

# APPENDIX D

MAUI PROJECT SHEETS





## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI POLICE ARCHIVED MOTOR VEHICLE CRASH DATA ARCHIVE

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui Police Archived Motor Vehicle Crash Data Archive
<b>Description:</b>	This project archives Maui motor vehicle crash data. The data is electronically provided to HDOT every Monday at 3am. Formerly, this information was provided in hard copy.
<b>Status:</b>	Existing
<b>Timeframe:</b>	Existing
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Police Department</a> <a href="#">Hawaii Department of Transportation - Highways Division</a>
<b>Service Packages:</b>	<a href="#">AD2-2 - ITS Data Warehouse - Maui Police Motor Vehicle Crash Data and HDOT Highway Traffic Safety (HDOT-HWY-TS)</a>
<b>Project Inventory:</b>	<a href="#">HDOT, Highways Division, Traffic Safety</a> <a href="#">Maui 911 Communications Center</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

[Emergency Data Collection](#)

- ◆ The center shall collect emergency service data, emergency vehicle management data, emergency vehicle data, sensor and surveillance data, threat data, and incident data.

#### INTERFACES

Source	Architecture Flows	Destination
<a href="#">HDOT, Highways Division, Traffic Safety</a>	archive requests	<a href="#">Maui 911 Communications Center</a>
<a href="#">HDOT, Highways Division, Traffic Safety</a>	archived data products	<a href="#">Maui 911 Communications Center</a>
<a href="#">HDOT, Highways Division, Traffic Safety</a>	archive status	<a href="#">Maui 911 Communications Center</a>
<a href="#">Maui 911 Communications Center</a>	archived data product requests	<a href="#">HDOT, Highways Division, Traffic Safety</a>
<a href="#">Maui 911 Communications Center</a>	traffic archive data	<a href="#">HDOT, Highways Division, Traffic Safety</a>

## ITS STANDARDS

SDO	Document ID	Title	Type
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Center Standards Group	Group
AASHTO/ITE	ITE TMDD	Traffic Management Data Dictionary (TMDD) and Message Sets for External Traffic Management Center Communications (MS/ETMCC)	Message/Data
ASTM	ASTM E2468-05	Standard Practice for Metadata to Support Archived Data Management Systems	Other
ASTM	ASTM E2665-08	Standard Specifications for Archiving ITS-Generated Traffic Monitoring Data	Message/Data

## OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
County of Maui Police Department	Upload crash records data to HDOT Highway Division, Traffic Safety Section.
Hawaii Department of Transportation - Highways Division	

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: HDOT-HWY-M TRAFFIC SIGNAL UPGRADE

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: HDOT-HWY-M Traffic Signal Upgrade
<b>Description:</b>	This project will upgrade the state traffic signal system in the County of Maui to have remote monitoring capability.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">Hawaii Department of Transportation - Highways Division, Maui District</a>
<b>Service Packages:</b>	<a href="#">ATMS03-1 - Traffic Signal Control - HDOT</a>
<b>Project Inventory:</b>	<a href="#">HDOT-HWY-M Field Devices</a> <a href="#">HDOT-HWY-M Traffic Operations Center</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Roadway Signal Controls](#)

- The field element shall return traffic signal controller operational status to the center.
- The field element shall report the current signal control information to the center.
- The field element shall control traffic signals under center control.

##### [TMC Signal Control](#)

- The center shall maintain traffic signal coordination including synchronizing clocks throughout the system.
- The center shall manage boundaries of the control sections used within the signal system.
- The center shall implement control plans to coordinate signalized intersections based on data from sensors.
- The center shall manage (define, store and modify) control plans to coordinate signalized intersections, to be engaged at the direction of center personnel or according to a daily schedule.
- The center shall collect traffic signal controller fault data from the field.
- The center shall collect traffic signal controller operational status and compare against the control information sent by the center.
- The center shall remotely control traffic signal controllers.



## INTERFACES

Source	Architecture Flows	Destination
HDOT-HWY-M Field Devices	traffic images	HDOT-HWY-M Maintenance Dispatch
HDOT-HWY-M Field Devices	right-of-way request notification	HDOT-HWY-M Traffic Operations Center
HDOT-HWY-M Field Devices	signal control status	HDOT-HWY-M Traffic Operations Center
HDOT-HWY-M Field Devices	traffic flow	HDOT-HWY-M Traffic Operations Center
HDOT-HWY-M Field Devices	signal fault data	HDOT-HWY-M Traffic Operations Center
HDOT-HWY-M Traffic Operations Center	signal control commands	HDOT-AIR-M Field Devices
HDOT-HWY-M Traffic Operations Center	traffic sensor control	HDOT-HWY-M Field Devices
HDOT-HWY-M Traffic Operations Center	signal control commands	HDOT-HWY-M Field Devices
HDOT-HWY-M Traffic Operations Center	video surveillance control	HDOT-HWY-M Field Devices
HDOT-HWY-M Traffic Operations Center	signal control device configuration	HDOT-HWY-M Field Devices
HDOT-HWY-M Traffic Operations Center	signal control plans	HDOT-HWY-M Field Devices
HDOT-HWY-M Traffic Operations Center	signal system configuration	HDOT-HWY-M Field Devices

## ITS STANDARDS

SDO	Document ID	Title	Type
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Center Standards Group	Group
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Field Standards Group	Group
AASHTO/ITE/NEMA	NTCIP 1201	Global Object Definitions	Message/Data
AASHTO/ITE/NEMA	NTCIP 1202	Object Definitions for Actuated Traffic Signal Controller (ASC) Units	Message/Data
AASHTO/ITE/NEMA	NTCIP 1205	Object Definitions for Closed Circuit Television (CCTV) Camera Control	Message/Data
AASHTO/ITE/NEMA	NTCIP 1208	Object Definitions for Closed Circuit Television (CCTV) Switching	Message/Data
AASHTO/ITE/NEMA	NTCIP 1209	Data Element Definitions for Transportation Sensor Systems (TSS)	Message/Data
AASHTO/ITE/NEMA	NTCIP 1210	Field Management Stations (FMS) - Part 1: Object Definitions for Signal System Masters	Message/Data
AASHTO/ITE/NEMA	NTCIP 1211	Object Definitions for Signal Control and Prioritization (SCP)	Message/Data
AASHTO/ITE/NEMA	NTCIP 1214	Object Definitions for Conflict Monitor Units (CMU)	Message/Data

## OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
Hawaii Department of Transportation - Highways Division, Maui District	Operate traffic signal systems for State owned intersections.

The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI BUS CCTV

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui Bus CCTV
<b>Description:</b>	This project will connect the cameras currently deployed on Maui Bus vehicles and connect them to the Maui Bus Dispatch Center, so that images will be able to be viewed live at the center.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Department of Transportation</a>
<b>Service Packages:</b>	<a href="#">APTS05-1 - Transit Security - Maui Bus</a>
<b>Project Inventory:</b>	<a href="#">Maui Bus Fixed Route Dispatch</a> <a href="#">Maui Bus Fixed Route Vehicles</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Center Secure Area Surveillance](#)

- The center shall remotely monitor video images and audio surveillance data collected on-board transit vehicles. The data may be raw or pre-processed in the field.

##### [On-board Transit Security](#)

- The transit vehicle shall perform video and audio surveillance inside of transit vehicles and output raw video or audio data for either local monitoring (for processing or direct output to the transit vehicle operator), remote monitoring or for local storage (e.g., in an event recorder).

#### INTERFACES

Source	Architecture Flows	Destination
<a href="#">Maui Bus Fixed Route Dispatch</a>	<a href="#">secure area surveillance control</a>	<a href="#">Maui Bus Fixed Route Vehicles</a>
<a href="#">Maui Bus Fixed Route Vehicles</a>	<a href="#">secure area surveillance data</a>	<a href="#">Maui Bus Fixed Route Dispatch</a>

## ITS STANDARDS

SDO	Document ID	Title	Type
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Field Standards Group	Group
AASHTO/ITE/NEMA	NTCIP 1201	Global Object Definitions	Message/Data
AASHTO/ITE/NEMA	NTCIP 1205	Object Definitions for Closed Circuit Television (CCTV) Camera Control	Message/Data
AASHTO/ITE/NEMA	NTCIP 1208	Object Definitions for Closed Circuit Television (CCTV) Switching	Message/Data
APTA	APTA TCIP-S-001 3.0.4	Standard for Transit Communications Interface Profiles	Message/Data

## OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
County of Maui Department of Transportation	Provide transit security on all Maui Bus vehicles using silent alarms and on-board video surveillance.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#) [Maui Home](#) [Stakeholders](#) [Inventory](#) [Services](#) [Architecture](#) [Projects](#) [Resources](#) [Feedback](#)



### [PROJECT DETAILS: MAUI BUS ENHANCED TRANSIT TRAVELER INFORMATION](#)

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui Bus Enhanced Transit Traveler Information
<b>Description:</b>	This project will enhance a future Maui Bus Transit Traveler Information System to include: (1) number of un-used bike positions on a bus; (2) electronic advertising on buses and at hubs; (3) automated announcements on buses.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Department of Transportation</a>
<b>Service Packages:</b>	<a href="#">APTS08-1 - Transit Traveler Information - Maui Bus</a>
<b>Project Inventory:</b>	<a href="#">Maui Bus Fixed Route Dispatch</a> <a href="#">Maui Bus Fixed Route Vehicles</a> <a href="#">Maui Bus Hub Displays</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [On-board Transit Information Services](#)

- ◆ The transit vehicle shall broadcast advisories about the imminent arrival of the transit vehicle at the next stop via an on-board automated annunciation system.

##### [Remote Transit Information Services](#)

- ◆ The public interface for travelers shall collect and present to the transit traveler information on transit routes, schedules, and real-time schedule adherence.
- ◆ The public interface for travelers shall collect and provide real-time travel-related information at transit stops, multi-modal transfer points, and other public transportation areas.

##### [Transit Center Information Services](#)

- ◆ The center shall provide travelers using public transportation with traffic and advisory information upon request. Such information may include transit routes, schedules, transfer options, fares, real-time schedule adherence, current incidents, weather conditions, and special events.

## INTERFACES

Source	Architecture Flows	Destination
<a href="#">Maui Bus Fixed Route Dispatch</a>	transit traveler information	<a href="#">Maui Bus Fixed Route Vehicles</a>
<a href="#">Maui Bus Fixed Route Dispatch</a>	transit traveler information	<a href="#">Maui Bus Hub Displays</a>
<a href="#">Maui Bus Fixed Route Vehicles</a>	transit traveler request	<a href="#">Maui Bus Fixed Route Dispatch</a>

## ITS STANDARDS

SDO	Document ID	Title	Type
SAE	<a href="#">View List</a>	Advanced Traveler Information Systems (ATIS) General Use Standards Group	Group
APTA	APTA TCIP-S-001 3.0.4	Standard for Transit Communications Interface Profiles	Message/Data

## OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
County of Maui Department of Transportation	Provide transit traveler information via Maui Bus Traveler Information System, the Maui Bus Transit App, and Maui Bus Hub Displays.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI BUS PASSENGER COUNTING

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui Bus Passenger Counting
<b>Description:</b>	This project will install passenger counters on the Maui Bus fixed-route system.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Department of Transportation</a>
<b>Service Packages:</b>	<a href="#">APTS10-1 - Transit Passenger Counting - Maui Bus</a>
<b>Project Inventory:</b>	<a href="#">Maui Bus Fixed Route Dispatch</a> <a href="#">Maui Bus Fixed Route Vehicles</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [On-board Passenger Counting](#)

- The transit vehicle shall send the collected passenger count information to the transit center.
- The passenger counts shall be timestamped so that ridership can be measured by time of day and day of week.
- The passenger counts shall be related to location to support association of passenger counts with routes, route segments, or bus stops.
- The transit vehicle shall count passengers boarding and alighting.

##### [Transit Center Passenger Counting](#)

- The center shall collect passenger count information from each transit vehicle.

#### INTERFACES

Source	Architecture Flows	Destination
<a href="#">Maui Bus Fixed Route Vehicles</a>	<a href="#">transit vehicle loading data</a>	<a href="#">Maui Bus Fixed Route Dispatch</a>

#### ITS STANDARDS

SDO	Document ID	Title	Type

**OPERATIONAL CONCEPTS**

Stakeholder	Roles and Responsibilities
County of Maui Department of Transportation	Provide fixed route transit and demand responsive bus service for the County of Maui.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*





## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI BUS ROADSIDE EQUIPMENT

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui Bus Roadside Equipment
<b>Description:</b>	This project will add roadside equipment at bus stops (i.e., at remote bus stops without lighting).
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Department of Transportation</a>
<b>Service Packages:</b>	<a href="#">APTS08-1 - Transit Traveler Information - Maui Bus</a>
<b>Project Inventory:</b>	<a href="#">Maui Bus Fixed Route Dispatch</a> <a href="#">Maui Bus Hub Displays</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Remote Transit Information Services](#)

- ◆ The public interface for travelers shall collect and present to the transit traveler information on transit routes, schedules, and real-time schedule adherence.
- ◆ The public interface for travelers shall collect and provide real-time travel-related information at transit stops, multi-modal transfer points, and other public transportation areas.

##### [Transit Center Information Services](#)

- ◆ The center shall provide travelers using public transportation with traffic and advisory information upon request. Such information may include transit routes, schedules, transfer options, fares, real-time schedule adherence, current incidents, weather conditions, and special events.

#### INTERFACES

Source	Architecture Flows	Destination
<a href="#">Maui Bus Fixed Route Dispatch</a>	<a href="#">transit traveler information</a>	<a href="#">Maui Bus Fixed Route Vehicles</a>

#### ITS STANDARDS

SDO	Document ID	Title	Type
-----	-------------	-------	------

SAE	<a href="#">View List</a>	Advanced Traveler Information Systems (ATIS) General Use Standards Group	Group
APTA	APTA TCIP-S-001 3.0.4	Standard for Transit Communications Interface Profiles	Message/Data

**OPERATIONAL CONCEPTS**

Stakeholder	Roles and Responsibilities
County of Maui Department of Transportation	Provide transit traveler information via Maui Bus Traveler Information System, the Maui Bus Transit App, and Maui Bus Hub Displays.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI BUS TRANSIT HUBS

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui Bus Transit Hubs
<b>Description:</b>	This project will create three new bus hubs in South Maui, West Maui, and Central Maui. The hubs will include electronic signs with next bus information.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Department of Transportation</a>
<b>Service Packages:</b>	<a href="#">APTS08-1 - Transit Traveler Information - Maui Bus</a>
<b>Project Inventory:</b>	<a href="#">Maui Bus Fixed Route Dispatch</a> <a href="#">Maui Bus Hub Displays</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Remote Transit Information Services](#)

- The public interface for travelers shall collect and present to the transit traveler information on transit routes, schedules, and real-time schedule adherence.
- The public interface for travelers shall collect and provide real-time travel-related information at transit stops, multi-modal transfer points, and other public transportation areas.

##### [Transit Center Information Services](#)

- The center shall provide travelers using public transportation with traffic and advisory information upon request. Such information may include transit routes, schedules, transfer options, fares, real-time schedule adherence, current incidents, weather conditions, and special events.

#### INTERFACES

Source	Architecture Flows	Destination
<a href="#">Maui Bus Fixed Route Dispatch</a>	<a href="#">transit traveler information</a>	<a href="#">Maui Bus Hub Displays</a>

## ITS STANDARDS

SDO	Document ID	Title	Type
SAE	<a href="#">View List</a>	Advanced Traveler Information Systems (ATIS) General Use Standards Group	Group
APTA	APTA TCIP-S-001 3.0.4	Standard for Transit Communications Interface Profiles	Message/Data

## OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
County of Maui Department of Transportation	Provide transit traveler information via Maui Bus Traveler Information System, the Maui Bus Transit App, and Maui Bus Hub Displays.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#) [Maui Home](#) [Stakeholders](#) [Inventory](#) [Services](#) [Architecture](#) [Projects](#) [Resources](#) [Feedback](#)



### [PROJECT DETAILS: MAUI BUS TRANSIT SIGNAL PRIORITY](#)

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui Bus Transit Signal Priority
<b>Description:</b>	This project will deploy transit signal priority in the County of Maui.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Department of Public Works</a> <a href="#">Hawaii Department of Transportation - Highways Division, Maui District</a> <a href="#">County of Maui Department of Transportation</a> <a href="#">County of Maui Department of Management IT Services</a>
<b>Service Packages:</b>	<a href="#">APTS09-2 - Transit Signal Priority - Maui Bus</a> <a href="#">ATPS09-1 - Transit Signal Priority - Maui Bus</a> <a href="#">MC12-1 - Infrastructure Monitoring - Maui Department of Management IT Services</a>
<b>Project Inventory:</b>	<a href="#">HDOT-HWY-M Field Devices</a> <a href="#">HDOT-HWY-M Traffic Operations Center</a> <a href="#">Maui Bus Fixed Route Dispatch</a> <a href="#">Maui Bus Fixed Route Vehicles</a> <a href="#">Maui DPW Field Devices</a> <a href="#">Maui IT Services Event Management System</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [MCM Infrastructure Monitoring](#)

- ✦ The center shall report infrastructure repair needs to the maintenance management system.
- ✦ The center shall provide current infrastructure conditions information to the asset management system.
- ✦ The center shall collect current maintenance and repair needs from the asset management system and correlate this data with data collected through infrastructure monitoring systems.

##### [On-board Transit Signal Priority](#)

- ✦ The transit vehicle shall prevent a priority request from being sent when the transit vehicle cannot use the priority (e.g., when the transit vehicle makes a passenger stop on the approach to an intersection).
- ✦ The transit vehicle shall send the schedule deviation data and status of priority requests to the transit vehicle operator and provide the capability for the transit vehicle operator to control the priority system.
- ✦ The transit vehicle shall send priority requests to traffic signal controllers at intersections, pedestrian crossings, and multimodal crossings on the roads (surface streets) and freeway (ramp controls) network that enable a transit vehicle schedule deviation to be corrected.
- ✦ The transit vehicle shall determine the schedule deviation and estimated times of arrival (ETA) at transit stops.

Roadway Signal Priority

- The field element shall respond to signal priority requests from transit vehicles.
- The field element shall respond to signal priority requests from transit vehicles.

Transit Center Signal Priority

- The center shall provide transit operations personnel with the capability to control and monitor transit signal priority operations.
- The center shall define business rules that govern use of transit vehicle signal priority, communicate these rules to the transit vehicle, and monitor transit vehicle requests for priority at signalized intersections.
- The center shall send requests for priority along routes or at intersections to traffic management.
- The center shall analyze transit vehicle schedule performance to determine the need for priority along certain routes or at certain intersections.

**INTERFACES**

Source	Architecture Flows	Destination
HDOT-HWY-M Field Devices	right-of-way request notification	HDOT-HWY-M Traffic Operations Center
HDOT-HWY-M Field Devices	signal control status	HDOT-HWY-M Traffic Operations Center
HDOT-HWY-M Field Devices	signal fault data	HDOT-HWY-M Traffic Operations Center
HDOT-HWY-M Field Devices	right-of-way request notification	Maui DPW Traffic Operations Center
HDOT-HWY-M Field Devices	signal control status	Maui DPW Traffic Operations Center
HDOT-HWY-M Field Devices	signal fault data	Maui DPW Traffic Operations Center
HDOT-HWY-M Traffic Operations Center	signal control commands	HDOT-HWY-M Field Devices
HDOT-HWY-M Traffic Operations Center	request transit information	Maui Bus Fixed Route Dispatch
HDOT-HWY-M Traffic Operations Center	traffic control priority status	Maui Bus Fixed Route Dispatch
Maui Bus Fixed Route Dispatch	traffic control priority request	HDOT-HWY-M Traffic Operations Center
Maui Bus Fixed Route Dispatch	transit system data	HDOT-HWY-M Traffic Operations Center
Maui Bus Fixed Route Dispatch	traffic control priority request	Maui DPW Traffic Operations Center
Maui Bus Fixed Route Dispatch	transit system data	Maui DPW Traffic Operations Center
Maui Bus Fixed Route Vehicles	local signal priority request	HDOT-HWY-M Field Devices
Maui Bus Fixed Route Vehicles	transit vehicle location data	Maui Bus Fixed Route Dispatch
Maui Bus Fixed Route Vehicles	transit vehicle schedule performance	Maui Bus Fixed Route Dispatch
Maui Bus Fixed Route Vehicles	transit vehicle loading data	Maui Bus Fixed Route Dispatch
Maui Bus Fixed Route Vehicles	local signal priority request	Maui DPW Field Devices
Maui DPW Field Devices	right-of-way request notification	Maui DPW Traffic Operations Center
Maui DPW Field Devices	signal control status	Maui DPW Traffic Operations Center
Maui DPW Field Devices	signal fault data	Maui DPW Traffic Operations Center
Maui DPW Field Devices	network status_ud	Maui IT Services Event Management System
Maui DPW Field Devices	system status_ud	Maui IT Services Event Management System
Maui DPW Traffic Operations Center	signal control commands	HDOT-HWY-M Field Devices
Maui DPW Traffic Operations Center	request transit information	Maui Bus Fixed Route Dispatch
Maui DPW Traffic Operations Center	traffic control priority status	Maui Bus Fixed Route Dispatch
Maui DPW Traffic Operations Center	signal control commands	Maui DPW Field Devices
Maui DPW Traffic Operations Center	network status_ud	Maui IT Services Event Management System
Maui DPW Traffic Operations Center	system status_ud	Maui IT Services Event Management System
Maui IT Services Event Management System	system control and configuration_ud	Maui DPW Field Devices
Maui IT Services Event Management System	system control and configuration_ud	Maui DPW Traffic Operations Center

**ITS STANDARDS**

SDO	Document ID	Title	Type
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Center Standards Group	Group
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Field Standards Group	Group
ASTM	<a href="#">View List</a>	Dedicated Short Range Communication at 915 MHz Standards Group	Group

ASTM/IEEE/SAE	<a href="#">View List</a>	Dedicated Short Range Communication at 5.9 GHz Standards Group	Group
AASHTO/ITE/NEMA	NTCIP 1201	Global Object Definitions	Message/Data
AASHTO/ITE/NEMA	NTCIP 1202	Object Definitions for Actuated Traffic Signal Controller (ASC) Units	Message/Data
AASHTO/ITE/NEMA	NTCIP 1210	Field Management Stations (FMS) - Part 1: Object Definitions for Signal System Masters	Message/Data
AASHTO/ITE/NEMA	NTCIP 1211	Object Definitions for Signal Control and Prioritization (SCP)	Message/Data
AASHTO/ITE/NEMA	NTCIP 1214	Object Definitions for Conflict Monitor Units (CMU)	Message/Data
APTA	APTA TCIP-S-001 3.0.4	Standard for Transit Communications Interface Profiles	Message/Data

**OPERATIONAL CONCEPTS**

Stakeholder	Roles and Responsibilities
County of Maui Department of Public Works	Coordinate with Maui Bus vehicles or center to provide signal priority at County of Maui owned intersections.
	Operate traffic signal systems for County of Maui owned intersections.
Hawaii Department of Transportation - Highways Division, Maui District	Coordinate with Maui Bus vehicles or center to provide signal priority at state owned intersections.
	Operate traffic signal systems for State owned intersections.
County of Maui Department of Transportation	Coordinate with Maui County and HDOT-HWY-M for traffic signal priority.
County of Maui Department of Management IT Services	Develop IT and ITS Projects for the County of Maui.
	Monitor and maintain the communications network for the County of Maui.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*





## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI CDA CCTV COORDINATION

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui CDA CCTV Coordination
<b>Description:</b>	This project will provide a connection to the County of Maui EOC with sister agencies to see CCTV images and improve situational awareness.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui - Civil Defense Agency</a> <a href="#">County of Maui Department of Management IT Services</a>
<b>Service Packages:</b>	<a href="#">EM07-1 - Early Warning System - County of Maui EOC</a> <a href="#">EM08-3 - Disaster Response and Recovery - County of Maui and HDOT (3 of 3)</a> <a href="#">MC12-1 - Infrastructure Monitoring - Maui Department of Management IT Services</a>
<b>Project Inventory:</b>	<a href="#">County of Maui EOC</a> <a href="#">Maui DPW Traffic Operations Center</a> <a href="#">Maui IT Services Event Management System</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Emergency Response Management](#)

- The center shall collect information about the status of the recovery efforts for the infrastructure during disasters.
- The center shall manage coordinated inter-agency responses to and recovery from large-scale emergencies. Such agencies include traffic management, transit, maintenance and construction management, rail operations, and other emergency management agencies.

##### [MCM Infrastructure Monitoring](#)

- The center shall report infrastructure repair needs to the maintenance management system.
- The center shall provide current infrastructure conditions information to the asset management system.
- The center shall collect current maintenance and repair needs from the asset management system and correlate this data with data collected through infrastructure monitoring systems.

##### [TMC Incident Dispatch Coordination/Communication](#)

- The center shall coordinate planning for incidents with emergency management centers - including pre-planning activities for disaster response, evacuation, and recovery operations.

## INTERFACES

Source	Architecture Flows	Destination
County of Maui EOC	<a href="#">network status_ud</a>	Maui IT Services Event Management System
County of Maui EOC	<a href="#">system status_ud</a>	Maui IT Services Event Management System
Maui DPW Traffic Operations Center	<a href="#">incident information</a>	County of Maui EOC
Maui DPW Traffic Operations Center	<a href="#">network status_ud</a>	Maui IT Services Event Management System
Maui DPW Traffic Operations Center	<a href="#">system status_ud</a>	Maui IT Services Event Management System
Maui IT Services Event Management System	<a href="#">system control and configuration_ud</a>	County of Maui EOC
Maui IT Services Event Management System	<a href="#">system control and configuration_ud</a>	Maui DPW Traffic Operations Center

## ITS STANDARDS

SDO	Document ID	Title	Type
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Center Standards Group	Group
IEEE	<a href="#">View List</a>	Incident Management Standards Group	Group
SAE	<a href="#">View List</a>	Advanced Traveler Information Systems (ATIS) General Use Standards Group	Group
AASHTO/ITE	ITE TMDD	Traffic Management Data Dictionary (TMDD) and Message Sets for External Traffic Management Center Communications (MS/ETMCC)	Message/Data

## OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
County of Maui - Civil Defense Agency	Coordinate incident and threat information as part of an early warning system for the County of Maui with the State of Hawaii EOC.
	Operate the County EOC, including incident coordination with emergency management providers.
County of Maui Department of Management IT Services	Develop IT and ITS Projects for the County of Maui.
	Monitor and maintain the communications network for the County of Maui.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI DPW AND PD COORDINATION

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui DPW and PD Coordination
<b>Description:</b>	This project will coordinate with Maui Police to share information (e.g., speed).
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Department of Public Works</a> <a href="#">County of Maui Police Department</a> <a href="#">County of Maui Department of Management IT Services</a>
<b>Service Packages:</b>	<a href="#">ATMS08-2 - Traffic Incident Management System - Maui Department of Public Works (DPW)</a> <a href="#">MC12-1 - Infrastructure Monitoring - Maui Department of Management IT Services</a>
<b>Project Inventory:</b>	<a href="#">Maui 911 Communications Center</a> <a href="#">Maui DPW Traffic Operations Center</a> <a href="#">Maui IT Services Event Management System</a> <a href="#">Maui Police Departmental Operations Center</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [MCM Infrastructure Monitoring](#)

- ◆ The center shall report infrastructure repair needs to the maintenance management system.
- ◆ The center shall provide current infrastructure conditions information to the asset management system.
- ◆ The center shall collect current maintenance and repair needs from the asset management system and correlate this data with data collected through infrastructure monitoring systems.

##### [TMC Incident Dispatch Coordination/Communication](#)

- ◆ The center shall exchange road network status assessment information with emergency management and maintenance centers including an assessment of damage sustained by the road network including location and extent of the damage, estimate of remaining capacity, required closures, alternate routes, necessary restrictions, and time frame for repair and recovery.
- ◆ The center shall share resources with allied agency centers to implement special traffic control measures, assist in clean up, verify an incident, etc. This may also involve coordination with maintenance centers.
- ◆ The center shall coordinate planning for incidents with emergency management centers - including pre-planning activities for disaster response, evacuation, and recovery operations.

#### INTERFACES

--	--	--

Source	Architecture Flows	Destination
HDOT-HWY-M Traffic Operations Center	road network conditions	Maui 911 Communications Center
Maui 911 Communications Center	incident information	Maui DPW Traffic Operations Center
Maui 911 Communications Center	incident response status	Maui DPW Traffic Operations Center
Maui 911 Communications Center	resource deployment status	Maui DPW Traffic Operations Center
Maui 911 Communications Center	resource request	Maui DPW Traffic Operations Center
Maui 911 Communications Center	network status_ud	Maui IT Services Event Management System
Maui 911 Communications Center	system status_ud	Maui IT Services Event Management System
Maui DPW Traffic Operations Center	incident information	Maui 911 Communications Center
Maui DPW Traffic Operations Center	incident response status	Maui 911 Communications Center
Maui DPW Traffic Operations Center	resource deployment status	Maui 911 Communications Center
Maui DPW Traffic Operations Center	resource request	Maui 911 Communications Center
Maui DPW Traffic Operations Center	network status_ud	Maui IT Services Event Management System
Maui DPW Traffic Operations Center	system status_ud	Maui IT Services Event Management System
Maui IT Services Event Management System	system control and configuration_ud	Maui 911 Communications Center
Maui IT Services Event Management System	system control and configuration_ud	Maui DPW Traffic Operations Center

### ITS STANDARDS

SDO	Document ID	Title	Type
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Center Standards Group	Group
IEEE	<a href="#">View List</a>	Incident Management Standards Group	Group
SAE	<a href="#">View List</a>	Advanced Traveler Information Systems (ATIS) General Use Standards Group	Group
AASHTO/ITE	ITE TMDD	Traffic Management Data Dictionary (TMDD) and Message Sets for External Traffic Management Center Communications (MS/ETMCC)	Message/Data

### OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
County of Maui Department of Public Works	Perform network surveillance for detection and verification of incidents on county roads, and send traffic/incident information and traffic images to the 911 Communications Center and County of Maui EOC.
County of Maui Police Department	Coordinate incident information with Maui County DPW.
County of Maui Department of Management IT Services	Develop IT and ITS Projects for the County of Maui.
	Monitor and maintain the communications network for the County of Maui.

The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI DPW CLOSED CIRCUIT TELEVISION (CCTV)

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui DPW Closed Circuit Television (CCTV)
<b>Description:</b>	This project will add CCTV on Maui roads for traffic operations and monitoring.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Department of Public Works</a>
<b>Service Packages:</b>	<a href="#">ATMS01-2 - Network Surveillance - Maui Department of Public Works (DPW)</a>
<b>Project Inventory:</b>	<a href="#">Maui DPW Field Devices</a> <a href="#">Maui DPW Traffic Operations Center</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Collect Traffic Surveillance](#)

- The center shall monitor, analyze, and distribute traffic images from CCTV systems under remote control of the center.

##### [Roadway Basic Surveillance](#)

- The field element shall return sensor and CCTV system operational status to the controlling center.
- The field element shall collect, process, and send traffic images to the center for further analysis and distribution.

#### INTERFACES

Source	Architecture Flows	Destination
<a href="#">Maui DPW Field Devices</a>	<a href="#">traffic images</a>	<a href="#">Maui DPW Traffic Operations Center</a>
<a href="#">Maui DPW Traffic Operations Center</a>	<a href="#">video surveillance control</a>	<a href="#">Maui DPW Field Devices</a>

#### ITS STANDARDS

SDO	Document ID	Title	Type
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Center Standards Group	Group

AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Field Standards Group	Group
AASHTO/ITE/NEMA	NTCIP 1201	Global Object Definitions	Message/Data
AASHTO/ITE/NEMA	NTCIP 1205	Object Definitions for Closed Circuit Television (CCTV) Camera Control	Message/Data
AASHTO/ITE/NEMA	NTCIP 1208	Object Definitions for Closed Circuit Television (CCTV) Switching	Message/Data

## OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
County of Maui Department of Public Works	Obtain traffic images and traffic flow data through CCTVs and field sensors, and maintain operational control of its own field equipment.
	Perform network surveillance for detection and verification of incidents on county roads, and send traffic/incident information and traffic images to the 911 Communications Center and County of Maui EOC.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#) [Maui Home](#) [Stakeholders](#) [Inventory](#) [Services](#) [Architecture](#) [Projects](#) [Resources](#) [Feedback](#)



### PROJECT DETAILS: MAUI POLICE COMPUTER AIDED DISPATCH (CAD) EXTENSION

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui Police Computer Aided Dispatch (CAD) Extension
<b>Description:</b>	This project will expand the CAD capabilities so that alerts and notifications may automatically be sent to select agencies in the County of Maui.
<b>Status:</b>	Existing
<b>Timeframe:</b>	Existing
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Police Department</a> <a href="#">County of Maui Department of Management IT Services</a>
<b>Service Packages:</b>	<a href="#">ATMS08-5 - Traffic Incident Management System - Maui Emergency Vehicles</a> <a href="#">EM01-2 - Emergency Call-Taking and Dispatch - Maui Police</a> <a href="#">MC12-1 - Infrastructure Monitoring - Maui Department of Management IT Services</a>
<b>Project Inventory:</b>	<a href="#">Maui 911 Communications Center</a> <a href="#">Maui IT Services Event Management System</a> <a href="#">Maui Police Vehicles</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Emergency Dispatch](#)

- The center shall coordinate response to incidents with other Emergency Management centers to ensure appropriate resources are dispatched and utilized.
- The center shall store and maintain the emergency service responses in an action log.
- The center shall track the location and status of emergency vehicles responding to an emergency based on information from the emergency vehicle.
- The center shall relay location and incident details to the responding vehicles.
- The center shall store the current status of all emergency vehicles available for dispatch and those that have been dispatched.
- The center shall dispatch emergency vehicles to respond to verified emergencies under center personnel control.

##### [MCM Infrastructure Monitoring](#)

- The center shall report infrastructure repair needs to the maintenance management system.
- The center shall provide current infrastructure conditions information to the asset management system.
- The center shall collect current maintenance and repair needs from the asset management system and correlate this data with data collected through infrastructure monitoring systems.



**On-board EV En Route Support**

- The emergency vehicle shall receive incident details and a suggested route when dispatched to a scene.
- The emergency vehicle shall send the vehicle's location and operational data to the center for emergency management and dispatch.
- The emergency vehicle shall track its current location.
- The emergency vehicle shall provide the personnel on-board with dispatch information, including incident type and location, and forward an acknowledgment from personnel to the center that the vehicle is on its way to the incident scene.
- The emergency vehicle shall send the current en route status (including estimated time of arrival) and requests for emergency dispatch updates.

**INTERFACES**

Source	Architecture Flows	Destination
Maui 911 Communications Center	network status_ud	Maui IT Services Event Management System
Maui 911 Communications Center	system status_ud	Maui IT Services Event Management System
Maui 911 Communications Center	emergency dispatch requests	Maui Police Vehicles
Maui 911 Communications Center	incident status	Maui Police Vehicles
Maui 911 Communications Center	decision support information	Maui Police Vehicles
Maui IT Services Event Management System	system control and configuration_ud	Maui 911 Communications Center
Maui Police Departmental Operations Center	decision support information	Maui Police Vehicles
Maui Police Vehicles	emergency dispatch response	Maui 911 Communications Center
Maui Police Vehicles	emergency vehicle tracking data	Maui 911 Communications Center
Maui Police Vehicles	incident status	Maui Police Departmental Operations Center

**ITS STANDARDS**

SDO	Document ID	Title	Type
-----	-------------	-------	------

**OPERATIONAL CONCEPTS**

Stakeholder	Roles and Responsibilities
County of Maui Police Department	Dispatch vehicles for Maui County Police, Maui County Fire, and Maui County EMS.
	Provide response to traffic incidents in the County of Maui.
	Provide response vehicles and personnel to emergencies in the County of Maui.
County of Maui Department of Management IT Services	Develop IT and ITS Projects for the County of Maui.
	Monitor and maintain the communications network for the County of Maui.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI DPW SIGNAL PROGRAMMING SOFTWARE UPGRADE

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui DPW Signal Programming Software Upgrade
<b>Description:</b>	This project will upgrade the Maui signal software.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Department of Public Works</a> <a href="#">County of Maui Department of Management IT Services</a>
<b>Service Packages:</b>	<a href="#">ATMS03-2 - Traffic Signal Control - Maui Department of Public Works (DPW)</a> <a href="#">MC12-1 - Infrastructure Monitoring - Maui Department of Management IT Services</a>
<b>Project Inventory:</b>	<a href="#">Maui DPW Field Devices</a> <a href="#">Maui DPW Traffic Operations Center</a> <a href="#">Maui IT Services Event Management System</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [MCM Infrastructure Monitoring](#)

- The center shall report infrastructure repair needs to the maintenance management system.
- The center shall provide current infrastructure conditions information to the asset management system.
- The center shall collect current maintenance and repair needs from the asset management system and correlate this data with data collected through infrastructure monitoring systems.

##### [Roadway Signal Controls](#)

- The field element shall report current transit priority status to the center.
- The field element shall return traffic signal controller fault data to the center.
- The field element shall return traffic signal controller operational status to the center.
- The field element shall report current preemption status to the center.
- The field element shall report the current signal control information to the center.
- The field element shall control traffic signals under center control.

##### [TMC Signal Control](#)

- The center shall maintain traffic signal coordination including synchronizing clocks throughout the system.
- The center shall manage boundaries of the control sections used within the signal system.
- The center shall implement control plans to coordinate signalized intersections based on data from sensors.

- ➔ The center shall manage (define, store and modify) control plans to coordinate signalized intersections, to be engaged at the direction of center personnel or according to a daily schedule.
- ➔ The center shall collect traffic signal controller fault data from the field.
- ➔ The center shall collect traffic signal controller operational status and compare against the control information sent by the center.
- ➔ The center shall remotely control traffic signal controllers.

## INTERFACES

Source	Architecture Flows	Destination
Maui DPW Field Devices	right-of-way request notification	Maui DPW Traffic Operations Center
Maui DPW Field Devices	signal control status	Maui DPW Traffic Operations Center
Maui DPW Field Devices	traffic flow	Maui DPW Traffic Operations Center
Maui DPW Field Devices	traffic images	Maui DPW Traffic Operations Center
Maui DPW Field Devices	signal fault data	Maui DPW Traffic Operations Center
Maui DPW Field Devices	system status_ud	Maui IT Services Event Management System
Maui DPW Traffic Operations Center	traffic sensor control	Maui DPW Field Devices
Maui DPW Traffic Operations Center	signal control commands	Maui DPW Field Devices
Maui DPW Traffic Operations Center	video surveillance control	Maui DPW Field Devices
Maui DPW Traffic Operations Center	signal control device configuration	Maui DPW Field Devices
Maui DPW Traffic Operations Center	signal control plans	Maui DPW Field Devices
Maui DPW Traffic Operations Center	signal system configuration	Maui DPW Field Devices
Maui IT Services Event Management System	system control and configuration_ud	Maui DPW Field Devices
Maui IT Services Event Management System	system control and configuration_ud	Maui DPW Traffic Operations Center

## ITS STANDARDS

SDO	Document ID	Title	Type
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Center Standards Group	Group
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Field Standards Group	Group
AASHTO/ITE/NEMA	NTCIP 1201	Global Object Definitions	Message/Data
AASHTO/ITE/NEMA	NTCIP 1202	Object Definitions for Actuated Traffic Signal Controller (ASC) Units	Message/Data
AASHTO/ITE/NEMA	NTCIP 1205	Object Definitions for Closed Circuit Television (CCTV) Camera Control	Message/Data
AASHTO/ITE/NEMA	NTCIP 1208	Object Definitions for Closed Circuit Television (CCTV) Switching	Message/Data
AASHTO/ITE/NEMA	NTCIP 1209	Data Element Definitions for Transportation Sensor Systems (TSS)	Message/Data
AASHTO/ITE/NEMA	NTCIP 1210	Field Management Stations (FMS) - Part 1: Object Definitions for Signal System Masters	Message/Data
AASHTO/ITE/NEMA	NTCIP 1211	Object Definitions for Signal Control and Prioritization (SCP)	Message/Data
AASHTO/ITE/NEMA	NTCIP 1214	Object Definitions for Conflict Monitor Units (CMU)	Message/Data

## OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
County of Maui Department of Public Works	Operate traffic signal systems for County of Maui owned intersections.
County of Maui Department of Management IT Services	Develop IT and ITS Projects for the County of Maui.
	Monitor and maintain the communications network for the County of Maui.

The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI DPW SMART LIGHTING SYSTEM

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui DPW Smart Lighting System
<b>Description:</b>	This project will deploy a smart lighting system on Maui streetlights.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Department of Public Works</a>
<b>Service Packages:</b>	<a href="#">ATMS12-1 - Roadside Lighting System Control - Maui Department of Public Works (DPW)</a>
<b>Project Inventory:</b>	<a href="#">Maui DPW Field Devices</a> <a href="#">Maui DPW Traffic Operations Center</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Roadside Lighting System Control](#)

- The field element shall control lighting systems along the roadside under center control.

##### [TMC Lighting System Control](#)

- The center shall remotely control electrical lighting systems.

#### INTERFACES

Source	Architecture Flows	Destination
<a href="#">Maui DPW Field Devices</a>	<a href="#">lighting system status</a>	<a href="#">Maui DPW Traffic Operations Center</a>
<a href="#">Maui DPW Traffic Operations Center</a>	<a href="#">lighting system control data</a>	<a href="#">Maui DPW Field Devices</a>

#### ITS STANDARDS

SDO	Document ID	Title	Type
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Field Standards Group	Group
AASHTO/ITE/NEMA	NTCIP 1213	Object Definitions for Electrical and Lighting Management Systems (ELMS)	Message/Data

**OPERATIONAL CONCEPTS**

<b>Stakeholder</b>	<b>Roles and Responsibilities</b>
County of Maui Department of Public Works	Operate smart lighting systems to control roadside lighting in Maui County.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI DPW TRAFFIC OPERATIONS CENTER

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui DPW Traffic Operations Center
<b>Description:</b>	This project will develop a traffic operations center (TOC) to monitor the Maui traffic signal system and CCTVs.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Department of Public Works</a> <a href="#">County of Maui Department of Management IT Services</a>
<b>Service Packages:</b>	<a href="#">ATMS01-2 - Network Surveillance - Maui Department of Public Works (DPW)</a> <a href="#">ATMS03-2 - Traffic Signal Control - Maui Department of Public Works (DPW)</a> <a href="#">MC12-1 - Infrastructure Monitoring - Maui Department of Management IT Services</a>
<b>Project Inventory:</b>	<a href="#">Maui DPW Field Devices</a> <a href="#">Maui DPW Traffic Operations Center</a> <a href="#">Maui IT Services Event Management System</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Collect Traffic Surveillance](#)

- The center shall monitor, analyze, and distribute traffic images from CCTV systems under remote control of the center.
- The center shall monitor, analyze, and store traffic sensor data (speed, volume, occupancy) collected from field elements under remote control of the center.

##### [MCM Infrastructure Monitoring](#)

- The center shall report infrastructure repair needs to the maintenance management system.
- The center shall provide current infrastructure conditions information to the asset management system.
- The center shall collect current maintenance and repair needs from the asset management system and correlate this data with data collected through infrastructure monitoring systems.

##### [Roadway Basic Surveillance](#)

- The field element shall return sensor and CCTV system operational status to the controlling center.
- The field element shall collect, process, and send traffic images to the center for further analysis and distribution.
- The field element shall collect, process, digitize, and send traffic sensor data (speed, volume, and occupancy) to the center for further analysis and storage, under center control.

### Roadway Signal Controls

- The field element shall report current transit priority status to the center.
- The field element shall return traffic signal controller fault data to the center.
- The field element shall return traffic signal controller operational status to the center.
- The field element shall report current preemption status to the center.
- The field element shall report the current signal control information to the center.
- The field element shall control traffic signals under center control.

### TMC Signal Control

- The center shall maintain traffic signal coordination including synchronizing clocks throughout the system.
- The center shall manage boundaries of the control sections used within the signal system.
- The center shall implement control plans to coordinate signalized intersections based on data from sensors.
- The center shall manage (define, store and modify) control plans to coordinate signalized intersections, to be engaged at the direction of center personnel or according to a daily schedule.
- The center shall collect traffic signal controller fault data from the field.
- The center shall collect traffic signal controller operational status and compare against the control information sent by the center.
- The center shall remotely control traffic signal controllers.

## INTERFACES

Source	Architecture Flows	Destination
Maui DPW Field Devices	traffic images	Maui DPW Maintenance Dispatch
Maui DPW Field Devices	right-of-way request notification	Maui DPW Traffic Operations Center
Maui DPW Field Devices	signal control status	Maui DPW Traffic Operations Center
Maui DPW Field Devices	traffic flow	Maui DPW Traffic Operations Center
Maui DPW Field Devices	traffic images	Maui DPW Traffic Operations Center
Maui DPW Field Devices	signal fault data	Maui DPW Traffic Operations Center
Maui DPW Traffic Operations Center	traffic sensor control	Maui DPW Field Devices
Maui DPW Traffic Operations Center	signal control commands	Maui DPW Field Devices
Maui DPW Traffic Operations Center	video surveillance control	Maui DPW Field Devices
Maui DPW Traffic Operations Center	signal control device configuration	Maui DPW Field Devices
Maui DPW Traffic Operations Center	signal control plans	Maui DPW Field Devices
Maui DPW Traffic Operations Center	signal system configuration	Maui DPW Field Devices
Maui DPW Traffic Operations Center	network status_ud	Maui IT Services Event Management System
Maui DPW Traffic Operations Center	system status_ud	Maui IT Services Event Management System

## ITS STANDARDS

SDO	Document ID	Title	Type
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Center Standards Group	Group
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Field Standards Group	Group
AASHTO/ITE/NEMA	NTCIP 1201	Global Object Definitions	Message/Data
AASHTO/ITE/NEMA	NTCIP 1202	Object Definitions for Actuated Traffic Signal Controller (ASC) Units	Message/Data
AASHTO/ITE/NEMA	NTCIP 1205	Object Definitions for Closed Circuit Television (CCTV) Camera Control	Message/Data
AASHTO/ITE/NEMA	NTCIP 1208	Object Definitions for Closed Circuit Television (CCTV) Switching	Message/Data
AASHTO/ITE/NEMA	NTCIP 1209	Data Element Definitions for Transportation Sensor Systems (TSS)	Message/Data
AASHTO/ITE/NEMA	NTCIP 1210	Field Management Stations (FMS) - Part 1: Object Definitions for Signal System Masters	Message/Data
AASHTO/ITE/NEMA	NTCIP 1211	Object Definitions for Signal Control and Prioritization (SCP)	Message/Data
AASHTO/ITE/NEMA	NTCIP 1214	Object Definitions for Conflict Monitor Units (CMU)	Message/Data

## OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
County of Maui Department of Public Works	<p>Coordinate traffic information and traffic control HDOT-HWY-M.</p> <p>Obtain traffic images and traffic flow data through CCTVs and field sensors, and maintain operational control of its own field equipment.</p>



	Operate traffic signal systems for County of Maui owned intersections.
	Perform network surveillance for detection and verification of incidents on county roads, and send traffic/incident information and traffic images to the 911 Communications Center and County of Maui EOC.
County of Maui Department of Management IT Services	Develop IT and ITS Projects for the County of Maui.
	Monitor and maintain the communications network for the County of Maui.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI DPW TRAFFIC SIGNAL UPGRADE

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui DPW Traffic Signal Upgrade
<b>Description:</b>	This project will interconnect all Maui Traffic Signals.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Department of Public Works</a>
<b>Service Packages:</b>	<a href="#">ATMS03-2 - Traffic Signal Control - Maui Department of Public Works (DPW)</a>
<b>Project Inventory:</b>	<a href="#">Maui DPW Field Devices</a> <a href="#">Maui DPW Traffic Operations Center</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Roadway Signal Controls](#)

- The field element shall report current transit priority status to the center.
- The field element shall return traffic signal controller fault data to the center.
- The field element shall return traffic signal controller operational status to the center.
- The field element shall report current preemption status to the center.
- The field element shall report the current signal control information to the center.
- The field element shall control traffic signals under center control.

##### [TMC Signal Control](#)

- The center shall maintain traffic signal coordination including synchronizing clocks throughout the system.
- The center shall manage boundaries of the control sections used within the signal system.
- The center shall implement control plans to coordinate signalized intersections based on data from sensors.
- The center shall manage (define, store and modify) control plans to coordinate signalized intersections, to be engaged at the direction of center personnel or according to a daily schedule.
- The center shall collect traffic signal controller fault data from the field.
- The center shall collect traffic signal controller operational status and compare against the control information sent by the center.
- The center shall remotely control traffic signal controllers.

## INTERFACES

Source	Architecture Flows	Destination
Maui DPW Field Devices	right-of-way request notification	Maui DPW Traffic Operations Center
Maui DPW Field Devices	signal control status	Maui DPW Traffic Operations Center
Maui DPW Field Devices	traffic flow	Maui DPW Traffic Operations Center
Maui DPW Field Devices	traffic images	Maui DPW Traffic Operations Center
Maui DPW Field Devices	signal fault data	Maui DPW Traffic Operations Center
Maui DPW Traffic Operations Center	traffic sensor control	Maui DPW Field Devices
Maui DPW Traffic Operations Center	signal control commands	Maui DPW Field Devices
Maui DPW Traffic Operations Center	video surveillance control	Maui DPW Field Devices
Maui DPW Traffic Operations Center	signal control device configuration	Maui DPW Field Devices
Maui DPW Traffic Operations Center	signal control plans	Maui DPW Field Devices
Maui DPW Traffic Operations Center	signal system configuration	Maui DPW Field Devices

## ITS STANDARDS

SDO	Document ID	Title	Type
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Center Standards Group	Group
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Field Standards Group	Group
AASHTO/ITE/NEMA	NTCIP 1201	Global Object Definitions	Message/Data
AASHTO/ITE/NEMA	NTCIP 1202	Object Definitions for Actuated Traffic Signal Controller (ASC) Units	Message/Data
AASHTO/ITE/NEMA	NTCIP 1205	Object Definitions for Closed Circuit Television (CCTV) Camera Control	Message/Data
AASHTO/ITE/NEMA	NTCIP 1208	Object Definitions for Closed Circuit Television (CCTV) Switching	Message/Data
AASHTO/ITE/NEMA	NTCIP 1209	Data Element Definitions for Transportation Sensor Systems (TSS)	Message/Data
AASHTO/ITE/NEMA	NTCIP 1210	Field Management Stations (FMS) - Part 1: Object Definitions for Signal System Masters	Message/Data
AASHTO/ITE/NEMA	NTCIP 1211	Object Definitions for Signal Control and Prioritization (SCP)	Message/Data
AASHTO/ITE/NEMA	NTCIP 1214	Object Definitions for Conflict Monitor Units (CMU)	Message/Data

## OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
County of Maui Department of Public Works	Operate traffic signal systems for County of Maui owned intersections.

The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI EMERGENCY OPERATIONS CENTER

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui Emergency Operations Center
<b>Description:</b>	This project will create a new EOC. Tenants in the new EOC will likely include the County of Maui Civil Defense Agency, Information Technology, 911 Center, and Radio Shop.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui - Civil Defense Agency</a> <a href="#">County of Maui Department of Management IT Services</a>
<b>Service Packages:</b>	<a href="#">EM07-1 - Early Warning System - County of Maui EOC</a> <a href="#">EM08-1 - Disaster Response and Recovery - County of Maui and HDOT (1 of 3)</a> <a href="#">EM08-2 - Disaster Response and Recovery - County of Maui and HDOT (2 of 3)</a> <a href="#">EM08-3 - Disaster Response and Recovery - County of Maui and HDOT (3 of 3)</a> <a href="#">EM09-1 - Evacuation and Reentry Management - County of Maui and HDOT</a> <a href="#">EM10-1 - Disaster Traveler Information - County of Maui and HDOT</a> <a href="#">EM10-2 - Disaster Traveler Information - County of Maui EOC Reverse 911</a> <a href="#">MC12-1 - Infrastructure Monitoring - Maui Department of Management IT Services</a>
<b>Project Inventory:</b>	<a href="#">County of Maui EOC</a> <a href="#">County of Maui Website</a> <a href="#">GoAkamai</a> <a href="#">Hawaii State EOC</a> <a href="#">HDOT-AIR-M Command Center</a> <a href="#">HDOT-HAR-M Security Center</a> <a href="#">HDOT-HWY-M Traffic Operations Center</a> <a href="#">Maui 911 Communications Center</a> <a href="#">Maui Bus Fixed Route Dispatch</a> <a href="#">Maui Bus Paratransit Dispatch</a> <a href="#">Maui DPW Traffic Operations Center</a> <a href="#">Maui EMS Base</a> <a href="#">Maui Fire Base</a> <a href="#">Maui IT Services Event Management System</a> <a href="#">Maui Police Departmental Operations Center</a> <a href="#">Maui Visitors and Convention Bureau</a> <a href="#">National Weather Service</a> <a href="#">Pacific Disaster Center</a> <a href="#">Pacific Tsunami Warning Center</a> <a href="#">Private Personal Computing Devices</a> <a href="#">Private Traveler Information Services</a> <a href="#">Red Cross</a>

## FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

### Emergency Evacuation Support

- ◆ The center shall develop and exchange evacuation plans with allied agencies prior to the occurrence of a disaster.
- ◆ The center shall monitor the progress of the reentry process.
- ◆ The center shall monitor the progress or status of the evacuation once it begins and exchange tactical plans, prepared during the incident, with allied agencies.
- ◆ The center shall provide traveler information systems with evacuation guidance including basic information to assist potential evacuees in determining whether evacuation is necessary and when it is safe to return.
- ◆ The center shall request traffic management agencies to implement special traffic control strategies and to control evacuation traffic, including traffic on local streets and arterials as well as the major evacuation routes.
- ◆ The center shall request resources from transit agencies as needed to support the evacuation.
- ◆ The center shall provide evacuation information to traffic, transit, maintenance and construction, rail operations, and other emergency management centers as needed.
- ◆ The center shall coordinate evacuation destinations and shelter needs with shelter providers (e.g., the American Red Cross) in the region.
- ◆ The center shall provide an interface to the emergency system operator to enter evacuation plans and procedures and present the operator with other agencies' plans.
- ◆ The center shall develop and exchange evacuation plans with allied agencies prior to the occurrence of a disaster.
- ◆ The center shall manage inter-agency coordination of evacuation operations, from initial planning through the evacuation process and reentry.

### Emergency Response Management

- ◆ The center shall provide the capability to communicate information about emergency situations to local population through the Emergency Telecommunications System.
- ◆ The center shall manage coordinated inter-agency responses to and recovery from large-scale emergencies. Such agencies include traffic management, transit, maintenance and construction management, rail operations, and other emergency management agencies.
- ◆ The center shall provide the capability to implement response plans and track progress through the incident by exchanging incident information and response status with allied agencies.
- ◆ The center shall develop, coordinate with other agencies, and store emergency response plans.
- ◆ The center shall track the availability of resources and coordinate resource sharing with allied agency centers including traffic, maintenance, or other emergency centers.
- ◆ The center shall allocate the appropriate emergency services, resources, and vehicle (s) to respond to incidents, and shall provide the capability to override the current allocation to suit the special needs of a current incident.
- ◆ The center shall provide the capability to request transit resource availability from transit centers for use during disaster and evacuation operations.
- ◆ The center shall provide the capability for center personnel to provide inputs to the management of incidents, disasters and evacuations.
- ◆ The center shall provide strategic emergency response capabilities provided by an Emergency Operations Center for large-scale incidents and disasters.
- ◆ The center shall provide the overall status of infrastructure recovery efforts to traveler information providers and media.
- ◆ The center shall allocate the appropriate emergency services, resources, and vehicle (s) to respond to incidents, and shall provide the capability to override the current allocation to suit the special needs of a current incident.
- ◆ The center shall provide the capability to identify neighborhoods and businesses that should be informed of an emergency situation based on information collected about incidents including their severity, impacted locations, and recovery schedule.
- ◆ The center shall allocate the appropriate emergency services, resources, and vehicle (s) to respond to incidents, and shall provide the capability to override the current allocation to suit the special needs of a current incident.
- ◆ The center shall provide the capability to implement response plans and track progress through the incident by exchanging incident information and response status with allied agencies.
- ◆ The center shall allocate the appropriate emergency services, resources, and vehicle (s) to respond to incidents, and shall provide the capability to override the current allocation to suit the special needs of a current incident.
- ◆ The center shall provide strategic emergency response capabilities provided by an Emergency Operations Center for large-scale incidents and disasters.
- ◆ The center shall provide the capability to implement response plans and track progress through the incident by exchanging incident information and response status with allied agencies.
- ◆ The center shall track the availability of resources and coordinate resource sharing with allied agency centers including traffic, maintenance, or other emergency centers.
- ◆ The center shall collect information about the status of the recovery efforts for the infrastructure during disasters.

### Incident Command

- ◆ The center shall assess the status of responding emergency vehicles as part of an incident command.
- ◆ The center shall share incident command information with other public safety agencies including resource deployment status, hazardous material information, rail incident information, evacuation advice as well as traffic, road, and weather conditions.
- ◆ The center shall track and maintain resource information and action plans pertaining to the incident command.
- ◆ The center shall assess the status of responding emergency vehicles as part of an incident command.
- ◆ The center shall share incident command information with other public safety agencies including resource deployment status, hazardous material information, rail incident information, evacuation advice as well as traffic, road, and weather conditions.

- The center shall assess the status of responding emergency vehicles as part of an incident command.
- The center shall track and maintain resource information and action plans pertaining to the incident command.
- The center shall provide incident command communications with public safety, emergency management, transportation, and other allied response agency centers.
- The center shall provide tactical decision support, resource coordination, and communications integration for Incident Commands that are established by first responders to support local management of an incident.

#### ISP Emergency Traveler Information

- The center shall disseminate wide-area alert information to the traveler interface systems, including major emergencies such as a natural or man-made disaster, civil emergency, child abductions, severe weather watches and warnings, military activities, and law enforcement warnings.
- The center shall disseminate emergency evacuation information to the traveler interface systems, including evacuation zones, shelter information, available transportation modes, road closures and detours, changes to transit services, and traffic and road conditions at the origin, destination, and along the evacuation routes.
- The center shall provide the capability for a system operator to control the type and update frequency of emergency and wide-area alert information distributed to travelers.
- The center shall disseminate wide-area alert information to the traveler interface systems, including major emergencies such as a natural or man-made disaster, civil emergency, child abductions, severe weather watches and warnings, military activities, and law enforcement warnings.
- The center shall provide evacuation information to shelter providers.
- The center shall disseminate emergency evacuation information to the traveler interface systems, including evacuation zones, shelter information, available transportation modes, road closures and detours, changes to transit services, and traffic and road conditions at the origin, destination, and along the evacuation routes.

#### MCM Infrastructure Monitoring

- The center shall report infrastructure repair needs to the maintenance management system.
- The center shall provide current infrastructure conditions information to the asset management system.
- The center shall collect current maintenance and repair needs from the asset management system and correlate this data with data collected through infrastructure monitoring systems.

#### TMC Evacuation Support

- The center shall coordinate execution of evacuation strategies with emergency management centers - including activities such as setting closures and detours, establishing routes, updating areas to be evacuated, timing the process, etc.
- The center shall coordinate planning for evacuation with emergency management centers - including pre-planning activities such as establishing routes, areas to be evacuated, timing, etc.
- The center shall coordinate execution of evacuation strategies with emergency management centers - including activities such as setting closures and detours, establishing routes, updating areas to be evacuated, timing the process, etc.
- The center shall coordinate information and controls with other traffic management centers.
- The center shall support requests from emergency management centers to preempt the current traffic control strategy, activate traffic control and closure systems such as gates and barriers, activate safeguard systems, or use driver information systems to support evacuation traffic control plans.
- The center shall coordinate planning for evacuation with emergency management centers - including pre-planning activities such as establishing routes, areas to be evacuated, timing, etc.

#### TMC Incident Detection

- The center shall exchange incident and threat information with emergency management centers as well as maintenance and construction centers; including notification of existence of incident and expected severity, location, time and nature of incident.
- The center shall receive inputs concerning upcoming events that would effect the traffic network from event promoters and traveler information service providers.
- The center shall collect and store traffic flow and image data from the field equipment to detect and verify incidents.

#### TMC Incident Dispatch Coordination/Communication

- The center shall coordinate information and controls with other traffic management centers.
- The center shall exchange road network status assessment information with emergency management and maintenance centers including an assessment of damage sustained by the road network including location and extent of the damage, estimate of remaining capacity, required closures, alternate routes, necessary restrictions, and time frame for repair and recovery.
- The center shall monitor incident response performance and calculate incident response and clearance times.
- The center shall receive inputs concerning upcoming events that would effect the traffic network from event promoters, traveler information service providers, media, border crossings, and rail operations centers.
- The center shall share resources with allied agency centers to implement special traffic control measures, assist in clean up, verify an incident, etc. This may also involve coordination with maintenance centers.
- The center shall coordinate planning for incidents with emergency management centers - including pre-planning activities for disaster response, evacuation, and recovery operations.
- The center shall receive inputs from emergency management and transit management centers to develop an overall status of the transportation system including emergency transit schedules in effect and current status and condition of the transportation infrastructure.
- The center shall coordinate information and controls with other traffic management centers.
- The center shall exchange road network status assessment information with emergency management and maintenance centers including an assessment of damage sustained by the road network including location and extent of the damage, estimate of remaining capacity, required closures, alternate routes, necessary restrictions, and time frame for repair and recovery.
- The center shall monitor incident response performance and calculate incident response and clearance times.

- The center shall provide road network conditions and traffic images to emergency management centers, maintenance and construction centers, and traveler information service providers.
- The center shall receive inputs concerning upcoming events that would effect the traffic network from event promoters, traveler information service providers, media, border crossings, and rail operations centers.
- The center shall share resources with allied agency centers to implement special traffic control measures, assist in clean up, verify an incident, etc. This may also involve coordination with maintenance centers.
- The center shall coordinate planning for incidents with emergency management centers - including pre-planning activities for disaster response, evacuation, and recovery operations.
- The center shall exchange alert information and status with emergency management centers. The information includes notification of a major emergency such as a natural or man-made disaster, civil emergency, or child abduction for distribution to the public. The information may include the alert originator, the nature of the emergency, the geographic area affected by the emergency, the effective time period, and information and instructions necessary for the public to respond to the alert. This may also identify specific information that should not be released to the public.

## INTERFACES

Source	Architecture Flows	Destination
County of Maui EOC	incident information	County of Maui Website
County of Maui EOC	evacuation information	County of Maui Website
County of Maui EOC	transportation system status	County of Maui Website
County of Maui EOC	incident information	GoAkamai
County of Maui EOC	evacuation information	GoAkamai
County of Maui EOC	transportation system status	GoAkamai
County of Maui EOC	incident report	Hawaii State EOC
County of Maui EOC	incident response coordination	Hawaii State EOC
County of Maui EOC	emergency plan coordination	Hawaii State EOC
County of Maui EOC	evacuation coordination	Hawaii State EOC
County of Maui EOC	resource coordination	Hawaii State EOC
County of Maui EOC	transportation system status	Hawaii State EOC
County of Maui EOC	incident command information coordination	Hawaii State EOC
County of Maui EOC	threat information coordination	Hawaii State EOC
County of Maui EOC	incident report	HDOT-AIR-M Command Center
County of Maui EOC	incident response coordination	HDOT-AIR-M Command Center
County of Maui EOC	emergency plan coordination	HDOT-AIR-M Command Center
County of Maui EOC	evacuation coordination	HDOT-AIR-M Command Center
County of Maui EOC	resource coordination	HDOT-AIR-M Command Center
County of Maui EOC	transportation system status	HDOT-AIR-M Command Center
County of Maui EOC	incident command information coordination	HDOT-AIR-M Command Center
County of Maui EOC	threat information coordination	HDOT-AIR-M Command Center
County of Maui EOC	incident report	HDOT-HAR-M Security Center
County of Maui EOC	incident response coordination	HDOT-HAR-M Security Center
County of Maui EOC	emergency plan coordination	HDOT-HAR-M Security Center
County of Maui EOC	evacuation coordination	HDOT-HAR-M Security Center
County of Maui EOC	resource coordination	HDOT-HAR-M Security Center
County of Maui EOC	transportation system status	HDOT-HAR-M Security Center
County of Maui EOC	incident command information coordination	HDOT-HAR-M Security Center
County of Maui EOC	threat information coordination	HDOT-HAR-M Security Center
County of Maui EOC	cctv images_ud	HDOT-HAR-M Security Center
County of Maui EOC	work plan feedback	HDOT-HWY-M Maintenance Dispatch
County of Maui EOC	emergency traffic control request	HDOT-HWY-M Traffic Operations Center
County of Maui EOC	incident information	HDOT-HWY-M Traffic Operations Center
County of Maui EOC	incident response status	HDOT-HWY-M Traffic Operations Center

County of Maui EOC	resource request	HDOT-HWY-M Traffic Operations Center
County of Maui EOC	emergency plan coordination	HDOT-HWY-M Traffic Operations Center
County of Maui EOC	evacuation information	HDOT-HWY-M Traffic Operations Center
County of Maui EOC	threat information	HDOT-HWY-M Traffic Operations Center
County of Maui EOC	transportation system status	HDOT-HWY-M Traffic Operations Center
County of Maui EOC	incident report	Maui 911 Communications Center
County of Maui EOC	incident response coordination	Maui 911 Communications Center
County of Maui EOC	emergency plan coordination	Maui 911 Communications Center
County of Maui EOC	evacuation coordination	Maui 911 Communications Center
County of Maui EOC	resource coordination	Maui 911 Communications Center
County of Maui EOC	transportation system status	Maui 911 Communications Center
County of Maui EOC	incident command information coordination	Maui 911 Communications Center
County of Maui EOC	threat information coordination	Maui 911 Communications Center
County of Maui EOC	incident response status	Maui Bus Fixed Route Dispatch
County of Maui EOC	emergency plan coordination	Maui Bus Fixed Route Dispatch
County of Maui EOC	evacuation information	Maui Bus Fixed Route Dispatch
County of Maui EOC	emergency transit service request	Maui Bus Fixed Route Dispatch
County of Maui EOC	transportation system status	Maui Bus Fixed Route Dispatch
County of Maui EOC	incident response status	Maui Bus Paratransit Dispatch
County of Maui EOC	emergency plan coordination	Maui Bus Paratransit Dispatch
County of Maui EOC	evacuation information	Maui Bus Paratransit Dispatch
County of Maui EOC	emergency transit service request	Maui Bus Paratransit Dispatch
County of Maui EOC	transportation system status	Maui Bus Paratransit Dispatch
County of Maui EOC	emergency traffic control request	Maui DPW Traffic Operations Center
County of Maui EOC	incident information	Maui DPW Traffic Operations Center
County of Maui EOC	incident response status	Maui DPW Traffic Operations Center
County of Maui EOC	resource request	Maui DPW Traffic Operations Center
County of Maui EOC	emergency plan coordination	Maui DPW Traffic Operations Center
County of Maui EOC	evacuation information	Maui DPW Traffic Operations Center
County of Maui EOC	threat information	Maui DPW Traffic Operations Center
County of Maui EOC	transportation system status	Maui DPW Traffic Operations Center
County of Maui EOC	incident report	Maui EMS Base
County of Maui EOC	incident response coordination	Maui EMS Base
County of Maui EOC	emergency plan coordination	Maui EMS Base
County of Maui EOC	evacuation coordination	Maui EMS Base
County of Maui EOC	resource coordination	Maui EMS Base
County of Maui EOC	transportation system status	Maui EMS Base
County of Maui EOC	incident command information coordination	Maui EMS Base
County of Maui EOC	threat information coordination	Maui EMS Base
County of Maui EOC	incident report	Maui Fire Base
County of Maui EOC	incident response coordination	Maui Fire Base
County of Maui EOC	emergency plan coordination	Maui Fire Base
County of Maui EOC	evacuation coordination	Maui Fire Base
County of Maui EOC	resource coordination	Maui Fire Base
County of Maui EOC	transportation system status	Maui Fire Base
County of Maui EOC	incident command information coordination	Maui Fire Base



County of Maui EOC	threat information coordination	Maui Fire Base
County of Maui EOC	network status_ud	Maui IT Services Event Management System
County of Maui EOC	system status_ud	Maui IT Services Event Management System
County of Maui EOC	incident report	Maui Police Departmental Operations Center
County of Maui EOC	incident response coordination	Maui Police Departmental Operations Center
County of Maui EOC	emergency plan coordination	Maui Police Departmental Operations Center
County of Maui EOC	evacuation coordination	Maui Police Departmental Operations Center
County of Maui EOC	resource coordination	Maui Police Departmental Operations Center
County of Maui EOC	transportation system status	Maui Police Departmental Operations Center
County of Maui EOC	incident command information coordination	Maui Police Departmental Operations Center
County of Maui EOC	threat information coordination	Maui Police Departmental Operations Center
County of Maui EOC	emergency traveler information	Private Personal Computing Devices
County of Maui EOC	incident information	Private Traveler Information Services
County of Maui EOC	evacuation information	Private Traveler Information Services
County of Maui EOC	transportation system status	Private Traveler Information Services
Hawaii State EOC	incident report	County of Maui EOC
Hawaii State EOC	incident response coordination	County of Maui EOC
Hawaii State EOC	emergency plan coordination	County of Maui EOC
Hawaii State EOC	evacuation coordination	County of Maui EOC
Hawaii State EOC	resource coordination	County of Maui EOC
Hawaii State EOC	transportation system status	County of Maui EOC
Hawaii State EOC	incident command information coordination	County of Maui EOC
Hawaii State EOC	threat information coordination	County of Maui EOC
HDOT-AIR-M Command Center	incident report	County of Maui EOC
HDOT-AIR-M Command Center	incident response coordination	County of Maui EOC
HDOT-AIR-M Command Center	emergency plan coordination	County of Maui EOC
HDOT-AIR-M Command Center	evacuation coordination	County of Maui EOC
HDOT-AIR-M Command Center	resource coordination	County of Maui EOC
HDOT-AIR-M Command Center	transportation system status	County of Maui EOC
HDOT-AIR-M Command Center	incident command information coordination	County of Maui EOC
HDOT-AIR-M Command Center	threat information coordination	County of Maui EOC
HDOT-HAR-M Security Center	incident report	County of Maui EOC
HDOT-HAR-M Security Center	incident response coordination	County of Maui EOC
HDOT-HAR-M Security Center	emergency plan coordination	County of Maui EOC
HDOT-HAR-M Security Center	evacuation coordination	County of Maui EOC
HDOT-HAR-M Security Center	resource coordination	County of Maui EOC
HDOT-HAR-M Security Center	transportation system status	County of Maui EOC
HDOT-HAR-M Security Center	incident command information coordination	County of Maui EOC
HDOT-HAR-M Security Center	threat information coordination	County of Maui EOC
HDOT-HWY-M Maintenance Dispatch	maint and constr work plans	County of Maui EOC

HDOT-HWY-M Maintenance Dispatch	work zone information	County of Maui EOC
HDOT-HWY-M Maintenance Dispatch	current asset restrictions	County of Maui EOC
HDOT-HWY-M Traffic Operations Center	emergency traffic control information	County of Maui EOC
HDOT-HWY-M Traffic Operations Center	incident information	County of Maui EOC
HDOT-HWY-M Traffic Operations Center	resource deployment status	County of Maui EOC
HDOT-HWY-M Traffic Operations Center	road network conditions	County of Maui EOC
HDOT-HWY-M Traffic Operations Center	emergency plan coordination	County of Maui EOC
HDOT-HWY-M Traffic Operations Center	road network status assessment	County of Maui EOC
Maui 911 Communications Center	incident report	County of Maui EOC
Maui 911 Communications Center	incident response coordination	County of Maui EOC
Maui 911 Communications Center	emergency plan coordination	County of Maui EOC
Maui 911 Communications Center	evacuation coordination	County of Maui EOC
Maui 911 Communications Center	resource coordination	County of Maui EOC
Maui 911 Communications Center	transportation system status	County of Maui EOC
Maui 911 Communications Center	incident command information coordination	County of Maui EOC
Maui 911 Communications Center	threat information coordination	County of Maui EOC
Maui Bus Fixed Route Dispatch	emergency plan coordination	County of Maui EOC
Maui Bus Fixed Route Dispatch	emergency transit schedule information	County of Maui EOC
Maui Bus Fixed Route Dispatch	transit system status assessment	County of Maui EOC
Maui Bus Fixed Route Dispatch	emergency transit service response	County of Maui EOC
Maui Bus Paratransit Dispatch	emergency plan coordination	County of Maui EOC
Maui Bus Paratransit Dispatch	emergency transit schedule information	County of Maui EOC
Maui Bus Paratransit Dispatch	transit system status assessment	County of Maui EOC
Maui Bus Paratransit Dispatch	emergency transit service response	County of Maui EOC
Maui DPW Maintenance Dispatch	work zone information	County of Maui EOC
Maui DPW Traffic Operations Center	emergency traffic control information	County of Maui EOC
Maui DPW Traffic Operations Center	incident information	County of Maui EOC
Maui DPW Traffic Operations Center	resource deployment status	County of Maui EOC
Maui DPW Traffic Operations Center	road network conditions	County of Maui EOC
Maui DPW Traffic Operations Center	emergency plan coordination	County of Maui EOC
Maui DPW Traffic Operations Center	road network status assessment	County of Maui EOC
Maui EMS Base	incident report	County of Maui EOC
Maui EMS Base	incident response coordination	County of Maui EOC
Maui EMS Base	emergency plan coordination	County of Maui EOC
Maui EMS Base	evacuation coordination	County of Maui EOC
Maui EMS Base	resource coordination	County of Maui EOC
Maui EMS Base	transportation system status	County of Maui EOC
Maui EMS Base	incident command information coordination	County of Maui EOC
Maui EMS Base	threat information coordination	County of Maui EOC
Maui Fire Base	incident report	County of Maui EOC
Maui Fire Base	incident response coordination	County of Maui EOC
Maui Fire Base	emergency plan coordination	County of Maui EOC
Maui Fire Base	evacuation coordination	County of Maui EOC
Maui Fire Base	resource coordination	County of Maui EOC
Maui Fire Base	transportation system status	County of Maui EOC
Maui Fire Base	incident command information coordination	County of Maui EOC

Maui Fire Base	threat information coordination	County of Maui EOC
Maui IT Services Event Management System	system control and configuration_ud	County of Maui EOC
Maui Police Departmental Operations Center	incident report	County of Maui EOC
Maui Police Departmental Operations Center	incident response coordination	County of Maui EOC
Maui Police Departmental Operations Center	emergency plan coordination	County of Maui EOC
Maui Police Departmental Operations Center	evacuation coordination	County of Maui EOC
Maui Police Departmental Operations Center	resource coordination	County of Maui EOC
Maui Police Departmental Operations Center	transportation system status	County of Maui EOC
Maui Police Departmental Operations Center	incident command information coordination	County of Maui EOC
Maui Police Departmental Operations Center	threat information coordination	County of Maui EOC
National Weather Service	alerts and advisories	County of Maui EOC
Pacific Disaster Center	alerts and advisories	County of Maui EOC
Pacific Tsunami Warning Center	alerts and advisories	County of Maui EOC
Private Personal Computing Devices	emergency traveler information request	County of Maui EOC
Red Cross	shelter information	County of Maui EOC

#### ITS STANDARDS

SDO	Document ID	Title	Type
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Center Standards Group	Group
ASTM/IEEE/SAE	<a href="#">View List</a>	Dedicated Short Range Communication at 5.9 GHz Standards Group	Group
IEEE	<a href="#">View List</a>	Incident Management Standards Group	Group
SAE	<a href="#">View List</a>	Advanced Traveler Information Systems (ATIS) General Use Standards Group	Group
AASHTO/ITE	ITE TMDD	Traffic Management Data Dictionary (TMDD) and Message Sets for External Traffic Management Center Communications (MS/ETMCC)	Message/Data
AASHTO/ITE/NEMA	NTCIP 1201	Global Object Definitions	Message/Data
AASHTO/ITE/NEMA	NTCIP 1211	Object Definitions for Signal Control and Prioritization (SCP)	Message/Data

#### OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
County of Maui - Civil Defense Agency	Coordinate emergency plans and maintenance resources with HDOT-HWY-M Maintenance and County of Maui DPW Maintenance.
	Coordinate incident and threat information as part of an early warning system for the County of Maui with the State of Hawaii EOC.
	Coordinate wide area alert notifications for the County of Maui, including Maile Amber Alerts and Silver Alerts.
	Coordinate with National Weather Service systems (e.g., Pacific Tsunami Warning Center).
	Develop and coordinate countywide emergency plans, evacuation and reentry plans, and disaster management plans.
	Operate the County EOC, including incident coordination with emergency management providers.
	Provide evacuation and incident information to travelers in the region using e9-1-1, HDOT GoAkamai System, the Maui County Website, and through private traveler information providers.
County of Maui Department of Management IT Services	Monitor and maintain the communications network for the County of Maui.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI EMS HEMSIS CONNECTION

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui EMS HEMSIS Connection
<b>Description:</b>	This project will use MDTs to ensure that CAD (Computer Aided Dispatch) information can be downloaded into HEMSIS (Hawaii Emergency Medical Services Information Services). This project is dependent on the deployment of Maui EMS MDTs (Mobile Data Terminals).
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Police Department</a> <a href="#">Medical Transportation</a> <a href="#">County of Maui Department of Management IT Services</a>
<b>Service Packages:</b>	<a href="#">EM02-1 - Emergency Routing - Maui Department of Public Works (DPW) / Maui EMS</a> <a href="#">EM02-2 - Emergency Routing - HDOT Highway Maui District (HDOT-HWY-M) / Maui EMS</a>
<b>Project Inventory:</b>	<a href="#">Maui 911 Communications Center</a> <a href="#">Maui EMS Base</a> <a href="#">Maui EMS Vehicles</a> <a href="#">Maui IT Services Event Management System</a> <a href="#">Maui Memorial Medical Center</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### On-board EV En Route Support

- The emergency vehicle shall forward care facility status information to emergency vehicle personnel, including the location, specialized services, quality of care, waiting time, number of rooms available, and emergency room status of hospitals or emergency care providers.

#### INTERFACES

Source	Architecture Flows	Destination
<a href="#">Maui 911 Communications Center</a>	<a href="#">network status_ud</a>	<a href="#">Maui IT Services Event Management System</a>
<a href="#">Maui 911 Communications Center</a>	<a href="#">system status_ud</a>	<a href="#">Maui IT Services Event Management System</a>
<a href="#">Maui EMS Base</a>	<a href="#">network status_ud</a>	<a href="#">Maui IT Services Event Management System</a>

Maui EMS Base	system status_ud	Maui IT Services Event Management System
Maui EMS Vehicles	patient status	Maui Memorial Medical Center
Maui IT Services Event Management System	system control and configuration_ud	Maui 911 Communications Center
Maui IT Services Event Management System	system control and configuration_ud	Maui EMS Base

#### ITS STANDARDS

SDO	Document ID	Title	Type
-----	-------------	-------	------

#### OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
County of Maui Police Department	Dispatch vehicles for Maui County Police, Maui County Fire, and Maui County EMS.
Medical Transportation	Provide emergency medical response for traffic incidents countywide. Provide emergency medical response to emergencies in the County of Maui.
County of Maui Department of Management IT Services	Develop IT and ITS Projects for the County of Maui. Monitor and maintain the communications network for the County of Maui.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#) [Maui Home](#) [Stakeholders](#) [Inventory](#) [Services](#) [Architecture](#) [Projects](#) [Resources](#) [Feedback](#)



### [PROJECT DETAILS: MAUI EMS MOBILE DATA TERMINAL \(MDT\)](#)

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui EMS Mobile Data Terminal (MDT)
<b>Description:</b>	This project will install MDTs in Maui EMS vehicles.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Police Department</a> <a href="#">Medical Transportation</a> <a href="#">County of Maui Department of Management IT Services</a>
<b>Service Packages:</b>	<a href="#">ATMS08-4 - Traffic Incident Management System - Maui Emergency Vehicles</a> <a href="#">EM01-1 - Emergency Call-Taking and Dispatch - Maui Department of Fire and Public Safety</a> <a href="#">MC12-1 - Infrastructure Monitoring - Maui Department of Management IT Services</a>
<b>Project Inventory:</b>	<a href="#">Maui 911 Communications Center</a> <a href="#">Maui EMS Base</a> <a href="#">Maui EMS Vehicles</a> <a href="#">Maui IT Services Event Management System</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Emergency Dispatch](#)

- The center shall track the location and status of emergency vehicles responding to an emergency based on information from the emergency vehicle.
- The center shall coordinate response to incidents with other Emergency Management centers to ensure appropriate resources are dispatched and utilized.
- The center shall store and maintain the emergency service responses in an action log.
- The center shall track the location and status of emergency vehicles responding to an emergency based on information from the emergency vehicle.
- The center shall relay location and incident details to the responding vehicles.
- The center shall store the current status of all emergency vehicles available for dispatch and those that have been dispatched.
- The center shall dispatch emergency vehicles to respond to verified emergencies under center personnel control.

##### [MCM Infrastructure Monitoring](#)

- The center shall report infrastructure repair needs to the maintenance management system.
- The center shall provide current infrastructure conditions information to the asset management system.

- ➔ The center shall collect current maintenance and repair needs from the asset management system and correlate this data with data collected through infrastructure monitoring systems.

#### On-board EV En Route Support

- ➔ The emergency vehicle shall send patient status information to the care facility along with a request for further information.
- ➔ The emergency vehicle shall provide the personnel on-board with dispatch information, including incident type and location, and forward an acknowledgment from personnel to the center that the vehicle is on its way to the incident scene.
- ➔ The emergency vehicle shall send requests to traffic signal control equipment at the roadside to preempt the signal.
- ➔ The emergency vehicle shall send the current en route status (including estimated time of arrival) and requests for emergency dispatch updates.
- ➔ The emergency vehicle shall receive incident details and a suggested route when dispatched to a scene.
- ➔ The emergency vehicle shall send the vehicle's location and operational data to the center for emergency management and dispatch.
- ➔ The emergency vehicle shall track its current location.

### INTERFACES

Source	Architecture Flows	Destination
Maui 911 Communications Center	emergency dispatch requests	Maui EMS Vehicles
Maui 911 Communications Center	suggested route	Maui EMS Vehicles
Maui 911 Communications Center	decision support information	Maui EMS Vehicles
Maui 911 Communications Center	network status_ud	Maui IT Services Event Management System
Maui 911 Communications Center	system status_ud	Maui IT Services Event Management System
Maui EMS Base	emergency dispatch requests	Maui EMS Vehicles
Maui EMS Base	decision support information	Maui EMS Vehicles
Maui EMS Base	network status_ud	Maui IT Services Event Management System
Maui EMS Base	system status_ud	Maui IT Services Event Management System
Maui EMS Vehicles	emergency vehicle tracking data	Maui 911 Communications Center
Maui EMS Vehicles	incident status	Maui 911 Communications Center
Maui EMS Vehicles	emergency dispatch response	Maui EMS Base
Maui EMS Vehicles	emergency vehicle tracking data	Maui EMS Base
Maui EMS Vehicles	incident status	Maui EMS Base
Maui IT Services Event Management System	system control and configuration_ud	Maui 911 Communications Center
Maui IT Services Event Management System	system control and configuration_ud	Maui EMS Base

### ITS STANDARDS

SDO	Document ID	Title	Type
-----	-------------	-------	------

### OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
County of Maui Police Department	Dispatch vehicles for Maui County Police, Maui County Fire, and Maui County EMS.
Medical Transportation	Provide emergency medical response for traffic incidents countywide. Provide emergency medical response to emergencies in the County of Maui.
County of Maui Department of Management IT Services	Develop IT and ITS Projects for the County of Maui. Monitor and maintain the communications network for the County of Maui.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*





## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### ▶ PROJECT DETAILS: MAUI FIRE CLOSED CIRCUIT TELEVISION (CCTV)

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui Fire Closed Circuit Television (CCTV)
<b>Description:</b>	This project will add CCTV cameras to Maui Fire vehicles.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Department of Fire and Public Safety</a>
<b>Service Packages:</b>	<a href="#">EM01-1 - Emergency Call-Taking and Dispatch - Maui Department of Fire and Public Safety</a>
<b>Project Inventory:</b>	<a href="#">Maui 911 Communications Center</a> <a href="#">Maui Fire Base</a> <a href="#">Maui Fire Vehicles</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Emergency Dispatch](#)

- The center shall receive CCTV images from emergency vehicles.
- The center shall receive CCTV images from emergency vehicles.

##### [On-board EV En Route Support](#)

- The emergency vehicle shall send CCTV images.

#### INTERFACES

Source	Architecture Flows	Destination
<a href="#">Maui Fire Vehicles</a>	<a href="#">cctv images_ud</a>	<a href="#">Maui 911 Communications Center</a>
<a href="#">Maui Fire Vehicles</a>	<a href="#">cctv images_ud</a>	<a href="#">Maui Fire Base</a>

#### ITS STANDARDS

SDO	Document ID	Title	Type
-----	-------------	-------	------

**OPERATIONAL CONCEPTS**

<b>Stakeholder</b>	<b>Roles and Responsibilities</b>
County of Maui Department of Fire and Public Safety	Provide response vehicles and personnel to emergencies in the County of Maui.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI FIRE WEARABLE GPS

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui Fire Wearable GPS
<b>Description:</b>	This project will add wearable GPS devices for fire personnel.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Department of Fire and Public Safety</a> <a href="#">County of Maui Department of Management IT Services</a>
<b>Service Packages:</b>	<a href="#">EM01-1 - Emergency Call-Taking and Dispatch - Maui Department of Fire and Public Safety</a> <a href="#">MC12-1 - Infrastructure Monitoring - Maui Department of Management IT Services</a>
<b>Project Inventory:</b>	<a href="#">Maui 911 Communications Center</a> <a href="#">Maui Fire Base</a> <a href="#">Maui Fire Personnel</a> <a href="#">Maui IT Services Event Management System</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Emergency Dispatch](#)

- The center shall track the location of emergency personnel in the field.
- The center shall track the location of emergency personnel in the field.

##### [MCM Infrastructure Monitoring](#)

- The center shall report infrastructure repair needs to the maintenance management system.
- The center shall provide current infrastructure conditions information to the asset management system.
- The center shall collect current maintenance and repair needs from the asset management system and correlate this data with data collected through infrastructure monitoring systems.

#### INTERFACES

Source	Architecture Flows	Destination
<a href="#">Maui 911 Communications Center</a>	<a href="#">network status_ud</a>	<a href="#">Maui IT Services Event Management System</a>
<a href="#">Maui 911 Communications Center</a>	<a href="#">system status_ud</a>	<a href="#">Maui IT Services Event Management System</a>
<a href="#">Maui Fire Base</a>	<a href="#">network status_ud</a>	<a href="#">Maui IT Services Event Management System</a>

Maui Fire Base	system status_ud	Maui IT Services Event Management System
Maui Fire Personnel	fire personnel location data_ud	Maui 911 Communications Center
Maui Fire Personnel	fire personnel location data_ud	Maui Fire Base
Maui IT Services Event Management System	system control and configuration_ud	Maui 911 Communications Center
Maui IT Services Event Management System	system control and configuration_ud	Maui Fire Base

**ITS STANDARDS**

SDO	Document ID	Title	Type
-----	-------------	-------	------

**OPERATIONAL CONCEPTS**

Stakeholder	Roles and Responsibilities
County of Maui Department of Fire and Public Safety	Track the location of all fire personnel in the field.
County of Maui Department of Management IT Services	Develop IT and ITS Projects for the County of Maui.
	Monitor and maintain the communications network for the County of Maui.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: HDOT-HAR-M SURVEILLANCE

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: HDOT-HAR-M Surveillance
<b>Description:</b>	This project will deploy additional port surveillance.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Near-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">Hawaii Department of Transportation - Harbors Division, Maui District</a>
<b>Service Packages:</b>	<a href="#">EM05-1 - Transportation Infrastructure Protection - HDOT Harbors Maui District (HDOT-HAR-M)</a>
<b>Project Inventory:</b>	<a href="#">HDOT-HAR-M Infrastructure Monitoring Equipment</a> <a href="#">HDOT-HAR-M Security Center</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Center Secure Area Surveillance](#)

- The center shall remotely monitor video images and audio surveillance data collected in secure areas including facilities and transportation infrastructure. The data may be raw or pre-processed in the field.
- The center shall identify potential security threats based on collected security surveillance data.
- The center shall exchange surveillance data with other emergency centers.

##### [Field Secure Area Surveillance](#)

- The field element shall include video and/or audio surveillance of secure areas including facilities and transportation infrastructure.
- The field element shall provide raw video or audio data.
- The field element shall provide equipment status and fault indication of surveillance equipment to a center.
- The field element shall be remotely controlled by a center.

#### INTERFACES

Source	Architecture Flows	Destination
<a href="#">HDOT-HAR-M Infrastructure Monitoring Equipment</a>	<a href="#">secure area surveillance data</a>	<a href="#">HDOT-HAR-M Security Center</a>

HDOT-HAR-M Security Center

secure area surveillance  
control

HDOT-HAR-M Infrastructure Monitoring  
Equipment

## ITS STANDARDS

SDO	Document ID	Title	Type
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Field Standards Group	Group
AASHTO/ITE/NEMA	NTCIP 1201	Global Object Definitions	Message/Data
AASHTO/ITE/NEMA	NTCIP 1205	Object Definitions for Closed Circuit Television (CCTV) Camera Control	Message/Data
AASHTO/ITE/NEMA	NTCIP 1208	Object Definitions for Closed Circuit Television (CCTV) Switching	Message/Data
APTA	APTA TCIP-S-001 3.0.4	Standard for Transit Communications Interface Profiles	Message/Data

## OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
Hawaii Department of Transportation - Harbors Division, Maui District	Perform video surveillance of secure areas within harbor facilities.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: HDOT-AIR-M CLOSED CIRCUIT TELEVISION (CCTV)

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: HDOT-AIR-M Closed Circuit Television (CCTV)
<b>Description:</b>	This project will install roadside CCTV for security and traffic operations to be deployed on the new road leading to Kahului Airport.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">Hawaii Department of Transportation - Highways Division, Maui District</a> <a href="#">Hawaii Department of Transportation - Airports Division, Maui District</a>
<b>Service Packages:</b>	<a href="#">ATMS01-1 - Network Surveillance - HDOT Highways Maui District (HDOT - HWY - M)</a> <a href="#">EM05-2 - Transportation Infrastructure Protection - HDOT Airports Maui District (HDOT-AIR-M)</a>
<b>Project Inventory:</b>	<a href="#">HDOT-AIR-M Command Center</a> <a href="#">HDOT-AIR-M Field Devices</a> <a href="#">HDOT-AIR-M Infrastructure Monitoring Equipment</a> <a href="#">HDOT-HWY-M Traffic Operations Center</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Center Secure Area Surveillance](#)

- The center shall identify potential security threats based on collected security surveillance data.
- The center shall exchange surveillance data with other emergency centers.
- The center shall remotely monitor video images and audio surveillance data collected in secure areas including facilities and transportation infrastructure. The data may be raw or pre-processed in the field.

##### [Collect Traffic Surveillance](#)

- The center shall monitor, analyze, and distribute traffic images from CCTV systems under remote control of the center.
- The center shall monitor, analyze, and store traffic sensor data (speed, volume, occupancy) collected from field elements under remote control of the center.

##### [Field Secure Area Surveillance](#)

- The field element shall provide raw video or audio data.
- The field element shall be remotely controlled by a center.

- ➔ The field element shall include video and/or audio surveillance of secure areas including facilities and transportation infrastructure.

#### Roadway Basic Surveillance

- ➔ The field element shall return sensor and CCTV system operational status to the controlling center.
- ➔ The field element shall collect, process, and send traffic images to the center for further analysis and distribution.

### INTERFACES

Source	Architecture Flows	Destination
HDOT-AIR-M Command Center	secure area surveillance control	HDOT-AIR-M Infrastructure Monitoring Equipment
HDOT-AIR-M Field Devices	traffic images	HDOT-HWY-M Traffic Operations Center
HDOT-AIR-M Infrastructure Monitoring Equipment	secure area surveillance data	HDOT-AIR-M Command Center
HDOT-HWY-M Traffic Operations Center	video surveillance control	HDOT-AIR-M Field Devices

### ITS STANDARDS

SDO	Document ID	Title	Type
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Center Standards Group	Group
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Field Standards Group	Group
AASHTO/ITE/NEMA	NTCIP 1201	Global Object Definitions	Message/Data
AASHTO/ITE/NEMA	NTCIP 1205	Object Definitions for Closed Circuit Television (CCTV) Camera Control	Message/Data
AASHTO/ITE/NEMA	NTCIP 1208	Object Definitions for Closed Circuit Television (CCTV) Switching	Message/Data
APTA	APTA TCIP-S-001 3.0.4	Standard for Transit Communications Interface Profiles	Message/Data

### OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
Hawaii Department of Transportation - Highways Division, Maui District	Perform network surveillance for detection and verification of incidents on state roads.
Hawaii Department of Transportation - Airports Division, Maui District	Monitor secure areas using surveillance equipment, including CCTV.

The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.





## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI BUS AVL

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui Bus AVL
<b>Description:</b>	This project will deploy AVL on Maui Bus fixed-route vehicles. Maui Bus currently has GPS on their transit vehicles, but it must be manually downloaded. This project will create a wireless connection to the Maui Bus GPS.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Near-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Department of Transportation</a>
<b>Service Packages:</b>	<a href="#">APTS01-1 - Transit Vehicle Tracking - Maui Bus</a>
<b>Project Inventory:</b>	<a href="#">Maui Bus Fixed Route Dispatch</a> <a href="#">Maui Bus Fixed Route Vehicles</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [On-board Transit Trip Monitoring](#)

- ➔ The transit vehicle shall track the current location of the transit vehicle.

##### [Transit Center Vehicle Tracking](#)

- ➔ The center shall monitor the locations of all transit vehicles within its network.

#### INTERFACES

Source	Architecture Flows	Destination
<a href="#">Maui Bus Fixed Route Vehicles</a>	<a href="#">transit vehicle location data</a>	<a href="#">Maui Bus Fixed Route Dispatch</a>

#### ITS STANDARDS

SDO	Document ID	Title	Type

**OPERATIONAL CONCEPTS**

Stakeholder	Roles and Responsibilities
County of Maui Department of Transportation	Track and evaluate schedule performance for all Maui Bus vehicles.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI BUS NEXT BUS INFORMATION

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui Bus Next Bus Information
<b>Description:</b>	This project will deploy a notification system, similar to C&C Honolulu's DaBus smartphone app, to provide next bus information to customers via a smartphone.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Near-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Department of Transportation</a>
<b>Service Packages:</b>	<a href="#">APTS02-1 - Transit Fixed-Route Operations - Maui Bus</a> <a href="#">APTS08-1 - Transit Traveler Information - Maui Bus</a>
<b>Project Inventory:</b>	<a href="#">Maui Bus Fixed Route Dispatch</a> <a href="#">Maui Bus Fixed Route Vehicles</a> <a href="#">Private Personal Computing Devices</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [On-board Transit Trip Monitoring](#)

- The transit vehicle shall record transit trip monitoring data including vehicle mileage and fuel usage.
- The transit vehicle shall support the computation of the location of a transit vehicle using on-board sensors to augment the location determination function. This may include proximity to the transit stops or other known reference points as well as recording trip length.
- The transit vehicle shall track the current location of the transit vehicle.

##### [Transit Center Information Services](#)

- The center shall provide travelers using public transportation with traffic and advisory information upon request. Such information may include transit routes, schedules, transfer options, fares, real-time schedule adherence, current incidents, weather conditions, and special events.

#### INTERFACES

Source	Architecture Flows	Destination
<a href="#">Maui Bus Fixed Route Dispatch</a>	<a href="#">personal transit information</a>	<a href="#">Private Personal Computing Devices</a>

Maui Bus Fixed Route Vehicles	transit vehicle schedule performance	Maui Bus Fixed Route Dispatch
Private Personal Computing Devices	transit information user request	Maui Bus Fixed Route Dispatch

#### ITS STANDARDS

SDO	Document ID	Title	Type
SAE	<a href="#">View List</a>	Advanced Traveler Information Systems (ATIS) General Use Standards Group	Group
APTA	APTA TCIP-S-001 3.0.4	Standard for Transit Communications Interface Profiles	Message/Data

#### OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
County of Maui Department of Transportation	Provide transit traveler information via Maui Bus Traveler Information System, the Maui Bus Transit App, and Maui Bus Hub Displays.
	Track and evaluate schedule performance for all Maui Bus vehicles.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI CDA EVERBRIDGE

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui CDA Everbridge
<b>Description:</b>	This project will fully implement the Everbridge disaster traveler information notification (including reverse 911) system.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Near-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui - Civil Defense Agency</a>
<b>Service Packages:</b>	<a href="#">EM10-2 - Disaster Traveler Information - County of Maui EOC Reverse 911</a>
<b>Project Inventory:</b>	<a href="#">County of Maui EOC</a> <a href="#">Private Personal Computing Devices</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [ISP Emergency Traveler Information](#)

- ◆ The center shall provide the capability for a system operator to control the type and update frequency of emergency and wide-area alert information distributed to travelers.
- ◆ The center shall disseminate wide-area alert information to the traveler interface systems, including major emergencies such as a natural or man-made disaster, civil emergency, child abductions, severe weather watches and warnings, military activities, and law enforcement warnings.
- ◆ The center shall disseminate emergency evacuation information to the traveler interface systems, including evacuation zones, shelter information, available transportation modes, road closures and detours, changes to transit services, and traffic and road conditions at the origin, destination, and along the evacuation routes.

#### INTERFACES

Source	Architecture Flows	Destination
<a href="#">County of Maui EOC</a>	<a href="#">emergency traveler information</a>	<a href="#">Private Personal Computing Devices</a>
<a href="#">Private Personal Computing Devices</a>	<a href="#">emergency traveler information request</a>	<a href="#">County of Maui EOC</a>

## ITS STANDARDS

SDO	Document ID	Title	Type
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Center Standards Group	Group
ASTM/IEEE/SAE	<a href="#">View List</a>	Dedicated Short Range Communication at 5.9 GHz Standards Group	Group
SAE	<a href="#">View List</a>	Advanced Traveler Information Systems (ATIS) General Use Standards Group	Group

## OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
County of Maui - Civil Defense Agency	Provide evacuation and incident information to travelers in the region using e9-1-1, HDOT GoAkamai System, the Maui County Website, and through private traveler information providers.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI DPW CONDUIT

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui DPW Conduit
<b>Description:</b>	This project will add spare capacity to conduit to Maui DPW construction projects.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Near-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Department of Public Works</a>
<b>Service Packages:</b>	
<b>Project Inventory:</b>	

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

#### INTERFACES

Source	Architecture Flows	Destination
--------	--------------------	-------------

#### ITS STANDARDS

SDO	Document ID	Title	Type
-----	-------------	-------	------

#### OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
-------------	----------------------------

The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.



## Maui Regional ITS Architecture

[State Home](#) [Maui Home](#) [Stakeholders](#) [Inventory](#) [Services](#) [Architecture](#) [Projects](#) [Resources](#) [Feedback](#)



### [PROJECT DETAILS: MAUI DPW TRAFFIC SYSTEMS UPGRADE](#)

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui DPW Traffic Systems Upgrade
<b>Description:</b>	This project will upgrade Maui Traffic Systems, including signals and CCTV.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Near-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Department of Public Works</a>
<b>Service Packages:</b>	<a href="#">ATMS01-2 - Network Surveillance - Maui Department of Public Works (DPW)</a> <a href="#">ATMS03-2 - Traffic Signal Control - Maui Department of Public Works (DPW)</a>
<b>Project Inventory:</b>	<a href="#">Maui DPW Field Devices</a> <a href="#">Maui DPW Traffic Operations Center</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Collect Traffic Surveillance](#)

- The center shall monitor, analyze, and distribute traffic images from CCTV systems under remote control of the center.
- The center shall monitor, analyze, and store traffic sensor data (speed, volume, occupancy) collected from field elements under remote control of the center.

##### [Roadway Basic Surveillance](#)

- The field element shall return sensor and CCTV system operational status to the controlling center.
- The field element shall collect, process, and send traffic images to the center for further analysis and distribution.
- The field element shall collect, process, digitize, and send traffic sensor data (speed, volume, and occupancy) to the center for further analysis and storage, under center control.

##### [Roadway Signal Controls](#)

- The field element shall report current transit priority status to the center.
- The field element shall return traffic signal controller fault data to the center.
- The field element shall return traffic signal controller operational status to the center.
- The field element shall report current preemption status to the center.
- The field element shall report the current signal control information to the center.
- The field element shall control traffic signals under center control.

##### [TMC Signal Control](#)



- The center shall maintain traffic signal coordination including synchronizing clocks throughout the system.
- The center shall manage boundaries of the control sections used within the signal system.
- The center shall implement control plans to coordinate signalized intersections based on data from sensors.
- The center shall manage (define, store and modify) control plans to coordinate signalized intersections, to be engaged at the direction of center personnel or according to a daily schedule.
- The center shall collect traffic signal controller fault data from the field.
- The center shall collect traffic signal controller operational status and compare against the control information sent by the center.
- The center shall remotely control traffic signal controllers.

## INTERFACES

Source	Architecture Flows	Destination
Maui DPW Field Devices	right-of-way request notification	Maui DPW Traffic Operations Center
Maui DPW Field Devices	roadway information system status	Maui DPW Traffic Operations Center
Maui DPW Field Devices	signal control status	Maui DPW Traffic Operations Center
Maui DPW Field Devices	traffic flow	Maui DPW Traffic Operations Center
Maui DPW Field Devices	traffic images	Maui DPW Traffic Operations Center
Maui DPW Field Devices	signal fault data	Maui DPW Traffic Operations Center
Maui DPW Traffic Operations Center	traffic sensor control	Maui DPW Field Devices
Maui DPW Traffic Operations Center	signal control commands	Maui DPW Field Devices
Maui DPW Traffic Operations Center	video surveillance control	Maui DPW Field Devices
Maui DPW Traffic Operations Center	signal control device configuration	Maui DPW Field Devices
Maui DPW Traffic Operations Center	signal control plans	Maui DPW Field Devices
Maui DPW Traffic Operations Center	signal system configuration	Maui DPW Field Devices

## ITS STANDARDS

SDO	Document ID	Title	Type
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Center Standards Group	Group
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Field Standards Group	Group
AASHTO/ITE/NEMA	NTCIP 1201	Global Object Definitions	Message/Data
AASHTO/ITE/NEMA	NTCIP 1202	Object Definitions for Actuated Traffic Signal Controller (ASC) Units	Message/Data
AASHTO/ITE/NEMA	NTCIP 1203	Object Definitions for Dynamic Message Signs (DMS)	Message/Data
AASHTO/ITE/NEMA	NTCIP 1205	Object Definitions for Closed Circuit Television (CCTV) Camera Control	Message/Data
AASHTO/ITE/NEMA	NTCIP 1208	Object Definitions for Closed Circuit Television (CCTV) Switching	Message/Data
AASHTO/ITE/NEMA	NTCIP 1209	Data Element Definitions for Transportation Sensor Systems (TSS)	Message/Data
AASHTO/ITE/NEMA	NTCIP 1210	Field Management Stations (FMS) - Part 1: Object Definitions for Signal System Masters	Message/Data
AASHTO/ITE/NEMA	NTCIP 1211	Object Definitions for Signal Control and Prioritization (SCP)	Message/Data
AASHTO/ITE/NEMA	NTCIP 1214	Object Definitions for Conflict Monitor Units (CMU)	Message/Data

## OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
County of Maui Department of Public Works	Obtain traffic images and traffic flow data through CCTVs and field sensors, and maintain operational control of its own field equipment.
	Operate traffic signal systems for County of Maui owned intersections.
	Perform network surveillance for detection and verification of incidents on county roads, and send traffic/incident information and traffic images to the 911 Communications Center and County of Maui EOC.

The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI EMS AUTOMATED VEHICLE LOCATION (AVL)

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui EMS Automated Vehicle Location (AVL)
<b>Description:</b>	This project will add AVL to all Maui EMS vehicles via the Fleet Eyes System.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Near-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Police Department</a> <a href="#">Medical Transportation</a> <a href="#">County of Maui Department of Management IT Services</a>
<b>Service Packages:</b>	<a href="#">EM01-1 - Emergency Call-Taking and Dispatch - Maui Department of Fire and Public Safety</a> <a href="#">MC12-1 - Infrastructure Monitoring - Maui Department of Management IT Services</a>
<b>Project Inventory:</b>	<a href="#">Maui 911 Communications Center</a> <a href="#">Maui EMS Base</a> <a href="#">Maui EMS Vehicles</a> <a href="#">Maui IT Services Event Management System</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Emergency Dispatch](#)

- The center shall track the location and status of emergency vehicles responding to an emergency based on information from the emergency vehicle.
- The center shall track the location and status of emergency vehicles responding to an emergency based on information from the emergency vehicle.

##### [MCM Infrastructure Monitoring](#)

- The center shall report infrastructure repair needs to the maintenance management system.
- The center shall provide current infrastructure conditions information to the asset management system.
- The center shall collect current maintenance and repair needs from the asset management system and correlate this data with data collected through infrastructure monitoring systems.

##### [On-board EV En Route Support](#)

- The emergency vehicle shall send the vehicle's location and operational data to the center for emergency management and dispatch.
- The emergency vehicle shall track its current location.

## INTERFACES

Source	Architecture Flows	Destination
Maui 911 Communications Center	network status_ud	Maui IT Services Event Management System
Maui 911 Communications Center	system status_ud	Maui IT Services Event Management System
Maui EMS Base	network status_ud	Maui IT Services Event Management System
Maui EMS Base	system status_ud	Maui IT Services Event Management System
Maui EMS Vehicles	emergency vehicle tracking data	Maui 911 Communications Center
Maui EMS Vehicles	emergency vehicle tracking data	Maui EMS Base
Maui IT Services Event Management System	system control and configuration_ud	Maui 911 Communications Center
Maui IT Services Event Management System	system control and configuration_ud	Maui EMS Base

## ITS STANDARDS

SDO	Document ID	Title	Type
-----	-------------	-------	------

## OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
County of Maui Police Department	Dispatch vehicles for Maui County Police, Maui County Fire, and Maui County EMS.
Medical Transportation	Provide emergency medical response for traffic incidents countywide.
	Provide emergency medical response to emergencies in the County of Maui.
County of Maui Department of Management IT Services	Develop IT and ITS Projects for the County of Maui.
	Monitor and maintain the communications network for the County of Maui.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI FIRE AUTOMATED VEHICLE LOCATION (AVL)

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui Fire Automated Vehicle Location (AVL)
<b>Description:</b>	This project will install AVL on Maui Fire vehicles.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Near-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Department of Fire and Public Safety</a> <a href="#">County of Maui Department of Management IT Services</a>
<b>Service Packages:</b>	<a href="#">EM01-1 - Emergency Call-Taking and Dispatch - Maui Department of Fire and Public Safety</a> <a href="#">MC12-1 - Infrastructure Monitoring - Maui Department of Management IT Services</a>
<b>Project Inventory:</b>	<a href="#">Maui 911 Communications Center</a> <a href="#">Maui Fire Base</a> <a href="#">Maui Fire Vehicles</a> <a href="#">Maui IT Services Event Management System</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Emergency Dispatch](#)

- The center shall track the location and status of emergency vehicles responding to an emergency based on information from the emergency vehicle.
- The center shall track the location and status of emergency vehicles responding to an emergency based on information from the emergency vehicle.

##### [MCM Infrastructure Monitoring](#)

- The center shall report infrastructure repair needs to the maintenance management system.
- The center shall provide current infrastructure conditions information to the asset management system.
- The center shall collect current maintenance and repair needs from the asset management system and correlate this data with data collected through infrastructure monitoring systems.

##### [On-board EV En Route Support](#)

- The emergency vehicle shall track its current location.

#### INTERFACES

Source	Architecture Flows	Destination
--------	--------------------	-------------

Maui 911 Communications Center	network status_ud	Maui IT Services Event Management System
Maui 911 Communications Center	system status_ud	Maui IT Services Event Management System
Maui Fire Base	network status_ud	Maui IT Services Event Management System
Maui Fire Base	system status_ud	Maui IT Services Event Management System
Maui Fire Vehicles	emergency vehicle tracking data	Maui 911 Communications Center
Maui Fire Vehicles	emergency vehicle tracking data	Maui Fire Base
Maui IT Services Event Management System	system control and configuration_ud	Maui 911 Communications Center
Maui IT Services Event Management System	system control and configuration_ud	Maui Fire Base

**ITS STANDARDS**

SDO	Document ID	Title	Type
-----	-------------	-------	------

**OPERATIONAL CONCEPTS**

Stakeholder	Roles and Responsibilities
County of Maui Department of Fire and Public Safety	Provide response vehicles and personnel to emergencies in the County of Maui.
County of Maui Department of Management IT Services	Develop IT and ITS Projects for the County of Maui.
	Monitor and maintain the communications network for the County of Maui.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI FIRE MOBILE DATA TERMINALS (MDT)

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui Fire Mobile Data Terminals (MDT)
<b>Description:</b>	This project will install MDTs in Maui Fire vehicles.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Near-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Department of Fire and Public Safety</a> <a href="#">County of Maui Department of Management IT Services</a>
<b>Service Packages:</b>	<a href="#">ATMS08-4 - Traffic Incident Management System - Maui Emergency Vehicles</a> <a href="#">EM01-1 - Emergency Call-Taking and Dispatch - Maui Department of Fire and Public Safety</a> <a href="#">MC12-1 - Infrastructure Monitoring - Maui Department of Management IT Services</a>
<b>Project Inventory:</b>	<a href="#">Maui 911 Communications Center</a> <a href="#">Maui Fire Base</a> <a href="#">Maui Fire Vehicles</a> <a href="#">Maui IT Services Event Management System</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Emergency Dispatch](#)

- The center shall track the location and status of emergency vehicles responding to an emergency based on information from the emergency vehicle.
- The center shall relay location and incident details to the responding vehicles.
- The center shall store and maintain the emergency service responses in an action log.
- The center shall track the location and status of emergency vehicles responding to an emergency based on information from the emergency vehicle.
- The center shall relay location and incident details to the responding vehicles.
- The center shall store the current status of all emergency vehicles available for dispatch and those that have been dispatched.
- The center shall dispatch emergency vehicles to respond to verified emergencies under center personnel control.

##### [MCM Infrastructure Monitoring](#)

- The center shall report infrastructure repair needs to the maintenance management system.
- The center shall provide current infrastructure conditions information to the asset management system.
- The center shall collect current maintenance and repair needs from the asset management system and correlate this data with data collected through infrastructure monitoring systems.

**On-board EV En Route Support**

- ◆ The emergency vehicle shall send the vehicle's location and operational data to the center for emergency management and dispatch.
- ◆ The emergency vehicle shall track its current location.
- ◆ The emergency vehicle shall provide the personnel on-board with dispatch information, including incident type and location, and forward an acknowledgment from personnel to the center that the vehicle is on its way to the incident scene.
- ◆ The emergency vehicle shall send the current en route status (including estimated time of arrival) and requests for emergency dispatch updates.

**On-board EV Incident Management Communication**

- ◆ The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the current incident response status such as the identification of the resources on site, site management strategies in effect, and current clearance status.
- ◆ The emergency vehicle shall provide an interface to the center for emergency personnel to transmit information about the incident site such as the extent of injuries, identification of vehicles and people involved, hazardous material, etc.
- ◆ The emergency vehicle shall receive dispatch instructions sufficient to enable emergency personnel in the field to implement an effective incident response. It includes local traffic, road, and weather conditions, hazardous material information, and the current status of resources that have been allocated to an incident.

**INTERFACES**

Source	Architecture Flows	Destination
Maui 911 Communications Center	emergency dispatch requests	Maui Fire Vehicles
Maui 911 Communications Center	suggested route	Maui Fire Vehicles
Maui 911 Communications Center	decision support information	Maui Fire Vehicles
Maui 911 Communications Center	network status_ud	Maui IT Services Event Management System
Maui 911 Communications Center	system status_ud	Maui IT Services Event Management System
Maui 911 Communications Center	emergency dispatch requests	Maui Police Vehicles
Maui 911 Communications Center	incident status	Maui Police Vehicles
Maui 911 Communications Center	decision support information	Maui Police Vehicles
Maui Fire Base	emergency dispatch requests	Maui Fire Vehicles
Maui Fire Base	decision support information	Maui Fire Vehicles
Maui Fire Base	network status_ud	Maui IT Services Event Management System
Maui Fire Base	system status_ud	Maui IT Services Event Management System
Maui Fire Vehicles	emergency dispatch response	Maui 911 Communications Center
Maui Fire Vehicles	emergency vehicle tracking data	Maui 911 Communications Center
Maui Fire Vehicles	incident status	Maui 911 Communications Center
Maui Fire Vehicles	emergency dispatch response	Maui Fire Base
Maui Fire Vehicles	emergency vehicle tracking data	Maui Fire Base
Maui Fire Vehicles	incident status	Maui Fire Base
Maui IT Services Event Management System	system control and configuration_ud	Maui 911 Communications Center
Maui IT Services Event Management System	system control and configuration_ud	Maui Fire Base

**ITS STANDARDS**

SDO	Document ID	Title	Type
-----	-------------	-------	------

**OPERATIONAL CONCEPTS**

Stakeholder	Roles and Responsibilities
County of Maui Department of Fire and Public Safety	Provide response to traffic incidents in the County of Maui, including HAZMAT incident response.
	Provide response vehicles and personnel to emergencies in the County of Maui.
County of Maui Department of Management IT Services	Develop IT and ITS Projects for the County of Maui.
	Monitor and maintain the communications network for the County of Maui.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI IT COMMUNICATIONS SYSTEM UPGRADE

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui IT Communications System Upgrade
<b>Description:</b>	This project will upgrade the communications network for the County of Maui to enable an expansion of CCTV and signals for County of Maui DPW.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Near-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Department of Management IT Services</a>
<b>Service Packages:</b>	<a href="#">MC12-1 - Infrastructure Monitoring - Maui Department of Management IT Services</a>
<b>Project Inventory:</b>	<a href="#">Maui DPW Field Devices</a> <a href="#">Maui IT Services Event Management System</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [MCM Infrastructure Monitoring](#)

- ✦ The center shall report infrastructure repair needs to the maintenance management system.
- ✦ The center shall provide current infrastructure conditions information to the asset management system.
- ✦ The center shall collect current maintenance and repair needs from the asset management system and correlate this data with data collected through infrastructure monitoring systems.

#### INTERFACES

Source	Architecture Flows	Destination
<a href="#">Maui DPW Field Devices</a>	<a href="#">network status_ud</a>	<a href="#">Maui IT Services Event Management System</a>
<a href="#">Maui DPW Field Devices</a>	<a href="#">system status_ud</a>	<a href="#">Maui IT Services Event Management System</a>
<a href="#">Maui IT Services Event Management System</a>	<a href="#">system control and configuration_ud</a>	<a href="#">Maui DPW Field Devices</a>

#### ITS STANDARDS

--	--	--



SDO	Document ID	Title	Type
-----	-------------	-------	------

**OPERATIONAL CONCEPTS**

Stakeholder	Roles and Responsibilities
County of Maui Department of Management IT Services	Develop IT and ITS Projects for the County of Maui.
	Monitor and maintain the communications network for the County of Maui.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: MAUI POLICE MOBILE DATA TERMINAL (MDT) UPGRADE

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: Maui Police Mobile Data Terminal (MDT) Upgrade
<b>Description:</b>	This project will upgrade and replace all Maui Police MDTs.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Near-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Police Department</a> <a href="#">County of Maui Department of Management IT Services</a>
<b>Service Packages:</b>	<a href="#">ATMS08-5 - Traffic Incident Management System - Maui Emergency Vehicles</a> <a href="#">EM01-2 - Emergency Call-Taking and Dispatch - Maui Police</a> <a href="#">MC12-1 - Infrastructure Monitoring - Maui Department of Management IT Services</a>
<b>Project Inventory:</b>	<a href="#">Maui 911 Communications Center</a> <a href="#">Maui IT Services Event Management System</a> <a href="#">Maui Police Departmental Operations Center</a> <a href="#">Maui Police Vehicles</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Emergency Dispatch](#)

- The center shall store and maintain the emergency service responses in an action log.
- The center shall track the location and status of emergency vehicles responding to an emergency based on information from the emergency vehicle.
- The center shall relay location and incident details to the responding vehicles.
- The center shall store and maintain the emergency service responses in an action log.
- The center shall track the location and status of emergency vehicles responding to an emergency based on information from the emergency vehicle.
- The center shall relay location and incident details to the responding vehicles.
- The center shall store the current status of all emergency vehicles available for dispatch and those that have been dispatched.
- The center shall dispatch emergency vehicles to respond to verified emergencies under center personnel control.

##### [MCM Infrastructure Monitoring](#)

- The center shall report infrastructure repair needs to the maintenance management system.
- The center shall provide current infrastructure conditions information to the asset management system.
- The center shall collect current maintenance and repair needs from the asset management system and correlate this data with data collected through infrastructure monitoring systems.

**On-board EV En Route Support**

- The emergency vehicle shall receive incident details and a suggested route when dispatched to a scene.
- The emergency vehicle shall send the vehicle's location and operational data to the center for emergency management and dispatch.
- The emergency vehicle shall track its current location.
- The emergency vehicle shall provide the personnel on-board with dispatch information, including incident type and location, and forward an acknowledgment from personnel to the center that the vehicle is on its way to the incident scene.
- The emergency vehicle shall send the current en route status (including estimated time of arrival) and requests for emergency dispatch updates.

**INTERFACES**

Source	Architecture Flows	Destination
Maui 911 Communications Center	network status_ud	Maui IT Services Event Management System
Maui 911 Communications Center	system status_ud	Maui IT Services Event Management System
Maui 911 Communications Center	emergency dispatch requests	Maui Police Vehicles
Maui 911 Communications Center	incident status	Maui Police Vehicles
Maui 911 Communications Center	decision support information	Maui Police Vehicles
Maui IT Services Event Management System	system control and configuration_ud	Maui 911 Communications Center
Maui Police Departmental Operations Center	emergency dispatch requests	Maui Police Vehicles
Maui Police Departmental Operations Center	decision support information	Maui Police Vehicles
Maui Police Vehicles	emergency dispatch response	Maui 911 Communications Center
Maui Police Vehicles	emergency vehicle tracking data	Maui 911 Communications Center
Maui Police Vehicles	emergency dispatch response	Maui Police Departmental Operations Center
Maui Police Vehicles	emergency vehicle tracking data	Maui Police Departmental Operations Center
Maui Police Vehicles	incident status	Maui Police Departmental Operations Center

**ITS STANDARDS**

SDO	Document ID	Title	Type
-----	-------------	-------	------

**OPERATIONAL CONCEPTS**

Stakeholder	Roles and Responsibilities
County of Maui Police Department	Dispatch vehicles for Maui County Police, Maui County Fire, and Maui County EMS.
	Provide response to traffic incidents in the County of Maui.
	Provide response vehicles and personnel to emergencies in the County of Maui.
County of Maui Department of Management IT Services	Develop IT and ITS Projects for the County of Maui.
	Monitor and maintain the communications network for the County of Maui.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: HDOT-AIR-M DYNAMIC MESSAGE SIGNS (DMS)

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: HDOT-AIR-M Dynamic Message Signs (DMS)
<b>Description:</b>	This project will deploy variable or dynamic message signs (VMS/DMS) to tell drivers leaving Kahului Airport about road closures or other relevant data.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">Hawaii Department of Transportation - Highways Division, Maui District</a> <a href="#">Hawaii Department of Transportation - Airports Division, Maui District</a>
<b>Service Packages:</b>	<a href="#">ATMS06-1 - Traffic Information Dissemination - HDOT Highway Maui District (HDOT-HWY-M)</a>
<b>Project Inventory:</b>	<a href="#">HDOT-AIR-M Field Devices</a> <a href="#">HDOT-HWY-M Traffic Operations Center</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Roadway Traffic Information Dissemination](#)

- ◆ The field element shall include dynamic messages signs for dissemination of traffic and other information to drivers, under center control; the DMS may be either those that display variable text messages, or those that have fixed format display (s) (e.g. vehicle restrictions, or lane open/close).

##### [TMC Traffic Information Dissemination](#)

- ◆ The center shall collect operational status for the driver information systems equipment (DMS, HAR, etc.).
- ◆ The center shall remotely control dynamic messages signs for dissemination of traffic and other information to drivers.

#### INTERFACES

Source	Architecture Flows	Destination
<a href="#">HDOT-AIR-M Field Devices</a>	<a href="#">roadway information system status</a>	<a href="#">HDOT-HWY-M Traffic Operations Center</a>
<a href="#">HDOT-HWY-M Traffic Operations Center</a>	<a href="#">roadway information system data</a>	<a href="#">HDOT-AIR-M Field Devices</a>

## ITS STANDARDS

SDO	Document ID	Title	Type
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Field Standards Group	Group
AASHTO/ITE/NEMA	NTCIP 1201	Global Object Definitions	Message/Data
AASHTO/ITE/NEMA	NTCIP 1203	Object Definitions for Dynamic Message Signs (DMS)	Message/Data

## OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
Hawaii Department of Transportation - Highways Division, Maui District	Provide traffic information to travelers via HDOT DMS equipment.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: HDOT-AIR-M PARKING MANAGEMENT SYSTEM

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: HDOT-AIR-M Parking Management System
<b>Description:</b>	This project will create an automated parking management system for Kahului Airport visitors and employee parking.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">Hawaii Department of Transportation - Airports Division, Maui District</a>
<b>Service Packages:</b>	<a href="#">ATMS17-1 - Regional Parking Management - HDOT Airports Maui District (HDOT-AIR-M)</a>
<b>Project Inventory:</b>	<a href="#">HDOT-AIR-M Command Center</a> <a href="#">HDOT-AIR-M Parking System</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Parking Coordination](#)

- ◆ The parking element shall provide parking management data to traffic management centers upon request as part of the implementation of demand management programs in the region. This could include changes to hours of operation or pricing.
- ◆ The parking element shall exchange parking management data with other parking facilities including location, hours, availability, status, lot usage, operating strategies, and charging information.

#### INTERFACES

Source	Architecture Flows	Destination
<a href="#">HDOT-AIR-M Command Center</a>	parking demand management request	<a href="#">HDOT-AIR-M Parking System</a>
<a href="#">HDOT-AIR-M Command Center</a>	parking lot data request	<a href="#">HDOT-AIR-M Parking System</a>
<a href="#">HDOT-AIR-M Parking System</a>	parking information	<a href="#">HDOT-AIR-M Command Center</a>
<a href="#">HDOT-AIR-M Parking System</a>	parking demand management response	<a href="#">HDOT-AIR-M Command Center</a>

## ITS STANDARDS

SDO	Document ID	Title	Type
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Center Standards Group	Group
SAE	<a href="#">View List</a>	Advanced Traveler Information Systems (ATIS) General Use Standards Group	Group
APTA	APTA TCIP-S-001 3.0.4	Standard for Transit Communications Interface Profiles	Message/Data

## OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
Hawaii Department of Transportation - Airports Division, Maui District	Manage parking at the Kahului Airport.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: HDOT-HAR-M TRAFFIC CONTROL

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: HDOT-HAR-M Traffic Control
<b>Description:</b>	The Kahului Ports Development Plan calls for placing ITS in the region of the port to monitor and manage traffic. They may develop large check-in lanes. These plans could include cameras and signals operated by HDOT-HAR-M.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">County of Maui Department of Public Works</a> <a href="#">Hawaii Department of Transportation - Highways Division, Maui District</a> <a href="#">Hawaii Department of Transportation - Harbors Division, Maui District</a>
<b>Service Packages:</b>	<a href="#">ATMS01-1 - Network Surveillance - HDOT Highways Maui District (HDOT - HWY - M)</a> <a href="#">ATMS03-1 - Traffic Signal Control - HDOT</a> <a href="#">EM05-1 - Transportation Infrastructure Protection - HDOT Harbors Maui District (HDOT-HAR-M)</a>
<b>Project Inventory:</b>	<a href="#">HDOT-HAR-M Infrastructure Monitoring Equipment</a> <a href="#">HDOT-HAR-M Field Devices</a> <a href="#">HDOT-HWY-M Traffic Operations Center</a> <a href="#">Maui DPW Traffic Operations Center</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Collect Traffic Surveillance](#)

- ◆ The center shall monitor, analyze, and distribute traffic images from CCTV systems under remote control of the center.
- ◆ The center shall monitor, analyze, and store traffic sensor data (speed, volume, occupancy) collected from field elements under remote control of the center.

##### [Field Secure Area Surveillance](#)

- ◆ The field element shall include video and/or audio surveillance of secure areas including facilities and transportation infrastructure.
- ◆ The field element shall provide raw video or audio data.
- ◆ The field element shall provide equipment status and fault indication of surveillance equipment to a center.
- ◆ The field element shall be remotely controlled by a center.

##### [Roadway Basic Surveillance](#)

- ◆ The field element shall return sensor and CCTV system operational status to the controlling center.



- ➔ The field element shall collect, process, and send traffic images to the center for further analysis and distribution.

#### Roadway Signal Controls

- ➔ The field element shall return traffic signal controller operational status to the center.
- ➔ The field element shall report the current signal control information to the center.
- ➔ The field element shall control traffic signals under center control.

#### TMC Regional Traffic Management

- ➔ The center shall exchange traffic control information with other traffic management centers to support remote monitoring and control of traffic management devices (e.g. signs, sensors, signals, cameras, etc.).
- ➔ The center shall exchange traffic information with other traffic management centers including incident information, congestion data, traffic data, signal timing plans, and real-time signal control information.
- ➔ The center shall exchange traffic control information with other traffic management centers to support remote monitoring and control of traffic management devices (e.g. signs, sensors, signals, cameras, etc.).
- ➔ The center shall exchange traffic information with other traffic management centers including incident information, congestion data, traffic data, signal timing plans, and real-time signal control information.

#### TMC Signal Control

- ➔ The center shall maintain traffic signal coordination including synchronizing clocks throughout the system.
- ➔ The center shall manage boundaries of the control sections used within the signal system.
- ➔ The center shall implement control plans to coordinate signalized intersections based on data from sensors.
- ➔ The center shall manage (define, store and modify) control plans to coordinate signalized intersections, to be engaged at the direction of center personnel or according to a daily schedule.
- ➔ The center shall collect traffic signal controller fault data from the field.
- ➔ The center shall collect traffic signal controller operational status and compare against the control information sent by the center.
- ➔ The center shall remotely control traffic signal controllers.

## INTERFACES

Source	Architecture Flows	Destination
HDOT-HAR-M Infrastructure Monitoring Equipment	secure area surveillance data	HDOT-HAR-M Security Center
HDOT-HAR-M Field Devices	signal control status	HDOT-HWY-M Traffic Operations Center
HDOT-HAR-M Field Devices	traffic flow	HDOT-HWY-M Traffic Operations Center
HDOT-HAR-M Field Devices	traffic images	HDOT-HWY-M Traffic Operations Center
HDOT-HAR-M Field Devices	signal fault data	HDOT-HWY-M Traffic Operations Center
HDOT-HAR-M Security Center	secure area surveillance control	HDOT-HAR-M Infrastructure Monitoring Equipment
HDOT-HWY-M Field Devices	traffic images	Maui DPW Traffic Operations Center
HDOT-HWY-M Traffic Operations Center	signal control commands	HDOT-HAR-M Field Devices
HDOT-HWY-M Traffic Operations Center	video surveillance control	HDOT-HAR-M Field Devices
HDOT-HWY-M Traffic Operations Center	signal control device configuration	HDOT-HAR-M Field Devices
HDOT-HWY-M Traffic Operations Center	signal control plans	HDOT-HAR-M Field Devices
HDOT-HWY-M Traffic Operations Center	signal system configuration	HDOT-HAR-M Field Devices
HDOT-HWY-M Traffic Operations Center	incident information	Maui DPW Traffic Operations Center
HDOT-HWY-M Traffic Operations Center	road network conditions	Maui DPW Traffic Operations Center

## ITS STANDARDS

SDO	Document ID	Title	Type
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Center Standards Group	Group
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Field Standards Group	Group
IEEE	<a href="#">View List</a>	Incident Management Standards Group	Group
SAE	<a href="#">View List</a>	Advanced Traveler Information Systems (ATIS) General Use Standards Group	Group
AASHTO/ITE	ITE TMDD	Traffic Management Data Dictionary (TMDD) and Message Sets for External Traffic Management Center Communications (MS/ETMCC)	Message/Data
AASHTO/ITE/NEMA	NTCIP 1201	Global Object Definitions	Message/Data
AASHTO/ITE/NEMA	NTCIP 1202	Object Definitions for Actuated Traffic Signal Controller (ASC) Units	Message/Data
AASHTO/ITE/NEMA	NTCIP 1205	Object Definitions for Closed Circuit Television (CCTV) Camera Control	Message/Data

AASHTO/ITE/NEMA	NTCIP 1208	Object Definitions for Closed Circuit Television (CCTV) Switching	Message/Data
AASHTO/ITE/NEMA	NTCIP 1209	Data Element Definitions for Transportation Sensor Systems (TSS)	Message/Data
AASHTO/ITE/NEMA	NTCIP 1210	Field Management Stations (FMS) - Part 1: Object Definitions for Signal System Masters	Message/Data
AASHTO/ITE/NEMA	NTCIP 1211	Object Definitions for Signal Control and Prioritization (SCP)	Message/Data
AASHTO/ITE/NEMA	NTCIP 1214	Object Definitions for Conflict Monitor Units (CMU)	Message/Data
APTA	APTA TCIP-S-001 3.0.4	Standard for Transit Communications Interface Profiles	Message/Data

**OPERATIONAL CONCEPTS**

Stakeholder	Roles and Responsibilities
County of Maui Department of Public Works	Coordinate traffic information and traffic control HDOT-HWY-M.
Hawaii Department of Transportation - Highways Division, Maui District	Coordinate traffic information and traffic control with Maui County Department of Public Works.
	Obtain traffic images and traffic flow data through CCTVs and field sensors and maintain operational control of its own field equipment.
	Operate traffic signal systems for State owned intersections.
	Perform network surveillance for detection and verification of incidents on state roads.
Hawaii Department of Transportation - Harbors Division, Maui District	Manage and operate commercial harbors in Maui, Molokai, and Lanai
	Manage commercial vehicle traffic at entry and exit to Kahului Harbor.
	Perform video surveillance of secure areas within harbor facilities.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: HDOT-HWY-M CLOSED CIRCUIT TELEVISION (CCTV) EXPANSION

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: HDOT-HWY-M Closed Circuit Television (CCTV) Expansion
<b>Description:</b>	This project will add CCTV on state roads.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">Hawaii Department of Transportation - Highways Division, Maui District</a>
<b>Service Packages:</b>	<a href="#">ATMS01-1 - Network Surveillance - HDOT Highways Maui District (HDOT - HWY - M)</a>
<b>Project Inventory:</b>	<a href="#">HDOT-HWY-M Field Devices</a> <a href="#">HDOT-HWY-M Traffic Operations Center</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Collect Traffic Surveillance](#)

- ✦ The center shall monitor, analyze, and distribute traffic images from CCTV systems under remote control of the center.
- ✦ The center shall monitor, analyze, and store traffic sensor data (speed, volume, occupancy) collected from field elements under remote control of the center.

##### [Roadway Basic Surveillance](#)

- ✦ The field element shall return sensor and CCTV system operational status to the controlling center.
- ✦ The field element shall collect, process, and send traffic images to the center for further analysis and distribution.
- ✦ The field element shall collect, process, digitize, and send traffic sensor data (speed, volume, and occupancy) to the center for further analysis and storage, under center control.

#### INTERFACES

Source	Architecture Flows	Destination
<a href="#">HDOT-HAR-M Field Devices</a>	traffic images	<a href="#">HDOT-HWY-M Traffic Operations Center</a>
<a href="#">HDOT-HWY-M Traffic Operations Center</a>	video surveillance control	<a href="#">HDOT-HWY-M Field Devices</a>

#### ITS STANDARDS

SDO	Document ID	Title	Type
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Center Standards Group	Group
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Field Standards Group	Group
AASHTO/ITE/NEMA	NTCIP 1201	Global Object Definitions	Message/Data
AASHTO/ITE/NEMA	NTCIP 1205	Object Definitions for Closed Circuit Television (CCTV) Camera Control	Message/Data
AASHTO/ITE/NEMA	NTCIP 1208	Object Definitions for Closed Circuit Television (CCTV) Switching	Message/Data

**OPERATIONAL CONCEPTS**

Stakeholder	Roles and Responsibilities
Hawaii Department of Transportation - Highways Division, Maui District	Obtain traffic images and traffic flow data through CCTVs and field sensors and maintain operational control of its own field equipment.
	Perform network surveillance for detection and verification of incidents on state roads.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: HDOT-HWY-M DYNAMIC MESSAGE SIGNS (DMS)

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: HDOT-HWY-M Dynamic Message Signs (DMS)
<b>Description:</b>	This project will upgrade the DMS located south-bound on Highway 30 (to Lahaina) to be remotely configured. This project also includes installation of new DMS on State roadways in the County of Maui (actual locations TBD).
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">Hawaii Department of Transportation - Highways Division, Maui District</a>
<b>Service Packages:</b>	<a href="#">ATMS06-1 - Traffic Information Dissemination - HDOT Highway Maui District (HDOT-HWY-M)</a>
<b>Project Inventory:</b>	<a href="#">HDOT-HWY-M Field Devices</a> <a href="#">HDOT-HWY-M Traffic Operations Center</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Roadway Traffic Information Dissemination](#)

- ✦ The field element shall include dynamic messages signs for dissemination of traffic and other information to drivers, under center control; the DMS may be either those that display variable text messages, or those that have fixed format display (s) (e.g. vehicle restrictions, or lane open/close).

##### [TMC Traffic Information Dissemination](#)

- ✦ The center shall collect operational status for the driver information systems equipment (DMS, HAR, etc.).
- ✦ The center shall remotely control dynamic messages signs for dissemination of traffic and other information to drivers.

#### INTERFACES

Source	Architecture Flows	Destination
<a href="#">HDOT-HWY-M Field Devices</a>	<a href="#">roadway information system status</a>	<a href="#">HDOT-HWY-M Traffic Operations Center</a>
<a href="#">HDOT-HWY-M Traffic Operations Center</a>	<a href="#">roadway information system data</a>	<a href="#">HDOT-HWY-M Field Devices</a>

## ITS STANDARDS

SDO	Document ID	Title	Type
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Field Standards Group	Group
AASHTO/ITE/NEMA	NTCIP 1201	Global Object Definitions	Message/Data
AASHTO/ITE/NEMA	NTCIP 1203	Object Definitions for Dynamic Message Signs (DMS)	Message/Data

## OPERATIONAL CONCEPTS

Stakeholder	Roles and Responsibilities
Hawaii Department of Transportation - Highways Division, Maui District	Provide traffic information to travelers via HDOT DMS equipment.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*



## Maui Regional ITS Architecture

[State Home](#)
[Maui Home](#)
[Stakeholders](#)
[Inventory](#)
[Services](#)
[Architecture](#)
[Projects](#)
[Resources](#)
[Feedback](#)



### PROJECT DETAILS: HDOT-HWY-M TRAFFIC OPERATIONS CENTER (TOC)

#### PROJECT OVERVIEW

<b>Project Name:</b>	Project Details: HDOT-HWY-M Traffic Operations Center (TOC)
<b>Description:</b>	This project will create a traffic control center from which State traffic signals and other ITS equipment in the County of Maui will be monitored.
<b>Status:</b>	Planned
<b>Timeframe:</b>	Long-Term
<b>Geographic Scope:</b>	Maui
<b>Project ID:</b>	
<b>Stakeholders:</b>	<a href="#">Hawaii Department of Transportation - Highways Division, Maui District</a>
<b>Service Packages:</b>	<a href="#">APTS07-1 - Multi-modal Coordination - Maui Bus</a> <a href="#">ATMS01-1 - Network Surveillance - HDOT Highways Maui District (HDOT - HWY - M)</a> <a href="#">ATMS03-1 - Traffic Signal Control - HDOT</a> <a href="#">ATMS06-1 - Traffic Information Dissemination - HDOT Highway Maui District (HDOT-HWY-M)</a>
<b>Project Inventory:</b>	<a href="#">HDOT-HWY-M Field Devices</a> <a href="#">HDOT-HWY-M Traffic Operations Center</a>

#### FUNCTIONAL REQUIREMENTS

Click on a Project Inventory element from the list above to view functional requirements.

##### [Collect Traffic Surveillance](#)

- The center shall monitor, analyze, and distribute traffic images from CCTV systems under remote control of the center.
- The center shall monitor, analyze, and store traffic sensor data (speed, volume, occupancy) collected from field elements under remote control of the center.

##### [Roadway Basic Surveillance](#)

- The field element shall return sensor and CCTV system operational status to the controlling center.
- The field element shall collect, process, and send traffic images to the center for further analysis and distribution.
- The field element shall collect, process, digitize, and send traffic sensor data (speed, volume, and occupancy) to the center for further analysis and storage, under center control.

##### [Roadway Signal Controls](#)

- The field element shall return traffic signal controller operational status to the center.
- The field element shall report the current signal control information to the center.
- The field element shall control traffic signals under center control.

**Roadway Traffic Information Dissemination**

- The field element shall include dynamic messages signs for dissemination of traffic and other information to drivers, under center control; the DMS may be either those that display variable text messages, or those that have fixed format display (s) (e.g. vehicle restrictions, or lane open/close).

**TMC Signal Control**

- The center shall maintain traffic signal coordination including synchronizing clocks throughout the system.
- The center shall manage boundaries of the control sections used within the signal system.
- The center shall implement control plans to coordinate signalized intersections based on data from sensors.
- The center shall manage (define, store and modify) control plans to coordinate signalized intersections, to be engaged at the direction of center personnel or according to a daily schedule.
- The center shall collect traffic signal controller fault data from the field.
- The center shall collect traffic signal controller operational status and compare against the control information sent by the center.
- The center shall remotely control traffic signal controllers.

**TMC Traffic Information Dissemination**

- The center shall collect operational status for the driver information systems equipment (DMS, HAR, etc.).
- The center shall remotely control dynamic messages signs for dissemination of traffic and other information to drivers.

**INTERFACES**

Source	Architecture Flows	Destination
HDOT-HWY-M Field Devices	roadway information system status	HDOT-HWY-M Traffic Operations Center
HDOT-HWY-M Field Devices	signal control status	HDOT-HWY-M Traffic Operations Center
HDOT-HWY-M Field Devices	traffic flow	HDOT-HWY-M Traffic Operations Center
HDOT-HWY-M Field Devices	traffic images	HDOT-HWY-M Traffic Operations Center
HDOT-HWY-M Field Devices	signal fault data	HDOT-HWY-M Traffic Operations Center
HDOT-HWY-M Traffic Operations Center	roadway information system data	HDOT-HWY-M Field Devices
HDOT-HWY-M Traffic Operations Center	traffic sensor control	HDOT-HWY-M Field Devices
HDOT-HWY-M Traffic Operations Center	signal control commands	HDOT-HWY-M Field Devices
HDOT-HWY-M Traffic Operations Center	video surveillance control	HDOT-HWY-M Field Devices
HDOT-HWY-M Traffic Operations Center	signal control device configuration	HDOT-HWY-M Field Devices
HDOT-HWY-M Traffic Operations Center	signal control plans	HDOT-HWY-M Field Devices
HDOT-HWY-M Traffic Operations Center	signal system configuration	HDOT-HWY-M Field Devices

**ITS STANDARDS**

SDO	Document ID	Title	Type
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Center Standards Group	Group
AASHTO/ITE/NEMA	<a href="#">View List</a>	NTCIP Center-to-Field Standards Group	Group
AASHTO/ITE/NEMA	NTCIP 1201	Global Object Definitions	Message/Data
AASHTO/ITE/NEMA	NTCIP 1202	Object Definitions for Actuated Traffic Signal Controller (ASC) Units	Message/Data
AASHTO/ITE/NEMA	NTCIP 1203	Object Definitions for Dynamic Message Signs (DMS)	Message/Data
AASHTO/ITE/NEMA	NTCIP 1205	Object Definitions for Closed Circuit Television (CCTV) Camera Control	Message/Data
AASHTO/ITE/NEMA	NTCIP 1208	Object Definitions for Closed Circuit Television (CCTV) Switching	Message/Data
AASHTO/ITE/NEMA	NTCIP 1209	Data Element Definitions for Transportation Sensor Systems (TSS)	Message/Data
AASHTO/ITE/NEMA	NTCIP 1210	Field Management Stations (FMS) - Part 1: Object Definitions for Signal System Masters	Message/Data
AASHTO/ITE/NEMA	NTCIP 1211	Object Definitions for Signal Control and Prioritization (SCP)	Message/Data
AASHTO/ITE/NEMA	NTCIP 1214	Object Definitions for Conflict Monitor Units (CMU)	Message/Data

**OPERATIONAL CONCEPTS**

Stakeholder	Roles and Responsibilities
Hawaii Department of Transportation - Highways Division, Maui District	Obtain traffic images and traffic flow data through CCTVs and field sensors and maintain operational control of its own field equipment.
	Operate traffic signal systems for State owned intersections.



	Perform network surveillance for detection and verification of incidents on state roads.
	Provide traffic information to travelers via HDOT DMS equipment.

*The Hawaiian language uses two diacritical markings. The 'okina is a glottal stop; and the kahako is a macron. The State of Hawaii strongly encourages the use of Hawaiian diacritical markings. The National ITS Architecture tool, Turbo Architecture, does not allow for the Hawaiian diacritical markings to be input and as such, customized service package diagrams, operational concepts and other outputs from Turbo are unable to reflect the diacritical markings. To ensure consistency in this ITS Architecture website, no Hawaiian diacritical markings will be used.*