



# 2045 O'AHU REGIONAL TRANSPORTATION PLAN

THE PATH FORWARD FOR O'AHU

# KE ALA I MUA



O'AHU METROPOLITAN PLANNING ORGANIZATION  
Approved by the OahuMPO Policy Board on April 27, 2021

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<https://www.oahumpo.org/plans-and-programs/oahu-regional-transportation-plan-ortp/>

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# List of Abbreviations & Acronyms

3-C	Continuing, Cooperative, Comprehensive	NHFP	National Highway Freight Program
ADA	Americans with Disabilities Act	NHS	National Highway System
C&C	City and County of Honolulu	OahuMPO	O'ahu Metropolitan Planning Organization
CAC	OahuMPO Citizen Advisory Committee	ORTP	O'ahu Regional Transportation Plan
CFR	Code of Federal Regulations	OTS	O'ahu Transit Services
CMAQ	Congestion Mitigation and Air Quality Improvement Program	OWP	Overall Work Program
CMP	Congestion Management Process	PPP	Public Participation Plan
DBEDT	Department of Business, Economic Development and Tourism (State)	PUC	Primary Urban Center
DPP	City and County of Honolulu Department of Planning and Permitting	RHCP	Railway-Highway Crossings Program
DTS	City and County of Honolulu Department of Transportation Services	STBGP	Surface Transportation Block Grant Program
E+C	Existing and Committed (fully funded)	T6/EJ	Title VI/Environmental Justice
FAST Act	Fixing America's Surface Transportation Act	TAC	Technical Advisory Committee
FFY	Federal Fiscal Year (October – September)	TA	Transportation Alternatives
FHWA	Federal Highway Administration	TAP	Transportation Alternatives Program
FTA	Federal Transit Administration	TDFM	Travel Demand Forecasting Model
HART	Honolulu Authority for Rapid Transportation	TDM	Transportation Demand Management
HDOT	Hawaii Department of Transportation	TIP	Transportation Improvement Program
HHCTCP	Honolulu High-Capacity Transit Corridor Project	TOD	Transit-Oriented Development
HOV	High-Occupancy Vehicle	TSM	Transportation System Management
HSIP	Highway Safety Improvement Program	USC	United States Code
MAP-21	Moving Ahead for Progress in the 21st Century Act	USDOT	United States Department of Transportation
MPA	Metropolitan Planning Area	V/C	Volume-to-Capacity Ratio
NHPP	National Highway Performance Program	VMT	Vehicle Miles Traveled

THE PATH FORWARD FOR O'AHU

KEOLA I MUA

KA HOOU



## CHAPTER ONE

# Toward Our Path Forward

## Introduction

The O'ahu Metropolitan Planning Organization (OahuMPO) is the designated Metropolitan Planning Organization (MPO) for the island of O'ahu. An MPO is a federally mandated and federally funded transportation policy-making body composed of representatives from local government and public agencies. MPOs were first introduced in the Federal-Aid Highway Act of 1962, which required the formation of an MPO for any urbanized area (UZA) with a population greater than 50,000 to ensure that federal transportation funding is spent based on a planning process that meets regional and national goals. OahuMPO was established based on two UZAs, Honolulu and Kāne'ohe-Kailua, though the MPO serves the entire island. Honolulu is also recognized as a Transportation Management Area (TMA), which means that the MPO serves an urbanized population of more than 200,000 people. In recognition of the greater complexity of transportation issues in large urban areas, TMAs are also responsible for additional planning products, such as an in-depth congestion evaluation and analysis, called a Congestion Management Process.

While OahuMPO does not implement or construct transportation projects, it provides oversight in prioritizing funding for transportation projects – especially those receiving federal funds.

The OahuMPO is responsible for coordinating transportation planning on O‘ahu. As required for all MPO’s, the OahuMPO manages the continuing, cooperative, and comprehensive (“3-C”) planning process. It does this in conjunction with its primary partner agencies: The State of Hawai‘i Department of Transportation, City and County of Honolulu Department of Transportation Services, and the Honolulu Authority for Rapid Transportation. Among its required work products are the island’s Metropolitan Transportation Plan (MTP), referred to as the O‘ahu Regional Transportation Plan (ORTP), and Transportation Improvement Program (TIP), of which both identify and prioritize transportation projects for funding in the mid and long-range, and short-range timeframes, respectively. The 2045 ORTP lists \$26.92 billion in transportation projects and programs and in federal fiscal years 2015-2018, the TIP programmed a yearly median of over \$92

million in Federal Highway, and a yearly median of over \$44 million in Federal Transit funds for projects and programs.

The MPO is the policy framework designated to carry out the metropolitan transportation planning process that guides and approves the use of federal transportation funds for pedestrian, bicycle, transit, and highway projects. While the MPO does not implement or carry out the construction of transportation projects, it provides oversight in prioritizing funding for transportation projects – especially those receiving federal funds.

The theme of this plan is Ke Ala I Mua, “the path forward.” This theme was developed in collaboration with our partners and committee members. When we look at our “path forward,” how will we increase safety for all people in our transportation system? How will we rise to

## VISION



In 2045, O‘ahu’s path forward is multimodal and safe. All people on O‘ahu can reach their destinations through a variety of transportation choices, which are reliable, equitable, healthy, environmentally sustainable, and resilient in the face of climate change.

meet the challenges of climate change, sea-level rise, flooding, and other issues related to the environment and resiliency? How will we improve and enhance all modes of our transportation system, especially active transportation, transit and other high-occupancy vehicles? This plan lays out the foundation for O‘ahu’s path forward.

Supporting the theme, Ke Ala I Mua, OahuMPO developed a vision for the island’s transportation future using feedback from phase one of its public engagement process, it’s technical working group, Technical Advisory Committee, Citizen Advisory Committee, and Policy Board. The vision was then translated into a set of goals and objectives that helped to guide the development of transportation improvement projects and programs. The vision, goals, and objectives are described in further detail in Chapter 2.



## Federal Background

The ORTP is shaped by federal legislation. Federal transportation bills establish the basic planning factors that the plan must address. Planning requirements and funding are described in each surface transportation bill.

In 2015, Congress passed the “Fixing America’s Surface Transportation Act” (FAST Act), which is the current surface transportation funding and authorization bill. The FAST Act added new planning factors that MPO’s must address in their MTP, including:

- 1 Increase the safety of the transportation system for motorized and non-motorized users;
- 2 Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and state and local planned growth and economic development patterns;
- 3 Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
- 4 Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
- 5 Increase the security of the transportation system for motorized and non-motorized users;
- 6 Increase accessibility and mobility of people and freight;
- 7 Promote efficient system management and operation;
- 8 Emphasize the preservation of the existing transportation system;
- 9 Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and
- 10 Enhance travel and tourism.



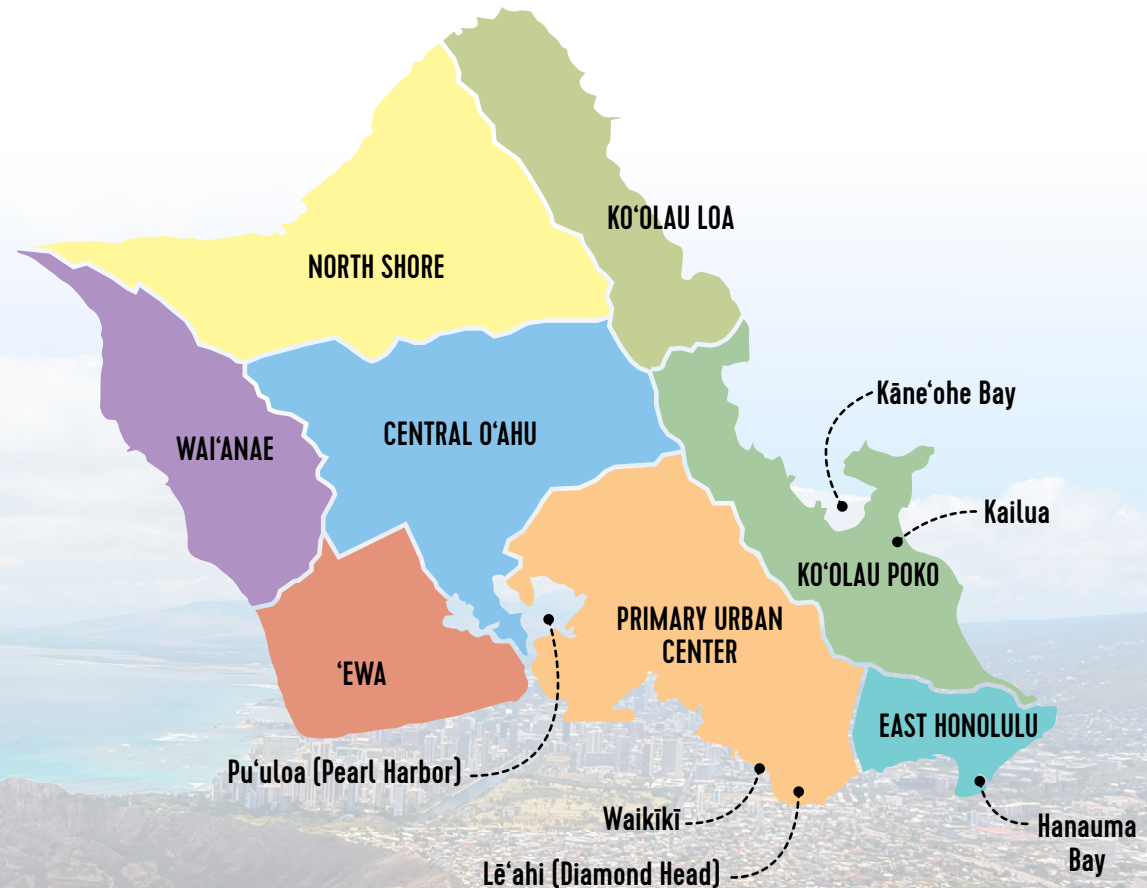
On December 4, 2015, President Obama signed the Fixing America’s Surface Transportation (FAST) Act (Pub. L. No. 114-94) into law—the first federal law in over a decade to provide long-term funding certainty for surface transportation infrastructure planning and investment. The FAST Act authorizes \$305 billion over fiscal years 2016 through 2020 for highway, highway and motor vehicle safety, public transportation, motor carrier safety, hazardous materials safety, rail, and research, technology, and statistics programs. The FAST Act maintains the federal government’s focus on safety, keeps intact the established structure of the various highway-related programs, continues efforts to streamline project delivery, and, for the first time, provides a dedicated source of federal dollars for freight projects.



**For more information about the FAST Act, visit**  
[www.fhwa.dot.gov/fastact](http://www.fhwa.dot.gov/fastact)

## About the Planning Area

O‘ahu, known as “The Gathering Place,” is the third largest island in the state of Hawai‘i. The state capital, Honolulu, is on O‘ahu and about two-thirds of the state’s population lives there. O‘ahu has two large parallel mountain ranges, the Wai‘anae and Ko‘olau, which stretch across the island from the southeast to northwest. Most of the development on O‘ahu is thus limited to the coastal areas and the central plain which separates the two mountain ranges. Approximately 6 million people visit O‘ahu each year. Visitors enjoy Waikiki, Pu‘uloa (Pearl Harbor), Lē‘ahi (Diamond Head), Hanauma Bay, Kāne‘ohe Bay, Kailua, North Shore, and several other popular destinations.



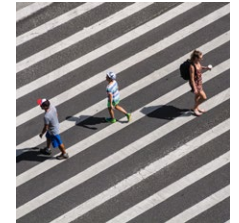
## The Metropolitan Transportation Plan

The O‘ahu Regional Transportation Plan (ORTP) is a planning document that describes the vision and goals for the future transportation network and the transportation projects and programs to achieve them. As established by federal regulation, the ORTP “shall include both long-range and short-range strategies/actions that provide for the development of an integrated multimodal transportation system (including accessible pedestrian walkways and bicycle transportation facilities) to facilitate the safe and efficient movement of people and goods in addressing current and future transportation demand” (23 CFR 450.324(b)).

Updated every five years, the plan outlines a financially constrained transportation investment plan that is based on the needs of the region. The plan must be financially constrained, meaning that projects can only be implemented if there are available funds to pay for them. No transportation project can receive federal funding unless it is

in the ORTP. The 2045 ORTP is an update to its predecessor - 2040 ORTP. The updated plan focuses on strategies to be executed over a twenty-year planning horizon.

The purpose of the ORTP is to anticipate the transportation needs for O‘ahu predicated on demographic and economic assumptions and forecasts for the entire region. It identifies various elements of the desired transportation system for the island and the interrelationship of various modes of transportation. To ensure financial feasibility, the ORTP summarizes implementation costs and presents practicable funding scenarios. The ORTP will serve as a guide for the investment of local, state and federal funding, and will become a component of the Hawai‘i Statewide Transportation Plan. In addition, the ORTP meets the requirements of federal law authorizing the adoption of a metropolitan transportation plan for the expenditure of federal transportation funding in the future.



**Transportation impacts our lives  
EVERY DAY**



## Planning Process

The 2045 ORTP is the culmination of years of collaboration and community involvement that relied on technical analysis, community visioning, and public engagement.

OahuMPO staff collaborated with government agency partners, the ORTP technical working group, Citizen Advisory Committee, Technical Advisory Committee, Policy Board, and the public during key points in the development of the ORTP, including:

\*Indicates key public involvement opportunities

- 1 Developing the vision statement, goals and objectives\*
- 2 Updating socio-economic data
- 3 Developing a public involvement plan
- 4 Updating the travel demand forecasting model
- 5 Updating the land-use and travel demand forecasting models
- 6 Reviewing the Congestion Management Process and congestion analysis
- 7 Reviewing a draft project and program list\*
- 8 Reviewing a financially constrained project and program list
- 9 Reviewing and providing feedback on draft and final documents\*



### **CITIZEN ADVISORY COMMITTEE (CAC):**

The CAC provides public input to OahuMPO's planning process. The CAC advises the Policy Board and OahuMPO staff and ensures that the planning process includes public input.



### **POLICY BOARD:**

The Policy Board is the decision-making body of the OahuMPO. It determines the direction of OahuMPO planning efforts, considers and approves transportation planning documents, including the ORTP.



### **TECHNICAL ADVISORY COMMITTEE (TAC):**

The TAC provides technical input to OahuMPO's planning process. The TAC advises the Policy Board and OahuMPO staff and ensures the technical competence of the planning process.



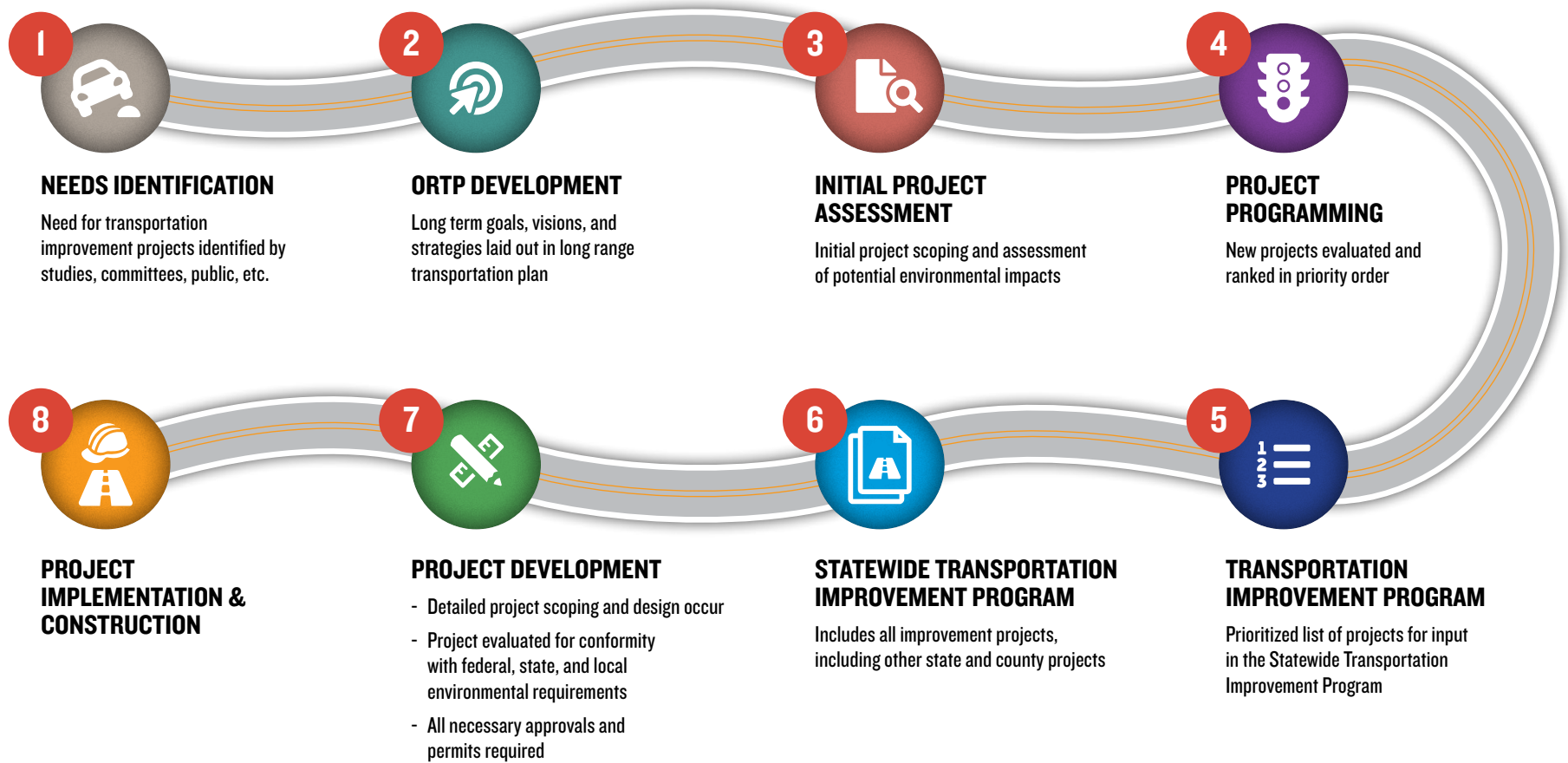
### **ORTP TECHNICAL WORKING GROUP:**

The ORTP technical working group is made up of technical experts in transportation and planning. The group provides OahuMPO staff feedback and input on key ORTP work products.

The ORTP is adopted by the Policy Board. Adoption of the ORTP is the first step towards the implementation of a transportation project. Following formal adoption of the plan, a project can use federal transportation funding for design, right-of-way acquisition, or construction in the short-range

Transportation Improvement Program (TIP), which identifies funding sources and the estimated amount of funding to be used. The TIP is a management tool for implementing the projects programmed in the ORTP. The projects in the TIP move towards implementation once the funds are authorized and obligated.

**Figure I.I: The Transportation Planning Process**

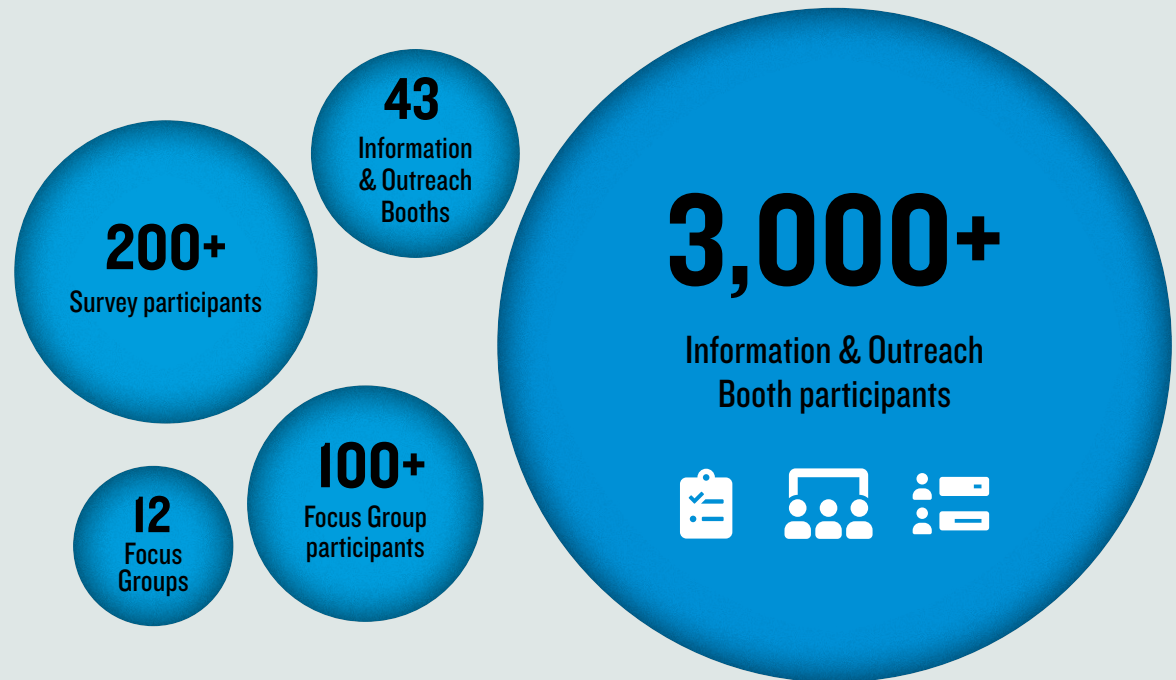


## Public Participation

The OahuMPO actively sought public input throughout the development of the 2045 ORTP. OahuMPO used online and hard copy surveys, focus groups, information and outreach booths, open houses, presentations at committee and Policy Board meetings, social media, and online comment forms in order to provide a variety of ways in which members of the community could participate in plan development. OahuMPO also made all of the 2045 ORTP information available on the OahuMPO's website to ensure opportunities for the public to learn and be informed about the island's transportation plan. Major efforts to solicit public input for the plan occurred in three phases: Phase 1: Vision and Goals Prioritization; Phase 2: Proposed Projects and Programs Review and Phase 3: Intergovernmental and Public Review of the Draft Plan.

### PHASE I: Vision and Goal Prioritization

(January 2019-May 2019)



The purpose of the first phase of involvement was to determine what the transportation vision and goals were for residents through 2045. In order to craft the ORTP's vision and goals, staff conducted outreach through information and outreach booths, online surveys, focus groups, OahuMPO committee meetings, and website and Facebook engagement. In total, over 3,000 people provided feedback at the information and outreach booths, over 200 people took the survey, and over 100 people participated in the focus groups, during this phase.



Some of the dominant themes that resulted from the three primary outreach strategies were:

- Safety was a top priority for participants at the information and outreach booths, those who took the survey, and those who participated in the focus groups.
- However, results differed for second and third top priorities, across the three primary strategies
- Participants at the information and outreach booths identified health and air quality and active transportation, as their second and third priorities, respectively.
- Survey participants identified reliability and efficiency and resiliency and environment, as their second and third priorities, respectively.
- Focus group participants identified reliability and efficiency and equity as their second and third priorities, respectively.

The first phase of public involvement provided a framework from which the 2045 ORTP vision, goals, objectives, and project and program prioritization process were developed, and proposed projects and programs evaluated.



**SAFETY WAS A TOP  
PRIORITY FOR ALL  
PARTICIPANTS**

## Preliminary Goals

Prior to any engagement efforts, the staff of OahuMPO discussed preliminary transportation goals that would be useful to present to the public in efforts to start off the conversation in a meaningful, focused manner.



### ACTIVE TRANSPORTATION

safe, convenient, quality, ADA-accessible pedestrian and bicycle routes



### ECONOMY & TECHNOLOGY

movement of goods and people as it relates to economic development including supporting technologies (e.g., autonomous/smart systems, operations)



### EQUITY

all people on the island have access to quality, affordable multimodal routes (e.g., roads, transit, pedestrian paths/sidewalks, bikeways)



### HEALTH & AIR QUALITY

better health and air quality from reduced emissions because of electric vehicles, transit expansion, and bicycle and pedestrian improvements



### RELIABILITY & EFFICIENCY

transportation system is well-maintained, efficient and predictable regardless of travel mode



### RESILIENCY & ENVIRONMENT

adaptation/mitigation for sea-level rise, flooding, storms; preparedness for extreme weather events; stormwater management and green infrastructure



### SAFETY

zero deaths and serious injuries on our roads and paths



### TheBUS / HANDIVAN / RAIL

safe, reliable, convenient and integrated transit service

## **PHASE 2: Proposed Projects and Programs Review**

(October 2020 - January 2021)

The purpose of the second phase of public involvement was to provide the public an opportunity to learn more about and provide feedback on proposed projects and programs. The information gathered from engagement activities in this phase was shared with decision-makers so that they may consider public input in deciding which projects and programs should be funded.

Due to the constraints associated with COVID-19, the primary method used for collecting feedback about the proposed projects and programs was an online survey and webmap. The survey asked for feedback about newly proposed projects and programs, and the webmap asked participants to identify locations for safety, resiliency, maintenance, and congestion improvements, to help inform decision-makers about where improvements should be made using funding in the newly proposed programs. The online survey and map were distributed via newsletter, press release, and OahuMPO's Facebook. The online survey was completed by 85 participants and the web map received 99 comments.

## **PHASE 3: Intergovernmental and Public Review of the Draft Plan (March 2021)**

The purpose of the third phase of public involvement was to seek feedback on the final draft of the 2045 ORTP. In this phase, OahuMPO distributed the draft plan via newsletter, HDOT press release, and the intergovernmental and public review mailing list. Comments received on the draft document were compiled, responded to, and presented to the OahuMPO committees and Policy Board for consideration when voting. Comments received can be viewed in Appendix A.

Another outreach method employed by OahuMPO staff was the coordination and facilitation of virtual community meetings to provide the public an opportunity to ask questions and provide feedback regarding the proposed projects and programs, as well as the plan as a whole. These meetings consisted of a panel of project agency sponsors and elected city councilmembers. The staff coordinated and facilitated five community meetings in the following areas of Oahu: Central Oahu, West Honolulu, East Honolulu, North Shore/Ko'olau Loa, and Windward Oahu. For areas that were not covered, or for participants who were unable to make the community meetings, OahuMPO staff held a virtual open house, welcoming residents from all parts of the island.

For a more in-depth discussion of public involvement efforts of all phases, please read Appendix B.





## CHAPTER TWO

# Our Shared Vision and Goals for O'ahu's Transportation Future

The OahuMPO carried out a comprehensive outreach process to educate the community about the O'ahu Regional Transportation Plan (ORTP), and engage people in discussion about how they envision getting around in 2045 in efforts to better understand what transportation goals should be prioritized.

## Our Shared Vision

Transportation impacts our lives every day, whether we're commuting to work or school, picking up groceries, heading out to the beach, going for a hike, or simply getting out to exercise.

The ORTP 2045's vision statement presents an aspirational view of the future of the region's transportation system, reflecting values and desired outcomes expressed by our island community.

### VISION



In 2045, O'ahu's path forward is multimodal and safe. All people on O'ahu can reach their destinations through a variety of transportation choices, which are reliable, equitable, healthy, environmentally sustainable, and resilient in the face of climate change.

This shared vision for the future provides a benchmark for crafting a transportation system that serves all people on O'ahu. The vision, supporting goals, objectives, and strategies/policies will serve as a foundation for identifying investment priorities and policies, and measuring progress toward reaching our vision.

## Our Shared Goals, Objectives, and Performance Measures

For us to achieve our vision, we need goals to help focus our limited resources and evaluate our progress.

### Local Emphasis

Building on the FAST Act planning factors described in Chapter 1, OahuMPO developed the 2045 ORTP goals based on public input, feedback from its working group, committees, and Policy Board. For more information about the public involvement process, please read Appendix B. These goals help to guide future transportation decisions in the region. A corresponding set of objectives has been established to help the region move closer to the intended goals.

### National Emphasis

The FAST Act is the Federal law that governs national transportation planning and funding. It also provides guidance on transportation decision-making for metropolitan areas. The national emphasis is defined by the ten planning factors listed in Chapter 1. These planning factors, and the need to meet federal performance measures, form the basis of the regional goals and objectives developed for the 2045 ORTP. To see how the FAST Act Planning Factors match up to the 2045 ORTP Goal(s), see below for Table 2.0.

Each of the transportation investments recommended in Chapter 5 contributes to the achievement of the goals and objectives outlined. In many cases a proposed project or service will accomplish multiple goals and objectives. For example, improving transit service expands transportation choices and improves mobility for many O’ahu residents. Transit service expansion also has the potential to improve air quality, and enhance the region’s economic vitality by providing access to jobs for a greater number of people.

# GOALS



1. Improve the safety of the transportation system;



2. Support active and public transportation;



3. Promote an equitable transportation system;



4. Improve the resiliency of the transportation system;



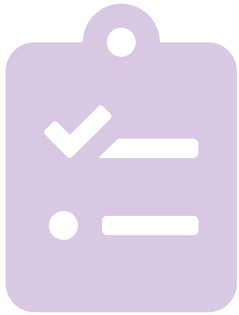
5. Preserve and maintain the transportation system;



6. Support a reliable and efficient transportation system; and



7. Improve air quality and protect environmental and cultural assets.



## Performance Measures

The OahuMPO Policy Board has adopted federally required performance measures consistent with the Hawai'i Department of Transportation and the City and County of Honolulu Department of Transportation Services, as well as other performance measures, shown in the tables below to help determine the region's progress toward meeting its goals and objectives. These measures emphasize conditions that can be quantified with data and tools currently available to OahuMPO.

**THE NEXT SECTION** provides more information about the goals, objectives, and performance measures selected for the 2045 ORTP.



**Table 2.0: FAST Act Planning Factors & 2045 ORTP Goal(s)**

NO.	FAST ACT PLANNING FACTORS	2045 ORTP GOAL(S)
1	Increase the safety of the transportation system for motorized and non-motorized users	1
2	Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns	2, 3, 7
3	Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight	2
4	Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency	6
5	Increase the security of the transportation system for motorized and non-motorized users	1
6	Increase accessibility and mobility of people and freight	2, 3
7	Promote efficient system management and operation	6
8	Emphasize the preservation of the existing transportation system	5
9	Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation	4, 6
10	Enhance travel and tourism	2



## GOAL 1: Improve the safety of the transportation system

*Our path forward is safe*

According to the National Highway Traffic Safety Administration (NHTSA), Hawai'i ranks the **FIFTH HIGHEST** in proportion of speed-related fatal crashes

(Hawaii Strategic Highway Safety Plan, 2019)



Unfortunately, O'ahu experiences many crashes and associated fatalities and serious injuries on our roads, bridges, and paths. Many of these fatalities and serious injuries are associated with speeding and impaired driving, and disproportionately impact people walking and biking, and other vulnerable users, such as our kūpuna (older people) and our keiki (children). It's no surprise that safety was by far the top concern among those who participated in our engagement process, across all demographics.

Hawai'i has a higher than average proportion of traffic fatalities involving a speeding driver, compared to the rest of the United States. Over the past decade, approximately half of all fatal crashes in Hawai'i involved a driver who was reported as speeding. Preliminary data for 2020 year-to-date in Table 2.1 shows that 47-percent of fatal crashes involved speed. This tracks with data that shows an average of 46-percent of fatal crashes in Hawaii since 2012 were related to speed (Hawai'i Department of Transportation, 2020). The National Transportation Safety Board (NTSB) reported that urban environments tend to see drivers involved in a large proportion of crashes on roadways with posted speed limits of 35 mph. In examining the parallel between drivers in fatal crashes and posted speed limits, O'ahu's roadways with posted speed limits of 25 and 35 represent roadway environments with the largest number of crashes (Traffic Safety Facts 2018, NHTSA). More work needs to be done to understand what is causing these crashes, whether it be that these roads simply have more vehicles using them, roadway design, the actual posted speed limit, and/or another reason.

Hawai'i also ranks above the national average for drivers involved in fatal crashes who test positive for alcohol and or drugs (Hawai'i Department of Health, 2008-2017). Preliminary 2019 figures show 59-percent of the traffic fatalities that were tested, tested positive for alcohol and/or drugs. Of the 15 fatalities of persons between the ages of 15 to 22, 13 posthumously tested positive for alcohol and/or drugs (Hawai'i Department of Transportation, 2020). Even with over 6,000 individuals arrested every year in Hawai'i (Hawaii Uniform Crime Reports, 2013-2017), 1 out 20 drivers or (5%) who survived, admitted to driving after they consumed too much alcohol in the past month (2012, 2014, 2016 Hawaii Behavioral Risk Factor Surveillance Survey).



Hawai'i is ranked the **fourth highest** in the nation for impaired driving-related fatal crashes (Hawaii Strategic Highway Safety Plan, 2019)



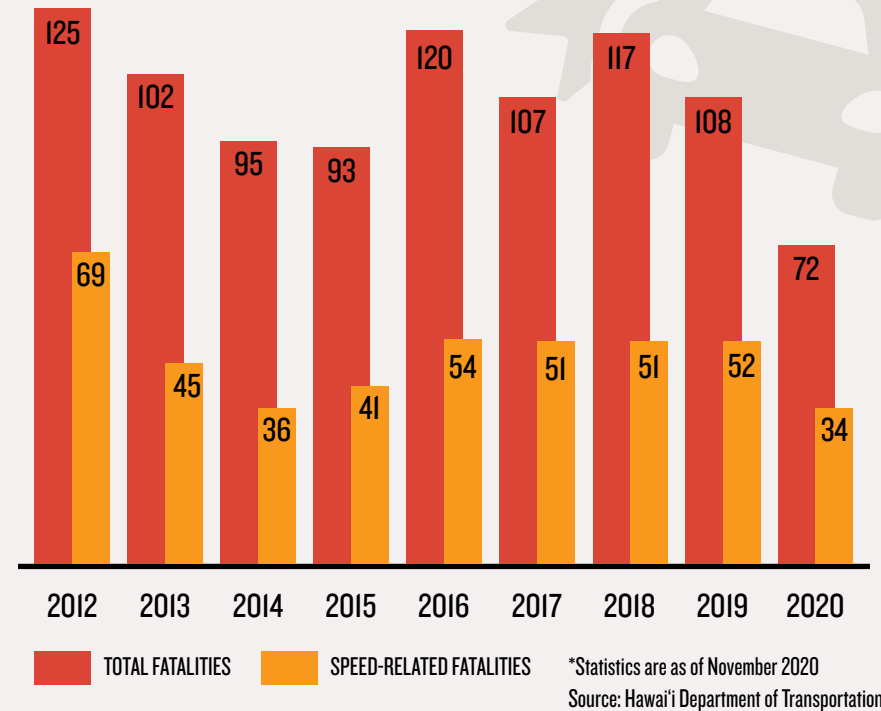
**59%** of the traffic fatalities that were tested, tested **positive for alcohol and/or drugs** (Hawai'i Department of Transportation, 2020)



Hawai'i has the **highest rate of older pedestrian fatalities** in the nation (Honolulu Age Friendly City Action Plan 2015)

Nationwide, older people, people of color, and people walking in low-income communities are disproportionately represented in fatal crashes involving people walking (Dangerous by Design, 2019). Hawai'i has the third highest rate of older pedestrian fatalities (ages 65+) in the nation (Web-based Injury Statistics Query and Reporting System, 2015-2019). The state is 14th in the nation for pedestrian fatalities among all age groups (Web-based Injury Statistics Query and Reporting System, 2015-2019). Most fatal pedestrian crashes occur around 5 AM and between 6 PM and 9 PM. Kūpuna (older people) die more often in pedestrian-vehicle crashes, but keiki (children) are often injured in crashes, especially near the school start time (7 AM - 8 AM) and end (2 PM - 3 PM) (2019 - 2024 Hawaii Strategic Highway Safety Plan). Statewide hospital data shows that traffic-related pedestrian crashes resulted in at least \$12 million in hospital costs in 2016. (2019 - 2024 Hawaii Strategic Highway Safety Plan).

**Table 2.1: Hawai'i Traffic Fatality Statistics**



Since 2012, speed-related crashes accounted for an average of **46%** of traffic fatalities

(Hawai'i Department of Transportation, 2020)

Bicyclist fatalities and serious injuries fluctuate over the years. Most fatal crashes occur between 6 AM and 10 AM. Most bicyclists who have died since 2014 were men over 55 years of age (2019 - 2024 Hawaii Strategic Highway Safety Plan). Kūpuna (older people) die more often in bicyclist-vehicle crashes, but keiki (children) are often injured in crashes, especially near the school start time (7 AM - 8 AM) and during the hours of 2 PM - 6 PM (2019 - 2024 Hawaii Strategic Highway Safety Plan). Statewide hospital data shows that traffic-related bicycle crashes resulted in at least \$5 million in hospital costs in 2016 (2019 - 2024 Hawaii Strategic Highway Safety Plan).

Across the island, residents expressed concerns about safety, many of them choosing this as their top priority for improvement in the future. Island residents attributed their concerns to the lack of safe infrastructure to walk and bike (including the lack of infrastructure that supports the mobility of those physically disabled), distracted driving, drunk driving, and speeding.

Our kūpuna die more often in both pedestrian-vehicle and bicyclist-vehicle crashes, but **our keiki are often injured in crashes, especially near the school start time (7 AM – 8 AM) and during the hours of 2 PM – 6 PM.**

(2019 - 2024 Hawaii Strategic Highway Safety Plan)



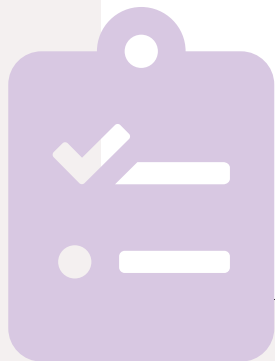
## Objectives and Performance Metrics

**Table 2.2: Goal I: Improve the safety of the transportation system  
FAST Act Planning Factor(s), Performance Measures, and Objective(s)**

FAST Act Planning Factor(s)	Performance Measure	Objective(s)
<b>SAFETY AND SECURITY</b>	I.1.1 Number of fatalities*	I.1 Reduce the deaths and serious injuries on our roads, bridges, and paths
	I.1.2 Rate of fatalities*	
	I.1.3 Number of serious injuries*	
	I.1.4 Rate of serious injuries*	
	I.1.5 Total Bus and Paratransit Fatalities*	
	I.1.6 Bus and Paratransit Fatalities (per 1M VRM)*	
	I.1.7 Total Bus and Paratransit Injuries*	
	I.1.8 Bus and Paratransit Injuries (per 100K VRM)*	
	I.1.9 Total Bus and Paratransit Safety Events*	
	I.1.10 Bus and Paratransit Safety Events (per 100K VRM)*	
	I.1.11 Bus and Paratransit System Reliability (VRM/Mechanical Road Calls)*	
I.2.1 Number of non-motorized fatalities and serious injuries*	I.2 Reduce the rate of deaths and serious injuries of people walking and biking	

\* Indicates that the performance measure is a federal requirement

VRM: Vehicle Revenue Miles





# COMMUNITY VOICES

● **A MŌ'ILĪ'ILĪ RESIDENT** who bikes to work every day chose safety as their top priority because they noted the need for greater investment in safer biking infrastructure and design. They noted that they do not feel safe using the bike lane on King Street because it is wedged between the sidewalk and parked cars, which obstructs the driver and biker's view of one another.

● **A WAIMĀNALO RESIDENT** recognized that people need to feel safe enough using non-automotive transportation modes, to move away from using their cars. This person stated that they would like to do more walking and biking, but don't currently feel safe using existing facilities.

● **A NĀNĀKULI RESIDENT** echoed the concerns of many of their neighbors about the large number of fatalities and other traffic incidents that occur along Farrington Highway. This person stated that the lack of sidewalks along Farrington Highway, the large number of cars on the road, and speeding cars were of particular concern.

● **A MĀKAHA RESIDENT**, who is the principal of a local elementary school, tied low attendance to the lack of safe routes to get to and from school. With parents leaving for work at 4:00 or 5:00 in the morning, children must navigate their way to school on their own. This community member compared their lack of safe infrastructure to affluent neighborhoods where there are sidewalks, good lighting, and good crosswalks.

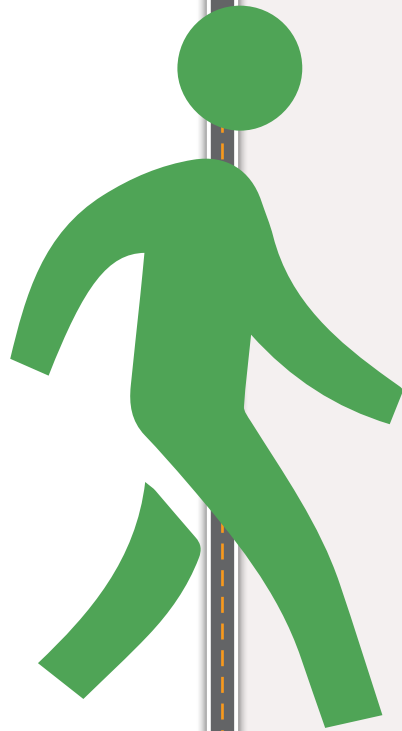
● **A HAU'ULA RESIDENT** shared with us that they know many people who have lost their lives on the road. This person works at a local elementary school and revealed that they know of at least two teachers who have been involved in crashes and worries about the safety of the students.

● **A KAIMUKĪ RESIDENT** shared that they personally know three people who have been impacted by crashes, two who have died in the crashes and the other who survived but will not be able to return to normal life.

● **AN 'ĀINA HAINA RESIDENT** chose safety as their top priority, because they've personally witnessed three bicycle crashes with cars.

● **A MAKAKILO RESIDENT** chose safety as their top priority because their neighborhood roads are unsafe due to a lack of crosswalks and drivers frequently speeding on roads in Makakilo.





## GOAL 2:

# Support active and public transportation

*Our path forward is more multi-modal*

**30-50%** of trips made by people driving alone are under 3 miles

(OahuMPO Travel Demand Forecasting Model, Version 6 and INRIX Report)

**14%** of residents carpool to work, among the highest in the country

(American Community Survey, 2018)

About 2/3 of O'ahu residents drive alone to work (American Community Survey, 2018), with the average trip being a little over eight miles (OahuMPO Travel Demand Forecasting Model, Version 6). Many residents drive for other purposes, such as to recreational activities, to get their groceries, among other things. However, between 30-50% of those driving for purposes other than work, drove less than three miles (OahuMPO Travel Demand Forecasting Model, Version 6). This means there is a tremendous opportunity for us to support active and public transportation, for O'ahu residents to be healthier and to reduce our transportation

emissions. If we can provide safe, convenient, reliable, and efficient active and public transportation, we may shift a good portion of those driving alone for short trips to healthier and environmentally sustainable modes. There is also a great opportunity to supplement our existing, primarily community led carpooling efforts. A little over 14% of residents carpool to work, one of the highest carpooling rates in the country (American Community Survey, 2018).





70% of O'ahu households are within one-quarter mile of a bus stop (American Community Survey, 2017 and 2017 General Transit Feed Specification). On O'ahu, the average commute time by public transportation takes about twice as long as the average commute by car. In 2018, the average commute by car, truck, or van took about 28 minutes, whereas the average commute by public transportation took 50 minutes, with those living west of the primary urban center experiencing much higher commute times by public transportation than residents living elsewhere on O'ahu (American Communities Survey, 2018). The average length of a trip made by public transportation is almost 5 ½ miles (OahuMPO Travel Demand Forecasting Model, Version 6).

Many island residents expressed the desire to have multiple transportation choices, particularly to not rely on their private vehicles. Those who conveyed that they were reluctant to switch their transportation mode voiced their desire for more frequent and reliable bus service, more TheHandi-Van service, and safer bicycling and pedestrian infrastructure. Those who live in rural and

## 70% of O'ahu households are within one-quarter mile of a bus stop

(American Community Survey, 2017 and 2017 General Transit Feed Specification)

urban fringe areas on O'ahu noted that TheBus and TheHandi-Van service is limited, compared to urban Honolulu, with some participants noting transit service averaging once every 30 minutes to an hour, and/or the need to make multiple transfers just to reach a destination only a few miles from their home. TheHandi-Van riders expressed frustration with long waits during peak morning and afternoon periods, an inefficient reservation system, lack of responsiveness by customer service staff, and the need for smaller vehicles (e.g., vans or SUVs) to accommodate those with special needs. O'ahu residents also acknowledged the importance of the health benefits of walking and biking, and desired safer and more comfortable places to engage in active lifestyles. Providing transportation choices that are safe, convenient, healthy, and reliable between jobs, housing, schools, services, and amenities is vital to the shared prosperity of island residents.

## Objectives and Performance Metrics

**Table 2.3: Goal 2: Support active and public transportation  
FAST Act Planning Factor(s), Performance Measures, and Objective(s)**

FAST Act Planning Factor(s)	Performance Measure	Objective(s)
<b>ENVIRONMENT, ENERGY CONSERVATION, AND QUALITY OF LIFE</b>  <b>INTEGRATION AND CONNECTIVITY</b>  <b>ACCESSIBILITY AND MOBILITY</b>  <b>TRAVEL AND TOURISM</b>	2.1.1 Commute mode share of people using active transportation	2.1 Increase commute mode share of people using active transportation
	2.1.2 Lane mileage of low stress bike facilities	
	2.2.1 Commute mode share of people taking transit for all trips	2.2 Increase commute mode share of people taking transit
	2.2.2 TheBus ridership	
	2.2.3 TheHandi-Van ridership	
	2.3.1 Commute mode share of people driving alone for all trips	2.3 Decrease commute mode share of people driving alone
	2.3.2 Commute mode share of people carpooling for all trips	
	2.3.3 Vehicle miles traveled per capita	



## Transit



- **A SALT LAKE RESIDENT** recognized that more people riding the rail and bus, means less cars on the road. This person stated however, that we need more investment in transit to make sure that it is convenient, otherwise people will not give up driving their car.
- **A PEARL CITY RESIDENT** envisions a transportation future where the rail and bus are well-integrated. This person recognized the need for direct and express bus service to rail stations for the two to be well-integrated, just as this resident experienced in Japan.

- Five years ago, **A KĀNE'ŌHE RESIDENT** did not see the value of prioritizing TheBus, TheHandi-Van, or Rail. That has changed, since this person's mother suffered a stroke. They now know firsthand what it takes to help a person with a disability like their mother. This resident relies on the TheHandi-Van to help get their mother around, especially to doctor's appointments. They compared the cost of the TheHandi-Van with other options, such as Uber and Lyft, and there was no way they could afford getting their mother around, if it was not for TheHandi-Van services.
- **A WAHIAWĀ RESIDENT** expressed the need to invest in TheBus, TheHandi-Van, and Rail as a means to improve safety and help get families to and from work. They acknowledged that Wahiawā is a commuter town, and that families need to have a good way to get to and from work. This resident expressed the desire to improve bus service to encourage more residents to take public transit. With less cars on the road, this may lessen the likelihood of people walking being hit by cars.

- **A MILILANI RESIDENT** indicated that investing in TheBus, TheHandi-Van, and Rail is a top priority because Central O'ahu is expecting more development in the future. This resident voiced the desire for more efficient, frequent, and reliable bus service, especially bus service to/from the rail, to better accommodate the increase in expected population and cars on the road, otherwise one would not be able to get their car out of their driveway due to traffic.
- **A HAWAI'I KAI RESIDENT** who does not own a car, relies on their mom for transportation most days. However, their mom is not able to take them to their internship in town. It currently takes 20 minutes to walk to the closest bus stop from their house. Their other option would be to bike for 40 minutes from their house to their internship and arrive sweaty.
- **A HAU'ULA RESIDENT** recognized that a large segment of their community's population is older and disabled. They conveyed the need for our transportation system to support this segment of our population.



## Walking and Biking

- **A KA'A'AWA RESIDENT** indicated that Kamehameha Highway is dangerous place to walk and bike. This person prioritized active transportation, as they recognized that there aren't very many paths or sidewalks for walking and biking, in Ko'olauloa.
- **A KAKA'AKO RESIDENT** envisions a transportation future where we would decrease the number of car lanes and increase the width of pedestrian and bicycle lanes. The reason this person chose active transportation as their top priority, is that they believe that a greater investment in pedestrian and bicycle infrastructure will increase the safety of bicyclists and pedestrians, and drivers would also be more sensitive and aware of the space between themselves, bicyclists, and pedestrians.
- **A WAHIAWĀ RESIDENT** noted that you can't have active transportation, if it's not safe. Without safe infrastructure, a community can't promote safe routes to school and healthy living.
- **A HAWAI'I KAI RESIDENT** mentioned that they do not feel safe biking in the bike lanes and wishes the bicycling infrastructure was separated and elevated from traffic, and well-lit, just like in the Netherlands.



- **A KAILUA RESIDENT** recognized the connection between safe infrastructure, the number of people walking, and traffic levels. This person chose active transportation as their top priority, noting that if sidewalks and paths are safer, then people are more likely to walk, and less likely to drive, especially in their neighborhood. The participant also mentioned that safer infrastructure will also help people be healthier, due to an increase in physical activity.
- **A LILIHA RESIDENT** envisions a transportation future where we invest more in making ADA accessibility improvements to help make it easier for those with disabilities to get around.
- **A NU'UANU RESIDENT** envisions all vehicular roads turned into bike facilities, and everyone on O'ahu would bike and be healthy.

## Decrease SOV

- **A LILIHA RESIDENT** envisions a transportation future where we decrease the need for people to transport themselves places, including encouraging more people to work from home. This person noted that if people do need to get somewhere, we would increase carpool usage.



## GOAL 3:

# Promote an equitable transportation system

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### *Our path forward is equitable*

One of the largest transportation challenges people in historically marginalized communities face is their disproportionate transportation costs. The cost of transportation is 34 percent higher for O‘ahu residents than the national average (Ola O‘ahu Resilience Strategy, 2019). A major contributing factor is the price of gasoline and diesel, among the highest in the country (Ola O‘ahu Resilience Strategy, 2019). Pair that with the high cost of housing, particularly in the urban core of Honolulu, where most jobs are, and many residents relocate to marginally more affordable suburban neighborhoods. This has led to increasing commute times, distances, and

associated transportation costs, while encouraging urban sprawl. Urban sprawl further exacerbates issues of access to services and amenities for those who don’t live in the urban core. As a result, people are forced to be dependent on their vehicles, experience long transit travel times, and/or those services and amenities being inaccessible.

Island residents who stated that equity was their first priority did so primarily for three reasons, (1) concerns about transportation affordability, (2) the lack of transportation investment in their communities, and (3) their lack of access to jobs, schools, services, and other amenities.



## Transportation Affordability

O'ahu residents expressed their concerns about the costs associated with driving and taking transit. Many who noted their concerns about the high costs associated with driving, also expressed the desire for reliable and efficient alternatives to driving to mitigate those high costs.



**+34%**

The cost of transportation is 34 percent higher for O'ahu residents than the national average

## Transportation Investment

Those primarily located in the rural areas of O'ahu, felt that their communities lack investment in their transportation facilities. Many compared their transportation facilities to those in urban Honolulu and/or affluent areas of O'ahu and noted their lack of certain facilities and how poorly maintained their existing facilities are.

## Lack of Access

Island residents indicated their frustration with the lack of amenities near where they live. They revealed their desire to not drive both within their community and outside of their community just to get to most destinations and services they use every day. Instead, many residents envision a future where they could access their jobs, schools, services, and other amenities ideally by foot, otherwise by bicycle or transit. Residents also stated challenges around infrequent and unreliable bus service, topography, unsafe infrastructure, lack of sidewalks, and shade/trees also make accessing amenities unsafe and/or uncomfortable.

## Objectives and Performance Metrics

**Table 2.4: Goal 3: Promote an equitable transportation system**  
**FAST Act Planning Factor(s), Performance Measures, and Objective(s)**

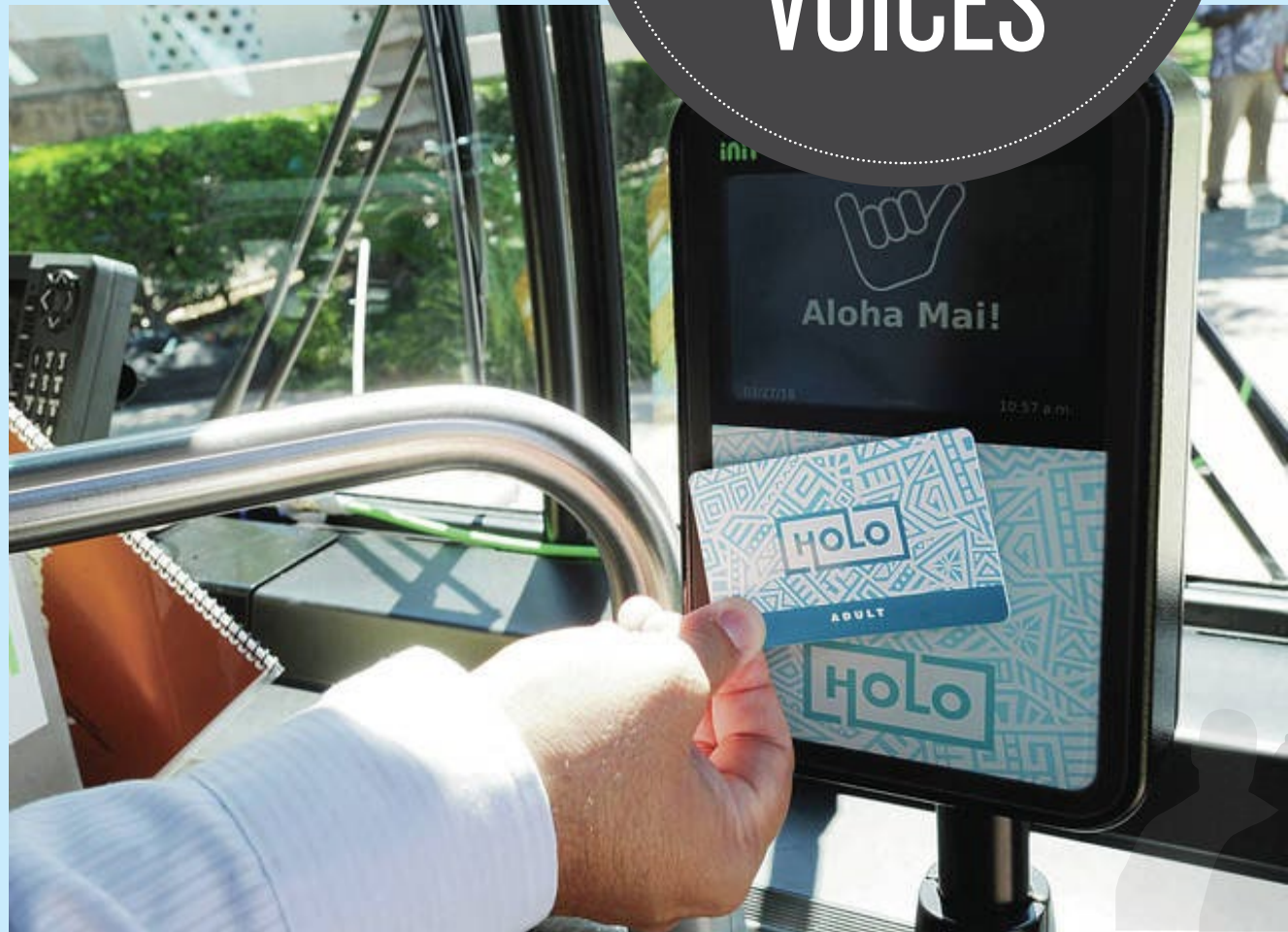
FAST Act Planning Factor(s)	Performance Measure	Objective(s)
<b>QUALITY OF LIFE ACCESSIBILITY AND MOBILITY</b>	3.1.1 Percent of households within 1/4 mile of a transit stop	3.1 Increase access to pedestrian, bicycle, and transit options for mobility constrained populations
	3.1.2 Percent of jobs within 3/4 mile of a transit stop	



## Lack of Access

- **A NU'UANU RESIDENT** envisions a transportation future where people can live, work, and play in the same area, just like in urban Honolulu. This person would like to see a holistic approach to this, while also taking into consideration the needs of specific communities.
- **A WAI'ALAE** grandma shared that she has grandchildren that live in different parts of the island. She chose equity as her top transportation priority, because she recognized the importance of having a reliable transportation system that allows all people to travel where they need to go, despite where they live, just like her grandchildren.
- **A MILILANI RESIDENT** indicated that equity is their top priority because they feel it is important that everyone has equitable access to different transportation options. In particular, they voiced the need to make it easier for all people to access the bus.
- **A KA'A'AWA RESIDENT** chose equity as their top priority because of the lack of access to many amenities and services in their community. They cited that many of Ko'olauloa's amenities and services have been moved to town, like their Satellite City Hall. This person would like the ability to access necessary amenities and services without having to go to town.

- **A MĀ'ILI RESIDENT** noted how difficult it was to reach all of their needed amenities within in their neighborhood. This person chose equity as their top priority because they believe that you should be able to access all one's amenities without having to travel to town.



## Transportation Affordability

- **A WAI'ANAE RESIDENT** envisions a transportation future where TheBus and other forms of transit are free. This participant recognized that the cost of transportation makes up a large portion of people's income and hits low-income people particularly hard.
- **A KAHANA RESIDENT** recognized that many of our most needy people, cannot afford to own and drive a car. This person recognized the importance of prioritizing TheBus because it provides a way for our neediest people to get around. However, this person stressed the need for TheBus to be reliable.
- **A FOSTER VILLAGE RESIDENT** chose equity as their top transportation goal because they believe that all people should have an affordable and dependable mode of transportation.
- **A KALIHI RESIDENT** expressed the belief that all individuals regardless of his or her economic situation should have equal access to quality, affordable transportation.

## Transportation Investment

- **A KALIHI RESIDENT** noted that nicer neighborhoods have nicer bus stops, with many bus stops in Kalihi in disrepair or are uncomfortable. This participant stated that, where you live determines the quality of a community's transportation facilities and impacts the transportation options a person has. A Mā'ili, Mākaha, Nānākuli and Wai'anae resident expressed their frustration that the folks on the Wai'anae Coast pay the same amount of taxes, but little investment and transportation improvements are made in their community. This participant noted that if you compare the pedestrian infrastructure along the Wai'anae Coast to other places on O'ahu, it is much more dangerous to walk in Wai'anae, than elsewhere.
- **A WAIALUA RESIDENT** chose equity as their top priority because they felt that the North Shore and other rural parts of O'ahu don't receive nearly as much investment as urban Honolulu, and other more urban parts of the island. This participant noted that though the residential population on the North Shore is small, additional transportation investment in sidewalks, bike paths, road maintenance, and transit is needed due to the large number of tourists.
- **AN 'EWA RESIDENT** recognized that compared to 'Ewa and wealthier neighborhoods on O'ahu, Wai'anae roads are in poor condition, they lack bike routes and sidewalks. This person chose equity as their top priority because they believe Wai'anae needs greater investment to improve the quality of their transportation facilities.





## GOAL 4:

# Improve the resiliency of the transportation system

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### *Our path forward is resilient*

In the future, O‘ahu is expected to experience an increase in sea level rise and heavy rainfall. The Hawai‘i Sea Level Rise Vulnerability and Adaptation Report states that with 3.2 feet of sea level rise, almost 18 miles of O‘ahu’s coastal roads would become impassible, jeopardizing access to and from many communities. Moreover, the report estimates that this level of sea level rise could displace over 13,000 residents.

Regarding rainfall, according to Hawai‘i’s Changing Climate: Legislative Briefing Sheet 2010, recent years have seen decreases in rainfall levels, but the amount of rain falling in the heaviest downpours (defined as the heaviest 1 percent of all events) has increased approximately 12 percent in Hawai‘i between 1958 and 2007. Heavy rainfall can present challenges for our emergency management agencies and first responders, as well as trigger other severe events, such as flash flooding, mudslides, and large debris flowing over roads and bridges.

A resilient transportation system will require a coordinated effort. Preparing and protecting our island’s transportation infrastructure for climate change is a complex and large-scale challenge that will require unprecedented shifts in policies and coordination among City and State agencies, the federal Government, private sector, and non-profit groups.



As an island community, residents are acutely aware of our vulnerabilities to climate change and the impacts we are already experiencing, more frequent heavy rainfall and flooding, and sea level rise, among other things. Residents, particularly on the Wai'anae Coast and those living in the Ko'olauloa region expressed the urgent need for our transportation system to be resilient. Residents expressed concerns about our transportation system being prepared for the immediate impacts of more frequent heavy rainfall and flooding, as well as the short and long-term impacts of sea level rise. Residents also voiced their concerns about the ability for their communities to be able to enter/exit their neighborhoods to access things such as food and vital services, if roadways are closed due to severe disasters.

3.2 feet of sea level rise would cause 18 miles of O'ahu's coastal roads to become impassible, and **displace over 13,000 residents**



## Objectives and Performance Metrics

**Table 2.5: Goal 4: Improve the resiliency of the transportation system  
FAST Act Planning Factor(s), Performance Measures, and Objective(s)**

FAST Act Planning Factor(s)	Performance Measure	Objective(s)
<b>RESILIENCY AND RELIABILITY</b>	4.1.1 Redundant access for people with one road in and out	4.1 Provide redundant emergency access to all parts of O'ahu, especially for people and emergency responders in singular access communities
	4.1.2 Bus service provision during emergencies	
	4.2.1 Percent of roadways within the 6 ft sea level rise exposure area	4.2 Reduce the long-term vulnerability of O'ahu's transportation facilities, particularly flooding and sea level rise caused by climate change and disaster risks, while being conscious of environmental and cultural impacts



● **A KA'A'AWA RESIDENT** envisions a transportation future where we move high-risk coastal roads inland. This resident expressed the urgency to move these roads inland, now, as every year their community faces road closures due to the need for emergency repairs, and increased sea level rise and flooding will only exacerbate this.

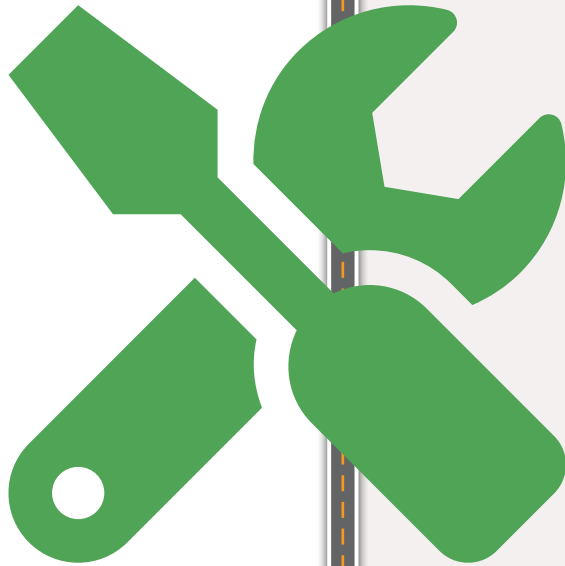
● **A KAHANA RESIDENT** envisions a transportation future where we raise Kamehameha Highway and other high-risk coastal roads to mitigate the impacts of sea level rise. This person advocated for raising the highway, rather than relocating the highway inland, to protect the freshwater sources present in their community.

● **A HAU'ULA RESIDENT** chose resiliency as their top priority, noting that any time there are landslides on Pali Highway and Likelike Highway, the Ko'olauloa community is severely impacted.

● **A NIU VALLEY RESIDENT** recognized that we live on an island and will be impacted by climate change. They mentioned that the floods of 2018 flooded Kalaniana'ole Highway, which impeded residents from going anywhere.

● **A KA'A'AWA RESIDENT** voiced concerns about whether O'ahu's transportation facilities are prepared for sea-level rise and flooding, especially Kamehameha Highway. This person noted that their community could lose a large portion of Kamehameha Highway due to impending disasters and the need to be prepared.





## GOAL 5:

# Preserve and maintain the transportation system

### *Our path forward is maintained*

O'ahu, and Hawai'i as a state face unique maintenance challenges. Challenges related to O'ahu's location in a tropical zone, predominant coastal environment, geologic and topographic factors, and dependence on imported supplies make maintenance of our transportation facilities expensive and difficult. In addition, many of O'ahu's transportation facilities are vulnerable to the impacts of climate change and sea level rise, as discussed in the resilience section.

With the growing gap between funding needs and availability, there is a need to invest more in maintaining and preserving existing transportation facilities and extending the life of facilities to the

greatest extent possible. In addition, the ability to adequately invest in maintenance and regular replacement of aging transit vehicles has a direct impact on the safety, reliability, and overall quality of transit services

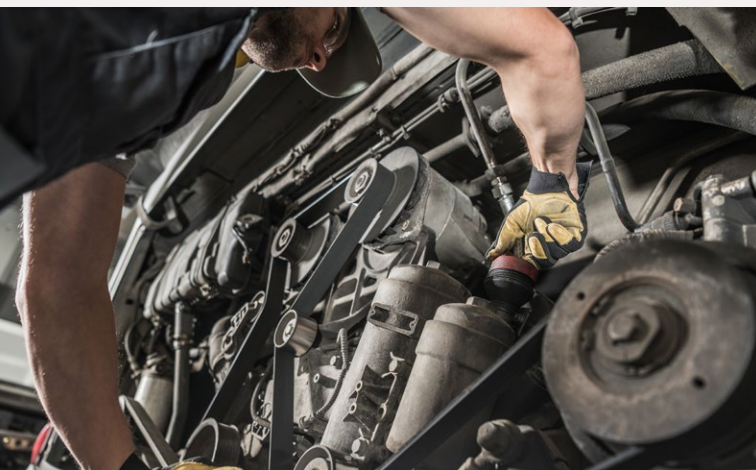
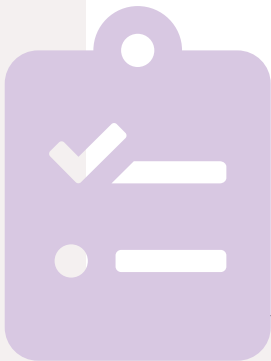
O'ahu residents recognized the need to better maintain our transportation facilities. Many voiced concerns about the quality of our roads, with potholes being a common concern. In addition, residents were concerned about the quality of our sidewalks, noting that some sidewalks were uneven and/or tree roots have uprooted the sidewalk. Others voiced their concerns about the quality of our transit vehicles and facilities.

# Objectives and Performance Metrics

**Table 2.6: Goal 5: Preserve and maintain the transportation system**  
**FAST Act Planning Factor(s), Performance Measures, and Objective(s)**

FAST Act Planning Factor(s)	Performance Measure	Objective(s)
<b>PRESERVATION</b>	5.1.1 Percentage of pavements on the Interstate classified in good condition	5.1 Maintain and improve the condition of roadways, bridges, transit vehicles and facilities, and pathways
	5.1.2 Percentage of pavements on the Interstate classified in poor condition	
	5.1.3 Percentage of non-Interstate NHS pavements classified in good condition	
	5.1.4 Percentage of non-Interstate NHS pavements classified in poor condition	
	5.1.5 Percentage of NHS bridge classified in good condition	
	5.1.6 Percentage of NHS bridge classified in poor condition	
	5.1.7 Percentage of transit revenue vehicles that have met or exceeded their useful life benchmark for articulated buses, buses, cutaway buses, and vans	
	5.1.8 Percentage of transit service vehicles that have either met or exceeded their useful life benchmark for automobiles, trucks, and other rubber tire vehicles.	
	5.1.9 Percentage of transit passenger and maintenance facilities rated below condition 3 on the condition scale for passenger facilities, passenger parking facilities, maintenance facilities, and administrative facilities.	
	5.1.10 Percentage of pedestrian and bicycle facilities in good condition and poor condition (information forthcoming in the O'ahu Pedestrian Plan and O'ahu Bicycle Plan)	

NHS: National Highway System

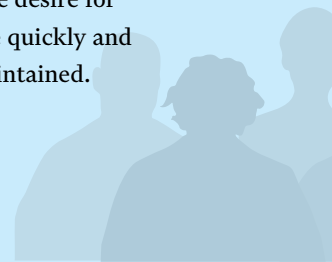


● **A KĀHALA RESIDENT** recognized the importance of having a well-maintained transportation system. This person noted the safety implications, as well as its potential impacts on how people make their transportation choices. The participant indicated that residents may be more inclined to walk or bike, if those facilities are safe and well-maintained.

● **AN ĀLIAMANU RESIDENT** envisioned a transportation future where all of our transportation facilities are well-maintained so that they are safer for pedestrians, bicyclists, and drivers alike.

● **A MOKULĒ'IA RESIDENT** envisions a transportation future where we invest more in maintaining our roads. This person noted that for example, road repairs sometimes take months or years, before a repair crew is sent out to fix the issue.

● **A KAPOLEI RESIDENT** noted that many of the roads they drive on are in poor condition, with many potholes. This person expressed the desire for potholes to be fixed more quickly and for roads to be better maintained.





## GOAL 6:

# Support a reliable and efficient transportation system

*Our path forward is reliable and efficient*

Due to our island geography, land-use patterns, and concentration of jobs in the primary urban core, about two-thirds of O'ahu residents drive alone to work (American Community Survey, 2018). Also referred to as single occupancy vehicles, driving alone exacerbates traffic congestion and commute times. In fact, from 2009 to 2017, O'ahu saw an 81% increase in the number of people (100 people to 181 people) who spend at least three hours commuting a day, even though the total work force only increased by 10.5% (Number of 'super commuters' in Honolulu jumps 81% since 2009, study finds, Pacific Business News, 2019). Compare O'ahu's 81% increase to the 32% nationwide increase in "super commuters", and it becomes apparent that island residents are

suffering from long commutes more so than many of our counterparts elsewhere (Number of 'super commuters' in Honolulu jumps 81% since 2009, study finds, Pacific Business News, 2019). Driving alone not only takes a toll on the reliability and efficiency of our commute, but also negatively impacts our air quality, quality of life, health, well-being, and our wallets.

O'ahu's freight network is a major component of the state's economic success. Freight supports jobs in freight-dependent businesses such as tourism and the retail trade. Approximately one-third of Hawai'i's economic output is directly dependent on freight—primarily the accommodation and food service, retail trade, and construction sectors

(Hawaii Statewide Freight Plan, 2018). These freight dependent sectors of the economy employ nearly 350,000 people, representing 38 percent of the total employment in Hawai'i (Hawaii Statewide Freight Plan, 2018). In addition, the freight network is needed to deliver the goods necessary for our island's survival. More than 80 percent of all goods consumed in Hawai'i are imported (Hawaii Statewide Freight Plan, 2018). The state is highly dependent on the efficient distribution of goods for survival. Freight operations generally operate so 90% of deliveries are on-time or earlier (Hawaii Statewide Freight Plan, 2018). Reducing the variability of travel time reduces the amount of extra time needed to ensure on-time deliveries and supports our economy.

# Objectives and Performance Metrics

**Table 2.7: Goal 6: Support a reliable and efficient transportation system**  
**FAST Act Planning Factor(s), Performance Measures, and Objective(s)**

FAST Act Planning Factor(s)	Performance Measure	Objective(s)
<b>RELIABILITY</b>	6.1.1 Percent of Persons-Miles Travelled on the Interstate are reliable	6.1 Improve the reliability of Interstate and Non-Interstate highways, freight networks, and transit
	6.1.2 Percent of Persons-Miles Travelled on the Non-Interstate are reliable	
	6.1.3 Truck Travel Time Reliability (TTTR) Index on Interstate System	
<b>ECONOMIC VITALITY</b>	6.2.1 Travel time of transit	6.2 Improve the efficiency of Interstate and Non-Interstate highways, freight networks, and transit



O’ahu, and the rest of the country have seen a steady increase in e-commerce, even before COVID-19 restrictions were put in place. More than 10 years ago, e-commerce was at 5.1% of total retail purchases, and it now accounts for 16% of total retail purchases (A decade in review: Ecommerce sales vs. retail sales 2007-2019, 2020). This significant increase in e-commerce has implications on our transportation system. Impacts locally have not been studied, but in general the impacts e-commerce has on our transportation system are increased congestion, vehicle miles travelled, local air pollutant emissions, and carbon dioxide emissions, especially with the rise of 2-day shipping, 1-day shipping, and even 1-hour shipping. As delivery times decrease, the environmental and societal

cost significantly increase (Keeping e-Commerce Environmentally Friendly—What Consumers Can Do, 2020). In order for goods to be delivered in a shorter period of time, delivery vehicles may depart before they are completely full, and the vehicle may not operate on an optimized route. Vehicles delivering goods with a one-day delivery timeframe can make 120-300 deliveries, while a vehicle delivering goods with a one-hour timeframe, can make only 10-15 deliveries (Keeping e-Commerce Environmentally Friendly—What Consumers Can Do, 2020). In theory, e-commerce should be the more environmentally friendly alternative to shopping in-store. When delivery vehicles drive an optimized route and operate when the vehicle is full, it produces less pollution and traffic congestion than if individuals

drove their personal vehicles to the store and back home. In reality, this is not the case for many people. People tend to buy one item at a time when online shopping, rather than multiple items, like when they shop in-person.

From 2009 to 2017, O’ahu saw an **81% increase** in the number of people who spend **at least three hours commuting a day**

(Pacific Business News, 2019)



O’ahu residents shared their concerns about the reliability and efficiency of our transportation system, with many of them worried about getting to work and school on time. Others have expressed their frustration with their long commutes driving and/or on TheBus. Some of those who ride TheBus revealed stories about how buses arriving early and late, or not arriving at all have negatively impacted their perception of TheBus as a reliable means of transportation.



# COMMUNITY VOICES

## Reliability

- **A KAPOLEI** mother drives her two children to different schools, on different parts of the island. She conveyed the importance of having a reliable and efficient transportation system so that she can get her children to school on time, and herself to work in a timely manner.
- **A KAHANA RESIDENT** stated that due to the dangerous conditions of roads in Kahana, the road is often closed due to the weather, crashes, etc. This person expressed the desire to know about road closures ahead of time, so they know what to expect, or choose to take their trip another time. At the moment, this person gets road closure information from a community Facebook group.
- **A KAHANA RESIDENT** expressed the importance of a reliable transportation system so that they can get to their job on time. This

person revealed that they leave their house at 6:00AM in order to have a more reliable commute due to traffic congestion. However, they indicated that flooding and rockfalls have impacted their commute in the past, and that leaving early helps them to take into consideration unexpected occurrences.

- **A HAU'ULA RESIDENT** shared that they visit their Mom in town on the weekends and conveyed the importance of a reliable transportation system. This person expressed that it is really difficult for them to know whether they should drive the long route due to unexpected delays.
- **A HALE'IWA RESIDENT**, who runs a tourism company mentioned that clients increasingly do not want to rent a car when they visit O'ahu. However, many of them feel obligated to, as public transit is not reliable. This person noted that they have traveled to Japan, Singapore, and places in Europe, and enjoy using those public transit systems because one can get anywhere reliably and efficiently.
- **A MILILANI RESIDENT** recognized that the economy is impacted by the movement of goods. This person envisions a transportation future where we improve the coexistence of commercial and private vehicles on the road. For example, it was suggested that we consider not allowing freight vehicles on the road during peak traffic hours.

## Efficiency

- **A KULI'OU'OU RESIDENT** envisions a more efficient and reliable transportation future by staggering school start times and increasing the number of students using school buses. This person noted that traffic is less congested when school is out.
- **A HALE'IWA** student used to catch the bus to the University of Hawai'i at Mānoa. However, this person no longer catches the bus because of increasing commute times. This participant would like to catch the bus to campus but would like to see TheBus be more efficient.
- **A PŪPŪKEA RESIDENT** noted that there is a lot of traffic near Laniākea Beach. This person envisions there being a park-and-ride in a nearby community, and a shuttle service to Laniākea Beach to mitigate traffic and safety concerns in the area.
- **A WAIĀHOLE RESIDENT** chose reliability and efficiency as their top priority as they felt that traffic lights can be improved and synchronized to facilitate better traffic flow.





## GOAL 7: Improve air quality and protect environmental and cultural assets

*Our path forward has better air quality and enhanced and protected environmental and cultural resources*

Ground transportation produces  
**20% of all carbon pollution**  
on O'ahu

(Ola O'ahu Resilience Strategy, 2019)



### Air Quality

In 2017, the City and County of Honolulu committed to achieving 100% renewable fuel use for ground transportation for all City fleets by 2035 and all private vehicles by 2045. This is of particular importance for the health and well-being of the island, and its people, as ground transportation emissions make up a fifth of all carbon pollution on O'ahu (Ola Oahu Resilience Strategy, 2019). In addition, our reliance on imported energy keeps us exposed to price volatility and high annual transportation costs.

Transforming our transportation system to use renewable fuels and/or non-automotive modes will not only decrease greenhouse gas pollution, but it will also reduce our island's dependence on imported crude oil and lower operating, maintenance, and other long-term costs. It will improve ambient air quality and public health by reducing respiratory ailments associated with petroleum pollutants, as well as has the potential to decrease noise pollution.



## Environmental and Cultural Resources

O'ahu is home to a unique variety of plant and animal species. Often nicknamed the “Endangered Species Capital of the World,” the State of Hawai'i is home to 437 threatened and endangered species (U.S. Fish and Wildlife). Given that O'ahu is the most developed and populated island in the Hawaiian chain, plant and animal species often face greater threats of the loss and degradation of habitats, due to the negative impacts of the existing transportation system, construction of transportation projects, and stormwater runoff. These concerns may also apply to impacts on our cultural resources.



## Objectives and Performance Metrics

**Table 2.8: Goal 7: Improve air quality and protect environmental and cultural assets**  
**FAST Act Planning Factor(s), Performance Measures, and Objective(s)**

FAST Act Planning Factor(s)	Performance Measure	Objective(s)
<b>ENVIRONMENT, ENERGY CONSERVATION, AND QUALITY OF LIFE</b>	7.1.1 Nitrogen Oxide emissions related to ground transportation	7.1 Reduce ground transportation greenhouse gas emissions
	7.1.2 Volatile Organic Compounds emissions related to ground transportation	
	7.1.3 Particular Matter (PM2.5) emissions related to ground transportation	
	7.1.4 Carbon monoxide emissions related to ground transportation	
	7.2.1 Number of projects located outside of a 150ft buffer of Hawai'i Department of Land Natural Resources (DLNR) Conservation Resource Management Areas, C1 (High Conservation Resources) and C2 (Medium Conservation Resources)	7.2 Enhance and protect cultural and natural resources
	7.2.2 Number of projects located outside of a 150ft buffer of Watershed Protection Priority Areas*	
	7.2.3 Number of projects located outside of a 150ft buffer of Natural Resources Areas*	
	7.2.4 Number of projects located outside of a 50ft buffer of historic sites	

\* Includes areas owned and/or managed by state and local agencies, as well as private parties



## Air Quality

- **A DOWNTOWN RESIDENT** who works in conservation recognized the importance of how our transportation choices impact the natural environment. Because of the work they do, this participant chose resiliency and environment as their top transportation priority as they feel we need greater investment in alternative modes of transportation that wouldn't have detrimental impacts on the environment, such as bike lanes and pedestrian walkways.
- **A MĀNOA RESIDENT** envisions a transportation future where vehicles, including buses don't pollute the air. This person chose health and air quality as their top priority recognizing the negative impacts that conventional vehicles have on our air quality.

## Environmental & Cultural Resources

- **A KALIHI RESIDENT** envisions a transportation future where we prevent cars from accessing environmentally sensitive areas. This person noted the negative impacts cars and people can have on these areas, including habitat destruction, erosion, and rubbish left in these areas.

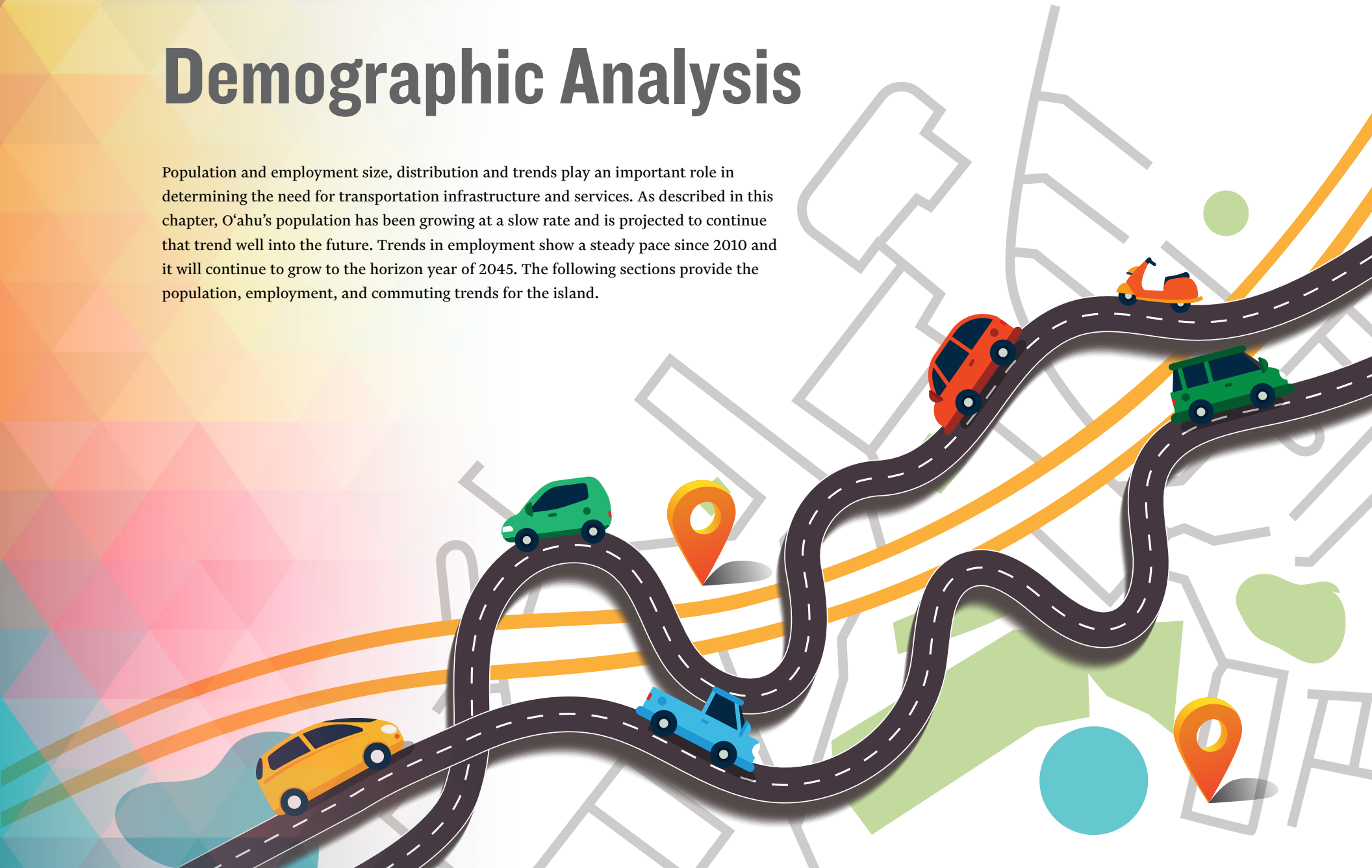




## CHAPTER THREE

# Demographic Analysis

Population and employment size, distribution and trends play an important role in determining the need for transportation infrastructure and services. As described in this chapter, O'ahu's population has been growing at a slow rate and is projected to continue that trend well into the future. Trends in employment show a steady pace since 2010 and it will continue to grow to the horizon year of 2045. The following sections provide the population, employment, and commuting trends for the island.





## Demographic Trends and Projections

### Population Trends

Over the last 70 years, the region has experienced significant resident population growth, rising from 500,409 in 1960 to 1,010,123 in 2020 (2010 U.S. Census). By 2045, that population is expected to increase by 6.3% (1,073,796). Figure 3.1 shows the resident population trends in the region. Most of the increase in population is accounted for by the size and rate of increase in population in the Primary Urban Center (PUC). The population share of the PUC is estimated to be 46% of the island's population, as of 2020.

Figure 3.2 depicts that although the region has experienced some growth during the past 40 years, population density in and around downtown Honolulu and other small areas in East Honolulu, 'Ewa, Pearl City, and Kāne'ohe is still relatively low (less than 2,000 persons per square mile). This illustrates that residential development has been primarily suburban in nature and has taken place at the urban fringe.

Figure 3.1: O'ahu Regional Population Trend (1960-2020)

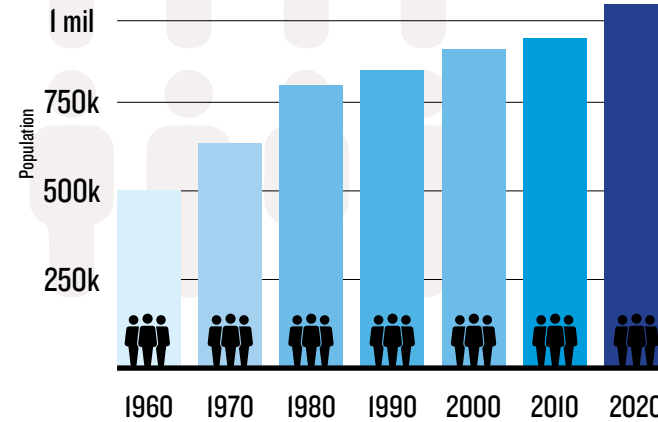
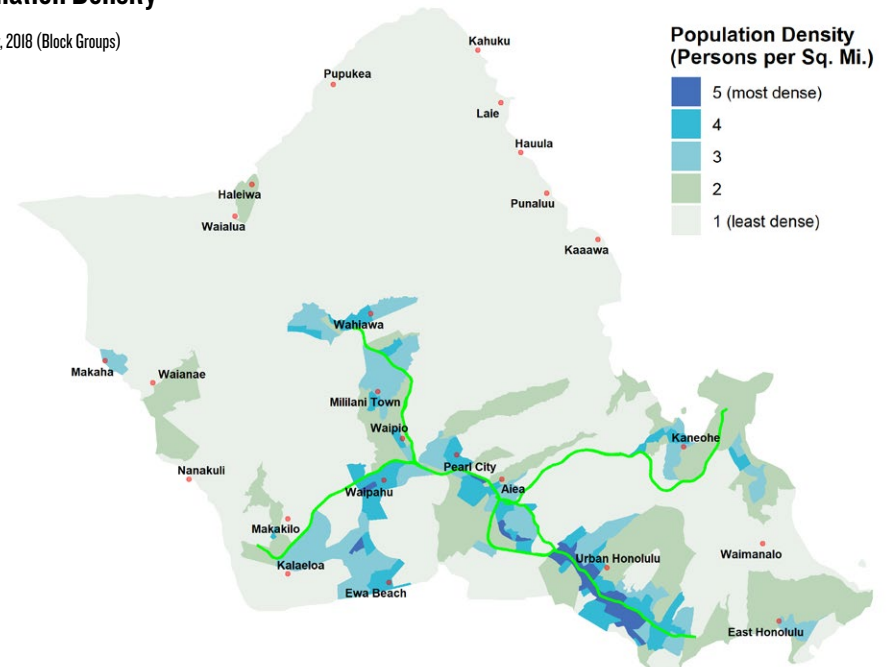


Figure 3.2: 2018 Population Density

Source: 5-year American Community Survey, 2018 (Block Groups)



## Population Projections

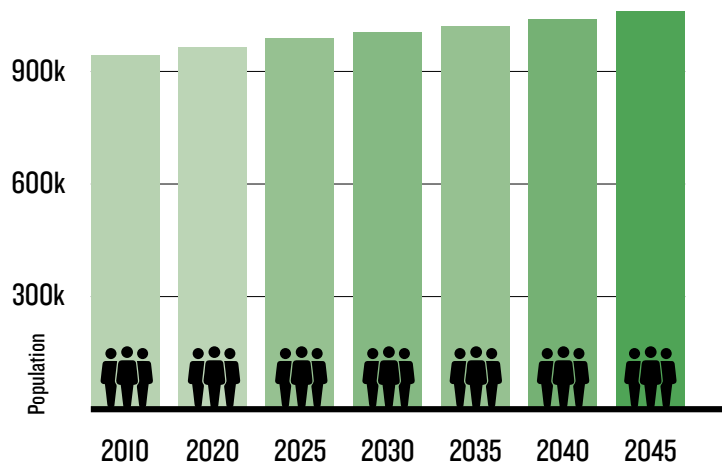
The population and employment estimates for the region were developed for the Travel Demand Forecasting Model to forecast transportation infrastructure needs to the horizon year of 2045. These projections were developed for 2030, 2035, 2040, and 2045 using regional control totals from the Department of Business, Economic Development, and Tourism (DBEDT). The regional population forecast from DBEDT shows a steady but slow population growth rate of between 0.1 and 0.4%. Figure 3.3

shows the regional population forecast. Generally, the spatial distribution of forecasted growth follows the trajectory of the past. The relative population rank of each DPA appears to be preserved and the future population of each DPA continues to ascend, except for 2045 where DBEDT forecasts a slight decline in population.

very similar to that of 2018 population density despite adding about 60,000 people to the region. This dispersed population pattern in Honolulu and other small areas in East Honolulu, 'Ewa, Pearl City, and Kāneʻohe will continue to stress public infrastructure and make public transportation infrastructure expansion economically unfeasible.

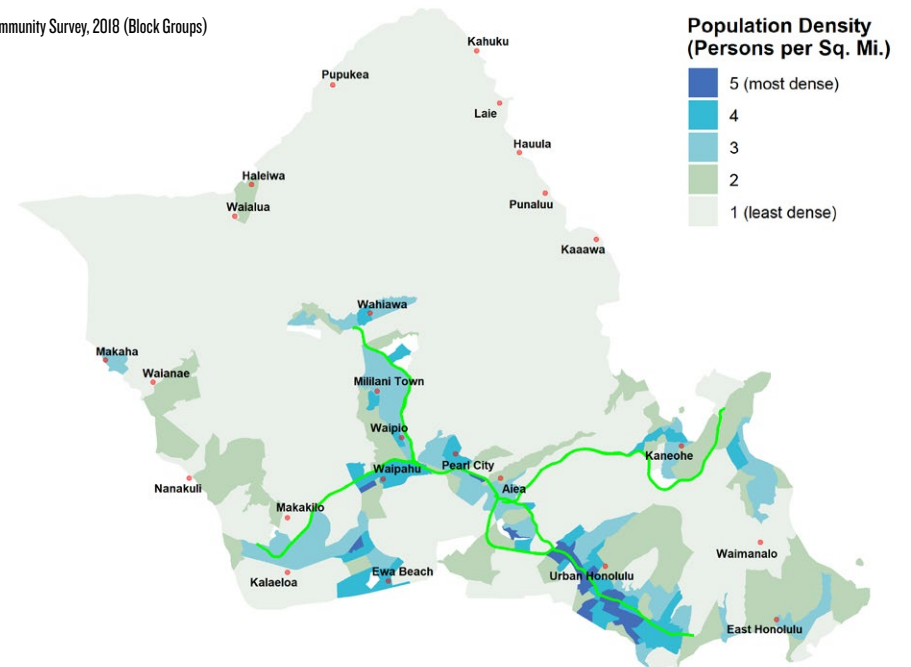
Figure 3.4 shows the 2045 population density controlled by DBEDT's regional forecast; it looks

**Figure 3.3: Regional Population Forecast**



**Figure 3.4: 2045 Population Density**

Source: 5-year American Community Survey, 2018 (Block Groups)

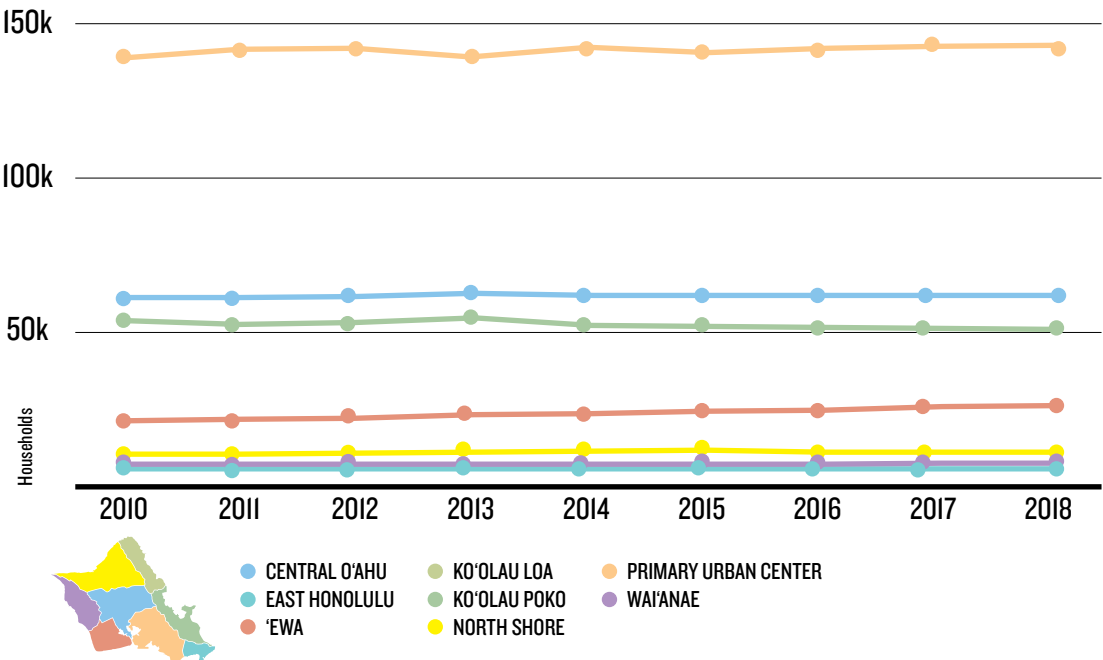


## Household Trends

The Census Bureau defines a household as all the persons who occupy a housing unit as their usual place of residence. A housing unit is a house, an apartment, a mobile home, a group of rooms, or a single room that is occupied (or if vacant, is intended for occupancy) as separate living quarters. Separate living quarters are those in which the occupants live and eat separately from any other persons in the building and which have direct access from outside the building or through a common hall. The occupants may be a single family, one person living alone, two or more families living together, or any other group of related or unrelated persons who share living arrangements.

In 2018, there were 311,525 households in the region; this represents 6,698 additional households added in the region (a 2.2% increase) since 2010. Central O’ahu and the PUC are the dominant population centers with over 50,000 households in each DPA. Figure 3.5 shows the household trends in the region from 2010 to 2018.

Figure 3.5: Household Trends in Region from 2010 to 2018



# Employment Trends and Projections



## Employment Trends

As with population, the region's employment base has also grown since 2010. It is estimated that in 2020, there would be approximately 604,221 jobs available, up from the 557,256 jobs available in the region in 2010.

Figure 3.6 shows unemployment trends in the region, Hawaii and the United States. While the unemployment rate in the region follows the state and national trends, for the most part, the unemployment rate in the region has been lower than that of the state and the country. The lower unemployment rates in the region is partly the result of high number of U.S. military and government workers that reside in the region. in each DPA. Figure 3.6 below shows the household trends in the region from 2010 to 2018.

As shown on Figure 3.7, the 2020 employment density (number of jobs per square mile) in the Region, much like the population densities shown in Figure 3.2 (2018), is relatively low. The largest concentrations of employment occur in and around Honolulu, 'Ewa Beach, Pearl City, Kāne'ohe, Waipahu, Mililani, Wahiawā, Kalaeloa, and Wai'anae, among others.

Figure 3.6 : Unemployment Rates (1980 - 2015)

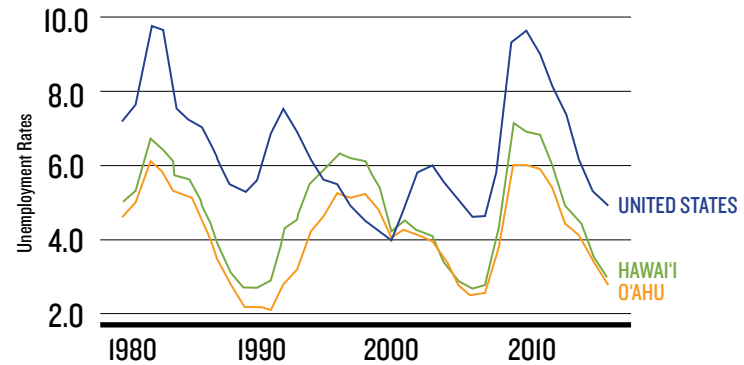
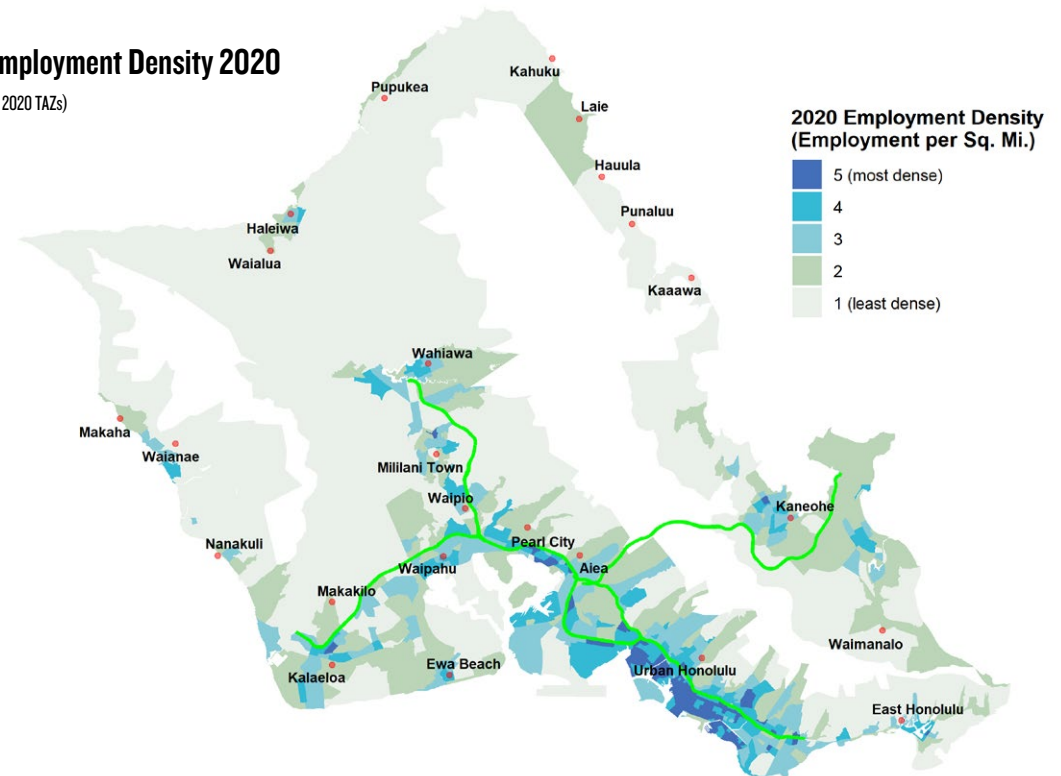


Figure 3.7: Employment Density 2020

Source: TDFM (Version 7, 2020 TAZs)



## Employment Projections

It is projected that by 2045 the region’s employment will grow to 753,473 jobs. At an increase of 28%, PUC is projected to experience the most job growth (by percentage) from 2010 to 2045. Please refer to Figure 3.8 for employment projections by DPA.

Figure 3.9 shows the projected 2045 employment density in the region in 2045, controlled by DBEDT’s control totals. The employment patterns are still largely suburban, low density.

Figure 3.8: Employment Projections by DPA

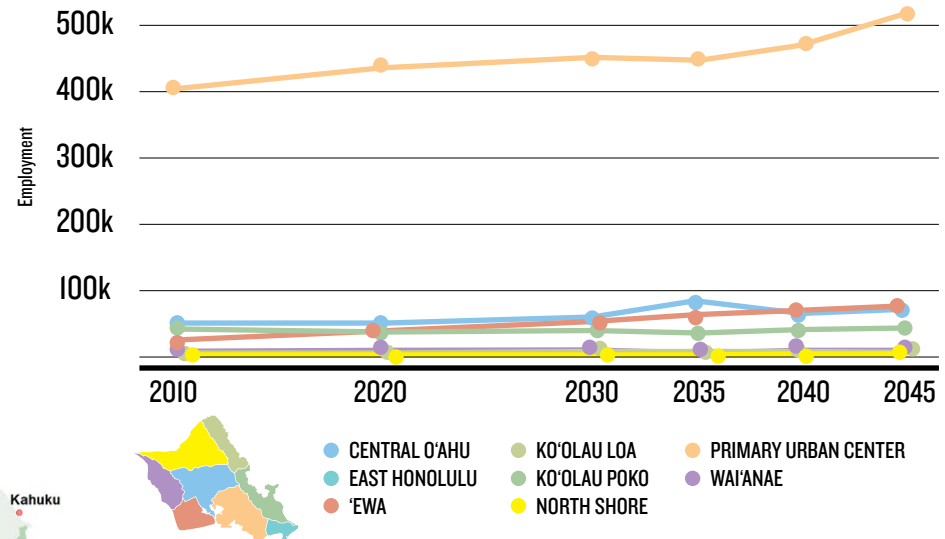
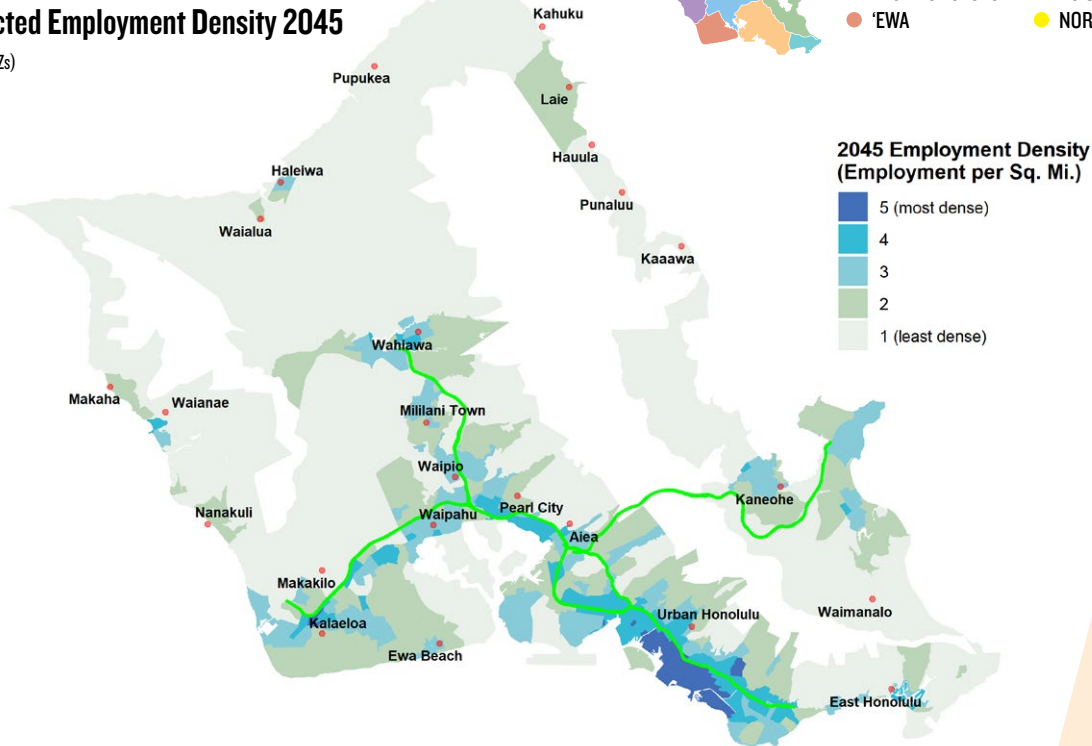


Figure 3.9: Projected Employment Density 2045

Source: TDFM (Version 7, 2020 TAZs)





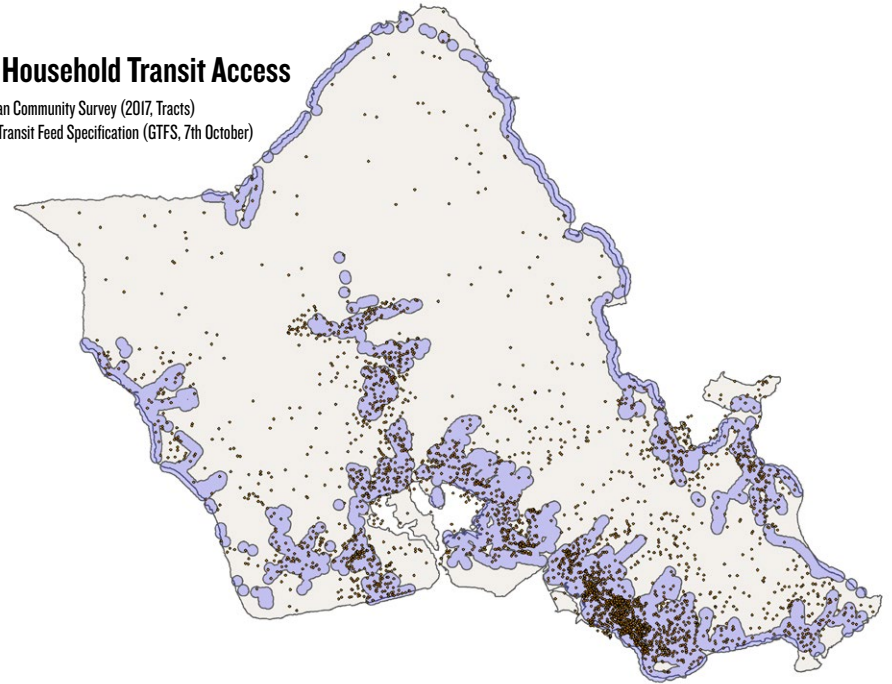


## Household and Employment Accessibility

Household and job accessibility are important in determining the extent to which public transportation service provision is catching up with travel needs. As the maps below highlight, about 70 percent of the region's households have access (proximity) to transit. Additionally, 90 percent of the jobs in the region are accessible by transit. Figure 3.10a and 3.10b show the distribution of households and jobs with access to transit. Each dot in Figure 3.10a is equivalent to 100 people and each dot in Figure 10b is equal to 100 jobs.

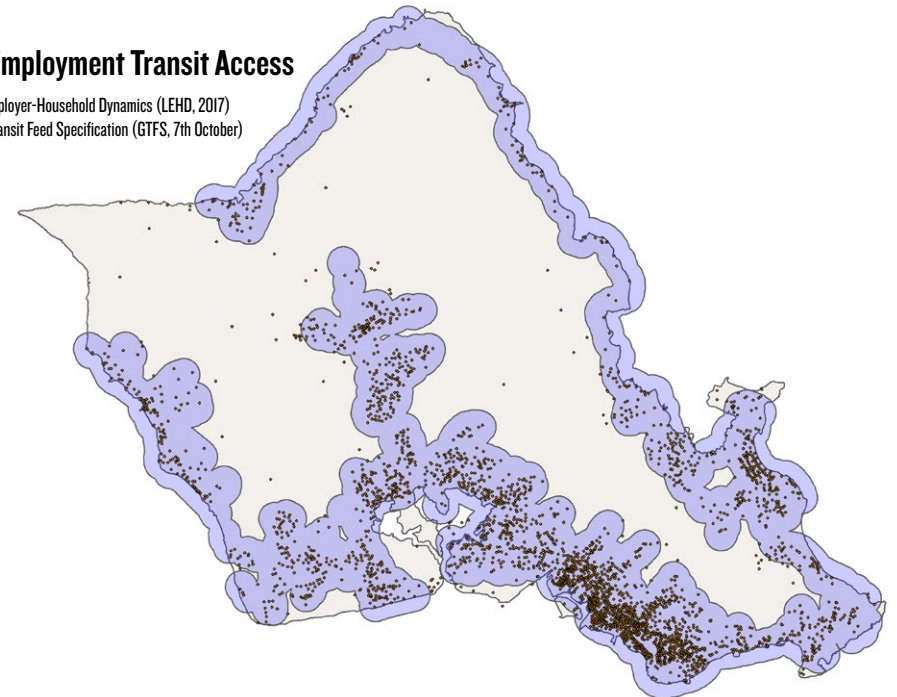
**Figure 3.10a: Household Transit Access**

Source: (1) 5-Year American Community Survey (2017, Tracts)  
(2) 2017 General Transit Feed Specification (GTFS, 7th October)



**Figure 3.10b: Employment Transit Access**

Source: (1) Longitudinal Employer-Household Dynamics (LEHD, 2017)  
(2) 2017 General Transit Feed Specification (GTFS, 7th October)



## Housing and Transportation Cost

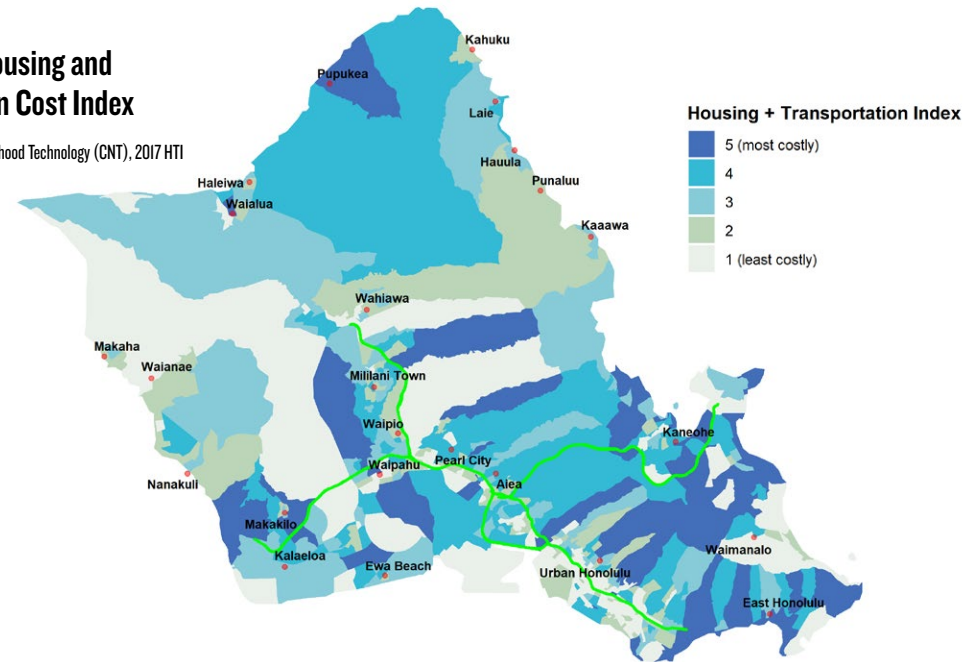
Historically, the standard for housing affordability has been 30 percent of household income. This threshold excludes transportation costs—typically a household’s third largest expenditure — both of which are largely location dependent. The Center for Neighborhood Technology (CNT) has made available a web application showing a transportation and housing affordability index for many metropolitan and micropolitan regions. The affordability index is known as the Housing + Transportation, or H + T index.

Figure 3.11 shows the average housing and transportation costs as a proportion of regional median household income. By this criterion, affordable housing is concentrated near the urban core and other areas of employment clusters. These areas are comprised of Urban Honolulu, Waimānalo, Punalu’u, Waialua, Wai’anae, Nānākuli, and Wahiawā. Figures 3.12 and 3.13 show the housing and transportation components of the index, respectively.



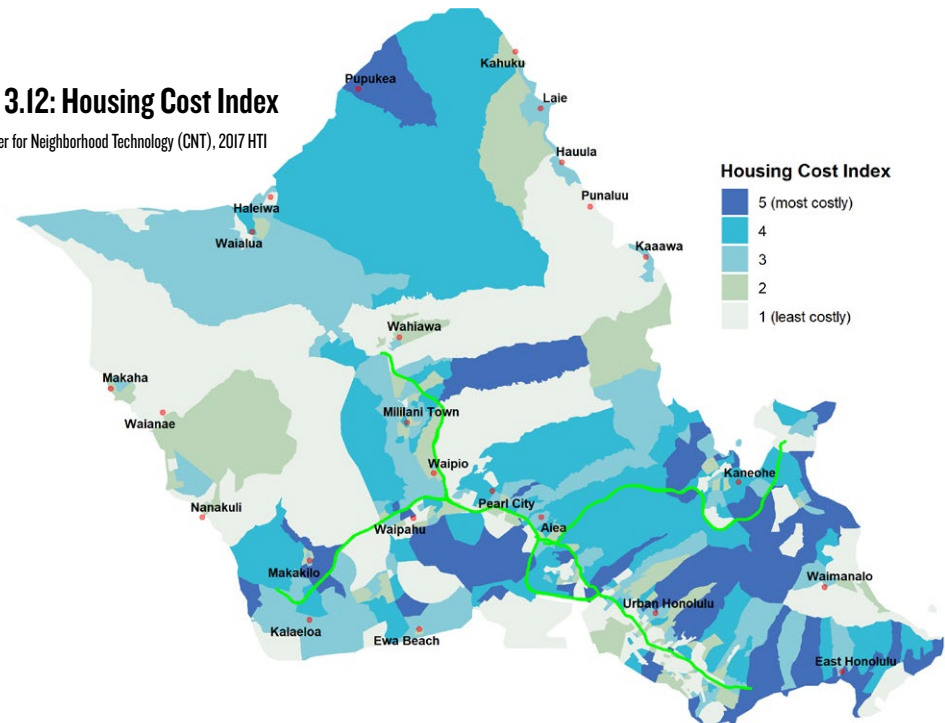
**Figure 3.11: Housing and Transportation Cost Index**

Source: Center for Neighborhood Technology (CNT), 2017 HTI



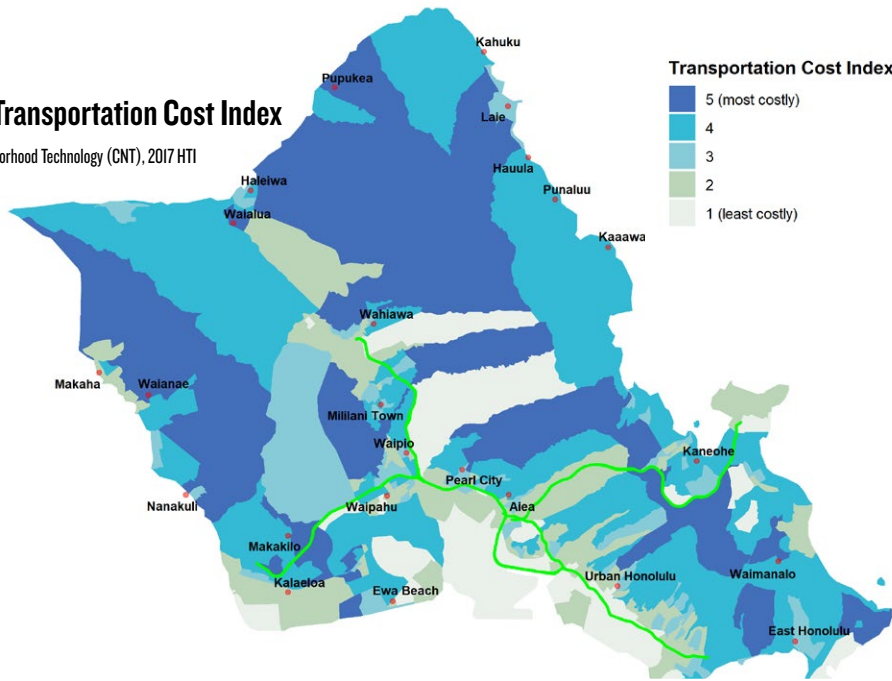
**Figure 3.12: Housing Cost Index**

Source: Center for Neighborhood Technology (CNT), 2017 HTI



**Figure 3.13: Transportation Cost Index**

Source: Center for Neighborhood Technology (CNT), 2017 HTI



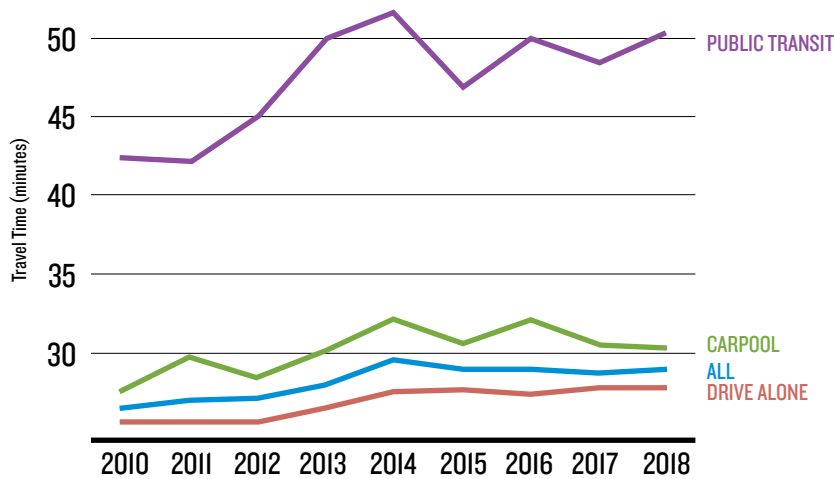
## Commuting Patterns

### REGIONAL COMMUTE TIMES

Commuting patterns shed some light on overall travel patterns. Data obtained from the American Community Survey (ACS) 1-Year Estimates shows that the travel time to work is relatively short within the region. According to 2018 ACS data, the average commuter on O’ahu had a one-way commute of 29 minutes, slightly above the national average of 27 minutes. Virtually all workers reside in tracts that have mean commute times under 30 minutes, slightly above the national average of 27 minutes. However, the regional commute time trend is on the increase.

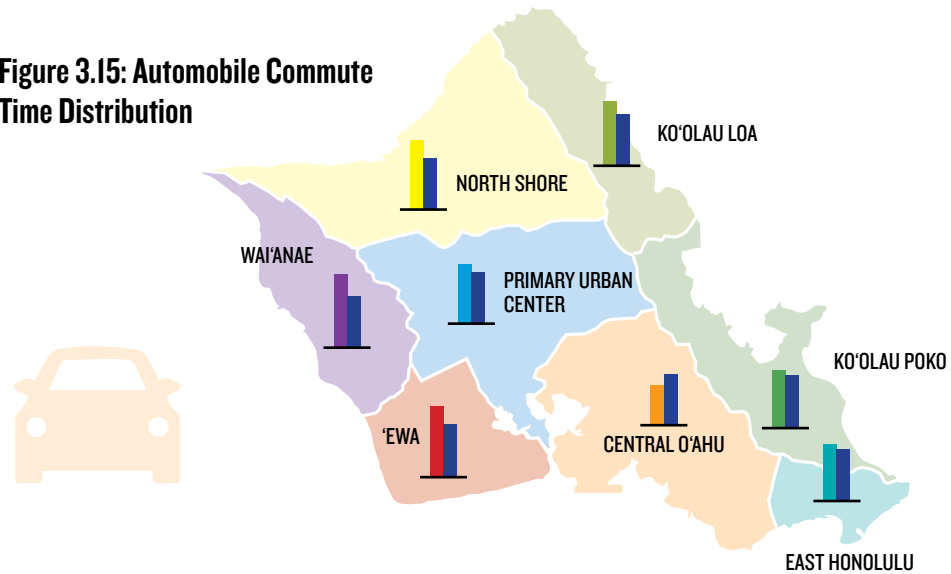
The average commute time by public transportation in the region takes about twice as long as the average commute by car. In 2018, the average commute by car, truck, or van took about 28 minutes, whereas the average commute by public transportation took 50 minutes. Figure 3.14 shows the average commute times for workers who either drive or take public transportation to work.

**Figure 3.14: Regional Commute Times**

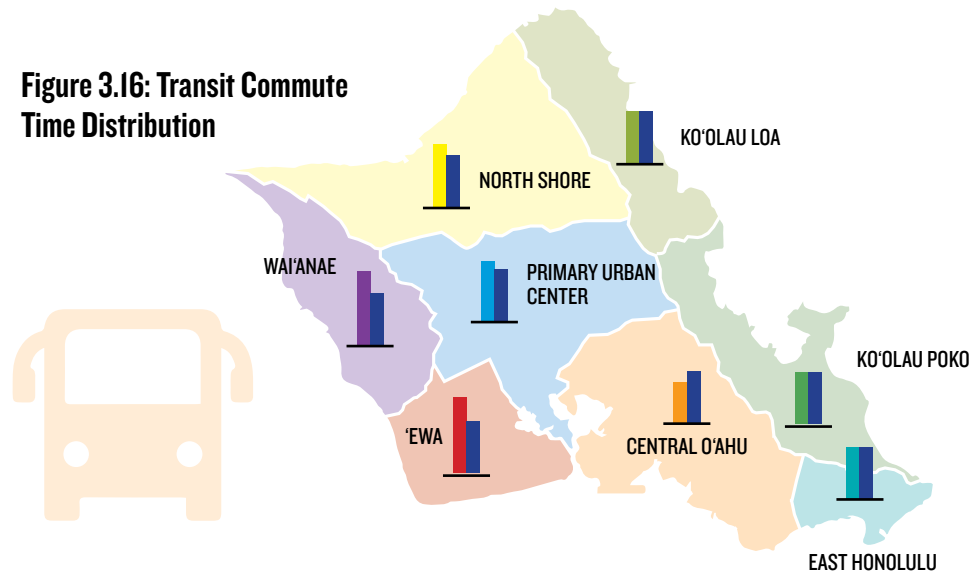


Figures 3.15 and 3.16 show car and transit commute times by DPA, respectively. The 2018 data on automobile commute times across the DPAs overwhelmingly demonstrate a higher than regional average commute times, except in the Primary Urban Center, where the job-housing balance is close to unity. A comparison of regional and DPA transit commute times (2018) reveals higher than regional average commute times in the following DPAs: North Shore, Central O’ahu, Wai’anae, and ‘Ewa. The same data show that residents in the Primary Urban Center commute less than the regional average because of their proximity to jobs. Ko’olau Poko, Ko’olau Loa, and East Honolulu did not show any noticeable change from regional average commute times.

**Figure 3.15: Automobile Commute Time Distribution**



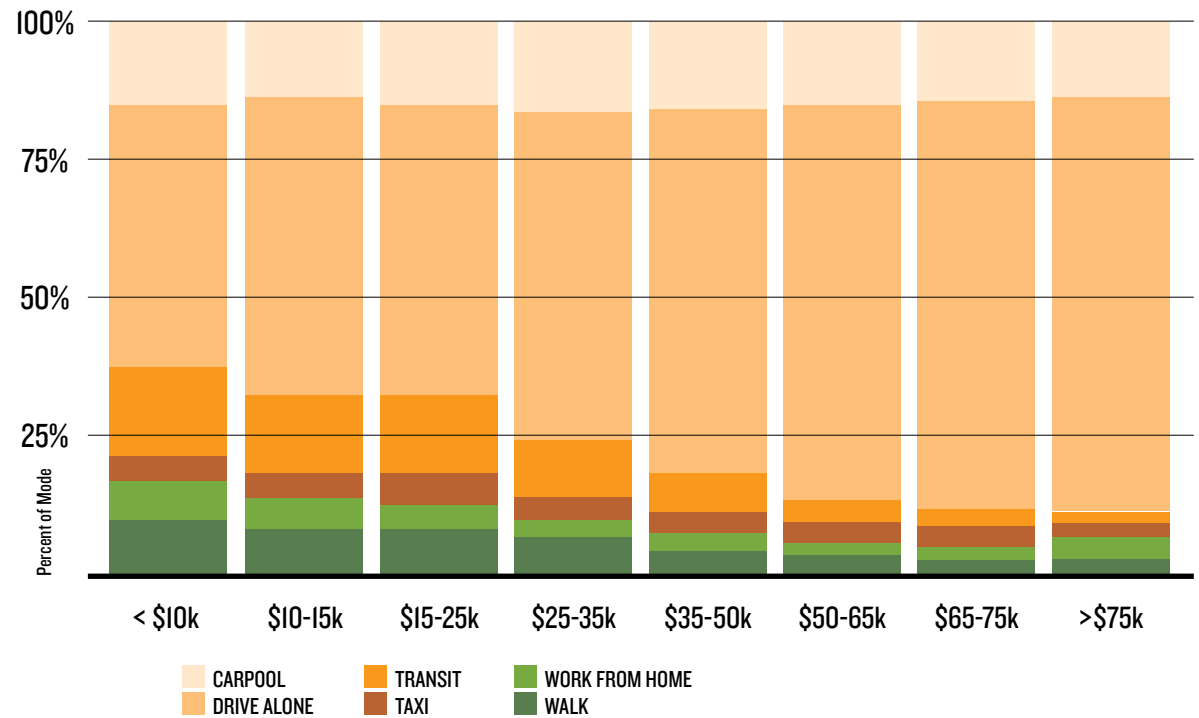
**Figure 3.16: Transit Commute Time Distribution**



**Figure 3.17: Commute Mode by Income**

**COMMUTE MODE BY INCOME**

Figure 3.17 shows commute modes by income level for the region. Low-income workers are less likely to drive alone to work and more likely to take public transportation than those with higher incomes.



## Title IV and Environmental Justice

The primary goal of environmental justice analysis is to ultimately gauge the level at which benefits and burdens of transportation investments are distributed and make sure that the environmental justice communities living within the region share equitably in the benefits of the ORTP investments without bearing a disproportionate share of the burdens. The Civil Rights Act of 1964 (Title VI), Executive Orders 12898 (Environmental Justice) and 13166 (Limited English Proficiency) provide the legal basis for incorporating these populations in OahuMPO's activities.

Title VI of the Civil Rights Act of 1964 prohibits Federal agencies, recipients, sub-recipients, and contractors who receive Federal funds from discriminating based on race, color, or national origin, against participants or clients of programs that receive Federal financial assistance.

Executive Orders 12898 (Environmental Justice) and 13166 (Limited English Proficiency) reinforced the basic rights and legal requirements contained in Title VI of the Civil Rights Act and directed each Federal agency to review its procedures and make environmental justice part of its key products. This includes:

1

Develop strategies to help identify and address disproportionately high and adverse human health or environmental effects of programs, policies, and activities on minority and low-income populations;

2

Provide minority and low-income communities with access to public information and opportunities for public participation in matters relating to human health or the environment; and

3

Identify populations that may experience barriers to mobility and therefore, may be adversely affected by transportation planning decisions.

---

### OAHUMPO ANALYZED DATA ABOUT SEVEN ENVIRONMENTAL JUSTICE AND TITLE VI (T6EJ) GROUPS IN THE ORTP. THESE ARE:



DISABLED POPULATIONS



UNDER 18 YEARS OLDS



OLDER ADULT POPULATIONS (65+ YEARS OLD)



POOR HOUSEHOLDS



LIMITED ENGLISH PROFICIENCY (LEP) POPULATIONS



LOW INCOME AND MINORITY



ZERO CAR HOUSEHOLDS



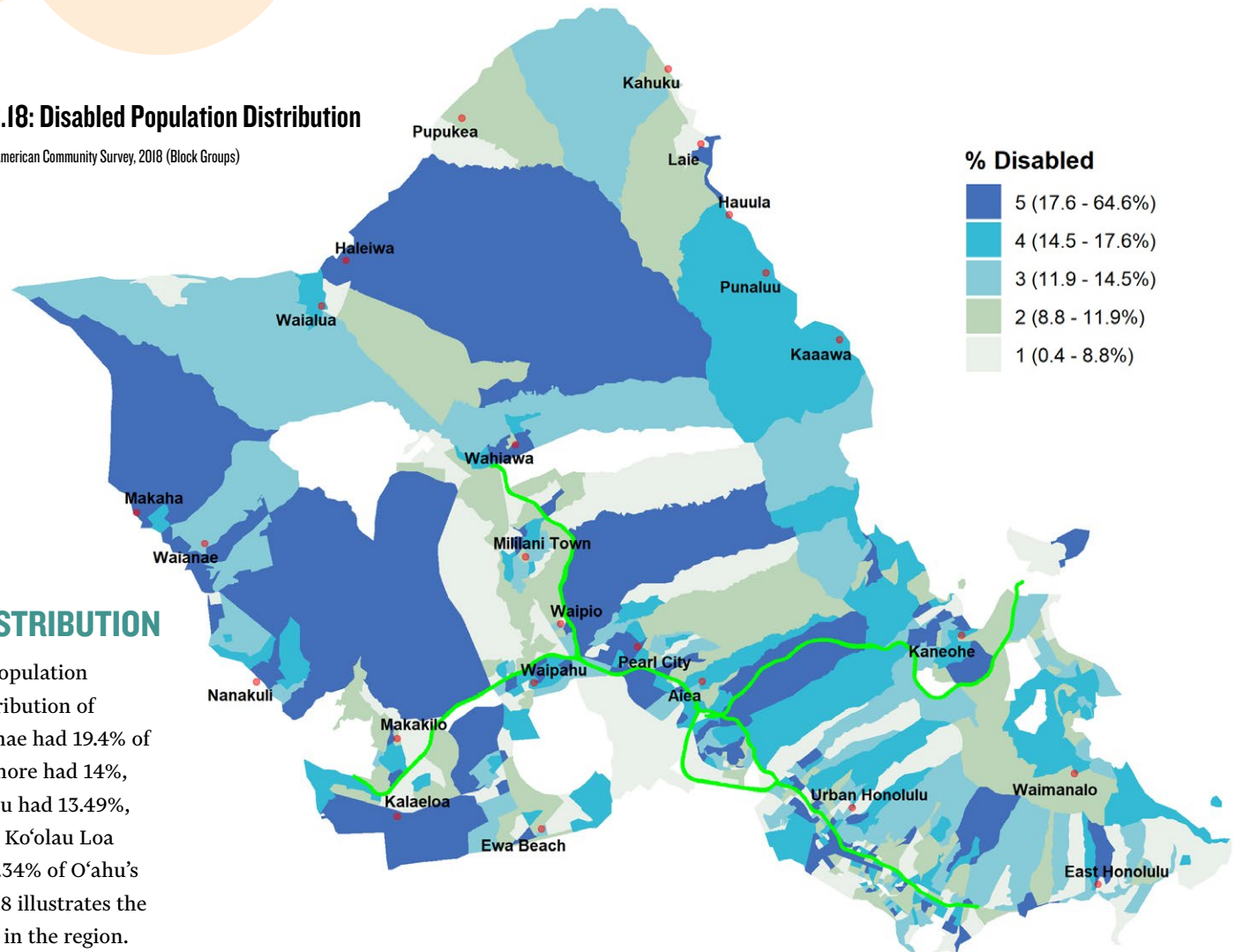
**Figure 3.18: Disabled Population Distribution**

Source: 5-year American Community Survey, 2018 (Block Groups)



## DISABLED POPULATION DISTRIBUTION

On O'ahu, approximately 14% of the population had some disabilities (2018). The distribution of disabilities by DPA showed that Wai'anae had 19.4% of its population being disabled, North Shore had 14%, Ko'olau Poko had 13.53%, Central O'ahu had 13.49%, the PUC had 13.49%, 'Ewa had 13.31%, Ko'olau Loa had 12.91%, and East Honolulu had 11.34% of O'ahu's population with a disability. Figure 3.18 illustrates the distribution of people with disabilities in the region.



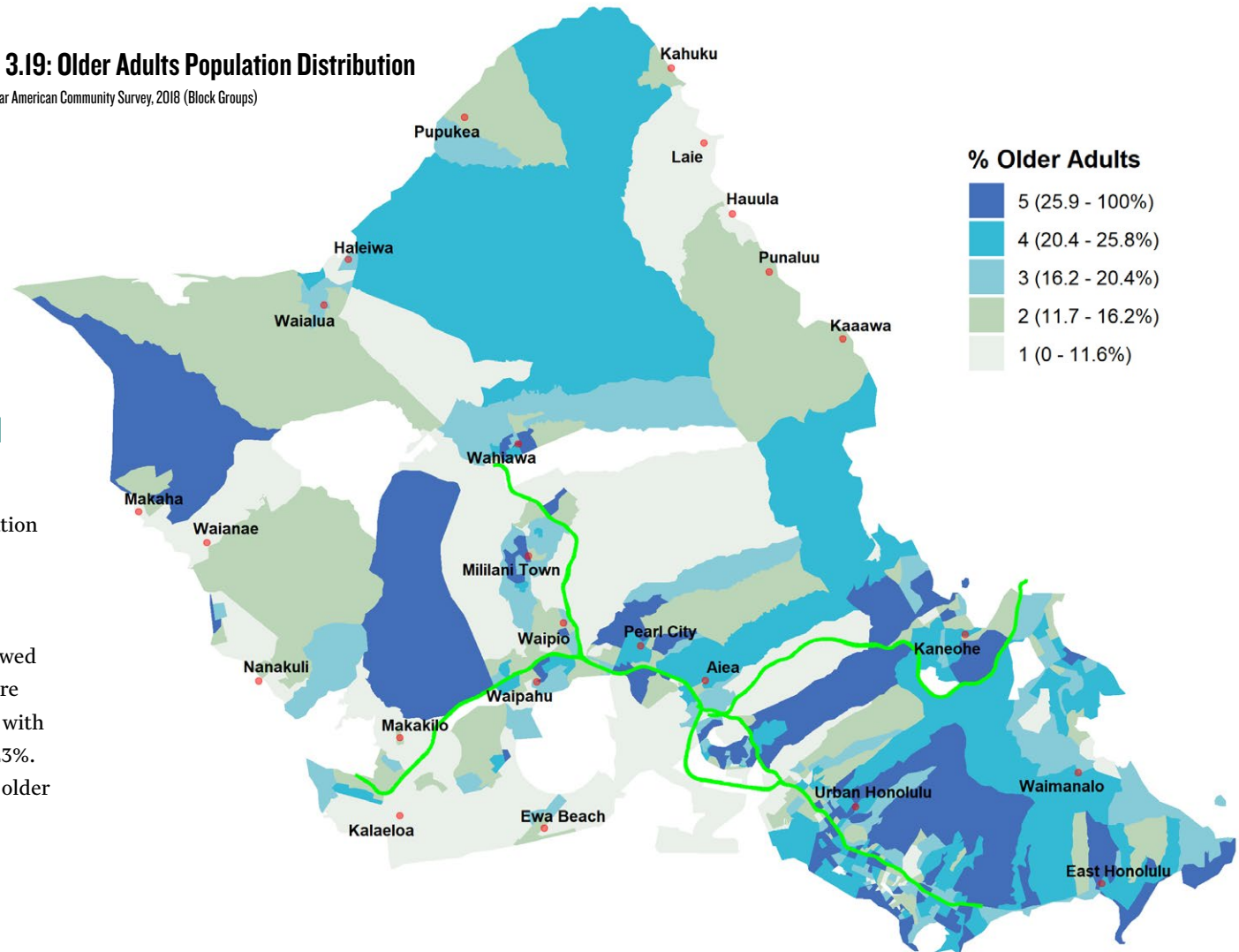


## OLDER ADULTS POPULATION DISTRIBUTION

Overall, about 19% of the region’s population is comprised of older adults, with East Honolulu having the highest percentage at 24.55%. The PUC follows with 20.65%; Ko’olau Poko was next with 20.35%, followed by Central O’ahu with 16.56%; North Shore with 15.59%; Wai’anae with 13.17%; ‘Ewa with 13.02%; and finally, Ko’olau Loa with 11.23%. Figure 3.19 illustrates the distribution of older adults in the region.

**Figure 3.19: Older Adults Population Distribution**

Source: 5-year American Community Survey, 2018 (Block Groups)





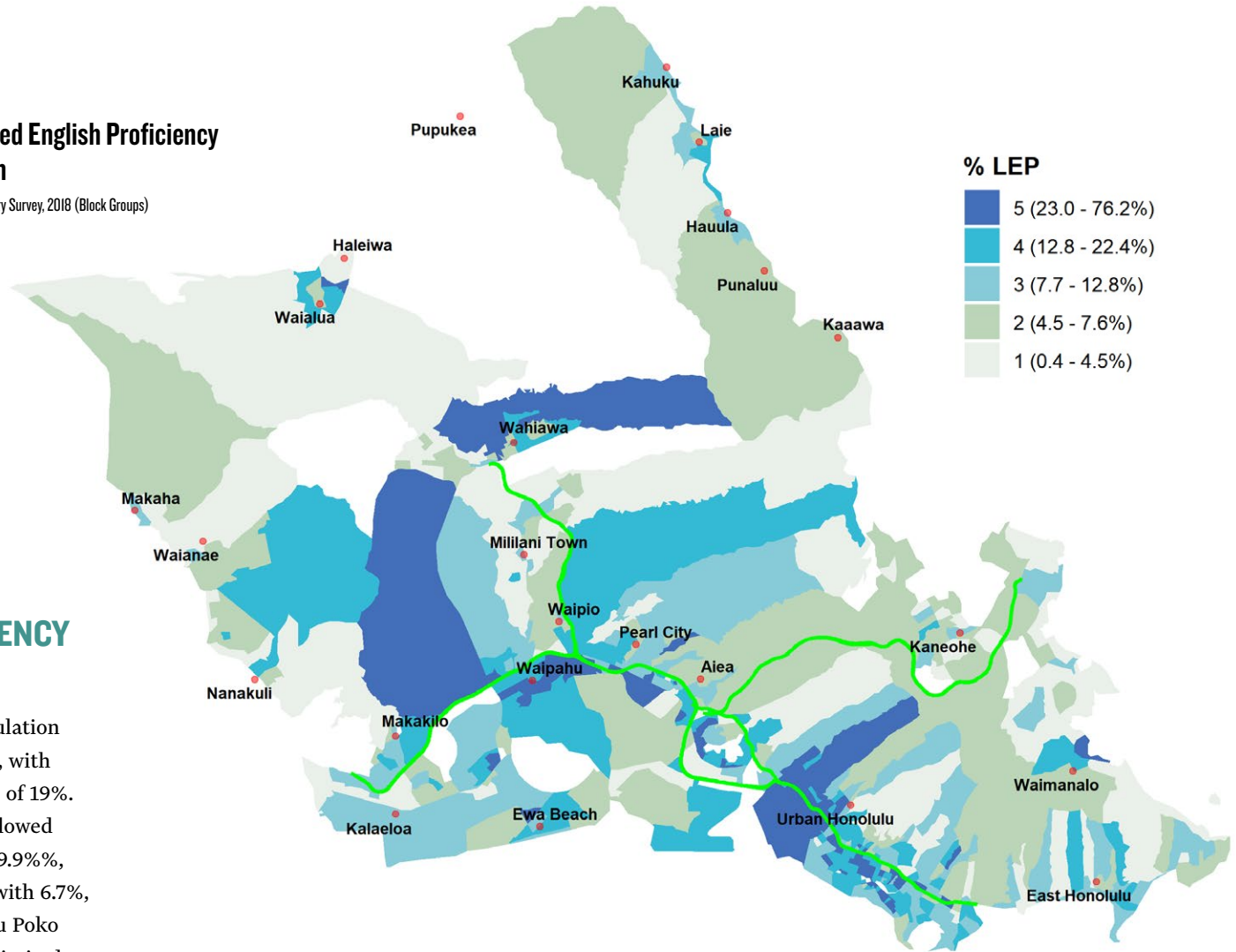
**Figure 3.20: Limited English Proficiency (LEP) Distribution**

Source: 5-year American Community Survey, 2018 (Block Groups)



### LIMITED ENGLISH PROFICIENCY (LEP) DISTRIBUTION

Overall, about 14% of the region's population has Limited English Proficiency (LEP), with the PUC having the highest percentage of 19%. Central O'ahu was next with 11.8%, followed by North Shore with 11.2%, 'Ewa with 9.9%, Ko'olau Loa with 7.7%, East Honolulu with 6.7%, Wai'anae with 5.8%, and finally Ko'olau Poko with 5.6%. Figure 3.20 illustrates the Limited English Proficiency population distribution.



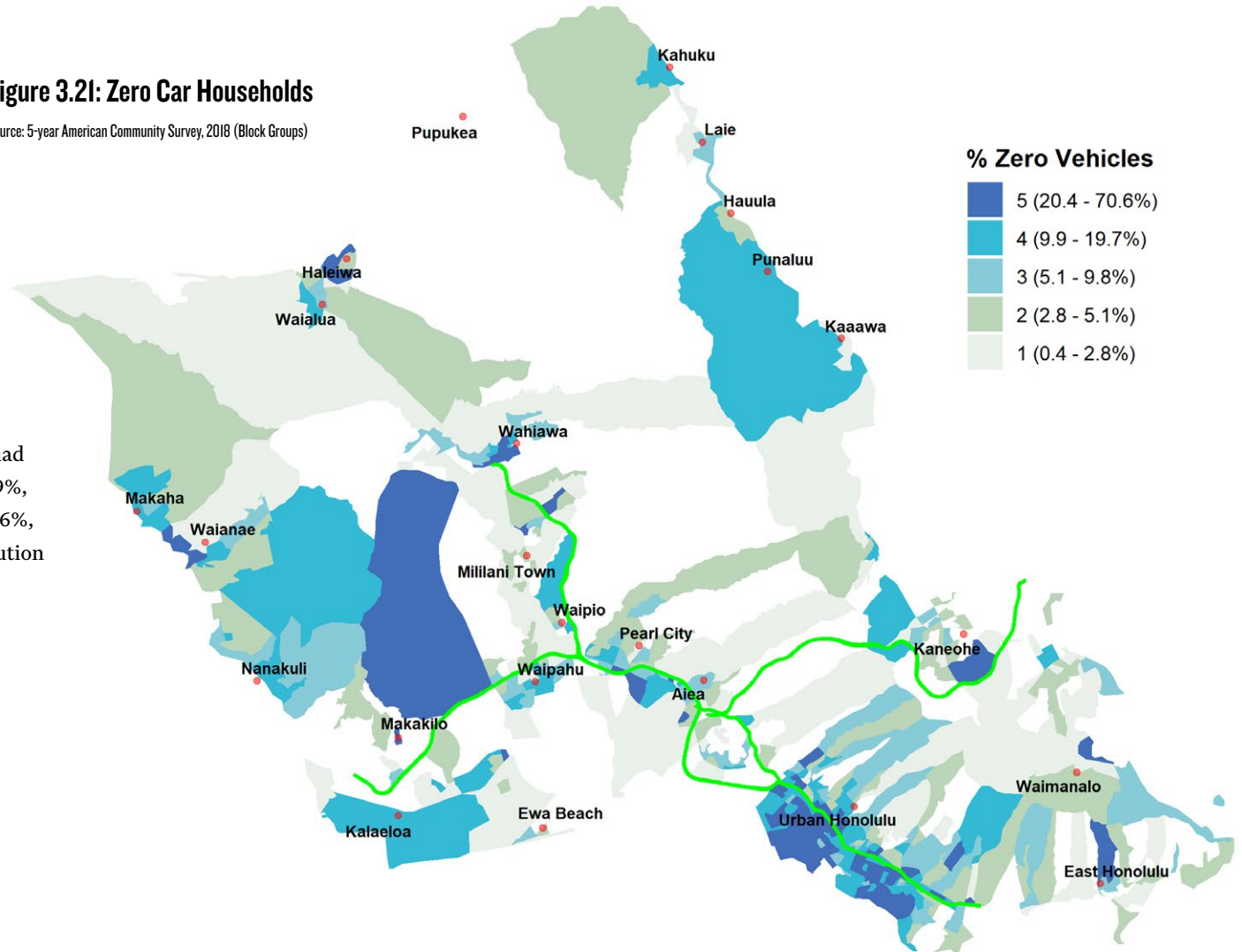


## ZERO CAR HOUSEHOLDS

As of 2018, about 12% of the regional population had no vehicle. Wai‘anae and the PUC had 12% and 16% zero-vehicle households, respectively. Central O‘ahu had 8.2%, North Shore had 7.5%, ‘Ewa had 6.9%, Ko‘olau Loa had 6.5%, Koolaopoko had 5.6%, and East Honolulu had 5.5%. The distribution by block groups is shown in Figure 3.21.

**Figure 3.21: Zero Car Households**

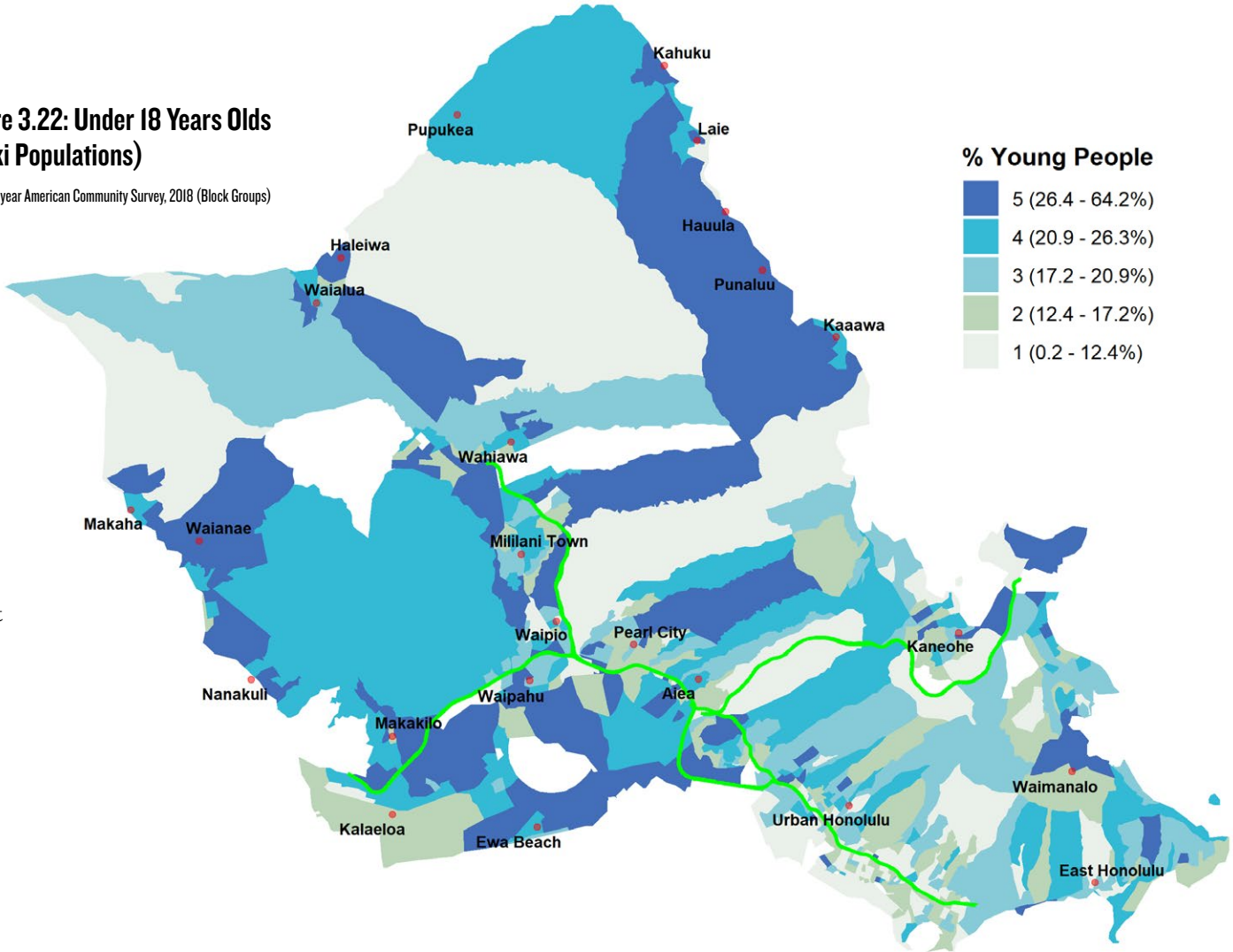
Source: 5-year American Community Survey, 2018 (Block Groups)





**Figure 3.22: Under 18 Years Olds (Keiki Populations)**

Source: 5-year American Community Survey, 2018 (Block Groups)



### UNDER 18 YEARS OLDS (KEIKI POPULATIONS)

Approximately one-fifth the region’s population is under 18 years. Figure 3.22 shows the distribution of this population in the region. Wai’anae had the highest percent of the young population (28%) and the PUC had the lowest percentage of its population being young (17%). The distribution of the young population for the rest of the DPAs in descending order, are: ‘Ewa 26.9%, Ko’olau Loa (26.6%), Central O’ahu (22.8%), North Shore (22.2%), East Honolulu (19.8%), and Ko’olau Poko (17.1%).

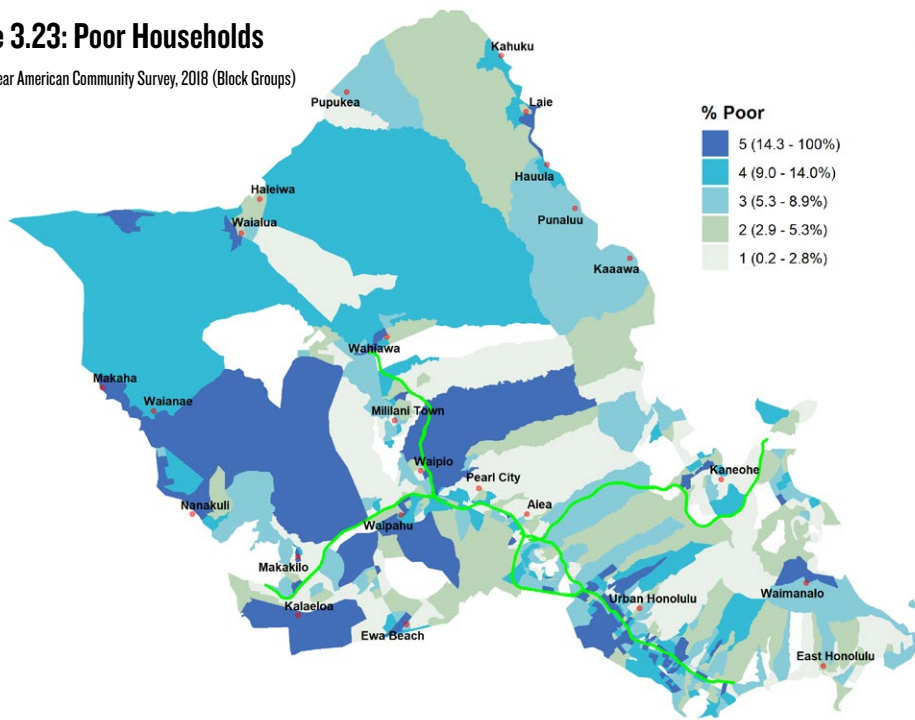


## POOR HOUSEHOLDS

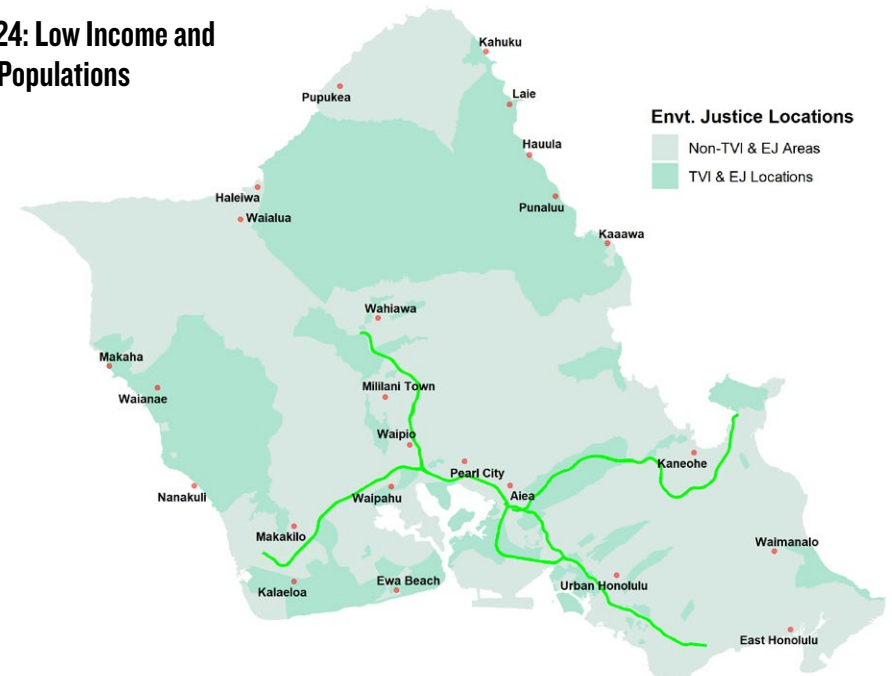
The regional average poverty rate was 9.9%, ranging from 3.5% in East Honolulu to 22% in Wai‘anae. The PUC and Centarl O‘ahu had 10.9% and 10.7% poverty rates, respectively. The North Shore, Ko‘olau Loa, ‘Ewa, and Ko‘olau Poko registered 9.5%, 9.1%, 6.6%, and 5.7%, respectively. See Figure 3.23 for the spatial location of poverty in the region.

**Figure 3.23: Poor Households**

Source: 5-year American Community Survey, 2018 (Block Groups)



**Figure 3.24: Low Income and Minority Populations**



The T6EJ analysis was undertaken using low income and race variables from 2014-19 ACS data and 2010 census, respectively. Due to time constraints in getting consultants to work on this task and unavailability of 2020 census data, T6EJ analysis was not changed from the methods used in the ORTP 2040.

## CHAPTER FOUR

# The Existing Transportation System

## Roadways

The region's roadways and bridges are essential parts of the regional transportation infrastructure. Personal motor vehicle travelers, public and private transportation providers, bicyclists, pedestrians, and freight truck operators are all dependent on roadways and bridges. This means that the condition of the region's roadways and bridges affect the overwhelming majority of household and business travel.



## The Roadway Network

Federal-aid and State highways serve the region and constitute its main roadway network. Each roadway serves a function in the overall roadway network based on its balance of mobility and accessibility. The classification of roadways based on these factors is known as functional classification. The U.S. Department of Transportation divides roadways into four broad categories:



### PRINCIPAL ARTERIAL

#### A. Interstate

Interstates are the highest classification of arterials. They are defined as a series of continuous, limited-access routes that have trip lengths and volumes indicative of substantial Statewide or interstate travel.

#### B. Other Freeways and Expressways

These roadways look very similar to interstates in that they must be divided with limited access and egress points that are typically grade-separated. They primarily serve through-traffic and major circulation movements.

#### C. Other Principal Arterial

These roadways provide long-distance connections, but do not fit the two categories above. Other principal arterials are not access-controlled, so abutting land uses can have direct access.

### MINOR ARTERIAL

These roadways serve trips of moderate length, providing for relatively high overall travel speeds with minimum interference to through-movement.

### COLLECTORS

These roadways collect traffic from the local roads and direct it to the arterials. In rural areas, collectors generally serve intra-county travel, with distances shorter than arterials. In urban areas, they provide both land access and traffic circulation within residential neighborhoods and commercial and industrial areas. Collectors are divided into two categories:

#### D. Major Collector

The difference between a major and minor collector is very subtle. Major collectors are typically longer in length than minor collectors, with fewer access points, higher speed limits, higher traffic volumes, and more travel lanes.

#### E. Minor Collector

Minor collectors are typically shorter in length, with more access points, lower speeds, lower volumes, and fewer travel lanes.

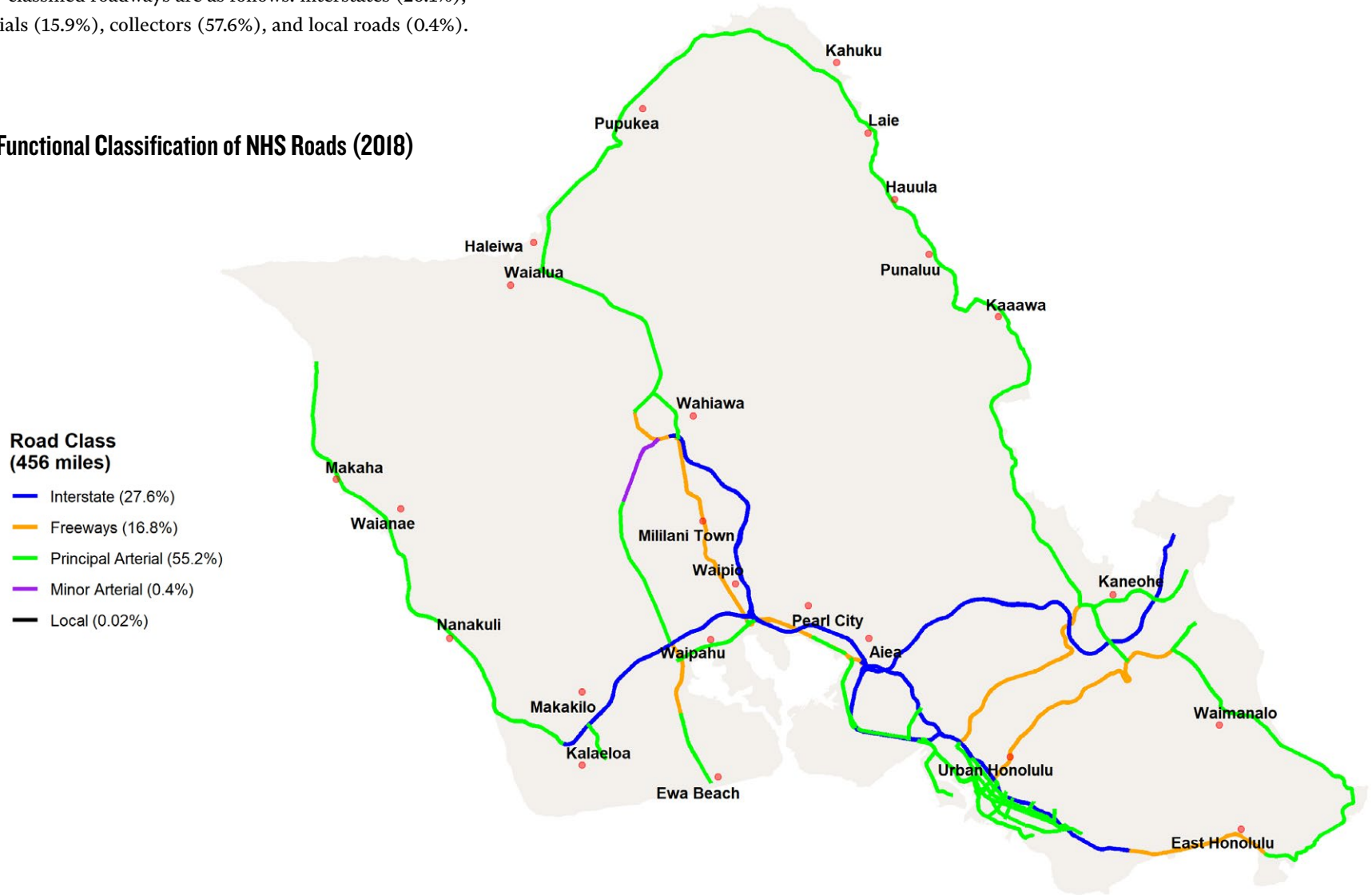
### LOCAL ROADS

Local roads provide access to adjacent private property or low-volume public facilities. Travel distance on local roads is relatively short when compared to the higher classifications.

**THE 2018 HIGHWAY PERFORMANCE MONITORING SYSTEM (HPMS)**

reports 425 centerline miles of roads. The distribution of the functionally classified roadways are as follows: interstates (26.1%), minor arterials (15.9%), collectors (57.6%), and local roads (0.4%).

**Figure 4.1: Functional Classification of NHS Roads (2018)**



# I. Pavement Conditions

One fundamental component of system preservation is maintaining sufficient pavement conditions so that roadways can operate at their full capacity. Good pavement conditions provide roadway users with safe and comfortable travel experiences, while minimizing vehicle wear and tear.

## PAVEMENT CONDITIONS ON NATIONAL HIGHWAY SYSTEM

Pavement condition ratings for the region’s roadways were obtained from data submitted by Hawai’i Department of Transportation (HDOT) to the Federal Highway Administration (FHWA). This data is found in the Highway Performance Monitoring System (HPMS). The HPMS is a national level highway information system that includes data on the extent, condition, performance, and operating characteristics of the nation’s highways.

The HPMS data are sample dataset that are collected across the entire transportation facilities eligible for Federal funds. The pavement condition in the HPMS is based on the International Roughness Index (IRI), cracking, rutting, and faulting. The monitoring of pavement condition performance is a requirement of the FAST Act. All pavements on the Interstate or non-Interstate NHS are required to be classified in good, fair, or poor condition.

## FEDERAL PERFORMANCE MEASURES

Federal performance measures for assessing the condition of pavements, based on Performance-Based Planning and Programming (PBPP) agreement, are:

- Percentage of pavement of the interstate in good condition;
- Percentage of pavement of the interstate in in poor condition;
- Percentage of pavement of the non-interstate NHS in good condition; and
- Percentage of pavement of the non-interstate NHS in poor condition.

States are required to have no more than 5 percent of their interstate pavements in poor condition and no more than 10 percent of NHS bridges, by total deck area, in poor condition. As shown in Table 4.1, the State of Hawai’i meets both of these minimum condition requirements. The location of pavement conditions are shown in Figure 4.2.

**Table 4.1: Hawai’i Pavement Performance Measures and Targets**

NHS	Measure	GOOD	POOR
Interstate	Baseline (2017)	15%	2%
	2-Year Target (2019)	N/A	N/A
	4-Year Target (2021)	7%	4%
Non-Interstate NHS	Baseline (2017)	18%	6%
	2-Year Target (2019)	15%	4%
	4-Year Target (2021)	15%	4%

Source: Department of Transportation. (2019). Asset Management Plan, pg. 33. [https://hidot.hawaii.gov/highways/files/2019/06/HDOT\\_TAMP\\_Final\\_June2019.pdf](https://hidot.hawaii.gov/highways/files/2019/06/HDOT_TAMP_Final_June2019.pdf)



Figure 4.2: Pavement Conditions



Source: HDOT Highways Program Status ([https://hstategis.maps.arcgis.com/apps/MapSeries/index.html?appid=39e4d804242740a89d3fd0bc76d8d7de&utm\\_medium=email&utm\\_source=govdelivery](https://hstategis.maps.arcgis.com/apps/MapSeries/index.html?appid=39e4d804242740a89d3fd0bc76d8d7de&utm_medium=email&utm_source=govdelivery))

## 2. Bridge Conditions

Bridges are an essential element of regional infrastructure and economic development, and preservation of the existing system is the region's top priority for transportation investment. Therefore, maintenance, rehabilitation, and replacement of deficient bridges is vital.

A crucial preservation issue is bridge maintenance, especially in light of declining transportation funds. Bridge closures not only affect the routes the bridges traverse but can also put added strain on alternative routes. Timely bridge maintenance helps preserve this infrastructure without incurring the additional costs of major reconstruction. In addition, investments toward the upkeep of bridges pay dividends by improving mobility, accessibility, and safety, as well as the prosperity of the region. A bridge is defined as being structurally deficient if it has any component in poor or worse condition. Tracking deficiencies helps prioritize infrastructure spending and preserve the integrity of the transportation system as a whole. As a measure to aid State and local efforts, FHWA collects bridge data from a variety of agencies and stores the results in a centralized database, the National Bridge Inventory (NBI). Figure 4.3 depicts bridges in need of repair or upgrade based on condition, mobility and risk.

### FEDERAL PERFORMANCE MEASURES

The FAST Act requires the performance monitoring of bridge conditions by the states and/or MPOs. The applicable performance measures are:

- The percentage of NHS bridges classified as being in good condition; and
- The percentage of NHS bridges classified as being in poor condition.

While a “poor” classification is the lowest condition rating for a bridge, it should be noted that it does not necessarily mean that a specific bridge is unsafe, only that it requires more frequent inspection. - Based on 2017 baseline data, the State is on course to achieving the 2019 and 2021 targets.

**Table 4.2: State Bridge Condition Performance and Targets**

NHS	Measure	GOOD	POOR
NHS	Baseline (2017)	23%	2%
	2-Year Target (2019)	20%	2%
	4-Year Target (2021)	20%	2%

Source: Department of Transportation. (2019). Asset Management Plan. pg. 33. [https://hidot.hawaii.gov/highways/files/2019/06/HDOT\\_TAMP\\_Final\\_June2019.pdf](https://hidot.hawaii.gov/highways/files/2019/06/HDOT_TAMP_Final_June2019.pdf)

In addition to the two bridge condition performance measures which MPOs must track, all states must ensure that no more than ten (10) percent of the total deck area of NHS bridges in the state is classified as structurally deficient. The same report above finds only two percent of the total deck area of NHS bridges in the state is classified as structurally deficient, hence meeting the additional requirement.

**Figure 4.3: Location of Bridges in Need of Upgrade or Repair**



Source: HDOT. Highways Program Status Map ([https://histategis.maps.arcgis.com/apps/MapSeries/index.html?appid=39e4d804242740a89d3fd0bc76d8d7de&utm\\_medium=email&utm\\_source=govdelivery](https://histategis.maps.arcgis.com/apps/MapSeries/index.html?appid=39e4d804242740a89d3fd0bc76d8d7de&utm_medium=email&utm_source=govdelivery))

### 3. Congestion and System Reliability

Congestion both nationally and regionally continues to detrimentally impact the economy, environment, community livability, and the traveler's experience. Congestion now costs the nation over \$166 billion annually in terms of the cost of additional fuel and the value of commuters' extra time spent in congestion.<sup>1</sup> The same report found that congestion has caused commuters to travel for 8.8 billion additional hours and buy an extra 3.3 billion gallons of fuel. In addition, the congestion cost per auto commuter in the Urban Honolulu region totaled an extra \$515 annually while the yearly extra delay for the average commuter totaled 23 extra hours.

Two measures are used to gauge roadway recurring congestion in this report: Travel Time Index (TTI) and Level of Service (LOS). While TTI measures how much longer vehicles are traveling versus average speeds, LOS looks at how much daily vehicle volumes exceed designed capacities. Roadway non-recurring congestion or reliability is measured by the Planning Time Index (PTI) and Level of Travel Time Reliability (LOTTR). Generally, non-recurring congestion—delays due to incidents such as construction, crashes, large events, and weather—accounts for an estimated 55 percent or more of congestion in large urban areas.<sup>2</sup>

#### Travel Time Index

The spatial distribution of travel times is shown in Figures 4.4a-d. Much of the congestion depicted in this data will be unsurprising to O'ahu motorists. Overall, the regional congestion had a Travel Time Index (TTI) of 1.55, indicating that a 20-minute free-flow trip requires 31 minutes during the peak period. The difference in the level of congestion for different roadways was non-trivial, with freeways (1.50) trailing behind arterials (1.57).

The arterial peak-period distribution of congestion was 1.56 and 1.58 for morning and evening peak-periods, respectively. For freeways, evening peak-period congestion (1.54) was more pronounced than in the morning (1.46).

<sup>1</sup> The 2019 Urban Mobility Report, published by the Texas Transportation Institute at Texas A&M University

<sup>2</sup> Falcocchio, J. C., and H. S. Levinson. 2015. Road traffic congestion: a concise guide. Springer Tracts on Transportation and Traffic No. 7. Springer International Publishing, Cham, Switzerland.

Figure 4.4a: Spatial Distribution of Travel Times - Principal Arterials, AM

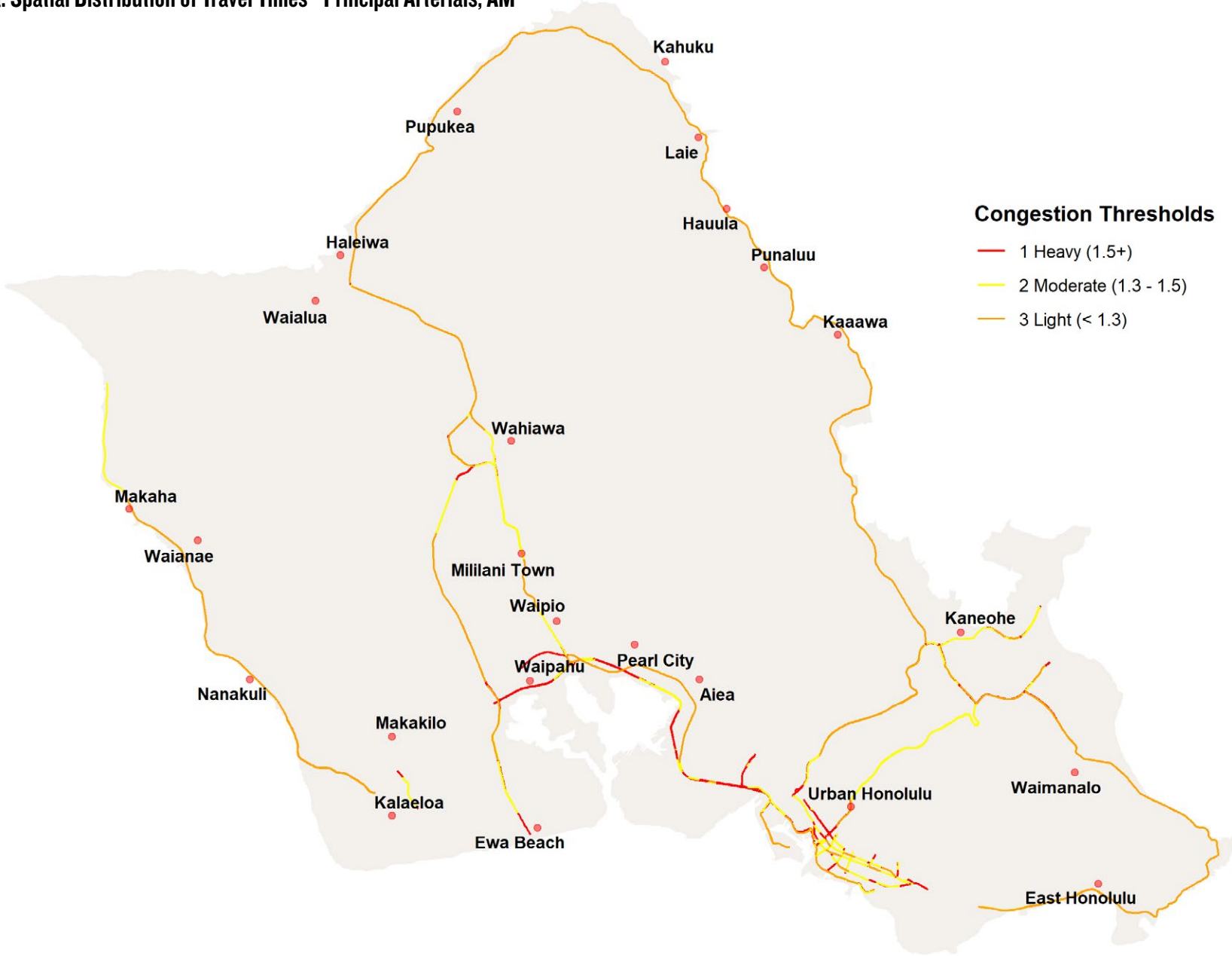
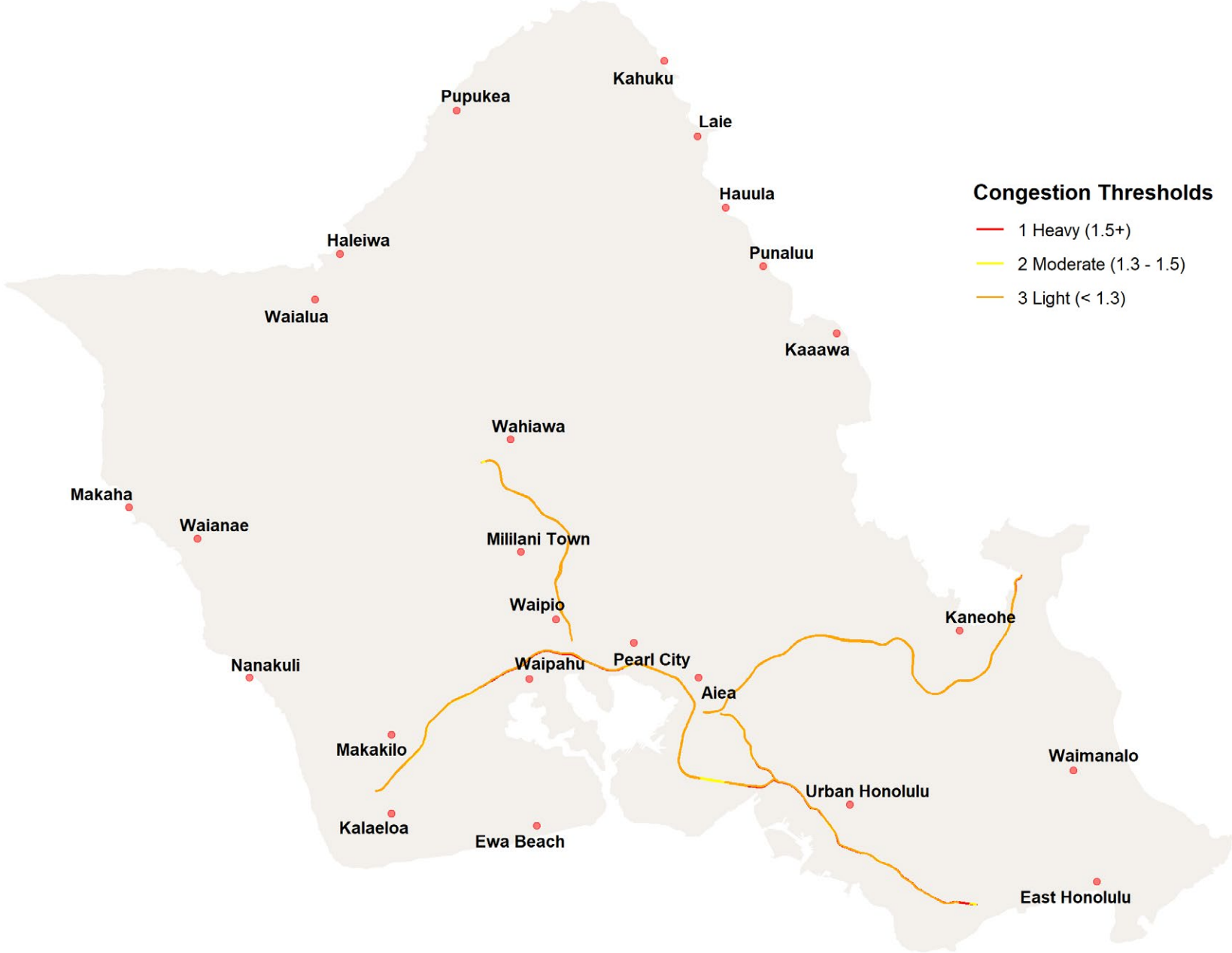


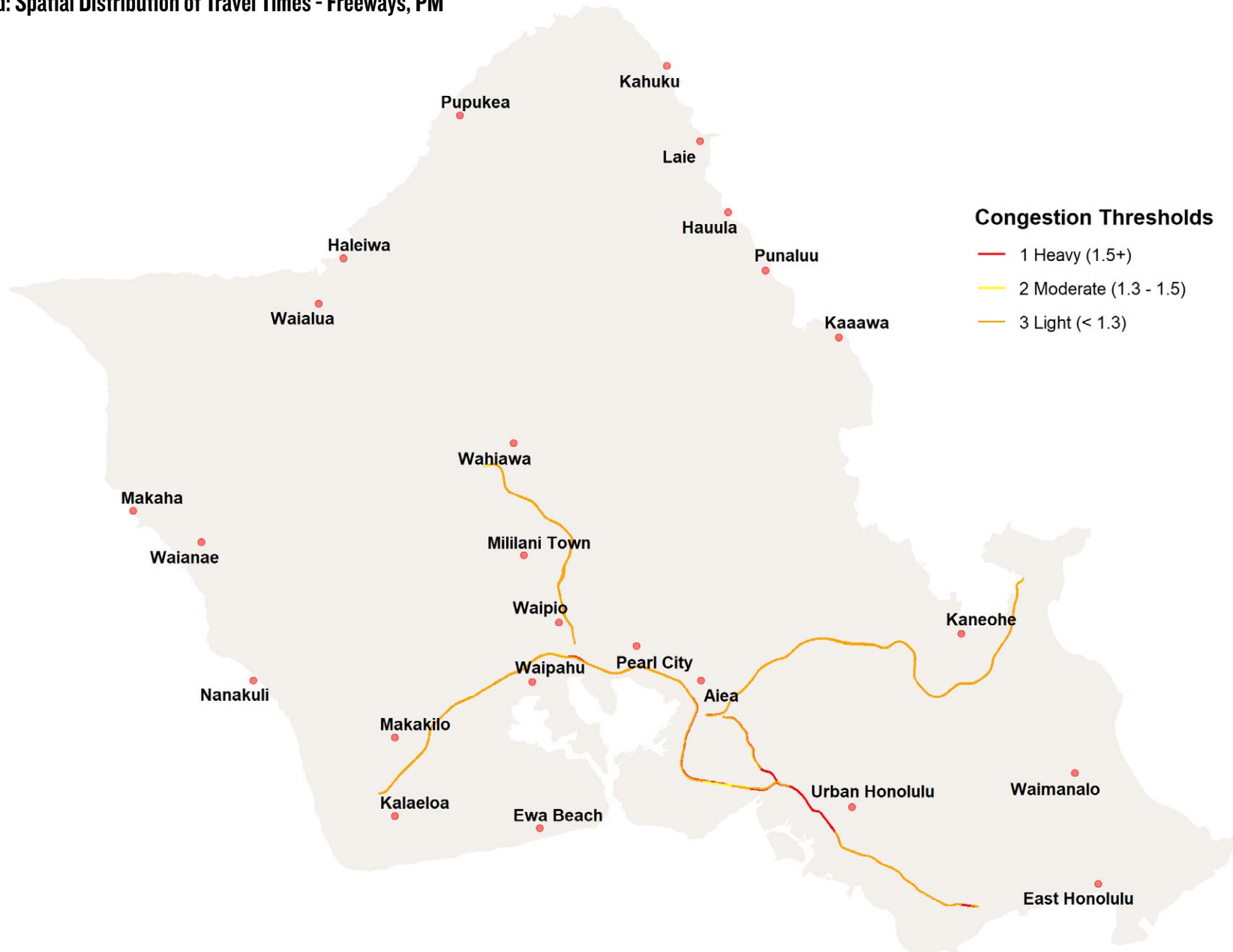
Figure 4.4b: Spatial Distribution of Travel Times - Principal Arterials, PM



Figure 4.4c: Spatial Distribution of Travel Times - Freeways, AM



**Figure 4.4d: Spatial Distribution of Travel Times - Freeways, PM**





## Level of Service (LOS)

Roadway congestion is often measured by Volume to Capacity Ratios (V/C) and Levels of Service (LOS). Typically, the V/C Ratio is translated into level of service. Table 4.3, below, describes generalized Levels of Service and their associated V/C ratios. Table 4.4 shows the location of significant congestion and Figure 4.5 depicts the spatial location of congested roadways.

**Table 4.3: Levels of Service and V/C Ratios**

Level of Service is defined by the Highway Capacity Manual as a "qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers". A level of service definition generally describes these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. Six levels of service are defined, and they are given letter designations from A to F, with level-of-service "A" representing the best operational conditions and level-of-service "F" the worst. The following is a list of the various levels of service with abbreviated definitions quoted directly from the Highway Capacity Manual.

**LEVEL-OF-SERVICE "A"** represents free flow. Individual users are virtually unaffected by the presence of others in the traffic stream. Associated V/C Ratio: 0.0 - 0.6

**LEVEL-OF-SERVICE "B"** is in the range of stable flow, but the presence of other users in the traffic stream begins to be noticeable. Associated V/C Ratio: 0.61 - 0.70

**LEVEL-OF-SERVICE "C"** is in the range of stable flow, but it marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream. Associated V/C Ratio: 0.71 - 0.80

**LEVEL-OF-SERVICE "D"** represents high-density, but stable flow. Speed and freedom to maneuver are severely restricted, and the driver or pedestrian experiences a generally poor level of comfort or convenience. Associated V/C Ratio: 0.81 - 0.90

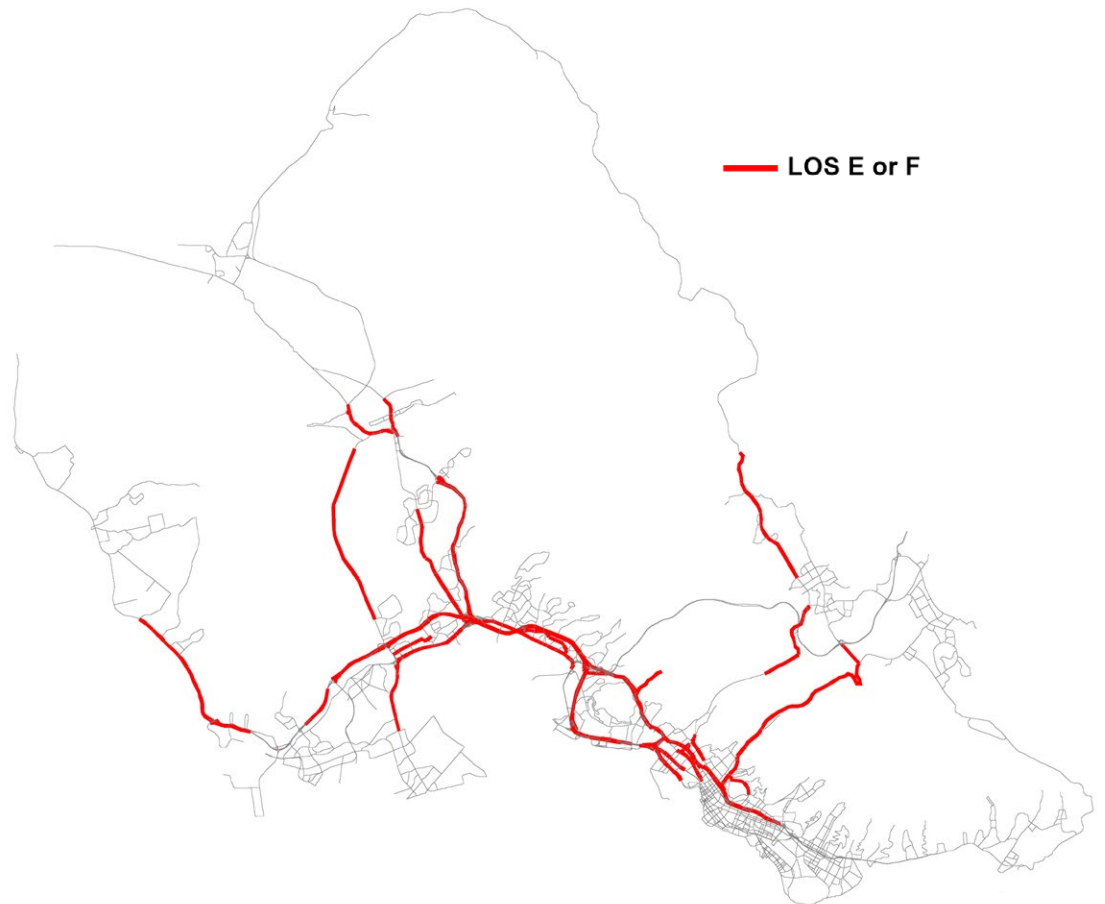
**LEVEL-OF-SERVICE "E"** represents operating conditions at or near the capacity level. All speeds are reduced to a low, but relatively uniform value. Freedom to maneuver within the traffic stream is extremely difficult. Associated V/C Ratio: 0.91 - 1.0

**LEVEL-OF-SERVICE "F"** is used to define forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queues form behind such locations. Associated V/C Ratio: 1.0+

**Table 4.4: Locations of Significant Congestion (LOS E OR F)**

1	Farrington Highway, Hakimo Road to Kalaeloa Boulevard
2	Farrington Highway, Fort Weaver Road to Waiawa Interchange
3	Interstate H-1, Makakilo Interchange to Waiawa Interchange
4	Interstate H-1, Waiawa Interchange to Hālawā Interchange
5	Interstate H-1, Hālawā Interchange to Ke‘ehi Interchange
6	Interstate H-1, Ke‘ehi Interchange to University Avenue Interchange
7	Interstate H-201 (Moanalua Freeway), Hālawā Interchange to Ke‘ehi Interchange
8	Pali Highway, Highway 83 (Kamehameha Highway) to H-1
9	Kunia Road, Wheeler Army Airfield to Royal Kunia
10	Kamehameha Highway, Mililani to Waiawa Interchange
11	Kamehameha Highway, Waiawa H-1 Interchange to Hālawā
12	Interchange H-2, Mililani to H-2
13	Kahekili Highway, Kāne‘ohe to Āhuimanu

**Figure 4.5: O‘ahu’s CMP Network Two-Hour AM Peak**



## The Level of Travel Time Reliability (LOTTR)

LOTTR is defined as a roadway segment's ratio of a longer travel time (80th percentile) to a "normal" travel time (50th percentile.) The MPO's LOTTR data was obtained from the HPMS. Roadway segments with an LOTTR less than 1.5 are defined by the FHWA as reliable.

### FEDERAL PERFORMANCE MEASURES

There are two federal system reliability performance measures associated with LOTTR:

- Percent of the Person-Miles Traveled on the Interstate that are Reliable; and
- Percent of the Person-Miles Traveled on the Non-Interstate NHS that are Reliable.

The latest published data on LOTTR indicate that the State of Hawai'i met the non-interstate NHS target, but not the interstate target. Table 5 displays the baseline reliability conditions of the interstate and non-interstate NHS routes. Figure 4.6 show the location of reliable NHS roadways for morning and evening peak periods, respectively.

**Table 4.5: LOTTR Performance and Targets**

NHS	Measure	Reliability
Interstate	Baseline (2017)	66.8%
	2-Year Target (2019)	70.0%
	4-Year Target (2021)	74.0%
Non-Interstate	Baseline (2017)	N/A
	2-Year Target (2019)	N/A
	4-Year Target (2021)	70.0%

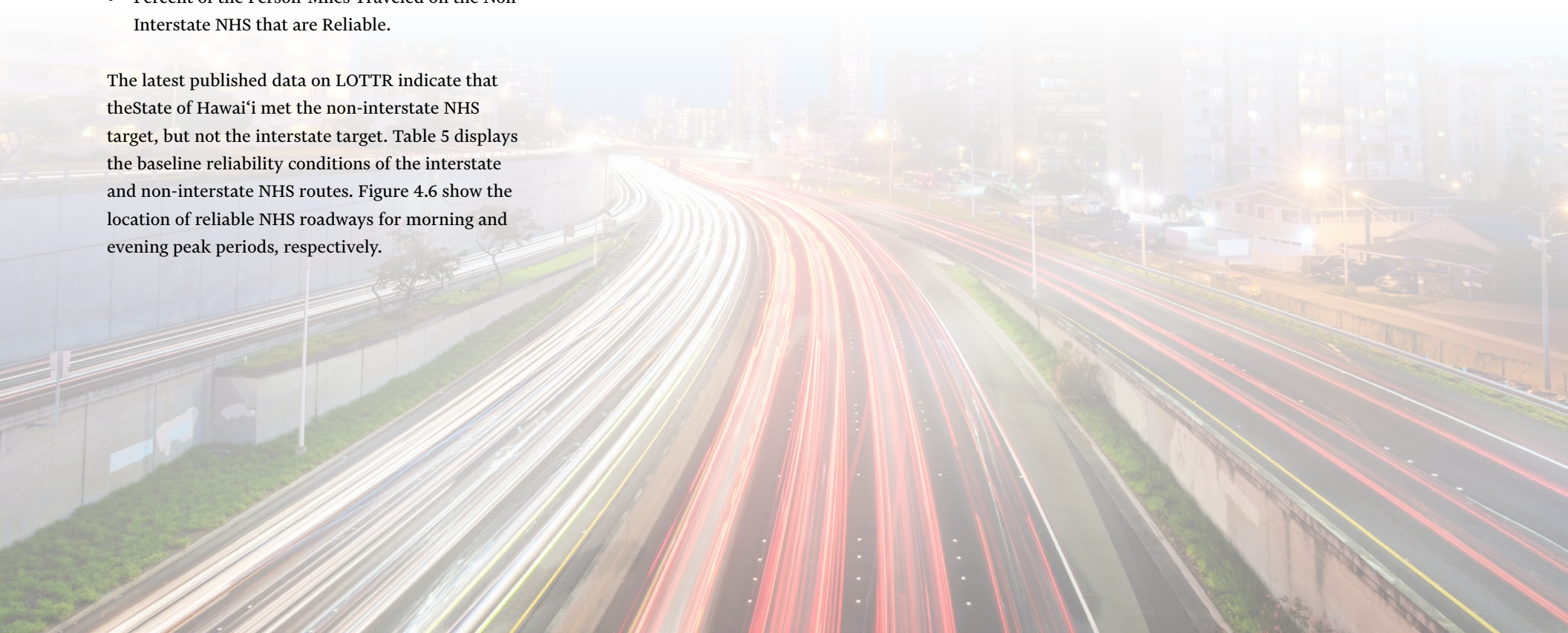


Figure 4.6: LOTTR



## Bicycle

In 2014 and 2018, Honolulu was recognized by the League of American Bicyclists as a bronze-level Bicycle-Friendly Community. According to the 2017 American Community Survey, approximately 1.2% of O'ahu commuters get to work by bicycle. However, many areas in urban and rural town centers see much higher rates of bike commuting with rates approaching 10% in some census tracts in Lā'ie and urban Honolulu. Recently completed protected bike lane projects on South King and South Streets have seen ridership along those corridors increase by 94% and 502%, respectively.<sup>3</sup>

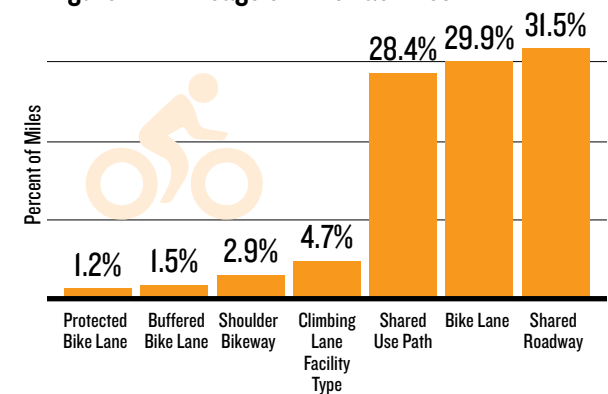
Additionally, Honolulu's bikeshare system, Biki, has experienced sustained ridership growth through its first year and a half of operation. It is now averaging 3,500 rides per day which places Biki among the most popular bikeshare systems in the nation.<sup>4</sup> All of this points to an expanding bicycling community on O'ahu with a growing demand for safe and convenient bicycle facilities. The COVID-19 pandemic is expected to negatively affect bike ridership.

O'ahu currently has 211 miles of bikeways. The existing bicycle network is primarily of three types of bicycle facilities: shared use paths, conventional bike lanes, and shared roadways. In the past five years, the City has begun installing buffered

and protected bike lanes to provide lower-stress bikeways that meet the needs of people who are interested in biking, but are concerned about their safety. Following the project priorities provided in the 2012 O'ahu Bike Plan, and taking advantage of opportunities provided by its street repaving schedule, the City has installed over 67 miles of new bikeways since 2012. This represents a 47% increase in the island's bikeway network.

The distribution of bicycle network miles by type of facility is shown in Figure 4.7 below. The graph shows that Shared-Use Path, Bike Lanes, and Shared Roadways account for about 90% of total bicycle network miles. Figure 4.8 and 4.9 depict the spatial distribution of existing and proposed bicycle facilities in the region. This ORTP has no report on the pedestrian system as the Oahu Pedestrian Plan is still in development.

**Figure 4.7: Mileage of Bike Facilities**



Source: O'ahu Bike Plan 2019 Update.

<sup>3</sup> DTS surveyed bicycle ridership pre and post-construction.

<sup>4</sup> National Association of City Transportation Officials. Bike Share in the US: 2017.

**Figure 4.8: Spatial Distribution of Existing Bicycle Facilities**

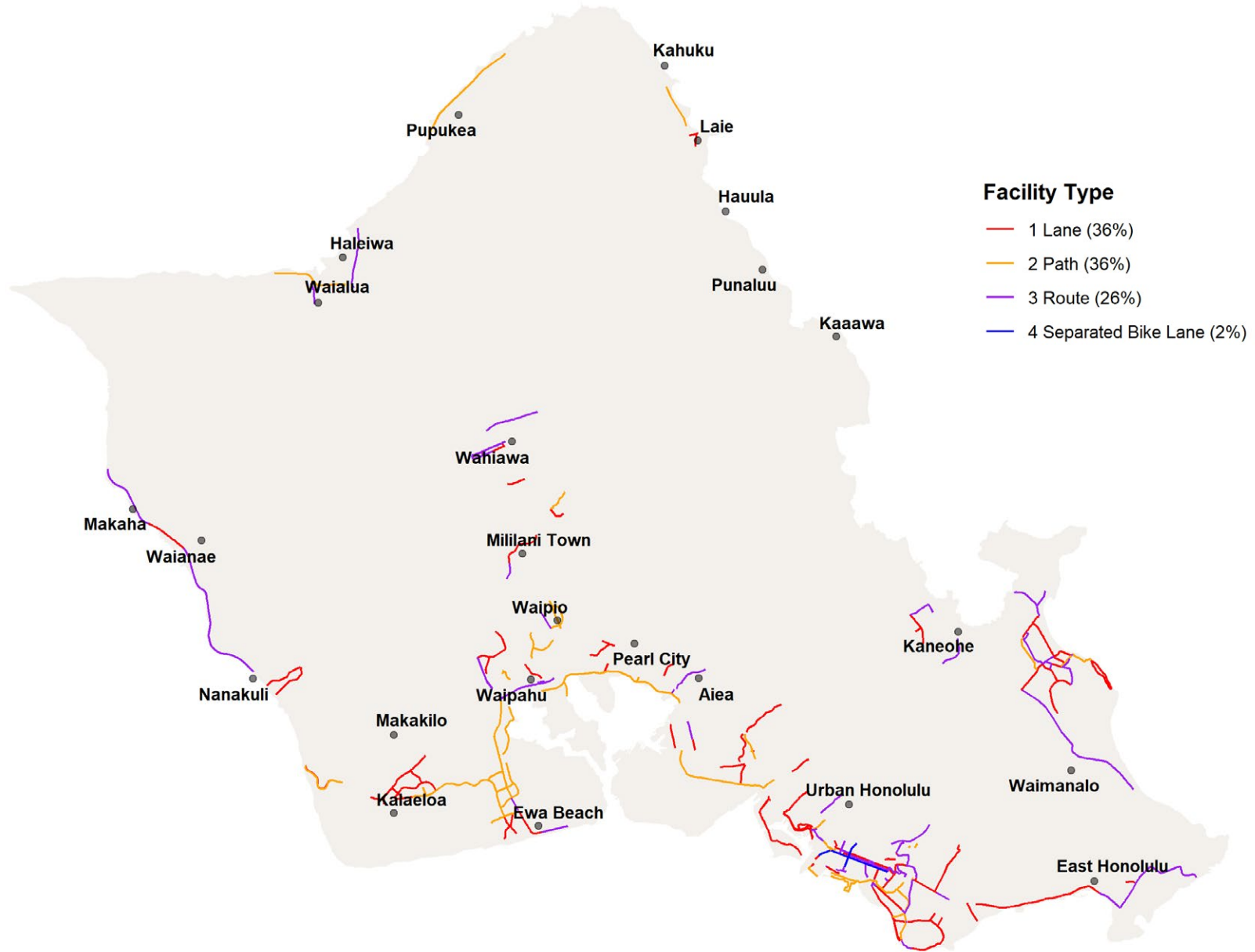
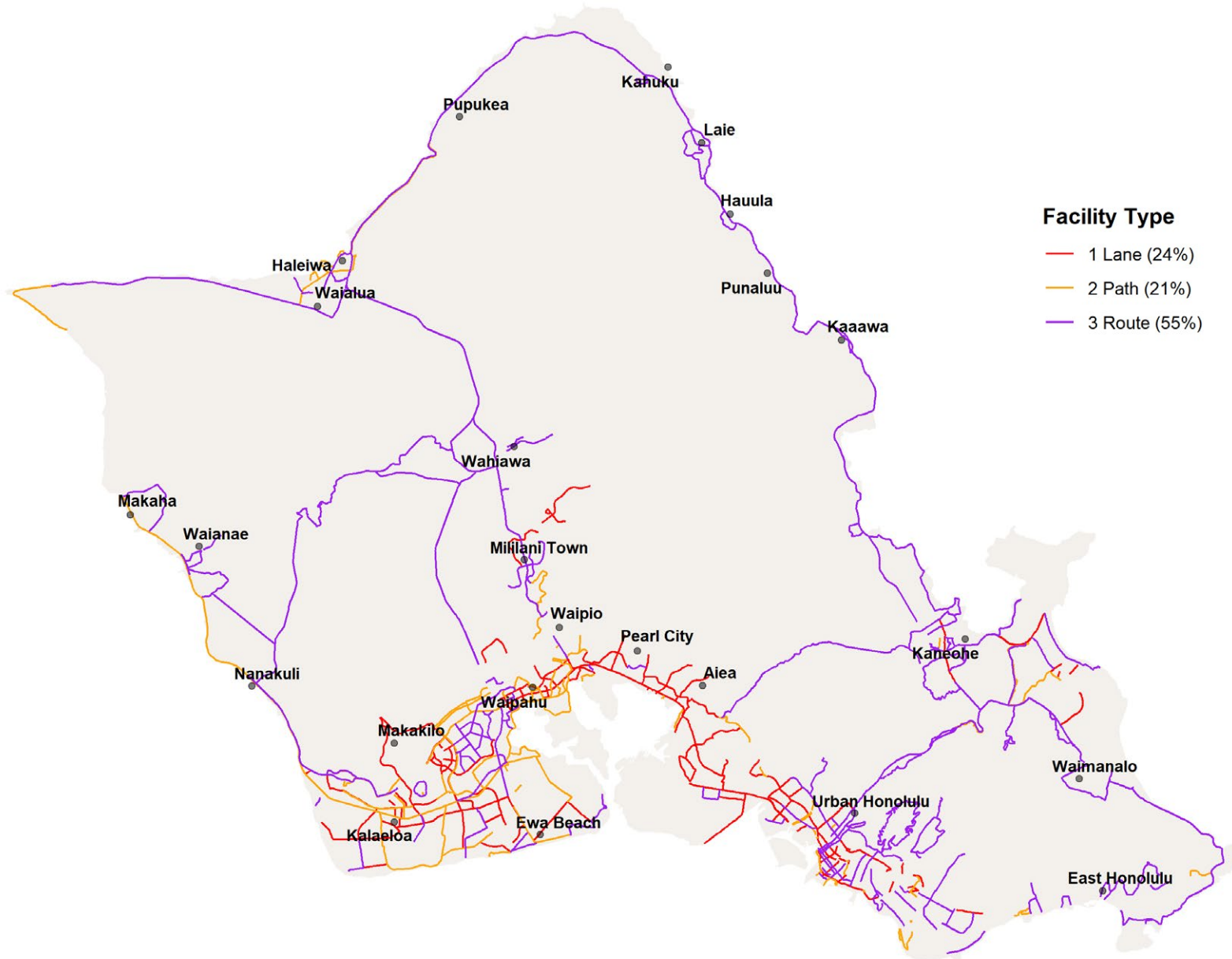


Figure 4.9: Spatial Distribution of Proposed Bicycle Facilities

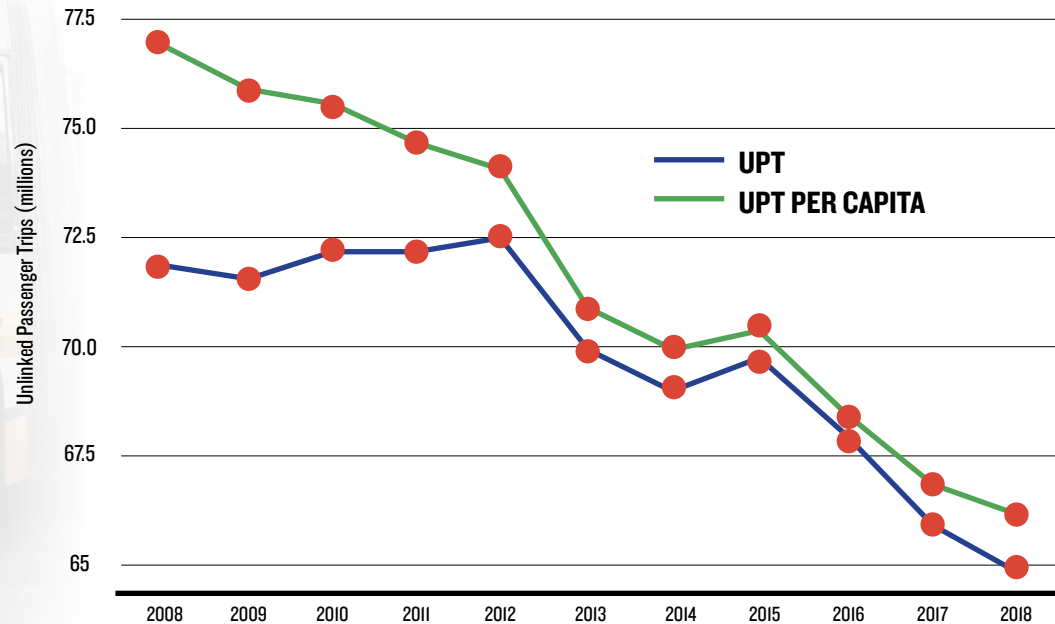


## Regional Transit System

Public transportation plays an increasingly important role in meeting the travel needs of the population. The City & County of Honolulu manage both fixed route (TheBus) and demand response (Handi-Van) systems.

The decline in transit ridership on O’ahu is consistent with national ridership trends. Per capita ridership indicates the use of the transit system relative to total population. Generally, transit ridership per capita closely follows total ridership, an indication that transit service is keeping pace with growth in population. Figure 4.10 shows transit ridership trends in urban Honolulu for TheBus and Handi-Van.

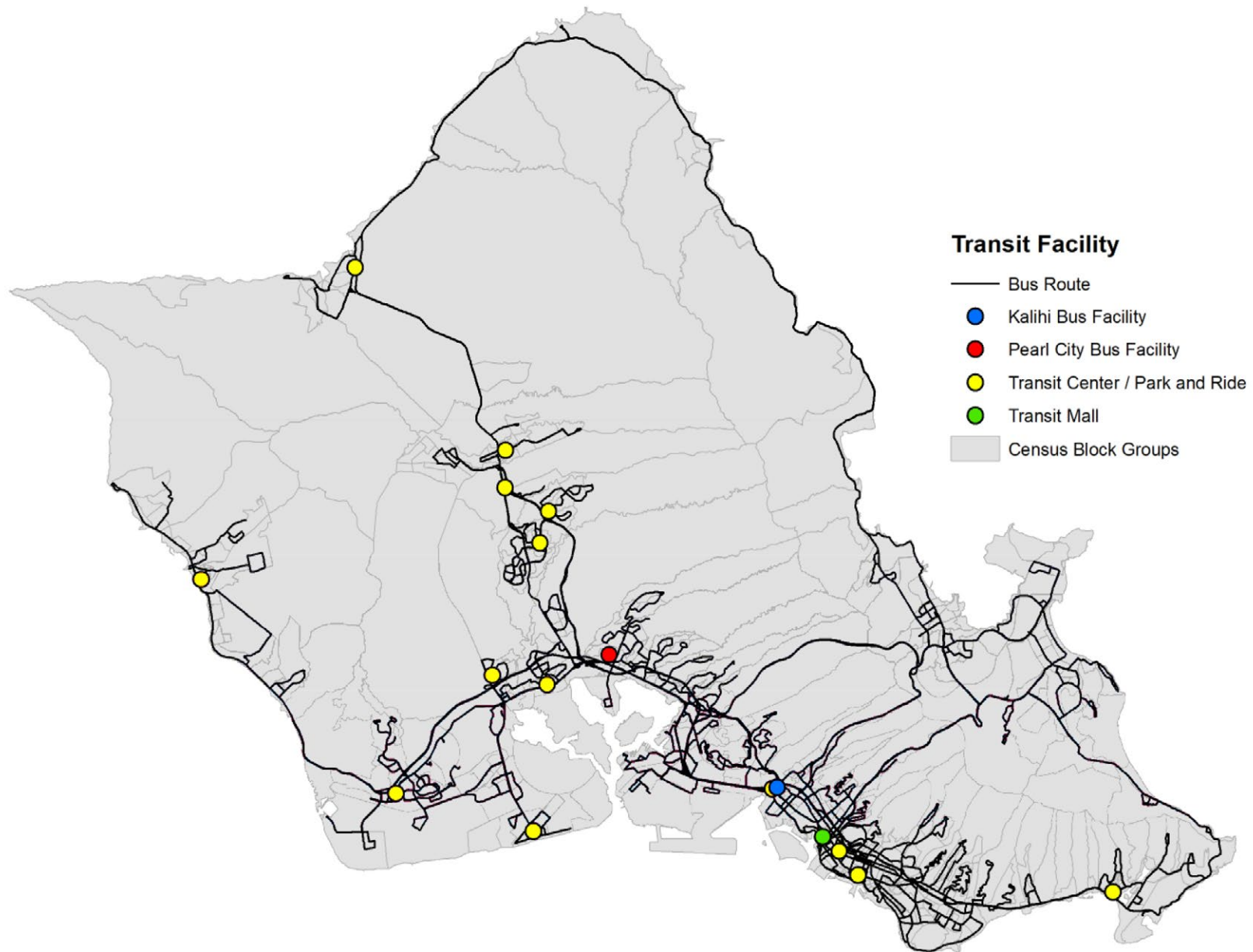
Figure 4.10: Transit Ridership Trends



Source: National Transit Database



Figure 4.II: Transit Facility Locations



Source: Department of Transportation Services (2019). Public Transit Title VI Program.

## FEDERAL PERFORMANCE MEASURES

Every transit agency must develop a transit asset management (TAM) plan if it owns, operates, or manages capital assets used to provide public transportation and receives federal financial assistance under 49 U.S.C. Chapter 53 as a recipient or subrecipient. Under FTA's TAM Final Rule, transit operators are required to track current performance and establish performance targets for the following asset categories in their TAM plan. MPOs are required to include TAM targets for transit providers serving their planning area in their performance reports.

- **Facilities:** The percentage of facilities within an asset class and for which agencies have capital rehabilitation and replacement responsibility, rated below condition 3 on the FTA TERM (Transit Economic Requirements Model) scale;
- **Rolling Stock (Revenue Vehicles):** The percentage of revenue vehicles by asset class that either meet or exceed their Useful Life Benchmark (ULB); and
- **Equipment (Service Vehicles):** The percentage of non-revenue, support-service, and maintenance vehicles that either meet or exceed their ULB.

Based on the Transit Economic Requirements Model (TERM) rating scale for facilities, DTS found a rating less than 3.0, an indication of adequate condition of facilities (see Table 4.6). As expected, revenue vehicles exceed their ULBs more than non-revenue vehicles. For revenue vehicles, about 24% of vehicles have exceeded ULB (see Table 4.7). On average, 16% of non-revenue vehicles have also exceeded their ULBs (see Table 4.8).

**Table 4.6: FY 2018 DTS Facilities Performance Targets**

Asset Category/Class	Total	Avg. Age	% Rated Below 3.0	Target
Passenger facilities	7	9.1	14%	10%
Passenger parking facilities	3	26	0%	10%
Maintenance facilities	11	22.8	0%	10%
Administrative facilities	1	29	0%	10%
<b>TOTAL</b>	<b>22</b>	<b>19.2</b>	<b>5%</b>	<b>10%</b>

**Table 4.7: FY2018 DTS Revenue Vehicles (Rolling Stock) Performance Targets**

Asset Category/Class	Total	Avg. Age	# of Vehicles At/ Beyond ULB	Target
Articulated Bus	115	10.6	23%	20%
Bus	429	10.4	24%	20%
Cutaway Bus	174	4.5	28%	20%
Van	16	1	0%	20%
<b>TOTAL</b>	<b>734</b>	<b>8.5</b>	<b>24%</b>	<b>20%</b>

**Table 4.8: FY2018 DTS Non-Revenue Vehicles (Equipment) Performance Targets**

Asset Category/Class	Total	Avg. Age	# of Vehicles At/ Beyond ULB	Target
Non-Revenue/Service Auto	67	8.4	15%	20%
Trucks	17	14.4	17%	40%
Maintenance	31	13.7	19%	20%
Operations	8	14.7	12%	20%
IT	4	5.2	0%	20%
<b>TOTAL</b>	<b>127</b>	<b>10.8</b>	<b>16%</b>	<b>30%</b>

## Freight

Commercial vehicle reliability was measured by Truck Travel Time Reliability (TTTR). The TTTR index was reported for five different time periods (AM peak 6:00am -10:00am, Midday Peak 10:00am-4:00pm, PM peak 4:00pm-8:00pm for Mondays through Fridays; 6:00am-8:00pm for weekends; and overnights for all days 8:00pm-6:00am). For each interstate segment over each time period, TTTR values were computed as a ratio of the 95th percentile truck travel time to the 50th percentile truck travel time, and then the highest TTTR value among the five time periods was multiplied by the length of the segment. TTTR ratios larger than 1.5 are considered unreliable. A regional TTTR index was generated by summing up

all length-weighted TTTR values, and then dividing the total length of the interstate segments in the analyzed region. The methods for calculating the TTTR are published by the FHWA.<sup>5</sup>

The region's 2018 average TTTR is 2.75. As shown in Figure 12, most of the improvement in truck reliability was from Wahiawā, Mililani, and Kāneʻohe sections of the freeway. Also, the regional TTTR was greater than the regional non-commercial vehicle freeway reliability (PTI) of 2.29, indicating that commercial vehicles experienced a greater level of unreliability. The Hawai'i Statewide Freight Plan<sup>6</sup> has important information about State freight trends and issues confronting the region.

5 <https://www.fhwa.dot.gov/tpm/guidance/hif18040.pdf>

6 [https://hidot.hawaii.gov/highways/files/2019/03/HDOT\\_FreightPlan\\_FINAL.pdf](https://hidot.hawaii.gov/highways/files/2019/03/HDOT_FreightPlan_FINAL.pdf)

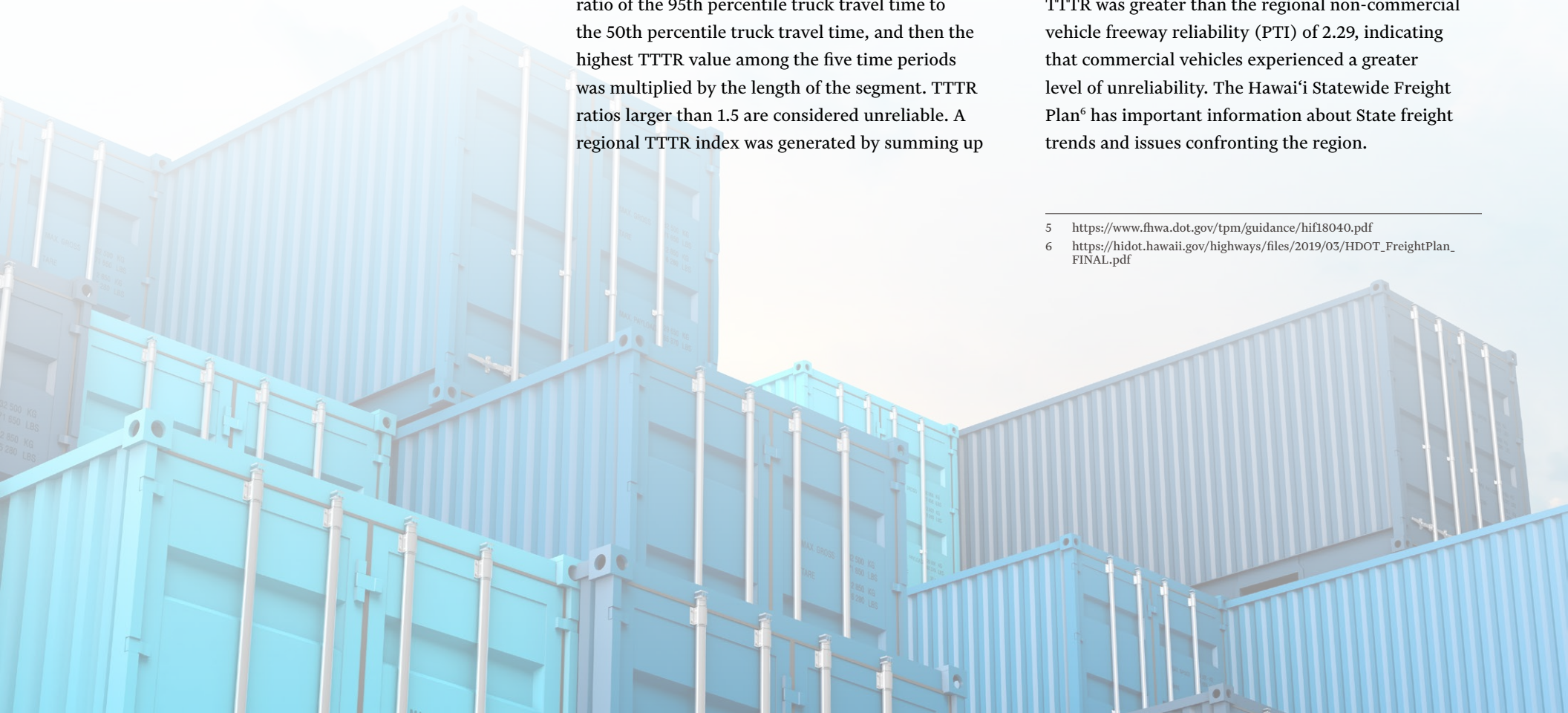


Figure 4.12: 2018 Truck Travel Time Reliability

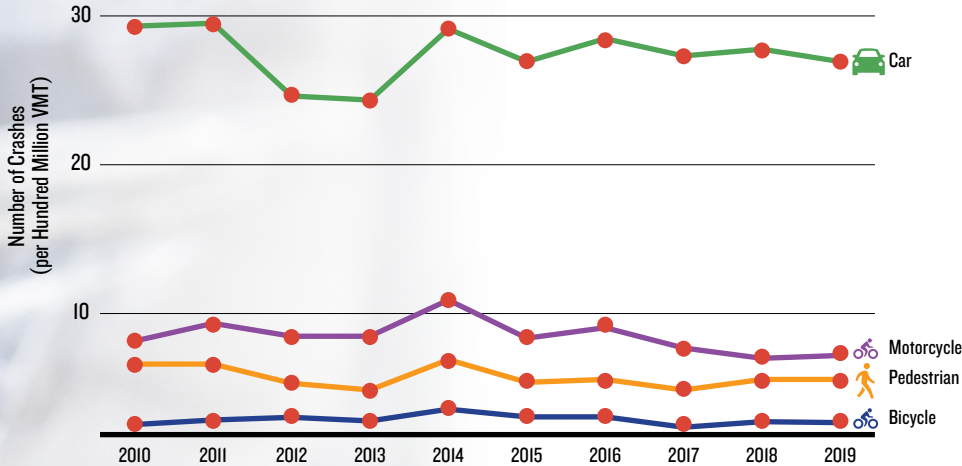


## Transportation Safety

The region's transportation network emphasizes safety for all users of the region's transportation system. Safety is an ongoing concern for OahuMPO with an emphasis on safety for users of non-motorized transportation modes within the region.

Regional crash rate is measured by the number of crashes divided by a hundred million vehicle miles traveled (VMT) and it is reported for each mode. Generally, crashes within the region decreased slightly from 2010 to 2019, as shown in Figure 4.13. The crash data show stark inter-modal differences with cars having at least three times the rate for the next in rank (motorcycles).

Figure 4.13: Regional Crash Rate 2010 to 2019



## Crash Locations

A heat map of crash locations was developed to show clusters of crash hotspots for 2019 for each transportation mode as in Figure 4.14 to 4.17. A hotspot analysis provides a quick screening that identifies high crash locations. The degree of crash clustering is scaled in a decreasing order from red to blue.

Although, generally, crash hotspots are located on the H-1 highway between Kapi'olani Boulevard and Likelike Highway, there exist pockets of intense crash sites across the region. Figures 4.14 to 4.17 show the spatial distribution of crash hotspots and other locations in the region.

### FEDERAL PERFORMANCE MEASURES (HIGHWAYS)

Highway Safety is the fulcrum around which the multi-faceted interaction between drivers, their behavior, and the highway infrastructure revolve around. The five (5) performance measures for Highway Safety are:

- (1) the number of fatalities;
- (2) the rate of fatalities;
- (3) the number of serious injuries;
- (4) the rate of serious injuries; and
- (5) the number of non-motorized fatalities and serious injuries.

Figure 4.14: Bike Crash Locations

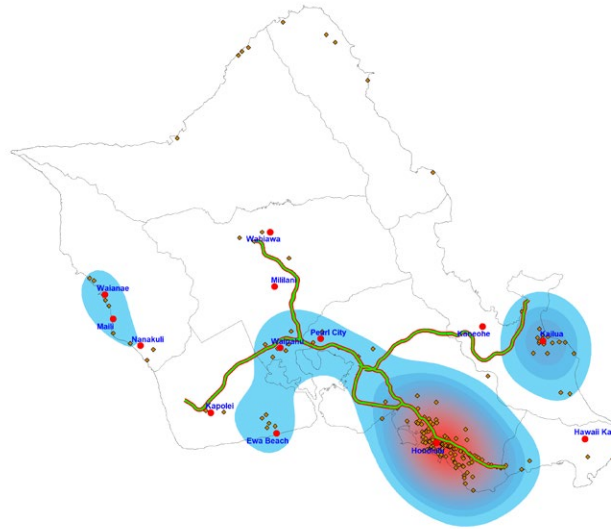


Figure 4.15: Car Crash Locations

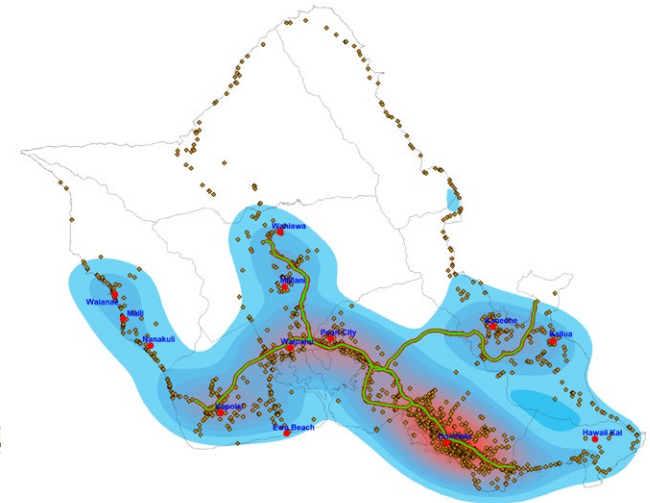


Figure 4.16: Motorcycle Crash Locations

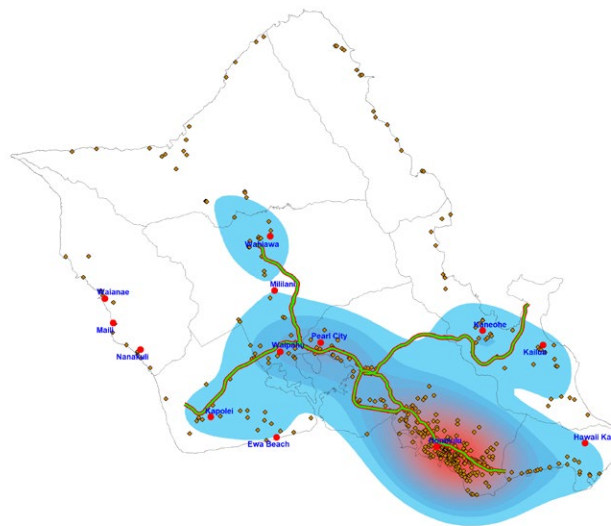
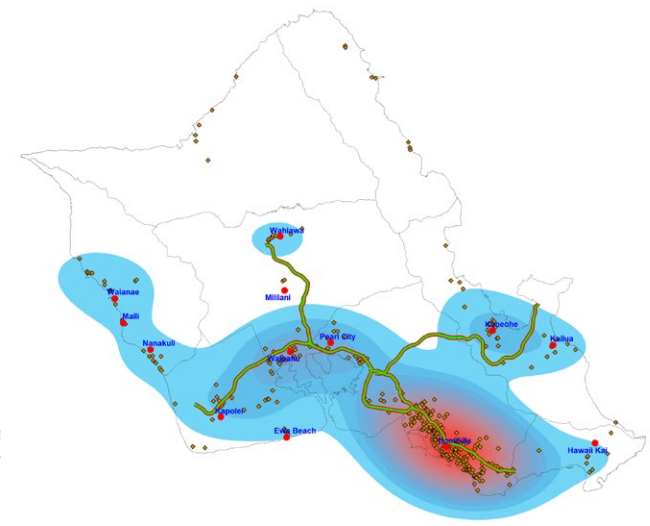


Figure 4.17: Pedestrian Crash Locations



The safety performance measures were the first established by the FHWA, with an effective date of April 14, 2016. The rules for the effective performance measures required all states to develop an Highway Safety Improvement Program (HSIP) which coordinates with the State’s Strategic Highway Safety Plans (SHSP). As part of the HSIP, the states are required to establish their initial targets for the performance measures in their August 31, 2017, HSIP Annual Report. These targets are updated with each HSIP Annual Report.

Based on baseline safety performance data, all the safety targets were met, except for number of fatalities and rate of fatalities. The adopted safety target and their achievement under the review period is shown in Table 4.9 below.

**Table 4.9: Safety Target and Achievement Under Review Period**

No.	Measure	Target	2014-18 Performance
1	Fatalities	97.6	106.4
2	Fatalities Rate (fatalities/100 million VMT)	0.946	1.006
3	Serious Injuries	517.4	437
4	Serious Injuries Rate (serious injuries/100 million VMT)	4.978	4.156
5	Non-Motorized Fatalities and Serious Injuries	119.4	112.6

## Transit Safety

Enacted in July 2019, the Federal Transit Administration’s (FTA) Public Transportation Agency Safety Plan Final Rule (49 CFR Part 673) requires the implementation of safety plans that include the processes and procedures for Safety Management Systems. The regulation further requires that:

- “The Public Transportation Agency Safety Plan must include performance targets based on the safety performance measures established under the National Public Transportation Safety Plan.”
- “A State or transit agency must make its safety performance targets available to States and Metropolitan Planning Organizations to aid in the planning process.”
- “To the maximum extent practicable, a State or transit agency must coordinate with States and Metropolitan Planning Organizations in the selection of State and MPO safety performance targets.”
- “Safety measures are based on data reported to the Federal Transit Administration’s National Transit Database.”

### FEDERAL SAFETY PERFORMANCE MEASURES

Seven (7) transit performance measures adopted by OahuMPO for bus and paratransit are:

- |                           |                                |  |
|---------------------------|--------------------------------|--|
| (1) number of fatalities; | (5) number of safety events;   | Table 4.10 reports the targets under each performance measure. |
| (2) rate of fatalities;   | (6) rate of safety events; and |  |
| (3) number of injuries;   | (7) system reliability.        |  |
| (4) rate of injuries;     |                                |  |

**Table 4.10: Transit Safety Performance Targets**

Mode	Fatalities	Fatality Rate (per 1M VRM)	Injuries	Injury Rate (per 100K VRM)	Safety Events	Safety Events Rate (per 100K VRM)	System Reliability (VRM/Mechanical Road Calls)
Bus	0	0	109	0.5	122	0.56	10.556
Paratransit	0	0	12	0.155	15	0.196	18.846





## CHAPTER FIVE

# Our Implementation Plan

This chapter demonstrates that the ORTP is financially constrained, in compliance with federal law, and that the projects and programs listed in Chapter 5 are “reasonably likely to be funded” for planning purposes, as defined by OAR 660-012-0040 (Transportation Financing Program). These assumptions are based on the transportation revenue forecast completed by Jacobs on behalf of OahuMPO. An overview of the revenue forecast will be provided in this chapter. For details of the revenue forecast, including key forecast assumptions and alternative funding strategies, see Appendix C. It should be noted that the forecast figures used in this chapter are for planning purposes only and do not commit any jurisdiction or agency to provide a specific level of funding.

The projects and programs listed in this chapter support the long-range vision for the island. These projects and programs come from adopted local, regional, or state planning efforts that provided opportunities for public input. The project and program list is important because in order to be eligible for federal transportation funding, a project must be included on this list. Federal law also requires that the estimated cost of the projects identified in the plan do not exceed the total revenue estimated over the life of the plan.

# How do we pay for our transportation projects?

Funding for highway and transit projects have primarily come from the state, city, and federal government, through fees such as the gas taxes, vehicle registration fees, etc. However, transportation revenues have not kept pace with the growth in needs for our transportation system. Decades of auto-oriented, suburban growth have expanded roadway needs greatly, while funding mechanisms to fund such investments have not kept pace. Many of these funding sources have been on the decline, with people driving less and fuel efficiency increasing, including the greater adoption of hybrid and electric vehicles. These are great outcomes in terms of achieving our vision and goals, but these outcomes also reflect less transportation funding. The sections below will discuss potential federal, state, and city funding sources.



## ROADWAY PROJECT FUNDING

### Potential Federal Funding Sources

The FAST Act is the current transportation bill for the four-year period from 2016 through 2020 (with an extension approved for one year, expiring on September 30, 2021). During this time, it will provide a total funding of \$305 billion for the nation's transportation needs. This legislation includes several categories of funding, under which many of the projects in the financially constrained plan will be eligible for federal funding assistance. These categories are:

#### NATIONAL HIGHWAY PERFORMANCE PROGRAM (NHPP)

This is a new program under MAP-21. The NHPP provides support for the condition and performance of the NHS and the construction of new facilities on the NHS. The NHPP also ensures that the investment of federal aid funds in highway construction is directed to support progress toward the achievement of the performance targets established in a state's asset management plan for the NHS.

Funds used from the NHPP may only be used for the construction of a public transportation project that supports progress toward the achievement of national performance goals for improving the:

- ✓ infrastructure condition,
- ✓ safety,
- ✓ mobility, or
- ✓ freight movement on the National Highway System (NHS).

The funds can only be used on projects that are eligible for assistance under chapter 53 of title 49, if:

- ✔ the project is in the same corridor as, and in proximity to, a fully access-controlled NHS route;
- ✔ the construction is more cost-effective (as determined by a cost-benefit analysis) than an NHS improvement; and
- ✔ the project will reduce delays or produce travel time savings on the NHS, as well as improve regional traffic flow.

The local match requirement for NHPP funded projects varies. The standard federal/state funding ratio for arterial and interstate routes is 80/20. However, the interstate system receives funding at a 90/10 ratio when a project adds HOV or auxiliary lanes. Two percent of the funding in this category must be set aside for State Planning and Research as defined by [23 U.S.C. 505].

According to [23 U.S.C. 126], a state has the ability to transfer up to 50 percent of its NHPP funds in a fiscal year to:

- ✔ National Highway Freight Program,
- ✔ Surface Transportation Block Grant Program,
- ✔ Transportation Alternatives,
- ✔ Highway Safety Improvement Program, and/or
- ✔ Congestion Mitigation and Air Quality Program.

### **SURFACE TRANSPORTATION BLOCK GRANT PROGRAM (STBGP)**

The STBGP is a new funding program that was created from a conversion of the Surface Transportation Program (STP). The STBGP contains subcategories of funding for states and urban areas.

Two percent of the funding in this category must be set aside for State Planning and Research as defined by [23 U.S.C. 505]. The other set-aside requirements for the STBGP are funding for bridges not on federal-aid highways and transportation

alternatives. Transportation alternatives' funding is sub-allocated based on an area's population in a manner identical to the now-defunct Transportation Alternatives Program (TAP).

The STBGP continues all the provisions of the former STP. As such, these funds can be used for any road, including NHS routes, which is not functionally classified as a local road or rural minor collector. However, there are exceptions to this rule<sup>1</sup>. A percentage of a state's STBGP apportionment (after set-asides for Transportation Alternatives) is allocated to the areas it serves based on population size groupings. These groupings are:

- ✔ Urbanized areas with population greater than 200,000.
  - This portion is to be divided among those areas based on their relative share of population, unless the Secretary approves a joint request from the State and relevant MPO(s) to use other factors.
- ✔ Areas with population greater than 5,000 but no more than 200,000
  - The State is to identify projects in these areas for funding, in consultation with regional planning organizations, if any.
- ✔ Areas with population of 5,000 or less. [23 U.S.C. 133(d)]

The funding ratio is 80/20. However, interstate projects that add HOV or auxiliary lanes have a funding ratio of 90/10.

Under the FAST Act, STBGP funds can be used to create and operate a state office to help design, implement, and oversee public-private partnerships (P3) that are eligible to receive Federal highway or transit funding. These funds can also be used to pay a stipend to unsuccessful P3 bidders in certain circumstances [23 U.S.C. 133(b)(14)]. Through the USDOT, the funds can, upon a state's request, be used to pay the subsidy and administrative costs for TIFIA credit assistance for an eligible STBGP project or group of projects. [23 U.S.C. 133(b)(13)]. The FAST Act also provides the STBGP with mention of the eligibility of the installation of vehicle to infrastructure communication equipment. [FAST Act §1407, 23 U.S.C. 133(b)(1)(D)].

### **HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)**

The HSIP is designed to achieve a significant reduction in traffic fatalities and serious injuries on all public roads. This includes non-State-owned public roads and those on tribal lands. Except as provided in 23 U.S.C. 120 and 130, the Federal share for projects using HSIP funding is 90 percent. The use of HSIP funds under the FAST Act are a continuation of those from MAP-21. HSIP funded projects must also be prioritized through the HSIP program based on crash statistics. Scope of these projects are determined through the project development process.” after, “Funding from the HSIP can be used for safety projects that are consistent with the State’s Strategic Highway Safety Plan (SHSP). The projects must correct/improve a hazardous road location, feature, or address a highway safety problem.

Funding from the HSIP can be used for safety projects that are consistent with the State’s Strategic Highway Safety Plan (SHSP). The projects must correct/improve a hazardous road location, feature, or address a highway safety problem.

Under MAP-21, HSIP funds were used for many types of projects due to the non-exhaustive nature of the list of eligible projects. The FAST Act imposes a more stringent use of HSIP funds. The funds may be used only on the activities specifically listed in the HSIP statute itself. Additional inclusions to HSIP from the FAST Act are:

- ✓ Installation of vehicle-to-infrastructure communication equipment.
- ✓ Pedestrian hybrid beacons.
- ✓ Roadway improvements that provide separation between pedestrians and motor vehicles, including medians and pedestrian crossing islands.
- ✓ Other physical infrastructure projects not specifically enumerated in the list of eligible projects.

The FAST Act continues the prohibition of the use of HSIP funds for the purchase, operation, or maintenance of an automated traffic enforcement system (except in school zones). [FAST Act § 1401]. However, workforce development, training, and education activities remain an eligible use of HSIP funds. [23 U.S.C. 504(e)]

### **RAILWAY-HIGHWAY CROSSINGS PROGRAM (RHCP)**

The Railway-Highway Crossings program provides funds for safety improvements to reduce the number of fatalities, injuries, and crashes at public railway-highway grade crossings. The Federal share for projects using funding from this category is 90 percent. The program requires that at least 50 percent of each state’s railway-highway crossings funds be set aside for the installation of protective devices at railway-highway crossings.

All prior program eligibilities for this funding have continued under the FAST Act. The FAST Act also extend eligibility to two new activities [FAST Act § 1412]:

- ✓ The relocation of highways to eliminate railway-highway grade crossings.
- ✓ Projects at railway-highway grade crossings to eliminate hazards posed by blocked crossings due to idling trains.

### **CONGESTION MITIGATION AND AIR QUALITY (CMAQ)**

Funding under the CMAQ program continues to provide a flexible funding source to state and local governments for transportation projects and programs in order to meet the requirements established by the Clean Air Act. CMAQ funding is used to reduce congestion and improve air quality for areas that are in nonattainment for ozone, carbon monoxide, or particulate matter. Former nonattainment areas that are now in compliance, and maintenance areas, are eligible for CMAQ funds as well. The funding ratio is 80/20. However, interstate projects that add HOV or auxiliary lanes have a funding ratio of 90/10.

O’ahu is in attainment for ozone, carbon monoxide, and particulate matter, meaning that the island meets air quality minimum standards. This allows more flexible use of CMAQ funds, however, agencies generally still program CMAQ funds to CMAQ eligible projects.

### **METROPOLITAN PLANNING PROGRAM (MP)**

The purpose of Metropolitan Planning funds is to carry out the requirements of 23 U.S.C. 134 and provide for a continuing, comprehensive and cooperative (3-C) metropolitan transportation planning process. Following 23 U.S.C. 104, generally,

Metropolitan Planning funds shall be made available to each Metropolitan Planning Organization (MPO) designated for an urbanized area with a population of more than 50,000 individuals and responsible for carrying out the 3-C metropolitan planning process.

### **NATIONAL HIGHWAY FREIGHT PROGRAM (NHFP)**

The National Highway Freight Program is a new funding category that was created by the FAST Act. This program is designed to improve the efficient movement of freight on the National Highway Freight Network (NHFN.) The FHWA states that the goals of this program are:

- ✔ Investing in infrastructure and operational improvements that strengthen economic competitiveness, reduce congestion, reduce the cost of freight transportation, improve reliability, and increase productivity.
- ✔ Improving the safety, security, efficiency, and resiliency of freight transportation in rural and urban areas.
- ✔ Improving the state of good repair of the NHFN.
- ✔ Using innovation and advanced technology to improve NHFN safety, efficiency, and reliability.
- ✔ Improving the efficiency and productivity of the NHFN.
- ✔ Improving state flexibility to support multi-State corridor planning and address highway freight connectivity.
- ✔ Reducing the environmental impacts of freight movement on the NHFN. [23 U.S.C. 167 (a), (b)]

The funding ratio is up to 90/10 for interstate projects, including those that add HOV or auxiliary lanes. NHFP funds must be used in order to contribute to the efficient movement of freight on the NHFN. Projects using NHFP funds must be identified in a freight investment plan that is included in a state's freight plan.



## **TRANSIT PROJECT FUNDING**

### **Potential Federal Funding Sources**

There are many federal funding sources for public transit. Most of these sources are programs funded by the Federal Transit Administration (FTA) or the Federal Highway Administration (FHWA). While funded by federal agencies, these programs are administered by the states. The following federal funding programs are formula-based or discretionary grants that are funded by the federal government and available for transit providers in the OahuMPO to utilize.

#### **METROPOLITAN TRANSPORTATION PLANNING (SECTION 5303)**

This formula-based funding program provides funding and procedural requirements for multimodal transportation planning in metropolitan areas. The planning efforts must follow the 3C process and result in long-range plans and short-range programs of transportation investment priorities. The maximum federal share for this funding category is 80 percent, with a required local match minimum of 20 percent. This funding category is only available to Metropolitan Planning Organizations. The funds are first apportioned to the state DOTs, which are then allocated to the MPOs.

#### **URBANIZED AREA FORMULA GRANTS (SECTION 5307)**

This formula-based funding program provides funds for capital and operating assistance for transit operations in urbanized areas and for transportation-related planning. The funds can be used for:

- ✔ planning, engineering, design and evaluation of transit projects, and other technical transportation related studies;
- ✔ capital investments in bus and bus-related activities such as:
- ✔ replacement of buses,
- ✔ overhaul of buses,
- ✔ rebuilding of buses,

- ✔ crime prevention and security equipment,
- ✔ construction of maintenance and passenger facilities; computer hardware/software; and
- ✔ operating assistance in urbanized areas under 200,000 in population, or with 100 or fewer fixed-route buses operating in peak hours.

Activities eligible under the former Job Access and Reverse Commute (JARC) program, which provided services to low-income individuals to access jobs, are now eligible under the Urbanized Area Formula program. The maximum federal share is 80 percent for capital projects, 50 percent for operating assistance, and 80 percent for ADA non-fixed route paratransit service.

#### **CAPITAL INVESTMENT GRANTS (CIG) (SECTION 5309)**

Capital Investment Grants are the FTA's primary grant program for funding major transit capital investments. These investments include:

- ✔ heavy rail,
- ✔ commuter rail,
- ✔ light rail,
- ✔ streetcars, and
- ✔ bus rapid transit.

There is an annual call for applications and selection of awardees by the FTA. The law requires that projects seeking Capital Investment Grants funding complete a series of steps over several years to be eligible for funding. New Starts and Core Capacity projects require the completion of the Project Development and Engineering phases in advance of the receipt of a construction grant agreement. Small Starts projects require only the completion of the Project Development phase. The projects are required to be rated by the FTA at various points in the process according to statutory criteria used for evaluating project justification and local financial commitment.

Enhanced Mobility of Seniors and Individuals with Disabilities (Section 5310) Grants for this funding category are made by the states to private non-profit organizations (and certain public bodies) to increase the mobility of seniors and persons with disabilities. The former New Freedom program (Section 5317) has been folded into this program. The New Freedom program provided grants for services for individuals with disabilities that went above and beyond the requirements of the Americans with Disabilities Act (ADA). Activities that were eligible under New Freedom are now eligible under the Enhanced Mobility of Seniors and Individuals with Disabilities program. Eligible capital costs include buses, vans, radios, computers, engines, and transmissions. Section 5310 funds are apportioned among the states by a formula. The formula is based on the number of seniors and people with disabilities in each state according to the latest available U.S. Census data. The maximum federal share is 80 percent for eligible capital costs, and 50 percent for operating assistance. The 10 percent that is eligible to fund program administrative costs including administration, planning, and technical assistance may be funded at a 100 percent federal share.

#### **RURAL AREA FORMULA GRANTS (SECTION 5311)**

This formula-based funding program provides funding that can be used for:

- ✔ administration,
- ✔ planning,
- ✔ capital,
- ✔ operating,
- ✔ job access and reverse commute projects, and
- ✔ the acquisition of public transportation services.

Eligible recipients for the grants include states and federally recognized Indian Tribes. Subrecipients may include state or local government authorities, nonprofit organizations, and operators of public transportation or intercity bus service. The federal share is 80 percent for capital projects, 50 percent for operating assistance, and 80 percent for ADA non-fixed route paratransit service.

## OTHER FTA GRANT PROGRAMS

The FTA has several other funding sources for special programs, including:

- ✓ Public Transportation Emergency Relief Program (Section 5324)
- ✓ Public Transportation Innovation (Section 5312)
- ✓ Human Resources & Training (Section 5314b)
- ✓ Low and No-Emission Component Assessment Program
- ✓ Low or No-Emission Vehicle Program (Section 5339c)
- ✓ Mobility on Demand (MOD) Sandbox Program (Section 5312)
- ✓ Rural Transportation Assistance Program {Section 5311(b)(3)}
- ✓ Safety and Research Demonstration Program
- ✓ State of Good Repairs Grants (Section 5337)
- ✓ Technical Assistance & Standards Development - 5314(a)
- ✓ Tribal Transit Formula Grants - 5311(c)(2)(B)
- ✓ Zero Emission Research Opportunity (ZERO)
- ✓ CMAQ (FAST Act § 1114; 23 U.S.C. 149)

## SURFACE TRANSPORTATION BLOCK GROUP PROGRAM (STBGP)

The STBGP provides funding that may be used by states and localities for a wide range of projects, including transit and intercity bus. The local match requirements vary based on the project and facility type. Funds that were previously available through the TAP have been created as a set-aside in the STBGP.

## NATIONAL HIGHWAY PERFORMANCE PROGRAM (NHPP)

The NHPP funds for transit apply in the same manner as described in the previous section. However, with transit projects, the local match requirement varies.



## PEDESTRIAN AND BICYCLE PROJECT FUNDING

Future federally funded transportation projects will present many opportunities for bicycling and pedestrian facilities to be incorporated, unless exceptional circumstances exist.

## Potential Federal Funding Sources

Many of the major federal roadway and public transit funding sources described in previous sections of this chapter are flexible enough to fund construction of bicycle and pedestrian facilities. The Transportation Alternatives funding discussed in the previous section, under STBGP is specifically for pedestrian and bicycle projects.

## Potential Local Funding Sources

### STATE OF HAWAII REVENUE SOURCES

The primary revenue sources for ground transportation are specific to the Special Revenue Fund for Highways, with a considerable amount of tax revenues related to vehicles, including vehicle weight tax, vehicle registration fees, liquid fuel tax, rental motor vehicle surcharge tax, licenses and fees, and fines forfeitures penalties. The non-tax revenues to the State's governmental funds include intergovernmental revenues, charges for current services, revenues from private sources, interest and investment income, rentals, and other revenues.

The following categories of funding make up Highway Special Revenue Fund Tax Revenues:

- ✓ Liquid Fuel Tax—The Highway Fund portion only of a tax on distributors for each gallon of liquid fuel refined, manufactured, produced, or compounded by the distributor and sold or used by the distributor in the state. Most commonly, distributors pass this tax on to the customers (HRS §243).

- ✓ **Vehicle Weight and Registration Tax**—This category is composed of vehicle weight tax and vehicle registration fees (HRS §249).
- ✓ **Rental Motor, Tour Vehicle, and Car-Sharing Vehicle Surcharge Tax**—This tax is composed of daily surcharge fees imposed on rental vehicles and tour vehicles and a surcharge tax per every half-hour that a motor vehicle is rented or leased by a car-sharing organization (HRS §251).

Highway Special Revenue Fund Non-Tax Revenues include the following:

- ✓ **Interest and Investment Income** - Revenue derived from the investment of State Highway Fund moneys on deposit in the State Investment Pool.
- ✓ **Charges for Current Services** - Periodic motor vehicle inspection charges, commercial license fees.
- ✓ **Rentals** - Rents from the State Highway System properties.
- ✓ **Fines, Forfeitures, and Penalties** - All other fines, forfeitures and penalty fees paid to the State Highway Fund, not listed in the Other category below (for example, as listed in Hawaii Administrative Rules [HAR] §19-241 and §19-245).
- ✓ **License and Fees** - Primarily drivers' licensing fees paid to the State Highway Fund.
- ✓ **Other** - Composed of vehicle weight tax penalties, fines for illegal parking on bikeways, fines for parking violations on State Highways known as the State Highway Enforcement Program, fines for use of mobile electronic device while driving, and other miscellaneous revenues.

### CITY AND COUNTY OF HONOLULU REVENUE SOURCES

The City's ground transportation revenue comes primarily from the Highway Fund and the Public Transportation System. The Highway Fund includes special revenue proceeds that have been earmarked by law for highway and related activities. Typically, they include the City's fuel tax, motor vehicle weight tax, and public utility franchise tax. Funding from the Public Transportation System capital project being constructed by the Honolulu Authority for Rapid Transportation include charges for services, capital grants/contributions, investment earnings, and intergovernmental transfers (that is, GET). Revenue

sources for Public Transportation System operations include charges for services and operating grants/contributions, with the predominant contributions coming from grants from the City and County of Honolulu, Highway Fund and General Fund which predominately fund wages and fringe benefits, fuel and energy, materials and services, and risk and insurance.

## SPOTLIGHT: Innovative Funding Mechanism

In order to mitigate the decrease in transportation funding, due to greater fuel efficiency and the adoption of hybrid and electric vehicles, the Hawai'i Department of Transportation is studying the feasibility of implementing a road usage charge.

The road usage charge would replace the gas tax, with drivers paying to use the roads based on the number of miles driven, rather than on how many gallons of fuel burned. This is one strategy to help close the transportation funding gap. In particular, the road usage charge would ask those who own hybrid and electric vehicles to pay their fair share, for road maintenance and other transportation projects, as they currently do not pay nearly as much in gas taxes, as those who drive conventional vehicles. Like the gas tax, the road usage charge fees would go into the highway fund which helps to pay for the upkeep, improvement, and enhancement of the State's surface transportation system.



FOR MORE INFORMATION, VISIT [www.hiruc.org](http://www.hiruc.org)



## Demonstration of Financial Constraint

The ORTP is required to demonstrate that the projects and programs included in the plan do not cost more than expected transportation funding. This is known as financial or fiscal constraint. Given the long-term nature of the 2045 ORTP, and the degree of uncertainty in estimating both costs and revenues, funding shown in the 2045 ORTP may not be available in exactly the same amounts or mix of sources indicated in this plan. Actual funding amounts depend on the federal, state and local budget processes for any given year. Near term plans, such as the Transportation Improvement Program (TIP) which covers four years, must demonstrate stricter fiscal constraint, ensuring that as costs and revenue forecasts become more precise, and as projects move towards implementation, fiscal accountability is maintained. For details of the revenue forecast, including key forecast assumptions and alternative funding strategies, see Appendix C. The following table demonstrates project and program costs compared to the forecasted transportation funding expected to be available to pay for them.

To demonstrate financial constraint, Table 5.1 compares the reasonably expected funding to the estimated costs of projects and programs, included in the plan. A list of the financially constrained projects can be found in the next section.

**Table 5.1 Demonstration of Financial Constraint: Forecasted Funding Compared to Project and Program Costs**

Funding Period	Funding Years	Project (by Category)	Expenditure (x\$Millions)	Revenue (x\$Millions)
Short-Range Projects and Programs 2021-2025	2021-2025	Transportation Improvement Program	\$2,085.50	\$4,697.00
Mid-Range Projects and Programs 2026-2035	2026-2030	Roadway Capacity	\$731.20	
		Highway, Road, and Bridge Operations and Maintenance	\$734.30	
		Safety	\$135.00	
		Transit Capital	\$62.60	
		Transit Operations and Maintenance	\$3,232.30	
		Pedestrian and Bicycle	\$74.90	
		System Management and Operations	\$28.10	
		Transportation Demand Management	\$5.50	
		<b>Total</b>	<b>\$5,003.80</b>	<b>\$5,855.00</b>
	2031-2035	Roadway Capacity	\$547.90	
		Highway, Road, and Bridge Operations and Maintenance	\$734.30	
		Safety	\$135.00	
		Transit Capital	\$62.60	
		Transit Operations and Maintenance	\$4,098.50	
		Pedestrian and Bicycle	\$74.90	
		System Management and Operations	\$28.10	
		Transportation Demand Management	\$5.50	
		<b>Total</b>	<b>\$5,686.70</b>	<b>\$6,810.00</b>

Table 5.1 continued 

**Table 5.1 Demonstration of Financial Constraint: Forecasted Funding Compared to Project and Program Costs (continued)**


Funding Period	Funding Years	Project (by Category)	Expenditure (x\$Millions)	Revenue (x\$Millions)
Long-Range Projects and Programs 2036-2045	2036-2040	Roadway Capacity	\$479.50	
		Developer Funded Roadway Capacity	\$20.95	
		Highway, Road, and Bridge Operations and Maintenance	\$879.60	
		Safety	\$135.00	
		Transit Capital	\$0.00	
		Transit Operations and Maintenance	\$4,763.90	
		Pedestrian and Bicycle	\$208.50	
		System Management and Operations	\$76.20	
		Transportation Demand Management	\$11.10	
		<b>Total</b>	<b>\$6,574.60</b>	<b>\$7,800.00</b>
	2041-2045	Roadway Capacity	\$377.50	
		Developer Funded Roadway Capacity	\$20.95	
		Highway, Road, and Bridge Operations and Maintenance	\$879.60	
		Safety	\$135.00	
		Transit Capital	\$0.00	
		Transit Operations and Maintenance	\$5,863.40	
		Pedestrian and Bicycle	\$208.50	
		System Management and Operations	\$76.20	
		Transportation Demand Management	\$11.10	
	<b>Total</b>	<b>\$7,572.10</b>	<b>\$8,805.00</b>	

Table 5.1 continued

**Table 5.1 Demonstration of Financial Constraint: Forecasted Funding Compared to Project and Program Costs (continued)**

Funding Period	Funding Years	Project (by Category)	Expenditure (x\$Millions)	Revenue (x\$Millions)	
Projects and Programs Total 2021-2045		Transportation Improvement Program	\$2,085.50		
		Roadway Capacity	\$2,136.10		
		Developer Funded Roadway Capacity	\$41.90		
		Highway, Road, and Bridge Operations and Maintenance	\$3,227.60		
		Safety	\$540.00		
		Transit Capital	\$125.10		
		Transit Operations and Maintenance	\$17,958.20		
		Pedestrian and Bicycle	\$566.70		
		System Management and Operations	\$208.50		
		Transportation Demand Management	\$33.10		
			<b>Total</b>	<b>\$26,922.67</b>	<b>\$33,967.00</b>
			City and County of Honolulu Share:	\$22,139.80	-
			State of Hawai'i Share:	\$4,782.90	-
Illustrative Projects		Illustrative Roadway Capacity and Operational Improvements Projects	\$2,393.70	\$0.00	
		Illustrative Transit Projects	\$12,365.00	\$0.00	
		<b>Total</b>	<b>\$14,758.70</b>	<b>\$0.00</b>	

Table 5.1 demonstrates that \$33.967 billion of funding will be available for projects and programs in the region from 2021 to 2045. This compares to \$26.923 billion of costs for projects and programs.



# Prioritizing Our Investments to Meet Our Most Urgent Needs

## PROJECT AND PROGRAM DEVELOPMENT

To develop the list of projects and programs, OahuMPO issued a call for projects and programs from August 12, 2020 – September 30, 2020. See the project and program application in Appendix E. The new projects and programs received were evaluated by OahuMPO staff, and then the evaluations were reviewed by its technical working group, Technical Advisory Committee, Citizen Advisory Committee, and Policy Board. See Appendix F for the final evaluation of new projects and programs, including the geographic analyses. More information about the new projects and programs can be found in the project information sheets in Appendix G. Table 5.2 shows how the new projects and programs were scored.

Following that, the draft list of projects and programs were put out for public comment on the ORTP webpage, via survey and webmap. Request for community feedback via survey was emailed to target community organizations and advertised via the OahuMPO Facebook, newsletter, and announcements at Neighborhood Board meetings. The comments received from the public were provided to the technical working group, Technical Advisory Committee, Citizen Advisory Committee, and Policy Board, for consideration when finalizing the project and program list. See the comments received in Appendix H.

OahuMPO also provided the list of proposed project and programs to state and local agencies responsible for land management, natural resources, environmental protection, conservation, and historic preservation. The MPO consulted with these agencies regarding how their future plans may impact planned transportation projects, any transportation solutions needed with regard to future plans, and any recommended environmental mitigation activities implementing agencies may take due to potential impacts on natural resources, environmental protection, conservation, and historic preservation sites. More information about this consultation may be found in Appendix I.

Planning efforts on O'ahu have yielded a sizable list of projects and programs to make it safer, easier, and more comfortable to get around the island. However, transportation funds and staff resources are limited, compelling a process to prioritize investments that will best achieve the ORTP's vision and goals.

Prioritizing starts with understanding the challenges we need to address. Priorities were identified during the public engagement process and reflected in the ORTP's vision and goals. See Appendix B for more information about the public engagement process.

OahuMPO has created a project and program prioritization process to evaluate potential transportation projects and programs using measurable criteria based on the goals of our long-range plan. It provides a quantitative method to compare projects and programs proposed for our O'ahu Regional Transportation Plan. The full project and program prioritization process can be read in Appendix D.

**Table 5.2 Scoring of New Projects and Programs**

Rank	Project Name	Lead Agency	Funding Request Timeframe	Estimated Total Cost	Evaluation Score
1	Kamehameha Highway (Route 99) Seismic Retrofit, Pearl Harbor Interchange, Structure #2	HDOT	Short	\$5,000,000	58
1	Likelike Highway (Route 63) Seismic Retrofit, Kalihi Stream Bridges	HDOT	Short	\$11,000,000	58
1	Moanalua Freeway, (Interstate Route H-201) Seismic Retrofit, Puuloa Interchange (Five Structures)	HDOT	Short	\$15,000,000	58
4	Kalaeloa Boulevard Railroad Improvements	DTS	Short	\$694,000	45
5	System Preservation Program	HDOT	Mid/Long	\$551,000,000	43
6	Pali Highway, Rockfall Mitigation, Vicinity of MP 5.90 to MP 6.10	HDOT	Short	\$5,000,000	40
6	Pali Highway, Rockfall Mitigation, Vicinity of MP 6.10 to MP 6.55	HDOT	Short	\$13,000,000	40
8	Fort Barrette Road Railroad Crossing Improvements	HDOT	Short	\$2,750,000	36
9	Oahu Traffic Signal Controller Modernization, Phase 2	DTS	Short	\$11,876,000	33
10	Resiliency Program	HDOT	Mid/Long	\$514,000,000	32
11	Safety Program	HDOT	Mid/Long	\$540,000,000	31
12	Interstate Route H-1 Highway Lighting Improvements, Kaimakani Overpass to Gulick Avenue, Phase I, MP 12.83 to MP 16	HDOT	Short	\$40,000,000	30
13	Congestion Mitigation Program	HDOT	Mid/Long	\$710,000,000	22.5
14	Harbor Access Road (Route 9400)	HDOT	Short	\$142,000,000	13
15	Kamehameha Highway Safety Improvements, Kukuna Road to Kahana Valley Road	HDOT	Short	\$4,530,000	12
16	Kunia Interchange Improvements	HDOT	Short	\$160,000,000	7
17	Interstate Route H-3, Halawa Valley Mitigation, Phase 2, Native Species Area to Tunnel Portal	HDOT	Short	\$5,500,000	4
17	Interstate Route H-3, Halawa Valley Mitigation, Phase 3, Gate 3 to Native Species Area	HDOT	Short	\$5,500,000	4
19	Farrington Highway Widening, Helelua to Mohihi	HDOT	Short	\$34,500,000	-1

Finally, the draft list of projects and programs was run through OahuMPO's Title VI/T6 and Environmental Justice (T6/EJ) analysis. This analysis evaluates the equity in spending by measuring average per capita investment by census block group based on the proposed constrained list of projects included in the ORTP.

The census block groups (BG) are classified as either T6/EJ BG or non-T6/EJ BG based on the whether there is a higher-than-average percent of low-income and/or racial minority residents in the census block group. The results of the T6/EJ analysis can be found in Appendix K.

## Constrained List of Projects and Programs

The following section lists the final constrained list of projects and programs that the MPO can reasonably assume it will complete based on funding assumptions described in the section above. The first four years (2022-2025) of the ORTP project are projects and programs that will be proposed in OahuMPO's short-range planning document, the Transportation Improvement Program (TIP). Beyond 2025, the projects listed address projected future transportation needs. These projects are grouped in year ranges of mid-range (2026-2035) and long-range (2036-2045).

 FOR AN INTERACTIVE MAP, PLEASE VISIT: <https://arcg.is/GieTf>

New projects and programs have an asterisk next to its project number.



## SHORT-RANGE PROJECTS AND PROGRAMS

The following section lists projects and programs that are programmed in our Transportation Improvement Program and are existing and committed for funding in the near future (FFYs 2022-2025). Tables 5.3 through 5.6 show the constrained short-range project and program list, by funding source and agency.

**Table 5.3 Short-Range FHWA Funded State Projects and Programs – 2022–2025**

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
OSI	HDOT	Bridge and Pavement Improvement Program, Oahu	System maintenance of highway bridges and pavements. Work may include bridge and/or pavement reconstruction, resurfacing, restoration, rehabilitation and/or preservation.	\$84
OS76	HDOT	Bridge Rehabilitation Program, Various Locations	Priority Rehabilitation of Oahu of bridges. Bridges to be rehabilitated are determined by HDOT's Bridge Management System (BrM). These funds have been programmed to a level that meets HDOT's TAMP expenditure plan	\$19.5
OS77	HDOT	Bridge Replacement Program, Various Locations	Priority replacement of Oahu of bridges. Bridges to be replaced are determined by HDOT's Bridge Management System (BrM). These funds have been programmed to a level that meets HDOT's TAMP expenditure plan	\$13.4
OS78	HDOT	Bridge Seismic Retrofit Program, Various Locations	Seismic Retrofit of bridges. Bridges to be retrofit are determined by HDOT's Seismic Retrofit Management Program. These funds have been programmed to a level that meets HDOT's TAMP expenditure plan	\$7.4
OSI2	HDOT	Destination Sign, Upgrade and Replacement	Replace and/or upgrade the existing destination signs and sign support structures.	\$16.203
OS4	HDOT	Farrington Highway (Route 93), Bridge Replacement, Makaha Bridges #3 & #3A	Replace two timber bridges in the vicinity of Makaha Beach Park. For both bridges, the scope includes widening the paved shoulders on the makai side from 3 feet to 10 feet; and, widening the mauka side from 1 foot to 10 feet. This is to accommodate bicyclists and pedestrians.	N/A
OS69	HDOT	Farrington Highway (Route 93), Safety Improvements, H-1 Freeway to Pohakunui Avenue	Scope includes but is not limited to: Installation of milled rumble strips or rumble edge stripes on shoulders/median; installation of milled rumble strips on centerline; widen shoulders where possible; speed feedback sign; concrete median barrier at U-turn; pavement markings; signing.	N/A
OS5	HDOT	Freeway Management System, Interstate H-1, H-2, H-3, and Moanalua Freeway (Routes H-201 and 78)	The program consists of installation of closed-circuit television (CCTV) cameras, vehicle detectors, cabinets, and communication equipment. Minor interior modifications of the H-3 Control Center will be done to accommodate system improvements. This program will be implemented in phases.	\$24.2



Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
OS57	HDOT	Freeway Management System, Joint Traffic Management Center Operations (State)	These funds will be required for the State share of the annual operating expenses for the JTMC which includes normal building operations and a JTMC Manager. The State share has been calculated based on methodology that involves the estimated square footage that the State will occupy.	\$1.4
OS9	HDOT	Freeway Service Patrol	Operate roving service patrols. Services include towing of disabled vehicles, removing debris, providing basic fire extinguisher use, deploying traffic control devices, assisting the HPD, HFD, and EMS at crash scenes & other incidents, assisting sick or injured motorists with basic first aid, & notifying 911 of incidents.	\$16
OS10	HDOT	Guardrail and Shoulder Improvements, Various Locations	Upgrade guardrail end treatments and shoulders. Work also may include installation of signs, pavement markings, and traffic control.	\$4.2
OS82	HDOT	Interstate Route H-I Improvements, Eastbound, Ola Lane Overpass to Vineyard Boulevard	Eastbound Operational/congestion improvements, and structural improvements to bridges within the limits.	\$55
OS59	HDOT	Interstate Route H-I, Eastbound Improvements, Waikele to Halawa Interchange	Capacity/Congestion improvements through the most well-travelled section of the primary urban corridor. Improvements could include adding an additional through lane and/or improving ramps, shoulders and geometrics.	\$100
OS14	HDOT	Interstate Route H-I, Guardrail and Shoulder Improvements, Kapiolani Interchange to Ainakoa Avenue	Install and/or upgrade existing guardrails, crash cushions, and concrete barriers to meet current standards. Upgrade lighting and make bike improvements near the beginning of the H-I on ramp in the vicinity of Ainakoa Avenue to fill a gap in the bike system.	\$6
OS17	HDOT	Interstate Route H-I, Kapolei Interchange Complex	Phase 3 scope of work is widening Farrington Highway, enlarging the H-I Freeway loop off-ramp to Kalaeloa Blvd, construct the Mauka Frontage Road from Makakilo Drive to Kapolei Interchange, and construct the Palailai Interchange.	\$35
OS67	HDOT	Interstate Route H-I, Reconstruction and Repair, Eastbound, Waimalu Interchange to Halawa	Rehabilitate or Reconstruct Portland Concrete pavement. Widen to improve shoulders and travelway.	N/A
OS74	HDOT	Interstate Route H-I, Seismic Retrofit, McCully Street Separation	Retrofit interchange structures to meet current seismic standards.	\$3.155
OS70	HDOT	Interstate Route H-I, Seismic Retrofit, Waialae Viaduct	Retrofit interchange structures to meet current seismic standards.	\$7.1
OS11	HDOT	ITS Operation and Maintenance	Annual costs to operate and maintain the ongoing and existing ITS program. This includes costs for the operation and maintenance of CCTVs and vehicle detection equipment. This also includes costs for telecommunication and server hosting services.	\$2
OS26	HDOT	Kalaniana'ole Highway (Route 72) Resurfacing, Poalima Street to Vicinity of Makai Pier	Roadway resurfacing of Kalaniana'ole Highway from Poalima Street to Makai Pier.	N/A

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
OS6I	HDOT	Kamehameha Highway (Route 83) Realignment, Vicinity of Kawailoa Beach	Realign a portion of Kamehameha Highway, on the North Shore. The project proposes to construct a realignment of Kamehameha Highway, from Haleiwa to the vicinity of Waimea Bay to address safety issues that revolve around use of the beach.	\$1.02
OS28	HDOT	Kamehameha Highway (Route 83), Bridge Replacement, Kaipapau Stream Bridge	Replace the existing bridge.	N/A
OS29	HDOT	Kamehameha Highway (Route 83), Bridge Replacement, Kaluanui Stream Bridge	Replace the existing bridge	N/A
OS3I	HDOT	Kamehameha Highway (Route 83), Bridge Replacement, Laieloa Stream Bridge	Replace the existing concrete slab bridge on Kamehameha Highway in the vicinity of Laie.	\$14
OS7I	HDOT	Kamehameha Highway (Route 83), Bridge Replacement, Paumalu Bridge	Rehabilitate the existing bridge.	\$1.45
OS34	HDOT	Kamehameha Highway (Route 83), Bridge Replacement, Waiahole Stream Bridge	Replace the existing bridge.	\$16.1
OS72	HDOT	Kamehameha Highway (Route 83), Bridge Replacement, Waimanana Bridge	Replace the existing bridge.	\$2.37
OS36	HDOT	Kamehameha Highway (Route 83), Bridge Replacement, Waipilopilo Stream Bridge	Replace the existing concrete T-bridge on Kamehameha Highway in the vicinity of Hauula.	\$10.76
OS75	HDOT	Kamehameha Highway (Route 83), Rockfall Protection, Waimea Bay	Construct various rockfall/slope protection and slope stabilization mitigation measures.	\$29.3
OS73	HDOT	Likelike Highway (Route 63), Safety Improvements, Emmeline Place to Kahekili Highway	Scope includes but is not limited to: Installation of milled rumble strips or rumble edge stripes on shoulders where possible; high friction surface treatment; speed feedback sign; guardrail end treatment; in-lane pavement markers; LED speed limit signs and chevrons; widen paved shoulders where possible; pavement markings; signing.	\$2.7
OS44	HDOT	Moanalua Freeway (Route 78) and Interstate Route H-2, Guardrail and Shoulder Improvements, Phase 2	Install /upgrade existing guardrails, improve drainage, stabilize embankments, reconstruct/ pave shoulders where needed, and install signs and pavement markings.	N/A
OS45	HDOT	Moanalua Freeway (Route H-20I), Highway Lighting Improvements, Halawa Heights Off-Ramp to Middle Street Overpass	Upgrade/replace existing freeway lighting on Moanalua Freeway, from the Halawa Heights westbound off-ramp (milepost 1.12) to the Moanalua/H-1 Freeway merge at Middle Street (milepost 4.09).	N/A
OS46	HDOT	Moanalua Freeway (Route H-20I), Highway Lighting Improvements, Halawa to H-3 Freeway Overpass	Installation of new highway lighting system consist of new light poles and conduits, LED fixtures, trenching for conduits, conducts, foundations/barriers, power equipment, erosion control, and traffic control.	N/A

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
OS62	HDOT	Pali Highway (Route 61) Resurfacing & Lighting Improvements, Vineyard Blvd (Route 98) Kamehameha Highway (Route 83)	Scope of work includes but is not limited to cold planning, resurfacing, reconstruction of weakened pavement, installation of new highway lighting, construction of concrete median barriers, replacement of guardrails in-kind and end treatments, installation of new guardrails, installing bridge rails, and installation of signs and pavement markings.	N/A
OS52	HDOT	Sand Island Access Road (Route 64), Truck Weigh Station, Kapalama Container Terminal	Design, construct & operate a truck weigh station to perform truck inspections & driver credential checks @ the egress of the container terminal on Sand Island Acc Rd. This includes aux. lanes to accommodate trucks, traffic controls, truck weighing infrastructure & computer hardware/software, operator kiosk/office.	N/A
OS79	HDOT	Shoreline Protection/Mitigation Program	Develop and construct shoreline protection measures to better protect roadways from flooding and erosion as identified and prioritized in the Statewide Shoreline Protection Program. This funding is for the Oahu District Sub-Program.	\$45.55
OS63	HDOT	Traffic Counting Stations at Various Locations, Oahu	Construction of traffic counting stations for traffic data gathering and planning purposes. There is a separate phase shown for the rest of the islands in Statewide section of the STIP. This is a part of phase 2 of the Statewide project. The project will collect required Highway Performance Monitoring System (HPMS) data.	\$2.7
OS80	HDOT	Traffic signal Modernization at Various Locations, Ph2	Upgrade signal equipment to improve programming and optimization, to help improve traffic flow, reduce congestion, and prevent failures & downtime. Upgrades include replace old/damaged signal poles, underground conduits & wiring, signal controllers, and other equipment, as determined by the HDOT signal maintenance/modernization study. Phase 2 continues what was started in phase I with next 5 priority intersections.	\$5
0-21-53*	HDOT	Farrington Highway Widening, Helelua to Mohihi	A 5th lane will be installed on Farrington Highway, from Helelua Street to Mohihi Street. The lane will be used as a turnout lane and as a contraflow lane during peak travel times. Includes reconstructing the roadway and installing signs, striping and pavement markings.	\$32
0-21-57*	HDOT	Fort Barrette Road Railroad Crossing Improvements	The project includes upgrading the existing railroad crossing from asphalt to concrete, replacing the existing wooden tracks and ties, and installing new automated crossing gates and signals which will be synced with the new traffic signal at Roosevelt Avenue.	\$1.75
0-21-49*	HDOT	Harbor Access Road (Route 9400)	Scope could include but is not limited to the design and construction of new 4 lane divided concrete roadway, auxiliary lanes, sidewalks, bike lanes, traffic signals, intersections, associated utilities, grading, landscaping, and connections to future City roadways and drainage canal bridge crossing.	\$7
0-21-47*	HDOT	Interstate Route H-I Highway Lighting Improvements, Kaimakani Overpass to Gulick Avenue, Phase I, MP 12.83 to MP 16	Installation of new highway lighting system consist of new light poles and conduits, LED fixtures, trenching for conduits, conducts, foundations/barriers, power equipment, erosion control, and traffic control.	\$30

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
0-21-56*	HDOT	Interstate Route H-3, Halawa Valley Mitigation, Phase 2, Native Species Area to Tunnel Portal	Provide mitigation to help restore Halawa Valley to pre H-3 conditions as much as reasonably possible.	\$5
0-21-50*	HDOT	Interstate Route H-3, Halawa Valley Mitigation, Phase 3, Gate 3 to Native Species Area	Provide mitigation to help restore Halawa Valley to pre H-3 conditions as much as reasonably possible.	\$5
0-21-48*	HDOT	Kamehameha Highway Safety Improvements, Kukuna Road to Kahana Valley Road	Scope includes but is not limited to: installation of centerline milled rumble strips, shoulder milled rumble strips, widen shoulders to accommodate milled rumble strips where appropriate, apply safety edge, installation of HFST at sharp horizontal curves, intersection improvements at various locations, pavement markings, and signing.	\$4
0-21-43*	HDOT	Kamehameha Highway (Route 99) Seismic Retrofit, Pearl Harbor Interchange, Structure #2	All bridges identified to be potentially vulnerable to earthquake damage/collapse need to be analyzed and designed for retrofitting strategies to prevent their collapse during a credible earthquake. The type and scope of the retrofit work can only be determined through the analysis.	\$4.755
0-21-46*	HDOT	Kunia Interchange Improvements	Improve capacity and congestion at Kunia Interchange due to the following issues: 1. Bottlenecks at high volume ramps due to merging or diverging of traffic from the mainline to/from the interchange ramp; and 2. A heavy mauka bound right turn movement to the eastbound H-1 on-ramp, as well as a heavy makai bound left-turn movement to the H-1 eastbound on-ramp. Improvements could include widening Ft. Weaver Road between S. Kapuna Loop and Farrington Highway and/or adding/adjusting ramps in the Kunia IC.	\$15.5
0-21-52*	HDOT	Likelike Highway (Route 63) Seismic Retrofit, Kalihi Stream Bridges	All bridges identified to be potentially vulnerable to earthquake damage/collapse need to be analyzed and designed for retrofitting strategies to prevent their collapse during a credible earthquake. The type and scope of the retrofit work can only be determined through the analysis.	\$0.71
0-21-51*	HDOT	Moanalua Freeway, (Interstate Route H-201) Seismic Retrofit, Puuloa Interchange (Five Structures)	All bridges identified to be potentially vulnerable to earthquake damage/collapse need to be analyzed and designed for retrofitting strategies to prevent their collapse during a credible earthquake. The type and scope of the retrofit work can only be determined through the analysis.	\$2.5
0-21-45*	HDOT	Pali Highway, Rockfall Mitigation, Vicinity of MP 5.90 to MP 6.10	Rockfall protection/mitigation to be determined following an EA.	\$0.625
0-21-44*	HDOT	Pali Highway, Rockfall Mitigation, Vicinity of MP 6.10 to MP 6.55	Rockfall protection/mitigation to be determined following an EA.	\$1.675

**Table 5.4 Short-Range FHWA Funded City Projects and Programs – 2022–2025**

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
OCI	DTS	Alapai Transportation Management Center	Operations for the joint communications center behind the Alapai Transit Center. The communications center holds City, State & emergency response agencies.	\$1.139
OC2	DTS	Bikeway Improvements Program	An on-going island wide program for the implementation of the Oahu Bicycle Master Plan improvements, the development of new projects, and the upgrade of existing bicycle projects.	\$2.75
OC3	DTS	Bridge Inspection, Inventory, and Appraisal	Inventory, inspect, and appraise City bridges, including underwater inspection and scour survey.	\$6.834
OC4	DTS	Computerized Traffic Control System	Upgrade and expand fiber optic lines, CCTV cameras, data collection, and signal control in urban and rural areas for connection to the Traffic Control Center.	\$1.809
OC29	DTS	Federal Lands Access Program (FLAP)	The Federal Lands Access Program (FLAP) was established to improve transportation facilities that provide access to, are adjacent to, or are located within Federal lands. The Access Program supplements State and local resources for public roads, transit systems, and other transportation facilities, with an emphasis on high-use recreation sites and economic generators.	N/A
OC28	DTS	Safe Routes to School (SRTS) Program	The Safe Routes to School (SRTS) Program has the following goals: enable and encourage children, including those with disabilities, to walk and bicycle to school; make bicycling and walking to school a safer and more appealing transportation alternative, thereby encouraging a healthy and active lifestyle from an early age; and facilitate the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of schools.	N/A
OC23	DTS	Salt Lake Boulevard Widening, Phase 3	Widen Salt Lake Boulevard from two to six lanes, between Maluna Street and Ala Lilikoi Street.	\$60.74
OC8	DTS	Traffic Improvements at Various Locations	Provide traffic congestion relief and improve traffic safety at various locations, including but not limited to Palolo, Village Park & Kupuna Loop area, and Kalaheo Avenue/Kailua Road.	\$2.89
OC10	DTS	Traffic Signals at Various Locations	Design, Construct, and inspect the installation of Traffic Signals. Project consist of installation of new signals, modification (left turn, bicycle signal, etc.) of traffic signals, and upgrading signals to conform to the most recent MUTCD.	\$11.245

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
OC25	DTS	Transportation Alternatives Program (MPO) at Various Locations	The Transportation Alternatives Program (TAP) is a competitive grant program that provides funding for programs and projects defined as transportation alternatives, including on- and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility, and community improvement activities. Locations to be determined by the OahuMPO TAP Project Evaluation and Ranking process. HART projects may be flexed from FHWA to FTA.	\$35.831
OC26	DTS	Transportation Alternative Program (State)	The Transportation Alternatives Program (TAP) is a competitive grant program that provides funding for programs and projects defined as transportation alternatives, including on- and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility, and community improvement activities. Locations to be determined by the State TAP Project Evaluation and Ranking process. HART projects may be flexed from FHWA to FTA.	\$2.921
0-21-54*	DTS	Kalaeloa Boulevard Railroad Improvements	Design and install a Railroad traffic signal (and traffic camera) located at Kalaeloa Boulevard and Railroad Crossing.	\$0.694
0-21-55*	DTS	Oahu Traffic Signal Controller Modernization, Phase 2	To construct and inspect related equipment for approximately 150 traffic signalized intersections.	\$10.697

**Table 5.5 Short-Range FTA Funded State Projects and Programs – 2022–2025**

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
OS68	HDOT	State Safety Oversight Program	This funding will provide operational resources for the HDOT State Safety Oversight Program administered by the HODT Rail Transit Safety Office and will implement 49 CFR Part 674 State Safety Oversight Final Rule.	\$1.494
OS50	HDOT	Transportation Assistance for Elderly and Disabled	Funds from the program will be utilized for the purchase of buses for paratransit services for seniors and individuals with disabilities.	\$3.066

**Table 5.6 Short-Range FTA Funded City Projects and Programs – 2022–2025**

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
OC13	DTS	Bus and Handi-Van Acquisition Program	Purchase replacement transit buses and handi-van vehicles.	\$71.807
OC14	DTS	Bus Stop ADA Access and Site Improvements	The project plans and constructs new bus shelters, shelter pads, improves sidewalks, modifies existing bus stop shelters and bus stop sites at various locations in accordance with the plans and contract documents to make them compliant with the American with Disabilities Act (ADA).	\$2.464
OC24	DTS	Capital Training	Transportation Mobility Division staff attendance at training workshops offered by the National Transit Institute.	\$0.112
OC16	DTS	Honolulu Rail Transit Project	Plan, design, and construct a fixed guideway system between East Kapolei and Ala Moana Center. The system includes stations and related appurtenances, park-and-ride facilities, a maintenance and storage facility, light metro vehicles, and associated core systems.	\$1,075.31
OC31	DTS	Middle Street Transit Center	Develop an intermodal center to include Handi-Vans, regional transit center, and parking.	\$10.564
OC20	DTS	Preventive Maintenance	Preventive maintenance of FTA-funded rolling stock (buses and handi-vans) to include parts, labor, and other related costs.	\$105
OC21	DTS	Transit Safety and Security Projects	Capital projects at various transit locations to improve safety and security.	\$2.106
0-21-58*	DTS	Transit Centers, Various Locations	Construct transit centers and provide accessibility at various locations islandwide to support transit operations.	\$40

## MID-RANGE PROJECTS AND PROGRAMS – 2026–2035

Tables 5.7 through 5.14 show the constrained mid-range project and program list, by project/program type.

**Table 5.7 Mid-Range Roadway Capacity Projects and Programs**

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
0-21-I*	HDOT	Congestion Mitigation Program	Projects identified by the congestion program primarily provide infrastructure, operations improvements, and technology to optimize traffic flow, reduce travel times, and address recurring and non-recurring events/incidents that cause congestion.	\$355
0-21-2	DTS	Farrington Highway (Route 7110), Widening, Golf Course Road to west of Fort Weaver Road	Widen Farrington Highway from two to four lanes, from Golf Course Road to just west of Fort Weaver Road.	\$110.4
0-21-3	DTS	Interstate Route H-1, Corridor Study, Short Term Improvements	Develop top short-term capacity/congestion improvements in the Final Interstate H-1 Corridor Study.	\$2.2
0-21-4	HDOT	Interstate Route H-1, New Interchange, Kapolei Interchange	Construct new Interstate Route H-1 Kapolei Interchange for Kapolei between the Palailai Interchange and Makakilo Interchange. Project to be constructed in multiple phases.	\$116
0-21-5	HDOT	Interstate Route H-1, Waiawa Interchange to Halawa Interchange, Widening, Eastbound	Widen Interstate Route H-1 to six lanes from the Waiawa Interchange to the Halawa Interchange in the eastbound direction and restore the current freeway lane width and shoulder standards.	\$83.9
0-21-6	HDOT	Kahekili Highway (Route 83) Improvements, Likelike Hwy to Kamehameha Hwy	Capacity improvements through the defined limits, which could include widening and/or improving intersections. Cost is based on a potential full build alternative.	\$112
0-21-7	DTS	Kalaeloa Boulevard, Reconstruction and Widening; Lauwiliwili Street to Olai Street	Improve and reconstruct Kalaeloa Boulevard between Lauwiliwili Street and Olai Street.	\$35.3
0-21-8	HDOT	Kamehameha Highway (Route 99), Widening, Lanikuhana Avenue to Ka Uka Boulevard	Widen Kamehameha Highway from a three-lane to a four-lane divided facility between Lanikuhana Avenue and Ka Uka Boulevard. This project includes shoulders for bicycles and disabled vehicles, bridge crossing replacement, bikeways, etc.	\$160.3
0-21-9	DTS	Kapolei Parkway, Extension & Widening, Aliinui Drive to Kalaeloa Boulevard	Extend the existing four-lane Kapolei Parkway, from Aliinui Drive to Hanua Street. This project includes widening of Kapolei Parkway from four to six lanes from Hanua Street to Kalaeloa Boulevard.	\$53
0-21-10	DTS	Makakilo Drive, Second Access, Makakilo Drive to Kualaka'i Parkway / Interstate Route H-1 Interchange	Extend Makakilo Drive (vicinity Pueonani Street) south to the Interstate Route H-1 Interchange as four-lane roadway, connecting Makakilo Drive to Kualaka'i Parkway.	\$83.9



**Table 5.8 Mid-Range Highway, Road, and Bridge Operations and Maintenance Projects and Programs**

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
0-21-11	DTS	City Operations and Maintenance (O&M) - Roadways	Maintain and operate the City's existing and future roadways. Includes, but is not limited to, bridge inspection, resurfacing, guardrail and shoulder improvements, lighting improvements, drainage improvements, signal and sign upgrades, pedestrian signals, and maintenance facilities, etc.	\$593
0-21-12*	HDOT	Resiliency Program	The resiliency program identifies projects that improve our ability to adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions. This includes responding to risk or vulnerabilities in our transportation system related to extreme weather/natural disasters, emergency events or non-recurring incidents, and sea level rise.	\$257
0-21-13	HDOT	State Operations and Maintenance	Maintain and operate the State's existing and future highway operations and routine maintenance. Special Maintenance Program (SMP) Projects include, but are not limited to, pavement repair, preventative maintenance, resurfacing and rehabilitation, etc.	\$343
0-21-14*	HDOT	System Preservation Program	The system preservation program identifies projects that preserve, upgrade, and maintain the State Highway System to help ensure the functionality of the system, that it operates safely and efficiently, and meets federal requirements.	\$275.5

**Table 5.9 Mid-Range Safety Projects and Programs**

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
0-21-15*	HDOT	Safety Program	The safety program supports Hawaii's roadway users arriving safely at their destinations by collecting data to identify areas characterized with high crash occurrences; implementing both infrastructure improvements and non-infrastructure education and public outreach; and maintaining the integrity of and/or upgrading roadway features to reduce injuries and increase survivability during crashes.	\$270

**Table 5.10 Mid-Range Transit Capital Projects and Programs**

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
0-21-16	DTS	Honolulu Urban Bus (HUB) Circulator System	Construct the Honolulu Urban Bus (HUB) Circulator System - a high-frequency electric circulator bus system connecting Downtown, Kakaako, Ala Moana, Waikiki, University of Hawaii- Manoa, and Makiki.	\$83.1
0-21-17	DTS	Transit Centers, Various Locations	Construct transit centers and provide accessibility at various locations islandwide to support transit operations.	\$42

**Table 5.11 Mid-Range Transit Operations and Maintenance Projects and Programs**

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
0-21-18	DTS	City Operations and Maintenance (O&M): Transit	Maintain and operate the City’s existing and future transit and paratransit operations and routine maintenance. Includes, but is not limited to, operation of the transit system, maintenance of current transit centers and bus/rail facilities, and improvement of bus stop sites and bus pads.	\$6518
0-21-19	DTS	City Rail Rehabilitation and Fleet Expansion	Provide for rehabilitation of track and expansion of rail fleet.	\$329.828
0-21-20	DTS	Human Services Transportation Coordination Program	Provide a range of transportation services targeted to disadvantaged populations under the Human Services Transportation Coordination Program.	\$9.4
0-21-21	DTS	TheBus Service, Expansion, Islandwide	Expand TheBus service through increase of capacity, support access to the Honolulu High-Capacity Transit Corridor project and provide access improvements for bicyclists and pedestrians near bus stops and transit centers. Expanded service will be ADA- compliant.	\$473.65

**Table 5.12 Mid-Range Pedestrian and Bicycle Projects and Programs**

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
0-21-22	DTS	Alternatives Projects	Implement enhancement projects, including but not limited to safe routes to school projects, pedestrian crossing safety improvements, and projects from the Transportation Alternatives Program (TAP) for Oahu.	\$97.6
0-21-23	DTS	Oahu Bike Plan	Implement elements of the City and County Bike Projects.	\$52.2

**Table 5.13 Mid-Range System Management and Operations Projects and Programs**

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
0-21-24	DTS	Intelligent Transportation Systems (ITS)	Implement ITS projects including, but not limited to, those identified in the Oahu Regional ITS Architecture.	\$56.1

**Table 5.14 Mid-Range Transportation Demand Management Projects and Programs**

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
0-21-25	DTS	Transportation Demand Management (TDM) Program	Develop a TDM program that could include, but is not limited to: <ul style="list-style-type: none"> <li>1. Free real-time online carpool matching;</li> <li>2. Outreach promotion and marketing of alternative transportation;</li> <li>3. Emergency ride home program;</li> <li>4. Major special events;</li> <li>5. Employer based commuter programs;</li> <li>6. Emerging and innovative strategies (bike or car sharing); and</li> <li>7. Vanpool.</li> </ul>	\$11

## LONG-RANGE PROJECTS AND PROGRAMS – 2036–2045

Tables 5.15 through 5.21 show the constrained long-range project and program list, by project/program type.

**Table 5.15 Long-Range Roadway Capacity Projects and Programs**

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
0-21-1*	HDOT	Congestion Mitigation Program	Projects identified by the congestion program primarily provide infrastructure, operations improvements, and technology to optimize traffic flow, reduce travel times, and address recurring and non-recurring events/incidents that cause congestion.	\$355
	HDOT	Congestion Mitigation Program	Projects identified by the congestion program primarily provide infrastructure, operations improvements, and technology to optimize traffic flow, reduce travel times, and address recurring and non-recurring events/incidents that cause congestion.	\$355
0-21-26	HDOT	Farrington Highway (Route 93), Widening, Hakimo Road to Kalaeloa Boulevard	Widen Farrington Highway from four to six lanes, from Hakimo Road to Kalaeloa Boulevard, including intersection of Lualualei Naval Road. To improve congestion and safety operations, contraflow, intersection improvements, traffic calming, and other improvements may be pursued in the short range.	\$252
0-21-27**	DTS	Fort Barrette Road	Extend as four-lane roadway between Roosevelt and Saratoga.	\$13.2
0-21-28	HDOT	Fort Barrette Road (Route 901), Widening, Farrington Highway to Barber’s Point Gate	Widen Fort Barrette Road from two to four lanes from Farrington Highway to Barber’s Point Gate.	\$50
0-21-29**	DTS	Kamokila Boulevard	Extend as four-lane roadway between Roosevelt and Saratoga.	\$28.7
0-21-30	HDOT	Kualaka’i Parkway (Route 8930), Extension, Interstate Route H-1 to Franklin D Roosevelt Avenue	Extend Kualaka’i Parkway from Kapolei Parkway to Franklin D Roosevelt Avenue	\$20
0-21-31	HDOT	Kualaka’i Parkway (Route 8930), Widening, Interstate Route H-1 to Franklin D Roosevelt Avenue	Widen and extend Kualaka’i Parkway as follows: <ul style="list-style-type: none"> <li>• From three to six lanes from Kapolei Parkway to Interstate Route H-1</li> <li>• Extend from Kapolei Parkway to Franklin D Roosevelt Avenue (six lanes)</li> </ul>	\$180

\*\* Indicates that the project is developer funded

**Table 5.16 Long-Range Highway, Road, and Bridge Operations and Maintenance Projects and Programs**

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
0-21-11	DTS	City Operations and Maintenance (O&M) - Roadways	Maintain and operate the City's existing and future roadways. Includes, but is not limited to, bridge inspection, resurfacing, guardrail and shoulder improvements, lighting improvements, drainage improvements, signal and sign upgrades, pedestrian signals, and maintenance facilities, etc.	\$883.6
0-21-12*	HDOT	Resiliency Program	The resiliency program identifies projects that improve our ability to adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions. This includes responding to risk or vulnerabilities in our transportation system related to extreme weather/natural disasters, emergency events or non-recurring incidents, and sea level rise.	\$257
0-21-13	HDOT	State Operations and Maintenance	Maintain and operate the State's existing and future highway operations and routine maintenance. Special Maintenance Program (SMP) Projects include, but are not limited to, pavement repair, preventative maintenance, resurfacing and rehabilitation, etc.	\$343
0-21-14*	HDOT	System Preservation Program	The system preservation program identifies projects that preserve, upgrade, and maintain the State Highway System to help ensure the functionality of the system, that it operates safely and efficiently, and meets federal requirements.	\$275.5

**Table 5.17 Long-Range Safety Projects and Programs**

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
0-21-15*	HDOT	Safety Program	The safety program supports Hawaii's roadway users arriving safely at their destinations by collecting data to identify areas characterized with high crash occurrences; implementing both infrastructure improvements and non-infrastructure education and public outreach; and maintaining the integrity of and/or upgrading roadway features to reduce injuries and increase survivability during crashes.	\$270

**Table 5.18 Long-Range Transit Operations and Maintenance Projects and Programs**

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
0-21-18	DTS	City Operations and Maintenance (O&M): Transit	Maintain and operate the City’s existing and future transit and paratransit operations and routine maintenance. Includes, but is not limited to, operation of the transit system, maintenance of current transit centers and bus/rail facilities, and improvement of bus stop sites and bus pads.	\$10,007.816
0-21-19	DTS	City Rail Rehabilitation and Fleet Expansion	Provide for rehabilitation of track and expansion of rail fleet.	\$136.427
0-21-20	DTS	Human Services Transportation Coordination Program	Provide a range of transportation services targeted to disadvantaged populations under the Human Services Transportation Coordination Program.	\$9.4
0-21-21	DTS	TheBus Service, Expansion, Islandwide	Expand TheBus service through increase of capacity, support access to the Honolulu High-Capacity Transit Corridor project and provide access improvements for bicyclists and pedestrians near bus stops and transit centers. Expanded service will be ADA- compliant.	\$473.65

**Table 5.19 Long-Range Pedestrian and Bicycle Projects and Programs**

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
0-21-22	DTS	Alternatives Projects	Implement enhancement projects, including but not limited to safe routes to school projects, pedestrian crossing safety improvements, and projects from the Transportation Alternatives Program (TAP) for Oahu.	\$364.7
0-21-23	DTS	Oahu Bike Plan	Implement elements of the City and County Bike Projects.	\$54.7

**Table 5.20 Long-Range System Management and Operations Projects and Programs**

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
0-21-24	DTS	Intelligent Transportation Systems (ITS)	Implement ITS projects including, but not limited to, those identified in the Oahu Regional ITS Architecture.	\$152.4

**Table 5.21 Long-Range Transportation Demand Management Projects and Programs**

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
0-21-25	DTS	Transportation Demand Management (TDM) Program	<p>Develop a TDM program that could include, but is not limited to:</p> <ol style="list-style-type: none"> <li>1. Free real-time online carpool matching;</li> <li>2. Outreach promotion and marketing of alternative transportation;</li> <li>3. Emergency ride home program;</li> <li>4. Major special events;</li> <li>5. Employer based commuter programs;</li> <li>6. Emerging and innovative strategies (bike or car sharing); and</li> <li>7. Vanpool.</li> </ol>	\$22.1

## PROJECTS AND PROGRAMS THAT WE CANNOT AFFORD

The following section lists projects and programs that are not programmed for funding but are included in the ORTP for future consideration. These projects can be moved into the ORTP and/or TIP, when, or if, additional funds become available. Tables 5.22 and 5.23 show the unconstrained project and program list, by project/program type.

**Table 5.22 Unfunded Roadway Capacity and Operational Improvements Projects and Programs (No Timeframe)**

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
0-21-32	HDOT	Interstate Route H-1, On- & Off-Ramp Modifications, Various Locations	Modify and/or close various on- and off- ramps on the Interstate Route H-1.	\$108
0-21-33	HDOT	Interstate Routes H-1 and H-2, Operational Improvements, Waiawa Interchange	Modify the Interstate Routes H-1 and H-2 Waiawa Interchange, to improve merging characteristics through operational improvements (e.g., additional transition lanes).	\$112.1
0-21-34	HDOT	Kunia Road (Route 750), Widening and Interchange Improvement, Wilikina Drive to Farrington Highway	<p>Widen Kunia Road as follows:</p> <ul style="list-style-type: none"> <li>• From two to four lanes, from Wilikina Drive to Anonui Street.</li> <li>• From two to four lanes, Anonui Street to Kupuna Loop.</li> <li>• From four to six lanes, Kupuna Loop to Farrington Highway.</li> <li>• Add one lane eastbound loop on-ramp at Kunia Road &amp; Interstate Route H-1.</li> </ul>	\$348.9

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
0-21-35	HDOT	Makakilo Mauka Frontage Road, New Roadway, Kalaeloa Boulevard to Makakilo Drive	Construct a new two-lane Makakilo Mauka Frontage Road, mauka of Interstate Route H-1, from Kalaeloa Boulevard to Makakilo Drive.	\$18.2
0-21-36	HDOT	Nimitz Highway (Route 92), High Occupancy Vehicle (HOV) Flyover, Keehi Interchange to Pacific Street	Construct a new two-lane elevated and reversible HOV flyover above Nimitz Highway, from the Keehi Interchange to Pacific Street. This project includes the removal of the existing eastbound contraflow lane in the AM peak and restoration of all turning movements on the at-grade portion of Nimitz highway.	\$537.5
0-21-37	HDOT	Waianae, Second Access, Farrington Highway to Kunia Road	Construct a new two-lane second access road to Waianae from Farrington Highway in the vicinity of Maili, over the Waianae Mountain Range, to Kunia Road. Requires Kunia Road, Widening and Interchange Improvement, Wilikina Drive to Farrington Highway to ensure benefit.	\$1,269

**Table 5.23 Unfunded Transit Capital Projects and Programs (No Timeframe)**

Project No.	Agency	Project Title	Description	Funding Request (\$ Millions)
0-21-38	HART	Fixed Guideway, Ala Moana to UH Manoa and Waikiki	Plan, design, and construct a fixed guideway system between Ala Moana and UH Manoa and Waikiki.	\$2,374
0-21-39	HART	Fixed Guideway, Central Oahu	Plan, design, and construct a fixed guideway system/corridor between Pearl Highlands and Central Oahu.	\$2,598
0-21-40	HART	Fixed Guideway, Ewa Beach	Plan, design, and construct a fixed guideway system/corridor from Ewa Beach to the West Loch Station in Waipahu along Fort Weaver Road.	\$2,367
0-21-41	HART	Fixed Guideway, Kapolei	Plan, design, and construct a fixed guideway system between West Kapolei and East Kapolei.	\$2,593
0-21-42	HART	Fixed Guideway, Salt Lake	Plan, design, and construct a fixed guideway system/corridor from Aloha Stadium to Middle Street via Salt Lake Boulevard, Pukoloa Street, and along the Moanalua Stream.	\$2,433



## Plan Performance

The ORTP 2045 will help manage growth in travel demand expected from the anticipated increases in population and jobs. The OahuMPO travel demand forecasting model was used to evaluate performance of three alternative conditions, namely the 2012 existing conditions, 2045 forecasted population, jobs with only existing and committed (E+C) transportation improvements (otherwise referred to as No-build conditions), and the fiscally constrained 2045 ORTP.



## Vehicle Miles Traveled, Vehicle Hours Traveled, Vehicle Hours of Delay, and Transit Boardings

A comparison of these scenarios for travel/congestion outcomes of Vehicle Miles Traveled (VMT), Vehicle Hours Traveled (VHT), Vehicle Hours of Delay (VHD), and transit boardings are shown in figures 5.1 to 5.4.

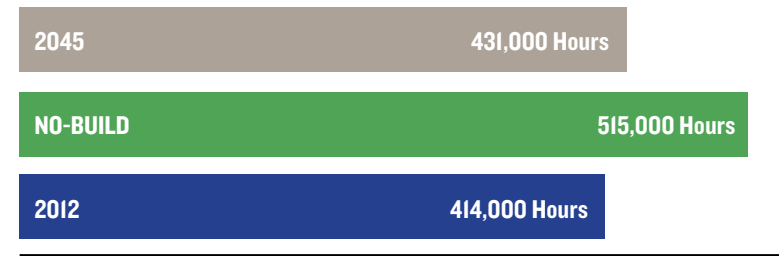
A comparison of the 2045 ORTP to No-Build scenario indicates that, by 2045, all plan performance will experience declines, except transit boardings. Specifically, VMT will decrease by about 5 percent, VHT will decrease by 16 percent, delay will decrease by 42 percent, and transit boardings will increase by 71 percent.

The reduction in VMT per capita, by 2045, has significant implications for energy consumption and climate change. The projects outlined in the ORTP 2045 are geared towards the achievement of goals and performance measures related to sustainable, multi-modal system. Included in the ORTP 2045 are pedestrian and bicycle facilities, improved bus and transit connections and facilities, and maintenance and operational upgrades to improve the quality of life for island residents.

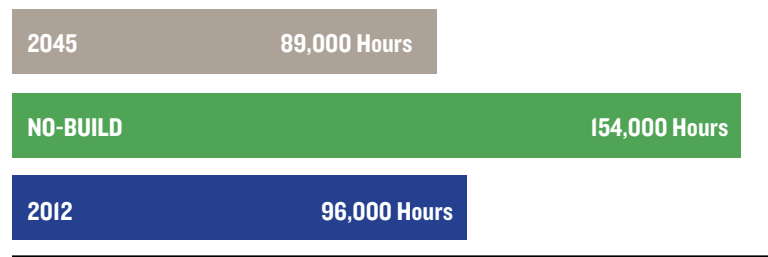
**Figure 5.1: Scenario Comparison for VMT** 



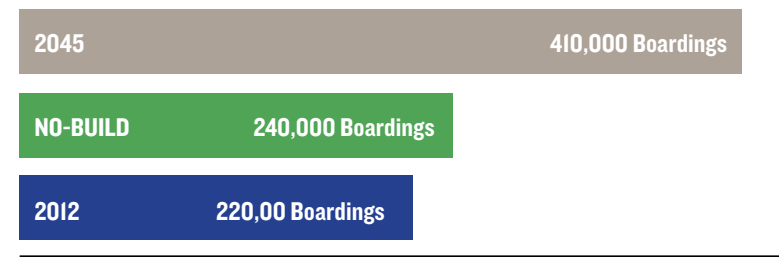
**Figure 5.2: Scenario Comparison for VHT** 



**Figure 5.3: Scenario Comparison for Delay** 



**Figure 5.4: Scenario Comparison for Transit Boardings** 



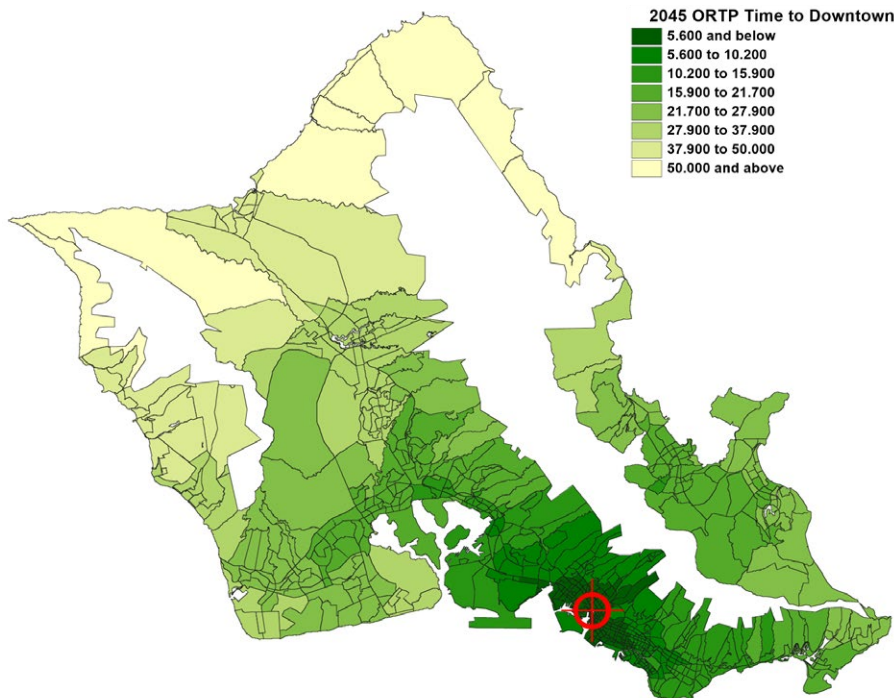
## Islandwide Travel Times for AM Peak Hours

Figure 5.5 shows projected islandwide travel times by automobile for the AM peak hours to Downtown for the 2045 ORTP, while Figure 5.6 shows the projected travel-time difference to Downtown between the 2045 ORTP and the No-Build conditions.

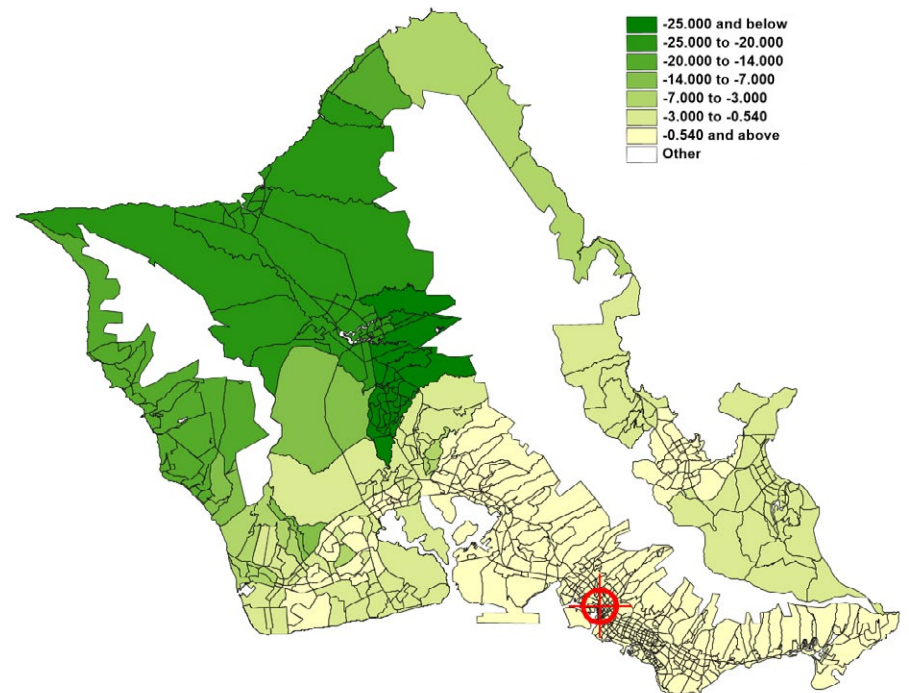
Travel times generally improve for 2045 ORTP in comparison to the No-Build conditions. A comparative analysis of change in travel time between 2045

ORTP and No-Build scenario indicated that, with the exception of trips from Primary Urban Center to Downtown, almost all trips to Downtown experienced improvement in travel times (see figures 5.5 and 5.6).

**Figure 5.5: 6-9 AM Travel Times to Downtown in Minutes (2045 ORTP)**



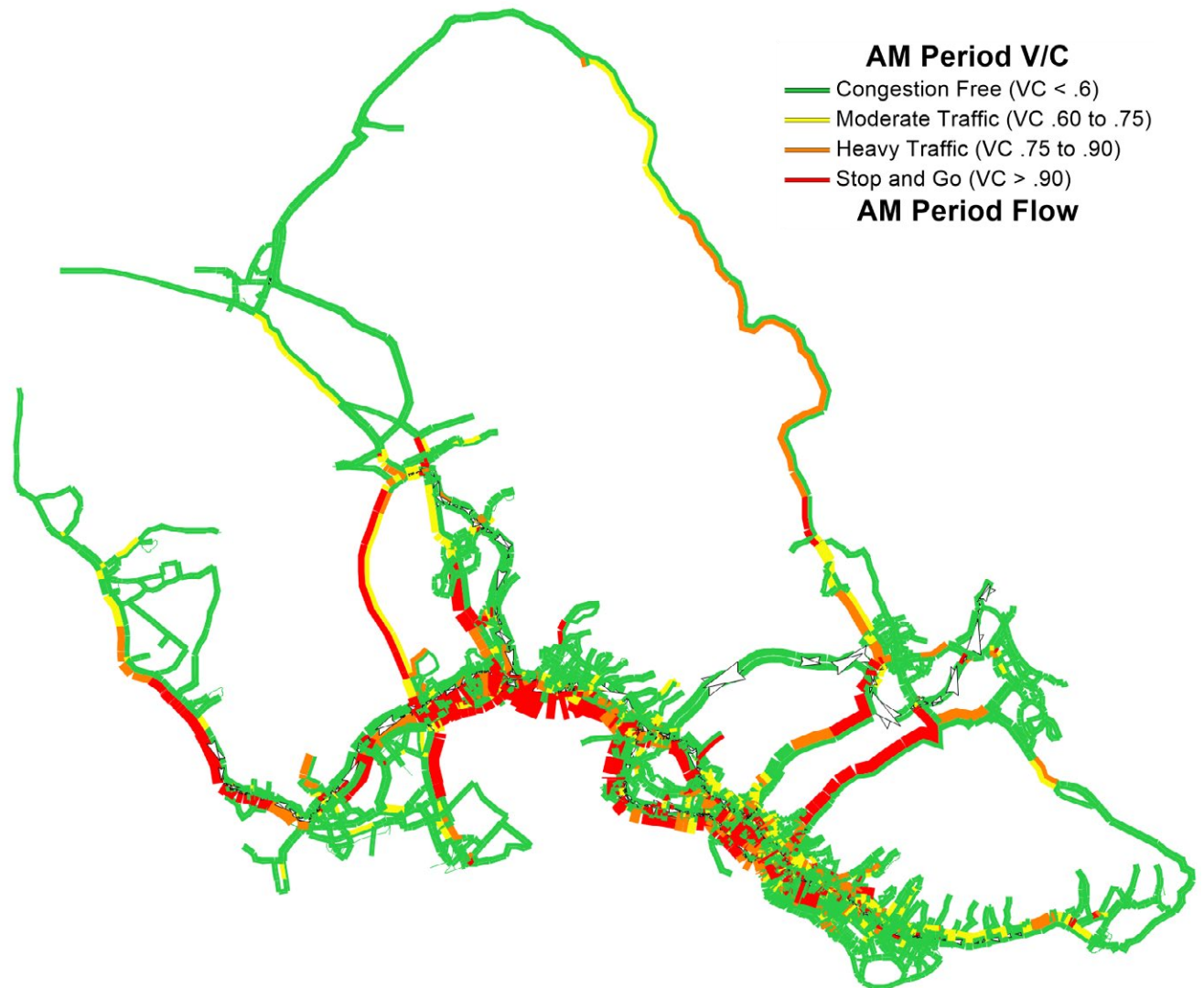
**Figure 5.6: 6-9AM Travel Time Difference to Downtown in Minutes (2045 ORTP vs. No-build)**



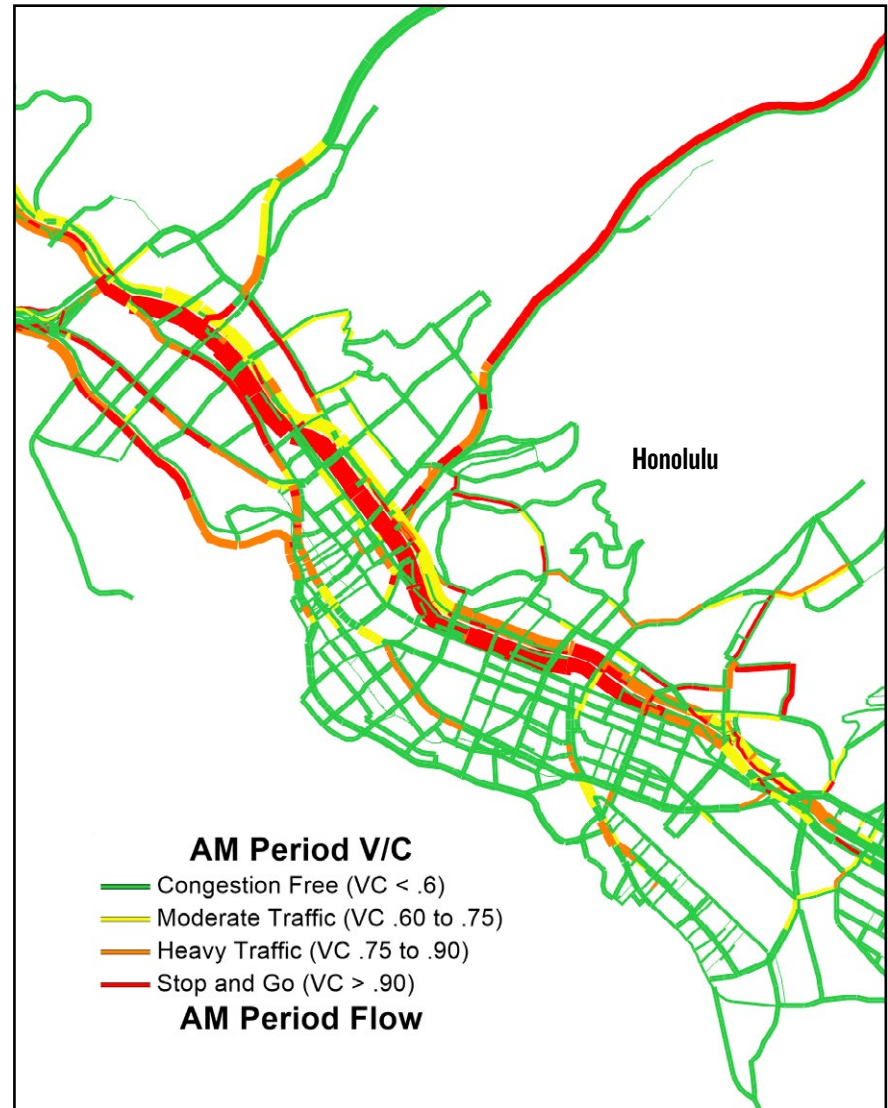
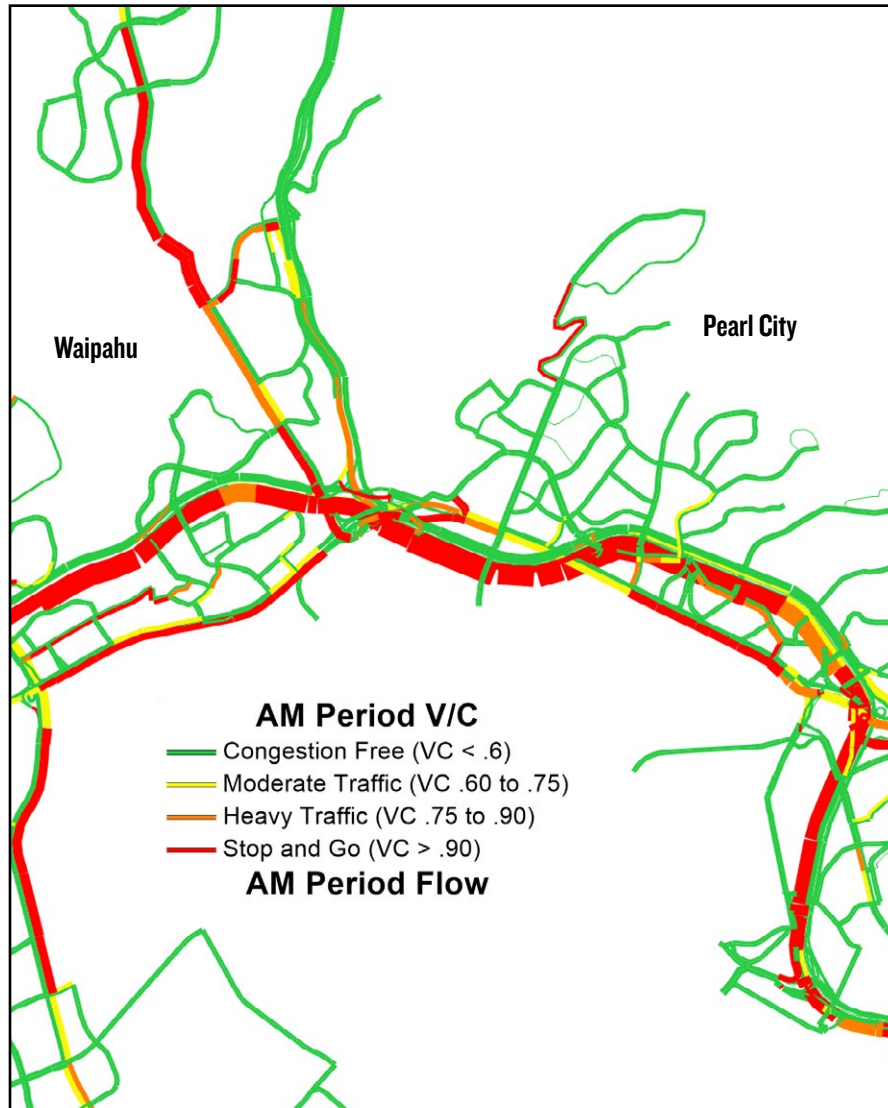
## Projected Traffic Level of Service During Morning Commute (No-build vs. 2045 ORTP)

Figures 5.7 through 5.10 show projected traffic level of service during the morning commute period for the No-build and 2045 ORTP conditions. 2045 ORTP shows benefits in reducing congestion during the AM peak hours. As shown in the figures below, 2045 ORTP will alleviate some congestion on roadways including Farrington Highway in Waiʻanae, Kunia Road (H1 to H2), and Kamehameha Highway (Kukuna Road to Waiāhole Valley Road).

Figure 5.7: 6-9 AM Roadway Level of Service (No-Build)-Islandwide



**Figure 5.8: 6-9 AM Roadway Level of Service (No-Build) Pearl City & Honolulu**



**Figure 5.9: 6-9 AM Roadway Level of Service (2045 ORTP) – Islandwide**

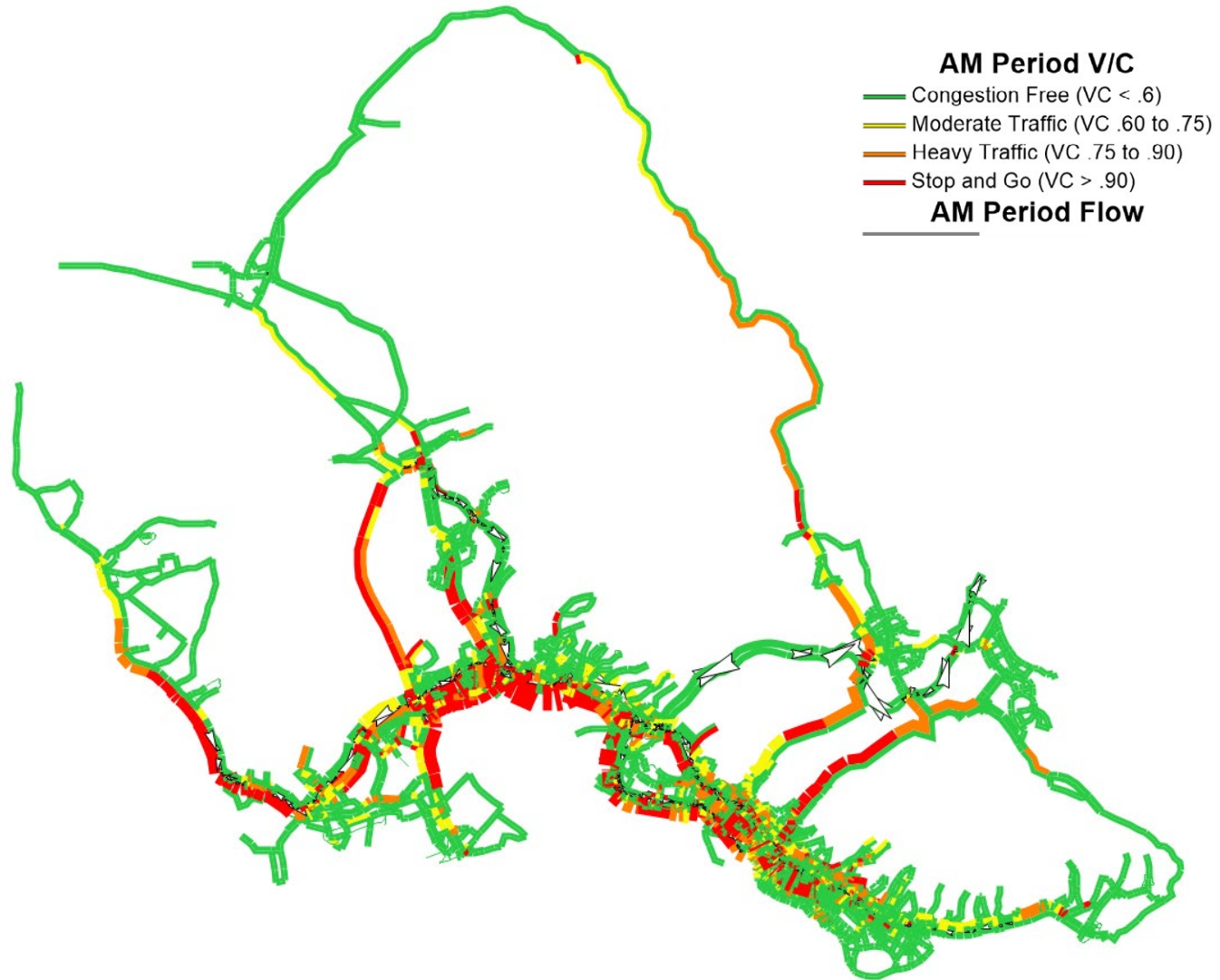
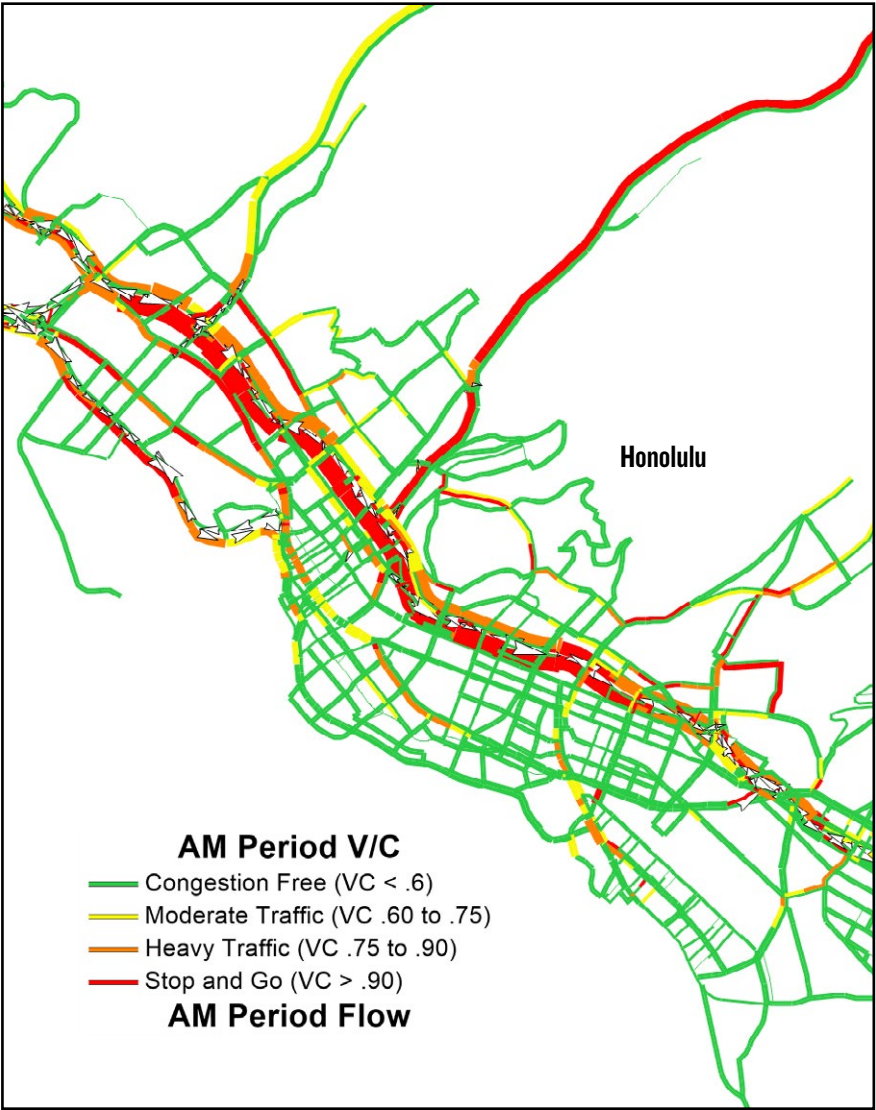
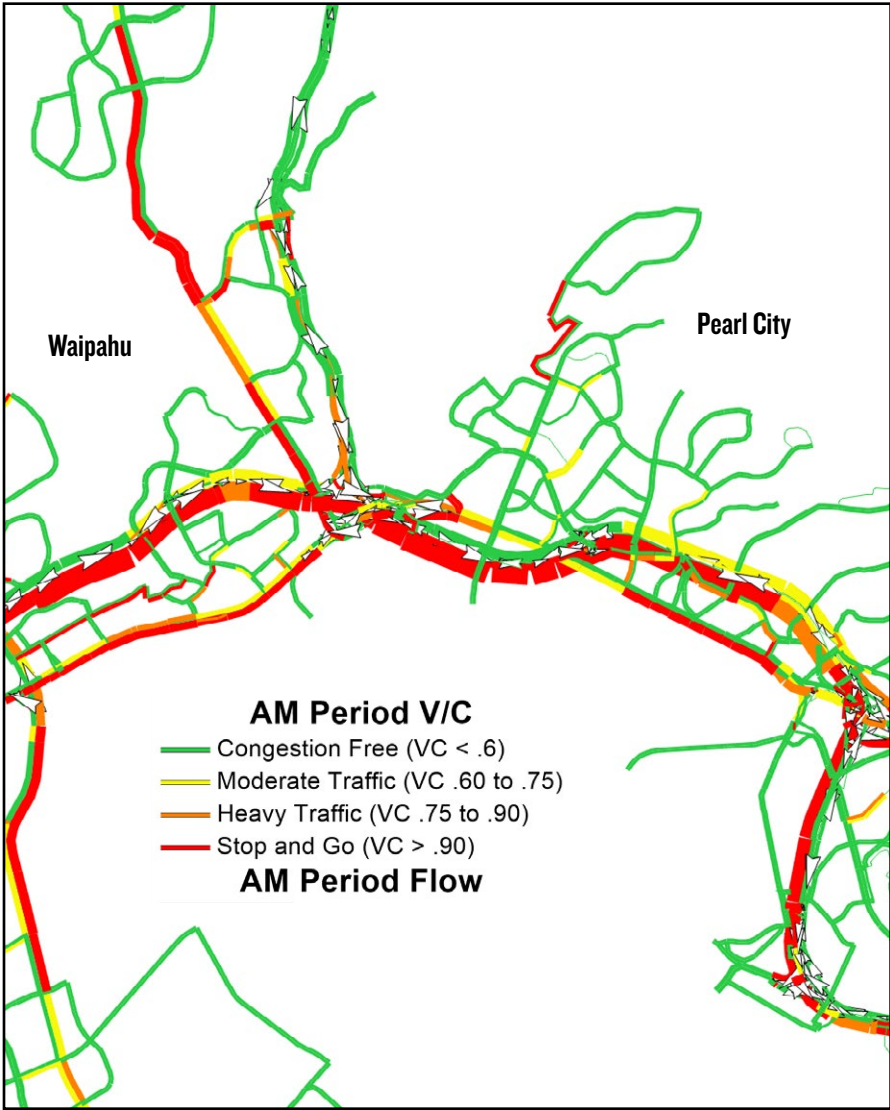


Figure 5.10: 6-9 AM Roadway Level of Service (2045 ORTP) Pearl City & Honolulu



## Environmental Justice Analysis

The first goal of the 2045 ORTP is to provide an inclusive multi-modal transport system. To evaluate the inclusiveness of the 2045 ORTP, the OahuMPO analyzed planned investment in T6/EJ population areas.

The results indicate that under the 2045 ORTP, while 37 percent of block groups are designated as T6/EJ areas, 30 percent of the plan's investments would occur in T6/EJ areas. However, T6/EJ individuals receive about \$11,595 in ORTP project expenditures, while non-T6/EJ individuals receive an average of \$11,853 each.

This 2045 ORTP outperforms the 2040 ORTP in investing in T6/EJ populations. Indeed, a comparison of 2045 ORTP with 2040 ORTP shows that the average per capita investment was higher for 2045 ORTP (\$11,595) than 2040 ORTP (\$7,555). In addition, the gap between T6/EJ and non-T6/EJ average per capita investments has narrowed for the 2045 ORTP (\$258) compared to the 2040 ORTP (\$1,792), indicating more equitable distribution of investments.





THE PATH FORWARD FOR O'AHU  
**KE ALA I MUA**



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# KE ALA I MUA



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O'AHU REGIONAL TRANSPORTATION PLAN 2045

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