

ORTP 2035 Qualitative Project-Level Performance Analysis Report Oahu Regional Transportation Plan 2035 Project

Deliverable 9.4.2



August 2011
Prepared for the
Oahu Metropolitan Planning Organization

Prepared by
Parsons Brinckerhoff

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

Table of Contents

SUMMARY	S-1
1 INTRODUCTION	1-1
1.1 Background	1-1
1.1.1 Goals and Objectives.....	1-1
1.1.2 Performance Measures.....	1-3
1.2 Purpose	1-4
1.3 Report Organization	1-4
2 EVALUATION OF PROPOSED PROJECTS AND PROGRAMS.....	2-1
2.1 Transportation Facilities.....	2-1
2.1.1 Goal	2-1
2.1.2 Performance Measures.....	2-1
2.1.3 Evaluation Results.....	2-2
2.2 Transportation Operations and Services Performance Measures	2-10
2.2.1 Goal	2-10
2.2.2 Performance Measures.....	2-10
2.2.3 Evaluation Results.....	2-11
2.3 Natural Environment Performance Measures	2-19
2.3.1 Goal	2-19
2.3.2 Performance Measures.....	2-19
2.3.3 Evaluation Results.....	2-19
2.4 Human Environment and Quality of Life Performance Measures	2-24
2.4.1 Goal	2-24
2.4.2 Performance Measures.....	2-24
2.4.3 Evaluation Results.....	2-25
2.5 Land Use and Transportation Integration Performance Measures	2-33
2.5.1 Goal	2-33
2.5.2 Performance Measures.....	2-33
2.5.3 Evaluation Results.....	2-33
3 REFERENCES	3-1

Acronyms Used in this Document

CMP	Congestion Management Process
GHG	Greenhouse gas
ITS	Intelligent transportation systems
OahuMPO	Oahu Metropolitan Planning Organization
ORTP	Oahu Regional Transportation Plan
SOV	Single-occupant vehicle
TAC	Technical Advisory Committee
TDM	Transportation Demand Management
TSM	Transportation System Management

Introduction and Purpose

The Vision Statement, approved by the Policy Committee on May 28, 2009, provides the general direction and planning context for the ORTP 2035.

In 2035, 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.

ORTP 2035 Overarching Goals and Objectives

To help achieve the Vision, the ORTP 2035 is defined by five overarching goals, each addressing a topical area. These five goals have been endorsed by the Technical Advisory Committee (TAC) and adopted by the Oahu Metropolitan Planning Organization (OahuMPO) Policy Committee for use in the development of the ORTP 2035, and are listed below.

1. **Transportation Facilities:** 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.
2. **Transportation Operations and Services:** Develop, operate, and maintain Oahu's islandwide transportation system to ensure the efficient, dependable, safe, secure, convenient, and economical movement of people and goods.
3. **Natural Environment:** Develop, operate, and maintain Oahu's transportation system in a manner that sustains environmental quality.
4. **Human Environment and Quality of Life:** Develop, operate, and maintain Oahu's transportation system in a manner that supports community-wide values related to health, safety, and civil rights.
5. **Land Use and Transportation Integration:** Develop, operate, and maintain 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.

Evaluation Results

Table S-1 summarizes the results presented in the five tables in Chapter 2, and illustrates the effectiveness of the proposed projects and programs at addressing the five overarching goals. The proposed projects and programs were ranked as being either generally positive (indicated in the table with a “●” symbol), neutral (indicated with “○”), or generally negative (indicated with “○”) with respect to the goals. All projects ranked either positive or neutral with respect to three of the five goals (transportation facilities, transportation operations and services, and human environment and quality of life). With respect to the goals related to impacts to the natural environment, and land use and transportation integration a number of projects were rated negative. This is due to the fact that they result in a worsening of air quality, increased reliance on non-renewable energy, and/or more spread out development patterns. Note that these rankings do not take into account mitigation measures that will be developed to address potential impacts as projects are implemented. The projects that performed the best overall across all five goals were those related to promoting non-SOV travel, along with lower cost safety and operational improvements. Overall, most of the projects assessed were recommended to be carried further into the ORTP 2035 development process (prior to the financial constraint analysis and input from the TAC). Two projects, however, were recommended to be dropped from further consideration for inclusion in the ORTP 2035. These were the following:

36: Pearl Harbor Corridor

72: Piikoi-Pensacola Couplet Reversal

The Pearl Harbor Corridor project was dropped from further consideration primarily due to high cost, and low rankings in relation to impacts on the natural environment and the human environment, as well as poor land use and transportation integration.

The Piikoi-Pensacola Couplet Reversal project was dropped from further consideration because of community concerns and it showed no noticeable benefit in relation to any of the five overarching goals.

Table S-1 Candidate ORTP 2035 Projects and Programs in Relation to Overarching Goals

Project No.	ORTP 2035 Potential Projects	Overarching Goal Category				
		Transportation Facilities	Transportation Operations and Services	Natural Environment	Human Environment and Quality of Life	Land Use and Transportation Integration
1	Alapai Transportation Management Center	●	●	○	◐	◐
2	Bike Plan Hawaii - Oahu (2011-2020)	●	◐	●	◐	●
3	Oahu Bike Plan (2011 - 2020)	●	◐	●	◐	●
4	Enhancement Projects (2011-2020)	●	●	●	◐	◐
5	Intelligent Transportation Systems (ITS) (2011-2020)	◐	●	●	●	◐
6	Transportation Demand Management (TDM) Program (2011-2020)	●	●	●	●	●
7	Van Pool Program (2011-2020)	●	●	●	●	●
8	Human Services Transportation Coordination Program (2011-2020)	●	●	●	●	◐
9	Rockfall Protection, Various Locations	◐	●	●	◐	●
10	Kalaniana'ole Highway, Safety & Operational Improvements, Olomana Golf Course to Waimanalo Beach Park	●	●	○	●	◐
11	Kamehameha Highway, Safety Improvements, Haleiwa to Kahaluu	●	●	○	●	●
12	Kamehameha Highway, Safety & Operational Improvements, Kaalaea Stream to Hygienic Store	●	●	○	●	◐
13	Highway Safety Improvement Program	◐	●	◐	●	●
14	Shoreline Protection Program	●	●	●	◐	●
15	Farrington Highway, Widening, Golf Course Road to west of Fort Weaver Road	●	●	◐	◐	◐
16	Fort Barrette Road, Widening, Farrington Highway to Barber's Point Gate.	●	●	◐	◐	◐
17	Hanua Street Extension, Farrington Highway to Malakole Street; Interstate Route H-1, New On- & Off-Ramps, Palailai Interchange	●	●	◐	◐	◐

Key: ● Generally Positive in Support of Goal ◐ Generally Neutral in Support of Goal ○ Generally Negative in Support of Goal

Project No.	ORTP 2035 Potential Projects	Overarching Goal Category				
		Transportation Facilities	Transportation Operations and Services	Natural Environment	Human Environment and Quality of Life	Land Use and Transportation Integration
18	Interstate Route H-1, New Interchange, Kapolei Interchange	●	◐	◐	◐	◐
19	Interstate Route H-1, Operational Improvements, Lunalilo Street Off-Ramp and On-Ramp (Between Lunalilo Street on-ramp and Vineyard Boulevard off-ramp)	◐	●	◐	◐	○
20	Interstate Route H-1, Widening, Ola Lane to Vineyard Boulevard	◐	●	◐	◐	○
21	Interstate Route H-1, Widening, Waiau Interchange to Waiawa Interchange	◐	●	○	◐	○
22	Interstate Route H-1, Widening, Waiawa Interchange	◐	●	◐	◐	○
23	Interstate Route H-1, Contra Flow Lane extension (PM), Waiawa Interchange to Kunia Interchange and Keehi Interchange to Radford Drive	◐	●	◐	◐	○
24	Interstate Route H-1, Widening, Waipahu Off-Ramp	◐	◐	◐	◐	○
25	Interstate Route H-2, Widening, Waipio Interchange	◐	●	○	◐	○
26	Interstate Route H-1, Operational Improvements and Widening, Ward Avenue On-Ramp to University Avenue Interchange	●	●	◐	◐	◐
27	Interstate Routes H-1 & H-2, Operational Improvements, Waiawa Interchange	●	●	◐	●	◐
28	Kamehameha Highway, Widening, Lanikuhana Avenue to Ka Uka Boulevard	●	◐	○	◐	◐
29	Kapolei Parkway, Extension, Kamokila Boulevard to Fort Barrette Road	●	●	◐	◐	◐
30	Kapolei Parkway, Extension & Widening, Aliinui Drive to Kalaeloa Boulevard	●	●	◐	◐	◐

Key: ● Generally Positive in Support of Goal ◐ Generally Neutral in Support of Goal ○ Generally Negative in Support of Goal

Project No.	ORTP 2035 Potential Projects	Overarching Goal Category				
		Transportation Facilities	Transportation Operations and Services	Natural Environment	Human Environment and Quality of Life	Land Use and Transportation Integration
31	Kualakai Parkway, Widening & Extension, Interstate Route H-1 to Franklin D Roosevelt Avenue	●	◐	◐	◐	◐
32	Interstate Route H-1, Widening, Vineyard Boulevard to Middle Street	●	◐	○	◐	○
33	Kalaeloa East-West Spine Road, New Roadway, Kalaeloa Boulevard to Geiger Road	●	◐	◐	◐	◐
34	Keoneula Boulevard, Extension, Kapolei Parkway to Franklin D. Roosevelt Avenue	●	◐	◐	◐	◐
35	Paiwa Street, Extension, Ka Uka Boulevard to Lumiauau Street	●	◐	○	◐	◐
36	Pearl Harbor Corridor	●	●	○	○	○
37	East-West Road	◐	◐	◐	◐	◐
38	Kamokila Blvd	●	◐	◐	◐	◐
39	Fort Barrette Road	●	◐	◐	◐	◐
40	Salt Lake Boulevard Widening Project	●	●	○	◐	◐
41	Makakilo Drive, Second Access, Makakilo Drive to Kualakai Parkway/Interstate Route H-1 Interchange	●	◐	○	●	◐
42	TheBus Service, Expansion, Islandwide (2011-2020)	●	●	●	●	●
43	Transit Centers, Various Locations (2011-2020)	●	◐	◐	●	●
44	City Operations and Maintenance (O&M): Transit (2011-2020)	●	●	●	●	●
45	City Operations and Maintenance (O&M): Roadways (2011-2020)	◐	◐	◐	●	◐
46	State Operations and Maintenance (2011-2020)	◐	●	◐	●	◐
47	System Preservation (2011-2020)	◐	◐	◐	●	◐
48	Bike Plan Hawaii - Oahu (2021-2035)	●	◐	●	◐	●
49	Oahu Bike Plan (2021 - 2035)	●	◐	●	◐	●

Key: ● Generally Positive in Support of Goal ◐ Generally Neutral in Support of Goal ○ Generally Negative in Support of Goal

Project No.	ORTP 2035 Potential Projects	Overarching Goal Category				
		Transportation Facilities	Transportation Operations and Services	Natural Environment	Human Environment and Quality of Life	Land Use and Transportation Integration
50	Enhancement Projects (2021-2035)	●	●	●	◐	◐
51	Intelligent Transportation Systems (ITS) (2021-2035)	◐	●	●	◐	◐
52	Transportation Demand Management (TDM) Program (2021-2035)	●	●	●	●	●
53	Van Pool Program (2021-2035)	●	●	●	●	●
54	Human Services Transportation Coordination Program (2011-2020)	●	●	●	●	◐
55	Farrington Highway, Safety Improvements, from Makua Valley Road to Aliinui Drive	◐	●	○	●	◐
56	Rockfall Protection, Various Locations	◐	●	●	◐	●
57	Shoreline protection program	●	●	●	◐	●
58	Highway Safety Improvement Program	◐	●	◐	●	●
59	Farrington Highway, Widening, west of Fort Weaver Road to Waiawa Interchange	●	●	◐	●	◐
60	Farrington Highway, Widening, Hakimo Road to Kalaeloa Boulevard	●	●	○	◐	◐
61	Interstate Route H-1, On- & Off-Ramp Modifications, Various Locations	●	●	◐	◐	○
62	Interstate Route H-1, On- & Off-Ramp Modifications, University Avenue Interchange	◐	◐	◐	◐	○
63	Interstate Route H-1, HOV Lanes, Waiawa Interchange to Makakilo Interchange	●	●	◐	◐	◐
64	Interstate Route H-1, Widening, Waiawa Interchange to Halawa Interchange	◐	●	◐	◐	◐
65	Interstate Route H-1, Widening, Ward Avenue to Punahou Street	◐	◐	◐	◐	◐
66	Interstate Route H-2, New Interchange, Pineapple Road Overpass	●	◐	◐	◐	◐

Key: ● Generally Positive in Support of Goal ◐ Generally Neutral in Support of Goal ○ Generally Negative in Support of Goal

Project No.	ORTP 2035 Potential Projects	Overarching Goal Category				
		Transportation Facilities	Transportation Operations and Services	Natural Environment	Human Environment and Quality of Life	Land Use and Transportation Integration
67	Kahekili Highway, Widening, Kamehameha Highway to Haiku Road	◐	●	◐	◐	○
68	Kunia Road, Widening and Interchange Improvement, Wilikina Drive to Farrington Highway	◐	●	◐	◐	◐
69	Likelike Highway, Widening, Kamehameha Highway to Kahekili Highway	●	●	◐	◐	◐
70	Makakilo Mauka Frontage Road, New Roadway, Kalaeloa Boulevard to Makakilo Drive	●	◐	◐	◐	◐
71	Nimitz Highway, High Occupancy Vehicle (HOV) Flyover, Keehi Interchange to Pacific Street	●	◐	◐	◐	◐
72	Piikoi-Pensacola Couplet Reversal	◐	◐	◐	◐	◐
73	Puuloa Road, Widening, Pukoloa Road to Nimitz Highway	●	●	◐	◐	○
74	Waianae, Second Access, from Farrington Highway to Kunia Road	●	●	○	●	◐
75	Central Mauka Road, Second Access, from Mililani Mauka to Waiawa	●	●	○	◐	◐
76	Wahiawa, Second Access, from Whitmore Avenue to Meheula Parkway	●	●	○	◐	◐
77	Makapuu Tunnel	◐	◐	○	◐	◐
78	TheBus Service, Expansion, Islandwide (2021-2035)	●	◐	●	●	●
79	Fixed Guideway, West Kapolei to East Kapolei	●	●	◐	●	◐
80	Fixed Guideway, Ala Moana to Manoa/Waikiki	●	●	◐	◐	◐
81	City Rail Rehabilitation and Fleet Expansion	◐	●	●	●	◐
82	Transit Centers, Various Locations (2021-2035)	●	●	◐	●	●
83	City Operations and Maintenance (O&M): Transit (2021-2035)	●	●	●	●	●

Key: ● Generally Positive in Support of Goal ◐ Generally Neutral in Support of Goal ○ Generally Negative in Support of Goal

Project No.	ORTP 2035 Potential Projects	Overarching Goal Category				
		Transportation Facilities	Transportation Operations and Services	Natural Environment	Human Environment and Quality of Life	Land Use and Transportation Integration
84	City Operations and Maintenance (O&M): Roadways (2021-2035)	●	●	●	●	●
85	State Operations and Maintenance (2021-2035)	●	●	●	●	●
86	System Preservation (2021-2035)	●	●	●	●	●

Key: ● Generally Positive in Support of Goal ● Generally Neutral in Support of Goal ○ Generally Negative in Support of Goal

1.1 Background

The general direction and planning context for the Oahu Regional Transportation Plan (ORTP) 2035 was guided by the Vision Statement, approved by the Policy Committee on May 28, 2009:

In 2035, 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.

1.1.1 Goals and Objectives

To help achieve the Vision, the ORTP 2035 is defined by five overarching goals, each addressing a topical area. To support the goals, 25 objectives were identified for the ORTP 2035. The five goals and 25 objectives that have been endorsed by the Technical Advisory Committee (TAC) and adopted by the Oahu Metropolitan Planning Organization (OahuMPO) Policy Committee for use in the development of the ORTP 2035 are listed below.

1. **Transportation Facilities:** 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.
 - i. Develop, operate, and maintain alternative transportation facilities, including bikeways, walkways, and other accessible and environmentally-friendly elements.
 - ii. Enhance the integration and connectivity of the regional transportation system.
 - iii. Provide efficient, convenient, and cost-effective transit service to Oahu's citizens.
 - iv. Promote the intermodal connectivity and efficiency of harbor terminal facilities, airport terminal facilities, and land transportation systems.
 - v. Provide rehabilitation, renewal, and modernization of facilities in sufficient magnitude to ensure system preservation and continued, effective operation.

2. Transportation Operations and Services: Develop, operate, and maintain Oahu's islandwide transportation system to ensure the efficient, dependable, safe, secure, convenient, and economical movement of people and goods.
 - i. Promote planning, design, operation, maintenance, and construction of transportation facilities and systems to support economic development and vitality.
 - ii. Optimize transportation resources through TDM strategies, including telecommuting solutions, to encouraging transit ridership and ridesharing, while reducing single-occupancy vehicle travel and auto dependency.
 - iii. Encourage public-private partnerships in providing transportation services.
 - iv. Monitor and enhance the performance and efficiency of Oahu's transportation system through the use of operation management strategies, such as ITS, TSM, TDM, and the OahuMPO Congestion Management Process (CMP).
 - v. Ensure that Oahu's transportation system is planned, designed, constructed, maintained, and operated in an integrated and cost-effective manner.
 - vi. Ensure user and community safety, and practical systems for the disabled by incorporating the priorities, programs, physical design and operation of transportation facilities, and other improvements, consistent with the *Hawaii Strategic Highway Safety Plan* and *Americans with Disabilities Act Accessibility Guidelines*.
 - vii. Increase the peak-period, person-carrying capacities of Oahu's transportation network.
 - viii. Reduce security risks associated with terrorism and other criminal acts, natural and man-made disasters, and other emergencies that would impact the transportation system.
3. Natural Environment: Develop, operate, and maintain Oahu's transportation system in a manner that sustains environmental quality.
 - i. Develop, operate, and maintain Oahu's transportation system to meet or exceed noise, air, and water quality standards set by Federal, State, and City agencies.
 - ii. Maximize energy conservation in transportation and reduce greenhouse gas (GHG) emissions.
 - iii. Maintain and upgrade existing facilities, and locate and design future transportation facilities in a manner that protects them from significant damage or disruption due to climate change.

- iv. Preserve and enhance Oahu's cultural integrity, including archaeological and historic sites, and sensitive natural resources, including beaches, scenic beauty, and sea and mountain vistas.
4. Human Environment and Quality of Life: Develop, operate, and maintain Oahu's transportation system in a manner that supports community-wide values related to health, safety, and civil rights.
- i. Address and minimize the impacts of energy shortages, natural or man-made disasters, and other emergencies to the transportation system.
 - ii. Encourage the development of sustainable and renewable energy sources for transportation.
 - iii. Ensure that no person shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination in transportation services as provided for under current Federal, State, and City legislation.
 - iv. Maintain and upgrade existing facilities and design future transportation facilities in a manner that complies with local urban design policies and regulations.
 - v. Encourage innovation in planning, design, construction, operation, and maintenance of transportation services and facilities.
 - vi. Minimize disruption to existing neighborhoods from construction and maintenance of the transportation system.
5. Land Use and Transportation Integration: Develop, operate, and maintain 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.
- i. Develop, operate, and maintain the transportation system to support Oahu's planned population distribution and land use development policies expressed in the City's General, Development, and Sustainable Communities Plans, and other adopted plans through coordinated efforts of both public and private sectors.
 - ii. Support land use development policies, such as Transit-Oriented Development, that capitalize on the efficient use of the transportation system and reduce vehicular trip-making and vehicle miles traveled.

1.1.2 Performance Measures

Performance measures are an essential part of the planning process. A total of 31 measures were developed to help determine how well alternative ORTP 2035 plan scenarios address the plan's five adopted goals and their objectives. The performance measures were presented to the TAC of the OahuMPO on April 15,

2009, for discussion and endorsed at its meeting on May 21, 2009, for use during the ORTP 2035 update process.

A number of the measures included have been used in the development of previous versions of the ORTP. Building on these existing measures, additional performance measures have been added to address new long-range transportation planning requirements in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) as well as issues of energy efficiency and climate change. The individual performance measures are presented in the five tables included in Chapter 2. The evaluation of candidate projects and programs considered for inclusion in ORTP 2035 was based on these performance measures. However, because these measures were intended for analysis of a system plan scenario as opposed to individual projects or programs, the assessment of some of the measures was adjusted to be more qualitative as opposed to quantitative.

1.2 Purpose

The purpose of this document is to evaluate the effectiveness of each of the proposed projects at achieving the five overarching goals and 25 associated objectives based on the adopted performance measures.

1.3 Report Organization

Chapter 2 contains five tables, each reflecting the individual performance measures that relate to the five overarching goals. Each of these tables evaluates all the projects proposed for inclusion in the ORTP 2035 on a qualitative scale.

Chapter 3 contains the references used to draft this document.

2 Evaluation of Proposed Projects and Programs

The following sections present the five overarching goals and their associated performance measures. In some cases, in order to evaluate individual projects as opposed to evaluating a system-wide plan, methods for assessing performance measures were adjusted, as indicated below. The projects and programs proposed for inclusion in the ORTP 2035 were evaluated in relation to these measures.

2.1 Transportation Facilities

2.1.1 Goal

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.

2.1.2 Performance Measures

Six performance measures were identified regarding transportation facilities.

1. **Bicycle and Pedestrian Facilities:** Compares the level of investment in new or improved non-motorized transportation elements as well as potential impacts to existing bicycle and pedestrian facilities, and assesses how the scenario affects continuity of and accessibility to the bicycle/pedestrian network.
2. **Intermodal Freight Connections:** Assesses the quality of connections between freight modes (highway, air and seaports) based on quality (suitable routes, design standards, conflicts, etc.) and redundancy of connections.
3. **Modal Conflicts:** Assesses the candidate improvements' affect(s) on the potential for modal conflicts by assessing the negative effect(s) on other travel modes.
4. **Mode Share:** Assesses the potential increase in share of person-trips carried by non-single-occupant vehicle (SOV) travel modes (e.g., high-occupant vehicle, transit, bicycle, and pedestrian).
5. **Regional Transportation Linkages:** Assesses whether the candidate improvements provide connections between regional transportation facilities or services.
6. **Improved Accessibility to the Transportation System for Persons with Disabilities:** Assesses the level of investment in the proposed project or program that supports the *Americans with Disabilities Act Accessibility Guidelines*.

Table 2-1 illustrates the effectiveness of the proposed projects and programs at addressing these six performance measures.

2.1.3 Evaluation Results

Generally, the types of projects and programs that scored the best in the overall category of transportation facilities performance were the following:

- Islandwide projects and programs (traffic management, bicycle and pedestrian plans, ITS and TDM programs);
- Second Access projects; and
- Transit projects and programs.

These projects generally scored well because they typically rated high in terms of investment in bicycle and pedestrian facilities, reduction of modal conflicts, and increase in non-SOV mode share. Nearly all the projects and programs evaluated rated high in terms of being a regional transportation linkage. Overall, while some projects or programs were generally neutral with respect to this goal, none were rated low.

Table 2-1 Proposed Projects and Programs in Relation to Transportation Facilities Performance Measures

Transportation Facilities Overarching Goal: 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.							
Project No.	ORTP 2035 Potential Projects	Bicycle & Pedestrian Facilities	Intermodal Freight Connections	Modal Conflicts	Mode Share	Regional Transportation Linkages	Improved Accessibility for Persons with Disabilities
1	Alapai Transportation Management Center	n/a	n/a	n/a	n/a	●	n/a
2	Bike Plan Hawaii - Oahu (2011-2020)	●	n/a	●	●	◐	n/a
3	Oahu Bike Plan (2011 - 2020)	●	n/a	●	●	◐	n/a
4	Enhancement Projects (2011-2020)	◐	3	●	●	◐	n/a
5	Intelligent Transportation Systems (ITS) (2011-2020)	n/a	◐	◐	◐	●	n/a
6	Transportation Demand Management (TDM) Program (2011-2020)	n/a	n/a	●	●	●	n/a
7	Van Pool Program (2011-2020)	n/a	n/a	●	●	●	n/a
8	Human Services Transportation Coordination Program (2011-2020)	n/a	n/a	◐	◐	●	●
9	Rockfall Protection, Various Locations	n/a	n/a	n/a	n/a	◐	n/a
10	Kalaniana'ole Highway, Safety & Operational Improvements, Olomana Golf Course to Waimanalo Beach Park	●	n/a	◐	◐	●	●
11	Kamehameha Highway, Safety Improvements, Haleiwa to Kahaluu	●	n/a	◐	◐	●	●
12	Kamehameha Highway, Safety & Operational Improvements, Kaalaea Stream to Hygienic Store	●	n/a	◐	◐	●	●
13	Highway Safety Improvement Program	n/a	n/a	◐	◐	●	n/a
14	Shoreline Protection Program	n/a	n/a	n/a	n/a	●	n/a
15	Farrington Highway, Widening, Golf Course Road to west of Fort Weaver Road	●	n/a	◐	◐	●	●

Key: ● Generally Positive ◐ Generally Neutral ○ Generally Negative n/a Measure does not apply

Transportation Facilities Overarching Goal: 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.

Project No.	ORTP 2035 Potential Projects	Bicycle & Pedestrian Facilities	Intermodal Freight Connections	Modal Conflicts	Mode Share	Regional Transportation Linkages	Improved Accessibility for Persons with Disabilities
16	Fort Barrette Road, Widening, Farrington Highway to Barber's Point Gate.	●	n/a	◐	◐	●	●
17	Hanua Street Extension, Farrington Highway to Malakole Street; Interstate Route H-1, New On- & Off-Ramps, Palailai Interchange	●	●	◐	◐	●	●
18	Interstate Route H-1, New Interchange, Kapolei Interchange	n/a	●	◐	◐	●	n/a
19	Interstate Route H-1, Operational Improvements, Lunalilo Street Off-Ramp and On-Ramp (Between Lunalilo Street on-ramp and Vineyard Boulevard off-ramp)	n/a	n/a	◐	◐	●	n/a
20	Interstate Route H-1, Widening, Ola Lane to Vineyard Boulevard	n/a	◐	◐	◐	●	n/a
21	Interstate Route H-1, Widening, Waiiau Interchange to Waiawa Interchange	n/a	◐	◐	◐	●	n/a
22	Interstate Route H-1, Widening, Waiawa Interchange	n/a	◐	◐	◐	●	n/a
23	Interstate Route H-1, Contra Flow Lane extension (PM), Waiawa Interchange to Kunia Interchange and Keehi Interchange to Radford Drive	n/a	◐	◐	◐	●	n/a
24	Interstate Route H-1, Widening, Waipahu Off-Ramp	n/a	◐	◐	◐	●	n/a
25	Interstate Route H-2, Widening, Waipio Interchange	n/a	◐	◐	◐	●	n/a

Key: ● Generally Positive ◐ Generally Neutral ○ Generally Negative n/a Measure does not apply

Transportation Facilities Overarching Goal: 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.

Project No.	ORTP 2035 Potential Projects	Bicycle & Pedestrian Facilities	Intermodal Freight Connections	Modal Conflicts	Mode Share	Regional Transportation Linkages	Improved Accessibility for Persons with Disabilities
26	Interstate Route H-1, Operational Improvements and Widening, Ward Avenue On-Ramp to University Avenue Interchange	n/a	◐	n/a	n/a	●	n/a
27	Interstate Routes H-1 & H-2, Operational Improvements, Waiawa Interchange	n/a	◐	n/a	n/a	●	n/a
28	Kamehameha Highway, Widening, Lanikuhana Avenue to Ka Uka Boulevard	●	◐	◑	◑	●	●
29	Kapolei Parkway, Extension, Kamokila Boulevard to Fort Barrette Road	●	◐	◑	◑	●	●
30	Kapolei Parkway, Extension & Widening, Aliinui Drive to Kalaeloa Boulevard	●	◐	◑	◑	●	●
31	Kualakai Parkway, Widening & Extension, Interstate Route H-1 to Franklin D Roosevelt Avenue	●	●	◑	◑	●	●
32	Interstate Route H-1, Widening, Vineyard Boulevard to Middle Street	●	◐	◑	◑	●	●
33	Kalaeloa East-West Spine Road, New Roadway, Kalaeloa Boulevard to Geiger Road	●	◐	◑	◑	●	●
34	Keoneula Boulevard, Extension, Kapolei Parkway to Franklin D. Roosevelt Avenue	●	◐	◑	◑	●	●
35	Paiwa Street, Extension, Ka Uka Boulevard to Lumiauwau Street	●	◐	◑	◑	●	●
36	Pearl Harbor Corridor	n/a	●	◑	◑	●	n/a
37	East-West Road	●	◐	◑	◑	◑	●
38	Kamokila Blvd	●	◐	◑	◑	●	●
39	Fort Barrette Road	●	◐	◑	◑	●	●
40	Salt Lake Boulevard Widening Project	●	◐	◑	◑	●	●

Key: ● Generally Positive ◐ Generally Neutral ◑ Generally Negative n/a Measure does not apply

Transportation Facilities Overarching Goal: 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.

Project No.	ORTP 2035 Potential Projects	Bicycle & Pedestrian Facilities	Intermodal Freight Connections	Modal Conflicts	Mode Share	Regional Transportation Linkages	Improved Accessibility for Persons with Disabilities
41	Makakilo Drive, Second Access, Makakilo Drive to Kualakai Parkway/Interstate Route H-1 Interchange	n/a	●	◐	◐	●	n/a
42	TheBus Service, Expansion, Islandwide (2011-2020)	n/a	n/a	●	●	●	●
43	Transit Centers, Various Locations (2011-2020)	n/a	n/a	●	●	●	●
44	City Operations and Maintenance (O&M): Transit (2011-2020)	n/a	n/a	◐	◐	●	●
45	City Operations and Maintenance (O&M): Roadways (2011-2020)	◐	n/a	◐	◐	●	n/a
46	State Operations and Maintenance (2011-2020)	◐	n/a	◐	◐	●	n/a
47	System Preservation (2011-2020)	◐	n/a	◐	◐	●	n/a
48	Bike Plan Hawaii - Oahu (2021-2035)	●	n/a	●	●	◐	n/a
49	Oahu Bike Plan (2021 - 2035)	●	n/a	●	●	◐	n/a
50	Enhancement Projects (2021-2035)	◐	◐	●	●	◐	n/a
51	Intelligent Transportation Systems (ITS) (2021-2035)	n/a	◐	◐	◐	●	n/a
52	Transportation Demand Management (TDM) Program (2021-2035)	n/a	n/a	●	●	●	n/a
53	Van Pool Program (2021-2035)	n/a	n/a	●	●	●	n/a
54	Human Services Transportation Coordination Program (2011-2020)	n/a	n/a	◐	◐	●	5
55	Farrington Highway, Safety Improvements, from Makua Valley Road to Aliinui Drive	n/a	◐	◐	◐	●	n/a
56	Rockfall Protection, Various Locations	n/a	◐	n/a	n/a	◐	n/a

Key: ● Generally Positive ◐ Generally Neutral ○ Generally Negative n/a Measure does not apply

Transportation Facilities Overarching Goal: 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.

Project No.	ORTP 2035 Potential Projects	Bicycle & Pedestrian Facilities	Intermodal Freight Connections	Modal Conflicts	Mode Share	Regional Transportation Linkages	Improved Accessibility for Persons with Disabilities
57	Shoreline protection program	n/a	●	n/a	n/a	●	n/a
58	Highway Safety Improvement Program	n/a	●	●	●	●	n/a
59	Farrington Highway, Widening, west of Fort Weaver Road to Waiawa Interchange	●	●	●	●	●	●
60	Farrington Highway, Widening, Hakimo Road to Kalaeloa Boulevard	●	●	●	●	●	●
61	Interstate Route H-1, On- & Off-Ramp Modifications, Various Locations	n/a	●	●	●	●	n/a
62	Interstate Route H-1, On- & Off-Ramp Modifications, University Avenue Interchange	n/a	●	●	●	●	n/a
63	Interstate Route H-1, HOV Lanes, Waiawa Interchange to Makakilo Interchange	n/a	●	●	●	●	n/a
64	Interstate Route H-1, Widening, Waiawa Interchange to Halawa Interchange	n/a	●	●	●	●	n/a
65	Interstate Route H-1, Widening, Ward Avenue to Punahou Street	n/a	●	●	●	●	n/a
66	Interstate Route H-2, New Interchange, Pineapple Road Overpass	n/a	●	●	●	●	n/a
67	Kahekili Highway, Widening, Kamehameha Highway to Haiku Road	●	●	●	●	●	●
68	Kunia Road, Widening and Interchange Improvement, Wilikina Drive to Farrington Highway	●	●	●	●	●	●
69	Likelike Highway, Widening, Kamehameha Highway to Kahekili Highway	●	●	●	●	●	n/a

Key: ● Generally Positive ● Generally Neutral ○ Generally Negative n/a Measure does not apply

Transportation Facilities Overarching Goal: 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.

Project No.	ORTP 2035 Potential Projects	Bicycle & Pedestrian Facilities	Intermodal Freight Connections	Modal Conflicts	Mode Share	Regional Transportation Linkages	Improved Accessibility for Persons with Disabilities
70	Makakilo Mauka Frontage Road, New Roadway, Kalaeloa Boulevard to Makakilo Drive	●	●	◐	◐	●	●
71	Nimitz Highway, High Occupancy Vehicle (HOV) Flyover, Keehi Interchange to Pacific Street	n/a	●	●	●	●	n/a
72	Piikoi-Pensacola Couplet Reversal	n/a	◐	◐	◐	◐	n/a
73	Puuloa Road, Widening, Pukoloa Road to Nimitz Highway	◐	●	◐	◐	●	●
74	Waianae, Second Access, from Farrington Highway to Kunia Road	◐	●	◐	◐	●	●
75	Central Mauka Road, Second Access, from Mililani Mauka to Waiawa	●	●	◐	◐	●	●
76	Wahiawa, Second Access, from Whitmore Avenue to Meheula Parkway	●	●	◐	◐	●	●
77	Makapuu Tunnel	n/a	n/a	◐	◐	●	n/a
78	TheBus Service, Expansion, Islandwide (2021-2035)	n/a	n/a	●	●	●	●
79	Fixed Guideway, West Kapolei to East Kapolei	n/a	n/a	●	●	●	●
80	Fixed Guideway, Ala Moana to Manoa/Waikiki	n/a	n/a	●	●	●	●
81	City Rail Rehabilitation and Fleet Expansion	n/a	n/a	◐	◐	●	◐
82	Transit Centers, Various Locations (2021-2035)	n/a	n/a	●	●	●	●
83	City Operations and Maintenance (O&M): Transit (2021-2035)	n/a	n/a	◐	◐	●	●
84	City Operations and Maintenance (O&M): Roadways (2021-2035)	◐	n/a	◐	◐	●	◐

Key: ● Generally Positive ◐ Generally Neutral ○ Generally Negative n/a Measure does not apply

Transportation Facilities Overarching Goal: 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.

Project No.	ORTP 2035 Potential Projects	Bicycle & Pedestrian Facilities	Intermodal Freight Connections	Modal Conflicts	Mode Share	Regional Transportation Linkages	Improved Accessibility for Persons with Disabilities
85	State Operations and Maintenance (2021-2035)	●	n/a	●	●	●	n/a
86	System Preservation (2021-2035)	●	n/a	●	●	●	n/a

Key: ● Generally Positive ● Generally Neutral ○ Generally Negative n/a Measure does not apply

2.2 Transportation Operations and Services Performance Measures

2.2.1 Goal

Develop, operate, and maintain Oahu's islandwide transportation system to ensure the efficient, dependable, safe, secure, convenient, and economical movement of people and goods.

2.2.2 Performance Measures

Seventeen performance measures (with one having three sub-categories) were identified for transportation operations and services.

1. **Economic Vitality:** Qualitatively assesses the contribution of candidate improvements to the economic development and vitality of the region in terms of both job creation and reducing the costs associated with congestion.
2. **Average Vehicle Occupancy:** Estimates the average number of occupants per vehicle based in part on travel demand model output and the nature of the project or program.
3. **Condition and/or Life Span of Transportation Infrastructure:** Assesses whether the candidate improvements upgrade the condition and/or life span of transportation infrastructure and the degree to which strategies balance resources for construction, rehabilitation, and maintenance.
4. **Highway and Arterial Level of Service (LOS):** Qualitatively estimates change in LOS for all major highway and arterial segments based in part on travel demand model Volume/Capacity ratios as well as the nature of the project or program.
5. **Historical Accident Risks:** Assesses whether candidate improvements address existing high-accident locations and maps those locations based on compiled accident data for available modes.
6. **Homeland Security, Personal Security, and All-Hazards Preparedness:** Assesses whether candidate strategies are consistent with and support Homeland Security initiatives, personal security concerns, and all-hazards preparedness.
7. **Operations Management Strategies:** Assesses whether the candidate improvements effectively employ ITS, TSM, and/or TDM techniques.
8. **Screenline Person-Trips:** Measures the person-trips (all modes) crossing study area screenlines based in part on travel demand model output as well as the nature of the project or program.
9. **Total Annual System Costs:** Estimates annualized transportation costs (capital, operating, and maintenance) over a predetermined span of time based on

- available cost information. Projects or programs were ranked based on how they compared to the average and median costs of all projects/programs combined. The average cost of a project/program was approximately \$411 million, while the median cost was \$136 million. If the cost of a project/program fell between these values, it was rated neutral (i.e., ●). If it was lower than \$136 million, it rated high (i.e. ●), and if higher than \$411 it rated low (i.e., ○).
10. Transit Ridership: Qualitatively estimates number of transit patrons based in part on travel demand model output as well as the nature of the particular project or program.
 11. Travel Demand: Assesses the degree to which candidate improvements employ or support TDM techniques to reduce travel demand based on the potential to reduce vehicle trips.
 12. Travel Times for Selected Origin-Destination Pairs:
 - i. Auto: Estimates change in the average peak period travel time between key destinations based in part on travel demand model output as well as the nature of the project or program.
 - ii. Freight: Estimates change in the average peak period travel time between key freight destinations based in part on travel demand model output as well as the nature of the project or program.
 - iii. Public Transit: Estimates change in the average peak period travel time between key destinations on transit based in part on travel demand model output as well as the nature of the project or program.
 13. Vehicle Hours of Delay (VHD): Measures the total hours of delay (daily and peak period) experienced by all vehicles on the network based on travel demand model output as available for the particular project or program. Delay is the difference between predicted travel times and travel time under free-flow (uncongested) conditions.
 14. Vehicle Hours of Travel (VHT): Measures the total duration of trips by motorized vehicles (automobiles, buses, trucks) based on travel demand model output as available for the particular project or program.
 15. Vehicle Miles of Travel (VMT): Measures the total length of trips by motorized vehicles (automobiles, buses, trucks) based on travel demand model output as available for the particular project or program.

Table 2-2 illustrates the effectiveness of the proposed projects and programs at addressing these performance measures.

2.2.3 Evaluation Results

The large majority of projects evaluated generally rated high with respect to the goal of helping to ensure efficient, dependable, safe, secure, convenient, and economical movement of people and goods on Oahu (56 of 86 projects/programs).

All other candidate projects ranked neutral. No project ranked low in relation to this goal.

Table 2-2 Proposed Projects and Programs in Relation to Transportation Operations and Services Performance Measures

Transportation Operations and Services Overarching Goal: Develop, operate, and maintain Oahu's islandwide transportation system to ensure the efficient, dependable, safe, secure, convenient, and economical movement of people and goods.																		
Project No.	ORTP 2035 Potential Projects	Economic Vitality	Average Vehicle Occupancy	Condition and/or Life Span of Transportation Infrastructure	Highway and Arterial LOS	Historical Accident Risks	Homeland Security, Personal Security, and All-Hazards Preparedness	Operations Management Strategies	Screenline Person-Trips	Total Annual System Costs	Transit Ridership	Travel Demand	Travel Times: Auto	Travel Times: Freight	Travel Times: Public Transit	VH D	VHT	VMT
1	Alapai Transportation Management Center	●	n/a	○	●	●	●	●	n/a	○	n/a	n/a	●	●	●	n/a	n/a	n/a
2	Bike Plan Hawaii - Oahu (2011-2020)	○	n/a	○	n/a	○	○	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
3	Oahu Bike Plan (2011 - 2020)	○	n/a	○	n/a	○	○	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
4	Enhancement Projects (2011-2020)	○	n/a	○	n/a	n/a	○	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
5	Intelligent Transportation Systems (ITS) (2011-2020)	●	n/a	○	●	○	●	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
6	Transportation Demand Management (TDM) Program (2011-2020)	●	●	○	n/a	n/a	○	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
7	Van Pool Program (2011-2020)	●	●	○	n/a	n/a	○	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
8	Human Services Transportation Coordination Program (2011-2020)	●	○	○	n/a	n/a	●	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
9	Rockfall Protection, Various Locations	○	n/a	●	n/a	●	●	●	n/a	○	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10	Kalaniana'ole Highway, Safety & Operational Improvements, Olomana Golf Course to Waimanalo Beach Park	●	○	○	●	●	●	●	○	●	n/a	n/a	●	●	●	n/a	n/a	n/a
11	Kamehameha Highway, Safety Improvements, Haleiwa to Kahaluu	●	n/a	○	●	●	●	●	○	●	n/a	n/a	●	●	●	n/a	n/a	n/a
12	Kamehameha Highway, Safety & Operational Improvements, Kaalaea Stream to Hygienic Store	●	n/a	○	●	●	●	●	○	●	n/a	n/a	●	●	●	n/a	n/a	n/a
13	Highway Safety Improvement Program	●	n/a	○	●	●	●	●	○	●	n/a	n/a	●	●	●	n/a	n/a	n/a
14	Shoreline Protection Program	●	n/a	●	n/a	n/a	●	n/a	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
15	Farrington Highway, Widening, Golf Course Road to west of Fort Weaver Road	●	○	○	●	●	○	○	●	●	○	○	●	●	●	●	○	○

Key: ● Generally Positive ○ Generally Neutral ○ Generally Negative n/a Measure does not apply

Transportation Operations and Services Overarching Goal: Develop, operate, and maintain Oahu's islandwide transportation system to ensure the efficient, dependable, safe, secure, convenient, and economical movement of people and goods.

Project No.	ORTP 2035 Potential Projects	Economic Vitality	Average Vehicle Occupancy	Condition and/or Life Span of Transportation Infrastructure	Highway and Arterial LOS	Historical Accident Risks	Homeland Security, Personal Security, and All-Hazards Preparedness	Operations Management Strategies	Screenline Person-Trips	Total Annual System Costs	Transit Ridership	Travel Demand	Travel Times : Auto	Travel Times: Freight	Travel Times: Public Transit	VH D	VHT	VMT
16	Fort Barrette Road, Widening, Farrington Highway to Barber's Point Gate.	●	◐	◐	●	●	◐	◐	◐	●	◐	◐	●	●	●	◐	◐	◐
17	Hanua Street Extension, Farrington Highway to Malakole Street; Interstate Route H-1, New On- & Off-Ramps, Palailai Interchange	●	◐	◐	●	◐	◐	◐	◐	●	◐	◐	●	●	●	●	●	●
18	Interstate Route H-1, New Interchange, Kapolei Interchange	●	◐	◐	●	◐	◐	◐	◐	●	◐	◐	●	●	●	◐	◐	◐
19	Interstate Route H-1, Operational Improvements, Lunalilo Street Off-Ramp and On-Ramp (Between Lunalilo Street on-ramp and Vineyard Boulevard off-ramp)	●	n/a	◐	●	●	◐	◐	n/a	●	n/a	n/a	●	●	●	n/a	n/a	n/a
20	Interstate Route H-1, Widening, Ola Lane to Vineyard Boulevard	●	◐	◐	●	●	◐	◐	◐	●	◐	◐	●	●	●	◐	◐	◐
21	Interstate Route H-1, Widening, Waiawa Interchange to Waiawa Interchange	●	◐	◐	●	●	◐	◐	●	◐	◐	◐	●	●	●	●	◐	○
22	Interstate Route H-1, Widening, Waiawa Interchange	●	◐	◐	●	●	◐	◐	◐	●	◐	◐	●	●	●	●	◐	○
23	Interstate Route H-1, Contra Flow Lane extension (PM), Waiawa Interchange to Kunia Interchange and Keehi Interchange to Radford Drive	●	◐	◐	●	●	◐	◐	◐	●	◐	◐	●	◐	●	●	●	◐
24	Interstate Route H-1, Widening, Waipahu Off-Ramp	●	◐	◐	●	◐	◐	◐	◐	●	◐	◐	●	◐	◐	●	◐	○
25	Interstate Route H-2, Widening, Waipio Interchange	●	◐	◐	●	◐	◐	◐	●	●	◐	◐	●	●	●	●	●	●
26	Interstate Route H-1, Operational Improvements and Widening, Ward Avenue On-Ramp to University Avenue Interchange	●	n/a	◐	●	●	◐	●	n/a	●	n/a	n/a	●	●	●	n/a	n/a	n/a
27	Interstate Routes H-1 & H-2, Operational Improvements, Waiawa Interchange	●	n/a	◐	●	●	◐	●	n/a	●	n/a	n/a	●	●	●	n/a	n/a	n/a

Key: ● Generally Positive ◐ Generally Neutral ○ Generally Negative n/a Measure does not apply

Transportation Operations and Services Overarching Goal: Develop, operate, and maintain Oahu's islandwide transportation system to ensure the efficient, dependable, safe, secure, convenient, and economical movement of people and goods.

Project No.	ORTP 2035 Potential Projects	Economic Vitality	Average Vehicle Occupancy	Condition and/or Life Span of Transportation Infrastructure	Highway and Arterial LOS	Historical Accident Risks	Homeland Security, Personal Security, and All-Hazards Preparedness	Operations Management Strategies	Screenline Person-Trips	Total Annual System Costs	Transit Ridership	Travel Demand	Travel Times : Auto	Travel Times: Freight	Travel Times: Public Transit	VH D	VHT	VMT
28	Kamehameha Highway, Widening, Lanikuhana Avenue to Ka Uka Boulevard	●	◐	◐	●	●	◐	◐	◐	●	◐	◐	●	◐	◐	●	◐	○
29	Kapolei Parkway, Extension, Kamokila Boulevard to Fort Barrette Road	●	◐	◐	◐	◐	◐	◐	◐	●	◐	◐	◐	●	●	●	●	●
30	Kapolei Parkway, Extension & Widening, Aliinui Drive to Kalaeloa Boulevard	●	◐	◐	●	◐	◐	◐	●	●	◐	◐	●	●	●	●	●	○
31	Kualakai Parkway, Widening & Extension, Interstate Route H-1 to Franklin D Roosevelt Avenue	●	◐	◐	●	◐	◐	◐	◐	●	◐	◐	◐	◐	◐	●	●	●
32	Interstate Route H-1, Widening, Vineyard Boulevard to Middle Street	●	◐	◐	●	◐	◐	◐	◐	●	◐	◐	●	◐	●	◐	◐	◐
33	Kalaeloa East-West Spine Road, New Roadway, Kalaeloa Boulevard to Geiger Road	●	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	●	●	●
34	Keoneula Boulevard, Extension, Kapolei Parkway to Franklin D. Roosevelt Avenue	●	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
35	Paiwa Street, Extension, Ka Uka Boulevard to Lumiauwai Street	●	◐	◐	●	◐	◐	◐	◐	●	◐	◐	●	◐	◐	●	○	◐
36	Pearl Harbor Corridor	●	◐	◐	●	◐	○	◐	●	○	n/a	n/a	●	●	●	●	●	●
37	East-West Road	●	◐	◐	●	◐	◐	◐	◐	●	◐	◐	●	●	●	◐	◐	◐
38	Kamokila Blvd	●	◐	◐	◐	◐	◐	◐	◐	●	◐	◐	◐	◐	◐	●	●	●
39	Fort Barrette Road	●	◐	◐	◐	◐	◐	◐	◐	●	◐	◐	◐	◐	◐	●	●	●
40	Salt Lake Boulevard Widening Project	●	◐	◐	●	●	◐	◐	◐	●	◐	◐	●	●	●	◐	◐	◐
41	Makakilo Drive, Second Access, Makakilo Drive to Kualakai Parkway/Interstate Route H-1 Interchange	●	◐	◐	●	◐	◐	◐	◐	●	◐	◐	●	●	●	◐	◐	◐
42	TheBus Service, Expansion, Islandwide (2011-2020)	●	●	◐	n/a	◐	◐	●	n/a	○	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
43	Transit Centers, Various Locations (2011-2020)	●	●	◐	n/a	◐	◐	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Key: ● Generally Positive ◐ Generally Neutral ○ Generally Negative n/a Measure does not apply

Transportation Operations and Services Overarching Goal: Develop, operate, and maintain Oahu's islandwide transportation system to ensure the efficient, dependable, safe, secure, convenient, and economical movement of people and goods.

Project No.	ORTP 2035 Potential Projects	Economic Vitality	Average Vehicle Occupancy	Condition and/or Life Span of Transportation Infrastructure	Highway and Arterial LOS	Historical Accident Risks	Homeland Security, Personal Security, and All-Hazards Preparedness	Operations Management Strategies	Screenline Person-Trips	Total Annual System Costs	Transit Ridership	Travel Demand	Travel Times : Auto	Travel Times: Freight	Travel Times: Public Transit	VH D	VHT	VMT
44	City Operations and Maintenance (O&M): Transit (2011-2020)	●	n/a	●	n/a	●	●	●	n/a	○	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
45	City Operations and Maintenance (O&M): Roadways (2011-2020)	●	n/a	●	n/a	●	●	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
46	State Operations and Maintenance (2011-2020)	●	n/a	●	n/a	n/a	●	●	n/a	○	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
47	System Preservation (2011-2020)	●	n/a	●	n/a	n/a	●	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
48	Bike Plan Hawaii - Oahu (2021-2035)	●	n/a	●	n/a	●	●	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
49	Oahu Bike Plan (2021 - 2035)	●	n/a	●	n/a	●	●	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
50	Enhancement Projects (2021-2035)	●	n/a	●	n/a	n/a	●	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
51	Intelligent Transportation Systems (ITS) (2021-2035)	●	n/a	●	●	●	●	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
52	Transportation Demand Management (TDM) Program (2021-2035)	●	●	●	n/a	n/a	●	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
53	Van Pool Program (2021-2035)	●	●	●	n/a	n/a	●	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
54	Human Services Transportation Coordination Program (2011-2020)	●	●	●	n/a	n/a	●	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
55	Farrington Highway, Safety Improvements, from Makua Valley Road to Aliinui Drive	●	●	●	n/a	●	●	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
56	Rockfall Protection, Various Locations	●	n/a	●	n/a	●	●	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
57	Shoreline protection program	●	n/a	●	n/a	n/a	●	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
58	Highway Safety Improvement Program	●	n/a	●	n/a	●	●	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
59	Farrington Highway, Widening, west of Fort Weaver Road to Waiawa Interchange	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○
60	Farrington Highway, Widening, Hakimo Road to Kalaeloa Boulevard	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○

Key: ● Generally Positive ● Generally Neutral ○ Generally Negative n/a Measure does not apply

Transportation Operations and Services Overarching Goal: Develop, operate, and maintain Oahu's islandwide transportation system to ensure the efficient, dependable, safe, secure, convenient, and economical movement of people and goods.

Project No.	ORTP 2035 Potential Projects	Economic Vitality	Average Vehicle Occupancy	Condition and/or Life Span of Transportation Infrastructure	Highway and Arterial LOS	Historical Accident Risks	Homeland Security, Personal Security, and All-Hazards Preparedness	Operations Management Strategies	Screenline Person-Trips	Total Annual System Costs	Transit Ridership	Travel Demand	Travel Times: Auto	Travel Times: Freight	Travel Times: Public Transit	VH D	VHT	VMT
61	Interstate Route H-1, On- & Off-Ramp Modifications, Various Locations	●	◐	◐	●	◐	◐	◐	n/a	●	n/a	n/a	●	●	●	n/a	n/a	n/a
62	Interstate Route H-1, On- & Off-Ramp Modifications, University Avenue Interchange	●	◐	◐	●	◐	◐	◐	◐	●	◐	◐	◐	◐	◐	◐	◐	◐
63	Interstate Route H-1, HOV Lanes, Waiawa Interchange to Makakilo Interchange	●	●	◐	●	●	◐	●	●	●	◐	◐	●	◐	●	●	◐	◐
64	Interstate Route H-1, Widening, Waiawa Interchange to Halawa Interchange	●	◐	◐	●	●	◐	◐	●	○	◐	◐	●	●	●	●	◐	○
65	Interstate Route H-1, Widening, Ward Avenue to Punahou Street	●	◐	◐	●	●	◐	◐	◐	●	◐	◐	●	●	●	◐	◐	◐
66	Interstate Route H-2, New Interchange, Pineapple Road Overpass	●	◐	◐	◐	n/a	◐	◐	●	●	◐	◐	◐	◐	◐	●	●	●
67	Kahekili Highway, Widening, Kamehameha Highway to Haiku Road	●	◐	◐	●	●	◐	◐	●	●	◐	◐	●	●	●	●	●	○
68	Kunia Road, Widening and Interchange Improvement, Wilikina Drive to Farrington Highway	●	◐	◐	●	●	◐	◐	●	◐	◐	◐	●	●	●	●	●	●
69	Likelike Highway, Widening, Kamehameha Highway to Kahekili Highway	●	◐	◐	●	●	◐	◐	●	●	◐	◐	●	●	●	●	●	○
70	Makakilo Mauka Frontage Road, New Roadway, Kalaeloa Boulevard to Makakilo Drive	●	◐	◐	◐	n/a	◐	◐	◐	●	◐	◐	◐	◐	◐	◐	◐	◐
71	Nimitz Highway, High Occupancy Vehicle (HOV) Flyover, Keehi Interchange to Pacific Street	●	◐	◐	●	n/a	◐	●	◐	○	◐	◐	●	◐	●	◐	◐	◐
72	Piikoi-Pensacola Couplet Reversal	◐	◐	◐	◐	◐	◐	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
73	Puuloa Road, Widening, Pukoloa Road to Nimitz Highway	●	◐	◐	●	●	◐	◐	◐	●	◐	◐	●	●	●	◐	◐	◐

Key: ● Generally Positive ◐ Generally Neutral ○ Generally Negative n/a Measure does not apply

Transportation Operations and Services Overarching Goal: Develop, operate, and maintain Oahu's islandwide transportation system to ensure the efficient, dependable, safe, secure, convenient, and economical movement of people and goods.

Project No.	ORTP 2035 Potential Projects	Economic Vitality	Average Vehicle Occupancy	Condition and/or Life Span of Transportation Infrastructure	Highway and Arterial LOS	Historical Accident Risks	Homeland Security, Personal Security, and All-Hazards Preparedness	Operations Management Strategies	Screenline Person-Trips	Total Annual System Costs	Transit Ridership	Travel Demand	Travel Times : Auto	Travel Times: Freight	Travel Times: Public Transit	VH D	VHT	VMT
74	Waianae, Second Access, from Farrington Highway to Kunia Road	●	◐	◐	●	n/a	●	◐	●	○	◐	◐	●	●	◐	●	●	●
75	Central Mauka Road, Second Access, from Mililani Mauka to Waiawa	●	◐	◐	●	n/a	●	◐	●	◐	◐	◐	●	●	●	●	●	●
76	Wahiawa, Second Access, from Whitmore Avenue to Meheula Parkway	●	◐	◐	●	n/a	●	◐	●	◐	◐	◐	●	●	●	●	●	●
77	Makapuu Tunnel	●	◐	◐	◐	n/a	●	◐	●	○	◐	◐	◐	◐	◐	◐	◐	●
78	TheBus Service, Expansion, Islandwide (2021-2035)	●	●	◐	n/a	◐	◐	●	n/a	○	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
79	Fixed Guideway, West Kapolei to East Kapolei	●	●	◐	◐	◐	◐	●	●	○	●	●	◐	◐	●	●	●	●
80	Fixed Guideway, Ala Moana to Manoa/Waikiki	●	●	◐	◐	◐	◐	●	●	○	●	●	◐	◐	●	●	●	●
81	City Rail Rehabilitation and Fleet Expansion	●	n/a	●	n/a	n/a	◐	●	n/a	◐	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
82	Transit Centers, Various Locations (2021-2035)	●	●	◐	n/a	◐	◐	●	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
83	City Operations and Maintenance (O&M): Transit (2021-2035)	●	n/a	●	n/a	n/a	◐	●	n/a	○	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
84	City Operations and Maintenance (O&M): Roadways (2021-2035)	●	n/a	●	n/a	n/a	◐	◐	n/a	○	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
85	State Operations and Maintenance (2021-2035)	●	n/a	●	n/a	n/a	◐	◐	n/a	○	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
86	System Preservation (2021-2035)	●	n/a	●	n/a	n/a	◐	◐	n/a	○	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Key: ● Generally Positive ◐ Generally Neutral ○ Generally Negative n/a Measure does not apply

2.3 Natural Environment Performance Measures

2.3.1 Goal

Develop, operate, and maintain Oahu's transportation system in a manner that sustains environmental quality.

2.3.2 Performance Measures

Three performance measures were identified regarding the natural environment.

1. **Natural Resource/Environment Effects:** Qualitatively assesses potential disruption or other impacts to natural areas such as animal habitats, open spaces, beaches, archeological sites, and forested areas/vegetation based on the mapped location of sensitive areas and potential footprint changes associated with proposed projects.
2. **Reliance on Renewable and Sustainable Energy Sources:** Qualitatively assesses the degree to which candidate actions promote the use of renewable and sustainable energy sources for transportation (over non-renewable sources).
3. **Susceptibility to Climate Change:** Evaluates the effects of global climate change, including rising sea level, on transportation infrastructure. Projects/programs with components that address impacts of climate change rank high, those that are built in locations that are susceptible to climate change impacts rank low and all others rank neutral.

Table 2-3 illustrates the effectiveness of the proposed projects and programs at addressing these three performance measures.

2.3.3 Evaluation Results

Projects and programs that ranked high for ability to sustain environmental quality are those that encourage non-SOV travel, for example pedestrian, bicycle and transit improvements; and transportation demand management programs. Those that ranked low included major roadway improvements through environmentally sensitive areas, those that encourage more use of SOV travel, and/or those that are built in locations susceptible to climate change impacts (e.g., along the coast).

Table 2-3 Proposed Projects and Programs in Relation to Natural Environment Performance Measures

Natural Environment Overarching Goal: Develop, operate, and maintain Oahu's transportation system in a manner that sustains environmental quality.				
Project No.	ORTP 2035 Potential Projects	Natural Resource/ Environment Effects	Reliance on Renewable and Sustainable Energy Sources	Susceptibility to Climate Change
1	Alapai Transportation Management Center	◐	n/a	○
2	Bike Plan Hawaii - Oahu (2011-2020)	●	●	n/a
3	Oahu Bike Plan (2011 - 2020)	●	●	n/a
4	Enhancement Projects (2011-2020)	●	●	n/a
5	Intelligent Transportation Systems (ITS) (2011-2020)	●	◐	n/a
6	Transportation Demand Management (TDM) Program (2011-2020)	●	●	n/a
7	Van Pool Program (2011-2020)	●	●	n/a
8	Human Services Transportation Coordination Program (2011-2020)	◐	●	n/a
9	Rockfall Protection, Various Locations	◐	n/a	●
10	Kalaniana'ole Highway, Safety & Operational Improvements, Olomana Golf Course to Waimanalo Beach Park	◐	○	○
11	Kamehameha Highway, Safety Improvements, Haleiwa to Kahaluu	◐	○	○
12	Kamehameha Highway, Safety & Operational Improvements, Kaalaea Stream to Hygienic Store	◐	○	○
13	Highway Safety Improvement Program	◐	n/a	n/a
14	Shoreline Protection Program	●	n/a	●
15	Farrington Highway, Widening, Golf Course Road to west of Fort Weaver Road	◐	○	◐
16	Fort Barrette Road, Widening, Farrington Highway to Barber's Point Gate.	◐	○	◐
17	Hanua Street Extension, Farrington Highway to Malakole Street; Interstate Route H-1, New On- & Off-Ramps, Palailai Interchange	◐	○	◐
18	Interstate Route H-1, New Interchange, Kapolei Interchange	◐	○	◐
19	Interstate Route H-1, Operational Improvements, Lunalilo Street Off-Ramp and On-Ramp (Between Lunalilo Street on-ramp and Vineyard Boulevard off-ramp)	◐	○	◐

Key: ● Generally Positive ◐ Generally Neutral ○ Generally Negative
n/a Measure does not apply

Natural Environment Overarching Goal: Develop, operate, and maintain Oahu's transportation system in a manner that sustains environmental quality.

Project No.	ORTP 2035 Potential Projects	Natural Resource/ Environment Effects	Reliance on Renewable and Sustainable Energy Sources	Susceptibility to Climate Change
20	Interstate Route H-1, Widening, Ola Lane to Vineyard Boulevard	◐	○	◐
21	Interstate Route H-1, Widening, Waiiau Interchange to Waiawa Interchange	○	○	◐
22	Interstate Route H-1, Widening, Waiawa Interchange	◐	○	◐
23	Interstate Route H-1, Contra Flow Lane extension (PM), Waiawa Interchange to Kunia Interchange and Keehi Interchange to Radford Drive	◐	●	◐
24	Interstate Route H-1, Widening, Waipahu Off-Ramp	◐	○	◐
25	Interstate Route H-2, Widening, Waipio Interchange	○	○	◐
26	Interstate Route H-1, Operational Improvements and Widening, Ward Avenue On-Ramp to University Avenue Interchange	◐	○	◐
27	Interstate Routes H-1 & H-2, Operational Improvements, Waiawa Interchange	◐	○	◐
28	Kamehameha Highway, Widening, Lanikuhana Avenue to Ka Uka Boulevard	○	○	◐
29	Kapolei Parkway, Extension, Kamokila Boulevard to Fort Barrette Road	◐	○	◐
30	Kapolei Parkway, Extension & Widening, Aliinui Drive to Kalaeloa Boulevard	◐	○	◐
31	Kualakai Parkway, Widening & Extension, Interstate Route H-1 to Franklin D Roosevelt Avenue	◐	○	◐
32	Interstate Route H-1, Widening, Vineyard Boulevard to Middle Street	○	○	◐
33	Kalaeloa East-West Spine Road, New Roadway, Kalaeloa Boulevard to Geiger Road	◐	○	◐
34	Keoneula Boulevard, Extension, Kapolei Parkway to Franklin D. Roosevelt Avenue	◐	○	◐
35	Paiwa Street, Extension, Ka Uka Boulevard to Lumiauu Street	○	○	◐
36	Pearl Harbor Corridor	○	○	○
37	East-West Road	◐	○	◐
38	Kamokila Blvd	◐	○	◐
39	Fort Barrette Road	◐	○	◐
40	Salt Lake Boulevard Widening Project	○	○	◐

Key: ● Generally Positive ◐ Generally Neutral ○ Generally Negative
n/a Measure does not apply

Natural Environment Overarching Goal: Develop, operate, and maintain Oahu's transportation system in a manner that sustains environmental quality.

Project No.	ORTP 2035 Potential Projects	Natural Resource/ Environment Effects	Reliance on Renewable and Sustainable Energy Sources	Susceptibility to Climate Change
41	Makakilo Drive, Second Access, Makakilo Drive to Kualakai Parkway/Interstate Route H-1 Interchange	○	○	◐
42	TheBus Service, Expansion, Islandwide (2011-2020)	●	●	n/a
43	Transit Centers, Various Locations (2011-2020)	●	●	○ ¹
44	City Operations and Maintenance (O&M): Transit (2011-2020)	●	●	n/a
45	City Operations and Maintenance (O&M): Roadways (2011-2020)	◐	n/a	n/a
46	State Operations and Maintenance (2011-2020)	◐	n/a	n/a
47	System Preservation (2011-2020)	◐	◐	n/a
48	Bike Plan Hawaii - Oahu (2021-2035)	●	●	n/a
49	Oahu Bike Plan (2021 - 2035)	●	●	n/a
50	Enhancement Projects (2021-2035)	●	●	n/a
51	Intelligent Transportation Systems (ITS) (2021-2035)	●	◐	n/a
52	Transportation Demand Management (TDM) Program (2021-2035)	●	●	n/a
53	Van Pool Program (2021-2035)	●	●	n/a
54	Human Services Transportation Coordination Program (2011-2020)	◐	●	n/a
55	Farrington Highway, Safety Improvements, from Makua Valley Road to Aliinui Drive	◐	○	○
56	Rockfall Protection, Various Locations	●	n/a	●
57	Shoreline protection program	●	n/a	●
58	Highway Safety Improvement Program	◐	n/a	n/a
59	Farrington Highway, Widening, west of Fort Weaver Road to Waiawa Interchange	◐	○	◐
60	Farrington Highway, Widening, Hakimo Road to Kalaeloa Boulevard	◐	○	○
61	Interstate Route H-1, On- & Off-Ramp Modifications, Various Locations	◐	○	◐

Key: ● Generally Positive ◐ Generally Neutral ○ Generally Negative
n/a Measure does not apply

¹ While many of the future transit centers will be located at elevations that are not affected by sea level rise, some primary transit centers, such as the one at Middle Street, will be flooded assuming a two foot rise in sea level as a result of climate change.

Natural Environment Overarching Goal: Develop, operate, and maintain Oahu's transportation system in a manner that sustains environmental quality.

Project No.	ORTP 2035 Potential Projects	Natural Resource/ Environment Effects	Reliance on Renewable and Sustainable Energy Sources	Susceptibility to Climate Change
62	Interstate Route H-1, On- & Off-Ramp Modifications, University Avenue Interchange	◐	○	◐
63	Interstate Route H-1, HOV Lanes, Waiawa Interchange to Makakilo Interchange	◐	●	◐
64	Interstate Route H-1, Widening, Waiawa Interchange to Halawa Interchange	◐	○	◐
65	Interstate Route H-1, Widening, Ward Avenue to Punahou Street	◐	○	◐
66	Interstate Route H-2, New Interchange, Pineapple Road Overpass	◐	○	◐
67	Kahekili Highway, Widening, Kamehameha Highway to Haiku Road	◐	○	◐
68	Kunia Road, Widening and Interchange Improvement, Wilikina Drive to Farrington Highway	◐	○	◐
69	Likelike Highway, Widening, Kamehameha Highway to Kahekili Highway	◐	○	◐
70	Makakilo Mauka Frontage Road, New Roadway, Kalaeloa Boulevard to Makakilo Drive	◐	○	◐
71	Nimitz Highway, High Occupancy Vehicle (HOV) Flyover, Keehi Interchange to Pacific Street	◐	●	◐
72	Piikoi-Pensacola Couplet Reversal	◐	◐	◐
73	Puuloa Road, Widening, Pukoloa Road to Nimitz Highway	◐	○	◐
74	Waianae, Second Access, from Farrington Highway to Kunia Road	◐	○	○
75	Central Mauka Road, Second Access, from Mililani Mauka to Waiawa	○	○	◐
76	Wahiawa, Second Access, from Whitmore Avenue to Meheula Parkway	○	○	◐
77	Makapuu Tunnel	○	○	◐
78	TheBus Service, Expansion, Islandwide (2021-2035)	●	●	n/a
79	Fixed Guideway, West Kapolei to East Kapolei	◐	●	◐
80	Fixed Guideway, Ala Moana to Manoa/Waikiki	○	●	○
81	City Rail Rehabilitation and Fleet Expansion	◐	●	n/a

Key: ● Generally Positive ◐ Generally Neutral ○ Generally Negative
n/a Measure does not apply

Natural Environment Overarching Goal: Develop, operate, and maintain Oahu’s transportation system in a manner that sustains environmental quality.

Project No.	ORTP 2035 Potential Projects	Natural Resource/ Environment Effects	Reliance on Renewable and Sustainable Energy Sources	Susceptibility to Climate Change
82	Transit Centers, Various Locations (2021-2035)	●	●	○ ²
83	City Operations and Maintenance (O&M): Transit (2021-2035)	●	●	n/a
84	City Operations and Maintenance (O&M): Roadways (2021-2035)	◐	n/a	n/a
85	State Operations and Maintenance (2021-2035)	◐	n/a	n/a
86	System Preservation (2021-2035)	◐	◐	n/a

Key: ● Generally Positive ◐ Generally Neutral ○ Generally Negative
 n/a Measure does not apply

2.4 Human Environment and Quality of Life Performance Measures

2.4.1 Goal

Develop, operate, and maintain Oahu’s transportation system in a manner that supports community-wide values related to health, safety, and civil rights.

2.4.2 Performance Measures

Seven performance measures were identified regarding the human environment and quality of life.

1. Disruption during Construction: Assesses potential disruption to neighborhoods (access, mobility, noise, dust, etc.) during construction of candidate improvements based on degree of travel disruption, availability of suitable alternate routes, and proximity to sensitive neighborhoods.
2. Energy Consumption: Assesses whether candidate actions reduce energy consumption based on VMT, assumed improvement in operations (i.e., less congestion), presumed fuel efficiency assumptions, mix of fuel/power sources, and assumed change in non-SOV mode share.
3. Air Quality: The State of Hawaii is in attainment for air quality. Qualitatively assesses the level of GHG emissions as the result of proposed projects based

²While many of the future transit centers will be located at elevations that are not affected by sea level rise, some primary transit centers, such as the one at Middle Street, will be flooded assuming a two foot rise in sea level as a result of climate change.

on VMT, assumed improvement in operations (i.e., less congestion), presumed fuel efficiency assumptions, mix of fuel/power sources, and the nature of the particular project.

4. Title VI/Environmental Justice (T6/EJ)³:
 - i. Accessibility: Assesses whether the project serves T6/EJ Traffic Analysis Zones (TAZs) and will improve accessibility to selected work, shopping, education, and healthcare destinations based on travel demand model output and the nature of the particular project.
 - ii. Equity: Compares transportation funding allocations for T6/EJ and non-T6/EJ areas needs based on available cost information. System wide programs were not ranked for this measure.
 - iii. Mobility: Qualitatively compares travel times for work trips from T6/EJ and non-T6/EJ TAZs based on travel demand model output, location of project, and the nature of the particular project.
 - iv. Public Involvement and Outreach: Assesses concerns and issues of T6/EJ populations regarding transportation system performance and plan project selection based on feedback from focus groups, telephone surveys, and other public outreach initiatives. Assesses the degree to which outreach was done to T6/EJ populations.

Table 2-4 illustrates the effectiveness of the proposed projects and programs at addressing these seven performance measures.

2.4.3 Evaluation Results

Those projects and programs that ranked high in terms of providing a transportation system that supports community-wide values related to health, safety, and civil rights were those that reduced energy consumption and improved air quality (e.g., programs that encourage non-SOV travel such as pedestrian, bicycle, transit and TDM programs); and those that best serve T6/EJ communities in terms of mode (e.g., transit) and/or location. The project that ranked the lowest overall was the Pearl Harbor Corridor project, due to the anticipated disruption during construction and the fact that it does not directly serve high concentrations of T6/EJ population.

³ These measures are applied in very general terms to the individual programs and projects proposed for inclusion in the ORTP 2035. Once the final package of programs and projects has been decided upon, the ORTP 2035 in entirety will be measured against the 2035 Baseline scenario in a more quantitative manner regarding these measures.

Table 2-4 Proposed Projects and Programs in Relation to Human Environment/Quality of Life Performance Measures

Human Environment/Quality of Life Overarching Goal: Develop, operate, and maintain Oahu's transportation system in a manner that supports community-wide values related to health, safety, and civil rights.								
Project No.	ORTP 2035 Potential Projects	Disruption During Construction	Energy Consumption	Air Quality	T6/EJ: Accessibility	T6/EJ: Equity	T6/EJ: Mobility	T6/EJ: Public Involvement and Outreach
1	Alapai Transportation Management Center	○	n/a	n/a	◐	n/a	◐	◐
2	Bike Plan Hawaii - Oahu (2011-2020)	◐	●	●	◐	n/a	◐	◐
3	Oahu Bike Plan (2011 - 2020)	◐	●	●	◐	n/a	◐	◐
4	Enhancement Projects (2011-2020)	◐	●	●	◐	n/a	◐	◐
5	Intelligent Transportation Systems (ITS) (2011-2020)	◐	●	●	◐	n/a	◐	●
6	Transportation Demand Management (TDM) Program (2011-2020)	n/a	●	●	◐	n/a	◐	●
7	Van Pool Program (2011-2020)	n/a	●	●	◐	n/a	◐	◐
8	Human Services Transportation Coordination Program (2011-2020)	n/a	●	●	●	●	●	●
9	Rockfall Protection, Various Locations	◐	n/a	n/a	◐	n/a	◐	●
10	Kalaniana'ole Highway, Safety & Operational Improvements, Olomana Golf Course to Waimanalo Beach Park	○	●	●	●	●	●	●
11	Kamehameha Highway, Safety Improvements, Haleiwa to Kahaluu	○	●	●	●	●	●	●
12	Kamehameha Highway, Safety & Operational Improvements, Kaalaea Stream to Hygienic Store	○	●	●	●	◐	●	●
13	Highway Safety Improvement Program	◐	●	●	◐	n/a	◐	●
14	Shoreline Protection Program	◐	n/a	n/a	◐	n/a	◐	●
15	Farrington Highway, Widening, Golf Course Road to west of Fort Weaver Road	◐	●	●	◐	◐	◐	◐

Key: ● Generally Positive ◐ Generally Neutral ○ Generally Negative n/a Measure does not apply

Human Environment/Quality of Life Overarching Goal: Develop, operate, and maintain Oahu's transportation system in a manner that supports community-wide values related to health, safety, and civil rights.

Project No.	ORTP 2035 Potential Projects	Disruption During Construction	Energy Consumption	Air Quality	T6/EJ: Accessibility	T6/EJ: Equity	T6/EJ: Mobility	T6/EJ: Public Involvement and Outreach
16	Fort Barrette Road, Widening, Farrington Highway to Barber's Point Gate.	◐	◐	◐	◐	◐	◐	○
17	Hanua Street Extension, Farrington Highway to Malakole Street; Interstate Route H-1, New On- & Off-Ramps, Palailai Interchange	◐	◐	◐	◐	●	◐	◐
18	Interstate Route H-1, New Interchange, Kapolei Interchange	◐	◐	◐	◐	●	◐	●
19	Interstate Route H-1, Operational Improvements, Lunalilo Street Off-Ramp and On-Ramp (Between Lunalilo Street on-ramp and Vineyard Boulevard off-ramp)	○	●	●	◐	◐	◐	●
20	Interstate Route H-1, Widening, Ola Lane to Vineyard Boulevard	○	●	●	◐	◐	◐	●
21	Interstate Route H-1, Widening, Waiiau Interchange to Waiawa Interchange	○	●	●	◐	○	◐	●
22	Interstate Route H-1, Widening, Waiawa Interchange	○	●	●	◐	◐	◐	●
23	Interstate Route H-1, Contra Flow Lane extension (PM), Waiawa Interchange to Kunia Interchange and Keehi Interchange to Radford Drive	○	●	●	◐	○	◐	●
24	Interstate Route H-1, Widening, Waipahu Off-Ramp	○	●	●	◐	○	◐	●
25	Interstate Route H-2, Widening, Waipio Interchange	○	◐	◐	◐	○	◐	●

Key: ● Generally Positive ◐ Generally Neutral ○ Generally Negative n/a Measure does not apply

Human Environment/Quality of Life Overarching Goal: Develop, operate, and maintain Oahu's transportation system in a manner that supports community-wide values related to health, safety, and civil rights.

Project No.	ORTP 2035 Potential Projects	Disruption During Construction	Energy Consumption	Air Quality	T6/EJ: Accessibility	T6/EJ: Equity	T6/EJ: Mobility	T6/EJ: Public Involvement and Outreach
26	Interstate Route H-1, Operational Improvements and Widening, Ward Avenue On-Ramp to University Avenue Interchange	●	●	●	◐	○	◑	◑
27	Interstate Routes H-1 & H-2, Operational Improvements, Waiawa Interchange	●	●	●	◐	◑	◑	●
28	Kamehameha Highway, Widening, Lanikuhana Avenue to Ka Uka Boulevard	○	●	●	◐	◑	◑	◑
29	Kapolei Parkway, Extension, Kamokila Boulevard to Fort Barrette Road	●	◐	◐	◐	○	◑	○
30	Kapolei Parkway, Extension & Widening, Aliinui Drive to Kalaeloa Boulevard	◑	●	●	◐	●	◑	○
31	Kualakai Parkway, Widening & Extension, Interstate Route H-1 to Franklin D Roosevelt Avenue	◑	◐	◐	◐	◑	◑	●
32	Interstate Route H-1, Widening, Vineyard Boulevard to Middle Street	○	◐	◐	◐	◑	◑	●
33	Kalaeloa East-West Spine Road, New Roadway, Kalaeloa Boulevard to Geiger Road	◑	◐	◐	◐	○	◑	○
34	Keoneula Boulevard, Extension, Kapolei Parkway to Franklin D. Roosevelt Avenue	●	◐	◐	◐	◑	◑	○
35	Paiwa Street, Extension, Ka Uka Boulevard to Lumiaua Street	◑	◐	◐	◐	○	◑	○
36	Pearl Harbor Corridor	○	◐	◐	◐	○	◑	○
37	East-West Road	●	◐	◐	◐	○	◑	○
38	Kamokila Blvd	●	◐	◐	◐	◑	◑	○

Key: ● Generally Positive ◑ Generally Neutral ○ Generally Negative n/a Measure does not apply

Human Environment/Quality of Life Overarching Goal: Develop, operate, and maintain Oahu's transportation system in a manner that supports community-wide values related to health, safety, and civil rights.

Project No.	ORTP 2035 Potential Projects	Disruption During Construction	Energy Consumption	Air Quality	T6/EJ: Accessibility	T6/EJ: Equity	T6/EJ: Mobility	T6/EJ: Public Involvement and Outreach
39	Fort Barrette Road	●	◐	◐	◐	○	◐	○
40	Salt Lake Boulevard Widening Project	○	◐	◐	◐	○	◐	◐
41	Makakilo Drive, Second Access, Makakilo Drive to Kualakai Parkway/Interstate Route H-1 Interchange	●	◐	◐	●	◐	●	●
42	TheBus Service, Expansion, Islandwide (2011-2020)	n/a	●	●	●	n/a	●	●
43	Transit Centers, Various Locations (2011-2020)	◐	●	●	●	n/a	●	●
44	City Operations and Maintenance (O&M): Transit (2011-2020)	n/a	●	●	●	n/a	●	●
45	City Operations and Maintenance (O&M): Roadways (2011-2020)	◐	●	●	◐	n/a	◐	●
46	State Operations and Maintenance (2011-2020)	◐	●	●	◐	n/a	◐	●
47	System Preservation (2011-2020)	◐	●	●	◐	n/a	◐	●
48	Bike Plan Hawaii - Oahu (2021-2035)	◐	●	●	◐	n/a	◐	◐
49	Oahu Bike Plan (2021 - 2035)	◐	●	●	◐	n/a	◐	◐
50	Enhancement Projects (2021-2035)	◐	n/a	n/a	◐	n/a	◐	◐
51	Intelligent Transportation Systems (ITS) (2021-2035)	◐	n/a	n/a	◐	n/a	◐	●
52	Transportation Demand Management (TDM) Program (2021-2035)	n/a	●	●	◐	n/a	◐	●
53	Van Pool Program (2021-2035)	n/a	●	●	◐	n/a	◐	◐
54	Human Services Transportation Coordination Program (2011-2020)	n/a	●	●	●	●	●	●

Key: ● Generally Positive ◐ Generally Neutral ○ Generally Negative n/a Measure does not apply

Human Environment/Quality of Life Overarching Goal: Develop, operate, and maintain Oahu's transportation system in a manner that supports community-wide values related to health, safety, and civil rights.

Project No.	ORTP 2035 Potential Projects	Disruption During Construction	Energy Consumption	Air Quality	T6/EJ: Accessibility	T6/EJ: Equity	T6/EJ: Mobility	T6/EJ: Public Involvement and Outreach
55	Farrington Highway, Safety Improvements, from Makua Valley Road to Aliinui Drive	○	●	●	●	●	●	●
56	Rockfall Protection, Various Locations	◐	n/a	n/a	◐	n/a	◐	●
57	Shoreline protection program	●	n/a	n/a	◐	n/a	◐	◐
58	Highway Safety Improvement Program	◐	●	●	◐	n/a	◐	●
59	Farrington Highway, Widening, west of Fort Weaver Road to Waiawa Interchange	◐	●	●	◐	◐	◐	●
60	Farrington Highway, Widening, Hakimo Road to Kalaeloa Boulevard	◐	●	●	◐	◐	◐	◐
61	Interstate Route H-1, On- & Off-Ramp Modifications, Various Locations	○	◐	◐	◐	◐	◐	●
62	Interstate Route H-1, On- & Off-Ramp Modifications, University Avenue Interchange	○	◐	◐	◐	○	◐	◐
63	Interstate Route H-1, HOV Lanes, Waiawa Interchange to Makakilo Interchange	◐	◐	◐	●	○	●	●
64	Interstate Route H-1, Widening, Waiawa Interchange to Halawa Interchange	○	●	●	◐	○	◐	●
65	Interstate Route H-1, Widening, Ward Avenue to Punahou Street	○	◐	◐	◐	○	◐	●
66	Interstate Route H-2, New Interchange, Pineapple Road Overpass	○	◐	◐	◐	◐	◐	◐
67	Kahekili Highway, Widening, Kamehameha Highway to Haiku Road	○	●	●	◐	◐	◐	◐

Key: ● Generally Positive ◐ Generally Neutral ○ Generally Negative n/a Measure does not apply

Human Environment/Quality of Life Overarching Goal: Develop, operate, and maintain Oahu's transportation system in a manner that supports community-wide values related to health, safety, and civil rights.

Project No.	ORTP 2035 Potential Projects	Disruption During Construction	Energy Consumption	Air Quality	T6/EJ: Accessibility	T6/EJ: Equity	T6/EJ: Mobility	T6/EJ: Public Involvement and Outreach
68	Kunia Road, Widening and Interchange Improvement, Wilikina Drive to Farrington Highway	○	◐	◐	◐	○	◐	◐
69	Likelike Highway, Widening, Kamehameha Highway to Kahekili Highway	○	●	●	◐	○	◐	◐
70	Makakilo Mauka Frontage Road, New Roadway, Kalaeloa Boulevard to Makakilo Drive	●	◐	◐	◐	◐	◐	◐
71	Nimitz Highway, High Occupancy Vehicle (HOV) Flyover, Keehi Interchange to Pacific Street	○	●	●	●	○	●	◐
72	Piikoi-Pensacola Couplet Reversal	n/a	n/a	n/a	◐	○	◐	◐
73	Puuloa Road, Widening, Pukoloa Road to Nimitz Highway	○	◐	◐	◐	○	◐	◐
74	Waianae, Second Access, from Farrington Highway to Kunia Road	○	◐	◐	●	●	●	●
75	Central Mauka Road, Second Access, from Mililani Mauka to Waiawa	○	◐	◐	●	○	●	○
76	Wahiawa, Second Access, from Whitmore Avenue to Meheula Parkway	○	◐	◐	●	◐	●	○
77	Makapuu Tunnel	◐	◐	◐	●	●	●	○
78	TheBus Service, Expansion, Islandwide (2021-2035)	n/a	●	●	●	n/a	●	●
79	Fixed Guideway, West Kapolei to East Kapolei	○	●	●	●	◐	●	◐
80	Fixed Guideway, Ala Moana to Manoa/Waikiki	○	●	●	●	○	●	○

Key: ● Generally Positive ◐ Generally Neutral ○ Generally Negative n/a Measure does not apply

Human Environment/Quality of Life Overarching Goal: Develop, operate, and maintain Oahu's transportation system in a manner that supports community-wide values related to health, safety, and civil rights.

Project No.	ORTP 2035 Potential Projects	Disruption During Construction	Energy Consumption	Air Quality	T6/EJ: Accessibility	T6/EJ: Equity	T6/EJ: Mobility	T6/EJ: Public Involvement and Outreach
81	City Rail Rehabilitation and Fleet Expansion	●	●	●	●	n/a	●	●
82	Transit Centers, Various Locations (2021-2035)	●	●	●	●	n/a	●	●
83	City Operations and Maintenance (O&M): Transit (2021-2035)	●	●	●	●	n/a	●	●
84	City Operations and Maintenance (O&M): Roadways (2021-2035)	●	●	●	●	n/a	●	●
85	State Operations and Maintenance (2021-2035)	●	●	●	●	n/a	●	●
86	System Preservation (2021-2035)	●	●	●	●	n/a	●	●

Key: ● Generally Positive ● Generally Neutral ○ Generally Negative n/a Measure does not apply

2.5 Land Use and Transportation Integration Performance Measures

2.5.1 Goal

Develop, operate, and maintain 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.

2.5.2 Performance Measures

Three performance measures were identified regarding land use and transportation integration.

1. Land Use Plans: Assesses whether the candidate improvements serve planned growth areas based on forecast population and employment growth.
2. Built Environment Effects: Assesses potential displacements of people and/or activities and structures to developed areas.
3. Compact, Mixed-Use Growth: Assesses the degree to which candidate actions would encourage land development that supports more efficient use of transportation services as a result of concentrated growth patterns, mix of uses, and/or development around public transportation facilities.

Table 2-5 illustrates the effectiveness of the proposed projects and programs at addressing these three performance measures.

2.5.3 Evaluation Results

Projects and programs that ranked high in relation to helping to integrate effective land use and transportation with established sources of funding in a fair and equitable manner were those that support denser population concentrations and avoid displacements of people, activities or buildings. The types of projects that best accomplished this were the bicycle and pedestrian projects/programs, the transit projects/programs, transportation demand management programs, and safety and operational improvements. Projects that ranked low in this category were those that encourage more spread out development and/or would have a high level of displacement of people, activities or buildings.

Table 2-5 Proposed Projects and Programs in Relation to Land Use and Transportation Integration Performance Measures

Land Use and Transportation Integration Overarching Goal: Develop, operate, and maintain 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.				
Project No.	ORTP 2035 Potential Projects	Land Use Plans	Built Environment Effects	Compact, Mixed-Use Growth
1	Alapai Transportation Management Center	n/a	◐	n/a
2	Bike Plan Hawaii - Oahu (2011-2020)	●	◐	●
3	Oahu Bike Plan (2011 - 2020)	●	◐	●
4	Enhancement Projects (2011-2020)	◐	◐	◐
5	Intelligent Transportation Systems (ITS) (2011-2020)	n/a	◐	◐
6	Transportation Demand Management (TDM) Program (2011-2020)	●	●	●
7	Van Pool Program (2011-2020)	●	●	●
8	Human Services Transportation Coordination Program (2011-2020)	◐	n/a	n/a
9	Rockfall Protection, Various Locations	●	◐	n/a
10	Kalaniana'ole Highway, Safety & Operational Improvements, Olomana Golf Course to Waimanalo Beach Park	●	○	n/a
11	Kamehameha Highway, Safety Improvements, Haleiwa to Kahaluu	●	◐	n/a
12	Kamehameha Highway, Safety & Operational Improvements, Kaalaea Stream to Hygienic Store	●	○	n/a
13	Highway Safety Improvement Program	●	◐	n/a
14	Shoreline Protection Program	●	●	n/a
15	Farrington Highway, Widening, Golf Course Road to west of Fort Weaver Road	●	◐	○
16	Fort Barrette Road, Widening, Farrington Highway to Barber's Point Gate.	●	◐	○
17	Hanua Street Extension, Farrington Highway to Malakole Street; Interstate Route H-1, New On- & Off-Ramps, Palailai Interchange	●	●	○
18	Interstate Route H-1, New Interchange, Kapolei Interchange	●	◐	○
19	Interstate Route H-1, Operational Improvements, Lunalilo Street Off-Ramp and On-Ramp (Between Lunalilo Street on-ramp and Vineyard Boulevard off-ramp)	◐	○	○
20	Interstate Route H-1, Widening, Ola Lane to Vineyard Boulevard	◐	○	○
21	Interstate Route H-1, Widening, Waiiau Interchange to Waiawa Interchange	◐	○	○
22	Interstate Route H-1, Widening, Waiawa Interchange	◐	○	○

Key: ● Generally Positive ◐ Generally Neutral ○ Generally Negative
n/a Measure does not apply

Land Use and Transportation Integration Overarching Goal: Develop, operate, and maintain 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.

Project No.	ORTP 2035 Potential Projects	Land Use Plans	Built Environment Effects	Compact, Mixed-Use Growth
23	Interstate Route H-1, Contra Flow Lane extension (PM), Waiawa Interchange to Kunia Interchange and Keehi Interchange to Radford Drive	●	○	○
24	Interstate Route H-1, Widening, Waipahu Off-Ramp	●	○	○
25	Interstate Route H-2, Widening, Waipio Interchange	●	○	○
26	Interstate Route H-1, Operational Improvements and Widening, Ward Avenue On-Ramp to University Avenue Interchange	●	●	○
27	Interstate Routes H-1 & H-2, Operational Improvements, Waiawa Interchange	●	●	○
28	Kamehameha Highway, Widening, Lanikuhana Avenue to Ka Uka Boulevard	●	○	○
29	Kapolei Parkway, Extension, Kamokila Boulevard to Fort Barrette Road	●	●	○
30	Kapolei Parkway, Extension & Widening, Aliinui Drive to Kalaeloa Boulevard	●	●	○
31	Kualakai Parkway, Widening & Extension, Interstate Route H-1 to Franklin D Roosevelt Avenue	●	●	○
32	Interstate Route H-1, Widening, Vineyard Boulevard to Middle Street	●	○	○
33	Kalaeloa East-West Spine Road, New Roadway, Kalaeloa Boulevard to Geiger Road	●	●	○
34	Keoneula Boulevard, Extension, Kapolei Parkway to Franklin D. Roosevelt Avenue	●	●	○
35	Paiwa Street, Extension, Ka Uka Boulevard to Lumiauau Street	●	●	○
36	Pearl Harbor Corridor	●	○	○
37	East-West Road	●	●	○
38	Kamokila Blvd	●	●	○
39	Fort Barrette Road	●	●	○
40	Salt Lake Boulevard Widening Project	●	○	○
41	Makakilo Drive, Second Access, Makakilo Drive to Kualakai Parkway/Interstate Route H-1 Interchange	●	●	○
42	TheBus Service, Expansion, Islandwide (2011-2020)	●	n/a	●
43	Transit Centers, Various Locations (2011-2020)	●	●	●
44	City Operations and Maintenance (O&M): Transit (2011-2020)	●	n/a	●
45	City Operations and Maintenance (O&M): Roadways (2011-2020)	●	●	●
46	State Operations and Maintenance (2011-2020)	●	●	●
47	System Preservation (2011-2020)	●	●	●

Key: ● Generally Positive ○ Generally Neutral ○ Generally Negative
 n/a Measure does not apply

Land Use and Transportation Integration Overarching Goal: Develop, operate, and maintain 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.

Project No.	ORTP 2035 Potential Projects	Land Use Plans	Built Environment Effects	Compact, Mixed-Use Growth
48	Bike Plan Hawaii - Oahu (2021-2035)	●	◐	●
49	Oahu Bike Plan (2021 - 2035)	●	◐	●
50	Enhancement Projects (2021-2035)	◐	◐	◐
51	Intelligent Transportation Systems (ITS) (2021-2035)	n/a	◐	◐
52	Transportation Demand Management (TDM) Program (2021-2035)	●	n/a	●
53	Van Pool Program (2021-2035)	●	n/a	●
54	Human Services Transportation Coordination Program (2011-2020)	◐	n/a	n/a
55	Farrington Highway, Safety Improvements, from Makua Valley Road to Aliinui Drive	●	○	◐
56	Rockfall Protection, Various Locations	●	◐	n/a
57	Shoreline protection program	●	●	n/a
58	Highway Safety Improvement Program	●	◐	n/a
59	Farrington Highway, Widening, west of Fort Weaver Road to Waiawa Interchange	●	◐	○
60	Farrington Highway, Widening, Hakimo Road to Kalaeloa Boulevard	●	◐	○
61	Interstate Route H-1, On- & Off-Ramp Modifications, Various Locations	◐	○	○
62	Interstate Route H-1, On- & Off-Ramp Modifications, University Avenue Interchange	◐	○	○
63	Interstate Route H-1, HOV Lanes, Waiawa Interchange to Makakilo Interchange	◐	◐	○
64	Interstate Route H-1, Widening, Waiawa Interchange to Halawa Interchange	●	○	○
65	Interstate Route H-1, Widening, Ward Avenue to Punahou Street	●	○	○
66	Interstate Route H-2, New Interchange, Pineapple Road Overpass	●	○	○
67	Kahekili Highway, Widening, Kamehameha Highway to Haiku Road	◐	○	○
68	Kunia Road, Widening and Interchange Improvement, Wilikina Drive to Farrington Highway	●	○	○
69	Likelike Highway, Widening, Kamehameha Highway to Kahekili Highway	●	○	○
70	Makakilo Mauka Frontage Road, New Roadway, Kalaeloa Boulevard to Makakilo Drive	◐	●	○

Key: ● Generally Positive ◐ Generally Neutral ○ Generally Negative
n/a Measure does not apply

Land Use and Transportation Integration Overarching Goal: Develop, operate, and maintain 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.

Project No.	ORTP 2035 Potential Projects	Land Use Plans	Built Environment Effects	Compact, Mixed-Use Growth
71	Nimitz Highway, High Occupancy Vehicle (HOV) Flyover, Keehi Interchange to Pacific Street	●	○	○
72	Piikoi-Pensacola Couplet Reversal	◐	n/a	n/a
73	Puuloa Road, Widening, Pukoloa Road to Nimitz Highway	◐	○	○
74	Waianae, Second Access, from Farrington Highway to Kunia Road	●		○
75	Central Mauka Road, Second Access, from Mililani Mauka to Waiawa	●	◐	○
76	Wahiawa, Second Access, from Whitmore Avenue to Meheula Parkway	●	◐	○
77	Makapuu Tunnel	●	◐	○
78	TheBus Service, Expansion, Islandwide (2021-2035)	●	n/a	●
79	Fixed Guideway, West Kapolei to East Kapolei	●	○	●
80	Fixed Guideway, Ala Moana to Manoa/Waikiki	●	○	●
81	City Rail Rehabilitation and Fleet Expansion	●	◐	◐
82	Transit Centers, Various Locations (2021-2035)	●	◐	●
83	City Operations and Maintenance (O&M): Transit (2021-2035)	◐	n/a	●
84	City Operations and Maintenance (O&M): Roadways (2021-2035)	●	◐	◐
85	State Operations and Maintenance (2021-2035)	●	◐	◐
86	System Preservation (2021-2035)	●	◐	◐

Key: ● Generally Positive ◐ Generally Neutral ○ Generally Negative
n/a Measure does not apply

Performance Measures Report, Oahu Regional Transportation Plan 2035 Project, Deliverable 4.3.2. Parsons Brinckerhoff. May 2009

Goals and Objectives Report, Oahu Regional Transportation Plan 2035 Project, Deliverable 4.2.2. Parsons Brinckerhoff. June 2009