street	2	4	6	3	5	9	3	28	5	4	0
Victoria Street	10	11	12	6	6	79	6	8	2	0	4
Ward Avenue	4	54	56	3	0	5	1	3	0	0	78
Hale Makai Street	1	0	3	3	0	3	4	2	0	2	4
Alapai Street	46	3	2	55	0	96	65	3	1	1	2

Indicates "Ideal" Travel Time
Indicates PM TAZ in effect

Tow-Away Zone Time Extension Considerations:

- Upstream allowed parking blocks curbside lane, leading to drivers choosing adjacent lanes.
- Travel times after end of PM TAZ restriction are generally ideal.

Recommendations:

- **No extension of the existing PM Tow-Away Zone hours from 3:30PM-5:30PM is recommended at this time**

FIGURE 6.11

BERETANIA STREET PM TAZ ANALYSIS – 1

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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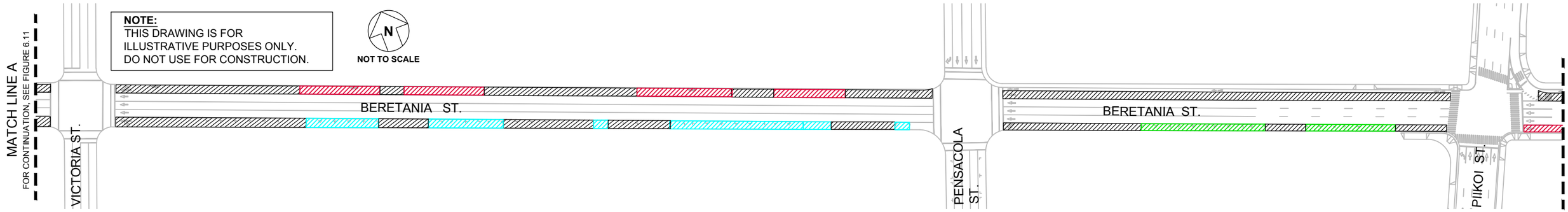

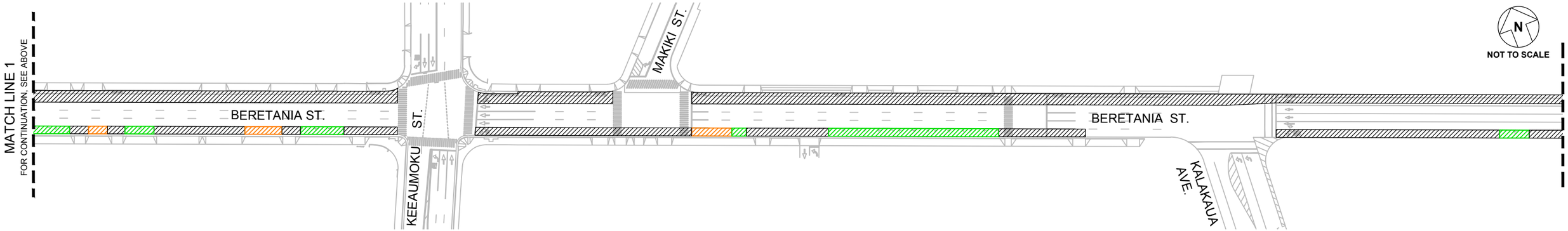

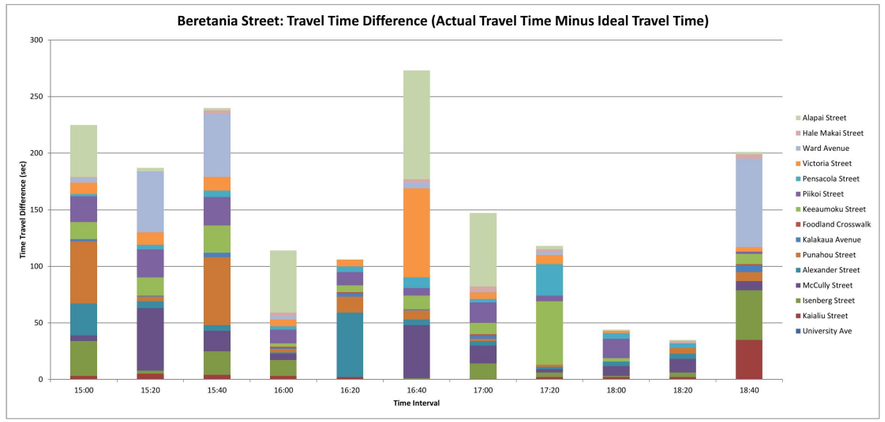

Travel Time Difference (Actual Travel Time Minus Ideal Travel Time), in seconds											
	Interval										
	3:00 PM	3:20 PM	3:40 PM	4:00 PM	4:20 PM	4:40 PM	5:00 PM	5:20 PM	6:00 PM	6:20 PM	6:40 PM
Kailiu Street	3	5	4	3	2	0	0	2	2	2	35
Isenberg Street	31	3	21	14	0	1	14	4	1	4	44
McCully Street	5	55	18	6	0	47	16	3	9	12	8
Alexander Street	28	6	5	1	57	5	4	2	4	5	0
Punahou Street	55	4	60	3	14	8	2	2	0	5	8
Kalakaua Avenue	2	1	4	1	3	1	3	0	0	0	6
Foodland Crosswalk	0	0	0	1	1	0	1	0	0	0	1
Keeaumoku Street	15	16	24	3	6	12	10	56	3	0	9
Piikoi Street	23	25	25	12	12	7	18	5	17	0	2
Pensacola Street	2	4	6	3	5	9	3	28	5	4	0
Victoria Street	10	11	12	6	6	79	6	8	2	0	4
Ward Avenue	4	54	56	3	0	5	1	3	0	0	78
Hale Makai Street	1	0	3	3	0	3	4	2	0	2	4
Alapai Street	46	3	2	55	0	96	65	3	1	1	2

Indicates "Ideal" Travel Time
Indicates PM TAZ in effect

LEGEND:

- TAZ OTHER
- METERED PARKING
- PM TAZ (3.30PM - 5:30PM)
- UNMETERED PARKING
- LOADING ZONE
- NO PARKING
- PASSENGER LOADING ZONE

Tow-Away Zone Time Extension Considerations:

- Upstream allowed parking blocks curbside lane, leading to drivers choosing adjacent lanes.
- Travel times after end of PM TAZ restriction are generally ideal.
-

Recommendations:

- **No extension of the existing PM Tow-Away Zone hours from 3:30PM-5:30PM is recommended at this time**

FIGURE 6.12

BERETANIA STREET PM TAZ ANALYSIS - 2

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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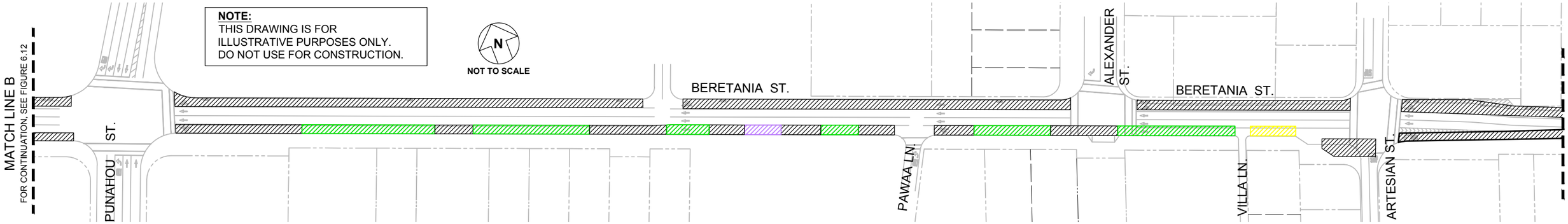

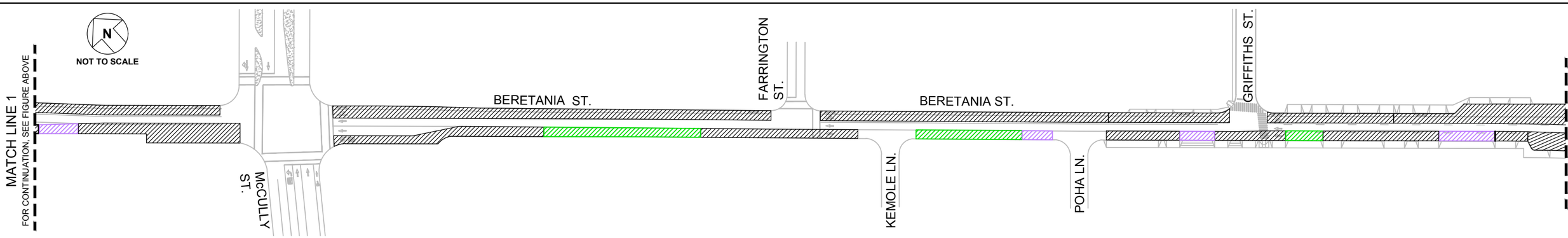

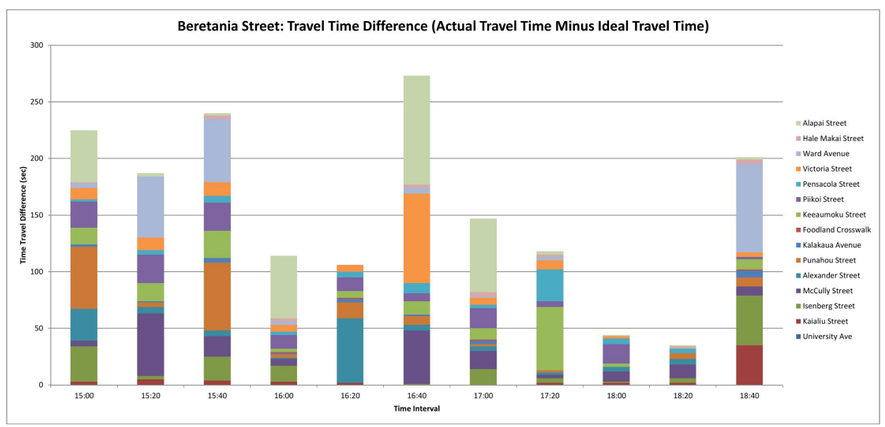

Travel Time Difference (Actual Travel Time Minus Ideal Travel Time), in seconds											
	Interval										
	3:00 PM	3:20 PM	**3:40 PM**	**4:00 PM**	**4:20 PM**	**4:40 PM**	**5:00 PM**	**5:20 PM**	6:00 PM	6:20 PM	6:40 PM
Kaialiu Street	3	5	4	3	2	0	0	2	2	2	35
Isenberg Street	31	3	21	14	0	1	14	4	1	4	44
McCully Street	5	55	18	6	0	47	16	3	9	12	8
Alexander Street	28	6	5	1	57	5	4	2	4	5	0
Punahou Street	55	4	60	3	14	8	2	2	0	5	8
Kalakaua Avenue	2	1	4	1	3	1	3	0	0	0	6
Foodland Crosswalk	0	0	0	1	1	0	1	0	0	0	1
Keeaumoku Street	15	16	24	3	6	12	10	56	3	0	9
Piikoi Street	23	25	25	12	12	7	18	5	17	0	2
Pensacola Street	2	4	6	3	5	9	3	28	5	4	0
Victoria Street	10	11	12	6	6	79	6	8	2	0	4
Ward Avenue	4	54	56	3	0	5	1	3	0	0	78
Hale Makai Street	1	0	3	3	0	3	4	2	0	2	4
Alapai Street	46	3	2	55	0	96	65	3	1	1	2

Indicates "Ideal" Travel Time
Indicates PM TAZ in effect

LEGEND:

- NO PARKING
- METERED PARKING
- UNMETERED PARKING

Tow-Away Zone Time Extension Considerations:

- No PM TAZ restrictions on the above segments.

FIGURE 6.13

BERETANIA STREET PM TAZ ANALYSIS – 3

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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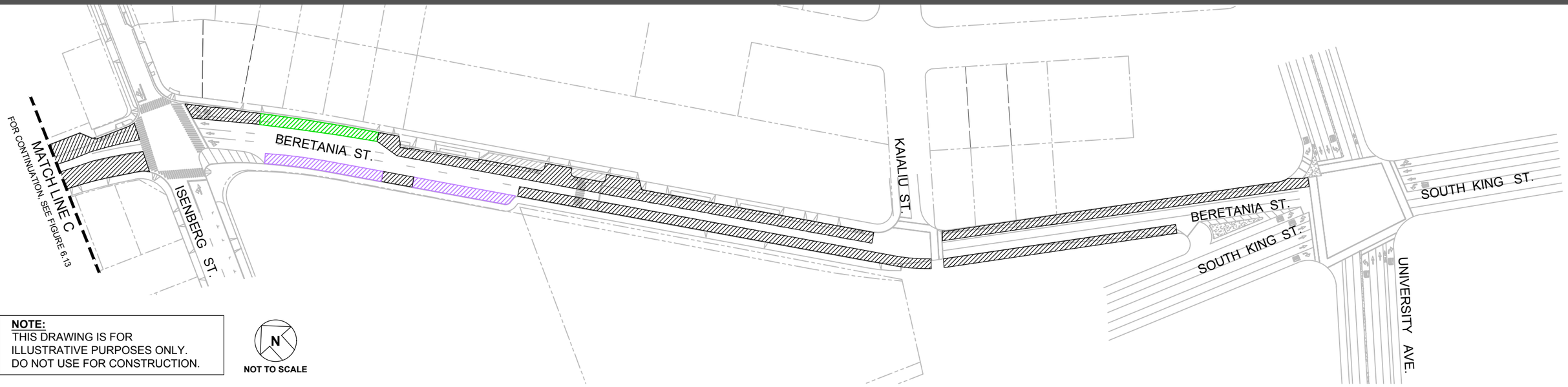

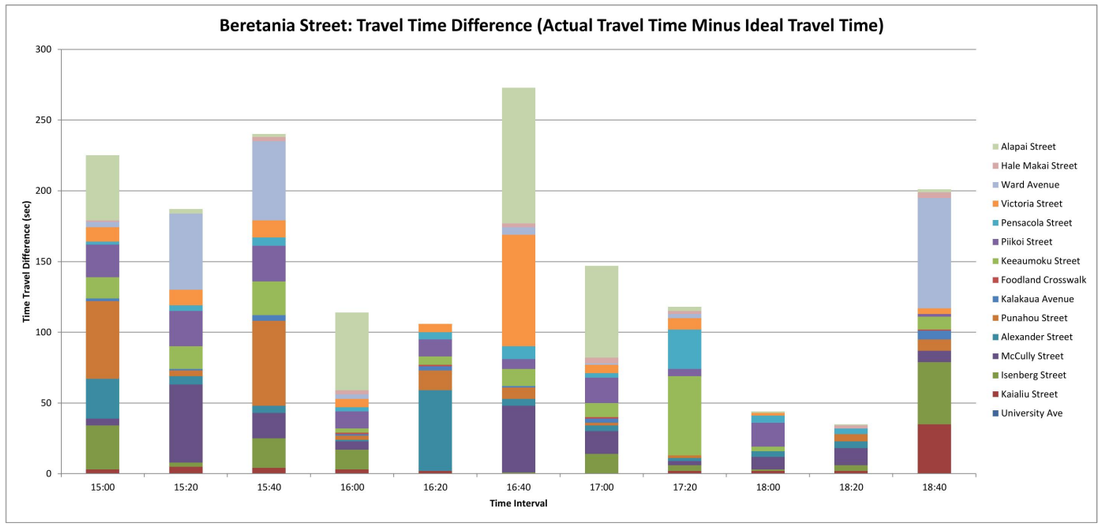

Travel Time Difference (Actual Travel Time Minus Ideal Travel Time), in seconds											
	Interval										
	3:00 PM	3:20 PM	3:40 PM	4:00 PM	4:20 PM	4:40 PM	5:00 PM	5:20 PM	6:00 PM	6:20 PM	6:40 PM
Kaialiu Street	3	5	4	3	2	0	0	2	2	2	35
Isenberg Street	31	3	21	14	0	1	14	4	1	4	44
McCully Street	5	55	18	6	0	47	16	3	9	12	8
Alexander Street	28	6	5	1	57	5	4	2	4	5	0
Punahou Street	55	4	60	3	14	8	2	2	0	5	8
Kalakaua Avenue	2	1	4	1	3	1	3	0	0	0	6
Foodland Crosswalk	0	0	0	1	1	0	1	0	0	0	1
Keeaumoku Street	15	16	24	3	6	12	10	56	3	0	9
Piikoi Street	23	25	25	12	12	7	18	5	17	0	2
Pensacola Street	2	4	6	3	5	9	3	28	5	4	0
Victoria Street	10	11	12	6	6	79	6	8	2	0	4
Ward Avenue	4	54	56	3	0	5	1	3	0	0	78
Hale Makai Street	1	0	3	3	0	3	4	2	0	2	4
Alapai Street	46	3	2	55	0	96	65	3	1	1	2

Indicates "Ideal" Travel Time
Indicates PM TAZ in effect

LEGEND:

- NO PARKING
- METERED PARKING
- UNMETERED PARKING

Tow-Away Zone Time Extension Considerations:

- No PM TAZ restrictions on the above segments.

FIGURE 6.14

7. RECOMMENDATIONS

7.1 PM Tow-Away Zone Hours Extension

7.1.1 Kinau Street

As described in Section 6, by the conclusion of the PM TAZ at 5:30 PM, the queue spillback along Piikoi Street had begun to reduce, and more Kinau Street vehicles could be processed with each cycle. By this time, queue along Kinau Street at the Kinau Street and Piikoi Street intersection had reduced significantly.

At the Kinau Street and Pensacola Street intersection, right-turn volumes were still high at the end of the PM TAZ at 5:30 PM. The parked cars in the marked stalls created a “turn pocket” that was too short to accommodate all of the right-turn vehicles turning onto Pensacola Street and the right-turn queue was observed to spill into the adjacent through lane. The extension of PM TAZ hours will allow the heavy right-turn volumes to queue in the right-turn lane, removing them from the though lane and reducing queue. Travel time runs show close-to-ideal travel times throughout the corridor by 6:40 PM. As TAZ restrictions should stay consistent throughout the corridor for consistency and clarity, it is recommended that the PM TAZ along Kinau Street be extended until 6:30 PM for operational benefit. However, high utilization of marked stalls immediately after the PM TAZ currently concludes at 5:30 PM shows that parking is at a premium for the residents in the area. Extension of the PM TAZ may be problematic for residents who rely on street parking.

When evaluating extension of PM TAZ hours, consideration of operational benefit should be weighed against community needs.

The parking inventory for Kinau Street, which incorporates the recommended PM TAZ hour extension, can be found in Figure 7.1

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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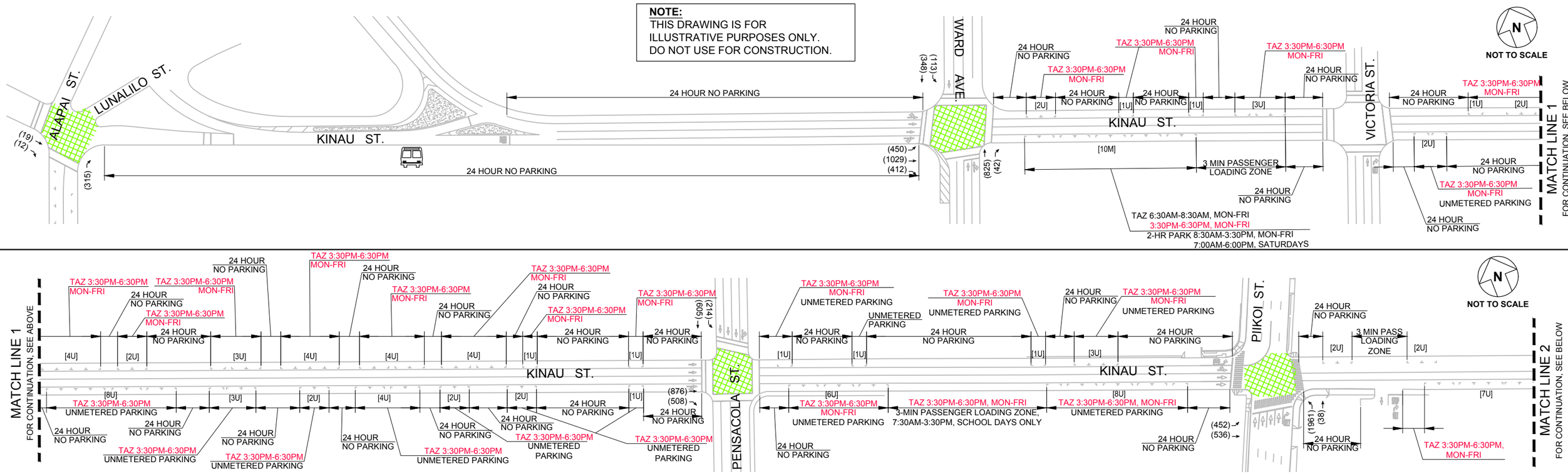

FIGURE 7.1

KINAU STREET CORRIDOR-DETAIL INVENTORY
WITH RECOMMENDED PM TAZ HOUR EXTENSION

7.1.2 South Street

As described in Section 6, queues at the South Street and Kapiolani Boulevard intersection were observed to consistently spill back into the marked stalls on the east curb near Kawaihao Street until approximately 5:45 PM. During existing conditions, when the PM TAZ ends at 5:30 PM, it was observed that thoroughfare and storage in the right lane were observed to be interrupted as the queue in the adjacent lane continued to spill back and blocked access to storage in the right lane. Therefore, it is recommended that the PM TAZ be extended to end 6:00 PM instead of its current end at 5:30 PM.

At other PM TAZ locations, queue in the right lane was not observed to spill back into marked stalls from downstream intersections, and it appeared that the remaining travel lanes had adequate capacity to accommodate the through traffic along South Street.

For consistency throughout the corridor, it is recommended that the PM TAZ times be extended until 6:00 PM. For the small amount of vehicles that may be temporarily displaced by the 30-minute extension, street parking is available with no PM TAZ restrictions along the nearby Kawaihao Street, Emily Street, Halekauwila Street and most of the Kakaako neighborhood.

The parking inventory for South Street, which incorporates the recommended PM TAZ hour extension can be found in Figure 7.2.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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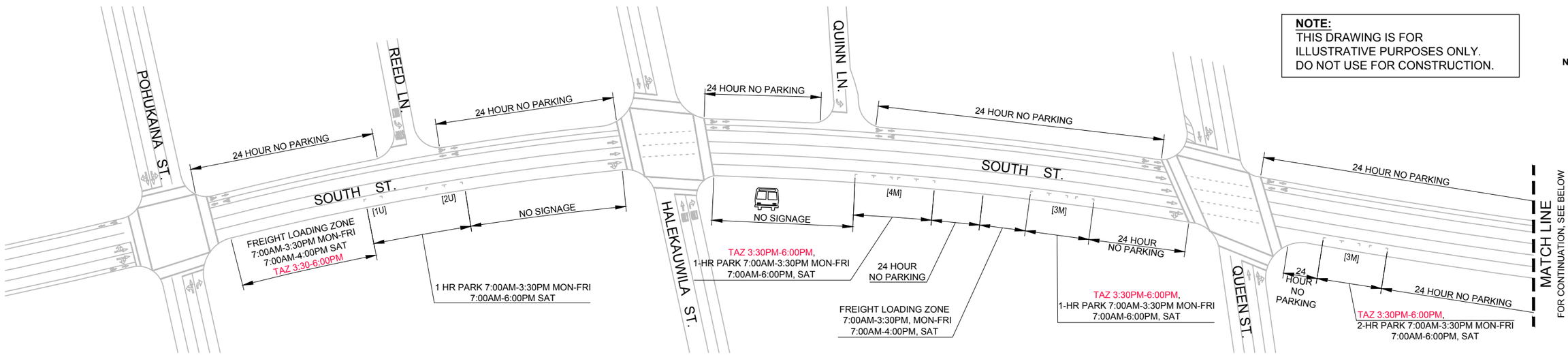

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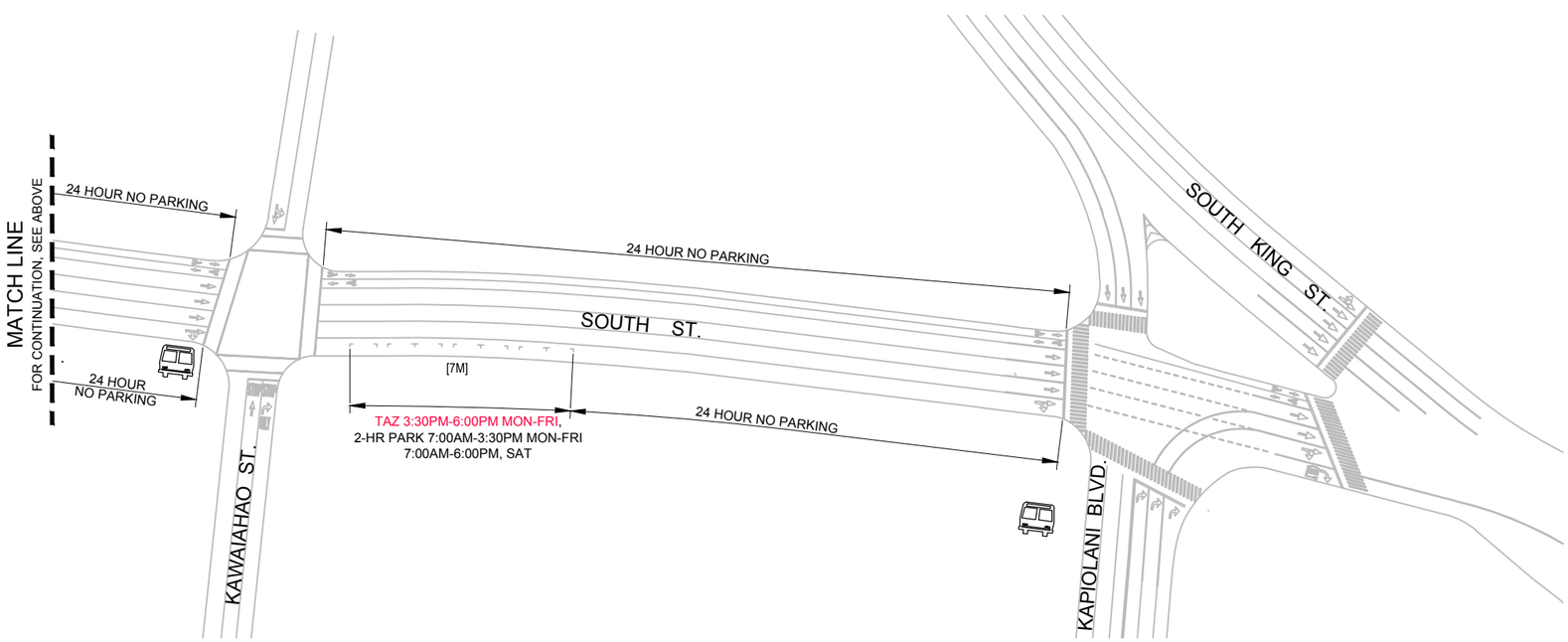

NOTE:
RECOMMENDED PM TAZ
EXTENSION IS SHOWN IN RED.

LEGEND:

[#M]	METERED PARKING STALLS
[#U]	UNMETERED PARKING STALLS
	BUS STOP

FIGURE 7.2

SOUTH STREET CORRIDOR- DETAIL INVENTORY WITH RECOMMENDED PM TAZ HOUR EXTENSION

7.1.3 Ward Avenue

All metered stalls on the east curb between Kapiolani Boulevard and Ward Avenue are affected by the PM TAZ. Observations suggest that traffic conditions on Ward Avenue are generally variable and can be heavily impacted by events at the Blaisdell Center. There seems to be a preference for street parking, which can be cheaper than the daily or event parking offered by the Blaisdell Center for their parking structure. The PM TAZ segment near South King Street was shown to be critical, because when volumes increase due to the commuter peak or events at the Blaisdell Center and metered parking fills, progression in the right-turn lane onto King Street is interrupted and necessary storage length gets cut during critical times. Observations show that the right-turn lane is heavily utilized and queues into the marked stalls past the end of the study period at 7:00 PM even on non-event days at the Blaisdell Center.

To accommodate the right-turn queue at King Street, it is recommended that the PM TAZ hours be extended until 6:00 PM, which was the observed time that queueing along Ward Avenue seemed to alleviate on non-event days. For consistency, it is recommended that all PM TAZ hours along Ward Avenue be extended, even in locations that may not be affect right-turn lane storage.

On days that the Blaisdell Center hosts events, it may be beneficial to traffic operations to consider special parking restrictions past the extended 6:00 PM TAZ, as observations suggest that queueing would be more extensive on event days.

It may also be beneficial to consider the relocation or removal of marked stalls nearest South King Street to expand storage space and access for vehicles turning right onto South King Street.

The parking inventory for Ward Avenue, which incorporates the recommended PM TAZ hour extension can be found in Figure 7.3.

PM PEAK PERIOD TOW-AWAY-ZONE TIME MODIFICATIONS STUDY

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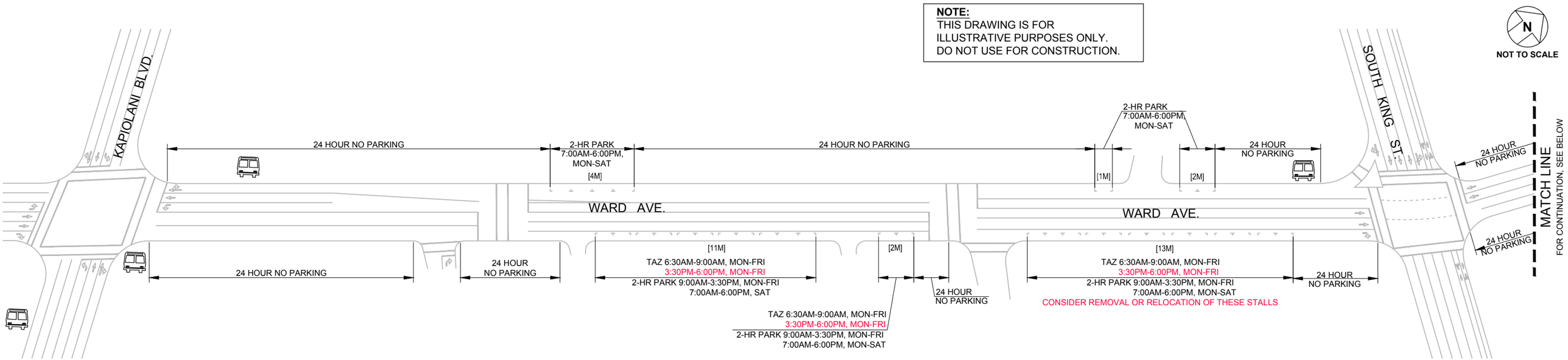

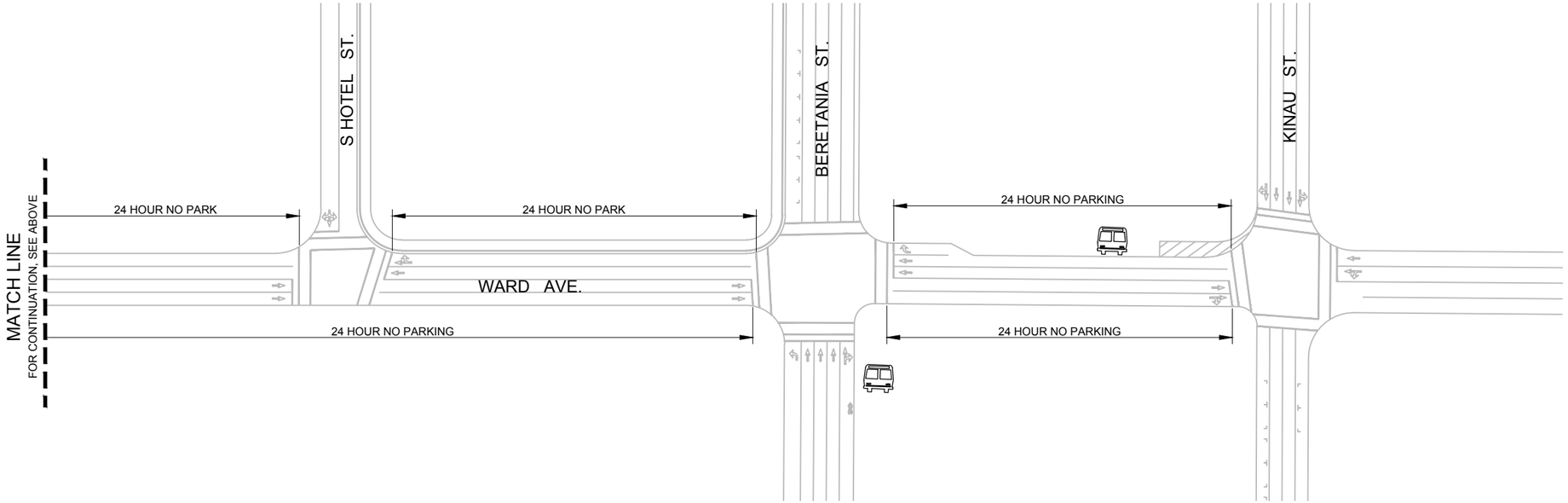

FIGURE 7.3

WARD AVENUE CORRIDOR- DETAIL INVENTORY
WITH RECOMMENDED PM TAZ HOUR EXTENSION

7.2 Operational

7.2.1 Enforcement of Tow-Away Zones

Generally, observations suggest that parking restrictions within the Study Area are rarely enforced. Though operationally, tow-away zone violations were not observed to significantly affect operations throughout the typical weekday due to a number of reasons including driver adjustment behavior, adherence to parking laws should be enforced. In special cases, including days that a traffic incident affects operations, its impact may be alleviated by additional capacity provided by travel lanes unobstructed by PM Tow-Away Zone violations. Additionally, enforcement of parking restrictions may lead to increased revenue to the State and more compliance to general parking restrictions, including time restrictions, which may increase turnover of parking stalls to serve a greater number of people. Increased compliance with parking restrictions may also lead to more sustainable and predictable operational conditions for planning purposes, as parking violations are sporadic and unpredictable and can skew volume data and quantitative results.

7.3 Visual

7.3.1 Installation of Signage

In many areas, such as Alapai Street and streets with large residential uses, signage appeared to be lacking or incomplete and can cause confusion or uncertainty for drivers as they are unsure of the length of the curb for which parking restrictions apply.

The Manual on Uniform Traffic Control Devices (MUTCD), 2009, defines the standards used by road mangers nationwide to install and maintain traffic control devices on all public streets, highways, bikeways and private roads open to public travel. Within the MUTCD, Section 2B.47, Paragraph 05 and 06 guide the implementation of parking signage and reads:

05: Parking Signs should display the following information from top to bottom of the sign, in the order listed:
A. The restriction or prohibition;
B. The times of the day that it is applicable, if not at all hours; and
C. The days of the week that it is applicable, if not every day.

06: If the parking restriction applies to a limited area or zone, the limits of the restriction should be shown by arrows or supplemental plaques. If the arrows are used and if the sign is at the end of a parking zone, there should be a single-headed arrow pointing in the direction that the regulation is in effect. If the sign is at an intermediate point in a zone, there should be a double-headed arrow pointing both ways. When a single sign is used at the transition point between two parking zones, it should display a right and left arrow pointing in the direction that the respective restrictions apply.

7.3.2 Maintenance of Signage and Meters

It was observed that throughout the Study Area, there are many signs that are faded or vandalized, which can make the information on the signs difficult to read. To enable the public to be observant of parking restrictions, signage should be clear and well-maintained. Also, several marked stalls were observed to be missing their respective meter. Missing meters can cause confusion, especially when adjacent or nearby stalls are metered.

Figure 7.4: A PM Tow-Away Zone sign on Keeaumoku Street which is completely faded and unreadable.

7.3.3 Painting Curbs to indicate Tow-Away Zones

Painted curbs can be a great asset to drivers searching for on-street parking, as drivers are able to quickly determine if parking is allowed, and can reduce slowing or stopping in the travel lanes as drivers try to read curbside parking signage.

Some curbs throughout the Study Area were painted red to indicate no-parking areas including bus stops, and yellow curbing to indicate freight loading zones. Many of these painted curbs are dilapidated and difficult to see.

Consistent painting and maintenance of red or yellow curbing, as appropriate, throughout the Study Area may help drivers locate available parking more quickly and park with less interference to traffic in the travel lanes. Painted curbs also add more clarity to the exact length and location of parking restrictions.

Additionally, these painted curbs will also assist parking enforcement staff to quickly and easily determine whether or not a vehicle is parked in a no-parking zone, as the curb is clearly painted red.

7.3.4 Colored Parking Meters

Colored parking meters may also assist drivers in quickly determining acceptable locations for parking. In the city of San Francisco, meters are clearly colored to reflect parking restrictions, with green meters for short-term parking, yellow meters for loading for smaller commercial vehicles, and red meters to designate loading areas for commercial vehicles for 6 or more wheels. Though loading zone areas are not currently metered within the Study Area, the Walker Study referenced in Section 3 of this report suggested that greater revenue may be generated from metered loading zones, and may be a consideration that would also provide clarity for available on-street parking locations.

Figure 7.5: Yellow parking meter in San Francisco, indicating a loading zone only for commercial vehicles. Photo fromlcalwiki.org

7.3.5 Comprehensive and/or Real-Time Parking Map for Trip Planning

A publicly accessible comprehensive map showing exact locations of parking restrictions should be available for drivers to plan their trips, with information on available stalls, meter prices, time restrictions, and other relevant information. The availability of this information would help drivers plan out their trips and become more familiar with the area before driving, and may reduce the amount of time that drivers spend cruising through the congested areas in search of parking.

7.3.6 Create marked, metered stalls where it is currently unrestricted for consistency and increased revenue

Currently, certain areas that are restricted by loading zones which end in the early evening during weekdays, or daytime tow-away zones, become unmarked, unmetered on-street parking after the restriction ends. These unmarked stalls could be converted into metered stalls during the late afternoon and early evening hours to increase meter revenue.

On segments with unmarked curbside parking, pavement markings denoting stall locations may help quickly inform drivers that parking is allowed and guide drivers into using the space correctly and most efficiently.

8. CONCLUSIONS

Currently, on-street (curbside) parking is available throughout the Study Area, and are either marked or unmarked, and marked stalls may be metered or unmetered. In some areas, marked stalls had time limits of anywhere between 1-3 hours which are indicated on signs adjacent to the curb, and other marked stalls did not have any hourly restriction. On corridors with high commuter traffic volumes, some segments are affected by AM and PM peak Tow-Away Zone restrictions so that the curbside parking lane can be used as a travel lane. This report will take inventory of the existing parking conditions and evaluate the operational impact of extending the PM peak commuter parking restriction past its current end time of 5:30 PM. The objective of this report is to provide recommendations, if appropriate, to extend the duration of existing PM Tow-Away Zone hours to improve traffic operations within the Study Area, while ensuring that valid parking alternatives are available to support residents and businesses who may be affected by the extension of the parking restriction.

8.1 Methodology

Travel time runs and one intersection count were conducted along five corridors throughout the study route, including Kinau Street, Beretania Street, South Street, Pensacola Street and Piikoi Street and constituted what is referred to as “Phase 1” data. This data provided the basis for additional turning movement data counts, referred to as “Phase 2” data, at eighteen (18) intersections throughout the Study Area.

Evaluation to determine if PM Tow-Away Zone hours should be extended was performed on an individual basis, due to the unique nature of each of the roadways in their capacity, utilization, and role in the network. Key metrics in analysis included travel time, which considered the difference in actual travel time to the “ideal” travel time, volume-to-capacity (v/c) ratio, which considered how close to capacity the relevant segment was operating, and queueing.

8.2 Analysis of Tow-Away Zone Hours Extension

Of all the corridors in the Study Area, only eight (8) corridors were affected by PM Tow-Away Zone hours, including Isenberg Street, Kinau Street, South Street, Ward Avenue, Piikoi Street, Keeaumoku Street, University Avenue and Beretania Street.

8.2.1 Isenberg Street Tow-Away Zone Modification Analysis

Several unmetered stalls are restricted by the PM TAZ on the west curb of Isenberg near the intersection of Isenberg Street and South King Street.

Generally by the end of the PM TAZ restriction at 5:30 PM, queue had subsided enough that through vehicles were able to access the through lane for the majority of the Isenberg cycle, and the queue cleared completely with each cycle.

Therefore, no extension of the existing PM TAZ hours is recommended, though operations may benefit from strict enforcement of PM TAZ restrictions.

8.2.2 Kinau Street

By the conclusion of the PM TAZ at 5:30 PM, the queue spillback along Piikoi Street had begun to reduce, and more Kinau Street vehicles could be processed with each cycle. By this time, queue along Kinau Street at the Kinau Street and Piikoi Street intersection had reduced significantly.

At the Kinau Street and Pensacola Street intersection, right-turn volumes were still high at the end of the PM TAZ at 5:30 PM. The parked cars in the marked stalls created a “turn pocket” that was too short to accommodate all of the right-turn vehicles turning onto Pensacola Street and the right-turn queue was observed to spill into the adjacent through lane. The extension of PM TAZ hours will allow the heavy right-turn volumes to queue in the right-turn lane, removing them from the though lane and reducing queue. Travel time runs show close-to-ideal travel times throughout the corridor by 6:40 PM. As TAZ restrictions should stay consistent throughout the corridor for consistency and clarity, it is recommended that the PM TAZ along Kinau Street be extended until 6:30 PM for operational benefit. However, high utilization of marked stalls immediately after the PM TAZ currently concludes at 5:30 PM shows that parking is at a premium for the residents in the area. Extension of the PM TAZ may be problematic for residents who rely on street parking.

When evaluating extension of PM TAZ hours, consideration of operational benefit should be weighed against community needs.

8.2.3 South Street

As described in the above section, queue at the South Street and Kapiolani Boulevard intersection was observed to consistently spill back into the marked stalls on the east curb near Kawaihao Street until approximately 5:45 PM. During existing conditions, when the PM TAZ ends at 5:30 PM, it was observed that thoroughfare and storage in the right lane were observed to be interrupted as the queue in the adjacent lane continued to spill back and blocked access to storage in the right lane. Therefore, it is recommended that the PM TAZ be extended to end 6:00 PM instead of its current end at 5:30 PM.

At other PM TAZ locations, queue in the right lane was not observed to spill back into marked stalls from downstream intersections, and it appeared that the remaining travel lanes had adequate capacity to accommodate the through traffic along South Street.

For consistency throughout the corridor, it is recommended that the PM TAZ times be extended until 6:00 PM. For the small amount of vehicles that may be temporarily displaced by the 30-minute extension, street parking is available with no PM TAZ along the nearby Kawaihao Street, Emily Street, Halekauwila Street and most of the Kakaako neighborhood.

8.2.4 Ward Avenue

All metered stalls on the east curb between Kapiolani Boulevard and Ward Avenue are affected by the PM TAZ. Observations suggest that traffic conditions on Ward Avenue are generally variable and can be heavily impacted by events at the Blaisdell Center. There seems to be a preference for street parking, which can be cheaper than the daily or event parking offered by the Blaisdell Center for their parking structure. The PM TAZ segment near South King Street was shown to be critical, because when volumes increase due to the commuter peak or events at the Blaisdell and metered parking fills, progression in the right-turn lane onto King Street is interrupted and necessary storage length gets cut during critical times. Observations show that the right-turn

lane is heavily utilized and queues into the marked stalls past the end of the study period at 7:00 PM even on non-event days at the Blaisdell Center.

To accommodate the right-turn queue at King Street, it is recommended that the PM TAZ hours be extended until 6:00 PM, which was the observed time that queueing along Ward Avenue seemed to alleviate on non-event days. For consistency, it is recommended that all PM TAZ hours along Ward Avenue be extended, even in locations that may not be affect right-turn lane storage.

On days that the Blaisdell Center hosts events, it may be beneficial to traffic operations to consider special parking restrictions past the extended 6:00 PM TAZ, as observations suggest that queueing would be more extensive on event days.

It may also be beneficial to consider the relocation or removal of several marked stalls nearest South King Street to expand storage space and access for vehicles turning right onto South King Street.

8.2.5 Piikoi Street

The only PM TAZ on Piikoi is between Elm Street and the crosswalk at the Ailohi Way intersection on the east curb. On this segment, this lane is a wide through lane which is able to accommodate through vehicles and curbside parking, side by side, and transitions into a right-turn only lane at the downstream King Street intersection. While some queueing was observed in the right-turn lane at King Street, this queue was not observed to be significant. The storage length is not affected by parked vehicles on the curb as it is able to accommodate the queue alongside the parked vehicles in the case that the queue spills back. Therefore, no extension of the existing PM TAZ hours is recommended.

8.2.6 Keeaumoku Street

PM TAZ restrictions exist for all metered stalls on the east curb of Keeaumoku between Kapiolani Boulevard and Beretania Street.

As previously discussed, observations show that volumes on segments which are affected by the PM TAZ have alleviated, and the curbside parking within the travel lane did not cause significant congestion.

As a result, no extension of the existing PM TAZ restrictions is recommended.

8.2.7 University Avenue

The existing PM TAZ restriction affects approximately 4-5 unmarked stalls on the east curb of University Avenue, just Mauka of Kuilei Street. By the end of the PM TAZ restriction at 5:30 PM, right-turn volumes at King Street had alleviated enough that it generally did not queue past these unmetered stalls.

Therefore, no extension of the existing PM Tow-Away Zone hours from 3:30PM – 5:30PM is recommended at this time.

8.2.8 Beretania Street

PM TAZ restrictions exist for metered stalls on the Makai curb of Beretania Street between Alapai Street and Pensacola Street. In general, on this segment, utilization of the leftmost lanes are lower than the rightmost lanes, due to the few minor streets that allow left-turns off of Beretania Street on this segment. Additionally, metered parking on upstream segments, which are not affected by PM TAZ restrictions, block the curbside travel lane, leading many drivers to choose the adjacent lane.

By the conclusion of the existing PM TAZ restriction at 5:30PM, volumes were observed to alleviate significantly so that the additional capacity is not critical at this time. Therefore, no extension of the existing PM TAZ is recommended at this time.

9. REFERENCES

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