

# ORTP 2035 Preferred Alternative Report Oahu Regional Transportation Plan 2035 Project

Deliverable 10.1.2



August 2011  
Prepared for the  
Oahu Metropolitan Planning Organization

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

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## **Acronyms Used in this Document**

CMP	Congestion Management Process
CMS	Congestion Management System
DPP	City of Honolulu Department of Planning and Permitting
HOV	High occupancy vehicle
ITS	Intelligent transportation systems
LOS	Level-of-service
OahuMPO	Oahu Metropolitan Planning Organization
ORTP	Oahu Regional Transportation Plan
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SMP	Special Maintenance Program
SOV	Single-occupant vehicle
T6/EJ	Title VI/Environmental Justice
TAC	Technical Advisory Committee
TDM	Transportation Demand Management
UH	University of Hawaii

The purpose of this report is to document the overall process that was used to identify and select the projects and programs that are included in the final ORTP 2035 Preferred Alternative. The Preferred Alternative is the final recommended set of financially-constrained projects and programs that will be proposed for consideration by the OahuMPO Policy Committee.



This section summarizes the process that identified and assessed projects and programs to be considered for inclusion in the ORTP 2035, and describes how they were identified and defined.

## **2.1 Plan Development Process**

There were multiple steps undertaken and inputs considered in the development of the Preferred Alternative for the ORTP 2035, but ultimately, the Preferred Alternative was developed by focusing on the evaluation of an identified set of potential projects and programs in comparison to the 2035 Baseline Scenario.

The flow chart below in Figure 2-1 identifies the major steps undertaken in identifying and evaluating the proposed projects and programs for inclusion in the ORTP 2035. The subsequent sections of this chapter outline each of the six basic steps undertaken in developing the preferred plan to be presented to the OahuMPO Policy Committee for consideration as the ORTP 2035.

## **2.2 Identify Potential Regional Transportation Improvements**

Candidate projects and programs for the ORTP 2035 were developed by two primary means: 1) through an assessment of future-year conditions and an identification of improvements to meet expected transportation system deficiencies, and 2) through a review of projects identified in the ORTP 2030 as well as other previously-undertaken pertinent plans and studies, and an assessment as to whether these identified improvements were still applicable.

### **2.2.1 Identify Baseline Transportation Issues and Problems**

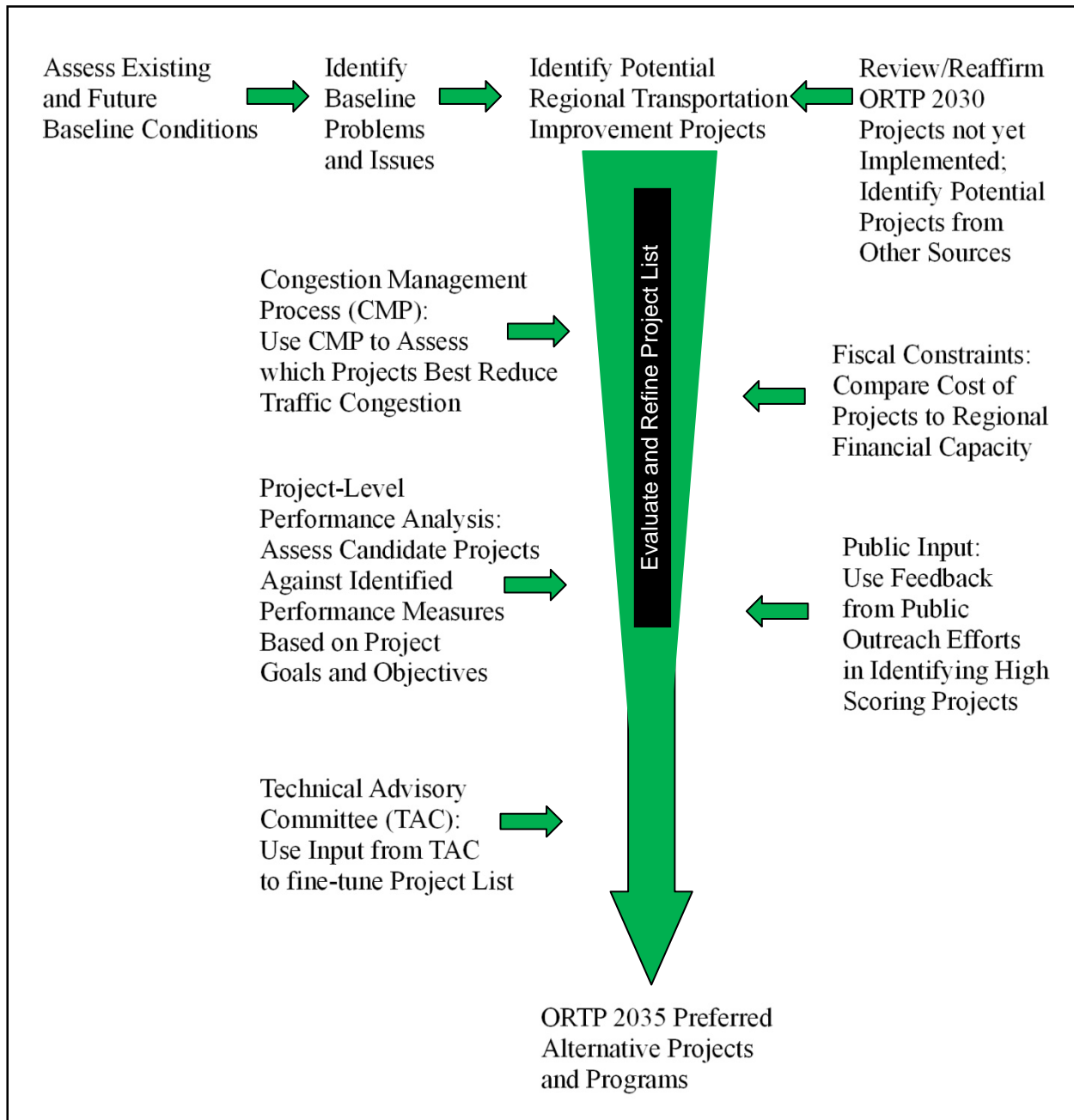
Potential problems and/or issues, particularly in the area of system deficiencies with respect to 2035 Baseline results, were documented in the *Baseline Problems and Issues Technical Memorandum* (January 2010). Addressing these problems and issues was a primary focus in the development and evaluation of ORTP 2035 improvement projects and programs.

The project team evaluated the ORTP 2030 Technical Reports as well as the ORTP 2035 work deliverables developed previously to help identify problems and issues.

Key findings included the following:

- The “reverse” commute in the Interstate Route H-1 corridor is likely to become much more pronounced due to the significant increase in employment projected for the Ewa-Kapolei areas. The effect may be exacerbated by the reduced capacity in the off-peak direction caused by the zipper lane operations.

**Figure 2-1: ORTP 2035 Potential Project and Program Identification and Evaluation**



- Interstate Route H-1 between the Middle Street merge and University Avenue will continue to be congested in both directions throughout many hours of the day due to heavy volumes coupled with high levels of weaving, merging and diverging movements.
- Interstate Route H-2 makai-bound in the AM peak period between Ka Uka Boulevard and the Waiawa merge, and H-1 Koko Head-bound between the Ewa



- and Kapolei area to the Waiawa merge will continue to be problem areas due to back-ups emanating from the Waiawa Interchange.
- Moanalua Freeway (H-201) between Puuloa Road and the Middle Street merge and Interstate Route H-1 between the Airport on-ramp and the Middle Street merge will continue to be problem areas due to heavy volumes and back-ups from the Middle Street merge.
  - Windward area residents using Interstate Route H-3 southbound in the AM peak to Interstate Route H-1 to commute to Ewa for work and returning on Interstate Route H-3 northbound from Interstate Route H-1 in the PM peak will add to the already congested Interstate Route H-1 corridor (LOS E in the AM peak period based on projected volume to capacity ratios). This is a result of the 40 percent more work trips that are projected from the Windward areas to the Leeward areas in 2035 as compared to today.
  - Farrington Highway in Waianae is consistently LOS E and F in 2007. These conditions are somewhat worse in the PM, and the roadway is susceptible to blockages by incidents at all times. Farrington Highway will likely get worse in 2035 with the projected 26 percent increase in number of households for this area.
  - Roadways connecting the growing industrial area of Kalaeloa/Barbers Point with Interstate Route H-1 are projected to operate at LOS E and F in 2035. This is of particular concern for freight movements to-and-from the area.
  - Regarding safety on state routes, the highest number of crashes (27 in three years) occurred at Likelike Highway (Route 63) and the junction with the northbound off-ramp to Kahekili highway (Route 83). Thirteen of the 35 high accident locations on state routes islandwide exist on Route 92, which includes sections of Nimitz Highway and Ala Moana Boulevard.
  - Anticipated future development pressures will increase the potential for impacting sensitive cultural and environmental areas on Oahu.
  - Mobility is projected to become worse for Title VI/Environmental Justice (T6/EJ) populations in 2035 Baseline conditions when compared with non-T6/EJ populations. The differential in average auto travel times to employment centers between T6/EJ and non-T6/EJ populations is projected to increase from 15-to-19 minutes, and the differential in average transit travel times is projected to increase from 21-to-26 minutes.
  - The development of new, or rehabilitation of existing, urban transportation infrastructure on Oahu will be done in light of new realities facing our planet. Increasing cost for fossil fuels, world-wide demands on resources needed for construction materials, and higher costs for land and labor pose many challenges for implementing agencies. Old ways of doing business may not be sufficient to meet the changing dynamics affecting project development or system maintenance on Oahu.

- The Second City (Kapolei) phenomenon is projected to materialize as indicated by the forecasted future socio-economic patterns (the number of households in 2035 is projected to increase by 121 percent over 2007 in the Ewa and Kapolei area, while the number of employees is projected to increase by 162 percent over 2007). The number of work trips for those who live and work in the Ewa and Kapolei area will increase by nearly 210 percent in 2035 over 2007. There will also be 85 percent more work trips to Ewa and Kapolei from the other areas of Oahu. Thus there is also potential for Kapolei residents to work elsewhere and Kapolei employees to live elsewhere, perhaps putting a greater burden on the Interstate Route H-1 corridor.
- Provision of the necessary transportation infrastructure to support the planned growth in the Ewa-Kapolei area is an issue. Many of the primary internal roadways are to be built by developers as their particular developments come on line. Due to differing timelines among developers/developments, there may be gaps in the transportation network for significant periods of time impacting the ability of the facilities to provide their necessary function.
- The Waiawa-Koa Ridge area, with a projected increase of nearly 35,000 people by 2035, has the largest percent increase in population on the island. Traffic on Interstate Route H-2 and Kamehameha Highway will be significantly impacted without other roadway additions to provide access to-and-from the area, as well as circulation between developments within the overall area.
- Some pedestrian access routes connecting to future fixed-guideway transit stations will require improvements (outside of the improvements to the immediate station areas which will be done as part of the proposed transit project). Growth in population and employment in areas beyond termini of fixed-guideway transit will encourage increased demand at termini stations. These include the Kapolei and Ala Moana terminals.
- With increased development and roadway congestion inhibiting bus transit, some areas will suffer a decrease in transit level-of-service. This includes both the Waianae and Central Oahu areas.
- Bus vehicle throughput in Downtown Honolulu (e.g., Hotel Street, King Street, and Beretania Street) as well as on Kona Street at Ala Moana Center is at capacity during the peak periods. Congestion on the streets serving bus routes makes it difficult for buses to maintain their headways.

### **2.2.2 Plans and Studies Considered**

Along with previous iterations of the ORTP and associated technical reports and studies, multiple State, regional, and local transportation plans and performance reports were reviewed and considered to identify potential projects and programs for consideration in the ORTP. These included the following:

- *2050 Sustainability Plan*: Identifies goals for Hawaii's sustainable long-range future, strategic actions to achieve the goals, indicators that measure

sustainability, intermediate steps for the year 2020, and public accountability for the State's progress.

- *Environmental Justice in the OahuMPO Planning Process Report*: Documented how OahuMPO evaluated the effectiveness of the planning process in meeting Title VI and Environmental Justice requirements, and discussed how OahuMPO implemented a process to analyze the distribution of benefits and disproportionate impacts of planned activities.
- *Ewa Roadway Connectivity Study (2009)*: The Honolulu Department of Planning and Permitting (DPP) commissioned this study to investigate ways to improve roadway connectivity throughout the Ewa plain. This study serves as the basic roadway, bikeway, and pedestrian facilities planning guide for future development in the Ewa region.
- *Ewa Highway Master Plan (2004)*: Analyzed the developing Ewa area and determined transportation infrastructure needs.
- *FFYs 2008-2011 and FY 2011-2014 Transportation Improvement Program (TIP), as revised*: Document short-term (i.e., four-year plus two illustrative years) funded transportation improvements for the island of Oahu.
- *Honolulu High-Capacity Transit Corridor Project Final Environmental Impact Statement/Section 4(f) Evaluation (2010)*: Final NEPA environmental process document for the island's proposed fixed-guideway system.
- *Oahu Development and Sustainable Communities Plans*: Oahu is divided into eight geographic regions, as delineated by the *City and County of Honolulu General Plan* (as amended, 2002). Each area has a Development or Sustainable Communities Plan that is administered by the Department of Planning and Permitting (DPP) after being adopted by City Council ordinance. The "Sustainable Communities Plans" more accurately describe their policy intent for the area, while the "Development Plans" support the intended future development of those areas. Together with the General Plan, the Development and Sustainable Communities Plans guide population and land use growth over time spans of 20 years or more.
- *Oahu Regional Intelligent Transportation Systems (ITS) Architecture (2003)*: Provides a framework to foster ITS integration and improve inter-agency communication with regard to the island's ITS infrastructure.
- *Strategic Highway Safety Plan 2007-2012*: Aims to reduce the number and severity of traffic-related injuries and deaths on Hawaii's roadways.

### **2.2.3 Initial Projects and Programs Considered**

Based on the transportation system needs and deficiencies determined through an analysis of the future baseline conditions, and the improvements identified in previous iterations of the ORTP as well as other pertinent plans and studies, an initial list of candidate projects and programs was developed along with associated conceptual cost estimates as shown in Table 2-1. Note that some of the estimated

costs for these initial candidate projects have been refined between the initial estimates and the estimates in the final ORTP 2035, due to project definition refinements.

**Table 2-1: Initial Candidate ORTP 2035 Projects and Programs**

Project No.	Facility/Project Title	Description	Estimated Cost (Millions of YOES)
<b>ISLANDWIDE PROJECTS - 2011 TO 2020</b>			
1	Alapai Transportation Management Center	Construct a transportation management center behind the Alapai Transit Center will combine transportation management with City, State, and emergency response agencies. The City's Emergency Operations Center will also be relocated to the joint traffic management center.	\$158.7
2	Bike Plan Hawaii, Oahu (2011-2020)	Implement Oahu elements of the State of Hawaii's Bike Plan Hawaii.	\$47.3
3	Oahu Bike Plan (2011 - 2020)	Implement City and County Bike Projects (Priority One)	\$18.6
4	Enhancement Projects (2011-2020)	Implement enhancement projects, including, but not limited to, projects from the Transportation Enhancement Program for Oahu.	\$8.7
5	Intelligent Transportation Systems (ITS) (2011-2020)	Implement ITS projects including, but not limited to, those identified in the Oahu Regional ITS Architecture.	\$56.9
6	Transportation Demand Management (TDM) Program (2011-2020)	Develop an aggressive 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).	\$33.9
7	Van Pool Program (2011-2020)	Continue implementation and expansion of the State's Vanpool Program.	\$29
8	Human Services Transportation Coordination Program (2011-2020)	Provide a range of transportation services targeted to disadvantaged populations under the Human Services Transportation Coordination Program. Specific projects include: 1. Human Services Agency-provided trips (TheHandi-Van), 2. Local shuttle service, 3. Mobility Management Center	\$14
<b>SAFETY &amp; OPERATIONAL IMPROVEMENT PROJECTS - 2011 TO 2020</b>			
9	Rockfall Protection, Various Locations	Install rockfall protection or mitigation measures along various state highways at various locations.	\$57.8

Project No.	Facility/Project Title	Description	Estimated Cost (Millions of YOES)
10	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.	\$47.6
11	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.	\$19.3
12	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.	\$17.0
13	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.	\$25.0
14	Shoreline Protection Program	Kamehameha Highway and other locations	\$26.6
<b>CONGESTION RELIEF PROJECTS - 2011 TO 2020</b>			
15	Farrington Highway, Widening, Golf Course Road to west of Fort Weaver Road	Widen Farrington Highway from twotofour lanes, from Golf Course Road to just west of Fort Weaver Road.	\$44.1
16	Fort Barrette Road, Widening, Farrington Highway to Barber's Point Gate.	Widen Fort Barrette Road from twotofour lanes, from Farrington Highway to Barber's Point Gate.	\$23.5

Project No.	Facility/Project Title	Description	Estimated Cost (Millions of YOES)
17	Hanua Street Extension, Farrington Highway to Malakole Street; Interstate Route H-1, New On- & Off-Ramps, Palailai Interchange	Hanua Street: <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> Interstate Route H-1, Palailai Interchange: <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>	\$120.0
18	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.	\$47.7
19	Interstate Route H-1, Operational Improvements, Lunalilo Street Off-Ramp and On-Ramp (Between Lunalilo Street on-ramp and Vineyard Boulevard off-ramp)	Improve operation and capacity on the westbound Interstate Route H-1 Freeway by modifying weaving movements between the Lunalilo Street on-ramp and Vineyard Boulevard off-ramp. Re-stripe freeway lanes from Punahou Street to modify the weaving movements on the Interstate Route H-1, in the westbound direction, between the Lunalilo Street on-ramp and the Vineyard Boulevard off-ramp.	\$6.0
20	Interstate Route H-1, Widening, Ola Lane to Vineyard Boulevard	Widen the Interstate Route H-1 by onelane, in the eastbound direction, from Ola Lane to Vineyard Boulevard, as identified below: <ul style="list-style-type: none"> <li>From twotothree lanes from Ola Lane/Middle Street to Likelike Highway off-ramp</li> <li>From threetofour lanes from Likelike Highway off-ramp to Vineyard Boulevard</li> </ul> This project also includes the widening of: <ul style="list-style-type: none"> <li>Gulick Avenue overpass to allow five lanes to pass under it</li> <li>Kalihi Interchange overcrossings to allow four lanes to pass under it.</li> </ul>	\$104.0
21	Interstate Route H-1, Widening, Waiiau Interchange to Waiawa Interchange	Widen Interstate Route H-1 in the westbound direction by one lane from the Waiiau Interchange to the Waiawa Interchange.	\$338.9
22	Interstate Route H-1, Widening, Waiawa Interchange	Widen the Interstate Route H-1 by 1 lane, in the westbound direction, through the Waiawa Interchange. This project will begin in the vicinity of the Waiawa Interchange and end at the Paiwa Interchange. <ul style="list-style-type: none"> <li>From twotothree lanes in AM peak</li> <li>From fourtofive lanes in PM peak</li> </ul>	\$16.2

Project No.	Facility/Project Title	Description	Estimated Cost (Millions of YOES)
23	Interstate Route H-1, Contra Flow Lane extension (PM), Waiawa Interchange to Kunia Interchange and Keehi Interchange to Radford Drive	This project would construct an extension of the PM contra-flow lane on the Interstate Route H-1, in the westbound direction, on the west end from Waiawa Interchange to Kunia Interchange and on the east end from the Keehi Interchange to Radford Drive. Project will include upgrade of the shoulder lane from the Waiawa Interchange to the Waikele off-ramp to assist in traffic dispersion from the Contraflow lane.	\$60.0
24	Interstate Route H-1, Widening, Waipahu Off-Ramp	Widen the Interstate Route H-1 Waipahu Street off-ramp from onetotwo lanes, in the westbound direction, at the Waiawa Interchange.	\$28.8
25	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
26	Interstate Route H-1, Operational Improvements and Widening, Ward Avenue On-Ramp to University Avenue Interchange	Improve traffic flow on the Interstate Route H-1, in the eastbound direction, from the Ward Avenue on-ramp to the University Avenue Interchange through operational improvements. Widen the existing Interstate Route H-1 by one lane in the eastbound direction from Ward Avenue to Punahou Street.	\$65.0
27	Interstate Routes H-1 & 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
28	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.	\$96.5
29	Kapolei Parkway, Extension, Kamokila Boulevard to Fort Barrette Road	Extend the existing six-lane Kapolei Parkway between Kamokila Boulevard and Fort Barrette Road.	\$101.3
30	Kapolei Parkway, Extension & Widening, Aliinui Drive to Kalaeloa Boulevard	Extend Kapolei Parkway (six lanes), from Aliinui Drive to Hanua Street. This project includes widening of Kapolei Parkway from fourtosix lanes from Hanua Street to Kalaeloa Boulevard.	\$69.4
31	Kualakai Parkway, Widening & Extension, Interstate Route H-1 to Franklin D Roosevelt Avenue	Widen and extend Kualakai Parkway as follows: <ul style="list-style-type: none"> <li>• From threetosix lanes from Kapolei Parkway to Interstate Route H-1</li> <li>• Extend from Kapolei Parkway to Franklin D Roosevelt Avenue (six lanes)</li> </ul>	\$25.3
32	Interstate Route H-1, Widening, Vineyard Boulevard to Middle Street	Widen the Interstate Route H-1 by one lane in the westbound direction, from Vineyard Boulevard to Middle Street.	\$117.0

Project No.	Facility/Project Title	Description	Estimated Cost (Millions of YOES)
33	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
34	Keoneula Boulevard, Extension, Kapolei Parkway to Franklin D. Roosevelt Avenue	Extend Keoneula Boulevard from Kapolei Parkway to Franklin D. Roosevelt Avenue.	\$209.5
35	Paiwa Street, Extension, Ka Uka Boulevard to Lumiauau Street	Extend Paiwa Street from north of Lumiauau Street, to the intersection of Kamehameha Highway and Ka Uka Boulevard.	\$37.0
36	Pearl Harbor Corridor	Construct an alternative route through the Pearl Harbor corridor to provide direct connection between Honolulu and the Ewa Plain. A new tunnel beneath the mouth of Pearl Harbor and a series of bridges spanning Pearl Harbor are potential options for this route. This project could operate as a toll facility.	\$7,000.0
37	East-West Road	Construct as four-lane roadway between Farrington Hwy and Ft. Weaver Rd	\$57.3
38	Kamokila Blvd	Extend as four-lane roadway between Roosevelt and Saratoga	\$30.2
39	Fort Barrette Road	Extend as four-lane roadway between Roosevelt and Saratoga	\$10.7
40	Salt Lake Boulevard Widening Project	Widen Salt Lake Boulevard from twotosix lanes, between Maluna Street and Ala Liliko Street.	\$66.0
<b>SECOND ACCESS PROJECTS - 2011 TO 2020</b>			
41	Makakilo Drive, Second Access, Makakilo Drive to Kualakai 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 Kualakai Parkway.	\$78.5
<b>TRANSIT PROJECTS - 2011 TO 2020</b>			
42	TheBus Service, Expansion, Islandwide (2011-2020)	Expand the bus service through increase of capacity of the existing system to accommodate population growth. Expanded service will be ADA-compliant. This includes: <ul style="list-style-type: none"> <li>• Expansion of Services to and within Ewa, Kapolei, Central, and Windward Oahu</li> <li>• Expansion through increase of Express service to the North Shore, Waianae, and Windward Oahu</li> <li>• Restructure of service in urban Honolulu</li> </ul>	\$456.0
43	Transit Centers, Various Locations (2011-2020)	Construct transit centers at various locations islandwide to support transit operations	\$45.6



Project No.	Facility/Project Title	Description	Estimated Cost (Millions of YOES)
<b>OPERATIONS, MAINTENANCE &amp; SYSTEM PRESERVATION - 2011 TO 2021</b>			
44	City Operations and Maintenance (O&M): Transit (2011-2020)	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 (including bus, paratransit, and rail), replacement of existing fleet, plan, design and construct a third bus operating facility, etc.	\$2,618.0
45	City Operations and Maintenance (O&M): Roadways (2011-2020)	Maintain and operate the City's existing and future roadway. Includes, but is not limited to, resurfacing, guardrail and shoulder improvements, lighting improvements, drainage improvements, signal and sign upgrades and replacement, etc.	\$337.5
46	State Operations and Maintenance (2011-2020)	Maintain and operate the State's existing and future highway operations and routine maintenance. Special Maintenance Program (SMP) Projects include, but is not limited to, pavement repair, preventative maintenance, resurfacing and rehabilitation, etc.	\$1,011.0
47	System Preservation (2011-2020)	Preserve the highway system through projects including, but not limited to, bridge replacement and seismic retrofit, guardrail and shoulder improvements, lighting improvements, drainage improvements, sign upgrades and replacement, traffic signal upgrade and retrofit, etc.	\$400.0
<b>COST SUBTOTALS: MID-RANGE PLAN (2011 TO 2020)</b>			
Islandwide Projects			\$367.2
Safety & Operational Improvement Projects			\$193.3
Congestion Relief Projects			\$9,088.2
Second Access Projects			\$78.5
Transit Projects			\$501.6
Operations, Maintenance, & System Preservation			\$4,366.5
<b>All Categories</b>			<b>\$14,595.4</b>
<b>ISLANDWIDE PROJECTS - 2021 TO 2035</b>			
48	Bike Plan Hawaii - Oahu (2021-2035)	Implement Oahu elements of the State of Hawaii's <i>Bike Plan Hawaii</i> .	\$176.7
49	Oahu Bike Plan (2021 - 2035)	Implement City and County Bike Projects (Priorities Two and Three)	\$81.7
50	Enhancement Projects (2021-2035)	Implement enhancement projects, including, but not limited to, projects from the Transportation Enhancement Program for Oahu.	\$75.0
51	Intelligent Transportation Systems (ITS) (2021-2035)	Implement ITS projects including, but not limited to, those identified in the <i>Oahu Regional ITS Architecture</i> .	\$225.0

Project No.	Facility/Project Title	Description	Estimated Cost (Millions of YOES)
52	Transportation Demand Management (TDM) Program (2021-2035)	Develop an aggressive 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).	\$136.9
53	Van Pool Program (2021-2035)	Continue implementation and expansion of the State's Vanpool Program.	\$88.1
54	Human Services Transportation Coordination Program (2021-2035)	Provide a range of transportation services targeted to disadvantaged populations under the Human Services Transportation Coordination Program. Specific projects include: 1. Human Services Agency-provided trips (TheHandi-Van), 2. Local shuttle service, 3. Mobility Management Center	\$33.2
<b>SAFETY &amp; OPERATIONAL IMPROVEMENT PROJECTS - 2021 TO 2035</b>			
55	Farrington Highway, Safety Improvements, Makua Valley Road to Aliinui Drive	Construct safety improvements on Farrington Highway along the Waianae Coast, from Makua Valley Road (Kaena Point) to Aliinui Drive (Kahe Point). This project includes realignment around Makaha Beach Park, between Makau Street and Water Street.	\$209.0
56	Rockfall Protection, Various Locations	Install rockfall protection or mitigation measures along various state highways at various locations.	\$96.2
57	Shoreline protection program	Implement shoreline protection programs at various locations.	\$44.3
58	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.	\$37.0
<b>CONGESTION RELIEF PROJECTS - 2021 TO 2035</b>			
59	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
60	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

Project No.	Facility/Project Title	Description	Estimated Cost (Millions of YOES)
61	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 from Middle Street to University Avenue. This project includes modification of auxiliary lanes at various exits and other operational changes to Interstate Route H-1. The identification of the precise improvements to be made will require a separate detailed corridor study.	\$108.0
62	Interstate Route H-1, On- & Off-Ramp Modifications, University Avenue Interchange	Modify on- and off-ramps at the University Avenue Interchange on Interstate Route H-1. This project includes the construction of new ramps to allow all movements, as well as safety improvements including the closure of the eastbound on-ramp at University Avenue Interchange to Interstate Route H-1 and the construction of a new makai bound off-ramp to University Avenue from Interstate Route H-1.	\$42.0
63	Interstate Route H-1, HOV Lanes, Waiawa Interchange to Makakilo Interchange	Construct two new lanes in the freeway median for HOV use, one in the westbound direction and one in the eastbound direction, on Interstate Route H-1, from the Waiawa Interchange to the Makakilo Interchange.	\$102.4
64	Interstate Route H-1, Widening, Waiawa Interchange to Halawa Interchange	Widen the Interstate Route H-1 by one lane in the eastbound direction, from the Waiawa Interchange to the Halawa Interchange.	\$540.3
65	Interstate Route H-1, Widening, Ward Avenue to Punahou Street	Widen the existing Interstate Route H-1 by one lane in the eastbound direction, from Ward Avenue to Punahou Street.	\$48.6
66	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 twotofour lanes; and addition of new on- and off-ramps to-and-from Interstate Route H-2 at Pineapple Road Overpass.	\$102.5
67	Kahekili Highway, Widening, Kamehameha Highway to Haiku Road	Widen Kahekili Highway from twotofour lanes, from Kamehameha Highway to Haiku Road. This project also includes the following improvements: <ul style="list-style-type: none"> <li>• Contraflow in existing right-of-way between Hui Iwa Street and Haiku Road</li> <li>• Intersection improvements at Hui Iwa Street and Kamehameha Highway</li> </ul>	\$75.0

Project No.	Facility/Project Title	Description	Estimated Cost (Millions of YOES)
68	Kunia Road, Widening and Interchange Improvement, Wilikina Drive to Farrington Highway	Widen Kunia Road as follows: <ul style="list-style-type: none"> <li>• From twotofour lanes, from Wilikina Drive to Anonui Street.</li> <li>• From twotofour lanes, Anonui Street to Kupuna Loop.</li> <li>• From fourtosix 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
69	Likelike Highway, Widening, Kamehameha Highway to Kahekili Highway	Widen Likelike Highway from fourtosix lanes, from Kamehameha Highway to Kahekili Highway.	\$32.9
70	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
71	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
72	Piikoi-Pensacola Couplet Reversal	Reverse the direction of the existing one-way Piikoi Street and Pensacola Street couplet.	\$10.4
73	Puuloa Road, Widening, Pukuloa Road to Nimitz Highway	Widen Puuloa Road, from Pukuloa Road to Nimitz Highway: <ul style="list-style-type: none"> <li>• From three lanes (one lane southbound and twolanes northbound) to fivelanes (two lanes southbound and three lanes northbound), from Pukuloa Road to Kamehameha Highway.</li> </ul>	\$24.6
<b>SECOND ACCESS PROJECTS - 2021 TO 2035</b>			
74	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.	\$1,269.0
75	Central Mauka Road, Second Access, Mililani Mauka to Waiawa	Construct Central Mauka Road, a new, four-lane road from Mililani Mauka to Waiawa. Road connects Meheula Parkway to Kamehameha Highway in Pearl City; parallel to and mauka of Interstate Route H-2. The new, four-lane, north-south road includes connections to Interstate Route H-2 interchanges.	\$394.4
76	Wahiawa, Second Access, Whitmore Avenue to Meheula Parkway	Construct a new, two-lane second access road between Whitmore Village and Wahiawa, from Whitmore Avenue to California Avenue. Continue the new, two-lane second access road to Mililani Mauka, from California Avenue to Meheula Parkway.	\$158.7

Project No.	Facility/Project Title	Description	Estimated Cost (Millions of YOES)
77	Makapuu Tunnel	Secondary access road (tunnel) to provide connection between Hawaii Kai and Waimanalo areas from the vicinity of Lunalilo Home Road to the vicinity of Kalaniana'ole Highway north of Sea Life Park; lane configuration to be determined.	\$600.0
<b>TRANSIT PROJECTS - 2021 TO 2035</b>			
78	TheBus Service, Expansion, Islandwide (2021-2035)	Expand the bus service through increase of capacity of the existing system to accommodate population growth. Expanded service will be ADA-compliant. This includes: <ul style="list-style-type: none"> <li>• Expansion of services to and within Ewa, Kapolei, Central, and Windward Oahu</li> <li>• Expansion through increase of express service to the North Shore, Waianae, and Windward Oahu</li> <li>• Restructure of service in urban Honolulu</li> </ul>	\$848.0
79	Fixed Guideway, West Kapolei to East Kapolei	Plan, design, and construct a fixed guideway system between West Kapolei to East Kapolei	\$2,031.6
80	Fixed Guideway, Ala Moana to Manoa/Waikiki	Plan, design, and construct a fixed guideway system between Ala Moana and Manoa/Waikiki	\$1,828.4
81	City Rail Rehabilitation and Fleet Expansion	Provide for rehabilitation of track and expansion of rail fleet.	\$203.0
82	Transit Centers, Various Locations (2021-2035)	Construct transit centers at various locations islandwide to support transit operations.	\$19.0
<b>OPERATIONS, MAINTENANCE &amp; SYSTEM PRESERVATION - 2021 TO 2035</b>			
83	City Operations and Maintenance (O&M): Transit (2021-2035)	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 (including bus, paratransit, rail, and ferry), replacement of existing fleet, plan, design and construct a third bus operating facility, etc.	\$6,957.0
84	City Operations and Maintenance (O&M): Roadways (2021-2035)	Maintain and operate the City's existing and future roadway. Includes, but is not limited to, resurfacing, guardrail and shoulder improvements, lighting improvements, drainage improvements, signal and sign upgrades and replacement, etc.	\$749.3
85	State Operations and Maintenance (2021-2035)	Maintain and operate the State's existing and future highway operations and routine maintenance. Special Maintenance Program (SMP) Projects include, but is not limited to, pavement repair, preventative maintenance, resurfacing and rehabilitation, etc.	\$1,257.0
86	System Preservation (2021-2035)	Preserve the highway system through projects including, but not limited to, bridge replacement and seismic retrofit, guardrail and shoulder improvements, lighting improvements, drainage improvements, sign upgrades and replacement, traffic signal upgrade and retrofit, etc.	\$924.3

Project No.	Facility/Project Title	Description	Estimated Cost (Millions of YOES)
<b>COST SUBTOTALS: LONG-RANGE PLAN (2021 TO 2035)</b>			
		Islandwide Projects	\$816.6
		Safety & Operational Improvement Projects	\$386.5
		Congestion Relief Projects	\$2,355.2
		Second Access Projects	\$2,422.1
		Transit Projects	\$4,930.0
		Operations, Maintenance, & System Preservation	\$9,887.6
		<b>All Categories</b>	<b>\$20,798.0</b>
<b>COST SUBTOTALS: 2010 TO 2035</b>			
		Islandwide Projects	\$1,183.8
		Safety & Operational Improvement Projects	\$579.8
		Congestion Relief Projects	\$11,443.4
		Second Access Projects	\$2,500.6
		Transit Projects	\$5,431.6
		Operations, Maintenance, & System Preservation	\$14,254.1
		<b>All Categories</b>	<b>\$35,393.4</b>

## 2.3 Congestion Management Process

The purpose of the Congestion Management Process (CMP) for the OahuMPO was to identify congested surface transportation facilities, evaluate projects proposed to mitigate congestion, and prioritize these projects using quantifiable performance measures to assist decision-makers in selecting projects for the ORTP 2035 and Transportation Improvement Program (TIP)

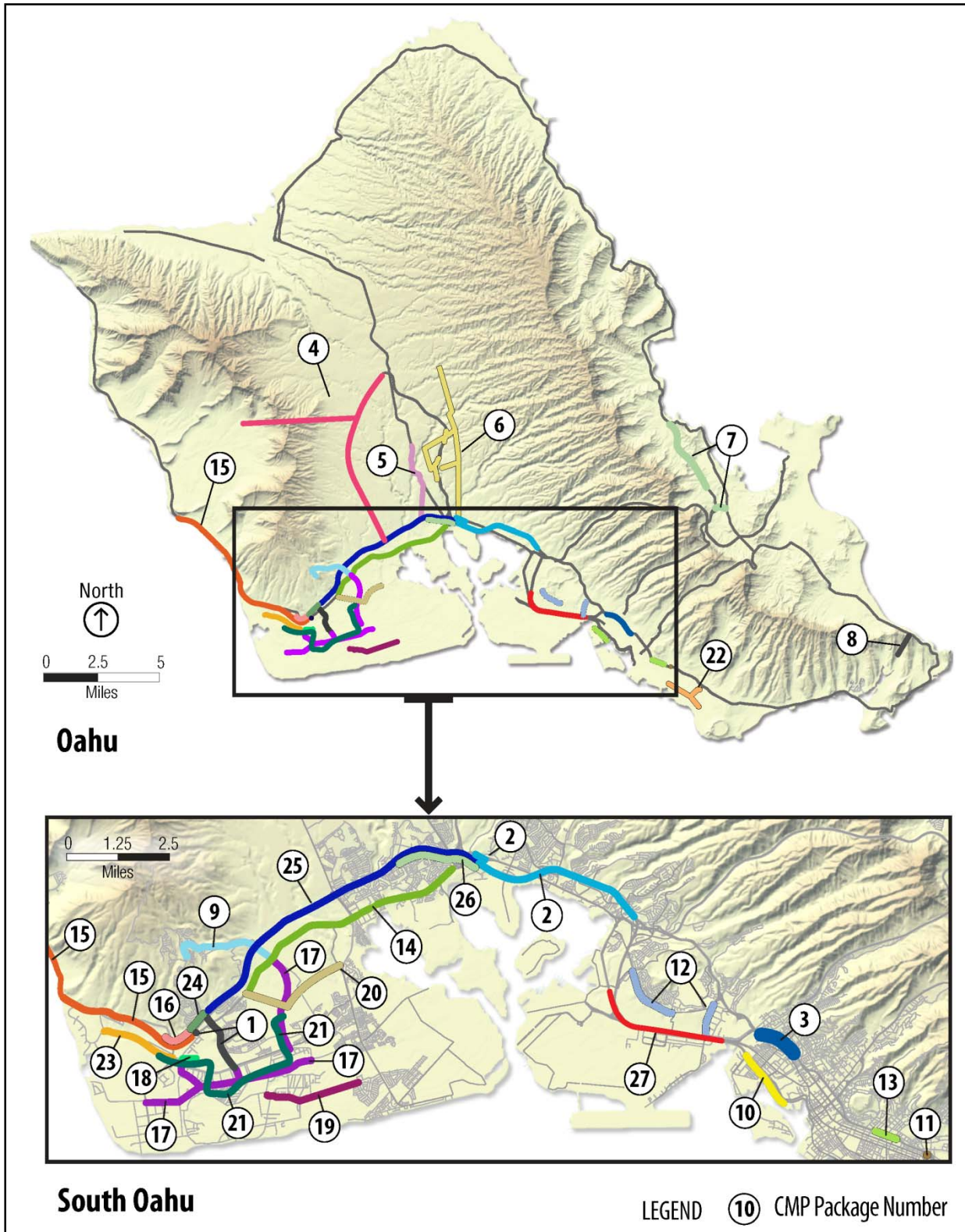
This analysis, which helps the OahuMPO meet federal Congestion Management Process reporting requirements as stated in SAFETEA-LU, built upon the Congestion Management System (CMS) process and procedures adopted by the OahuMPO and found in the OahuMPO's *CMS Performance Monitoring and Evaluation Plan* (December 2005). Consistent with that process, the CMP covered the whole island, including all segments and corridors that experience congestion. All freeways, expressways, arterials, and collectors as defined by the regional functional classification system were evaluated and reflected in facilities contained within the OahuMPO travel demand model.

Twenty-seven CMP project packages were analyzed, using the OahuMPO travel demand model to generate scores for each package. For the CMP analysis, project packages (one or more individual road capacity projects) were defined to be run through the OahuMPO travel demand model. Project packages were developed to explore in more detail whether there were synergies among logical groupings of projects that were in close proximity to each other. Table 2-2 lists the 27 CMP project packages shown in Figure 2-2.

**Table 2-2: CMP Highway Project Packages**

CMP Package No.	ORTP Projects
1	Fort Barrette Road Widening Kapolei Interchange Complex Phase I
2	Interstate Route H-1 Eastbound Waiawa to Halawa Widening Interstate Route H-1 Westbound Waiawa to Waiawa Interchange Widening Interstate Route H-1 Westbound Waipahu Street Off-Ramp Widening
3	Interstate Route H-1 Middle Street to Vineyard Widening Interstate Route H-1 Westbound Vineyard to Middle Street Widening
4	Kunia Road Widening Near Interstate Route H-1 and from Royal Kunia to Wahiawa Waianae Second Access Road
5	Kamehameha Highway Lanikuhana to Ka Uka Boulevard Widening Paiwa Street Extension
6	Central Mauka Road, Mililani/Waiawa Area Central Mauka Road, Wahiawa Area Interstate Route H-2 Pineapple Road Interchange Interstate Route H-2 Waipio Interchange Widening
7	Kahekili Widening Likelike Highway Widening
8	Makapuu Tunnel
9	Makakilo Drive Extension
10	Nimitz Flyover
11	Interstate Route H-1 University Interchange Improvements
12	Puuloa Road Widening Salt Lake Boulevard Widening
13	Interstate Route H-1 Eastbound Ward Avenue to Punahou Street Widening
14	Farrington Highway Ewa Area Widening Farrington Highway Waipahu Area Widening
15	Farrington Highway Waianae Area Widening
16	Extend Hanua Street, Malakole Street to Farrington Highway and Construct New On- and Off-Ramps for Interstate Route H-1 from Palailai Interchange to Hanua Street Extension
17	Fort Barrette Road Extension Kalaeloa East-West Spine Road Kamokila Boulevard Extension Kualakai Parkway Widening
18	Kapolei Parkway Extension, Kamokila Boulevard to Fort Barrette Road
19	Keoneula Boulevard Extension
20	Extend East-West Road, Farrington Highway to Old Fort Weaver Road
21	Fixed Guideway West Kapolei to East Kapolei Extension
22	Fixed Guideway Ala Moana Center to UH Manoa and Waikiki Extension
23	Kapolei Parkway Extension, Aliinui Drive to Kalaeloa Boulevard
24	Makakilo Frontage Road
25	Interstate Route H-1 Median HOV between Waiawa and Makakilo Interchange Interstate Route H-1 Westbound Waiawa to Paiwa Widening
26	PM Zipper Lane Extension, Waiawa Interchange to Kunia Interchange
27	PM Zipper Lane Extension, Keehi Interchange to Radford Drive

**Figure 2-2: ORTP 2035 CMP Project Packages**





The CMP was used to help identify which projects performed best in reducing traffic congestion, and therefore emphasized congestion mitigation projects, which were generally highway-oriented.

Table 2-3 shows the project rankings and corresponding descriptions for each of the 40 highway-related projects. Three projects tied for the top ranking: Kamehameha Highway widening between Lanikuhana Avenue and Ka Uka Boulevard, the extension of Kapolei Parkway between Kamokila Boulevard and Fort Barrette Road, and the extension of Kapolei Parkway between Aliinui Drive and Kalaeloa Boulevard. These three projects ranked the highest generally because when compared to the Baseline, they showed a significant improvement in congestion mitigation as measured by a reduction in their volume-to-capacity ratio, while carrying more traffic.

**Table 2-3: CMP Highway Project Package Rankings and Descriptions**

CMP Package No.	ORTP Highway Project Description	2010 CMP Ranking
18	Extend the existing six-lane Kapolei Parkway between Kamokila Boulevard and Fort Barrette Road.	1
23	Extend Kapolei Parkway from Aliinui Drive to Kalaeloa Boulevard.	1
5	Widen Kamehameha Highway from a three-lane to a four-lane divided facility between Lanikuhana Avenue and Ka Uka Boulevard.	1
6	Construct Central Mauka Road, a new four-lane road from Mililani Mauka to Waiawa.	4
2	Widen the Interstate Route H-1 by one lane in the eastbound direction, from the Waiawa Interchange to the Halawa Interchange.	5
4	Widen Kunia Road from Wilikina Drive to Farrington Highway.	5
7	Widen Kahekili Highway from twotofour lanes, from Kamehameha Highway to Haiku Road.	5
25	Construct two new lanes in the freeway median for HOV use, one in the westbound direction and one in the eastbound direction, on Interstate Route H-1, from the Waiawa Interchange to the Makakilo Interchange.	5
3	Widen H-1 by one lane from Ola Lane to Vineyard Blvd.	5
4	Construct a Waianae Second Access Road from Lualualei Homestead Road to Kunia Road	10
6	Construct a new full-service freeway interchange on Interstate Route H-2, between Meheula Parkway and Ka Uka Boulevard.	10
17	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.	10
15	Widen Farrington Highway from fourtosix lanes, from Hakimo Road to Kalaeloa Boulevard, including intersection of Lualualei Naval Road.	10
14	Widen Farrington Highway from twotofour lanes, from Golf Course Road to just west of Fort Weaver Road.	14
6	Widen both on- and off-ramps on Interstate Route H-2, at the Waipio Interchange.	14
7	Widen Likelike Highway from Kamehameha Highway to Kahekili Highway.	14
14	Widen Farrington Highway from Kunia to Waiawa by one lane in each direction, from west of Fort Weaver Road to Waiawa Interchange.	14

CMP Package No.	ORTP Highway Project Description	2010 CMP Ranking
1	Construct new Interstate Route H-1 Kapolei Interchange for Kapolei between the Palailai Interchange and Makakilo Interchange.	14
12	Widen Salt Lake Boulevard from twotosix lanes, between Maluna Street and Ala Liliko'i Street.	14
12	Widen Puuloa Road, from Pukuloa Road to Nimitz Highway.	14
16	Extend Hanua Street from Malakole Street to Farrington Highway. Construct new on- and off-ramps at Interstate Route H-1 Palailai Interchange to Hanua Street extension.	21
17	Widen and extend Kualakai Parkway as follows: • From threetosix lanes from Kapolei Parkway to Interstate Route H-1 • Extend from Kapolei Parkway to Franklin D Roosevelt Avenue (six lanes).	21
6	Construct a new two-lane second access road between Whitmore Village and Wahiawa, from Whitmore Avenue to California Avenue. Continue the new two-lane second access road to Mililani Mauka, from California Avenue to Meheula Parkway.	21
17	Extend Kamokila Boulevard as a four-lane roadway between Roosevelt and Saratoga.	21
17	Extend Fort Barrette Road as a four-lane roadway between Roosevelt and Saratoga.	21
5	Extend Paiwa Street from north of Lumiauau Street, to the intersection of Kamehameha Highway and Ka Uka Boulevard.	21
25	Widen the Interstate Route H-1 by one lane, in the westbound direction, through the Waiawa Interchange. This project will begin in the vicinity of the Waiawa Interchange and end at the Paiwa Interchange.	21
9	Extend Makakilo Drive (vicinity of Pueonani Street) south to the Interstate Route H-1 Freeway Interchange as a four-lane roadway, connecting Makakilo Drive to Kualakai Parkway.	21
1	Widen Fort Barrette Road from twotofour lanes, from Farrington Highway to Barbers Point Gate.	21
13	H-1 widening from Ward Avenue to Punahou Street.	21
20	Widen East-West Road from two to four lanes, from Farrington Highway to Old Fort Weaver Road.	21
2	Widen Interstate Route H-1 in the westbound direction by one lane from the Waiau Interchange to the Waiawa Interchange.	32
2	Widen the Interstate Route H-1 Waipahu Street off-ramp from one-to-two lanes, in the westbound direction, at the Waiawa Interchange.	32
10	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.	32
3	Widen H-1 by one lane from Vineyard Boulevard to Middle Street.	32
8	Construct a secondary access road (tunnel) from the vicinity of Lunalilo Home Road to the vicinity of Kalaniana'ole Highway north of Sea Life Park.	36
24	Construct a new two-lane Makakilo Mauka Frontage Road, mauka of Interstate Route H-1, from Kalaeloa Boulevard to Makakilo Drive.	36
19	Extend Keoneula Boulevard from Kapolei Parkway to Franklin D. Roosevelt Avenue.	38
26	Extend PM contra flow lane westbound from Waiawa Interchange to Kunia Interchange.	38

CMP Package No.	ORTP Highway Project Description	2010 CMP Ranking
11	Modify H-1 on-and-off ramps at University Interchange.	38
27	Extend PM contra flow lane westbound from Keehi Interchange to Radford Drive.	41

## 2.4 Consideration of Financial Capacity

The projects and programs ultimately selected to be included in the Preferred Alternative must not exceed financial funding accounts. The ceilings on the funding accounts were used to help cap the number of projects selected for the ORTP 2035.

The following revenue estimates for the ORTP 2035 were based on data received from Federal, State of Hawaii, and City and County of Honolulu transportation officials. Table 2-4 provides summary revenue projections for ORTP 2035 revenues from traditional Federal, State, and City and County tax-based revenue sources. In addition to these sources, potential revenues from transit farebox recovery and from anticipated developer funding of selected improvement projects are also considered herein. It is estimated that approximately \$26.1 billion in revenues will be available for ORTP 2035 projects and programs.

**Table 2-4: ORTP 2035 Revenue Summary for FYs 2011-2035**

Revenue Source	Estimated Revenue*
Federal Highway Administration	\$3,000
Federal Transit Administration	\$3,200
State capital funding	\$700
State operating and maintenance	\$1,200
City and County capital funding	\$4,900
City and County operating and maintenance	\$8,800
Transit passenger fares	\$3,000
Developer funding	\$1,300
<b>Total</b>	<b>\$26,100</b>

\*(Millions of YOY \$)

## 2.5 Project-Level Performance Analysis

The purpose of the project-level performance analysis was to evaluate the effectiveness of each of the initially proposed projects at achieving the five overarching project goals and 25 associated objectives based on the adopted project performance measures. The proposed projects and programs were ranked as being either generally positive, neutral, or generally negative with respect to the goals.

The results of the analysis showed that 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 ranked negative. This was 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 did not take into account mitigation measures that would 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:

Project 36: Pearl Harbor Corridor

Project 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.

## **2.6 Feedback from Public Outreach Activities**

OahuMPO staff also used feedback from public outreach activities to help identify high scoring projects. Key public outreach activities and their results are outlined below.

### **2.6.1 Stakeholder Interviews**

Overall the key priority regarding transportation identified by stakeholders and the uniformed first responders such as police, firefighters, and paramedics was congestion mitigation. Uniformed first responders specifically mentioned their ability to navigate through congested corridors is aggravated by the conversion of roadway shoulders to travel lanes. Road maintenance and safety/security were also ranked very high by 50 percent or more of stakeholders. A review of the stakeholder comments indicate that “safety” concerns are typically considered to be related to accidents, bike and pedestrian issues, and evacuation in an emergency. Several comments also mentioned mass transit as a means of alleviating congestion.

The T6/EJ service providers maintain that improving mass transit is the key priority for their clients. These improvements include extended hours of operation, more frequent service, better bus stops, and express service.

The emergency response managers spoke from a system wide perspective and said disaster infrastructure, such as alternative evacuation routes, is the key priority.

Stakeholders interviewed noted that the highest priority transportation corridor is the “Ewa to Downtown” corridor. Both the emergency response managers and

responders also specified access to-and-from the Waianae Coast as a priority issue, as there is only one route for these communities in case of an evacuation or disaster crisis.

When assessing new transportation projects “Widen Middle Street Merge/H-1” was the highest recommendation by both the stakeholders and uniformed first responders. The T6/EJ providers agreed that providing alternate routes to isolated communities were the highest priority; the emergency response managers specifically listed providing the Waianae Coast with a secondary access route. The T6/EJ service providers also mentioned improving pedestrian facilities.

When it comes to alleviating congestion Downtown, many ideas were brought up to manage traffic flow more efficiently. These included traffic signal synchronization, telecommuting, providing real-time traffic information (e.g., variable message signage), contra-flow lanes, and encouraging alternative transportation mode choices, such as bus, carpool or bike. Stakeholders would not support the removal of on-street parking as a way of alleviating congestion.

None of the eleven proposals to fund transportation were supported by the stakeholders interviewed, what is described here are the “least unpopular” alternatives. The least objectionable funding sources identified were charging developer fees to fund needed transportation improvements and imposing a commercial vehicle tax. Tolling was mentioned by some emergency response managers, but the comments seemed to indicate they were speaking personally, and not from their agency viewpoint. T6/EJ service providers did not address funding alternatives directly, but recommended that the OahuMPO focus on a few key initiatives. Again, they recommended improving transit and pedestrian facilities to relieve traffic congestion, rather than spreading limited funds across too many projects to have an impact.

## **2.6.2 Focus Groups**

Five focus groups were held, two with T6/EJ residents, two with young adults resident (ages 18 to 34) and one with senior residents (65 years and older). All focus group participants were asked to respond as community members.

The purpose of these activities was to gain reactions from Oahu residents to proposed road improvement projects, secondary access projects, safety improvements and TDM strategies, and to determine residents’ top priority for each category. The results were used in the development of the ORTP 2035, particularly for identification of potential projects and programs that will enhance transportation system performance for future generations.

The focus groups were designed to explore the perceptions of key population groups on the importance of certain transportation projects and programs as well as to identify important criteria in their prioritization of road capacity projects.

In general, queried residents favored projects viewed as benefiting the greatest number of people as reflected in the high priorities placed on urban Honolulu projects.

Respondents rated the Interstate H-1 Freeway widening project, Ward Avenue to Punahou Street, as the highest priority given the choices presented to them. Under the category of secondary access projects, a second access road serving the Waianae area was the most important among the respondents. The most favored road improvement project for the Kapolei area was the Farrington Highway widening project, as it was seen as an alternative route to the highly congested H-1 corridor.

The two leading safety improvement strategies among the residents were safeguarding pedestrians and bicyclists and designing safer roadways. Traffic disruption during project construction was raised as a major concern among focus group respondents.

Lastly, respondents expressed concern about project costs and economic feasibility. Senior residents were concerned about additional tax increases for road projects in light of the recent increase in taxes to support the high-capacity transit (rail) project. Younger residents felt that public funds might be best spent on less costly fixes and adjustments, rather than on higher-cost capital projects.

Overall, stakeholder interviewees and the focus group participants showed a high degree of interest in and familiarity with transportation issues. There appears to be general agreement that “congestion mitigation” is the number one transportation issue on Oahu. Clearly, improvements in the H-1 corridor are recognized as needed by a wide cross section of respondents. However, the proposed remedy for general congestion mitigation seems to be split between advocates for mass transit or road widening and building alternative access.

### **2.6.3 Telephone and Web-based Surveys**

Two telephone surveys were conducted, and their results are summarized below.

Oahu residents’ priorities clearly reflect usage of the H-1 freeway as the primary east-west transportation corridor linking Oahu’s key residential and job centers. Residents’ top priority in transportation projects – *improving the H-1 corridor between Leeward and Downtown* – was supported by 56 percent. The *Waianae Second Access Road* emerged as a second priority due to strong support in West Oahu, which includes Waianae.

Similarly, the top priority in transportation corridors is the *Leeward to Downtown corridor*, representing the main commuting route between the most populous residential zone, Leeward Oahu and the key job center, Urban Honolulu. Residents chose the Leeward-Downtown corridor by a 3-to-1 margin over the next highest priority, the Central Oahu-to-Downtown corridor.

Easing traffic congestion is generally seen as the top transportation challenge. When asked to rate the importance of six transportation challenges facing Oahu, 55 percent of residents gave top ratings to “*traffic congestion on existing roadways*,”

followed by “*unsafe driver behavior*,” rated highly by 47 percent of residents. Other challenges mentioned include the lack of alternative routes, the high cost of parking, and dangerous roadways – but these challenges ranked well behind congestion.

Easing traffic congestion is particularly important to residents in West Oahu and Windward Oahu, where residents have long commutes to the urban area. The second highest-rated issue, “*unsafe or inappropriate driver behavior*,” ranked highest only in Central Oahu.

While traffic congestion is a key issue in transportation, road maintenance emerged as the most effective transportation solution for residents. Of six solutions rated for perceived effectiveness, “*better maintenance of existing roads*” garnered high ratings from 57 percent, far more than any other solution tested. The next highest ranked solution, which was well under 50 percent of residents, was “*improving pedestrian facilities*,” followed by “*widening or extending existing roads...*” and “*Improvements to... TheBus system*.”

As a solution, “*better road maintenance*” topped the list in all Oahu regions but especially so in West Oahu, Central Oahu, and Downtown Honolulu. This is consistent with the fact that most residents use their vehicles for daily commuting, with 80 percent of Oahu workers and students driving themselves to work or school versus only nine percent taking TheBus.

Data on satisfaction reinforce the finding that road maintenance is an immediate concern. Asked to rate their satisfaction with the road system, residents indicated low satisfaction, overall, with over half rating in the bottom half of a 10-point scale. In none of the individual areas were the roads rated higher than 5.7 of 10, on average (6.0 or below is considered low by Hawaii standards).

When asked why they gave low ratings, 87 percent of the most dissatisfied residents polled commented about road conditions, citing “*pot holes, uneven surfaces, poor repair and maintenance*.” Some even mentioned that the public agencies’ attempts at “quick fix repairs” for road surfaces seemed to make the problems worse, not better.

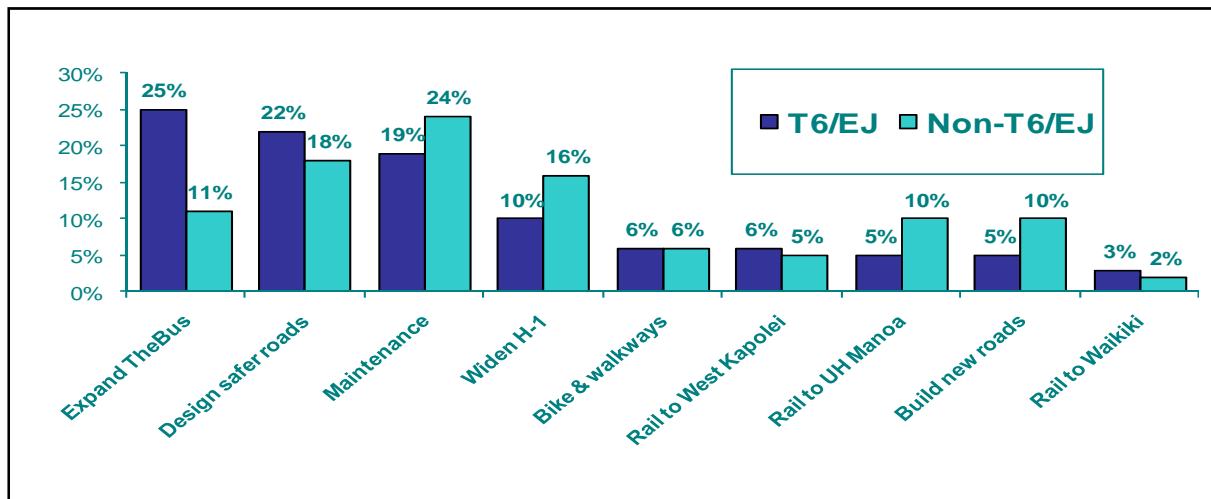
Finally, the survey tested 11 proposed options for funding transportation. Consistent with prior research, none of these options received substantial support from residents though “*charging fees to developers*” and imposing a “*commercial vehicle tax*” were relatively less opposed, with both proposals supported by about one-in-five residents.

Residents were overwhelmingly opposed to tax increases and new fees on driving. Three-quarters or more indicated opposition to “*raising the excise tax, charging a vehicle-miles-traveled tax, raising the gasoline tax*,” and, especially, “*charging a fee for driving into Downtown*.” Ninety percent were opposed to “*raising County property taxes*” as a means of funding transportation.

Lower-income (<\$35,000 income) residents overwhelmingly opposed “*raising the tax on gasoline*” and “*charging a toll on HOV lanes*.”

The second telephone survey was given to 1,000 Oahu residents and included a subset of 400 persons from T6/EJ areas. Respondents were asked to rate nine transportation priorities, including roadway expansion projects, rail/transit expansion projects, and operations and maintenance projects. According to the survey, 31 percent of the T6/EJ sample used TheBus for commuting, compared to only eight percent of the overall Oahu sample. Their resultant priorities reflect this difference in mode use, as shown in Figure 2-3.

**Figure 2-3: Transportation Priorities – T6/EJ and Non-T6/EJ Residents**



However, it should be noted that among the T6/EJ population using vehicles as their primary of transportation, increasing road maintenance and road design rank higher than TheBus expansion. Overall, the top four priorities of both samples were the same, albeit in different order.

## 2.6.4 Regional Meetings

Three regional public meetings were held on Oahu on August 14, 17, and 19, 2010. Information was conveyed through a combination of display boards, handouts, one-on-one conversations with staff and a PowerPoint presentation. Although meeting attendance was light, 228 online surveys were completed and twelve paper copies of the evaluation form were received, resulting in data analysis of 240 respondents.

Overall, the safety, operations and maintenance, and multi-modal projects received far more support than the road-oriented congestion mitigation projects. There were only two road congestion mitigation projects receiving more than 100 “important” and “very important” rankings:

- Widen Interstate Route H-1 from Vineyard Boulevard to Middle Street, and
- Widen Interstate Route H-1 from Ward Avenue to Punahou Street

Meanwhile, extending the Honolulu rail transit line, improving TheBus service and facilities, providing bike and pedestrian facilities, and maintaining the existing roads and bridges consistently received between 150 and 200 positive rankings.



### 2.6.5 Islandwide Meeting

An islandwide public meeting was held on Oahu on February 24, 2011, to present the draft ORTP 2035 for public comment. This meeting was conducted at the Neal Blaisdell Center in downtown Honolulu. Approximately 60 people attended, including 23 members of OahuMPO's Citizen Advisory Committee and three members of the OahuMPO's Technical Advisory or Policy Committees. The meeting featured a combination of open house and presentation formats. Information was conveyed through individual conversations at display boards as well as a PowerPoint presentation followed by questions and answers. Although written comments were received that evening, the 45-day public review period remained open through March 28, 2011.

As shown in Table 2-5, meeting participants were almost identically split between "Well" and "Somewhat" in their evaluation of how well the plan addressed stated goals of ORTP 2035.

**Table 2-5: Islandwide Meeting Public Rating of ORTP 2035 Goal Satisfaction**

Goal	Very Well	Well	Somewhat	Not at all
Improves traffic flow	1	2	4	
Serves a planned growth area and supports local sustainability plans	1	5	1	
Supports community values		5	2	
Improves regional transportation connections	2	2	3	
Sustains environmental quality		1	3	1
Provides balanced transportation system		3	3	
Provides accessibility and mobility for all	2	2	3	

All of the performance measures were deemed very important with the exception of "significantly reduces travel time to Downtown", which was considered somewhat important (see Table 2-6).

**Table 2-6: Islandwide Meeting Public Rating of ORTP 2035 Performance Measures**

Plan Results	Very Important	Somewhat Important	Not at all Important
Improves mobility by reducing travel times to employment centers for auto and transit users	5	2	
Improves accessibility to hospitals and regional shopping centers for all	4	3	
Reduces vehicle hours of delay and vehicle hours traveled	6	1	
Significantly reduces travel time to downtown	2	5	
Provides better accessibility and mobility for low and moderate income residents	7		
Increases transit ridership	7		
Reduces congestion in peak hours	6	1	
Reduces congestion on H-1 and major highways	6	1	
<b>Total</b>	<b>43</b>	<b>13</b>	

An additional 37 comments were received from individuals and nine from agencies during the public review period. The vast majority of the comments from individuals were general in nature and hard to categorize. However, two projects did receive a disproportionate amount of comments relative to the rest. Approximately 33 percent of the comments from individuals concerned Project 62, Kahekili Highway, Widening, Kamehameha Highway to Haiku Road; opinions expressed were nearly evenly split concerning project support (six for and five against). Project 23, Keoneula Boulevard, Extension, Kapolei Parkway to Franklin D. Roosevelt Avenue, also received a large number of comments (five), all of them opposing the project based on its proposed alignment. Most agency comments were requests for coordination on particular projects of interest.

## 2.7 Feedback from TAC

Feedback from the TAC (mainly HDOT and DTS) was provided to OahuMPO staff and a small number of projects were either added to or removed from the recommended list to make up the Preferred Alternative. Many of those removed were put onto the “illustrative” project list. The Preferred Alternative was then modeled and analysis was performed, with the results helping shape the *Draft ORTP 2035* that went to the Policy Committee in the spring of 2011.

The following project was added:

- #17 Kalaeloa Boulevard, Reconstruction and Widening; Lauwiliwili Street to Olai Street:

Description: Improve and reconstruct Kalaeloa Boulevard between Lauwiliwili Street and Olai Street.

The descriptions of the following projects changed:

- #33 Interstate Route H-1 Operational Improvements, Lunalilo Street Off-Ramp and On-Ramp (Between Lunalilo Street On-Ramp and Vineyard Boulevard Off-Ramp):

Original description: Improve operation and capacity on the westbound H-1 Freeway by modifying weaving movements between the Lunalilo Street on-ramp and Vineyard Boulevard off-ramp. Re-stripe freeway lanes from Punahou Street to modify the weaving movements on the Interstate Route H-1, in the westbound direction, between the Lunalilo Street on-ramp and the Vineyard Boulevard off-ramp.

Revised description: Improve operation and capacity on the westbound H-1 Freeway by modifying weaving movements between the Lunalilo Street on-ramp and Vineyard Boulevard off-ramp.

This revision was made because while it is clear that operational improvements need to be made along this stretch of H-1, it is not clear that re-stripping is a feasible means of doing it.

- #25 Interstate Route H-1, Widening, Waiawa Interchange.

Original description: Widen the Interstate Route H-1 by 1 lane, in the westbound direction, through the Waiawa Interchange. This project will begin in the vicinity of the Waiawa Interchange and end at the Paiwa Interchange.

- From two to three lanes in AM peak
- From four to five lanes in PM peak

Revised description: 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.

The following projects were deleted from the recommended list (note, project numbers refer to a previous numbering system since these projects are not in the final plan and hence do not have final plan numbers):

- #30 Paiwa Street, Extension, Ka Uka Boulevard to Lumiauau Street
- #62 Interstate Route H-1, On- & Off-Ramp Modifications, University Avenue Interchange
- #63 Interstate Route H-1, HOV Lanes, Waiawa Interchange to Makakilo Interchange
- #69 Likelike Highway, Widening, Kamehameha Highway to Kahekili Highway
- #73 Puuloa Road, Widening, Pukuloa Road to Nimitz Highway
- #75 Central Mauka Road, Second Access, Mililani Mauka to Waiawa
- #76 Wahiawa, Second Access, Whitmore Avenue to Meheula Parkway
- #77 Makapuu Tunnel

The following projects were moved into the “illustrative” category (project numbers reflect those as listed in the final plan):

- #70 Interstate Route H-1 On- and Off-Ramp Modifications: Various Locations;
- #71 Kunia Road Widening and Interchange Improvement: Wilikina Drive to Farrington Highway;
- #72 Interstate Route H-1 Widening: Waiiau Interchange to Waiawa Interchange;
- #73 Interstate Routes H-1 and H-2 Operational Improvements: Waiawa Interchange;
- #74 Interstate Route H-1 Widening: Vineyard Boulevard to Middle Street;
- #75 Nimitz Highway HOV Flyover: Keehi Interchange to Pacific Street;
- # 76 Interstate Route H-1 Widening: Ward Avenue to Punahou Street;

- #77 Waianae Second Access: Farrington Highway to Kunia Road;
- #78 Fixed Guideway: West Kapolei to East Kapolei;
- #79 Fixed Guideway: Ala Moana to UH Manoa and Waikiki; and
- #80 Fixed Guideway: Pearl City to Mililani.
- #81 East-West Road: Four-lane roadway between Farrington Highway and Fort Weaver Road.

## ***3 ORTP 2035 Proposed Projects and Programs***

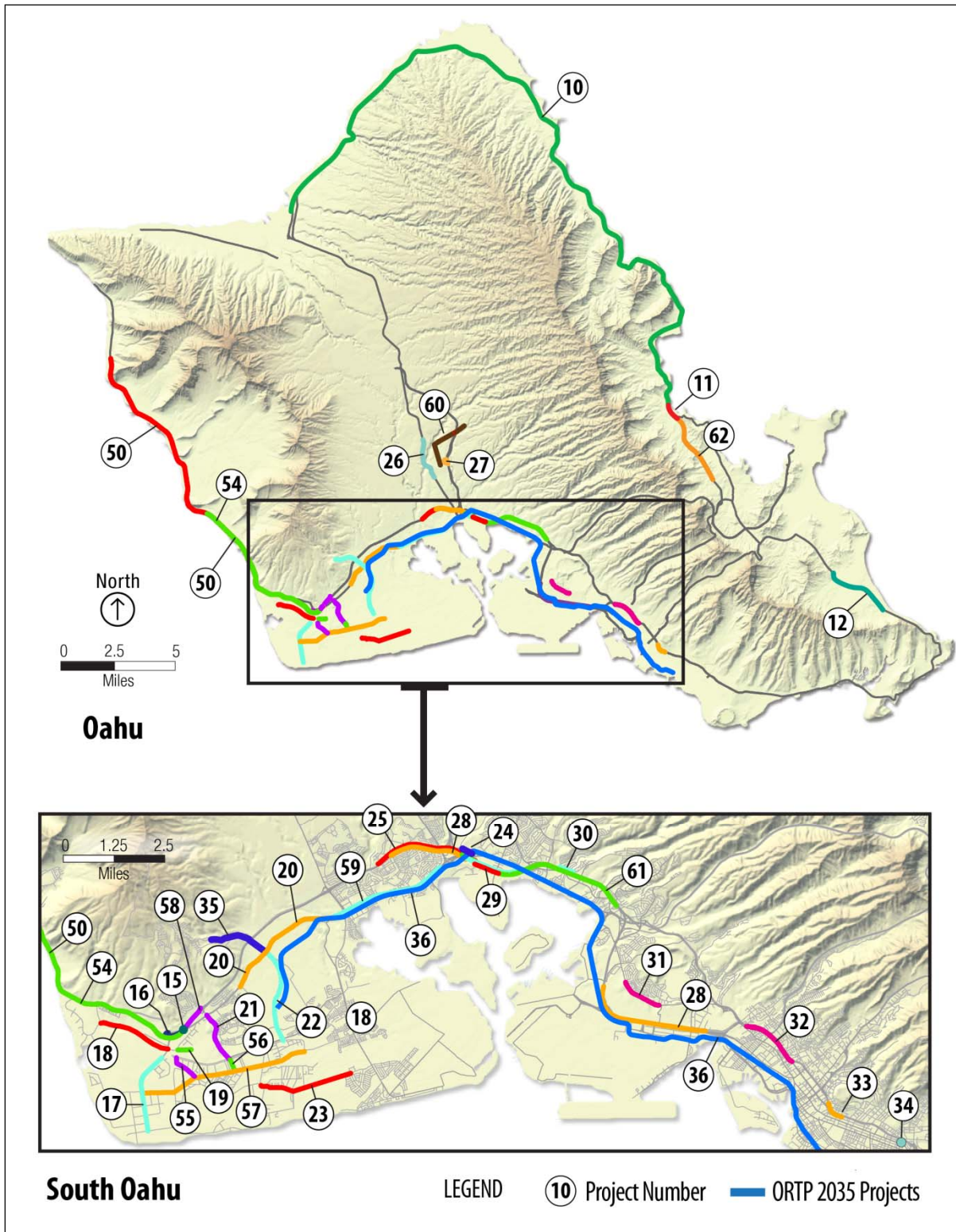
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### **3.1 ORTP 2035 Preferred Alternative**

The ORTP 2035 contains a total of 69 projects and programs worth a total of roughly \$23.8 billion meant to sustain, improve, and expand Oahu's transportation system with support for all the various users and modes. This fiscally-constrained plan was developed in coordination and consultation with various Federal, State, and County agencies, stakeholders, and residents from across the island. The ORTP 2035 is intended to integrate Oahu's transportation system with the various land uses around the island, while supporting anticipated growth and development. The projects and programs included in the Plan were selected based on their effectiveness and efficiency in addressing the various needs of the transportation system with regard to all user groups.

Figure 3-1 illustrates, where possible, the projects included in the ORTP 2035. Some projects are islandwide or programmatic in nature, and therefore cannot be singularly located. Table 3-1 presents the ORTP 2035 Project List in its entirety; the project numbers used in the table correspond to those in the Figure 3-1.

**Figure 3-1: ORTP 2035 Project Map**



**Table 3-1: ORTP 2035 Project List**

Project No.	City/ State	Facility/Project Title	Project Description	In City or State Bicycle Plans*	Estimated Cost in \$M (\$YOE)
<b>ISLANDWIDE PROJECTS – 2011 TO 2020</b>					
1	S	<i>Bike Plan Hawaii</i> - Oahu	Implement Oahu elements of the State of Hawaii's <i>Bike Plan Hawaii</i> (2003).	✓	\$40.0
2	C/S	Enhancement Projects	Implement enhancement projects, including, but not limited to, projects from the Transportation Enhancement Program for Oahu.	✓	\$8.7
3	C	Human Services Transportation Coordination Program	Provide a range of transportation services targeted to disadvantaged populations under the Human Services Transportation Coordination Program.		\$16.5
4	C/S	Intelligent Transportation Systems (ITS)	Implement ITS projects including, but not limited to, those identified in the Oahu Regional ITS Architecture.		\$50.8
5	C	Joint Traffic Management Center	Construct a transportation management center behind the Alapai Transit Center that will combine transportation management with City, State, and emergency response agencies.		\$68.9
6	C	<i>Oahu Bike Plan</i>	Implement City and County bike projects.	✓	\$22.5
7	S	Transportation Demand Management (TDM) Program	Develop an aggressive 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 (e.g., car sharing).		\$10.0
8	S	Vanpool Program	Continue implementation and expansion of the State's Vanpool Hawaii program.		\$26.1
<b>SAFETY AND OPERATIONAL IMPROVEMENT PROJECTS – 2011 TO 2020</b>					
9	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 widening, traffic signal modifications, installation of rumble strips and crash attenuators, installation of guardrails and bridge railings and others.	✓	\$27.4
10	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
11	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.	✓	\$17.0

Project No.	City/ State	Facility/Project Title	Project Description	In City or State Bicycle Plans*	Estimated Cost in \$M (\$YOE)
12	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.	✓	\$41.0
13	S	Rockfall Protection, Various Locations	Install rockfall protection or mitigation measures along various state highways at various locations.		\$50.0
14	S	Shoreline Protection Program	Protect shoreline along Kamehameha Highway and other locations.		\$20.0
<b>CONGESTION MITIGATION PROJECTS – 2011 TO 2020</b>					
15	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.		\$47.7
16	S	Hanua Street Extension, Farrington Highway to Malakole Street; Interstate Route H-1, New On- & Off-Ramps, Palailai Interchange	Hanua Street: • Extend Hanua Street from Malakole Street to Farrington Highway. This new four-lane roadway will provide access to Kalaeloa Harbor.  Interstate Route H-1, Palailai Interchange: • Construct new on- and off-ramps at Interstate Route H-1 Palailai Interchange to Hanua Street extension.		\$120.0
17	C	Kalaeloa Boulevard, Reconstruction and Widening; Lauwiliwili Street to Olai Street	Improve and reconstruct Kalaeloa Boulevard between Lauwiliwili Street and Olai Street.		\$30.0
18	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
19	C	Kapolei Parkway, Extension, Kamokila Boulevard to Kamaaha Avenue	Complete the extension of the existing four-lane Kapolei Parkway.	✓	\$13.3
20	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.	✓	\$33.0
21	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.	✓	\$23.5
22	S	Kualakai Parkway, Widening & Extension, Interstate Route H-1 to Franklin D. Roosevelt Avenue	Widen and extend Kualakai Parkway as follows: • From three to six lanes from Kapolei Parkway to Interstate Route H-1, • Extend from Kapolei Parkway to Franklin D. Roosevelt Avenue (six lanes).	✓	\$200.0
23	S	Keoneula Boulevard, Extension, Kapolei Parkway to Franklin D. Roosevelt Avenue	Extend Keoneula Boulevard from Kapolei Parkway to Franklin D. Roosevelt Avenue.		\$209.5
24	S	Interstate Route H-1, Widening, Waipahu Off-Ramp	Widen the Interstate Route H-1 Waipahu Street off-ramp from one to two lanes, in the westbound direction, at the Waiawa Interchange.		\$28.8
25	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.		\$16.2



Project No.	City/ State	Facility/Project Title	Project Description	In City or State Bicycle Plans*	Estimated Cost in \$M (\$YOE)
26	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.		\$130.0
27	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
28	S	Interstate Route H-1, Contra Flow Lane extension (PM), Waiawa Interchange to Kunia Interchange and Keehi Interchange to Radford Drive	This project would construct an extension of the PM contra-flow lane on the Interstate Route H-1, in the westbound direction, on the west end from Waiawa Interchange to Kunia Interchange and on the east end from the Keehi Interchange to Radford Drive.		\$165.0
29	S	Interstate Route H-1, Pearl City and Waimalu Viaduct Improvements, Phase 2	Replace, repair, and/or strengthen the Pearl City and Waimalu Viaduct concrete deck and other structural components, including guardrails. Project will be implemented in five phases.		\$100.0
30	S	Interstate Route H-1, Waiau Interchange to Halawa Interchange, Widening, Eastbound	Widen the H-1 Freeway to six lanes from the Waiau Interchange to the Halawa Interchange in the eastbound direction, and restore the current freeway lane width and shoulder standards. Project may be phased due to high cost.		\$100.0
31	C	Salt Lake Boulevard Widening Project	Widen Salt Lake Boulevard from two to six lanes, between Maluna Street and Ala Liliko'i Street.	✓	\$66.0
32	S	Interstate Route H-1, Widening, Ola Lane to Vineyard Boulevard	Widen the Interstate Route H-1 by one lane, in the eastbound direction, from Ola Lane to Vineyard Boulevard as identified below: <ul style="list-style-type: none"> <li>• From two to three lanes from Ola Lane/Middle Street to Likelike Highway off-ramp,</li> <li>• From three to four lanes from Likelike Highway off-ramp to Vineyard Boulevard.</li> </ul> This project also includes the widening of: <ul style="list-style-type: none"> <li>• Gulick Avenue overpass to allow five lanes to pass under it,</li> <li>• Kalihi Interchange overcrossings to allow four lanes to pass under it.</li> </ul>		\$104.0
33	S	Interstate Route H-1, Operational Improvements, Lunalilo Street Off-Ramp and On-Ramp (Between Lunalilo Street on-ramp and Vineyard Boulevard off-ramp)	Improve operation and capacity on the westbound H-1 Freeway by modifying weaving movements between the Lunalilo Street on-ramp and Vineyard Boulevard off-ramp.		\$6.0
34	S	Interstate Route H-1, Operational Improvements, Ward Avenue On-Ramp to University Avenue Interchange	Improve traffic flow on the Interstate Route H-1, in the eastbound direction, from the Ward Avenue on-ramp to the University Avenue Interchange through operational improvements.		\$65.0
<b>SECOND ACCESS PROJECTS – 2011 TO 2020</b>					
35	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.	✓	\$69.1
<b>TRANSIT PROJECTS – 2011 TO 2020</b>					
36	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.		\$5,532.5

Project No.	City/ State	Facility/Project Title	Project Description	In City or State Bicycle Plans*	Estimated Cost in \$M (\$YOE)	
37	C	TheBus Service, Expansion, Islandwide	Expand the bus service through increase of capacity of the existing system to accommodate population growth. Expanded service will be ADA-compliant. This includes: <ul style="list-style-type: none"> <li>• Expansion of Services to and within Ewa, Kapolei, Central, and Windward Oahu,</li> <li>• Expansion through increase of Express service to the North Shore, Waianae, and Windward Oahu,</li> <li>• Restructure of service in urban Honolulu.</li> </ul>		\$10.0	
38	C	Transit Centers, Various Locations	Construct transit centers at various locations islandwide to support transit operations.		\$70.0	
<b>OPERATIONS, MAINTENANCE &amp; SYSTEM PRESERVATION – 2011 TO 2020</b>						
39	C	City Operations and Maintenance (O&M): Roadways	Maintain and operate the City's existing and future roadway. Includes, but is not limited to, resurfacing, guardrail and shoulder improvements, lighting improvements, drainage improvements, signal and sign upgrades and replacement, etc.		\$537.1	
40	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 (including bus, rail, and paratransit), plan, design and construct a third bus operating facility, etc.		\$2,900.1	
41	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.		\$380.00	
42	S	System Preservation	Preserve the highway system through projects including, but not limited to, bridge replacement and seismic retrofit, guardrail and shoulder improvements, lighting improvements, drainage improvements, sign upgrades and replacement, traffic signal upgrade and retrofit, etc.		\$150.7	
<b>COST SUBTOTALS: MID-RANGE PLAN (2011 TO 2020)</b>						
					<b>CATEGORIES</b>	<b>SUBTOTALS</b>
					Islandwide Projects	\$243.5
					Safety and Operational Improvement Projects	\$204.9
					Congestion mitigation Projects	\$1,532.7
					Second Access Projects	\$69.1
					Transit Projects	\$5,612.5
					Operations, Maintenance & System Preservation	\$3,967.9
					<b>All Categories</b>	<b>\$11,630.6</b>
<b>SUBTOTALS BY JURISDICTION</b>						
					City & County of Honolulu Share of Project Costs	\$9,422.6
					State of Hawaii Share of Project Costs	\$2,208.0
					<b>Total: All Shares</b>	<b>\$11,630.6</b>
<b>ISLANDWIDE PROJECTS – 2021 TO 2035</b>						
43	S	Bike Plan Hawaii - Oahu	Implement Oahu elements of the State of Hawaii's Bike Plan Hawaii.	✓	\$100.0	
44	S	Enhancement Projects	Implement enhancement projects, including, but not limited to, projects from the Transportation Enhancement Program for Oahu.	✓	\$50.0	
45	C	Human Services Transportation Coordination Program	Provide a range of transportation services targeted to disadvantaged populations under the Human Services Transportation Coordination Program.		\$33.2	

Project No.	City/ State	Facility/Project Title	Project Description	In City or State Bicycle Plans*	Estimated Cost in \$M (\$YOE)
46	C/S	Intelligent Transportation Systems (ITS)	Implement ITS projects including, but not limited to, those identified in the Oahu Regional ITS Architecture.		\$138.0
47	C	Oahu Bike Plan	Implement City and County bike projects	✓	\$37.5
48	S	Transportation Demand Management (TDM) Program	Develop an aggressive 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 (e.g., car sharing).		\$20.0
49	S	Vanpool Program	Continue implementation and expansion of the State's Vanpool Hawaii Program.		\$88.1
<b>SAFETY AND OPERATIONAL IMPROVEMENT PROJECTS – 2021 TO 2035</b>					
50	S	Farrington Highway, Safety Improvements, Makua Valley Road to Aliinui Drive	Construct safety improvements on Farrington Highway along the Waianae Coast, from Makua Valley Road (Kaena Point) to Aliinui Drive (Kahe Point). This project includes realignment around Makaha Beach Park, between Makau Street and Water Street.		\$209.0
51	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.		\$21.2
52	S	Rockfall Protection, Various Locations	Install rockfall protection or mitigation measures along various state highways at various locations.		\$75.0
53	S	Shoreline protection program	Kamehameha Highway and other locations.		\$30.0
<b>CONGESTION MITIGATION PROJECTS – 2021 TO 2035</b>					
54	S	Farrington Highway, Widening, Hakimo Road to Kalaeloa Boulevard	Widen Farrington Highway from four to six lanes, from Hakimo Road to Kalaeloa Boulevard, including the intersection of Lualualei Naval Road.	✓	\$233.1
55	C	Kamokila Boulevard	Extend as four-lane roadway between Franklin D. Roosevelt Avenue and Saratoga Street.	✓	\$24.2
56	C	Fort Barrette Road	Extend as four-lane roadway between Franklin D. Roosevelt Avenue and Saratoga Street.	✓	\$10.7
57	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
58	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
59	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
60	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 to four lanes, and the addition of new on- and off-ramps to-and-from Interstate Route H-2 at Pineapple Road Overpass.		\$102.5

Project No.	City/ State	Facility/Project Title	Project Description	In City or State Bicycle Plans*	Estimated Cost in \$M (\$YOE)
61	S	Interstate Route H-1, Widening, Waiawa Interchange to Halawa Interchange	Widen the Interstate Route H-1 by one lane in the eastbound direction, from the Waiawa Interchange to the Halawa Interchange.		\$540.3
62	S	Kahekili Highway, Widening, Kamehameha Highway to Haiku Road	Widen Kahekili Highway from two to four lanes, from Kamehameha Highway to Haiku Road. This project also includes the following improvements: <ul style="list-style-type: none"> <li>• Contraflow in existing right-of-way between Hui Iwa Street and Haiku Road,</li> <li>• Intersection improvements at Hui Iwa Street and Kamehameha Highway.</li> </ul>	✓	\$75.0
<b>TRANSIT PROJECTS – 2021 TO 2035</b>					
63	C	City Rail Rehabilitation and Fleet Expansion	Provide for rehabilitation of track and expansion of rail fleet.		\$203.0
64	C	TheBus Service, Expansion, Islandwide	Expand the bus service through increase of capacity of the existing system to accommodate population growth. Expanded service will be ADA-compliant. This includes: <ul style="list-style-type: none"> <li>• Expansion of Services to and within Ewa, Kapolei, Central, and Windward Oahu,</li> <li>• Expansion through increase of Express service to the North Shore, Waianae, and Windward Oahu,</li> <li>• Restructure of service in urban Honolulu.</li> </ul>		\$848.0
65	C	Transit Centers, Various Locations	Construct transit centers at various locations islandwide to support transit operations.		\$9.0
<b>OPERATIONS, MAINTENANCE &amp; SYSTEM PRESERVATION – 2021 TO 2035</b>					
66	C	City Operations and Maintenance: Roadways	Maintain and operate the City's existing and future roadway. Includes, but is not limited to, resurfacing, guardrail and shoulder improvements, lighting improvements, drainage improvements, signal and sign upgrades and replacement, etc.		\$800.3
67	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 (including bus, rail, paratransit, and ferry), replacement of existing fleet, plan, design and construct a third bus operating facility, etc.		\$6,872.1
68	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 is not limited to, pavement repair, preventative maintenance, resurfacing and rehabilitation, etc.		\$704.4
69	S	System Preservation	Preserve the highway system through projects including, but not limited to, bridge replacement and seismic retrofit, guardrail and shoulder improvements, lighting improvements, drainage improvements, sign upgrades and replacement, traffic signal upgrade and retrofit, etc.		\$517.7
<b>COST SUBTOTALS: LONG-RANGE PLAN (2020 TO 2035)</b>					
				<b>CATEGORIES</b>	<b>SUBTOTALS</b>
				Islandwide Projects	\$466.8
				Safety and Operational Improvement Projects	\$335.2
				Congestion mitigation Projects	\$1,405.9
				Transit Projects	\$1,060.0
				Operations, Maintenance & System Preservation	\$8,894.5
				<b>All Categories</b>	<b>\$12,162.4</b>
<b>SUBTOTALS BY JURISDICTION</b>					
				City & County of Honolulu Share of Project Costs	\$9,113.6
				State of Hawaii Share of Project Costs	\$3,048.8
				<b>Total: All Shares</b>	<b>\$12,162.4</b>

Project No.	City/ State	Facility/Project Title	Project Description	In City or State Bicycle Plans*	Estimated Cost in \$M (\$YOE)
<b>ORTP 2035 COST TOTALS: 2011 TO 2035</b>					
				<b>CATEGORIES</b>	<b>SUBTOTALS</b>
				Islandwide Projects	\$710.3
				Safety and Operational Improvement Projects	\$540.1
				Congestion mitigation Projects	\$2,938.6
				Second Access Projects	\$69.1
				Transit Projects	\$6,672.5
				Operations, Maintenance & System Preservation	\$12,862.4
				<b>All Categories</b>	<b>\$23,793.0</b>
<b>SUBTOTALS BY JURISDICTION</b>					
				City & County of Honolulu Share of Project Costs	\$18,536.2
				State of Hawaii Share of Project Costs	\$5,256.8
				<b>Total: All Shares</b>	<b>\$23,793.0</b>
NOTE: Illustrative projects listed below are not included in the financially constrained plan due to funding limitations. If additional funding becomes available, they may be considered for amendment to the plan.					
<b>ILLUSTRATIVE PROJECTS</b>					
70	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.		\$108.0
71	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, from Anonui Street to Kupuna Loop,</li> <li>• From four to six lanes, from Kupuna Loop to Farrington Highway.</li> </ul> •Also, add one-lane eastbound loop on-ramp at Kunia Road & Interstate Route H-1.	✓	\$348.9
72	S	Interstate Route H-1, Widening, Waiawa Interchange to Waiawa Interchange	Widen Interstate Route H-1 in the westbound direction by one lane from the Waiawa Interchange to the Waiawa Interchange.		\$338.9
73	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
74	S	Interstate Route H-1, Widening, Vineyard Boulevard to Middle Street	Widen the Interstate Route H-1 by one lane in the westbound direction, from Vineyard Boulevard to Middle Street.		\$200.0
75	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
76	S	Interstate Route H-1, Widening, Ward Avenue to Punahou Street	Widen the existing Interstate Route H-1 by one lane in the eastbound direction, from Ward Avenue to Punahou Street.		\$100.0
77	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; priority for new administration.	✓	\$1,269.0
78	C	Fixed Guideway, West Kapolei to East Kapolei	Plan, design, and construct a fixed guideway system between West Kapolei to East Kapolei.		\$2,031.6

Project No.	City/ State	Facility/Project Title	Project Description	In City or State Bicycle Plans*	Estimated Cost in \$M (\$YOE)
79	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.		\$1,828.4
80	C	Fixed Guideway, Pearl City to Mililani	Plan, design, and construct a fixed guideway system between Pearl City and Mililani.		\$1,268.4
81	C	East-West Road	Construct as four-lane roadway between Farrington Highway and Fort Weaver Road.		\$57.3