

Oahu Metropolitan Planning Organization



## Oahu Regional Transportation Plan 2040

PUBLIC REVIEW DRAFT  
2/26/2016

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## Executive Summary

The Oahu Regional Transportation Plan (ORTP) serves as the long-range vision document for the improvement of the transportation system for the island of Oahu through the year 2040. Mandated by Federal law, this plan has been jointly developed by the OahuMPO and implementing agencies, including the City and County of Honolulu, the Honolulu Authority of Rapid Transit, and the Hawaii Department of Transportation. In addition, this plan incorporates the collective input from other Federal, State, and local agencies as well as the general public and other key stakeholders.

To tell the ‘story’ of how the future vision of transportation on Oahu will be accomplished, this ORTP is organized into the following eight chapters:

- Chapter 1 provides an overview of the ORTP’s purpose, its Federal requirements, and how it was developed;

- Chapter 2 discusses the island’s existing transportation system, its demographics, and the challenges and opportunities facing Oahu;
- Chapter 3 identifies the overall vision and goals for the transportation system based on the public input described in Chapter 4;
- Chapter 5 describes how the projects in the ORTP were selected while Chapter 6 summarizes the projects, their anticipated timeframes, and their estimated costs and probable funding sources; and
- Chapter 7 describes the recommended methods for evaluating the progress of plan implementation while Chapter 8 lists the other plans and studies that were taken into consideration while developing this ORTP.

The vision statement in this ORTP reinforces the previous vision for Oahu that its communities should be served by a future transportation system in the year 2040 that is efficient, well-maintained, safe, secure, and convenient while offering appropriate and economical choices. To achieve this vision while facing future fiscal uncertainties and environmental challenges, the ORTP proposes a balanced transportation investment strategy consisting of nearly \$17 billion in congestion mitigation, modernization, system preservation, and transit projects.

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## List of Abbreviations

§	Section
3-C	Continuing, Cooperative, Comprehensive
ADA	Americans with Disabilities Act
C&C	City and County of Honolulu
CAC	OahuMPO Citizen Advisory Committee
CFR	Code of Federal Regulations
CMAQ	Congestion Mitigation and Air Quality Improvement Program
DBEDT	Department of Business, Economic Development and Tourism (State)
DPP	City and County of Honolulu Department of Planning and Permitting
DTS	City and County of Honolulu Department of Transportation Services
EB	East bound
FAST Act	Fixing America's Surface Transportation Act
FFY	Federal Fiscal Year (October – September)
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
HART	Honolulu Authority for Rapid Transit
HDOT	Hawaii Department of Transportation
HOV	High-Occupancy Vehicle
MAP-21	Moving Ahead for Progress in the 21 <sup>st</sup> Century
NB	North bound
NTD	National Transit Database
OahuMPO	Oahu Metropolitan Planning Organization
ORTP	Oahu Regional Transportation Plan
OTS	Oahu Transit Services
OWP	Overall Work Program
SB	South bound
T6/EJ	Title VI/Environmental Justice
TAC	Technical Advisory Committee
TAP	Transportation Alternatives Program
TDM	Transportation Demand Management
TIP	Transportation Improvement Program
TDFM	Travel Demand Forecasting Model
TSM	Transportation System Management
USC	United States Code
USDOT	United States Department of Transportation
UZA	Urbanized Area
WB	West bound
V/C	Volume-to-capacity ratio

## Chapter 1 – What is the ORTP?

### Plan Purpose and Process

The objective of the Oahu Regional Transportation Plan (ORTP) is to guide the development of transportation on our island through the year 2040. It presents both a vision of an improved transportation system to serve the needs of Oahu’s population as well as specific projects that will achieve that vision. ORTP 2040 includes recommendations for improving the full range of transportation options available to island residents—automobile, truck, bus, rail, bicycle, and pedestrian. In order to determine the locations of future transportation needs, the Oahu Metropolitan Planning Organization (OahuMPO) Comprehensive Agreement dated July 20, 2015 states that the ORTP shall:

- Include both long-range and short-range regional strategies/actions that lead to the development of an integrated intermodal transportation system that facilitates the safe and efficient movement of people and goods in addressing current and future transportation demand,
- Include at least a twenty-year planning horizon, and must be updated at least every five years.<sup>1</sup>

<sup>1</sup> <http://www.oahumpo.org/wp-content/uploads/2013/02/OahuMPO-Comprehensive-Agreement-20150720-SIGNED.pdf>

This ORTP document is designed to meet the requirements of 23 CFR 450 and guidance promulgated by United States Department of Transportation. In addition, a joint Federal Highway Administration (FHWA) /Federal Transit Administration (FTA) Team conducted a review of the OahuMPO in 2014. The Review Team certified the Metropolitan Planning Organization (MPO) contingent upon the resolution of specified corrective actions. The deadline established for corrective actions related to the ORTP was “with Policy Committee [... Board] approval of the next ORTP Update April 2016.” The consequences of not approving the ORTP in time include non-approval of the Overall Work Program and/or the Oahu portion of the State Transportation Improvement Program (STIP).<sup>2</sup> The corrective actions specific to the ORTP 2040 require:

- The MPO to consult with State and local agencies responsible for land management, natural resources, environmental protection, conservation and historic preservation concerning the development of the transportation plan,

<sup>2</sup> <http://www.oahumpo.org/wp-content/uploads/2014/09/OMPO-2014-TMACertRpt-092614.pdf>

- The ORTP must include a discussion of the types of potential environmental mitigation activities and potential areas to carry out these activities,
- The ORTP must demonstrate and document implementation of the approved Congestion Management Process (CMP),
- The Final ORTP must include a documented disposition of public comments received,
- The ORTP must include documentation of the analysis completed for Title VI and Environmental Justice (T6/EJ) monitoring.

### About the OahuMPO

The OahuMPO is responsible for coordinating transportation planning on Oahu. A revised Designation Agreement executed by the Governor on June 17, 2015 established the OahuMPO as the Federally-required MPO and Transportation Management Area (TMA) for the island of Oahu. With this designation and codification of the role and responsibilities of OahuMPO in Act 132, Session Laws of Hawaii 2015, effective on July 1, 2015 and consistent with Federal statutes and regulations, the OahuMPO continues to foster the continuing, cooperative, and comprehensive (“3-C”) planning process. The OahuMPO is required to develop the island’s Metropolitan

Transportation Plan (MTP), otherwise known as the ORTP, and to identify and prioritize transportation projects for funding through the Transportation Improvement Program (TIP). In 2015, the OahuMPO programmed more than \$91 million in Federal Highway and \$381 million in Federal Transit funds for transportation improvements.<sup>3</sup>

The current Comprehensive Agreement, which describes the specific roles and responsibilities of the OahuMPO, was signed by the Governor, the City Council Chair, the Honolulu Authority for Rapid Transportation Executive Director and CEO, and the OahuMPO Policy Board Chair on July 20, 2015. The Policy Board is the decision-making body of the OahuMPO. This eleven-member body consists of the Directors of the Hawaii Department of Transportation (HDOT), City Department of Transportation Services (DTS), Honolulu Authority for Rapid Transportation (HART), City Department of Planning and Permitting (DPP); three members of the Honolulu City Council; two members of the State Senate; and two members of the State House of Representatives. Additionally, the Policy Board includes three core non-voting members representing the FHWA Hawaii Division Office, the State's Office of Planning, and the State's Department of Health. The Policy Board is the decision-maker on the

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<sup>3</sup> <http://www.oahumpo.org/wp-content/uploads/2013/01/150723FFYs2015to2018TIPASOFREV6.pdf>

use of Federal-aid transportation funds on the island of Oahu.

The OahuMPO has advisory committees that provide recommendations to the Policy Board and the OahuMPO Executive Director. The Technical Advisory Committee (TAC) advises the Policy Board and the Executive Director on technical matters. The membership of the TAC consists of senior technical staff representing the State and City transportation and planning departments as well as freight and transit providers and staff from FHWA, FTA, and the Federal Aviation Administration (FAA) who serve in a non-voting capacity. The TAC is an integral part of the OahuMPO's multimodal 3-C planning process. The Citizen Advisory Committee (CAC) is the primary vehicle for citizens to provide public input to the Policy Board and the Executive Director on Oahu's transportation planning needs and processes. At present, the CAC consists of representatives from 44 community associations, Neighborhood Boards, professional associations, businesses, transportation providers and associations, developers, and other interested parties.

### Federal Requirements

Metropolitan areas with populations exceeding 50,000 are required by federal law to develop a MTP as part of their MPO planning activities. This requirement is satisfied by this ORTP 2040 report. The ORTP must have a twenty-year planning horizon and must contain future goals, strategies, and projects. The ORTP must be updated every five years for areas in

attainment for air quality standards. 23 CFR 450.322 identifies the specific federal requirements for the ORTP.

In addition to the federal regulations, both FHWA and FTA jointly provide suggested approaches on how to integrate the CMP into a 3-C planning process in the *Transportation Planning Process Briefing Book*.<sup>4</sup> The book recommends that the ORTP provide the results of scenario analyses of performance targets as influenced by regional land use, development, housing, and employment goals and plans; projected 20 year transportation demand; policies, strategies, and projects that the MPO recommends for the future; cost estimates and estimates of reasonably available financial sources, and ways to preserve facilities and efficiently use the existing system.

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<sup>4</sup> [http://www.fhwa.dot.gov/planning/publications/briefing\\_book/part00.cfm](http://www.fhwa.dot.gov/planning/publications/briefing_book/part00.cfm)

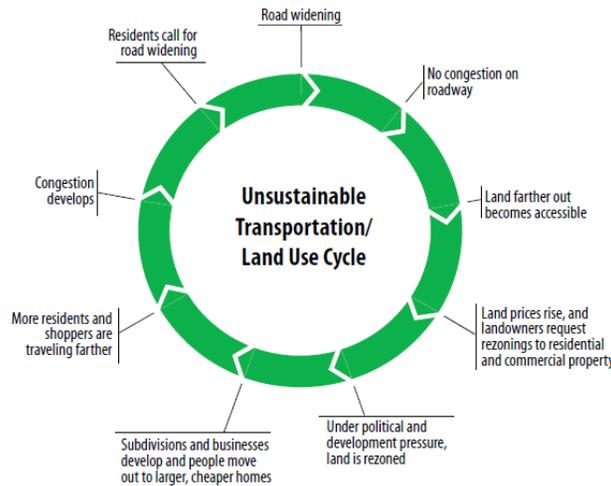
## Why is ORTP 2040 Important?

Transportation is a vital aspect of daily life, as it directly enables and supports economic activity, job creation and retention, community development, and recreation. Effective management of the transportation system requires a careful balance of quality of life, efficient land use, environmental stewardship, security, and other issues. Because transportation investments are often costly and can take years to plan, design, and build, it is important that the identified improvements work together to achieve the best overall transportation solution reflective of Oahu's values and priorities.

In addition to cost, changes in demographics will have an impact on Oahu's transportation system. Hawaii is seeing a dramatic growth in its elderly population (65 years of age or older). That group is expected to be nearly 400,000 people by the year 2040, or 25 percent of the State's population. As the population ages, many elderly drivers and pedestrians are faced with declining cognitive skills, such as memory loss, selective attention, increased response time, and difficulties processing the speed of traffic. While the senior population has the fewest licensed drivers, per capita, and drives fewer miles per capita, they have a higher likelihood of injury or fatality from an accident than all other age groups. Many elderly drivers continue to depend on the automobile for meeting their transportation needs. These two facts, combined with the physical limits

associated with aging, will require agencies to pay more attention to the design, safety, and function of island transportation systems.

Figure 1-1 Transportation / Land Use Cycle



ORTP 2040 also recognizes the impact of the transportation/land use cycle shown in Figure 1-1 Transportation / Land Use Cycle, a cycle that has been repeated many times on Oahu and throughout the U.S. For years transportation professionals have been struggling to get ahead of the curve, but the reality is that we cannot build our way out of congestion, and that the best way to achieve improved mobility and accessibility is through providing more transportation choices.

ORTP 2040 also addresses concerns related to sustainability and climate change. These two issues are tightly intertwined. Increasing the sustainability of the transportation system by increasing efficiency of operations and reducing greenhouse gases may slow the progression of climate change.

## Geographic Coverage

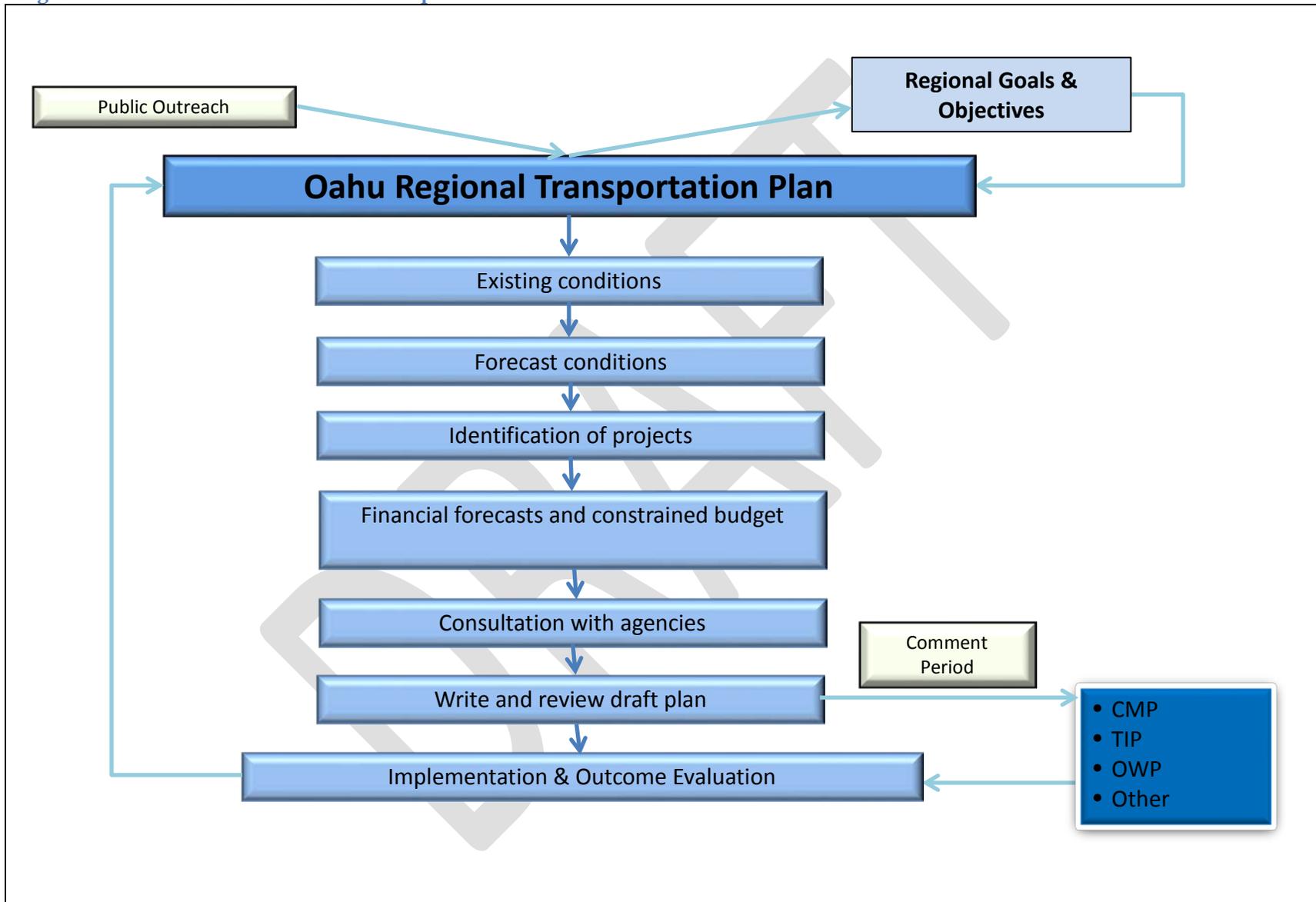
As defined in 23 CFR 450.104, a metropolitan planning area (MPA) means the geographic area in which the metropolitan transportation planning process is carried out, as determined by agreement between the metropolitan planning organization for the area and the Governor. Although the OahuMPO serves as the metropolitan planning organization for the two urbanized areas on Oahu (Honolulu and Kailua-Kaneohe), the OahuMPO coordinates transportation planning for the entire island. The MPA covers approximately 600 square miles and encompasses a population that was estimated to exceed 991,788 in 2014. <sup>5</sup>

<sup>5</sup> <http://quickfacts.census.gov/qfd/states/15/15003.html>

**Figure 1-2 ORTP 2040 Update Timeline**

Action	Subject(s)	Date(s)	Parties
Early Public Input	<ol style="list-style-type: none"> <li>Issue identification</li> <li>Goals and Objectives</li> <li>2015-2018 TIP</li> </ol>	2013 / 2015	OahuMPO, CAC, and the public
Existing and Forecast Conditions	<ol style="list-style-type: none"> <li>Existing and Committed (E+C) network</li> <li>Build TDFM</li> </ol>	April / November 2015	OahuMPO Staff, HDOT, DTS, HART
Identification of Projects and Financial Forecasts	<ol style="list-style-type: none"> <li>Identify Candidate Projects</li> <li>Cost Estimation</li> <li>Revenue Forecasts</li> </ol>	June / October 2015	OahuMPO Staff, HDOT, DTS, HART
Constrained Budget	<ol style="list-style-type: none"> <li>Performance Analysis</li> <li>T6/EJ Analysis</li> <li>Prioritization and Year-of-Expenditure Conceptual Financial Plan</li> </ol>	June 2015 / February 2016	OahuMPO
Write Plan	Develop review draft of ORTP 2040	January 2016	OahuMPO
Submit Draft for Review	Initiate public, intergovernmental review, and consultation with key environmental stakeholders	February / March 2016	OahuMPO
<b>Policy Board Consider Final ORTP 2040</b>		<b>April 2016</b>	<b>TAC – 4/8/2016 PB – 4/15/2016</b>
Submit Approved ORTP to USDOT and the Governor		4/29/2016	FHWA & FTA

Figure 1-3 The OahuMPO ORTP Development Process



## Chapter 2 – Existing Conditions

Oahu is a study in contrasts, ranging from the highly developed Honolulu and Waikiki areas to the still largely rural areas of the North Shore and Waianae Coast. While the mountainous terrain adds to the island’s natural beauty, it also restricts the development of a truly connected roadway network. There are very few roadways that cross the Waianae or Koolau Mountains, making trips from coastal areas to the central plain difficult and lengthy.

### Existing Transportation Facilities and Services

Oahu has an extensive network of roadways ranging from freeways to local streets and a growing number of bicycle and pedestrian facilities. The City and County of Honolulu

also has a bus fixed route transit (TheBus) and paratransit system (TheHandi-Van) operated by Oahu Transit Services. TheBus system currently consists of 96 fixed routes that serve approximately 3,837 bus stops and carry approximately 70 million passengers each year<sup>6</sup>. However, as shown in Table 1 Transportation Fast Facts, most trips are made in automobiles, and the transportation network has historically been oriented to moving cars and trucks.

As shown by the Volume to Capacity ratio (V/C) in Figure 2-1, Oahu’s freeway network is highly congested during the morning commute (i.e., orange or red color). The Hawaii Department of Transportation (HDOT) and City and County of Honolulu (C&C) have employed many strategies to decrease congestion and improve traffic flow. They have developed miles of contraflow lanes (lanes that reverse directions to improve management of directional driving) and high-occupancy vehicle (HOV) lanes (Interstate or highway lanes designated for exclusive use by buses, carpools, motorcycles, and vanpools). HOV lanes are intended to serve as incentives for people to carpool, vanpool, or ride transit. Despite these initiatives, Oahu’s reliance on single-occupant automobiles for

transportation has resulted in long commutes. Oahu residents continue to rely on single-occupant automobiles for transportation.

### Demographics and Congestion

In 2010, Oahu had 953,207 residents, 311,047 households, and 562,852 jobs. Seventy percent of the island’s jobs were located in the Primary Urban Center (PUC), and only 46 percent of the island’s population was located in the PUC. As shown in Figure 2-5, this concentration of job opportunities in the PUC combined with a population dispersed throughout the island has resulted in some of the longest commute times in the nation.

Oahu’s population continues to increase annually and is impacted by non-resident visitors. In 2013, the U.S. Census Bureau reported that Honolulu County had increased to a total residential population of 987,019. In the same year, the State Department of Business, Economic Development and Tourism (DBEDT) reported a *de facto* population of 1,029,798, which includes persons living on Oahu that do not establish residency. Projections suggest that we can expect as many as 4,000 new residents every year between 2010 and 2040. Additionally, in 2014, more than 5,159,078 persons arrived by air to visit Oahu in 2014 for stays lasting an average of seven days.

**Table 1 Transportation Fast Facts**

Miles of Interstate freeways	54.9
Miles of State highways	254.3
Miles of City and County roads	1,385.5
Number of registered taxable vehicles	667,190
Number of bus routes	96
Number of buses	524
Number of park-and-ride facilities	5
Miles of bikeways	98
Percentage of trips made by automobile	80
Percentage of trips made by transit	8
Percentage of trips made by bicycle or walking	9

<sup>6</sup> [http://www.ntdprogram.gov/ntdprogram/pubs/profiles/2013/agency\\_profiles/9002.pdf](http://www.ntdprogram.gov/ntdprogram/pubs/profiles/2013/agency_profiles/9002.pdf)

Figure 2-1 Modeled Roadway Level of Service (2012)

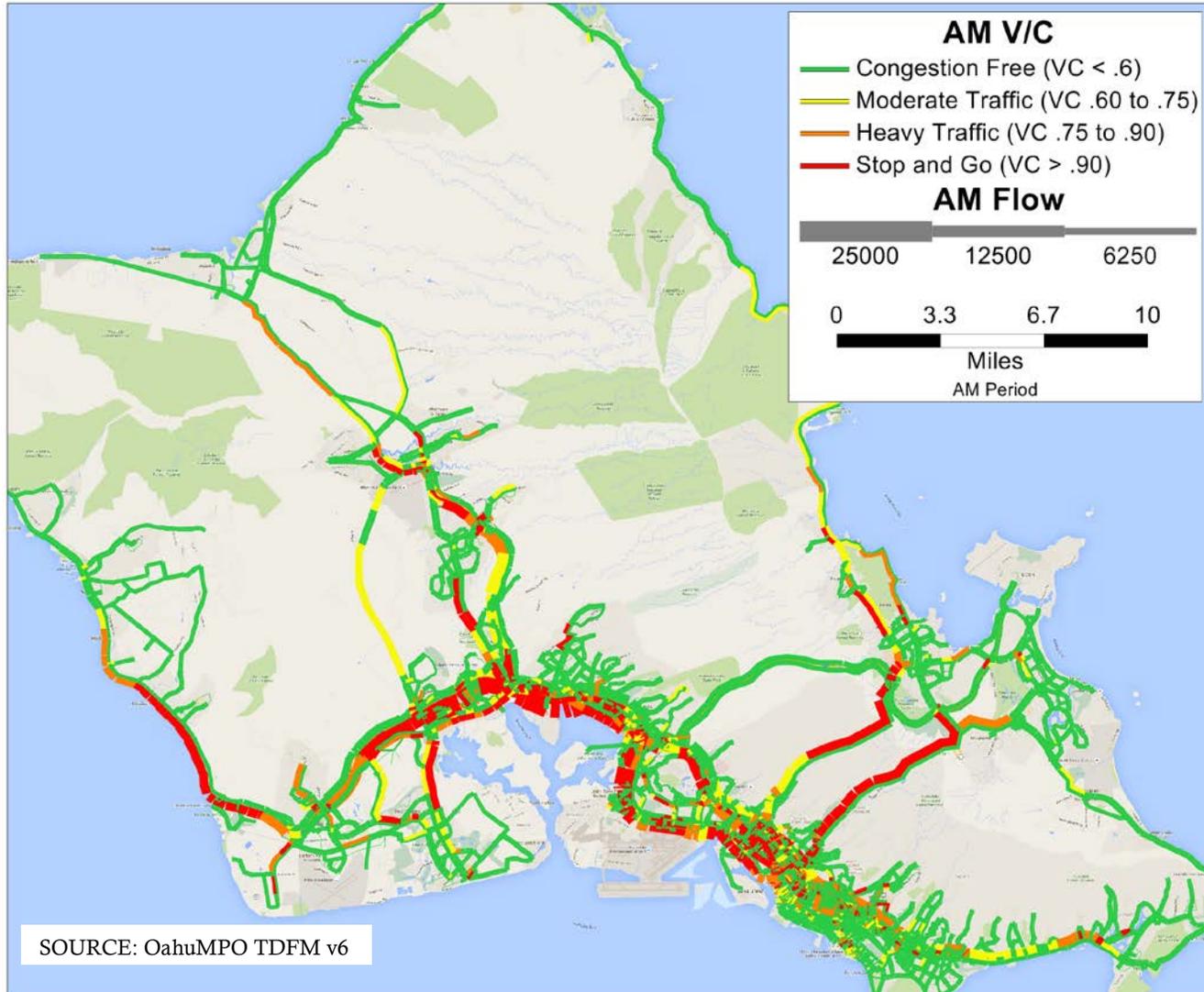
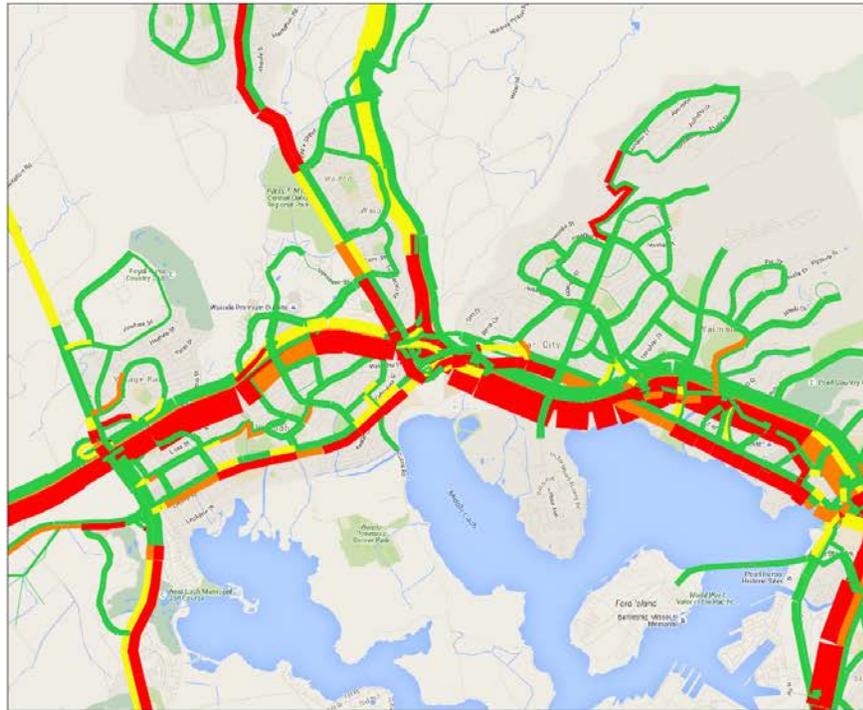
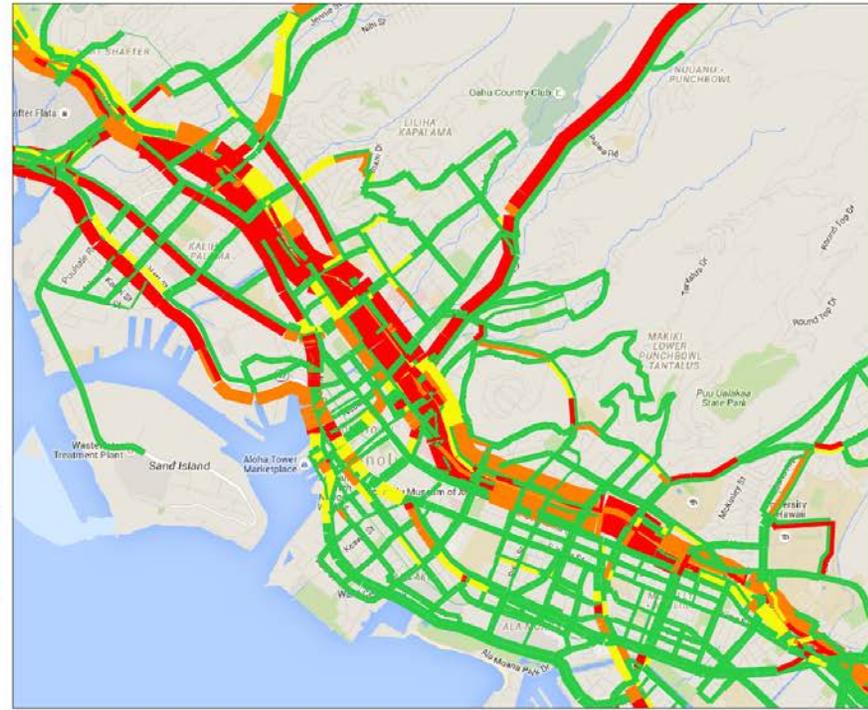


Figure 2-2 Modeled Roadway Level of Service (2012)

## Pearl City



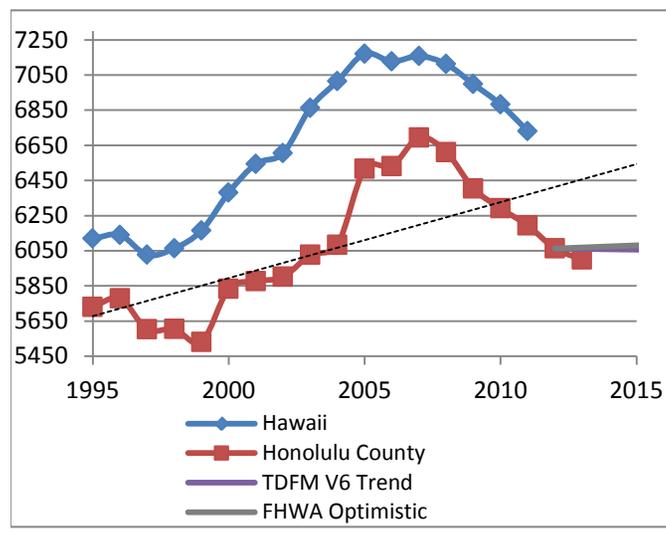
## Honolulu



SOURCE: OahuMPO TDFM v6

Another measure of growth is traffic volume. The Hawaii Department of Transportation (HDOT) reports vehicle miles traveled (VMT) to the FHWA's Highway Performance Monitoring System (HPMS). Figure 2-3 Annual VMT Per Capita below illustrates the trend in observed VMT per *de facto* population for Hawaii and the island of Oahu. The long-range trend is an increase in VMT, which is led by a peak in 2007.

**Figure 2-3 Annual VMT Per Capita**



## Challenges and Opportunities Facing Oahu

**System Preservation:** Regional transportation projects and programs have historically been funded by Federal, State, and City and County revenues, with the

addition of some private sources. All of these revenue sources have declined in recent years due to the economic downturn and more fuel efficient vehicles yielding lower gasoline tax revenue, resulting in insufficient State and City funding for the maintenance of existing facilities. These maintenance needs are exacerbated by previously deferred maintenance on many facilities. ORTP 2040 addresses this issue by allocating over 50 percent of the available highway funds to safety and operational improvements and maintenance of existing facilities. Figure 2-4 illustrates the pavement quality condition on Oahu reported to the FHWA for 2013 using the International Roughness Index where less than 170 inches of roughness/mile is generally defined as acceptable ride quality.

**High Growth Areas:** Today, much of Oahu's development lies along the southern portion of the island, generally comprising the Interstate H-1 travel corridor. In the future, however, the growth in population and households will be broadening to the west side of the island and the Central Oahu urban fringe areas. As shown in Figure 2-7, the Kapolei-Ko Olina-Kalaeloa, Honouliuli-Ewa Beach, Central Oahu, Waiawa-Koa Ridge, and Kakaako areas are forecasted to see significant increases in population by 2040.

By 2040, the number of jobs is projected to grow by 21 percent. Although job growth is expected

throughout the island, more robust growth is shown in the Kapolei-Ko Olina-Kalaeloa, Honouliuli-Ewa Beach, Central Oahu, and the Kakaako areas (Figure 2-6). The PUC is still expected to have 68 percent of all jobs on the island, followed by Central Oahu with 11 percent. This growth in jobs in Central Oahu and Ewa/Kapolei may take many work trips away from the PUC and Oahu's most congested roadways or may re-orient travel patterns somewhat between the PUC and these outlying areas.

ORTP 2040 addresses the proposed growth in Kapolei and the PUC through strategic investments in multi-modal facilities and equipment to offer residents and visitors more transportation choices.

**Figure 2-4 2013 Highway Performance Monitoring System (HPMS) Pavement Quality**

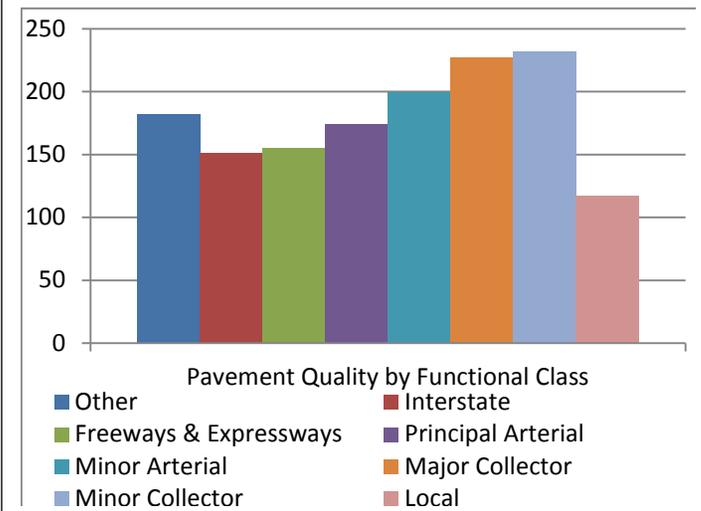
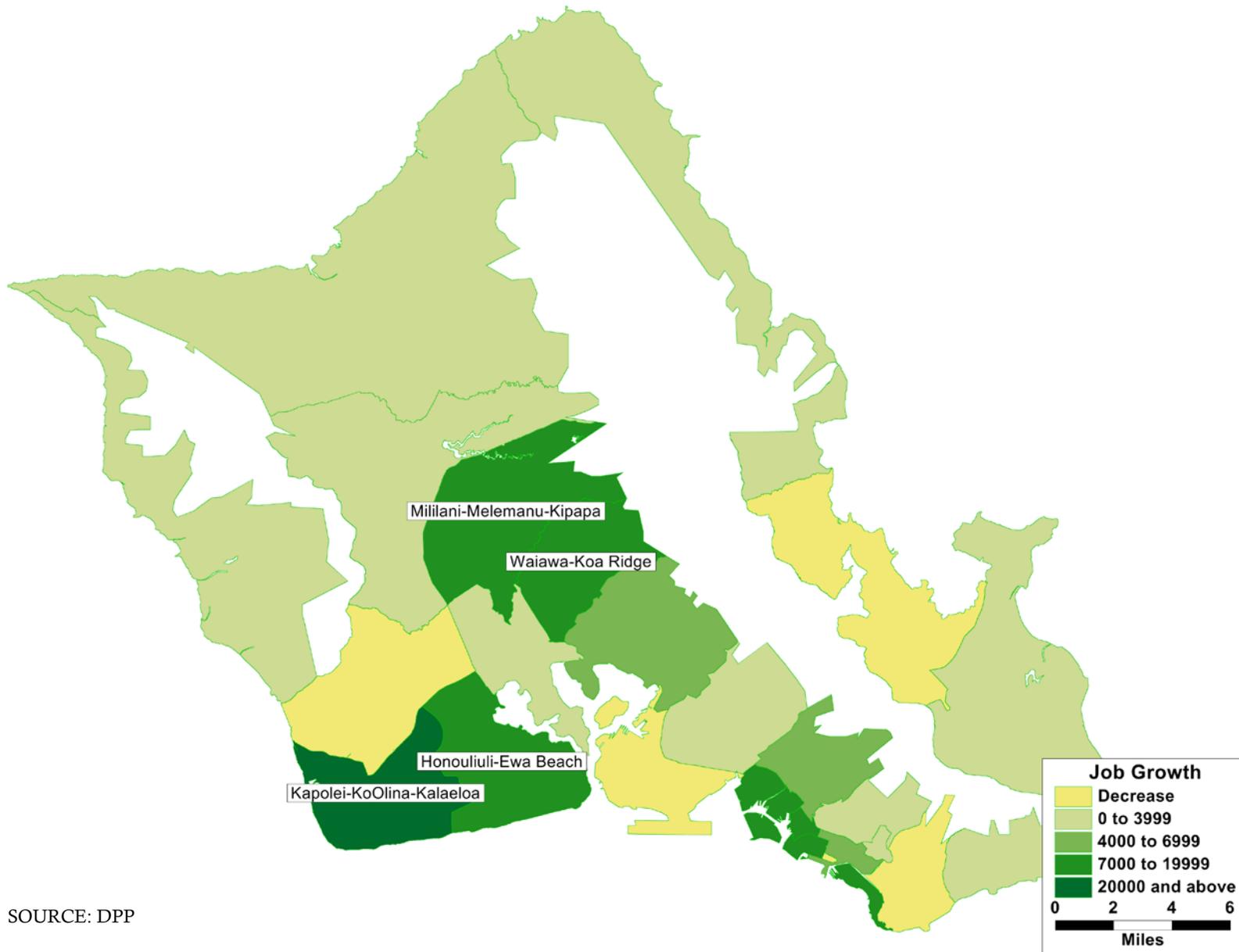


Figure 2-5 Primary Urban Center



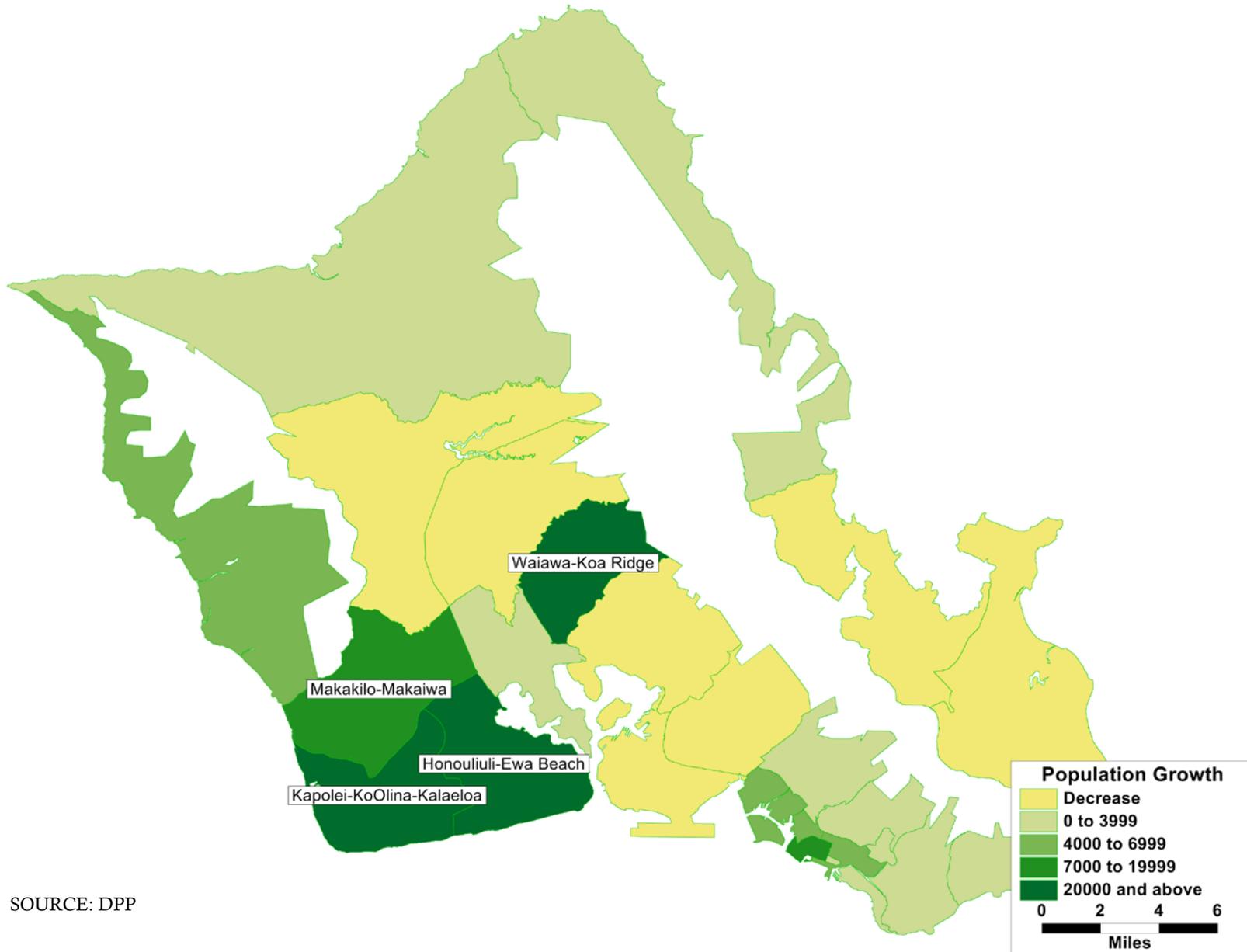
SOURCE: DPP

Figure 2-6 Job Growth, 2010-2040



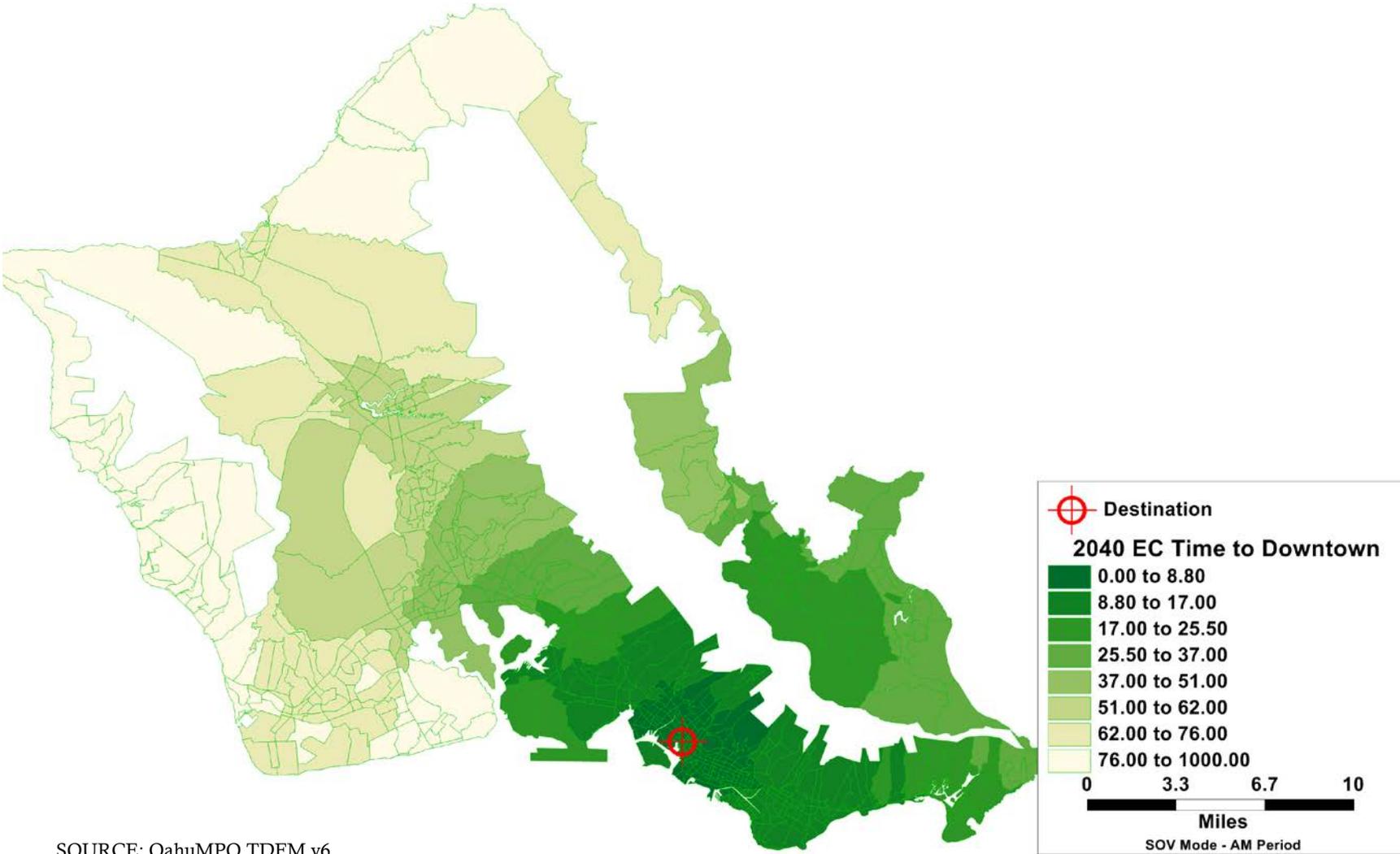
SOURCE: DPP

Figure 2-7 Population Growth, 2010-2040



SOURCE: DPP

Figure 2-8 2040 6:00-9:00 AM Commute Time to Downtown in Minutes (No-build)



SOURCE: OahuMPO TDFM v6

### **Increasing Congestion and Longer Travel**

**Times:** Transportation planners analyzed traffic conditions projected until 2040, assuming the construction of the Honolulu High-Capacity Transit Corridor Project (HHCTCP or simply “the rail project”) from East Kapolei to Ala Moana Center. The results of this analysis showed continued worsening of the already congested conditions found along the Interstate H-1 corridor, the Interstate H-1 and Interstate H-2 merge, and in transit reliability. As shown in Figure 2-8, travel time to Downtown will get longer. While the rail project does relieve some congestion, rail alone will not be able to keep Oahu’s transportation ‘statistics,’ such as drive time and level-of-service, from getting worse. Specific problems identified by the analysis of the 2040 roadway network include the following:

- The “reverse” commute along the H-1 corridor will take more time.
- Without completion of the improvements identified in the plan, more than 17 percent of vehicle miles traveled will be on congested corridors in 2040, compared to 11 percent in 2012.
- Interstate H-1 between the Middle Street merge and University Avenue will continue to be congested in both directions.
- Increased development and roadway congestion will inhibit bus transit.
- Traffic on Interstate H-2 and Kamehameha Highway will get

significantly worse without alternative roadways to provide access to-and-from the Waiawa-Koa Ridge area.

- The planned growth in the Ewa/Kapolei area will require significant investment in transportation infrastructure.

**Safety:** Unsafe driver behavior and unsafe roads were identified by Oahu’s residents in the public outreach conducted for the ORTP 2040. Specific areas of concern include aggressive driving, impaired driving, safety of bicyclists and pedestrians, motorcycles, and mopeds, and reducing traffic-related deaths and injuries. Many of the projects included in ORTP 2040 address the issue of safety directly or indirectly by measures such as improved lighting and signing, as well as general widening and improved roadway configurations.

**Secondary and Emergency Access to Communities:** As noted in the Statewide Federal-Aid State Highways 2035 Transportation Plan, there are some communities that are located on the perimeter of Oahu or in isolated areas separated by geography. These communities often rely on a single roadway to access other parts of the island. When these roadways become congested or impassable, emergency response and evacuation times are delayed. There is a need for alternative routes for ingress and egress into these communities in order to improve circulation options and emergency access.

**Freight Movement:** One of the performance goals of the FAST Act is to improve freight networks to support regional economic development. While segments of Interstate Route H-1 and Nimitz Highway have been included by FHWA on the National Highway Primary Freight Network Map,<sup>7</sup> Oahu does not have any State- or local-designated freight routes at this time. Planned improvements to the H-1 corridor and other major highways are anticipated to benefit freight mobility on Oahu. As noted in ORTP 2035, freight travel times between port facilities (Honolulu Harbor and Kalaeloa Barbers Point Harbor), Honolulu International Airport, and other parts of Oahu are anticipated to be similar to those for automobile travel.

### **Accessibility to the Transportation**

**System:** Because Oahu’s population is a majority of minorities, the OahuMPO follows a unique environmental justice methodology to determine the Title VI/Environmental Justice (T6/EJ) population. The OahuMPO process considers the nature and status of minority groups in the region based on three factors: (1) its numerical minority status, (2) its share of the region’s aggregate household income compared against its share of the region’s total households, and (3), its settlement pattern compared to all other groups. The result of this analysis is the identification of 226 census block groups as environmental justice areas: 218 based on

<sup>7</sup> See map of Hawaii at this link: [http://www.ops.fhwa.dot.gov/freight/infrastructure/pfn/state\\_maps/states/fpn\\_hires\\_jpg\\_27k/hi\\_hawaii.jpg](http://www.ops.fhwa.dot.gov/freight/infrastructure/pfn/state_maps/states/fpn_hires_jpg_27k/hi_hawaii.jpg)

the disproportionate presence of federally-defined minority groups, one based on low-income characteristics alone, and seven block groups were both disproportionately low income and minority (Department of Transportation Services). Table 2 shows the income and household size characteristics that must be met to be considered low-income.<sup>8</sup>

**Table 2 Oahu Title VI / Environmental Justice Population**

Persons in Household	Annual Household Income
One	\$55,650
Two	\$63,600
Three	\$71,550
Four	\$79,450
Five	\$85,850
Six	\$92,200
Seven	\$98,550
Eight	\$104,900

In order to comply with Title VI, OahuMPO must ensure that ORTP 2040 does not result in disproportionately high and adverse human health or environmental effects to T6/EJ populations, and that everyone has access to the transportation system. According to the 2013 American Community Survey five-year estimates, T6/EJ residents are twice as likely to use TheBus for daily commuting, compared to commuters in

<sup>8</sup> <http://www.huduser.gov/portal/datasets/il/il10/hi.pdf>

general, indicating the need for a balanced, multi-modal system.

ORTP 2040 evaluates the issue of equitable mobility and accessibility for T6/EJ populations through two performance measures – mobility and accessibility. Mobility is defined as the ease of movement of goods, services, and people. Accessibility is defined as the relative ease of reaching important destinations such as hospitals, employment centers, colleges, and regional shopping centers. Both are usually measured in travel time via bus and automobile.

**Climate Change:** Due to its island nature, the impacts of climate change on Oahu could be significant, most especially the increased storm severity, including flooding, tidal surges, high winds, and their impacts on transportation infrastructure as well as the predicted rise in both sea level and groundwater table. ORTP 2040 considers the effects of climate change and develops objectives related to the reduction of greenhouse gases. Long-term planning is needed to identify and minimize the risk to transportation facilities that are in close proximity to coastal areas and other areas prone to flooding historically, such as Honolulu Harbor and Kalaeloa Barbers Point Harbor, Honolulu International Airport, and various mountain and valley roadways. Oahu’s coastal highways—Farrington Highway, Kalaniana’ole Highway, Kamehameha Highway—and Nimitz Highway are of concern.

**Energy Conservation:** As an island among those furthest from a continental land mass, Oahu must import just about everything necessary for daily life—including fossil fuels that run the transportation system. Reducing our reliance on fossil fuels and developing a more sustainable transportation system are challenges being addressed in the ORTP 2040. According to statistics of the Hawaii Clean Energy Initiative<sup>9</sup>, the challenge is daunting:

- Imported oil supplies account for more than 90 percent of our energy.
- More than 60 percent of our energy is used for transportation.
- We are the most oil-dependent state in the nation.
- Less than 3 percent of Oahu’s vehicles are hybrid or electric.

Improving on these measures is a goal of ORTP 2040.

**Local Development Plans:** Sustainable development is generally defined as development that will not require the use of resources reserved for future generations for today’s needs. Each of Oahu’s eight development plan areas has either a Development or Sustainable Communities Plan that is administered by the City’s Department of Planning and Permitting. Together with the General Plan, Development and Sustainable Communities

<sup>9</sup> [http://www.hawaiicleanenergyinitiative.org/wp-content/uploads/2015/02/Final\\_TransEnergyAnalysis\\_8.19.15.pdf](http://www.hawaiicleanenergyinitiative.org/wp-content/uploads/2015/02/Final_TransEnergyAnalysis_8.19.15.pdf)

and Neighborhood Transit Oriented Development (TOD) Plans guide population and land use growth over 20 years or more.

Ewa/Kapolei, Central Oahu, and the PUC are the planning areas identified for higher future growth and development. Kapolei will emerge as a secondary urban center over the next 20 years. It will have sufficient housing, commercial, recreation, and employment options to make it less likely its residents will have to travel far to meet their daily needs. The Development Plan for the PUC includes continued investments in residential choice and business development, especially in Kakaako, ensuring that this area will continue to attract residents, businesses, and visitors.

The Neighborhood TOD Plans identify opportunities for new development, orderly growth, and improved accessibility around the rail stations. Complementary City-initiated Land Use Ordinance amendments and zone changes will help direct and manage growth around the rail stations. The City Council required<sup>10</sup> that TOD regulations minimally include:

- a mix of land uses;
- density and building height limits tied to amenities;
- reduction of off-street parking spaces;

<sup>10</sup>

[https://www.honolulu.gov/rep/site/ocs/roh/ROH\\_Chapter\\_21\\_art\\_7-9.pdf](https://www.honolulu.gov/rep/site/ocs/roh/ROH_Chapter_21_art_7-9.pdf)

- encouragement for the use of rapid transit, buses, bicycling, walking, and other non-automobile forms of transport;
- guidelines on building orientation;
- controls to protect landmark resources;
- human-scale architectural elements;
- landscaping; and
- TOD incentives.

The Sustainable Communities Plans for the rest of the island’s communities— East Honolulu, Koolaupoko, Koolauloa, North Shore, and Waianae—emphasize the protection of agricultural and preservation areas, support of small-town values, and maintenance of a land-use pattern that reflects the traditional Hawaiian land division system. These areas of emphasis serve as tools for physical and resource planning; protecting and preserving significant natural, scenic, cultural, historical, and agricultural resources; expanding public access to mountain and shoreline areas; and encouraging the accommodation of changing demographics. Connecting land-use planning with transportation planning is vital to the success of both. Existing Development and Sustainable Communities Plans were used to validate growth areas and identify potential transportation projects for ORTP 2040.

#### **Sustainable Transportation Solutions:**

What is a sustainable transportation system?

A comprehensive definition of a sustainable transportation system developed by the Canadian Center for Sustainable

Transportation states that sustainable transportation:

- “Allows the basic access needs of individuals and societies to be met safely and in a manner consistent with human and ecosystem health, and with equity within and between generations;
- “Is affordable, operates efficiently, offers choice of transport mode, and supports a vibrant economy; and
- “Limits emissions and waste within the planet’s ability to absorb them, minimizes consumption of non-renewable resources, limits consumption of renewable resources to the sustainable yield level, reuses and recycles its components, and minimizes the use of land and the production of noise.”

ORTP 2040 furthers many of these principles of sustainable transportation with its emphasis on accessibility through transportation choices—bicycle and pedestrian facilities, mass transit, vanpool and shuttle programs, and high technology projects. ORTP 2040 assumes that the rail project will be operating between East Kapolei and Ala Moana Center by the year 2040 and that TheBus transit route system will be restructured to integrate with rail. Providing non-automobile transportation alternatives between Kapolei and Ewa to Downtown Honolulu and the Ala Moana Shopping Center promotes accessibility, reduces congestion and air pollution, and supports the economy. By supporting the continued development of bike routes and

lanes and the purchase of additional buses, vans, and shuttles, ORTP 2040 provides more affordable transportation choices that minimize energy consumption and promote healthy lifestyles.

**Complete Streets:** A Complete Street is one that provides for a safe, comfortable, and convenient trip for all types of users, including motorists, pedestrians and bicyclists, transit riders, and freight. Honolulu’s complete streets policy<sup>11</sup> serves as an important guide for transportation system designs by improving safety through the provision of adequate sidewalks, bike lanes, and crosswalks among other roadway improvements.

Act 54, Session Laws of Hawaii 2009 established a Complete Streets policy in Hawaii. Under the Complete Streets law, a statewide task force will review existing State and County highway design standards and guidelines and propose changes to procedures and design manuals. ORTP 2040 supports this concept by including bicycle and pedestrian improvements as well as goals and objectives that reflect Complete Street concepts.

**State Safety Plan:** The Hawaii Department of Transportation’s Strategic Highway Safety Plan (SHSP) recognizes the need to reduce the number of traffic related deaths on Hawaii’s roadways regardless of the cause.

<sup>11</sup>

[http://www.honolulu.gov/rep/site/ocs/roh/ROH\\_Chapter\\_14a20\\_33\\_.pdf](http://www.honolulu.gov/rep/site/ocs/roh/ROH_Chapter_14a20_33_.pdf)

Challenges such as aggressive driving, impaired driving, facility design, and data and safety management are some of the issues covered in the SHSP. Addressing these challenges involves the participation of a wide range of stakeholders from various agencies across the State. Potential strategies to improve safety include legislation and funding, educational and community actions, enforcement, and improved engineering.

ORTP 2040 includes goals and performance measures related to safety and allocates funds to develop a reliable, multi-modal transportation system. Included in ORTP 2040 are projects to implement dependable facilities, such as repairing and preserving roadways, installing guardrails, providing rockfall protection measures, and separating traffic from pedestrians and bicyclists through roadway and intersection improvements.

**Energy Sustainability Task Forces and Forums:** Addressing the challenge of moving away from fossil-fuel dependency to a more sustainable transportation system is addressed in several recently completed reports for Honolulu and Hawaii. The Mayor’s Energy and Sustainability Task Force developed a 10-year energy efficiency and sustainability plan, the goals of which are to make Oahu infrastructure and operations more self-sufficient and sustainable and more in harmony with the environment. Another report is *Strategies for Energy Efficiencies in Transportation* completed by the Hawaii Energy Policy Forum. For this report, surveys were

conducted to gain the public’s perspective on several aspects of possible energy-efficient transportation options. The results of these surveys were used to develop recommendations such as using cleaner vehicles with higher efficiencies or implementing more smart growth principles, including higher density to support additional transit.

According to the Hawaii Clean Energy Initiative (HCEI), more than 60 percent of Hawaii’s current energy use is for transportation, and more than half of that is for aviation. Currently, the HCEI goal is to use clean energy to supply 70 percent of Hawaii’s needs. Partners and working groups are actively monitoring developments in clean energy options, and viable solutions will be incorporated into the initiative’s overall goals as they become available.

ORTP 2040 addresses sustainability issues facing Oahu. ORTP 2040 includes goals and performance measures related to sustainability and identifies projects to help develop a more sustainable, multi-modal system. Included in the ORTP 2040 are pedestrian and bicycle facilities, improved bus and transit connections and facilities, and maintenance and operational upgrades to improve the quality of life for the communities of Oahu.

## Chapter 3 Vision and Goals

ORTP 2040 is developed in layers, beginning with one broad, over-arching vision that leads to increasingly specific steps that will carry Oahu toward that vision. The Federal Highway Administration provides guidance in the formulation of regional objectives. Ideal 'SMART' objectives should be:

- **Specific:** The objective should provide a clear desired outcome without dictating the approach.
- **Measurable:** The objective should be measurable and facilitate quantitative evaluation.
- **Agreed:** The objective should be a result of consensus from planners, operators, and other local stakeholders.
- **Realistic:** The objective should be achievable within the limitations of resources, time constraints, and other demands.

- **Time-Bound:** The objective should identify the timeframe within which it is to be achieved.

### ORTP 2040 Vision

In 2040, Oahu will be a place where we will have efficient, well-maintained, safe, secure, convenient, appropriate, and economical choices in getting from place to place. Our transportation system will move us and the goods we use in a manner that supports the island's high quality of life, natural beauty, economic vitality, and land use policies by supporting appropriate density development and avoiding urban sprawl. This system will promote energy conservation and economic sustainability as well as the protection of our ports of entry, preparation for emergency situations, and changes in global climate patterns.

### Goals and Priorities

The OahuMPO identified and approved Regional Goals & Objectives on June 19, 2014. These objectives shown in Figure 3-1 OahuMPO Regional Goals & Objectives can further be related to measures of effectiveness, data sources, and implementing procedures, which will realize a performance-based approach to planning on Oahu.

**Figure 3-1 OahuMPO Regional Goals & Objectives**

Regional Goals	Regional Objectives
<b>1. Transportation Facilities</b> - Provide an inclusive, multi-modal transport system whose connectedness provides efficient means for users desiring to move about this island by bicycle, freight carrier, pedestrian facility, road, transit service, and intermodal connectors	1.A Improve surface transportation system efficiency
	1.B Build a balanced and integrated multi-modal transportation network
<b>2. Transportation Operations and Services</b> - Develop, operate, maintain, and improve Oahu's islandwide transportation system to ensure the efficient, dependable, safe, secure, convenient, and economical movement of people and goods.	2.A Improve congestion
	2.B Improve security risks associated with natural and man-made disasters and other emergencies that would impact the transportation system
<b>3. Freight Movement and Economic Vitality</b> - Improve the freight network for Oahu, interisland, and trans-Pacific movements, strengthen the ability of rural communities to access trade markets, and support Oahu's economic development	3.A Improve the travel time of freight on the transportation network
	3.B Ensure adequate freight handling capacity of airport and harbors
<b>4. Natural Environment</b> - Develop, operate, maintain, and improve Oahu's transportation system in a manner that sustains environmental quality	4.A Meet or exceed noise, air, and water quality standards set by Federal, State, and City agencies
	4.B Reduce greenhouse gas emissions from transportation sources
	4.C Adapt the surface transportation network to all aspects of climate change
<b>5. Human Environment and Quality of Life</b> - Develop, operate, maintain, and improve Oahu's transportation system in a manner that supports community-wide values related to health, safety, culture, and civil rights	5.A Reduce transportation related fatalities and injuries
	5.B Support community and cultural values in the development of plans and projects
<b>6. Land Use and Transportation Integration</b> - Develop, operate, maintain, and improve Oahu's transportation system in a manner that integrates effective land use and transportation with established sources of funding in a fair and equitable manner	6.A Support Transit-Oriented Development and other land use development policies that reduce vehicular trip-making and vehicle miles traveled
	6.B Support local affordable housing goals
<b>7. Infrastructure Condition</b> - Improve and maintain Oahu's transportation system in a state of good repair	7.A Improve and maintain transportation system in a state of good condition
<b>8. Reduce Project Delivery Delay</b> - Reduce project costs, promote jobs and the economy, eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices	8.A Minimize project completion timeframes, especially following obligation of funds
	8.B Secure flexible and sustainable revenues and funding sources for transportation

## Chapter 4 Public Input

The OahuMPO has an ongoing, robust public outreach program, which includes regular consultation with several committees as well as engagement with the community through its website and social media. Its Citizen Advisory Committee (CAC) has been and continues to be a major forum for vetting the various transportation programs and projects that are being planned for Oahu and is consulted throughout all phases of planning discussion. OahuMPO built upon this strong foundation and conducted an extensive public outreach program to involve stakeholders in the development of the ORTP 2040.

Early outreach for the ORTP 2040 occurred in several phases, beginning with the formation of a subcommittee of the CAC to discuss the goals and expectations of the study. This was followed by public listening sessions held in each of the eight planning districts across Oahu. Listening sessions were supplemented by an online survey<sup>12</sup> and further solicitation of public comment. As a result of this early outreach, a wide spectrum of Oahu's commuters, agency representatives, business owners, residents, retirees, students, and those traditionally underserved in the planning process played a role in the direction, development, and content of the ORTP 2040. The Final ORTP also includes the documented disposition of

<sup>12</sup> See summary of online survey findings at [http://www.oahumpo.org/?wpfb\\_dl=999](http://www.oahumpo.org/?wpfb_dl=999)

public comments received, which is summarized in Appendix A. Public comment and intergovernmental review were solicited in March 2016.

### Early Community Outreach

Beginning in 2012, regional listening sessions were held in Ewa, Hawaii Kai, Kailua, Mililani, Waianae, Hauula, Haleiwa, and two in Honolulu: one in Pearl City and the other in Moiliili. The goal was to listen and learn from those attending what the key transportation issues they felt their individual communities were facing. It was not uncommon that some of the concerns expressed extended beyond the boundaries of a single planning district and many were described as being island-wide concerns.

The format of the listening sessions was a public open house. OahuMPO staff provided a composite of information about the region including the maps and diagrams of the area; crash rates for motor vehicles, bicycles, pedestrians, and motorcycles; and, areas of issues identified in the transportation chapters of the City and County of Honolulu's development and sustainable communities plans, the Hawaii Department of Transportation's Pedestrian Master Plan, as well as the bicycle plans of both of the jurisdictions OahuMPO serves. OahuMPO staff were there to orient those who attended, explain the material, engage the community members in conversations about their concerns, and to seek out other sources of transportation impact information of

which they may be aware. At each of the listening sessions there was a handout with a large map of the area so that areas where there were specific concerns about the roadway, safety, and other features could be identified by the members of the public for the benefit of the transportation planners. In addition, there was a series of questions about which OahuMPO sought public input. The meetings provided a forum to gather the public's perspectives about important topics and potential transportation projects and programs to be considered for inclusion in the ORTP 2040.

Separately, OahuMPO received early input through an online assessment tool focusing on various transportation-related issues identified in the listening sessions. A special briefing and listening session was provided to the Hawaii Transportation Association to ensure the views of commercial freight shippers are understood. Especially important was OahuMPO's participation with the City and other government agencies in the AARP's Age Friendly Communities Initiative, of which OahuMPO served as chair of its transportation-working group. While the stated aim of that study was to receive a designation from the World Health Organization for Honolulu as an age-friendly city, it offered a number of data-rich insights about how persons of all ages live with the need for mobility as part of their lives.

Significantly, during the time this ORTP was being prepared, the Hawaii Department of

Transportation conducted a comprehensive study of the Interstate Route H-1 corridor for the purpose of identifying the future capacity needs on the interstate, along with an alternatives and feasibility analysis on short-, mid-, and long-term congestion and capacity improvements.

The early outreach to the public along with the significant social and engineering analyses that have been done concurrently provide a comprehensive view of those issues that may be paramount in the minds of the public about how financial resources are allocated for transportation infrastructure. While it should be emphasized that the early outreach represented a 'snap shot' of public opinion at that time, there were several themes that were consistent across all geographies and sources of information that may be viewed as key issues to be addressed in this ORTP 2040. These include:

- Congestion and the corresponding length of travel time is the problem most often raised by commuters irrespective of mode choice. There is a direct link in the mind of the community, especially in the Koolauoloa, Koolaupoko, North Shore, and Waianae communities between existing levels of congestion and lengthy travel times with what is viewed as an unsustainable push for development in what has heretofore been "country." There is widespread concern that in pressing for more

development, government and private entities are not providing comprehensive views of impacts and that questions need to be answered concerning Oahu's "natural carrying capacity."

- Roadway maintenance is of great concern to motorists, bicyclists, motorcyclists, those riding TheBus and TheHandi-Van, and pedestrians. It is seen as both a safety issue and one that causes damage and has cumulative economic impacts on travelers' vehicles as well as on buses and other commercial vehicles. Maintenance is needed along several vectors: roadway surfaces in general are viewed as needing improvement due to potholes and the roughness of many roadways; bicyclists cite many instances where debris or damaged surfaces make use of bike lanes and shoulders hazardous and often require a bicyclist to use a traffic lane; pedestrians offered many examples where sidewalks were either in great disrepair or non-existent, requiring pedestrians to use shoulders and traffic lanes as well. The disabled community is especially affected by the lack of sidewalks and, in many cases, are unable to use TheBus because getting to the nearest stop requires them to use a wheelchair or scooter in the roadway. This latter situation is true even though, in many cases,

the area immediately surrounding the bus stop is paved.

- Members of the public expressed concerns that reduction of service by TheBus both in terms of the elimination of routes and the frequency of service have had a negative impact on many travelers' mobility. The public perception was that this was especially true in communities on the Windward side and appears to have affected the elderly and disabled disproportionately. A number of riders commented that local service cut-backs have resulted in lengthy wait times and, in some cases, made it impossible to reach certain destinations. As an example, the route for the #2 bus used to go around Kapiolani Park and served the needs of those who live there; that service was rerouted and one rider in her 80s must now walk across the park to catch the bus on Montserrat, which she indicated was unsafe when she needs to travel after dark.
- Climate change and weather variability are issues that require long-term planning either to adapt and reinforce existing infrastructure or to adopt retreat strategies in areas that may be unrealistic to attempt to preserve. Citizens are concerned that City and State planners as well as elected leaders

are not taking the problem seriously. Concerns with future changes in sea level and weather, as well as potential impacts from tsunamis and hurricanes, is coupled with recognition that many communities have only one means of ingress and egress. The perception is that the infrastructure to support forecasted population (including visitors) is insufficient.

- While recognizing that it is Oahu's chief economic engine, there is a negative element to tourism that is acknowledged by many in the community. The community sensitivity is that large numbers of visitors are overwhelming inadequate infrastructure and contributing to extensive and extended traffic jams, especially on weekends.
- Citizens regularly expressed a desire to have a more significant role in the decision making process for identifying transportation improvements. It is critical that more emphasis be placed on the continual, comprehensive, and cooperative (3-C) planning process and that the public play a visible role in decision-making, as is required under Federal statute. Citizens perceived that the City and State have historically been influenced more by the

development community than the general public.

- There is a generational gap between perceptions of and expectations for growth and development and consequent implications for future transportation planning. Two perspectives were offered at the Listening Session in Hauula that illustrate the dilemma:

A man in his late 20s spoke to the need for more jobs on the North Shore and in Koolauloa. He was born and raised in Haleiwa and must commute "to town" for work. He spoke passionately about the need for a more diverse economy and was supportive of the development planned for the area. At that Listening Session, he was a distinct minority both in his opinion and his age – the majority of people who attended were in their 50s and 60s who are retired and do not want to see growth or change in their community. For the Windward and North Shore both the Listening Sessions and online survey were dominated by those aged 50-plus. While understanding the needs of older residents is important, it is equally essential that planning outreach also gathers input from younger adults and, even, school children. The challenge is determining how best to engage

those cohorts in ways that are accessible, creative, and fun.

A teacher spoke about the need for higher quality, better paying jobs than those "making beds" receive. Her approach is specifically to teach students skills, such as videography, which will better prepare them for a more robust job. In a service-dominated economy such as Oahu's, finding jobs that pay a livable wage is a struggle, especially for those recently graduated. Coupled with the rise in seniors continuing to hold positions into their 70s, the opportunities for meaningful jobs are limited.

Overall, the results of the public outreach activities were remarkably consistent over time. Traffic congestion, road maintenance, and safety (both of the transportation facilities and driving behavior) came up repeatedly as the key challenges across many forums. As has been identified, drivers perceive that the quality of roadways directly impacts congestion. The better the operating condition, the less congestion.

Of all the road improvement projects identified, investing in the Interstate Route H-1 corridor was seen as the priority. The transportation needs of the T6/EJ population were also consistently identified. Improvements to TheBus and TheHandi-van system and other mass transit options also constantly ranked as priorities.

## Chapter 5 Making Choices

**Project Selection Process:** The OahuMPO followed a deliberate process to identify and select candidate transportation projects and programs for inclusion in the financially constrained ORTP 2040. For projects and programs included in the final plan consideration was given to the the following factors:

- Public input,
- The overall mission and goals of the ORTP 2040,
- How well they address areas with forecasted high growth in population and jobs,
- How well they address problems and deficiencies on the island’s regional transportation system, and
- Technical merits.

Potential projects and programs for the ORTP were identified through the review of the existing State and City plans and performance reports, including, but not limited to, the ORTP 2035, State Highway Safety Plan, HHCTCP Final Environmental Impact Statement, 2050 Sustainability Plan, Oahu Development and Sustainable Communities Plans, OahuMPO Congestion Management Process Report, and the FFYS 2015–2018 Transportation Improvement Program (TIP). Additionally, in the Fall of 2015, the implementing agencies (DTS, HART, and HDOT) submitted cost estimates for potential projects and programs for

which State or local match funding would be available.

Candidate projects and programs were evaluated with comparative data. Public input was also documented prior to the ORTP’s approval. This combination of analyses and public input resulted in the comprehensive package of projects and programs selected for the ORTP 2040. Technical analyses and public feedback indicated that modernization projects should be focused along the Interstate Route H-1 corridor and in the Ewa/Kapolei communities. Projects may be phased due to high cost. There was also strong support from the public for maintaining and preserving the multi-modal options in the existing transportation system and continuing investments in public transit, as well as pedestrian and bicycle facilities and services.

### Paying for the Plan

The ORTP 2040 is a fiscally-constrained plan for which projected costs fall within anticipated revenues. The Federal portion consists of highway funds from FHWA and transit funds from FTA. The Highway Special Fund and the State Capital Improvement Program (CIP) represent the State’s portion. The State liquid fuel tax, registration fees, motor vehicle weight tax, and car rental/tour vehicles tax make up the Highway Special Fund revenue. The City and

County revenue sources vary from the City General Fund to County fuel tax as well as public utility franchise taxes. The Hawaii General Excise and Use Tax (GET) surcharge will be the primary local funding source of the HHCTCP. Transit fares help to cover some of the cost of the transit system. Developer and private funding is also a revenue source for certain State and City projects.

The revenue forecasts and their underlying assumptions acknowledge long-term uncertainties with the Federal Highway Trust Fund and economic conditions. Revenue from developer and private funding has been identified for a total of \$1.4 billion for funding transportation projects in the ORTP 2040. The revenues proposed for City and State projects incorporate analyses undertaken for the City’s *Draft Ewa Impact Fees for Traffic and Roadway Improvement Update Study*. As a result, the revenue forecasts that underlie the ORTP 2040 are conservative and were based on data received from Federal, State, and City transportation officials. It is estimated that approximately \$17 billion in revenues will be available for ORTP 2040 projects and programs; amounts for programs are expressed in Year-of-Expenditure (YOE) dollars and a two percent inflation rate is assumed for projects.

## Chapter 6 Plan

The ORTP 2040 is a financially-constrained plan that provides more than \$17 billion for transportation facilities and services. The projects contained in the ORTP 2040 attempt to balance budget realities with the need for transportation options and accessibility, congestion mitigation, safety and alternative access routes, and facilities for bicyclists and pedestrians.

### Capital Projects

#### **Congestion Mitigation and Alternatives**

**Projects:** Congestion Mitigation transportation options include projects and programs that provide transportation choices and increase the efficiency of the existing transportation network. Bicycle and pedestrian facilities promote the most sustainable form of transportation available—people power—as well as provide healthy lifestyle choices. ORTP 2040 includes projects that increase and enhance Oahu’s existing network of bicycle and pedestrian facilities so that they function as key components of the overall transportation system. High technology projects improve traffic flow through traffic monitoring technologies such as Intelligent Transportation Systems (ITS) and Travel Demand Management (TDM). ITS can include benefits to highways, transit services, commercial vehicle operators, and

emergency response providers. ITS projects in ORTP 2040 involve developing, installing, and managing closed-circuit television cameras and associated systems to monitor traffic conditions, and establishing an islandwide traffic management center. TDM projects consist of measures that are designed to reduce demand and increase the efficiency of the transportation system, usually through managed lanes, park-and-ride lots, and carpools and vanpools.

**Modernization Projects:** Modernization projects include adding lanes so that more vehicles can ride the same section of road and reconfiguring interchanges for smoother traffic flow. Because transportation using a personal vehicle will continue to be an important travel mode in the future, roadway capacity will need to be increased. The H-1 corridor has been identified as a priority corridor for congestion mitigation; additional congestion-mitigation projects will be concentrated in the rapidly developing Ewa/Kapolei areas to enable them to handle future growth.

**Transit Projects:** TheBus and TheHandi-Van are Oahu’s existing forms of public transportation—TheBus serves the population islandwide, and TheHandi-Van provides service for qualified persons with disabilities who are unable to use TheBus.

Improvements in both service and facilities are included in the Plan. The rail project is a key component of the ORTP 2040. This elevated, fixed-guideway system will serve the Interstate Route H-1 corridor and provide a reliable alternative to personal vehicle use. The guideway will connect the major employment and residential areas of Kapolei and Ewa to Downtown Honolulu and the Ala Moana Shopping Center. Part of this project will also involve redirecting some bus services to act as feeder bus routes serving the fixed-guideway stations to reduce redundancy in transit routes.

#### **Operations, Maintenance, System**

**Preservation, and Safety:** Throughout the public outreach process, dissatisfaction with the current condition of Oahu’s transportation facilities and increased maintenance were identified as top priorities for funding. Consequently, ORTP 2040 has allocated more than \$3 billion, or 51 percent of the highway budget, to support the maintenance, preservation, and safety of the existing transportation system. Included in this broad category are projects and programs such as installing guardrails and other safety features, highway maintenance, and projects to improve traffic flow and safety. Maintenance and preservation are typically more cost-effective than building new facilities.

## Mid- and Long-Range Plans

The projects in ORTP 2040 are prioritized in either a “mid-range plan,” anticipated to be developed before 2029, or a “long-range plan,” proposed for implementation during the final 11 years of the plan. Projects were placed within each time period based on input from the implementing agencies (DTS, HART, and HDOT), anticipated funding, and the following guidelines:

- Partially funded projects in FFY 2015–2018 TIP are included in the mid-range plan.
- Basic elements of projects in the Ewa/Kapolei area are in the mid-range plan.

Figure 6-1 ORTP 2040 Project Location Map



Note: Table 3 has the complete list of ORTP 2040 Projects. The map only shows projects with specific locations. Investments that are islandwide or programmatic are not mapped.

Figure 6-2 ORTP 2040 Project Location Map



Note: Table 3 has the complete list of ORTP 2040 Projects. The map only shows projects with specific locations. Investments that are islandwide or programmatic are not mapped.

**Table 3: Project List for ORTP 2040**

	Project No.	City / State	Project Title	Description	Cost \$Millions
<b>Mid-Range Projects - 2019 to 2029</b>	<b>Congestion Mitigation Project(s)</b>				
	1	C/S	Bike Plan Hawaii - Oahu and Oahu Bike Plan	Implement Oahu elements of the State of Hawaii’s Bike Plan Hawaii and City and County Bike Projects.	61.5
	2	C/S	Intelligent Transportation Systems (ITS)	Implement ITS projects including, but not limited to, those identified in the Oahu Regional ITS Architecture.	50.8
	4	C/S	Transportation Demand Management (TDM) Program	Develop a TDM program that could include, but is not limited to: 1. Free real-time online carpool matching, 2. Outreach promotion and marketing of alternative transportation, 3. Emergency ride home program, 4. Major special events, 5. Employer based commuter programs, 6. Emerging and innovative strategies (i.e., car sharing), and 7. Vanpool.	10
	5	C/S	Interstate Route H-1, Corridor Study Short Term Improvements	Implement short term 'low hanging fruit' improvements identified in the finalized H-1 Corridor Study.	15
	<b>Enhancement Project(s)</b>				
	101	C	Alternatives Projects	Implement enhancement projects, including, but not limited to, projects from the Transportation Alternatives Program for Oahu.	12

Mid-Range Projects - 2019 to 2029	Modernization Project(s)				
	201	S	Kamehameha Highway, Safety Improvements, Haleiwa to Kahaluu	Construct safety improvements along Kamehameha Highway, from Haleiwa to Kahaluu. Safety improvements include turn lanes, guardrails, signage, crosswalks, etc. to improve safety. Widening of Kamehameha Highway will only be in areas where needed for storage/turn lanes safety improvements.	49.5
	202	S	Kamehameha Highway, Safety & Operational Improvements, Kaalaea Stream to Hygienic Store	Construct safety and operational improvements along Kamehameha Highway, between Kaalaea Stream and Hygienic Store. Safety and operational improvements include passing and turning lanes, modification of signals, and installation of signs, flashers, and other warning devices. This project also includes replacement of Kaalaea Stream Bridge and Haiamoa Stream Bridge with structures that meet current design standards.	17
	203	S	Kalaniana'ole Highway, Safety & Operational Improvements, Olomana Golf Course to Waimanalo Beach Park	Construct safety and operational improvements along Kalaniana'ole Highway between the Olomana Golf Course and Waimanalo Beach Park. Specific safety and operational improvements include construction of turning lanes, sidewalks, wheelchair ramps, bike paths or bike lanes, traffic signal upgrades, utility relocation, and drainage improvements.	50
	204	S	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
	205	C	Farrington Highway, 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.	100

<b>Mid-Range Projects - 2019 to 2029</b>	206	S	Kualaka'i Parkway, Extension, Interstate Route H-1 to Franklin D Roosevelt Avenue	Extend Kualaka'i Parkway from Kapolei Parkway to Franklin D Roosevelt Avenue	20	
	207	S	Kamehameha Highway, 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.	300	
	208	S	Interstate Route H-1, Waiawa Interchange to Halawa Interchange, Widening, Eastbound	Widen the H-1 Freeway 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.	90	
	209	C	Salt Lake Boulevard Widening Project	Widen Salt Lake Boulevard from two to six lanes, between Maluna Street and Ala Lilikoi Street.	80	
	210	C	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 Freeway Interchange as four-lane roadway, connecting Makakilo Drive to Kualaka'i Parkway.	76	
	211	S	Kahekili Highway 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.	103	
	<b>Developer Funded Modernization Project(s)</b>					
	304	S	Kualaka'i Parkway, 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	

<b>Mid-Range Projects - 2019 to 2029</b>	301	S	Hanua Street Extension, Farrington Highway to Malakole Street; Interstate Route H-1, New On- & Off-Ramps, Palailai Interchange	<p>Hanua Street:</p> <ul style="list-style-type: none"> <li>• Extend Hanua Street from Malakole Street to Farrington Highway. This new four-lane roadway will provide access to Kalaeloa Harbor.</li> </ul> <p>Interstate Route H-1, Palailai Interchange:</p> <ul style="list-style-type: none"> <li>• Construct new on- and off-ramps at Interstate Route H-1 Palailai Interchange to Hanua Street extension.</li> </ul>	120
	302	C	Kalaeloa Boulevard, Reconstruction and Widening; Lauwiliwili Street to Olai Street	Improve and reconstruct Kalaeloa Boulevard between Lauwiliwili Street and Olai Street.	30
	303	C	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.	44.1
	305	C	Keoneula Boulevard, Extension, Kapolei Parkway to Franklin D. Roosevelt Avenue	Extend Keoneula Boulevard from Kapolei Parkway to Franklin D. Roosevelt Avenue.	209.5
	306	S	Interstate Route H-1, Widening, Waiawa Interchange	Widen the Interstate Route H-1 by one lane, in each direction, through the Waiawa Interchange. This project will begin in the vicinity of the Waiawa Interchange and end at the Paiwa Interchange.	50
	307	S	Interstate Route H-2, Widening, Waipio Interchange	Widen both on- and off-ramps on Interstate Route H-2, at the Waipio Interchange. This project includes the widening of the Ka Uka Boulevard overpass and intersection improvements to facilitate movement to and from the on- and off-ramps.	30.6

<b>Mid-Range Projects - 2019 to 2029</b>	<b>Safety Project(s)</b>				
	401	S	Highway Safety Improvement Program	Comprehensive program to fund safety improvements to reduce collisions and damage to property. Strategies may include installation of left turn lanes, roadway widenings, traffic signal modifications, installation of rumble strips and crash attenuators, installation of guardrails and bridge railings, and others.	105
	<b>System Preservation Project(s)</b>				
	501	S	Rockfall Protection, Various Locations	Install rockfall protection or mitigation measures along various State highways at various locations.	50
	502	S	Shoreline protection program	Protect shoreline along Kamehameha Highway and other locations.	20
	504	C	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.	537.1
	505	S	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
	506	S	System Preservation	Preserve the highway system through projects including, but not limited to, bridge replacement/rehabilitation and seismic retrofit, guardrail and shoulder improvements, lighting improvements, drainage improvements, sign upgrades and replacement, traffic signal upgrade and retrofit, etc.	60

Mid-Range Projects - 2019 to 2029	Transit Project(s)				
	601	C	Human Services Transportation Coordination Program	Provide a range of transportation services targeted to disadvantaged populations under the Human Services Transportation Coordination Program.	8.5
	603	C	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.	10
	604	C	Transit Centers, Various Locations	Construct transit centers at various locations islandwide to support transit operations.	70
	605	C	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.	2900.1
	606	C	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.	75.3

Long-Range Projects - 2030 to 2040	Project No.	City / State	Project Title	Description	Cost \$Millions	
	<b>Congestion Mitigation Project(s)</b>					
	51	C/S	Bike Plan Hawaii - Oahu and Oahu Bike Plan	Implement Oahu elements of the State of Hawaii's Bike Plan Hawaii and City and County Bike Projects.	51.5	
	52	C/S	Intelligent Transportation Systems (ITS)	Implement ITS projects including, but not limited to, those identified in the Oahu Regional ITS Architecture.	138	
	54	C/S	Transportation Demand Management (TDM) Program	Develop a TDM program that could include, but is not limited to: 1. Free real-time online carpool matching, 2. Outreach promotion and marketing of alternative transportation, 3. Emergency ride home program, 4. Major special events, 5. Employer based commuter programs, 6. Emerging and innovative strategies (i.e., car sharing), and 7. Vanpool.	20	
	<b>Enhancement Project(s)</b>					
	151	C	Alternatives Projects	Implement enhancement projects, including, but not limited to, projects from the Transportation Alternatives Program for Oahu.	12	
	<b>Modernization Project(s)</b>					
	251	S	Fort Barrette Road, 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	

Long-Range Projects - 2030 to 2040	Developer Funded Modernization Project(s)				
	351	S	Farrington Highway, 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.	233.1
	352	C	Kamokila Boulevard	Extend as four-lane roadway between Roosevelt and Saratoga.	24.2
	353	C	Fort Barrette Road	Extend as four-lane roadway between Roosevelt and Saratoga.	10.7
	354	C	Kalaeloa East-West Spine Road, New Roadway, Kalaeloa Boulevard to Geiger Road	Construct a new four-lane east-west spine road within Kalaeloa by realigning and connecting portions of the existing Saratoga Avenue from Kalaeloa Boulevard in the west and to Geiger Road in the east.	271.1
	356	S	Farrington Highway, Widening, west of Fort Weaver Road to Waiawa Interchange	Widen Farrington Highway from Kunia to Waiawa by one lane in each direction, from west of Fort Weaver Road to Waiawa Interchange.	130.8
	357	S	Interstate Route H-2, New Interchange, Pineapple Road Overpass	Construct a new full-service freeway interchange on Interstate Route H-2, between Meheula Parkway and Ka Uka Boulevard, to accommodate future developments in Central Oahu. This project includes the widening of the existing Pineapple Road Overpass from two lanes to four lanes; and addition of new on- and off-ramps to and from Interstate Route H-2 at Pineapple Road Overpass.	102.5

<b>Long-Range Projects - 2030 to 2040</b>	<b>Safety Project(s)</b>				
	451	S	Highway Safety Improvement Program	Comprehensive program to fund safety improvements to reduce collisions and damage to property. Strategies may include installation of left turn lanes, roadway widenings, traffic signal modifications, installation of rumble strips and crash attenuators, installation of guardrails and bridge railings ,and others.	105
	<b>System Preservation Project(s)</b>				
	551	S	Rockfall Protection, Various Locations	Install rockfall protection or mitigation measures along various state highways at various locations.	75
	552	S	Shoreline protection program	Kamehameha Highway and other locations.	30
	553	C	City Operations and Maintenance: 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.	800.3
	554	S	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.	704.4
555	S	System Preservation	Preserve the highway system through projects including, but not limited to, bridge replacement/rehabilitation and seismic retrofit, guardrail and shoulder improvements, lighting improvements, drainage improvements, sign upgrades and replacement, traffic signal upgrade and retrofit, etc.	207	

Long-Range Projects - 2030 to 2040	Transit Project(s)				
	651	C	Human Services Transportation Coordination Program	Provide a range of transportation services targeted to disadvantaged populations under the Human Services Transportation Coordination Program.	8.5
	653	C	City Rail Rehabilitation and Fleet Expansion	Provide for rehabilitation of track and expansion of rail fleet.	203
	654	C	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.	848
	655	C	Transit Centers, Various Locations	Construct transit centers at various locations islandwide to support transit operations.	9
	656	C	City Operations and Maintenance: 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.	6872.1

Illustrative Projects	Project No.	City / State	Project Title	Description	Cost \$Millions	
	<b>Modernization Project(s)</b>					
	701	S	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	
	702	S	Kunia Road, Widening and Interchange Improvement, Wilikina Drive to Farrington Highway	Widen Kunia Road as follows: <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	
	704	S	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	
	706	S	Nimitz Highway, 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	
	709	S	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	
	708	S	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 (71) to ensure benefit.	1269	

Illustrative Projects	Transit Project(s)				
	751	C	Fixed Guideway, Kapolei	Plan, design, and construct a fixed guideway system between West Kapolei to East Kapolei	1862
	752	C	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	1712
	753	C	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.	1858
	754	C	Fixed Guideway, Central Oahu	Plan, design, and construct a fixed guideway system / corridor between Pearl Highlands and Central Oahu	1858
	755	C	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.	1807
	756	C	At-grade Transit System, Kakaako	Plan, design, and construct an at-grade transit system / corridor from Downtown to Ala Moana via Kakaako.	195

Short-Range Projects - 2011 to 2018	Project No.	City / State	Project Title	Description	Cost \$Millions	
	<b>Existing and Committed Project(s)</b>					
	801	C	Kapolei Parkway, Extension, Kamokila Boulevard to Kamaaha Avenue	Complete the extension of the existing four-lane Kapolei Parkway	13.3	
	802	S	H-1, Add WB Lane	Adds WB Standard Lane from Moanalua to the H-1/H-2 Merge	-	
	803	C	Kamokila, New Roadway	New Location from Kapolei to Franklin D Roosevelt Avenue	1.35	
	804	C	Kapiolani Blvd Contraflow	Contraflow from S King to South St	0.077	
	805	C	Waialae Ave Contraflow Removal	Remove Contraflow from Kapahulu to 8th Ave	0	
	806	C	Ward Ave Contraflow	Contraflow from Lunalilo to S King St	0.077	
	851	C	Joint Traffic Management Center	Constructing a transportation management center behind the Alapai Transit Center will combine transportation management with City, State, and emergency response agencies.	68.9	
	852	C	Honolulu High-Capacity Transit Corridor Project	Plan, design, and construct a fixed guideway system between East Kapolei and Ala Moana Center. This project includes intermodal connections with TheBus system to provide feeder services to fixed guideway stations.	5532.5	
853	S	Fort Weaver Rd Widening	Adds SB Lane from H-1 to Laulaunui St	-		
854	S	H-1 EB, Vineyard On-Ramp, Lusitana St Connection	Add Right turn only lane from Lusitana Street onto the Vineyard Boulevard On-Ramp to the H-1 Freeway in the EB direction	5		
855	S	H-1 Freeway Widening	Add lane in both directions from Middle Street to Punahou St	-		
856	S	H-1, Add WB Shoulder Lane in PM	Adds WB Shoulder Lane in PM from Halawa to Moanalua	-		
857	S	Kamehameha Hwy Widening	Adds NB Lane from H-2 to California Avenue	-		
858	C	King St. Bike Track	Add bike lane and remove vehicle lane from Alapai to Isenberg St	0.5		
859	S	Moanalua/Kamehameha Off-Ramp	New Capacity on ramp from H-201 to Honomanu	-		

*- Cost was funded from multiple sources and an estimate is not available.*

## Plan Performance

The ORTP 2040 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, 2040 forecasted population and jobs with only existing and committed transportation improvements (E+C) otherwise referred to as No-build conditions, and the ORTP 2040.

Figure 6-7 shows projected islandwide travel times by automobile for the AM peak hours to Downtown for the ORTP 2040, while Figure 6-8 shows the projected travel-time difference to Downtown between the ORTP 2040 and the 2040 No-build conditions. Travel times generally improve for ORTP 2040 in comparison to the No-build conditions.

Travel times are comparable for both the No-build conditions and ORTP 2040 from the Primary Urban Center to Downtown, whereas travel times improve for trips traveling to Downtown from Waianae, Ewa, Koolauloa, Central Oahu, and Koolauapoko.

ORTP 2040 shows positive benefits in reducing congestion during the AM peak hours. As shown in Figure 6-12 and Figure 6-9, ORTP 2040 will alleviate some congestion on roadways (shown in orange and red) in the Ewa/Kapolei area, along the Waianae Coast, and in the H-1/H-2 merge area.

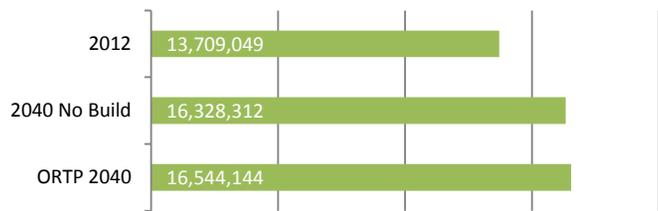
Due to population and job growth out to 2040, higher daily vehicle miles of travel are expected for both the No-build conditions and the ORTP 2040 in comparison to 2012 existing conditions Figure 6-3. ORTP 2040 shows a slight increase in daily vehicle miles

traveled over the No-build conditions due to increased capacity of the island's roadway system on direct routes.

As shown in Figure 6-7 and Figure 6-8, ORTP 2040 will help reduce delay on major roadways leading to lower hours of travel (by 2 percent) and hours of delay (by 9 percent) in comparison to the No-build conditions.

The construction of the rail project will help to dramatically increase transit usage on Oahu. As shown in Figure 6-4, daily transit boardings will increase substantially between 2012 existing conditions and 2040 No-build conditions. ORTP 2040 shows a slight decrease in daily transit boardings in comparison.

**Figure 6-5 Daily Vehicle Miles Traveled (2012, 2040 No-build, and ORTP 2040)**



**Figure 6-4 Daily Transit Boardings (2012, 2040 No-build, and ORTP 2040)**



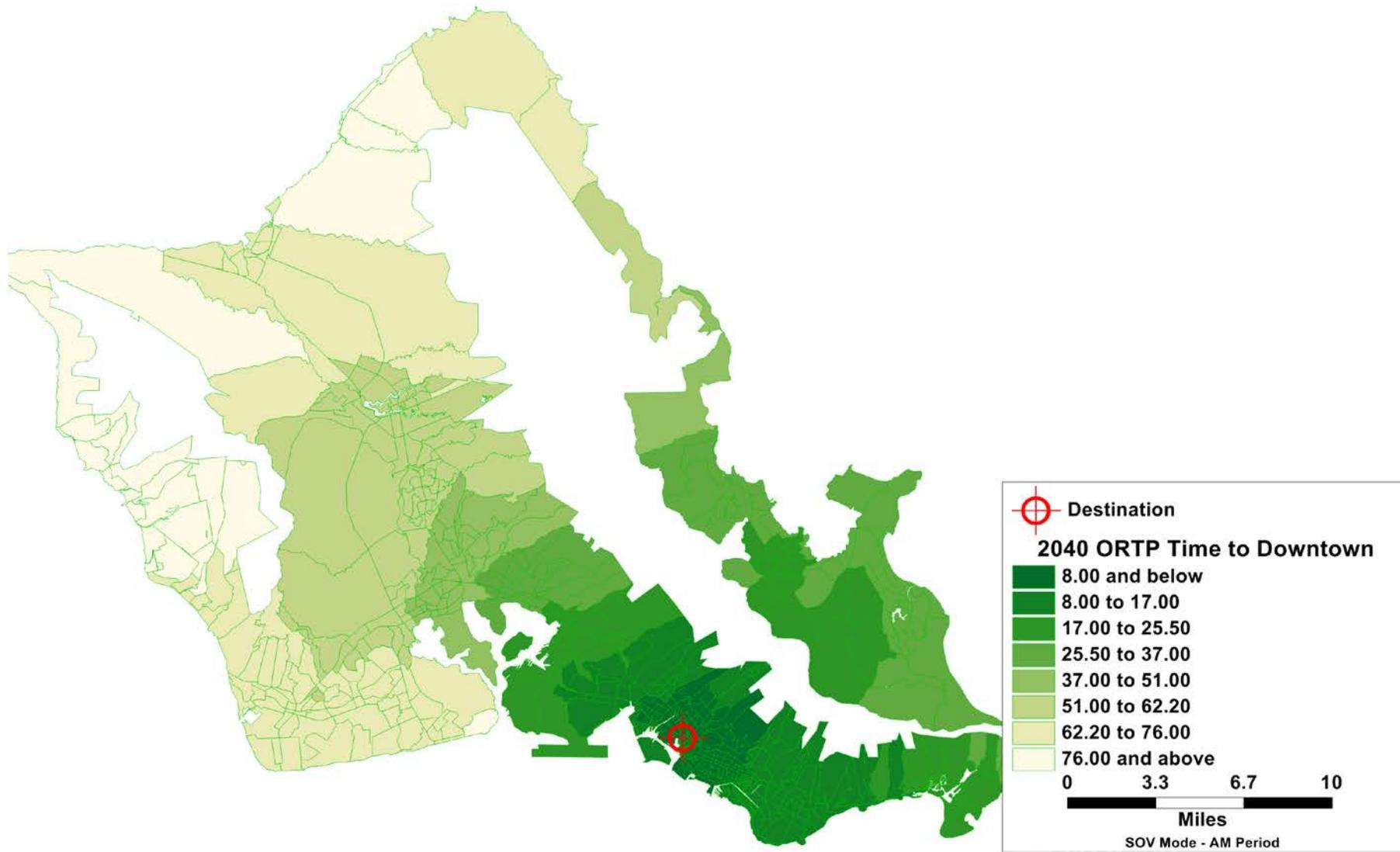
**Figure 6-6 Daily Vehicle Hours Delayed (2012, 2040 No-build, and ORTP 2040)**



**Figure 6-3 Daily Vehicle Hours Traveled (2012, 2040 No-build, and ORTP 2040)**

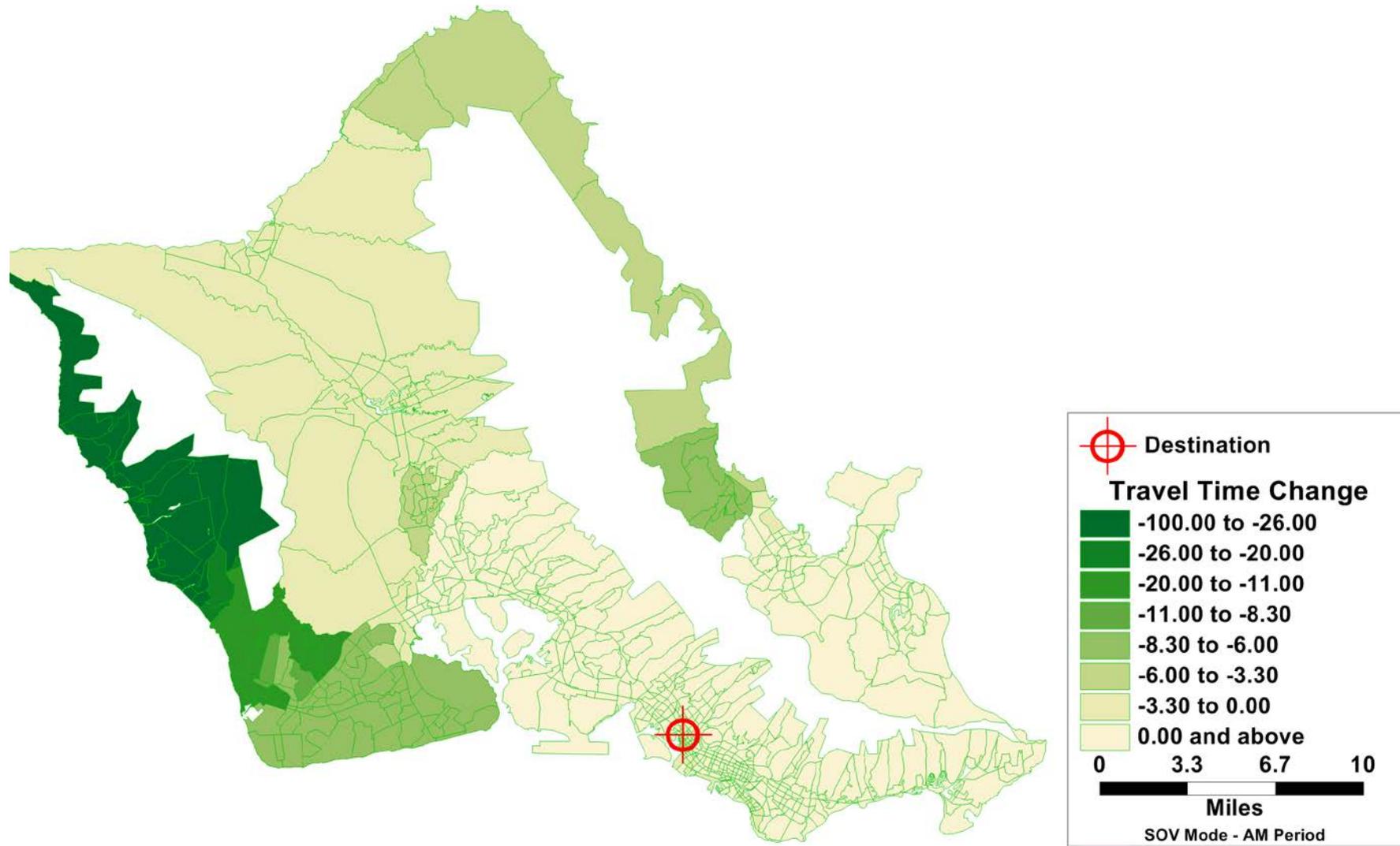


Figure 6-7 6:00-9:00 AM Travel Times to Downtown in Minutes (ORTP 2040)



SOURCE: OahuMPO TDFM v6

Figure 6-8 6:00-9:00 AM Travel Time Difference to Downtown in Minutes (ORTP 2040 vs. 2040 No-build)



SOURCE: OahuMPO TDFM v6

Figure 6-9 Roadway Level of Service (2040 No-build)

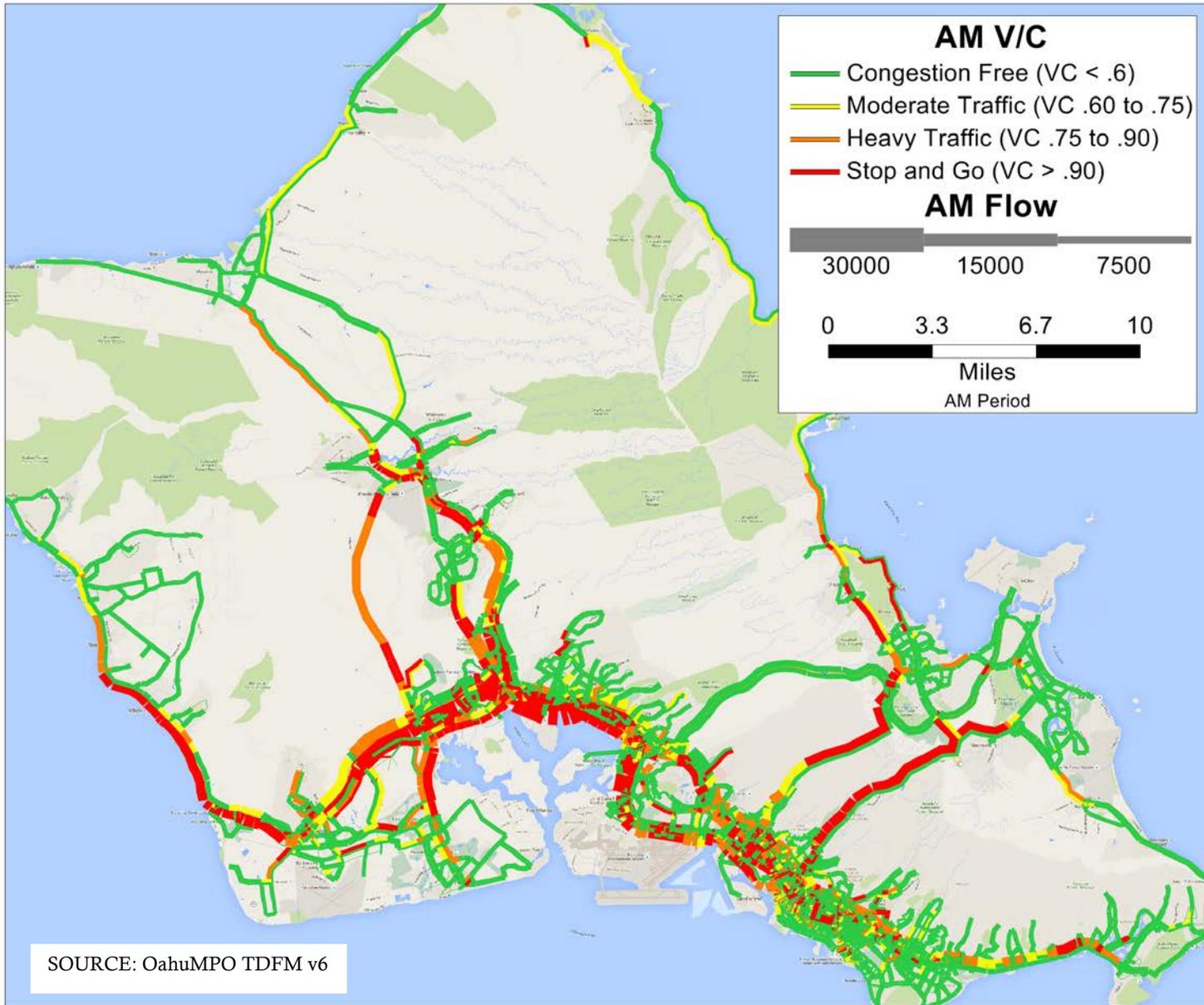
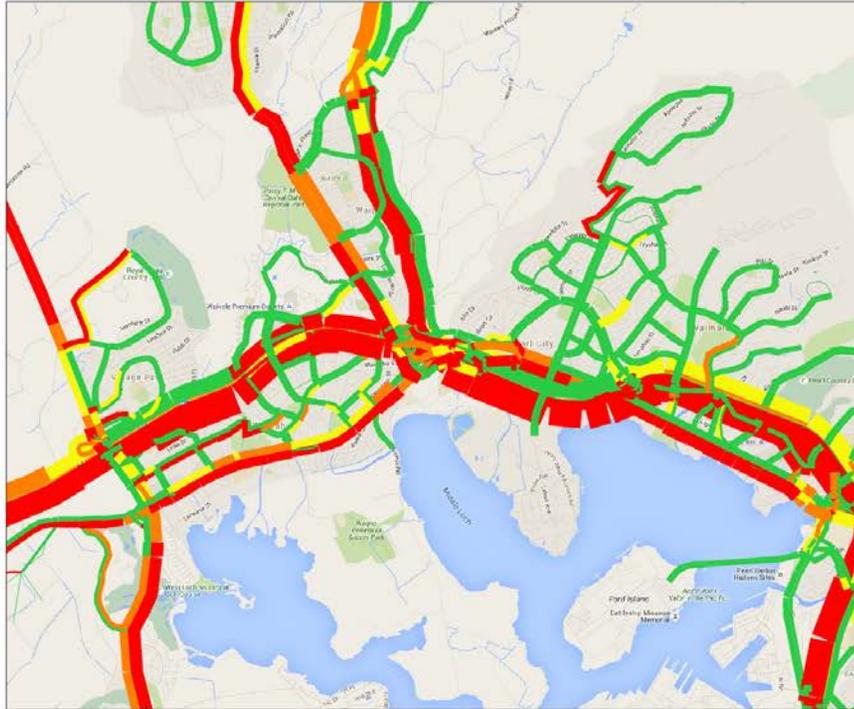
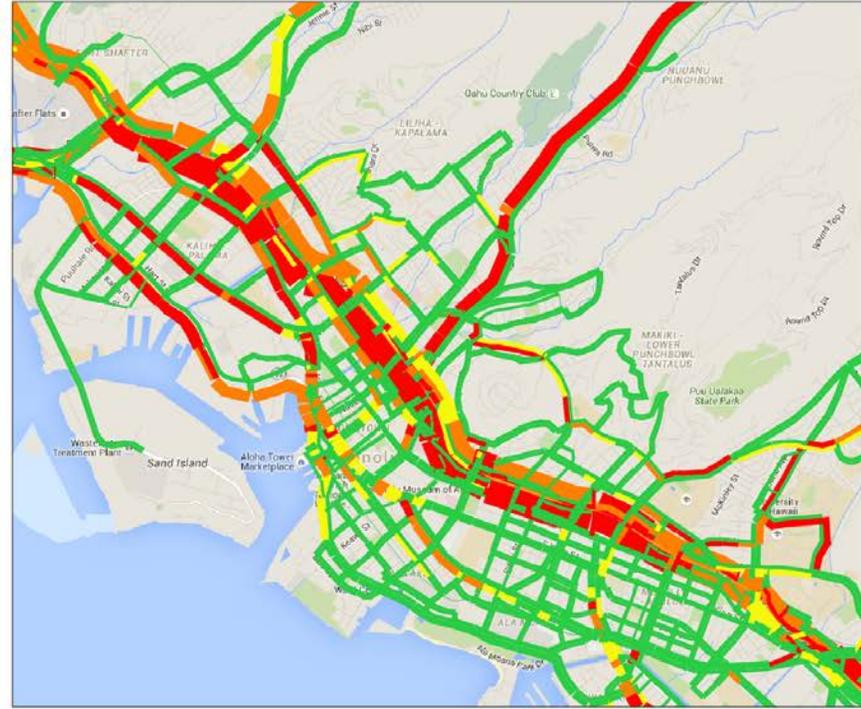


Figure 6-10 Roadway Level of Service (2040 No-build)

## Pearl City



## Honolulu



SOURCE: OahuMPO TDFM v6

Figure 6-11 Roadway Level of Service (ORTP 2040)

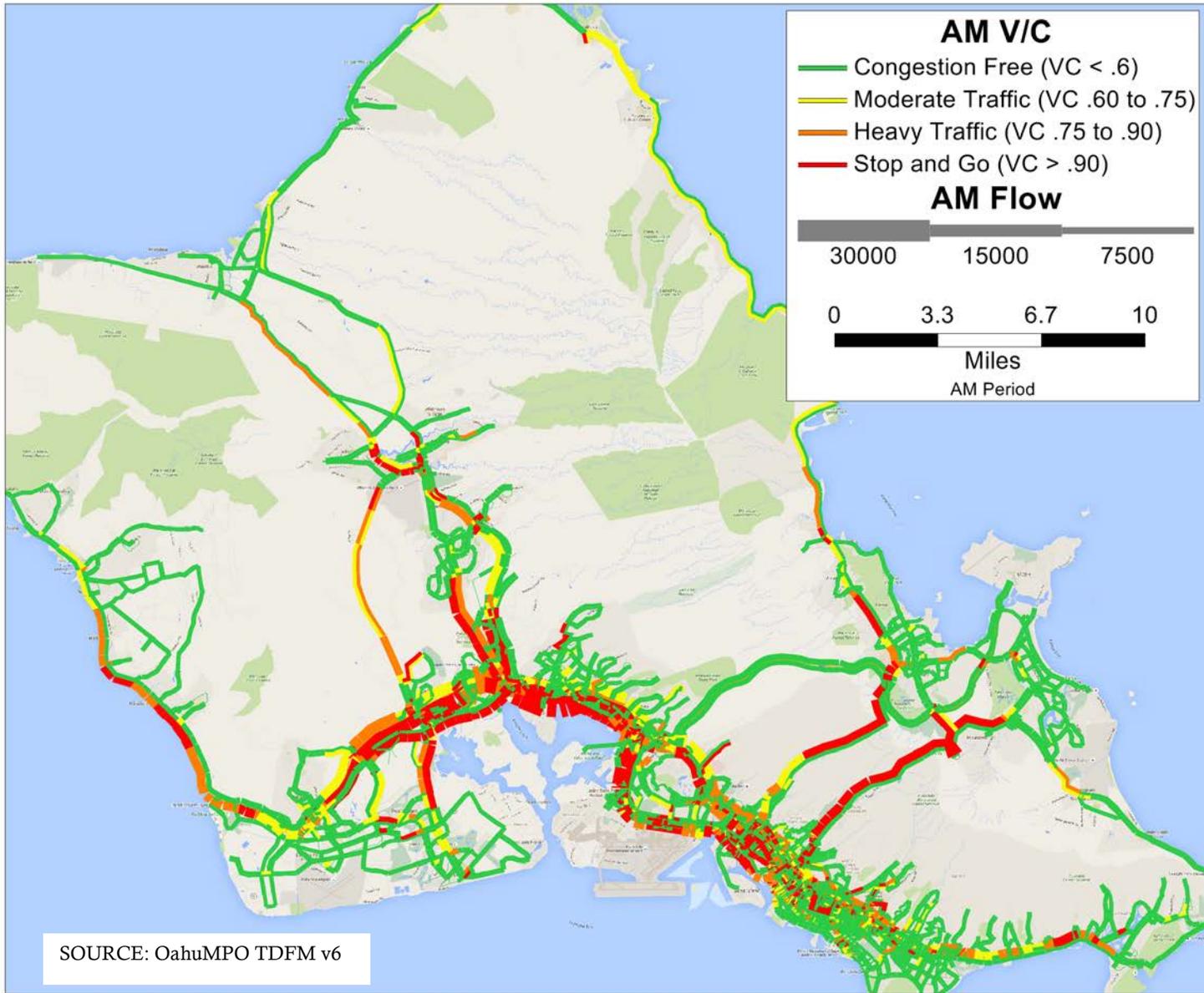
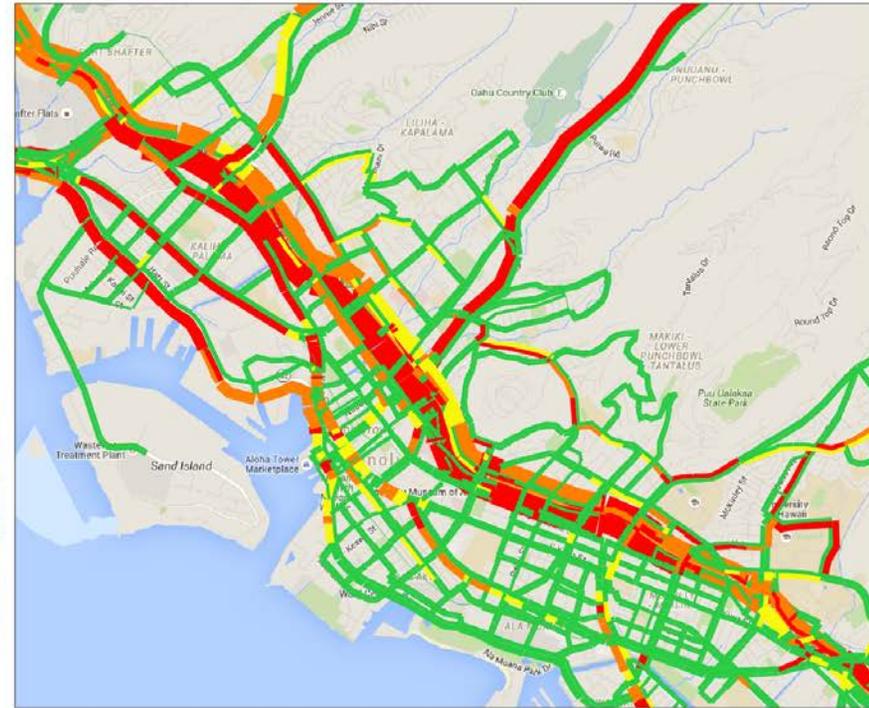
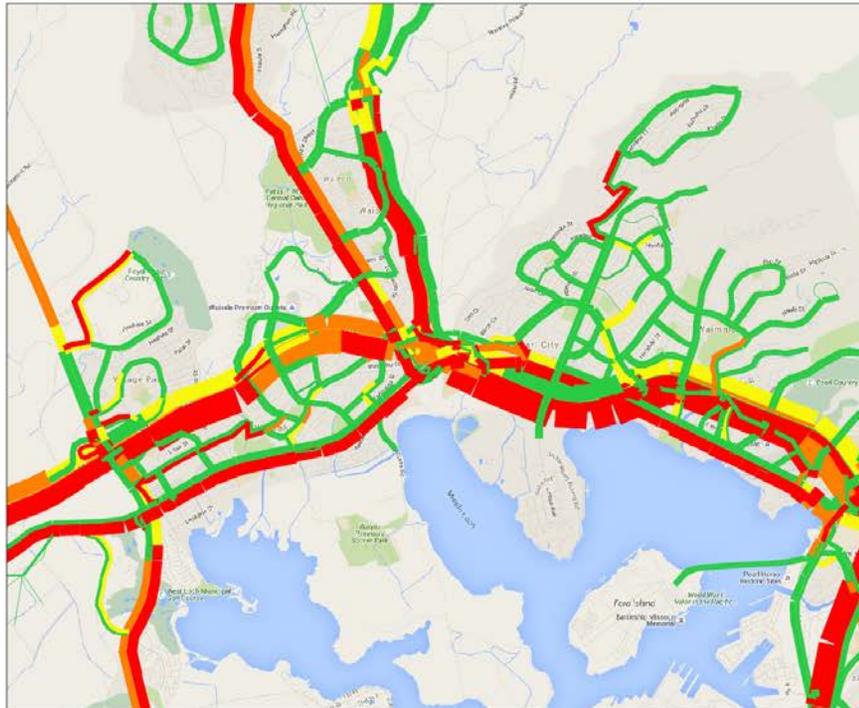


Figure 6-12 Roadway Level of Service (ORTP 2040)

### Pearl City

### Honolulu



SOURCE: OahuMPO TDFM v6

**Potential Environmental Analysis and Consultation:** Development of the ORTP allows the OahuMPO to consult with environmental agencies, consider system-wide environmental issues, and make informed decisions when setting project priorities. The result is a transportation plan that not only minimizes negative impacts on the natural environment, but one that is ultimately more efficient, timely, and cost-effective. The ORTP's role in examining environmental impacts and mitigation measures is to identify potential system-level issues; the ORTP is not a project-level environmental document, which requires fieldwork and specific analysis under the National Environmental Policy Act (NEPA). Appendix B identifies the environmental stakeholders that were consulted for this ORTP.

Federal regulations<sup>13</sup> define an ordered approach to mitigation, which start with avoiding the impact and proceed through minimizing impacts, rectifying impacts, reducing or eliminating impacts over time, and allows compensating for the impacts. When project-specific environmental analyses are conducted, potential environmental mitigation measures should be considered.

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<sup>13</sup> <http://www.gpo.gov/fdsys/granule/CFR-2012-title40-vol34/CFR-2012-title40-vol34-sec1508-20/content-detail.html>

**Environmental Justice Analysis:** The first goal of the ORTP 2040 is to provide an inclusive multi-modal transport system. In order to comply with Title VI of the Civil Rights Act of 1964, the OahuMPO analyzed ORTP 2040 plan investment in network projects in Title VI/Environmental Justice (T6/EJ) population areas. The analysis entailed determining the percent investment and average per capita investment by Census block group under the 2040 No-build conditions and ORTP 2040. The results indicate that under the ORTP 2040, while 37 percent of block groups are designated as T6/EJ areas, 41 percent of the plan's investments would occur T6/EJ areas. However, T6/EJ individuals receive about \$7,550 in ORTP network project expenditures, while non-T6/EJ individuals receive an average of \$9,658 each. It should be noted that T6/EJ communities receive indirect benefits from projects that are not necessarily constructed entirely in locations with a concentration of T6/EJ individuals. For example, transit projects and transit service improvements have a greater impact on T6/EJ communities than non-T6/EJ areas no matter where the improvements are made.

**Expenditures:** Of the nearly \$17 billion forecast for transportation investments in the ORTP 2040, 65 percent of the total is allocated to transit operations and projects. Another \$3.2 billion, or 18 percent of the total is allocated to projects or programs related to system preservation, safety, and maintenance and 16 percent to modernization and congestion mitigation

projects, many of them along the Interstate Route H-1 corridor.

To facilitate the development of Ewa/Kapolei and the continued growth of the PUC, many of the modernization projects in the mid-term plan are located in and around those areas or along the Interstate Route H-1 corridor. In addition, a significant portion of the transit capital projects is associated with the rail project and service expansion to and within Ewa, Kapolei, and Windward Oahu. These transit expenditures are budgeted in the mid-term plan as well. All of these improvements are anticipated to work together to relieve the most congested corridors in Oahu. Additional transit expansion projects include express service to the North Shore, Waianae, and Windward Oahu.

Clearly, the priorities evidenced in the ORTP 2040 reflect the stated goal of making Oahu's transportation system more sustainable through investments in the existing infrastructure as well as mass transit. Table 5 shows the breakdown of capital, operations and maintenance, and system preservation expenditures.

**Figure 6-13 Potential Environmental Mitigation Measures**

Impacts	Mitigation Measures
Air Quality	<ul style="list-style-type: none"> <li>- Undertake only those projects that have a demonstrable benefit to travel and/or air quality</li> <li>- Construct sidewalks, bike facilities, and transit access</li> <li>- Evaluate and incorporate congestion mitigation measures into project scope</li> <li>- Reduce fugitive dust, include frequent watering and use of wind screens</li> <li>- Re-establish groundcover and landscaping as quickly as possible after the ground has been disturbed</li> <li>- Require frequent tire washing and road cleaning to prevent haul trucks from tracking dirt onto paved streets</li> <li>- Cover open-bodied truck- loads when in motion</li> </ul>
Archaeological	<ul style="list-style-type: none"> <li>- Choose alternatives or design projects to avoid archaeologically sensitive areas</li> <li>- Immediately stop work and contact the appropriate authorities when undocumented burial or archaeological sites are inadvertently uncovered</li> <li>- Design modifications to avoid area</li> <li>- Archaeological excavation when necessary</li> <li>- Promote educational activities</li> </ul>
Community	<ul style="list-style-type: none"> <li>- Solicit, hear, and consider early and continuing community input in the planning and programming process</li> <li>- Understand community-generated values, goals, and vision</li> <li>- Develop recreational areas</li> <li>- Install traffic calming devices</li> <li>- Develop historical projects to document and tell the story of the community</li> </ul>
Environmental Justice Communities	<ul style="list-style-type: none"> <li>- Evaluate the environmental justice impacts of all feasible alternatives</li> <li>- Pay property owners fair market value for property acquired</li> <li>- Perform residential and commercial relocation</li> </ul>
Farmland	<ul style="list-style-type: none"> <li>- Protect farmland with agricultural conservation easements</li> </ul>
Fragmented Animal Habitats	<ul style="list-style-type: none"> <li>- Coordinate project development with appropriate wildlife experts and agencies</li> <li>- Evaluate the potential habitat/wildlife impacts of all feasible alternatives</li> <li>- Construct overpasses with vegetation</li> <li>- Construct underpasses, such as culverts and viaducts</li> <li>- Minimize potential fragmenting of animal habitats through other design measures</li> </ul>
Historic Sites	<ul style="list-style-type: none"> <li>- Support the collection and maintenance of records of historic properties and evaluate all feasible alternatives in light of those records</li> <li>- Relocation of historic property</li> <li>- Design modification</li> <li>- Landscaping to reduce visual impacts</li> <li>- Photo documentation</li> <li>- Historic archival recording to present information to the public</li> </ul>
Light	<ul style="list-style-type: none"> <li>- Shielded nighttime lighting, Lens color, Direction of lighting, and Low level lighting should be carefully considered</li> </ul>
Maintenance of Traffic	<ul style="list-style-type: none"> <li>- Plans for construction phasing and for traffic control</li> <li>- Conduct construction activities during off-peak hours</li> </ul>

Impacts	Mitigation Measures
	<ul style="list-style-type: none"> <li>- Inform public and private emergency responders about planned construction activities and closures, along with suitable alternative routes</li> <li>- During a natural disaster open as many lanes as possible</li> </ul>
Noise	<ul style="list-style-type: none"> <li>- Public information programs</li> <li>- Quiet work procedures</li> <li>- Protocol for responding to complaints and correcting deficiencies</li> <li>- Noise barriers and planting trees</li> </ul>
Parks	<ul style="list-style-type: none"> <li>- Construct bike/pedestrian pathway connections to parks</li> <li>- Dedicate land</li> <li>- Compensation for park dedication fees</li> <li>- Replace impaired functions</li> </ul>
Streams	<ul style="list-style-type: none"> <li>- Stream restoration and Vegetative buffer zones</li> <li>- Strict erosion and sedimentation control measures</li> <li>- Best management practices for storm water management</li> </ul>
Sea Level and Water Table Rise	<ul style="list-style-type: none"> <li>- Based on project location, conduct detailed evaluation using the University of Hawaii School of Ocean and Earth Science and Technology (UH SOEST) model of sea level and water table rise</li> </ul>
Threatened & Endangered Species	<ul style="list-style-type: none"> <li>- Map and preserve critical habitat</li> <li>- Enhancement or restoration of degraded habitat</li> <li>- Creation of new habitats</li> <li>- Establishment of buffer areas around existing habitats</li> <li>- Modifications of land use practices</li> <li>- Restrictions on land access and Lighting</li> </ul>
Viewshed	<ul style="list-style-type: none"> <li>- Vegetation and landscaping, Screening, Buffers, Earthen berms, Camouflage, and Lighting</li> </ul>
Waste	<ul style="list-style-type: none"> <li>- Collected and stored waste in securely lidded dumpsters that are emptied before becoming overly full and not buried on site</li> <li>- Store materials in a neat, orderly manner in appropriate containers</li> <li>- Regular vehicle preventive maintenance to reduce the chance of leakage</li> <li>- Keep spill cleanup kits on-site</li> <li>- Collect sanitary waste generated during construction in portable units</li> </ul>
Water	<ul style="list-style-type: none"> <li>- Use permeable surfaces where feasible to assist in groundwater recharge</li> <li>- Monitor water pollution from storm-water runoff of roadway surfaces</li> <li>- Minimizing the area disturbed by the project construction</li> <li>- Diversion dams and other isolation devices surrounding the work area</li> <li>- Silt fences and other perimeter controls and sediment barriers</li> <li>- Covering stockpiles of materials</li> <li>- Installation of storm drain inlet and catch basin protection devices</li> <li>- Managing solid waste to separate recyclable and reusable material</li> <li>- Wetland restoration and the creation of new wetlands</li> </ul>

**Fiscal Constraint:** According to Federal regulation §450.322 (f)(10), the ORTP must demonstrate that there is a balance between the expected revenue sources for transportation investments and the estimated costs of the projects and programs described in the Plan. In other words, ORTP must be fiscally (or financially) constrained. ORTP 2040 meets Federal tests of fiscal constraint. As shown in Table 4, total revenues are sufficient to fund Plan expenditures (Table 5).

**Table 4 Anticipated Uncommitted Revenue (x \$Millions)**

FHWA - Non E+C 2015-2018 TIP	\$213
FHWA - STP-U	\$261
FHWA - TAP-U	\$19
FHWA - STP	\$364
FHWA - CMAQ	\$121
FHWA - NHPP	\$1,046
Developer	\$1,437
FHWA - HSIP	\$210
FHWA - STP-OS Bridge	\$2
City O&M	\$1,337
State Preservation	\$390
State Match	\$318
City Match	\$484
FTA	\$1,483
Transit Fares	\$2,837
City Transit	\$6,685

More than thirty short-range transportation projects and programs were identified as existing or with full funding committed (E+C) since the approval of ORTP 2035. Committed projects also met the test that they were fully designed, completed all required planning/NEPA and other applicable permit/approval requirements, had obtained ROW and/or easements, and permits, were ready to proceed to construction or bid, and were programmed for construction within the first two (2) years of the current Transportation Improvement Program (TIP), as revised. These E+C projects include an investment of greater than \$6 billion the - bulk of which is associated with the rail project. \$213 million in partial funding has been identified for some ORTP projects on the FFY 2015–2018 TIP as of Revision 6.

The State of Hawaii also had a “Pipeline” balance of \$656,577,268 at the beginning of FFY 2016. The “Pipeline,” or balance of unexpended Federal obligation, was reduced by \$100,964,597 during FFY 2015 and is on target to reach FHWA and HDOT’s established goal of a \$450,000,000 balance for the end of FFY 2018. As financial forecasts for the ORTP 2040 begin in 2019, the balance of unexpended Federal obligation is not anticipated to generate revenue for the Plan — although, de-obligation and re-obligation of Federal funds to ORTP 2040 projects would have a positive effect on the Plan’s financial forecast.

Unless otherwise available, costs presented in the ORTP for modernization projects are Planning Level Cost Estimates (PLCE) derived from a project’s length. Contingency and civil engineering and inspection costs were also added. When observed in the field, cost for other factors such as bridging or utility relocation was added on a project-by-project basis. PLCEs are presented in 2015 dollars. The year-of-expenditure (YOE) conceptual financial plan assumes a two percent annual inflation rate (consistent with the TIP and STIP) and is applied at the midpoint of the range resulting in \$227 million in additional cost due to inflation for modernization projects.

As shown in Table 5, a variety of different revenue sources are currently used to finance the transportation system on Oahu and in Hawaii. Revenue projections are used to estimate the level of investments Oahu can reasonably afford. The purpose of these projections is to ensure the long-term capability of Oahu to fund transportation projects and programs. As projects move from the ORTP 2040 to implementation, funding assumptions (e.g., sources and amounts of revenues) may be modified. Revisions to the ORTP 2040 can be made during its five-year funding cycle or when an action triggers the need for an adjustment. Amendments to the ORTP 2040 financial plan may be made, in accordance with the OahuMPO’s adopted ORTP Policies and Procedures, if major changes are made to the funding assumptions that would affect the Plan’s financial viability.

**Financial and Policy Implications:** Clearly, the projects and programs included in the ORTP 2040 reflect the desire to make Oahu's transportation system more sustainable. The overwhelming share of plan expenditures—85 percent—goes to support maintenance and operations, transit expansion, system preservation, high technology projects such as ITS, and bicycle and pedestrian improvements. The remaining balance goes to modernization projects.

The initial capital costs associated with developing a more sustainable transportation system may make it appear to be more expensive than not. Yet, over the long term, increasing transportation choices and access to the transportation system brought about by these investments can be expected to reduce the overall costs of moving people, goods, and services, and enhancing economic competitiveness.

Transportation investments that support community livability can also have multiple co-benefits. Compact, connected, and

accessible communities encourage walking, bicycling, and transit use, which provides exercise while reducing the need for auto travel and making trips shorter for those who choose to drive.

Measures that lead to a more sustainable lifestyle are comprised of strategies that reduce congestion, increase access to public transportation, improve air quality, and enhance coordination between land use and transportation decisions. Many of these measures require a concerted effort over time by State and City agencies. The OahuMPO is actively working with the City's Department of Planning and Permitting and the Department of Transportation Services, the Honolulu Authority for Rapid Transportation, the State's Department of Transportation, and the Department of Business, Economic Development and Tourism, as well as with Federal agencies, such as the Federal Highway Administration, the Federal Transit Administration, the Federal Aviation Administration, the Maritime Administration, the Environmental

Protection Agency, and the Department of Housing and Urban Development. In order to institutionalize sustainability goals, these partnerships must continue, and additional stakeholders, such as large employers and the military, must be brought into the conversation.

ORTP 2040 includes specific strategies to reduce *per capita* vehicle miles traveled; encouraging greater use of transit, carpools, and vanpools; and expanding the network of walkways and bicycle lanes to foster a more sustainable islandwide transportation system.

Fostering livability in transportation projects and programs will improve quality of life, create a more efficient, safe and accessible transportation network, reduce impacts on the environment, and serve the mobility needs of communities, families, and businesses, especially those who are traditionally under served.

Table 5 Oahu Regional Transportation Plan 2040 Expenditures

Project (by Category)		Expenditures (x \$Millions)	Percent of Dollars	Number of Projects	Revenue (x \$Millions)
Mid-Range Projects 2019 to 2029	Non E+C 2015-2018 TIP	-	-	-	\$213.0
	Congestion Mitigation Project(s)	\$127.3	2%	4	\$173.0
	Enhancement Project(s)	\$12.0	0%	1	\$11.9
	Modernization Project(s)	\$1,001.5	17%	11	\$696.7
	Developer Funded Modernization Project(s)	\$664.2	11%	7	\$664.2
	Safety Project(s)	\$105.0	2%	1	\$105.0
	System Preservation Project(s)	\$1,010.1	17%	5	\$1,289.5
	Transit Project(s)	\$3,063.9	51%	5	\$4,902.3
<b>Total</b>		<b>\$5,984.0</b>		<b>34</b>	<b>\$8,055.6</b>
Long-Range Projects 2030 to 2040	Congestion Mitigation Project(s)	\$219.5	2%	3	\$173.0
	Enhancement Project(s)	\$12.0	0%	1	\$11.9
	Modernization Project(s)	\$50.0	0%	1	\$696.7
	Developer Funded Modernization Project(s)	\$772.4	7%	6	\$772.4
	Safety Project(s)	\$105.0	1%	1	\$105.0
	System Preservation Project(s)	\$1,816.7	17%	5	\$1,289.5
	Transit Project(s)	\$7,940.6	73%	5	\$6,102.7
	<b>Total</b>		<b>\$10,916.2</b>		<b>22</b>
Project (by Category)		Expenditures (x \$Millions)	Percent of Dollars	Number of Projects	Revenue (x \$Millions)
Project Totals 2019 to 2040	Congestion Mitigation Project(s)	\$346.8	2%	7	\$346.0
	Enhancement Project(s)	\$24.0	0%	2	\$23.8
	Modernization Project(s)	\$1,051.5	6%	12	\$1,393.4
	Developer Funded Modernization Project(s)	\$1,436.6	9%	13	\$1,436.6
	Safety Project(s)	\$210.0	1%	2	\$210.0
	System Preservation Project(s)	\$2,826.8	17%	10	\$2,579.0
	Transit Project(s)	\$11,004.5	65%	10	\$11,005.0
	Inflation from Modernization Project(s)	-	-	-	-\$219.0
	<b>Total</b>		<b>\$16,900.2</b>		<b>56</b>
<i>City and County of Honolulu Share*:</i>		<i>\$13,211.5</i>	<i>80%</i>	<i>25</i>	<i>-</i>
<i>State of Hawaii Share*:</i>		<i>\$3,341.9</i>	<i>20%</i>	<i>24</i>	<i>-</i>
Illustrative Projects	<i>Illustrative Modernization Project(s)</i>	<i>\$2,393.7</i>	<i>-</i>	<i>6</i>	<i>\$0.0</i>
	<i>Illustrative Transit Project(s)</i>	<i>\$9,292.0</i>	<i>-</i>	<i>6</i>	<i>\$0.0</i>
	<b>Total</b>	<b>\$11,685.7</b>	<b>-</b>	<b>12</b>	<b>\$0.0</b>

\*City and State Share does not include combined C/S projects.

## Chapter 7 Implementation and Evaluation

Successful implementation of the ORTP requires a protocol for evaluation of the effectiveness of transportation improvements in the planning area. The ORTP is the core work product of the OahuMPO's existing 3-C planning process and is implemented through the Congestion Management Process (CMP) and the TIP. The Policy Board selects all Title 23 United States Code (USC) and Title 49 USC Chapter 5303 funded projects (excluding projects on the National Highway System and projects funded under the Bridge, Interstate Maintenance, and Federal Lands Highway programs) from the ORTP and establishes a performance-based, measure-driven process to prioritize them in the TIP. This process ensures that priority congestion management strategies are considered during the selection of future improvement projects. The ORTP influences the selection of congestion mitigation and modernization measures because updates to the CMP are completed in conjunction with scheduled updates of the ORTP and prior to the development of a new TIP.

### Implementation Activity

This section identifies the processes accomplished and actions to be considered to enhance the region's Metropolitan Transportation Plan. Appendix C identifies the Federal requirements for the ORTP as identified in the FHWA Certification Review

Primer<sup>14</sup>, 23 CFR 450.322, 23 CFR 450.324(e)(2) & (3),(h) thru (k), and 49 CFR 613.100, and the corrective action from the OahuMPO TMA Certification Review, dated September 26, 2014.<sup>15</sup> The corresponding implementation activity and the page number location within this document are noted for reference. The activities listed are supplemental to and are supportive of the Regional Objectives as provided in Figure 2-3 OahuMPO Regional Goals & Objectives.

### Recommended Evaluation Methods

This section outlines methods that can be used to evaluate the ORTP prior to and post-implementation. Some of the evaluation measures listed below could be used to determine the feasibility of individual projects.

#### Comprehensive Data Management Study:

After development of the ORTP 2040 and an update to the *State of Congestion on Oahu*, the OahuMPO intends to conduct a comprehensive data management and sharing study. The study would further coordinate the data management and

<sup>14</sup>

[https://www.planning.dot.gov/documents/primer/intro\\_primer.asp](https://www.planning.dot.gov/documents/primer/intro_primer.asp)

<sup>15</sup> <http://www.oahumpo.org/wp-content/uploads/2014/09/OMPO-2014-TMACertRpt-092614.pdf>

sharing process between the OahuMPO and its member agencies. The study could establish a data sharing pool and recommend a program to outline specific policies and procedures concerning the collection, management, and distribution of data. The CMP TAC subcommittee could oversee the development, research, and analyses of data considered. Pending available funding, the comprehensive data management and sharing study could be included in the FY 2017 Overall Work Program.

**Project Selection:** Project identification and selection in the ORTP and TIP should continue to be approved by the MPO Policy Board in consultation with the State, City, and HART.

Quantifiable criteria should be developed to prioritize improvements selected in the FFYs 2019-2022 TIP. In evaluating projects, the following should be considered:

- In assessing need, were tools available to adequately measure performance? If not, what additional tools or resources are needed?
- Does the project/strategy selected further the ORTP Goals and Objectives?

- What is the total cost for implementing the management strategy?
- What are the potential benefits?
- Are other strategies available that would achieve the same benefit at equal or lesser cost, time, or consequence? If yes, what are the potential advantages/disadvantages of choosing an alternate strategy?

**Post Selection/Construction Evaluation:**

Assessing whether or not a strategy or project was successful is important in future decision making and in the refinement of the overall performance measurement process. The assessment of implemented projects and their impact is recommended. Considerations in the evaluation process include:

- Are the anticipated impacts immediate or anticipated over time? If over time, what are the appropriate measurement intervals?
- Did the project or strategy reduce (or stabilize) a performance measure? If yes, include an analysis of cost, time, and other quantifiable resources. Did other projects/factors contribute?
- If the project or strategy did not result in measurable reduction or stabilization in congestion, what factor(s) limited its effectiveness?
- Did implementation of the project or strategy result in any unanticipated consequences (adverse or beneficial)?

- Are the project/strategy and results specific to a corridor, segment, or intersection; or can the project/strategy be replicated elsewhere?

**Survey research:** It is important to have an understanding of the receptiveness of the proposal of the intended end user(s). Surveys can provide insight as to the practicalities or limitations of programs. Surveys can also be useful in determining mode choice preferences of various target populations. As an example, surveying tourists about their willingness to use public transportation or bicycle/pedestrian facilities can help gauge where to prioritize investments and to what extent improvements can enhance the transportation system. Surveys can be beneficial in assessing various alternatives prior to implementation.

## Chapter 8 References

Along with previous iterations of the ORTP and associated reports, the following Federal, State, regional, and local planning documents and studies were reviewed and considered in the drafting of this ORTP 2040 in order to demonstrate inter-agency coordination and plan consistency:

### Works Cited

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State of Hawaii, Department of Business, Economic Development and Tourism Research and Economic Analysis Division. *Population and Economic Projections for the State of Hawaii to 2040*. March 2012.

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US Department of Transportation, Federal Highway Administration. *Congestion Management Process: A Guidebook*. July 2010.

US Department of Transportation, Oahu Metropolitan Planning Organization TMA Certification Review. September 2014.

### Additional References Reviewed

City and County of Honolulu, Honolulu High-Capacity Transit Corridor Project. *Financial Plan for Entry into Final Design*. September 2011.

State of Hawaii, Office of Planning. *Comprehensive Economic Development Strategy*. 2010.

State of Hawaii, Department of Business, Economic Development & Tourism. *Hawaii Clean Energy Initiative Transportation Energy Analysis Final Report*. August 2015.

State of Hawaii, Department of Transportation. *H-1 Corridor Study. Draft Report: Assessment of Environmental Issues Task 4.2*. March 2015.

**Appendix A: Disposition of Comments on the draft ORTP 2040**

*(As of March 2016)*

Reference	Summary	Comment	Response

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## Appendix B: Environmental Stakeholders Consultation List

*(To be added in Final ORTP)*

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## Appendix C: Regional Transportation Plan Requirements Crosswalk

Requirements	Items to Review/Confirm	Implementation Activity (Page #)
Horizon Year	20 year minimum	"through the year 2040" (3)
Long and Short Range strategies	Lead to development of an integrated Intermodal transportation system, Facilitates efficient movement of people and goods	Mid- and Long-Range Plans (29)
ORTP Content	Demand analysis, Congestion management strategies, Planning Factors, Pedestrian walkway and bicycle facilities, Transportation system preservation, Multimodal evaluation of transportation and SEE (sociological, economic, and environmental) impacts, Transportation enhancements, Financial plan documenting consistency between transportation investments and available and projected sources of revenue, Inclusion of all regionally significant projects, Design concept and scope descriptions of all existing and proposed transportation facilities	Making Choices (27)
Consideration of Plans	Area's comprehensive land use plan and development objectives; National, State and local housing goals and strategies; Community development and employment plans and strategies; Environmental resource plans; National, State and local goals and objectives, such as linking low income households with job opportunities; Area's overall SEE and energy conservation goals and objectives	Opportunities (19)
Air Quality	Air Quality Conformity needs in air quality non-attainment and maintenance areas; Formal air quality conformity determination; Oahu has been determined to be an in attainment area for air quality	See: Hawaii Infrastructure State Implementation Plans <sup>16</sup>
Revenue Estimates	Cooperatively developed by State, MPO, and public transit operator(s); Reflect existing revenues and historical trends; Include reasonable public and private sources; May include new funding sources supported by implementation plan	Anticipated Revenue Sources (54)
O&M	Identifies estimated system level costs for operation and maintenance (O&M) of system	Operations, Maintenance, System Preservation, and Safety (28)
Cost Estimates	Process for determination documented, reviewed, and periodically updated (Ranges or bands acceptable in the outer 10 years)	Fiscal Constraint (54)
Balances	Balances and demonstrates consistency of existing and proposed revenue sources with all forecasted O&M and project costs	Paying for the Plan (27)
YOE	Reflects Year of Expenditure (YOE) revenues and cost estimates	Fiscal Constraint (54)

<sup>16</sup> <http://www3.epa.gov/region9/air/actions/hawaii.html#sip>

Requirements	Items to Review/Confirm	Implementation Activity (Page #)
Non-Attainment	In non-attainment and maintenance areas, addresses specific financial strategies to ensure implementation of required air quality projects	Oahu is in attainment for air quality.
Consultation with Environmental Stakeholders	Consult with State and local agencies responsible for land management, natural resources, environmental protection, conservation and historic preservation concerning the development of the transportation plan.	Intergovernmental Review is scheduled for March 2016 along with a possible Environmental Stakeholders Consultation Meeting
Environmental Mitigation	The ORTP must include a discussion of the types of potential environmental mitigation activities and potential areas to carry out these activities.	Figure 6-13 Potential Environmental Mitigation Measures (53)
CMP	The ORTP must demonstrate and document implementation of the approved CMP.	Implementation Activity (58) Also see: CMP Implementation Policies and Procedures <sup>17</sup>
Public Comment	The Final ORTP must include a documented disposition of public comments received.	Disposition of Comments (61)
Title VI/ EJ	The ORTP must include documentation of the analysis completed for Title VI/ EJ.	Environmental Justice Analysis (44) Also see: Title VI Policies and Procedures <sup>18</sup>

<sup>17</sup> <http://www.oahumpo.org/wp-content/uploads/2015/09/Congestion-Management-Process-2015XXXX-TAC-Recommended.pdf>

<sup>18</sup> [http://www.oahumpo.org/wp-content/uploads/2015/09/11-OahuMPO\\_TitleVI\\_ProcessesandProceduresDRAFT150901woAppendices.pdf](http://www.oahumpo.org/wp-content/uploads/2015/09/11-OahuMPO_TitleVI_ProcessesandProceduresDRAFT150901woAppendices.pdf)

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