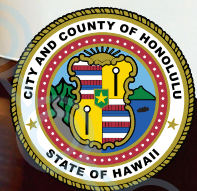




# Honolulu High-Capacity Transit Corridor Project

## FINAL ENVIRONMENTAL IMPACT STATEMENT/SECTION 4(f) EVALUATION

- East Kapolei
- UH West O'ahu
- Ho'opili
- West Loch
- Waipahu Transit Center
- Leeward Community College
- Pearl Highlands
- Pearlridge
- Aloha Stadium
- Pearl Harbor Naval Base
- Honolulu International Airport
- Lagoon Drive
- Middle Street Transit Center
- Kalihi
- Kapālama
- Iwilei
- Chinatown
- Downtown
- Civic Center
- Kaka'ako
- Ala Moana



U.S. Department of Transportation  
Federal Transit Administration

JUNE 2010



# Honolulu High-Capacity Transit Corridor Project

## City and County of Honolulu, O'ahu, Hawai'i

### Final Environmental Impact Statement/Section 4(f) Evaluation

Submitted pursuant to 49 USC 1601 et seq., 16 USC 470(f), 49 USC 303, 42 USC 4332(2)(c)  
42 USC 4371 et seq and 23 CFR 771

*by the*

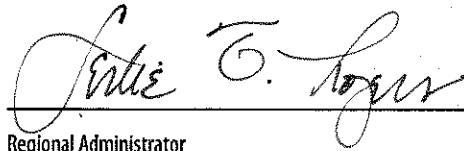
U.S. Department of Transportation Federal Transit Administration  
City and County of Honolulu Department of Transportation Services

*in cooperation with the*

U.S. Department of Defense (U.S. Army Garrison—Hawai'i)  
U.S. Department of Defense (U.S. Naval Base Pearl Harbor)  
U.S. Department of Transportation Federal Aviation Administration  
U.S. Department of Transportation Federal Highway Administration  
State of Hawai'i Department of Transportation

6/14/10

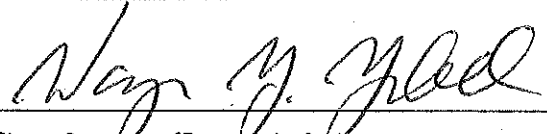
Date of Approval



Regional Administrator  
U.S. Department of Transportation  
Federal Transit Administration

6/12/10

Date of Approval



Director, Department of Transportation Services  
City and County of Honolulu

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**Honolulu High-Capacity Transit Corridor Project**  
**City and County of Honolulu, O`ahu, Hawai`i**  
**Final Environmental Impact Statement/Section 4(f) Evaluation**

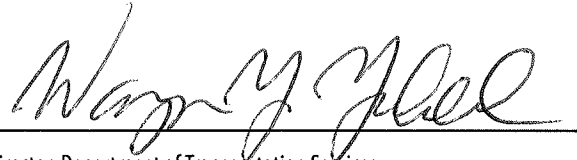
Submitted pursuant to Hawai`i Revised Statutes Chapter 343

*by the*

City and County of Honolulu Department of Transportation Services

6/12/10

Date of Approval



Director, Department of Transportation Services  
City and County of Honolulu

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## **Abstract**

This Final Environmental Impact Statement/Section 4(f) Evaluation is a joint *National Environmental Policy Act* (NEPA) and Hawai'i Revised Statutes Chapter 343 document. It is intended to provide decision makers and the public with information on the Project's environmental impacts and benefits. It also serves as a summary documentation of the consultation conducted in compliance with Section 106 of the *National Historic Preservation Act of 1966*, as amended, and the Section 4(f) evaluation prepared pursuant to Section 4(f) of the *U.S. Department of Transportation Act of 1966*. This document identifies the current and future need to address mobility and travel reliability issues, to support transportation and land use planning policies, and to improve transportation equity in the study corridor on the Island of O'ahu in the State of Hawai'i. In compliance with NEPA, this document considers a No Build and a Build Alternative that will provide high-capacity transit service in the corridor between East Kapolei and Ala Moana Center and serving Honolulu International Airport. This Final EIS identifies the Preferred Alternative, which consists of a 20-mile elevated guideway that includes transit stations, park-and-ride facilities, a maintenance and storage facility, and other ancillary facilities to support the transit system. This Final EIS addresses agency and public comments on the Draft EIS and documents the transportation effects and potential consequences on the natural and human environment, including effects on land use and economic activity; communities and neighborhoods; visual and aesthetic conditions; air quality and energy; noise and vibration; hazardous materials; natural resources; water quality; and archaeological, cultural, and historic resources. It also includes documentation of measures to avoid and minimize effects to the natural and built environments and includes mitigation and other commitments. Financial implications of construction and operation of the transit system are also evaluated.

Comments concerning refinement of the design of the Airport Alternative subsequent to the Draft EIS may be addressed to Mr. Matley and Mr. Yoshioka at the addresses above during the 30 days following the *Federal Register* Notice of Availability. Substantive new comments received during the 30-day period will be addressed in the Record of Decision. A DVD of the Final EIS is available at no cost. The document is available on the project website at [honolulutransit.org](http://honolulutransit.org) and may be reviewed at the following locations:

- City Municipal Library
- All State public libraries
- City and County of Honolulu Department of Transportation Services, 650 South King Street, 3rd floor

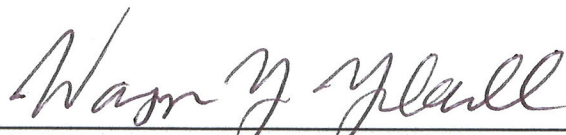
Printed copies of the document are available for purchase.






## State of Hawai'i Chapter 343 Final EIS Summary Sheet

<b>Description of Project</b>	As discussed in Section 2.5, the Project, the National Environmental Policy Act Preferred Alternative, is a portion of the Locally Preferred Alternative that begins at the University of Hawai'i-West O'ahu (near the future Kroc Center), and proceeds via Farrington Highway and Kamehameha Highway (adjacent to Pearl Harbor), to Aolele Street serving the Airport, to Dillingham Boulevard, to Nimitz Highway, to Halekauwila Street, and ending at Ala Moana Center		
<b>Significant Beneficial and Adverse Effects</b>	<p><b>Beneficial Effects</b></p> <ul style="list-style-type: none"> <li>• Improve transit access, speed, and reliability</li> <li>• Improve access to planned development</li> <li>• Increase travel options for transit dependent, limited income, and aging populations</li> <li>• Moderate future traffic congestion</li> <li>• Reduce air-pollutant emissions</li> <li>• Reduce transportation energy use</li> </ul> <p><b>Adverse Effects</b></p> <ul style="list-style-type: none"> <li>• Eliminate parking and turn lanes in some locations</li> <li>• Acquire rights-of-way and displace residents and businesses in some locations</li> <li>• Block views in several areas, including protected mauka-makai views</li> <li>• Introduce new linear visual element; changes to view will be low to significant</li> <li>• Moderate noise impacts in eight areas</li> <li>• Prune, remove, and transplant street trees</li> <li>• Create adverse effects to historic and cultural resources</li> <li>• Create temporary effects during construction for access, noise, visual, and traffic</li> </ul>		
<b>Mitigation Measures</b>	<ul style="list-style-type: none"> <li>• Incorporate new traffic management into design</li> <li>• Conduct spillover parking surveys in station areas</li> <li>• Provide relocation assistance for displaced residents and businesses</li> <li>• Minimize visual impacts with architecture and landscaping</li> <li>• Include wheel skirts in vehicle specifications and use sound-absorptive materials in areas with noise impacts</li> <li>• Transplant or replant street trees</li> <li>• Implement measures to avoid, minimize, and mitigate harm to archaeological, cultural, and historic resources (See Appendix I for a summary of mitigation and commitments.)</li> </ul>		
<b>Alternatives Considered</b>	<p><b>Final EIS</b></p> <ul style="list-style-type: none"> <li>• No Build Alternative</li> <li>• Airport Alternative</li> </ul>	<p><b>Draft EIS</b></p> <ul style="list-style-type: none"> <li>• No Build Alternative</li> <li>• Salt Lake Alternative</li> </ul>	<ul style="list-style-type: none"> <li>• Airport Alternative</li> <li>• Airport &amp; Salt Lake Alternative</li> </ul>
<b>Unresolved Issues</b>	<ul style="list-style-type: none"> <li>• Receipt of permits, approvals, and agreements</li> <li>• Receipt of Federal funds from Section 5309 New Starts program</li> </ul>		
<b>Compatibility with Plans and Policies</b>	The Project is compatible with applicable State and Local government transportation and land use plans and policies (see Appendix J)		
<b>Permits and Approvals</b>	<ul style="list-style-type: none"> <li>• Archaeological Inventory Survey Plan</li> <li>• Certificate of Inclusion HDLNR (Division of Forestry and Wildlife)</li> <li>• Clean Water Act Sections 401, 402, and 404</li> <li>• Coastal Zone Management</li> <li>• DPP Special District and Building Permits</li> <li>• Drainage Injection Control</li> <li>• FAA unconditional approval of the Airport Layout Plan</li> <li>• FAA Form 7460.1 Notice of Proposed Construction or Alteration</li> <li>• Farmland Conversion Impact Rating</li> <li>• Interstate Access Modification and Airspace Approvals</li> <li>• Flood Hazard District Compliance</li> <li>• National Pollutant Discharge Elimination System (General and Dewatering)</li> <li>• Noise Permit and Variance</li> <li>• Road Closure</li> <li>• Section 9 of Rivers and Harbors Act</li> <li>• Section 10 of Rivers and Harbors Act</li> <li>• Sole Source Aquifer</li> <li>• Special Management Area</li> <li>• Stream Channel Alteration</li> <li>• Stormwater Connection (MS4)</li> </ul> <p>(See Section 4.21, Anticipated Permits, Approvals, and Agreements)</p>		



Director, Department of Transportation Services  
City and County of Honolulu

  
Date



# Preface

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## **Purpose of the Final Environmental Impact Statement**

The purpose of this Final Environmental Impact Statement (EIS) is to provide the City and County of Honolulu Department of Transportation Services (DTS), the Federal Transit Administration (FTA), and the public and interested parties with the information necessary to make an informed decision about the Project based on a full and open analysis of costs, benefits, and environmental impacts of alternatives considered. Approval of this EIS is not an Administrative Action (as defined by 23 CFR 771.107) and does not commit FTA to approve any future grant request to fund the Project.

The **Honolulu High-Capacity Transit Corridor Project** is the project name used for FTA planning and project development for New Starts projects.

The **Locally Preferred Alternative** as identified by the City Council at the conclusion of the Alternatives Analysis process is a step required for FTA's discretionary New Starts Program. It represents the City's long-range plan for the rail system, including the **Project** (as defined below) and the potential extensions.

The **NEPA Preferred Alternative**, referred to in this Final EIS as the **Project**, is evaluated in more detail and is a 20-mile portion of the Locally Preferred Alternative (LPA) for which FTA may provide Federal funding. FTA and the City identified this alternative as preferred for meeting the Purpose and Need over other alternatives, including the No Build Alternative. The Project includes the construction and operation of a fixed guideway rail system. It is a portion of the LPA that begins at the University of Hawai'i at West O'ahu (near the future Kroc Center), and proceeds via Farrington Highway and Kamehameha Highway (adjacent to Pearl Harbor), to Aolele Street serving the Airport, to Dillingham Boulevard, to Nimitz Highway, to Halekauwila Street, and ending at Ala Moana Center. If FTA publishes a Record of Decision on this Preferred Alternative, then the City would continue pursuing funding for the Project by submitting an application to enter the Final Design stage of the New Starts Program.

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## **Purpose of the Final Environmental Impact Statement for the Federal Aviation Administration**

The Federal Aviation Administration (FAA) is a cooperating agency on this EIS, in accordance with 40 CFR Part 1501.6(a)(1), since it has special expertise and jurisdiction by law to approve proposed development at Honolulu International Airport. The FAA is assigned responsibilities pursuant to 49 USC 40101 et seq., for civil aviation and regulation of air commerce in the interests of aviation safety and efficiency. As a cooperating agency on this EIS, FAA will use the EIS documentation to comply with its own requirements under the National Environmental Policy Act (NEPA) for Federal actions. The FAA will also use the EIS to support subsequent decisions and Federal actions, including unconditional approval of the portion of the Airport Layout Plan that depicts the Project, determination of eligibility for Federal assistance under the Federal grant in-aid program, approval of an application to use Passenger Facility Charges, and approval to grant right-of-way at the airport to carry out the Project.

## **Overview of the Final Environmental Impact Statement**

This document builds on the findings of the *Alternatives Analysis Report* (DTS 2006b) and the *Honolulu High-Capacity Transit Corridor Project Draft Environmental Impact Statement/Section 4(f) Evaluation* (RTD 2008u), follows FTA planning and guidance, provides information on the preferred Fixed Guideway Transit Alternative via the Airport (Airport Alternative) and the No Build Alternative, and addresses agency and public comments on the Draft EIS.

This document is a joint NEPA and Hawai‘i Revised Statutes (HRS) Chapter 343 Final EIS. It has been compiled in good faith and sets forth sufficient information to enable the decision-maker to consider fully the environmental factors involved, to make a reasoned decision after balancing the

risks of harm to the environment against the benefits to be derived from the Project, and to make a reasoned choice between alternatives. It also serves as documentation of the coordination conducted in compliance with Section 106 of the *National Historic Preservation Act of 1966*, as amended, and the Section 4(f) evaluation prepared pursuant to Section 4(f) of the *U.S. Department of Transportation Act of 1966*.

The HRS Chapter 343 EIS preparation notice was issued for this Project on December 8, 2005. The Notice of Intent to prepare an EIS was published in the *Federal Register* on March 15, 2007, which began the NEPA scoping period. The March 15, 2007, notice superseded the December 7, 2005, Notice of Intent to prepare an Alternatives Analysis and Draft EIS. The Draft EIS was distributed for public and agency review beginning in November 2008 with the Notice of Availability published in the *Federal Register* on November 21, 2008, and in the State of Hawai‘i *Environmental Notice* on November 23, 2008. Public hearings were held to receive comments from the public and agencies, and comments were accepted until February 6, 2009. The Notice of Availability of this Final EIS will be published in the *Federal Register*.

HRS Section 343-5(f) and Hawai‘i Administrative Rules (HAR) Section 11-200-25(b) both require State and Local agencies to cooperate with Federal agencies to the fullest extent possible to reduce duplication between Federal and State requirements. This includes preparing joint environmental impact statements with concurrent public review and processing. The governor has final authority to accept the EIS. At the time of submission to the governor, Hawai‘i’s EIS rules also require that the Final EIS be distributed to persons and agencies with jurisdiction or expertise in certain areas relevant to various actions and to Draft EIS commenters that request the Final EIS. The Final EIS will be submitted to the governor and distributed to the FTA. The FTA

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will issue a Notice of Availability of the Final EIS pursuant to its NEPA regulations.

No sooner than 30 days after publication of this Final EIS, the FTA will sign a Record of Decision. The Record of Decision will summarize the alternatives considered, factors that support selection of the recommended alternative, and commitments to measures that mitigate substantial environmental impacts.

The LPA includes the majority of housing and employment on O‘ahu. The east-west length of the corridor is approximately 23 miles. The north-south width is at most 4 miles because much of the corridor is constrained by the Ko‘olau and Wai‘anae Mountain Ranges to the north and the Pacific Ocean to the south. This document provides environmental analysis and documentation for the 20-mile Project as described in Section 2.5 between East Kapolei and Ala Moana Center.

Future planned extensions from East Kapolei to West Kapolei, following Salt Lake Boulevard, and from Ala Moana Center to UH Mānoa and to Waikiki are included in the LPA and are addressed as cumulative effects in Sections 3.6.2 and 4.19.3 of this Final EIS. These planned extensions would be evaluated through a separate NEPA and HRS Chapter 343 process and designed and constructed once additional funding is secured.

### **Organization of the Final Environmental Impact Statement**

This document is divided into two volumes. This volume contains the Final EIS for the Project, which includes a summary of changes between the Draft and Final EIS, explanation and analysis of design refinements to the Airport Alternative since the Draft EIS, and responses to comments on the Draft EIS. It consists of the following eight chapters:

**Chapter 1** discusses the background, describes the study corridor from Kapolei to UH Mānoa and Waikiki, and explains the Purpose and Need for the fixed guideway transit system.

**Chapter 2** details the alternatives and technologies considered during the screening and selection process and summarizes the alternatives considered during the Alternatives Analysis and environmental impact analysis processes. It includes the basis for selection of the Preferred Alternative and a description of the project design elements and operating parameters.

**Chapter 3** describes existing and future transportation conditions in the study corridor, presents consequences of the Project and compares them to the No Build Alternative, and discusses mitigation for potential transportation impacts.

**Chapter 4** describes existing and future environmental conditions, presents consequences of the Project and compares them to the No Build Alternative, and discusses mitigation for potential environmental impacts.

**Chapter 5** discusses the Project’s effects on public parks, recreational areas, and historic properties to support determinations required to comply with the provisions of the *U.S. Department of Transportation Act of 1966* [commonly referred to as Section 4(f)].

**Chapter 6** presents the various funding sources and estimated capital and operating costs.

**Chapter 7** summarizes the evaluation of the Project based on the information in Chapters 3 through 6.

**Chapter 8** discusses the overall public outreach and agency coordination components and sum-

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marizes comments received on the Draft EIS and the responses to those comments.

**Volume II** consists of electronic files for the appendices referenced in the Final EIS, including comments received regarding the Draft EIS and the responses to those comments. The CD is located at the end of Volume I. Technical reports supporting the analysis presented in this Final EIS are available for review at the offices of the City and County of Honolulu Department of Transportation Services Rapid Transit Division and on the project website at [www.honolulustransit.org](http://www.honolulustransit.org).

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## Acronyms and Abbreviations

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AASHTO	American Association of State Highway and Transportation Officials
ACHP	Federal Advisory Council on Historic Preservation
ADA	<i>Americans with Disabilities Act of 1990</i>
AIS	archaeological inventory survey
ALP	<i>Honolulu International Airport Layout Plan</i>
APE	Area of Potential Effect (applicable to archaeological, cultural, and historic resources)
ARRA	<i>American Recovery and Reinvestment Act</i> (U.S. Public Law 111-5)
AST	aboveground storage tank
AVO	average vehicle occupancy
BA	biological assessment
BMP	best management practice(s)
BRT	bus rapid transit
BTU	British thermal unit
CEQ	Council on Environmental Quality
CERCLA	<i>Comprehensive Environmental Response, Compensation and Liability Act of 1980</i> (42 USC 103)
CFR	Code of Federal Regulations
CIA	cultural impact assessments
CINCPACFLT	Commander-in-Chief Pacific Fleet
City	City and County of Honolulu
CLR	Cultural Landscape Report
CO	carbon monoxide
CPI-U	Consumer Price Index for all Urban Consumers
CWA	<i>Clean Water Act</i> (33 USC 1251-1387)
CWB	State of Hawai‘i Department of Health, Clean Water Branch
CZM	Coastal Zone Management
CZMA	<i>Coastal Zone Management Act</i> (16 USC 1451 et seq.)
DA	U.S. Department of the Army
DAGS	State of Hawai‘i Department of Accounting and General Services
DAV	Disabled American Veterans
dB	decibels
dBA	A-weighted decibels

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DBEDT	State of Hawai‘i Department of Business, Economic Development and Tourism
DBFS	City and County of Honolulu Department of Budget and Fiscal Services
DES	City and County of Honolulu Department of Environmental Services
DFM	City and County of Honolulu Department of Facility Maintenance
DHHL	State of Hawai‘i Department of Hawaiian Home Lands
DLNR	State of Hawai‘i Department of Land and Natural Resources
DLNR-DFW	State of Hawai‘i Department of Land and Natural Resources, Division of Forestry and Wildlife
DLNR-Parks	State of Hawai‘i Department of Land and Natural Resources, Division of State Parks
DPP	City and County of Honolulu Department of Planning and Permitting
DPP-LUPD	City and County of Honolulu Department of Planning and Permitting, Land Use Permits Division
DPR	City and County of Honolulu Department of Parks and Recreation
DTS	City and County of Honolulu Department of Transportation Services
EA	environmental assessment
EIS	environmental impact statement
EJ	environmental justice
EMF	electric and magnetic field
EPA	U.S. Environmental Protection Agency
ESA	environmental site assessment
‘Ewa (direction)	toward the west (see also Wai‘anae)
FAA	Federal Aviation Administration
FFGA	Full Funding Grant Agreement
FHWA	Federal Highway Administration
ft	feet
FTA	Federal Transit Administration
FY	fiscal year
GEO	Governor’s Executive Order
GET	general excise and use tax
GIS	Geographic Information System
GO	General Obligation (Bond)
GSP	gross state product
H-1	Interstate Route H-1 (H-1 Freeway)
H-2	Interstate Route H-2 (H-2 Freeway)
H-3	Interstate Route H-3 (H-3 Freeway)

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HABS	Historic American Building Survey
HALS	Historic American Landscape Survey
HAR	Hawai‘i Administrative Rules
HARC	Hawai‘i Agriculture Research Center
HART	Honolulu Area Rail Rapid Transit
HBMP	Hawai‘i Biodiversity and Mapping Program
HCDA	Hawai‘i Community Development Authority
HCM	<i>Highway Capacity Manual</i>
HCP	Habitat Conservation Plan
HDOA	State of Hawai‘i Department of Agriculture
HDOH	State of Hawai‘i Department of Health
HDOT	State of Hawai‘i Department of Transportation
HEC	State of Hawai‘i Environmental Council
HECO	Hawaiian Electric Company
HHCTCP	Honolulu High-Capacity Transit Corridor Project
HNL	Honolulu International Airport
HOV	high-occupancy vehicle
HRS	Hawai‘i Revised Statutes
HRT	Honolulu Rapid-Transit Development
HRT&L	Honolulu Rapid Transit & Land Company
HSC	The Supreme Court of the State of Hawai‘i
HSVAP	Hawai‘i Stream Visual Assessment Protocol
HUD	U.S. Department of Housing and Urban Development
IVT	in-vehicle time
JD	jurisdictional determination
kg	kilogram
Koko Head (direction)	toward the east
kV	kilovolts
Ldn	day/night noise level (descriptor of daily noise environment; incorporates a penalty for high noise levels at night)
LEDPA	least environmentally damaging practicable alternative
LEED	Leadership in Energy and Environmental Design
Leq	equivalent sound level (common environmental noise descriptor)
Leq(h)	hourly equivalent sound level
Lmax	maximum noise level during an event
LONP	Letter of No Prejudice

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LOS	level-of-service
LOTMA	Leeward O‘ahu Transportation Management Association
LPA	Locally Preferred Alternative
LWCF	Land and Water Conservation Fund
makai (direction)	toward the sea
mauka (direction)	toward the mountains
MBTA	<i>Migratory Bird Treaty Act</i> (16 USC 703-711)
MBTU	million British thermal units
µg/m <sup>3</sup>	micrograms per cubic meter
MMPA	<i>Marine Mammal Protection Act</i> (16 USC 1361-1407)
MOA	memorandum of agreement
MOT	Maintenance of Traffic (Plan)
mph	miles per hour
MPS	multiple property submissions
MSAT	mobile source air toxics
NAAQS	National Ambient Air Quality Standards
NAGPRA	<i>Native American Graves Protection and Repatriation Act</i> (25 USC 3001 et seq.)
NEPA	<i>National Environmental Policy Act</i> (42 USC 4321-4347)
NHL	national historic landmark
NHPA	<i>National Historic Preservation Act</i> (16 USC 470)
NO <sub>2</sub>	nitrogen dioxide
NOAA/NMFS	National Oceanic and Atmospheric Administration National Marine Fisheries Service
NOI	notice of intent
NO <sub>x</sub>	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O&M	operating and maintenance
O <sub>3</sub>	ozone
O‘ahuMPO	O‘ahu Metropolitan Planning Organization
OEQC	State of Hawai‘i Office of Environmental Quality Control
OHWM	ordinary high-water mark
OP	State of Hawai‘i Department of Business, Economic Development and Tourism, Office of Planning

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OR&L	O‘ahu Railway and Land Company
ORTP	<i>O‘ahu Regional Transportation Plan 2030</i>
OTS	O‘ahu Transit Services, Inc.
PA	Programmatic Agreement
Pb	lead
PE	preliminary engineering
PEEP	Preliminary Engineering Evaluation Program
PHNS	Pearl Harbor Naval Station
PIP	Public Involvement Plan
PM <sub>10</sub>	particulate matter smaller than or equal to 10 microns in size
PM <sub>2.5</sub>	particulate matter smaller than or equal to 2.5 microns in size
ppm	parts per million
Project	Honolulu High-Capacity Transit Corridor Project Fixed Guideway Transit Alternative via the Airport (Airport Alternative)
PUC	Primary Urban Center
ROD	Record of Decision
ROH	Revised Ordinances of Honolulu
RPW	relatively permanent non-navigable tributaries of traditional navigable waters
RTD	City and County of Honolulu Department of Transportation Services Rapid Transit Division
SAFETEA-LU	<i>Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users</i> (U.S. Public Law 109-59)
SCAP	Stream Channel Alteration Permit
Section 106	Section 106 of the <i>National Historic Preservation Act of 1966</i> , as amended (16 USC 470)
Section 4(f)	Section 4(f) of the <i>U.S. Department of Transportation Act of 1966</i> [49 USC 1653(f)]
SHPD	State Historic Preservation Division
SHPO	State Historic Preservation Officer
SMA	special management area
SO <sub>2</sub>	sulfur dioxide
SSMP	Safety and Security Management Plan
SWMP	Storm Water Management Plan
TAA	Transportation Analysis Area
TCP	traditional cultural properties
TDM	transportation demand management

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TMDL	total maximum daily loads
TMK	Tax Map Key
TMP	Transit Mitigation Program
TNW	traditional navigable waters
TOB	top of bank
TOD	transit-oriented development
TPSS	traction power substation
TSD	transit-supportive development
TSM	Transportation System Management
UCB	urban community boundary
UH	University of Hawai‘i
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USDOE	U.S. Department of Energy
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USHHS	U.S. Department of Health and Human Services
UST	underground storage tank
V/C	volume-to-capacity
VdB	vibration decibels (measure of vibration velocity)
VHD	vehicle hours of delay
VHT	vehicle hours traveled
VMT	vehicle miles traveled
VOC	volatile organic compounds
vph	vehicles per hour
Wai‘anae (direction)	toward the west (see also ‘Ewa)
WMATA	Washington Metropolitan Area Transit Authority
WQC	water quality certification
YOE	year of expenditure
YOE \$	year of expenditure dollars