



# 2023 Hawaii Statewide Freight Plan



State of Hawaii Department of Transportation  
March 2024



# EXECUTIVE SUMMARY



Recognizing the need to identify opportunities to improve the freight network and proactively plan for future challenges, the Hawaii Department of Transportation (HDOT) initiated the 2023 update to the Hawaii Statewide Freight Plan (HSFP). The 2023 HSFP aligns with HDOT's mission *"to provide a safe, efficient, accessible, and sustainable inter-modal transportation system that ensures the mobility of people and goods and enhances and/or preserves economic prosperity and the quality of life."*

## Purpose of the 2023 Hawaii Statewide Freight Plan

In fulfilling the requirement of the Federal Highway Administration (FHWA) for HDOT to provide an updated statewide freight plan every four years, the 2023 HSFP:

- Supports the state's economic development goals by allowing access to new federal freight apportionment funds and discretionary grants to address existing needs, identify trends, and develop policies and investments strategies.
- Provides updated information on freight-related economic and employment indicators, including major trip generators in Hawaii.
- Describes how freight moves within, to and from the state via multiple supply chain networks and infrastructure that includes trucking, marine freight, air cargo, and military freight.
- Discusses strategies to address the impacts of extreme weather and natural disasters on freight mobility, as well as the impacts of freight movement on local air pollution, flooding, stormwater runoff, and wildlife habitat loss.
- Examines the impact of innovative technologies and operational strategies to freight mobility in Hawaii.
- Identifies potential solutions and improvements to address freight system needs and issues including prioritizing investments and developing recommended policies and strategies that guide freight-related decision-making in Hawaii.

# Hawaii's Freight Economic Indicators



Freight-intensive industries rely heavily on a connected, reliable, safe, and efficient transportation network for their long-term success in reaching suppliers and customers. Freight-intensive sectors include manufacturing, mining, construction, agriculture, and service-providing industries such as wholesale and retail trade. Accommodation and food service industries, which include restaurants, resorts, and hotels, rely on freight to serve their customers. In general, freight-intensive industries combine goods-producing and service-providing sectors that rely on a transportation network of carriers, shippers, distribution centers, and warehouses to effectively provide goods and services to consumers.

Figure ES-1 Hawaii's Freight Economic Impact

<b>1 million</b> Total Population (2020)	<b>851K</b> Total Statewide Employment (2021)	<b>\$74.5 billion</b> Total Statewide GDP (2021)
<b>20%</b> Population Growth (2000 to 2020)	<b>304K</b> Freight-Intensive Industry Employment (2021)	<b>\$22.5 billion</b> Freight-Intensive Industry GDP (2021)

Figure ES-2 Hawaii's Freight Infrastructure Assets

<b>9</b> Active Commercial Harbors	<b>2,400</b> Miles of Federal-Aid Roadway System	<b>15</b> Commercial Airports
<b>91%</b> of goods imported into Hawaii arrive through maritime ports	<b>728</b> Miles of National Highway Freight Network (2023)	<b>9</b> Air Cargo Service Airports

# 2023 HSFP Goals and Objectives



## Goal 1: Safety

Develop a state freight network that provides for the safety of people, infrastructure, and goods movement.

- Provide a safe transportation system for all users.
- Consider the security of the State freight network.

## Goal 2 Infrastructure Preservation

Maintain and improve the state of good repair of the freight transportation system.

- Maintain freight facility pavement conditions on the National Multimodal Freight Network with a minimum of 96% in fair or better condition.
- Maintain a minimum of 96% of state bridges in fair or better condition.
- Use life-cycle cost assessments in the prioritization of freight improvements.

## Goal 3: Infrastructure Mobility Improvements

Improve the multimodal freight infrastructure to provide mobility and connectivity for freight and support the local economy's needs, including the tourism industry and military.

- Reduce congestion and eliminate bottlenecks on key freight routes.
- Improve intermodal connectivity.

## Goal 4: Reliable Freight Network

Create a reliable freight network that allows shippers and receivers to plan around predictable travel times.

- Optimize the efficiency and reliability of the State freight network.

## Goal 5: Minimize Environmental Impacts

Minimize the environmental impacts of freight movement on the State freight network to surrounding communities and the natural environment.

- Reduce environmental impacts of freight movement on the State freight network on surrounding communities and the natural environment.

## Goal 6: Resiliency to Global Climate Change

Create and maintain a resilient freight infrastructure able to withstand the effects of global climate change.

- Reduce the future impacts of damage caused by climate-related hazards by using innovative technology and infrastructure improvements.

# Hawaii's Multimodal Freight Network



The Bipartisan Infrastructure Law/Infrastructure Investment and Jobs Act (BIL/IIJA) National Highway Freight Program Guidance Update (23 United States Code § 167) increased the 150 miles limit set in the FAST Act to 300 miles (or 20% of the State's PHFS mileage). BIL/IIJA also increased the CUFC from 75 to 150 miles (or 10% of the State's PHFS mileage).

Table ES-1 Components of Hawaii's Highway Freight Network

National/ State Network	Component	Defined By	Mileage Cap		Mileage Designated	
			FAST Act	BIL/IIJA	FAST Act	BIL/IIJA
National Highway Freight Network	Primary Highway Freight System (PHFS)	USDOT	None	None	277	278.8
	Critical Rural Freight Corridors (CRFC)	HDOT	150	300	150	299.7
	Critical Urban Freight Corridors (CUFC)	HDOT & MPOs	75	150	75	149.7
Additional freight corridors	Hawaii Freight Network	HDOT & MPOs	None	None	409	286.2

Table ES-2 Hawaii's Highway Freight Network Mileage by Island

Freight Network Classification	Hawaii	Kauai	Maui	Oahu	Total
PHFS	113.28	17.26	59.85	88.4	278.8
CRFC	120.3	61.2	48.7	69.5	299.7
CUFC	27.2	6.5	3.9	112.1	149.7
NHFN (Total)	260.78	84.96	112.5	270	728.3
Hawaii Freight Network	128.6	25.8	35.9	95.9	286.2

- **Primary Highway Freight System (PHFS):** This network of highways is identified as the most critical highway portions of the U.S. freight transportation system determined by measurable and objective national data.
- **Critical Rural Freight Corridors (CRFCs):** These are public roads not in an urbanized area that provide access and connection to the PHFS and the Interstate with other important ports, public transportation facilities, or other intermodal freight facilities.
- **Critical Urban Freight Corridors (CUFCs):** These public roads in urbanized areas provide access and connection to the PHFS and the Interstate with other ports, public transportation facilities, or intermodal transportation facilities.

# Hawaii's Multimodal Commodity Flows



## Top Commodity Movements

### Top Inter/Intra Island Movement by Weight

- Gasoline (13 million tons)
- Nonmetal minerals products (4.6 million tons)
- Gravel (3.1 million tons)

### Top US Domestic Imports by Value

- Mixed Freight (\$3.5 billion)
- Pharmaceuticals (\$3.1 billion)
- Motorized vehicles (\$2.4 billion)

### Top International Imports by Weight

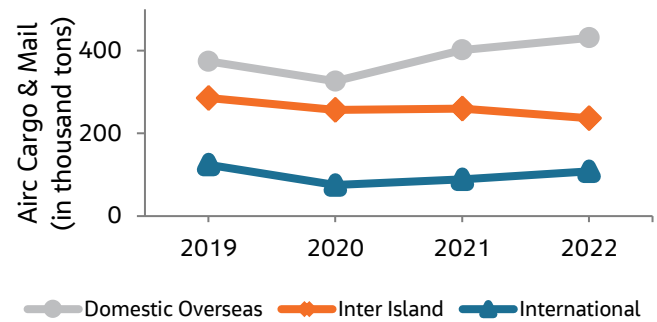
- Crude petroleum (3.5 million tons)
- Gasoline (1.7 million tons)
- Coal (1.3 million tons)

### Top International Exports by Value

- Transportation Equipment, including aircraft (\$28 billion)
- Electronics (\$1.2 billion)
- Machinery (\$1.1 billion)

## Air Cargo

In 2022, over 776,000 tons of air cargo (excluding mail) were transported in, out, and around Hawaii. Domestic overseas movement has increased by 15% since 2019 – likely due to growth in e-commerce.

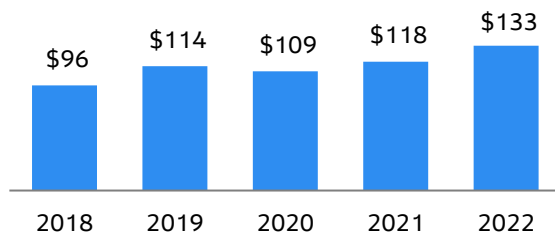


### 2022 Air Cargo and Mail Traffic by Carrier Type



## Maritime

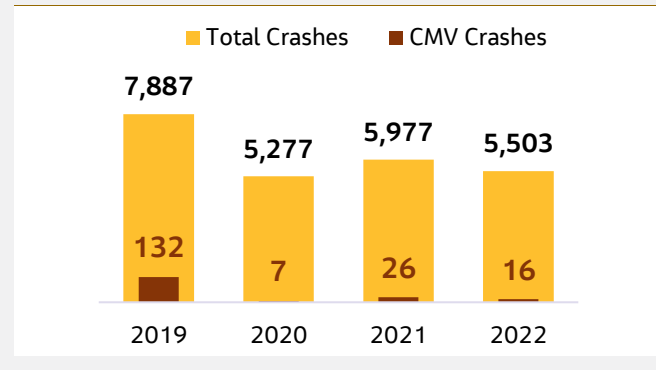
In 2022, 1.7 million container TEUs were moved through Hawaii's harbors – generating \$133 million in revenue – the highest between 2018 and 2022.



For total cargo movement, Honolulu Harbor has the largest cargo volume (10M short tons), followed by Kalaeloa Barbers Point Harbor (3M short tons), Kahului Harbor (2.3M short tons), and Hilo Harbor (1.6M short tons).

## Highway/Trucking

Between 2019 and 2022, there were 181 commercial motor vehicle (CMV) related crashes in Hawaii. This represents less than 1% of all crashes. Since the COVID-19 pandemic in 2020, the total number of vehicle crashes on HDOT highways has reduced by 30% annually, on average, and CMV-related crashes have reduced by 88% annually.



# Policy and Program Recommendations



The primary goal of the policy and program recommendations is to guide an informed decision-making process for freight investment. Implementing the policies and programs endorses the HDOT's mission to provide a safe, efficient, accessible, and sustainable inter-modal transportation system that ensures the mobility of people and goods and enhances and/or preserves economic prosperity and the quality of life.

## ENTRY TO HAWAII / ISLANDS Harbors/Airports

### SAFETY

- Ensure adequate emergency response.
- Mitigate security risks/threats.

### RELIABILITY

- Optimize efficiency and predictability.
- Adopt technology in operations and maintenance.

### INFRASTRUCTURE PRESERVATION

- Set acceptable standards with harbor/airport users.
- Prioritize harbor/airport improvements based on utility and value to economy.

### INFRASTRUCTURE MOBILITY IMPROVEMENTS

- Reduce congestion at harbors/ airports.
- Improve intermodal connectivity on roads adjacent to harbors/airports, add all roads to CUFC/CRFC.

### RESILIENCY TO GLOBAL CLIMATE CHANGE

- Develop and implement a climate adaptation action plan for harbors/airports.

### MINIMIZE ENVIRONMENTAL IMPACTS

- Reduce emissions at harbors/airports by supporting the deployment of technologies and infrastructure that integrate options and encourage sustainable freight transport.
- Reduce impacts to neighboring communities.

## MIDDLE MILE Highways

### SAFETY

- Decrease crashes involving trucks.
- Mitigate security risks/threats near bases.

### RELIABILITY

- Optimize efficiency and predictability.
- Adopt technology in operations and maintenance.
- Assess impact of e-commerce on facilities.

### INFRASTRUCTURE PRESERVATION

- Maintain "fair" or better conditions for roads and bridges.
- Prioritize improvements based on life-cycle cost assessments.

### INFRASTRUCTURE MOBILITY IMPROVEMENTS

- Address deficiencies on National Multimodal Freight Network and key freight routes.
- Improve infrastructure in rural areas to promote economic development.
- Evaluate design standards for freight vehicles to facilitate the safe and efficient movement of goods and people.

### RESILIENCY TO GLOBAL CLIMATE CHANGE

- Implement strategies and actions from Highways climate adaptation action plan.

### MINIMIZE ENVIRONMENTAL IMPACTS

- Reduce emissions by supporting the deployment of technologies and infrastructure that improve the fuel-efficiency of commercial vehicles.
- Provide mode-choice and integration options to encourage the sustainable freight



## LAST MILE Highways/County Roads

### SAFETY

- Decrease crashes involving trucks.
- Consider freight delivery into Complete Street designs.

### RELIABILITY

- Optimize efficiency and predictability.
- Adopt technology in operations and maintenance.
- Assess impact of e-commerce on facilities

### INFRASTRUCTURE PRESERVATION

- Maintain "fair" or better conditions for roads and bridges.
- Prioritize improvements based on life-cycle cost assessments.

### INFRASTRUCTURE MOBILITY IMPROVEMENTS

- Address deficiencies on National Multimodal Freight Network and key freight routes
- Improve infrastructure in rural areas to promote economic development.
- Evaluate design standards for freight vehicles to facilitate the safe and efficient movement of goods and people.
- Ensure appropriate loading zones on roadways and within ports.

### RESILIENCY TO GLOBAL CLIMATE CHANGE

- Develop and implement county climate adaptation action plan.

### MINIMIZE ENVIRONMENTAL IMPACTS

- Reduce emissions by supporting the deployment of technologies and infrastructure that improve the fuel-efficiency of commercial vehicles.
- Provide better mode-choice and integration options to encourage the sustainable freight transport.

## HDOT PROGRAMS SUPPORTING POLICY RECOMENDATIONS

### SAFETY

- Highway Safety Improvement Program (HSIP)

### RELIABILITY

- Hawaii Freight Network

### INFRASTRUCTURE PRESERVATION

- System Preservation (Pavement and Bridge Programs)

### INFRASTRUCTURE MOBILITY IMPROVEMENTS

- Hawaii Freight Network
- Capacity Program and Congestion Management Program
- Rural Transportation Assistance Program

### RESILIENCY TO GLOBAL CLIMATE CHANGE

- GHG Program, Zero-Emission Vehicle Program, and Carbon Offset Program

### MINIMIZE ENVIRONMENTAL IMPACTS

- GHG Program, Zero-Emission Vehicle Program, and Carbon Offset Program





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# 1.

## INTRODUCTION



- I. Plan Purpose and Goals
- II. Connection with National Policies, Goals, and Requirements
- III. Plan Outline

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## Plan Purpose and Goals

Hawaii's economic success and sustainability depend on a reliable, efficient, and robust multimodal freight network. An integrated multimodal freight network provides Hawaii residents and visitors access to raw materials, food supplies, fuel, and other consumer goods from the mainland, global markets, and between islands. Freight-dependent businesses such as tourism, food service, retail trade, and construction, which represent approximately one-third of total employment in Hawaii, are dependent on the state's freight network. The economic output of freight-related sectors was \$22.5 billion, representing 30% of Hawaii's economic activity in 2021.

Recognizing the need to identify opportunities to improve the freight network and proactively plan for future challenges, the Hawaii Department of Transportation (HDOT) initiated the 2023 update to the Hawaii Statewide Freight Plan (HSFP). The 2023 HSFP aligns with HDOT's mission. *"to provide a safe, efficient, accessible, and sustainable inter-modal transportation system that ensures the mobility of people and goods and enhances and/or preserves economic prosperity and the quality of life."*

The 2023 HSFP also supports the state's economic development goals by allowing access to new federal freight apportionment funds and discretionary grants to address existing needs, identify trends, and develop policies and investment strategies.

Building on the 2018 HSFP, the 2023 HSFP:

- Provides updated information on freight-related economic and employment indicators, including major trip generators in Hawaii.
- Describes how freight moves within and from the state via multiple supply chain networks and infrastructure that includes trucking, marine freight, air cargo, and military freight.
- Discusses strategies to address the impacts of extreme weather and natural disasters on freight mobility, as well as the impacts of freight movement on local air pollution, flooding, stormwater runoff, and wildlife habitat loss,
- Examines the impact of innovative technologies and operational strategies on freight mobility in Hawaii.
- Identifies potential solutions and improvements to address freight system needs and issues, including prioritizing investments and developing recommended policies and strategies that guide freight-related decision-making in Hawaii.

To align with the relevant federal and state plans and policies, the six overarching goals established by the Hawaii Freight Advisory Committee (FAC) in the 2018 HSFP were retained for the development of the 2023 HSFP. These include:



- **Safety:** Develop a state freight network that provides for the safety of people, infrastructure, and goods movement.
- **Infrastructure Preservation:** Maintain and improve the state of good repair of the freight transportation system.
- **Infrastructure Mobility Improvements:** Improve the multimodal freight infrastructure to provide mobility and connectivity for freight and to support the needs of the local economy, including the tourism industry and military.
- **Reliable Freight Network:** Create a reliable freight network that allows shippers and receivers to plan around predictable travel times.
- **Minimize Environmental Impacts:** Minimize the environmental impacts of freight movement on the state freight network on surrounding communities and the natural environment.
- **Resiliency to Global Climate Change:** Create and maintain a resilient freight infrastructure able to withstand the effects of global climate change.

## Connection with National Policies, Goals, and Requirements

With the introduction of the Bipartisan Infrastructure Law (BIL)/Infrastructure Investment and Jobs Act (IIJA) (Public Law 117-58), the Federal Highway Administration provided updated guidance for statewide freight plans and freight advisory committees. The 2015 FAST Act elements for state freight plans were retained, and seven (7) new requirements were introduced under IIJA Section 21104 (49 USC 70202). Table 1-1 summarizes the updated national requirements for state freight plans, which the 2023 HSFP fulfills. The new requirements are numbered from 10 to 16.

*Table 1-1 BIL/IIJA State Freight Plan Contents*

According to Section 21104 (49 USC 70202), state freight plans shall include:

- (1) an identification of significant freight system trends, needs, and issues with respect to the State.
- (2) a description of the freight policies, strategies, and performance measures that will guide the freight-related transportation investment decisions of the State.
- (3) when applicable, a listing of-
  - A. multimodal critical rural freight facilities and corridors designated within the State under section 70103 of this title; and
  - B. critical rural and urban freight corridors designated within the State under section 167 of title 23.
- (4) a description of how the plan will improve the ability of the State to meet the national multimodal freight policy goals described in section 70101(b) of this title and the national highway freight program goals described in section 167 of title 23.

- (5) a description of how innovative technologies and operational strategies, including freight intelligent transportation systems, that improve the safety and efficiency of freight movement, were considered.
- (6) in the case of roadways on which travel by heavy vehicles (including mining, agricultural, energy cargo or equipment, and timber vehicles) is projected to substantially deteriorate the condition of the roadways, a description of improvements that may be required to reduce or impede the deterioration.
- (7) an inventory of facilities with freight mobility issues, such as bottlenecks, within the State, and for those facilities that are State owned or operated, a description of the strategies the State is employing to address the freight mobility issues.
- (8) consideration of any significant congestion or delay caused by freight movements and any strategies to mitigate that congestion or delay.
- (9) a freight investment plan that, subject to subsection (c)(2), includes a list of priority projects and describes how funds made available to carry out section 167 of title 23 would be invested and matched.
- (10) the most recent commercial motor vehicle parking facilities assessment conducted by the State under subsection (f);
- (11) the most recent supply chain cargo flows in the State, expressed by mode of transportation.
- (12) an inventory of commercial ports in the State.
- (13) if applicable, consideration of the findings or recommendations made by any multi-state freight compact to which the State is a party under section 70204.
- (14) the impacts of e-commerce on freight infrastructure in the State.
- (15) considerations of military freight.
- (16) strategies and goals to decrease-
  - I. the severity of impacts of extreme weather and natural disasters on freight mobility.
  - II. the impacts of freight movement on local air pollution.
  - III. the impacts of freight movement on flooding and stormwater runoff; and
  - IV. the impacts of freight movement on wildlife habitat loss.
- (17) consultation with the State Freight Advisory Committee, if applicable.

## Plan Outline

The remainder of this report is structured into the following sections:

- Chapter 2 describes the importance of Hawaii's goods movement system by examining freight-related economic and employment indicators. It also describes the major trip generators in Hawaii.
- Chapter 3 describes a multimodal freight network that includes trucking, marine freight, air cargo, military freight, and supply chain flows to and from Hawaii.
- Chapter 4 discusses the impacts of extreme weather and natural disasters on freight mobility and the impacts of freight movement on local air pollution, flooding, stormwater

runoff, and wildlife habitat loss. Emerging trends in freight movement, such as e-commerce, climate change impacts, alternative energy sources, and the impacts of innovative technologies, are also addressed in this chapter.

- Chapter 5 provides an overview of the decision-making process for the development of the statewide freight plan. These include goal setting, performance measure evaluation, and needs identification and assessment. Statewide freight policies and program recommendations are also presented in this chapter.
- Chapter 6 presents the Freight Investment Plan for Hawaii's multimodal freight system, which includes a list of priority projects.



# 2.

## THE IMPORTANCE OF FREIGHT INDUSTRIES TO HAWAII



- I. Economic Output of Freight Intensive Industries in Hawaii
- II. Employment in Freight-Related Sectors
- III. Major Trip Generators

## Economic Output of Freight Intensive Industries in Hawaii

Freight-intensive industries are heavily reliant on a connected, reliable, safe, and efficient transportation network for their long-term success in reaching suppliers and customers. Goods-producing sectors are examples of freight-intensive sectors. They produce physical goods for use or consumption by others. These sectors include manufacturing, mining, construction, and agriculture. Some service-providing industries, such as wholesale and retail, are also dependent on a reliable freight transportation network to receive supplies and deliver products to consumers. Similarly, accommodation and food service industries, which include restaurants, resorts, and hotels, rely on freight to serve their customers. In general, freight-intensive industries are a combination of goods-producing and service-providing sectors that rely on a transportation network of carriers, shippers, distribution centers, and warehouses to provide goods and services to consumers effectively. Table 2-1 provides a list of industries classified as freight-intensive and those classified as other service sectors.

*Table 2-1 Categorization of Industry Sectors using the 2022 North American Industry Classification System*

Freight-Intensive Industries	Other Service Sectors
11 – Agriculture, forestry, fishing, and hunting	51 – Information
21 – Mining, quarrying, and oil and gas extraction	52 – Finance and Insurance
22 – Construction	53 – Real Estate and Rental and Leasing
23 – Manufacturing	54 – Professional, Scientific, and Technical Services
42 – Wholesale trade	55 – Management of Companies and Enterprises
44-45 – Retail trade	56 – Administrative and Support and Waste Management and Remediation Services
48-49 – Transportation and warehousing	61 – Educational Services
72 – Accommodation and food services	62 – Health Care and Social Assistance
	71 – Arts, Entertainment, and Recreation
	81 – Other Services (except Public Administration)
	92 – Public Administration

Source: U.S. Census Bureau, 2022

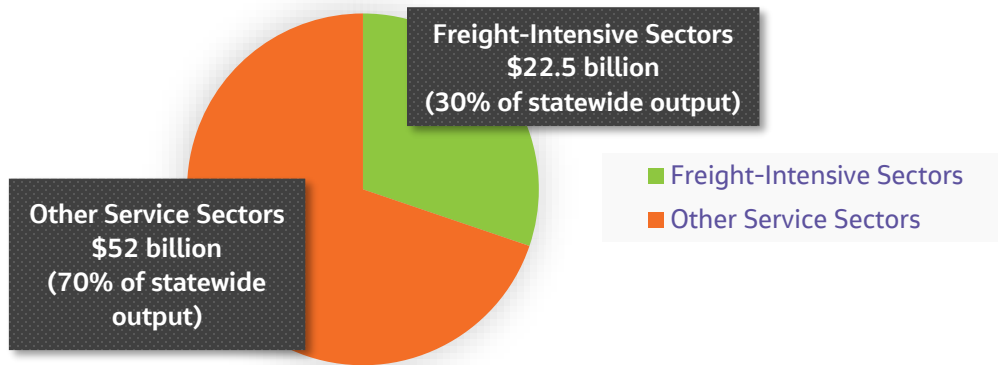
*According to the U.S. Bureau of Economic Analysis (BEA), the economic output of freight-intensive industries in Hawaii was \$22.5 billion in 2021.<sup>1</sup>*

*This represents 30% of the overall economic activity for Hawaii.*

<sup>1</sup> Real gross domestic product (GDP) is an inflation-adjusted measure that reflects the value of all goods and services produced by an economy each year, in this case 2021.

As shown in Figure 2-1, the remaining 70% or \$52 billion of Hawaii’s economic output is in other services sectors such as finance, health care, education, public administration, and professional and technical services.

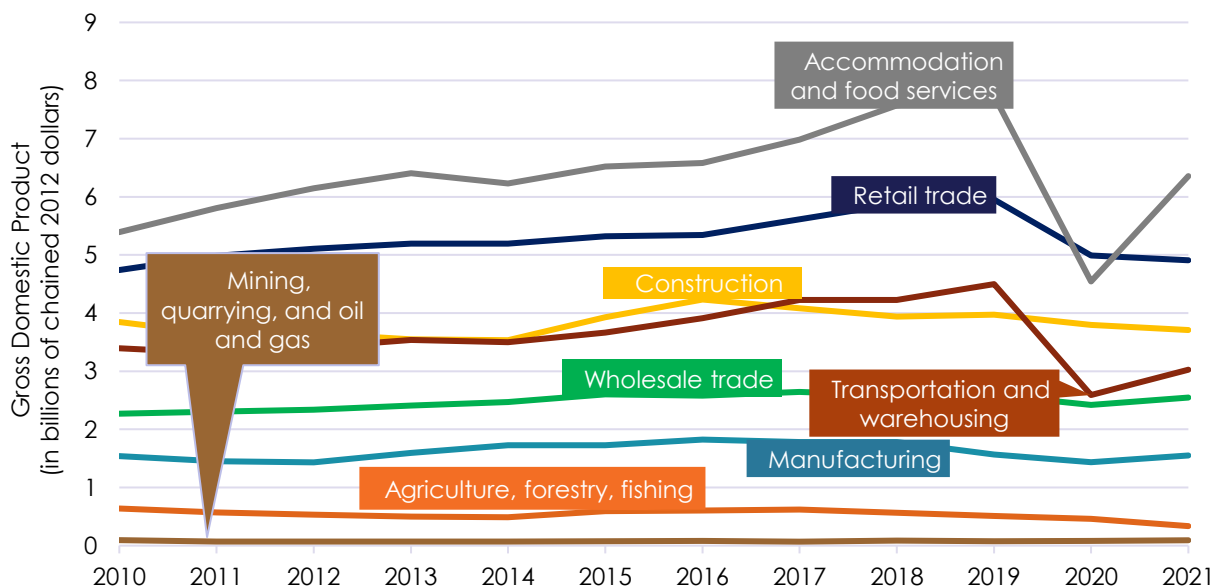
Figure 2-1 Total Economic Output in Billion Dollars (2021)



Source: U.S. Bureau of Economic Analysis, 2021

When examining year-over-year trends, freight-intensive industries have experienced growth and decline since 2010. Industries such as construction, transportation, and warehousing had not fully recovered to pre-pandemic levels as of 2021, as shown in Figure 2-2. A breakdown of the economic output of freight-intensive sectors in Hawaii is also provided in Table 2-2. The largest freight-intensive sector is the accommodation and food service industry, which accounts for \$6.4 billion or 8.5% of the state’s economic output. This is followed by retail trade and construction, which accounted for \$4.9 billion or 6.6% of the state’s economic output and \$3.7 billion or 5.0% of the state’s economic output, respectively.

Figure 2-2 Freight Intensive Industry GDP Trend by Year (2010 to 2021)



Source: U.S. Bureau of Economic Analysis, 2021

Table 2-2 Economic Output in Freight-Intensive Sectors (2021)

Freight-Intensive Sectors	Economic Output (\$ billions)	Percent of Freight Intensive Industries	Percent of All Industries
Accommodation and food services	6.4	28%	8.5%
Retail trade	4.9	22%	6.6%
Construction	3.7	16%	5.0%
Transportation and warehousing	3.0	13%	4.1%
Wholesale trade	2.5	11%	3.4%
Manufacturing	1.6	7%	2.1%
Agriculture, forestry, fishing, and hunting	0.3	1%	0.5%
Mining, quarrying, and oil and gas extraction	0.1	< 1%	0.1%
<b>Total Freight-Related Sectors</b>	<b>22.5</b>	<b>100%</b>	<b>30.3%</b>

Source: U.S. Bureau of Economic Analysis, 2021

The only other sector that is over 10% of the freight-related economy is the transportation and warehousing sector, which has \$3.0 billion of economic output, which represents 4.1% of the state's economic output, and the wholesale trade sector, which has \$2.5 billion of economic output which represents 3.4% of the state's economic output. Manufacturing, agriculture-related, and mining-related sectors represent the remaining freight-related sectors in Hawaii, with 2.1%, 0.5 %, and 0.1% of the state's economic output, respectively.

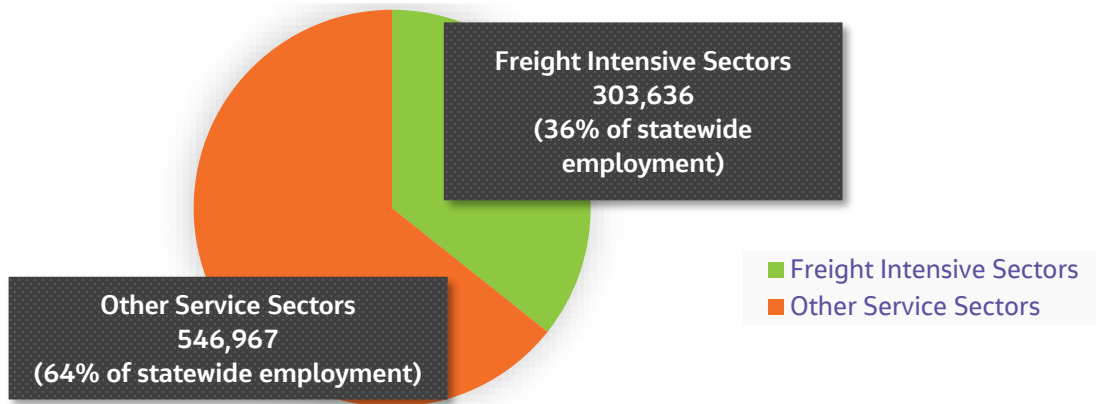


## Employment in Freight-Intensive Sectors

There are nearly 303,000 people employed in freight-related sectors in Hawaii in 2021. This represents 36% of total employment in Hawaii, as shown in Figure 2-3.

*36% of Hawaii's freight-related workforce contributes to 30% of the state's economic output – an illustration of the importance of the freight industry to the state.*

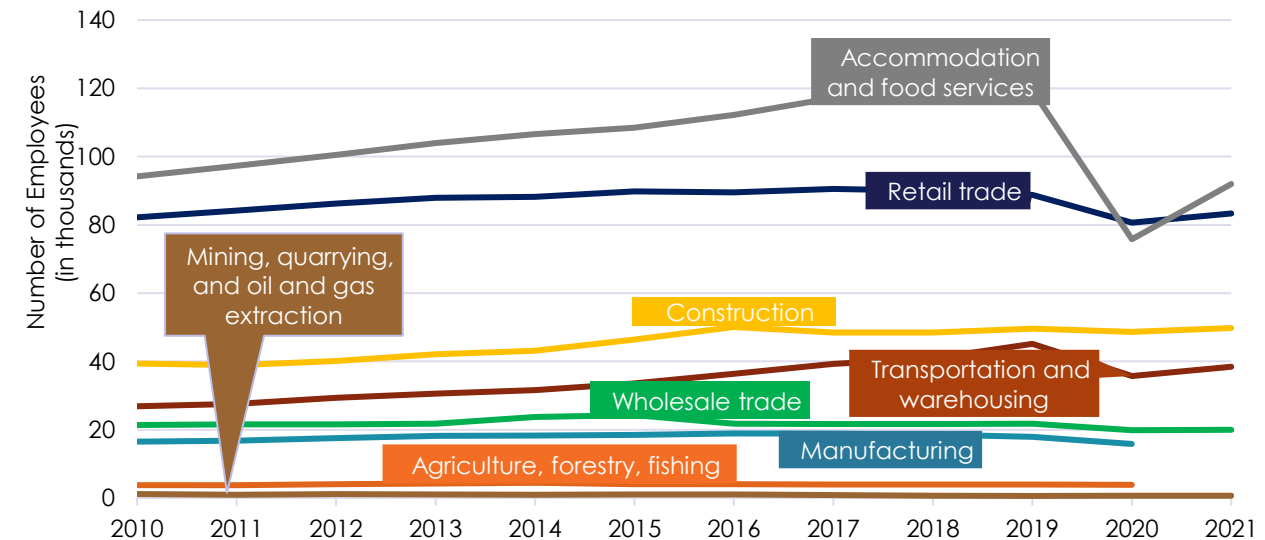
Figure 2-3 Employment by Type (2021)



Source: U.S. Bureau of Economic Analysis, 2021

In 2021, the accommodation and food services sector grew by 21%, from 2020 but still 23% below the 2019 peak, as shown in Figure 2-4. Retail trade, construction, transportation, and warehousing are some of the other industries that showed strong growth from 2020 to 2021.

Figure 2-4 Freight Intensive Industry Employment Trend by Year (2010 to 2021)



Source: U.S. Bureau of Economic Analysis, 2021



Table 2-3 Employment in Freight- Intensive Sectors (2021)

Freight-Intensive Sectors	Employment	Percent of Freight Intensive Industries	Percent of All Industries
Accommodation and food services	91,951	30%	10.8%
Retail trade	83,334	27%	9.8%
Construction	49,772	16%	5.9%
Transportation and warehousing	38,447	13%	4.5%
Wholesale trade	19,907	7%	2.3%
Manufacturing	15,803*	5%	1.9%
Agriculture, forestry, fishing, and hunting	3,822*	1%	0.4%
Mining, quarrying, and oil and gas extraction	600	1%	0.1%
<b>Total Freight-Related Sectors</b>	<b>303,636</b>	<b>100%</b>	<b>35.7%</b>

Source: U.S. Bureau of Economic Analysis, 2021. \*Indicates 2020 employment as 2021 employment data is not available due to disclosure concerns regarding confidential information and estimates.

## Major Trip Generators

Major trip generators are identified by identifying the location of freight-intensive sectors in Hawaii and the population distribution of the state. Table 2-4 shows the location of warehouse and distribution centers for each of the four main islands of Hawaii based on industrial real estate data. It shows that 70% of warehouse and industrial space in Hawaii is on Oahu Island, indicating that most truck trips in Hawaii occur in Oahu.

Table 2-4 Warehouse Distribution by Island (Q4 2022 vs Q3 2017)

Island	2022 Q4		2017 Q3		Change	
	Warehouse/DC and Manuf. Space (Sq. Ft.)	Sq. Ft. Percent of Total	Warehouse/DC and Manuf. Space (Sq. Ft.)	Sq. Ft. Percent of Total	Warehouse/DC and Manuf. Space (Sq. Ft.)	Sq. Ft. Percent of Total
Oahu	38,976,480	70%	41,034,661	70%	-2,058,181	-
Maui	8,910,690	16%	9,729,171	17%	-818,481	-1%
Hawaii	6,143,962	11%	5,950,513	10%	193,449	1%
Kauai	1,834,993	3%	1,848,648	3%	-13,655	-
<b>Total</b>	<b>55,866,125</b>	<b>100%</b>	<b>58,562,993</b>	<b>100%</b>	<b>-2,696,868</b>	<b>-</b>

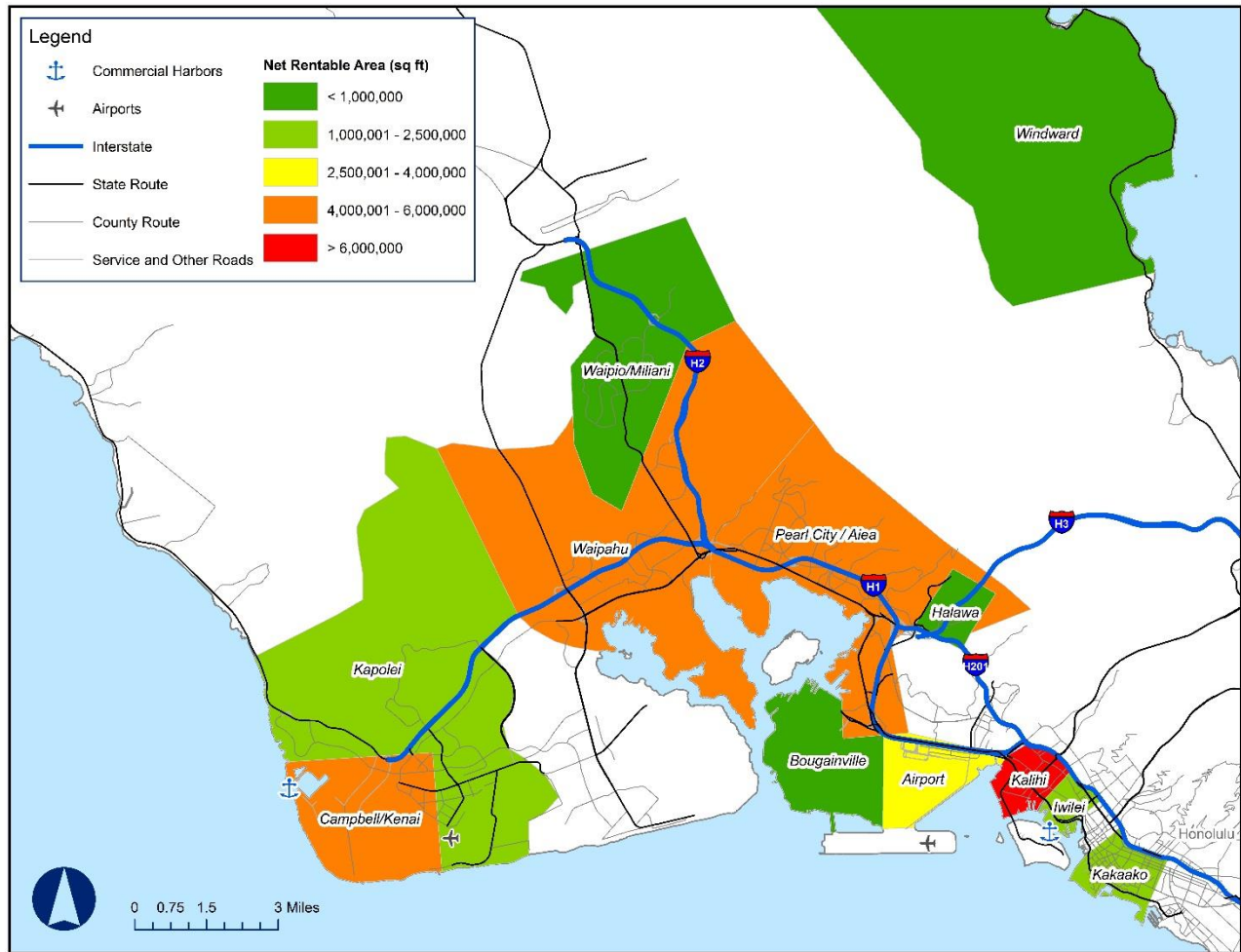
Source: CBRE Research, Q4 2022

Maui and Hawaii Island (Big Island) have between 10% and 20% of the warehouse and transportation square footage and the population in Hawaii, indicating that they have a much

smaller proportion of truck trips in Hawaii. Kauai has less than 5% of the population and warehouse square footage, indicating a much smaller proportion of truck trips in this location.

Figure 2-5 shows the concentration of warehouse and distribution center space for subregions within Oahu, and Table 2-5 lists the square footage in each subregion.

Figure 2-5 Warehouse and Distribution Center Space



Source: CBRE MarketView, Hawaii Industrial Q3 2017. Based on 2022 Q4 numbers, there are no major anticipated changes to this map.

Table 2-5 Industrial Area (Sq. Ft.) by Submarket (Q4 2022 vs Q3 2017)

Submarket	Q4 2022		Q3 2017		Change	
	Industrial Area (Sq. Ft.)	Percent of Total	Industrial Area (Sq. Ft.)	Percent of Total	Industrial Area (Sq. Ft.)	Percent of Total
Kalihi	9,798,822	25%	9,603,511	23%	195,311	2%
Campbell	4,015,121	10%	4,050,788	10%	-35,667	0%

Submarket	Q4 2022		Q3 2017		Change	
	Industrial Area (Sq. Ft.)	Percent of Total	Industrial Area (Sq. Ft.)	Percent of Total	Industrial Area (Sq. Ft.)	Percent of Total
Pearl City	3,669,838	9%	5,738,280	14%	-2,068,442	-5%
Waipahu	3,280,374	8%	4,395,770	11%	-1,115,396	-3%
Airport	3,143,808	8%	3,050,108	7%	93,700	1%
Mapunapuna	2,885,973	7%	2,576,292	6%	309,681	1%
Kapolei	2,655,117	7%	2,452,150	6%	202,967	1%
Iwilei	2,541,284	7%	2,010,403	5%	530,881	2%
Kakaako	2,129,129	6%	2,056,245	5%	72,884	1%
Waipio	1,936,581	5%	771,644	2%	1,164,937	3%
Halawa	1,461,384	4%	2,645,610	6%	-1,184,226	-2%
Windward	1,079,413	3%	972,008	2%	107,405	1%
Bougainville	379,636	1%	711,852	2%	-332,216	-1%
Total	38,976,480	100%	41,034,661	100%	-2,058,181	-

Source: CBRE Research, Q4 2022

The Kalihi subregion, which is located just north of the port-related facilities on Sand Island, has the most industrial square footage space available, with 9.6 million square feet. This is nearly one-quarter of all the warehouse and square footage space on Oahu. Four subregions have over three million square feet of warehouse and industrial space: Campbell, Pearl City, Waipahu, and Airport subregions. The Pearl City and Waipahu subregions are located northwest of Kalihi. In contrast, the Airport subregion is located west of Kalihi, and the Campbell subregion is located at the southwestern tip of Oahu in the vicinity of the Kalaeloa Barber's Point marine facilities. These four subregions have 14.1 million square feet of industrial space, representing another 35% of the total available in Oahu. No other subregions have more than 7% of the total available space in Oahu, with the Mapunapuna subregion being the largest of the remaining subregions with 3.1 million square feet of industrial space. This information indicates that freight planning in the Kalihi, Campbell, Pearl City, Waipahu, and Airport subregions will be the most critical for statewide freight planning efforts.

# 3.

## MAINTAINING A CONNECTED FREIGHT NETWORK IN HAWAII



- IV. The Hawaii Multimodal Freight Network
- V. Highway/Trucking
- VI. Marine Freight
- VII. Air Cargo
- VIII. Military Freight
- IX. Supply Chain Analysis

## The Hawaii Multimodal Freight Network

The FAST Act directed the FHWA Administrator to establish a National Highway Freight Network (NHFN) to strategically direct Federal resources and policies toward improved performance of highway portions of the U.S. freight transportation system. The NHFN includes the following freight network classifications (subsystems) of roadways, as defined by the FHWA (2023):

- **Primary Highway Freight System (PHFS):** This is a network of highways identified as the most critical highway portions of the U.S. freight transportation system determined by measurable and objective national data. *As of the 2022 Congressional re-designation of the PHFS, the Hawaii PHFS network consists of about 278.79 centerline miles of roadway.* The Office of Freight Management and Operations manages the PHFS.
- **Other Interstate portions not on the PHFS:** These highways consist of the remaining portion of Interstate roads not included in the PHFS and provide continuity and access to freight transportation facilities. This category is not applicable in Hawaii because all Interstate roads in Hawaii are already included on the PHFS.
- **Critical Rural Freight Corridors (CRFCs):** These are public roads not in an urbanized area that provide access and connection to the PHFS and the Interstate with other important ports, public transportation facilities, or other intermodal freight facilities.
- **Critical Urban Freight Corridors (CUFCs):** These are public roads in urbanized areas that provide access and connection to the PHFS and the Interstate with other ports, public transportation facilities, or other intermodal transportation facilities.

In the 2018 Statewide Freight Plan, HDOT was responsible for defining a maximum of 150 miles of CRFCs and 75 miles of CUFCs in collaboration with the Oahu Metropolitan Planning Organization (MPO) and Maui MPO. Having a defined network is required to apply for certain federal funding opportunities.

### New BIL/IIJA State Freight Plan Elements Requirements

- Supply chain cargo flows by mode of transportation.
- Inventory of commercial ports
- Impacts of e-commerce on freight infrastructure
- Military freight considerations
- Strategies and goals to decrease impacts of extreme weather and natural disasters on freight mobility, as well as the impacts of freight movement local air pollution, flooding and stormwater runoff, and wildlife habitat loss.
- Multi-State freight compacts
- Commercial motor vehicle parking facilities assessment

As summarized in Table 3-1, the BIL/IIJA National Highway Freight Program Guidance Update (23 United States Code § 167) increased the 150 miles limit set in the FAST Act to 300 miles (or 20% of the State's PHFS mileage). BIL/IIJA also increased the CUFC from 75 miles to 150 miles (or 10% of the State's PHFS mileage).

*Table 3-1 Classification of Hawaii's National and State Freight Network*

National/ State Network	Freight Network Classification	Defined By	Mileage Cap		Mileage Designated	
			FAST Act	BIL/IIJA	FAST Act	BIL/IIJA
National Highway Freight Network	Primary Highway Freight System (PHFS)	USDOT	None	None	277	278.8
	Critical Rural Freight Corridors (CRFC)	HDOT	150	300	150	299.7
	Critical Urban Freight Corridors (CUFC)	HDOT & MPOs	75	150	75	149.7
Additional freight corridors	Hawaii Freight Network	HDOT & MPOs	None	None	409	286.2

In consideration of the new requirements set forth by the BIL/IIJA, a review of the criteria and rationale used to identify the CRFCs and CUFCs in the 2018 Statewide Freight Plan was updated to include considerations for mission-critical military facilities (see Appendix A for a list of criteria used for CRFC and CUFC selection). In 2018, the mileage cap for the nationally defined system for the State of Hawaii was low, so the Freight Advisory Committee proposed an additional category for corridors important to Hawaii to be established to help prioritize state funding for projects not on the NHFN. These additional Hawaii Freight Corridors serve regional and local freight mobility. While these corridors do not qualify for funding from the National Highway Freight Program, they are eligible for other applicable federal funding sources. These additional corridors were identified as the Hawaii Freight Network. They were identified by selecting roads with higher truck volumes that are not already designated on the NHFN—specifically, roads in urban areas with greater than 500 AADTT and roads in rural areas with greater than 100 AADTT.

With the new threshold set in the BIL/IIJA for the CUFC and CRFC designations, roadway segments identified in the 2018 Hawaii Freight Network were considered. Table 3-2 and Figure 3-1 to Figure 3-5 display the NHFN for Oahu, Honolulu in Oahu, Hawaii Island, Kauai, and Maui, respectively.

Table 3-2 Hawaii's Highway Freight Network Mileage by Island

Freight Network Classification	Hawaii	Kauai	Maui	Oahu	Total
PHFS	113.28	17.26	59.85	88.4	278.8
CRFC	120.3	61.2	48.7	69.5	299.7
CUFC	27.2	6.5	3.9	112.1	149.7
NHFN (Total)	260.78	84.96	112.5	270	728.3
Hawaii Freight Network	128.6	25.8	35.9	95.9	286.2

Figure 3-1 National Highway Freight Network - Oahu



Source: HDOT, 2023

Figure 3-2 National Highway Freight Network – Honolulu, Oahu



Source: HDOT, 2023

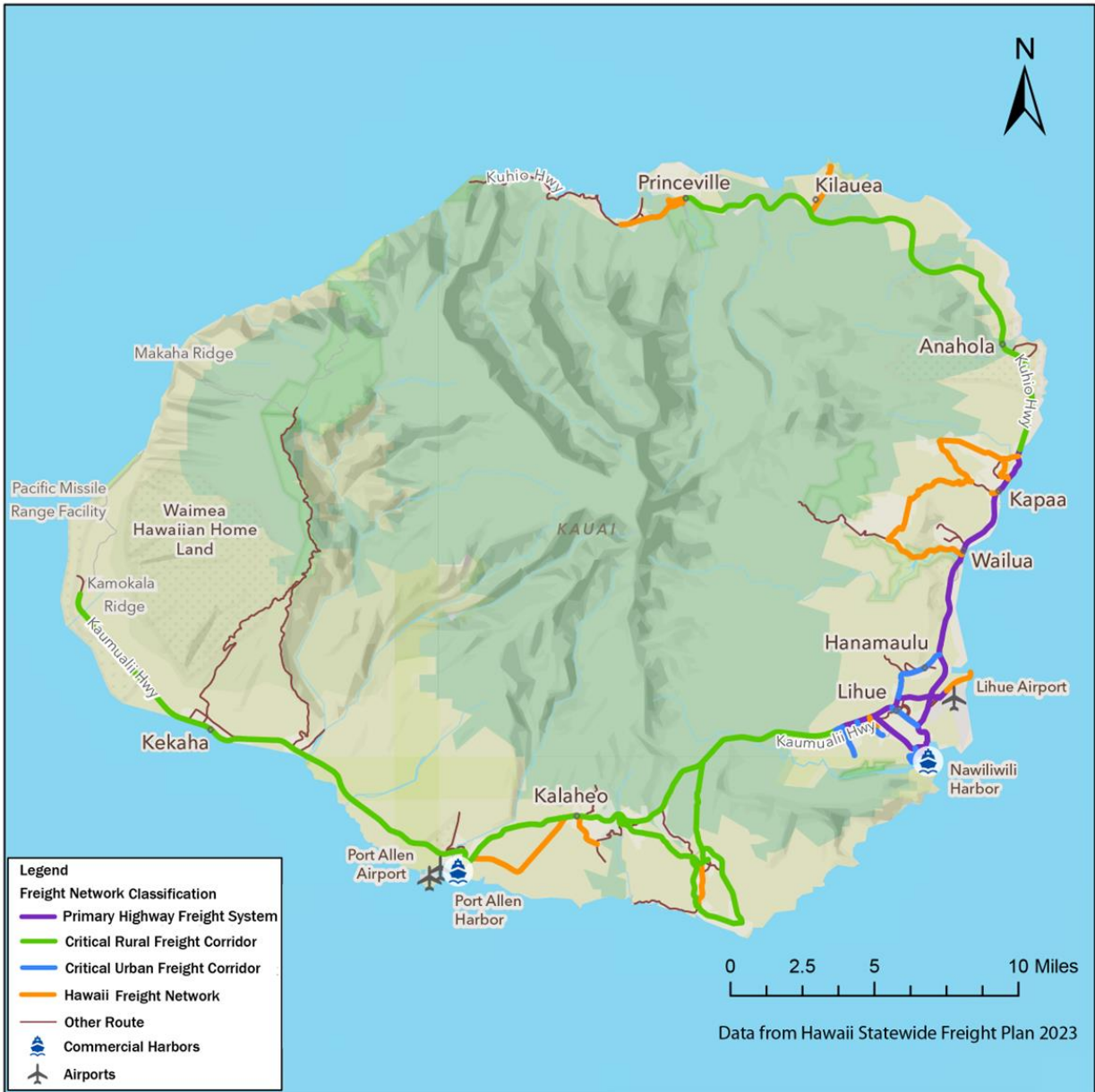


Figure 3-3 National Highway Freight Network - Hawaii (Big Island)



Source: HDOT, 2023

Figure 3-4 National Highway Freight Network – Kauai



Source: HDOT, 2023

Figure 3-5 National Highway Freight Network - Maui



Source: HDOT, 2023

## Highway/Trucking

There are approximately 2,400 miles in Hawaii's federal-aid roadway system. The federally designated highway system includes the National Highway System (NHS), the Strategic Highway Network (STRAHNET), the National Highway Freight Network (NHFN), and the Primary Highway Freight System (PHFS). The NHS is a system of critical economic, defense, and mobility routes that consists of interstates, other principal arterials, STRAHNET, major strategic highway network connectors, and freight/passenger intermodal connectors. There is a significant overlap between the NHS and PHFS in Hawaii. Table 3-3 presents a list of PHFS routes in Hawaii, which are also shown in Figure 3-1 to Figure 3-5.

*Table 3-3 Primary Highway Freight System (PHFS) Routes*

Island	Route No.	Route Name	Start Point	End Point	Length (Miles)
Oahu	IH1	Queen Liliuokalani Freeway	Farrington Highway (S93)	Ainakoa Avenue	27.15
Oahu	IH2	Veterans Memorial Freeway	Queen Liliuokalani Freeway (IH1)	Wilikina Drive (S99)	8.31
Oahu	IH201	Moanalua Freeway	Queen Liliuokalani Freeway (IH1) Exit 13A	N King Street	4.01
Oahu	IH3	John A Burns Freeway	Moanalua Freeway (IH201)	G Street	14.98
Hawaii	S11	Kanoelehua Avenue	Queen Kaahumanu Highway (S19)	Keaau Pahoia Bypass Road (S130)	6.65
Hawaii	S19	Queen Kaahumanu Highway	Kaiwi Street	Lelewi Street	101.97
Maui	S30	Honoapiilani Highway	Kuihelani Highway (S380)	Napilihau Street	24.15
Maui	S31	Piilani Highway	Maui Veterans Way (S311)	Wailea Ike Drive	7.34
Maui	S311	Maui Veterans Way	Kuihelani Highway (S380)	N Kihei Road (S310)	6.41
Maui	S32	Kaahumanu Avenue	Hana Highway (S36)	Market Street	2.47
Maui	S350	Puunene Avenue	Kuihelani Highway (S380)	Kaahumanu Avenue (S32)	1.12
Maui	S36	Hana Highway	Kaahumanu Avenue (S32)	Haleakala Highway (S37)	2.93
Maui	S37	Haleakala Highway	Hana Highway (S36)	Haleakala Highway (S377)	7.53
Maui	S380	Kuihelani Highway	Honoapiilani Highway (S30)	Puunene Avenue (S350)	6.39

Island	Route No.	Route Name	Start Point	End Point	Length (Miles)
Kauai	S50	Kaumualii Highway	Kuhio Highway (S56)	Puhi Road	1.74
Kauai	S51	Kapule Highway	Nawiliwili Road (S58)	Kuhio Highway (S56)	3.46
Kauai	S56	Kuhio Highway	Kaumualii Highway (S50)	Ahukini Road (S570)	0.41
Kauai	S56	Kuhio Highway (S56)	Kapule Highway (S51)	South of Hauaala Road	7.47
Kauai	S570	Ahukini Road	HI9A - Lihue Airport	Kuhio Highway (S56)	1.13
Kauai	S58	Nawiliwili Road (S58)	Kaumualii Highway (S50)	Kapule Highway (S51)	2.05
Oahu	S92	Nimitz Highway/Ala Moana Boulevard	Queen Liliuokalani Freeway (IH1) Exit 18A	Kalakaua Avenue	6.29
Oahu	S93	Farrington Highway	Queen Liliuokalani Freeway (IH1)	Makau Street	14.53
Oahu	S99	Kamehameha Highway	Veterans Memorial Freeway (IH2)	Ka Uka Boulevard	5.65
Kauai	HI10P - Nawiliwili Harbor	Wilcox Road, Kanoa Road, & Waapa Road	Nawiliwili Road (S58)	Pier 1 and Pier 3 Terminals	0.41
Oahu	HI12P - Barbers Point Harbor	Kalaeloa Boulevard, and Malakole Road	Queen Liliuokalani Freeway (IH1)	Pier 5 Terminal	2.70
Oahu	HI1A - Honolulu International Airport	Queen Liliuokalani Freeway (IH1) Ramps	Queen Liliuokalani Freeway (IH1) Exit 16	Terminal	2.15
Oahu	HI2P - Honolulu Harbor	Sand Island Access Road	Nimitz Highway/Ala Moana Boulevard (S92)	Pier 1 Terminal	2.63
Maui	HI3A - Kahului Airport	Mayor Elmer F. Carvalho Way	Puunene Avenue (S350)	Terminal	0.91
Maui	HI4P - Kahului Harbor	Ala Luina Street and Hobron Avenue	Hana Highway (S36)	Pier 1 Terminal	0.60
Hawaii	HI5A - Hilo International Airport	Airport Road	Kanoelehua Avenue (S11)	Terminal	1.18
Hawaii	HI6P - Hilo Harbor	Kuhio Street	Kalaniana'ole Street (S19)	Pier 1 Terminal	0.19
Hawaii	HI7P - Kawaihae Harbor	Kawaihae Road	Akoni Pule Highway (S270)	Pier 1 and Pier 2 Terminals	2.65
Hawaii	HI8A - Kona International Airport	Keahole Airport Road	Queen Kaahumanu Highway (S19)	Terminal	0.64

Island	Route No.	Route Name	Start Point	End Point	Length (Miles)
Kauai	HI9A - Lihue Airport	Ahukini Road	Ahukini Road (S570) East of Kapule Highway (S51)	Terminal	0.59
Total					278.79

Source: Federal Highway Administration, 2022

## Average Annual Daily Truck Volumes

Figure 3-6 to Figure 3-10 show average annual daily truck volumes on Hawaii’s roadway network. Figure 3-6 shows that the highest concentration of high truck volume locations in Oahu is in the urbanized area, with the highest volumes on H-1, H-2, and H-201 (see Figure 3-7).

Figure 3-6 Average Annual Daily Truck Volume - Oahu



Source: HDOT, 2022

Figure 3-7 Average Annual Daily Truck Volume - Honolulu, Oahu



Source: HDOT, 2022

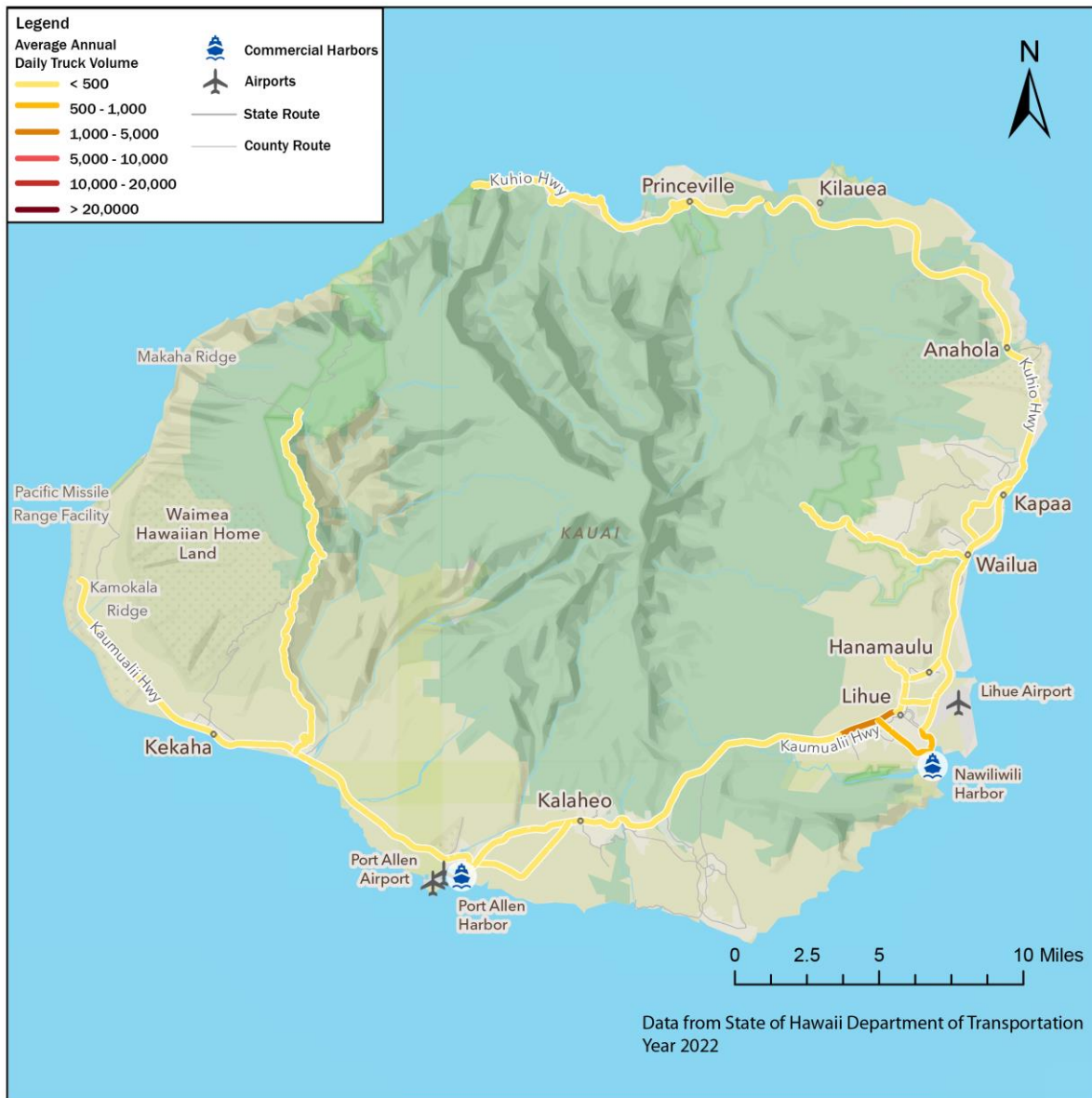
Figure 3-8 Average Annual Daily Truck Volume - Hawaii (Big Island)



Source: HDOT, 2022

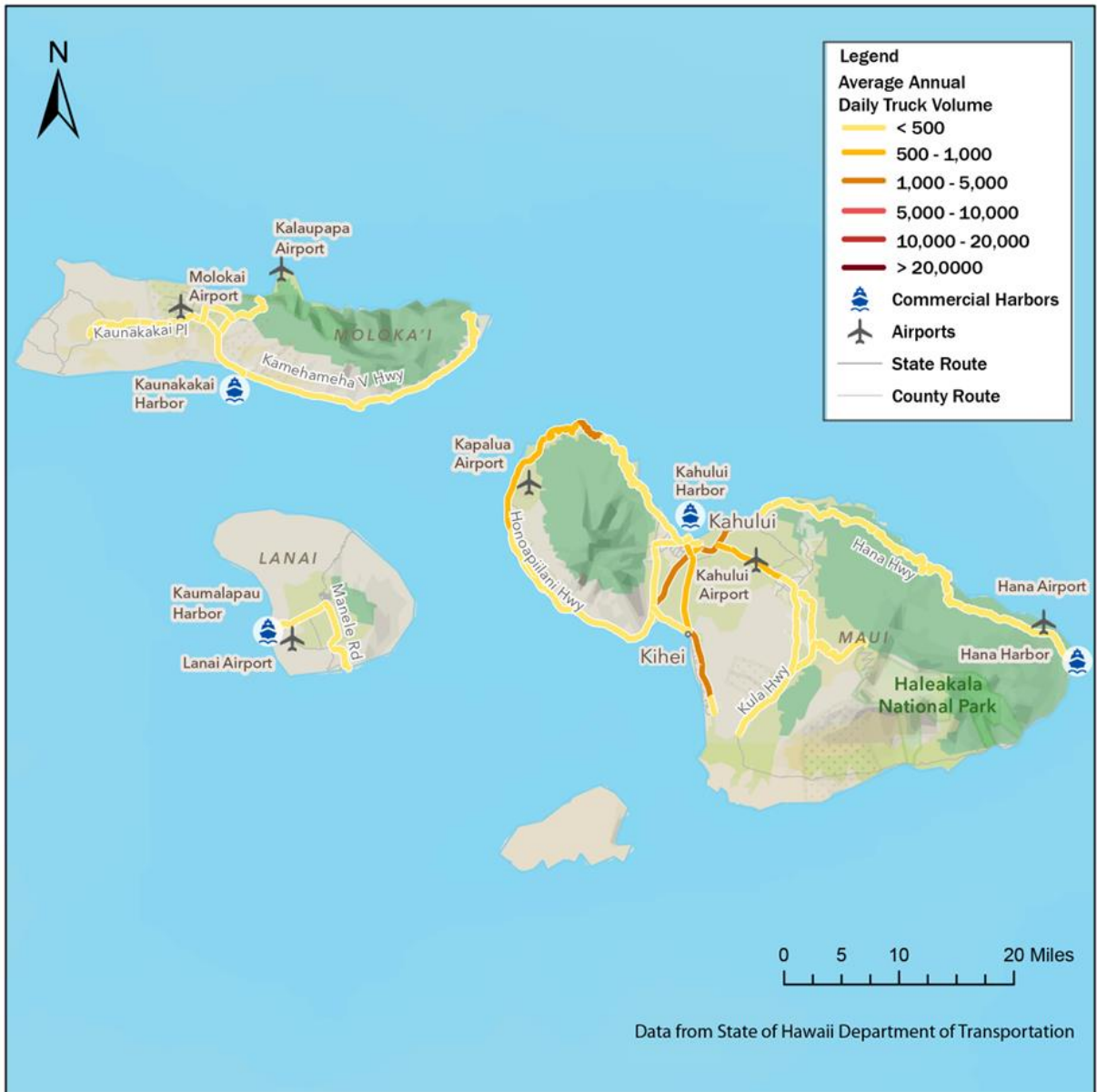


Figure 3-9 Average Annual Daily Truck Volume - Kauai



Source: HDOT, 2022

Figure 3-10 Average Annual Daily Truck Volume - Maui



Source: HDOT, 2022

## Top 50 Truck Volume Locations

HDOT counts vehicular traffic by vehicle class on roadways across the state through a mix of permanent and temporary count programs. For purposes of this analysis, trucks were considered all vehicles in FHWA Class 5 and higher. These truck volumes were used to identify locations that are heavily used by trucks and, therefore, deemed important for goods movement. Table 3-4 lists the top 50 truck volume locations in Hawaii based on the truck count data provided by the HDOT, and Figure 3-11 to Figure 3-13 show the location of these projects. The table identifies the highest truck volume location as being on Nimitz Highway in Oahu, with a truck volume of 15,066. This is followed by H-1 near the Kaonohe overpass in Oahu, which recorded an average annual truck volume of 9,288.

Table 3-4 Top 50 Truck Count Locations, 2022 (FHWA Vehicle Classification 5 and Higher)<sup>2</sup>

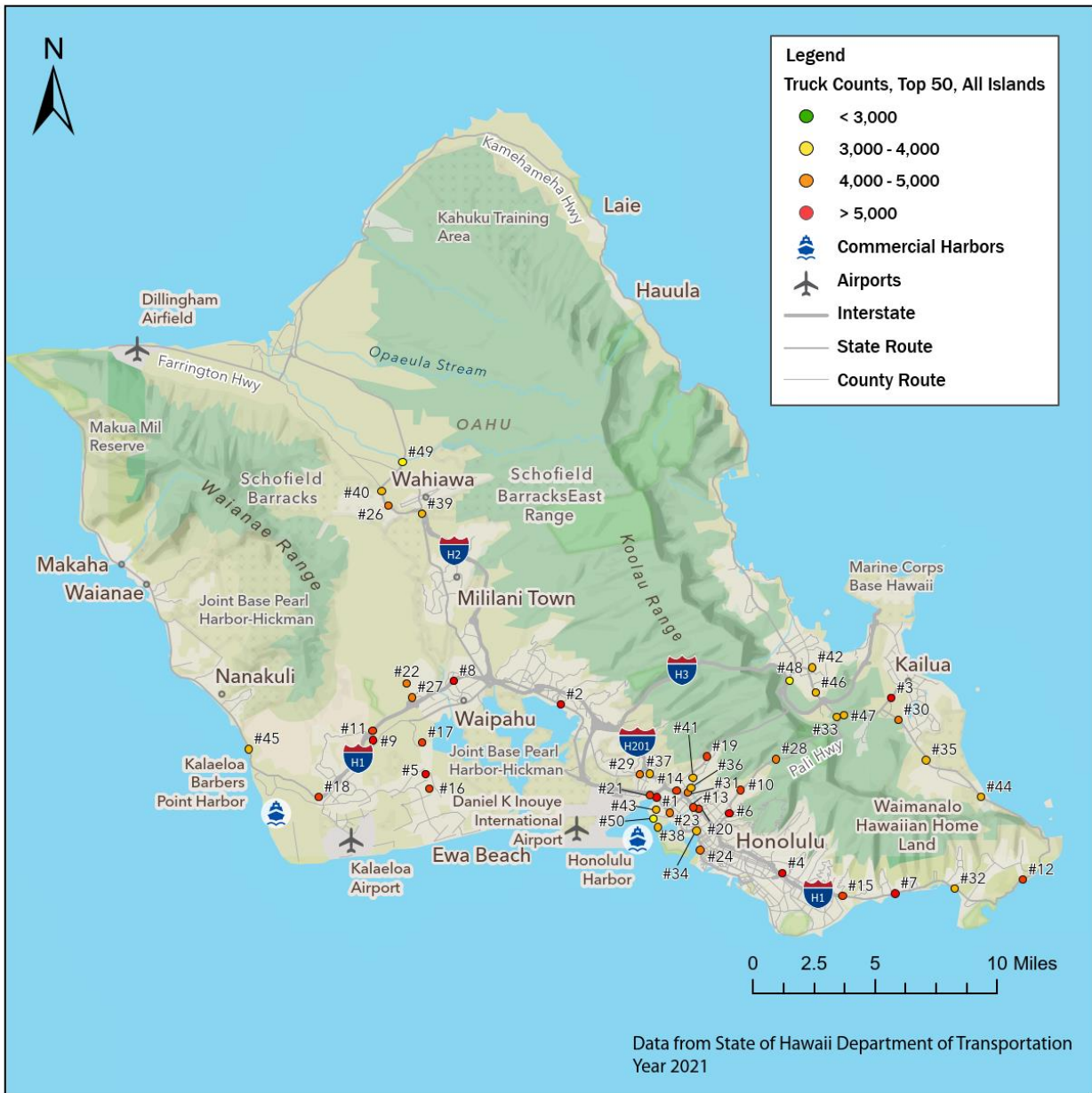
Rank	Route	Road Name	Station Mile point	Total Volume (ADT)	Truck Volume	Truck Percent
1	92	Nimitz Highway between the on-ramp from H-1 Freeway (EB) and Sand Island Access Road	3.704	48,490	15,066	31%
2	H-1	H-1 Freeway 200' West of Kaonohe Overpass	11.74	227,777	9,288	4%
3	61	Kailua Road between Ulumanu Drive & Hanale Place	10.05	27,910	8,922	32%
4	7601	Old Waiialae Road between Koali Road & UH Manoa Campus Road (Kalele Road)	0.13	20,036	8,756	44%
5	76	Fort Weaver Road between Kolowaka Drive & Renton Road	3.76	48,241	8,232	17%
6	61	Pali Highway between on-ramp from Pauoa Road NB & on-ramp from Wylle IC SB	0.982	37,971	8,169	22%
7	72	Kalaniana'ole Highway between Kirkwood Street and East Hind Drive	16.35	43,113	8,165	19%
8	H-1	H-1 near Paiwa Street - H8AA	7	147,823	7,699	5%
9	8930	Kualakai Pkwy between H-1 Freeway & Farrington Highway	0.271	23,760	7,672	32%
10*	61	Pali Highway between Ahipuu Street & Country Club Road/Puiwa Road	2.01	43,363	6,171	14%
11	H-1	H-1 Freeway at MP 3.43, C10K	3.41	88,395	6,020	7%
12	72	Kalaniana'ole Highway between Kealahou Street and the North entrance to Sandy Beach Park	10.15	9,986	5,957	60%
13	H-1	H-1 Freeway at Kapalama Stream Bridge	20.24	186,881	5,889	3%
14	H-1	H-1 Freeway at Kalihi IC (Kalihi Stream Bridge)	19.27	172,710	5,811	3%

<sup>2</sup> Source: HDOT, 2022. Note: \* This data is from 2021 but included here due to high traffic volume. \*\* This data is from 2020 but included here due to high traffic volume.

Rank	Route	Road Name	Station Mile point	Total Volume (ADT)	Truck Volume	Truck Percent
15	72	Kalanianaʻole Highway between Kalaniiki Street & Ainakoa Avenue	18.39	54,830	5,678	10%
16	76	Fort Weaver Road between Iroquois Road & Kolowaka Drive	3.186	41,997	5,371	13%
17	76	Fort Weaver Road between Old Fort Weaver Road & Laulaunui Street	5	59,903	5,361	9%
18	95	Kalaeloa Boulevard at Palilalai IC, 10W	0.2	34,932	5,252	15%
19	63	Likelike Highway at the split with an off-ramp to Kahekili Highway & off-ramp to H-3 Honolulu Bound	2.654	22,616	5,127	23%
20	98	Olomea Street/Halona Street between ramp from H-1 Freeway EB & Palama Street	0	38,072	5,117	13%
21	92	Nimitz Highway at MP 3.80 - Derived Sta 092038 (Virtual WB Lanes + Real EB Lanes)	3.8	65,844	5,114	8%
22	750	Kunia Road between Anonui Street and Waiahole Reservoir	0.835	20,172	4,655	23%
23**	92	Nimitz Highway between Kalihi Street & Libby Street at Watanabe Florist	4.485	36,732	4,539	12%
24	92	Ala Moana Boulevard between ramp from Aloha Punchbowl Street	6.677	44,164	4,482	10%
25*	11	Volcano Road - Mamaki Street to Ikaika Street	4.44	43,719	4,438	10%
26*	99	Wilikina Drive between Macomb Gate and Housing Road on the left	8.432	23,947	4,424	18%
27	750	Kunia Road between Kupuna Loop (South Junction) & Kupuna Loop (North Junction)	0.264	29,939	4,418	15%
28	61	Pali Highway between Nuuanu Pali Drive (South Junction) & Nuuanu Pali Drive (North Junction)	3.829	23,077	4,320	19%
29	7310	Puuloa Road before on and off ramp from Moanalua Freeway and Puuloa Road Overpass	0.78	33,694	4,203	12%
30	72	Kalanianaʻole Highway between Hawaii Youth Facility & Old Kalanianaʻole Highway, North Junction	0.77	23,921	4,119	17%
31	63	Kalihi Street between ramp from H-1 Freeway WB to Likelike Highway NB & Bernice Street	1.025	58,908	4,094	7%
32	72	Kalanianaʻole Highway between Kai Marina Bridge & Keahole Street	13.906	22,667	3,961	17%
33	83	Kamehameha Highway between Pali Golf Course Road and Pali Highway at the beginning of the median fence	43.75	29,744	3,881	13%
34	92	Nimitz Highway between Awa Street and River Street	5.898	47,852	3,790	8%
35	72	Kalanianaʻole Highway between Olomana Golf Course Road & Flamingo Street	2.655	20,432	3,665	18%
36	63	Likelike Highway between School Street and Kalihi Street access	1.243	36,363	3,641	10%

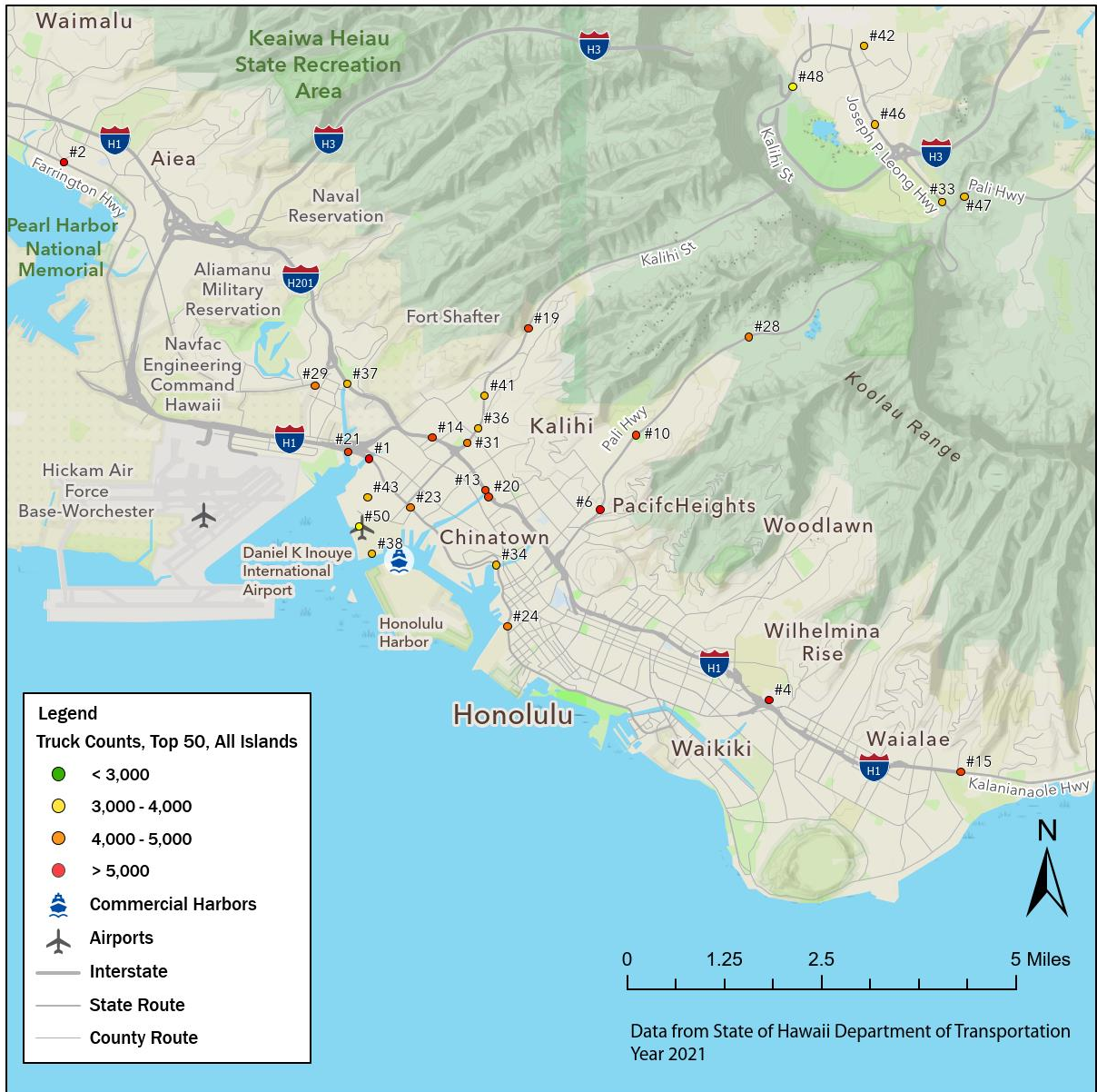
Rank	Route	Road Name	Station Mile point	Total Volume (ADT)	Truck Volume	Truck Percent
37	H-201	Moanalua Freeway at Moanalua Stream Bridge	3.19	110,257	3,628	3%
38	64	Sand Island Access Road between the north end of Bascule Bridge & Keehi Boat Harbor Access Road	1.552	15,717	3,509	22%
39	99	Kam Highway between the off-ramp from Wilikina Drive & Santos Dumont Avenue	9.875	19,202	3,508	18%
40	H-2	H-2 Freeway 0.1 miles South of Pineapple Overpass at MP4	4.02	89,600	3,498	4%
41	63	Likelike Highway between Gulick Avenue and Wilson Street	1.647	31,862	3,483	11%
42	65	Kaneohe Bay Drive between Aumoku Street and the entrance to Castle High School	0.172	17,670	3,413	19%
43	64	Sand Island Access Road between Pahounui Drive and Hoonee Place	2.31	17,108	3,383	20%
44	72	Kalaniana'ole Highway between Wailea Street & Nakini Street next to 7-Eleven driveway	5.321	15,611	3,330	21%
45*	93	Farrington Highway - Keoneoio Bridge to Pohakunui Avenue	3.48	40,242	3,207	8%
46	83	Kamehameha Highway between Mahinui Road & Halekou Road at a large Banyan tree on the median	42.537	22,387	3,124	14%
47	61	Kalaniana'ole Highway between Kamehameha Highway & Kapaa Quarry Road	7.895	37,911	3,097	8%
48	63	Likelike Highway at on-ramp from H-3 Freeway & off-ramp to Kahekili Highway	7.776	50,943	2,988	6%
49	99	Kamehameha Highway between Poamoho Bridge and Nui Avenue	6.382	18,836	2,973	16%
50	64	Sand Island Access Road between Road #2 and Auiki Street	1.91	15,596	2,968	19%

Figure 3-11 Top 50 Truck Volume Locations – Oahu



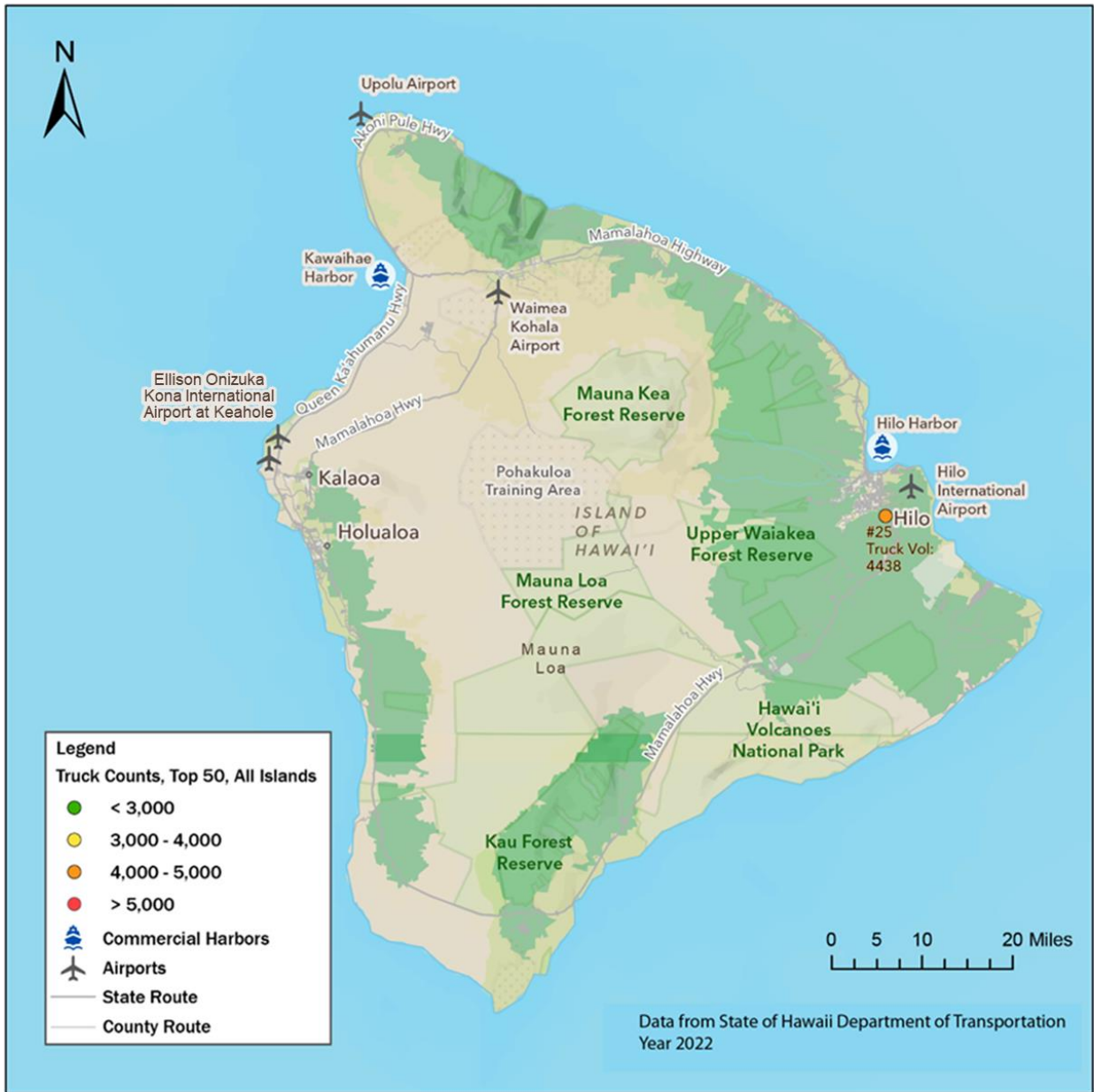
Source: Truck Volume and Speed Data from Hawaii Department of Transportation, 2022; Station location and speed limit data from 2020.

Figure 3-12 Top 50 Truck Volume Locations – Honolulu, Oahu



Source: Truck Volume and Speed Data from Hawaii Department of Transportation, 2022; Station location and speed limit data from 2020.

Figure 3-13 Top 50 Truck Volume Locations – Hawaii (Big Island)



Source: Truck Volume and Speed Data from Hawaii Department of Transportation, 2022; Station location and speed limit data from 2020.



## Average Truck Speeds and Congested Highway Locations

Analyzing truck speeds allows for the identification of congested locations in the highway system. Truck speed data and trip reliability metrics are analyzed using the FHWA National Performance Management Research Data Set (NPMRDS) for the calendar year 2022. Ultimately, the morning peak (6 to 10 AM) period was selected for the more detailed geographic analysis because it represents one of the most congested times of the day. It should be noted that low speeds can also represent speed limits, issues related to poor pavement conditions, inadequate roadway design, or steep grades.

Table 3-5 shows the average speed by time-of-day period and road type. During the morning (AM) peak period, average interstate speeds are 47.7 mph, while afternoon (PM) peak period speeds average 48.0 mph. This indicates that there is consistent peak-period congestion in Hawaii’s interstate system. Notably, the weekend average speed is 53.0 mph, which is the fastest of all periods.

Table 3-5 Average Truck Speeds by Road Classification (mph)

Road Type	AM	Midday	PM	Night	Weekend
<i>Time of Day</i>	<i>6 – 10 am weekdays</i>	<i>10 am – 4 pm weekdays</i>	<i>4 – 8 pm. weekdays</i>	<i>8 pm – 6 am every day</i>	<i>6 am – 8 pm weekends</i>
Interstate (NHS)	47.7	49.9	48.0	53.2	53.0
Non-Interstate (NHS)	27.6	26.5	26.9	32.6	29.2

Source: NPMRDS (15-minute interval, 2022). Note: Average speeds can be attributed to posted speed limits.

Truck speeds on non-interstate NHS roads average between 26 and 28 mph from the beginning of the morning peak period through the end of the afternoon peak period. Nighttime truck speeds are slightly higher than daytime speeds, with an average of 32.6 mph, illustrating less congested traffic conditions. Lower average speeds on non-interstate NHS roads can be attributed to speed limits and non-controlled access.

Table 3-6 shows the average speeds by time-of-day periods for interstate highways H-1, H-2, and H-3. H-1 has the lowest speeds out of all the interstates, with speeds reaching 46.3 mph and 47 mph during morning and evening peaks, respectively. H-1 also has the largest differential between the midday and afternoon peak period truck speeds, indicating that this interstate has the most recurrent congestion. H-2 has the least amount of recurrent congestion, with a slight dip during the morning peak period, followed by relatively flat speeds averaging around 54 mph during all other times of day and 55.4 mph during the weekend. H-3 exhibits a moderate amount of congestion during the morning and afternoon peak periods, but these are less severe than the congestion that occurs on H-1. Interstate H2 does see some drops in speeds, particularly during the morning peak, but overall, it has the best performance.

Table 3-6 Average Truck Speeds by Interstate (mph) in 2022

Interstate Highway	AM	Midday	PM	Night	Weekend
H-1	46.3	49.0	47.0	53.4	52.7
H-2	53.6	53.8	54.2	55.1	55.4
H-3	51.8	51.8	52.1	54.3	52.8

Source: FHWA NPMRDS (15-minute interval, 2022)

### Morning Peak Period Truck Speed Geographic Analysis

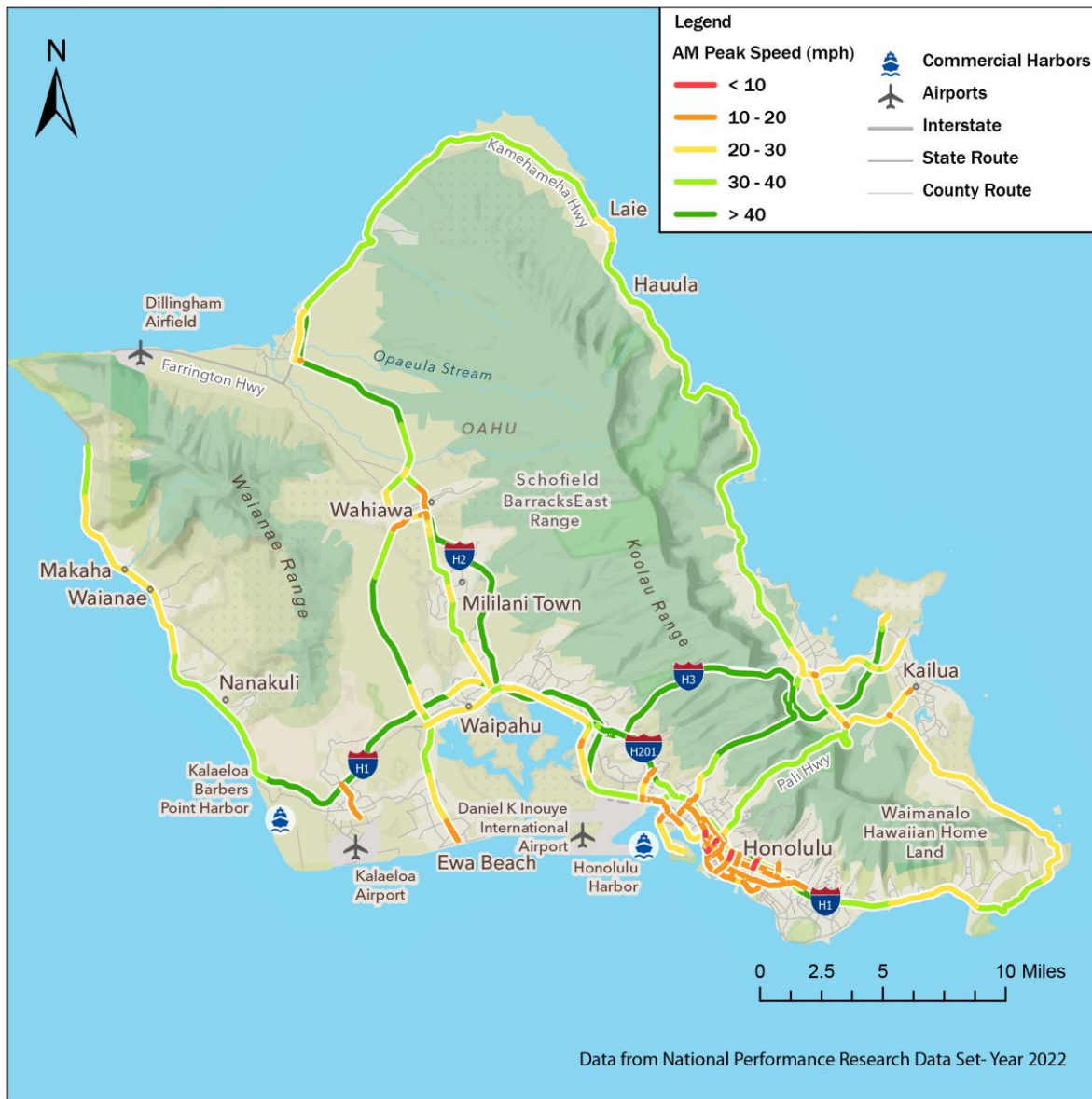
The morning peak period speeds are mapped from Figure 3-14 to Figure 3-18, showing the average speeds on each of the four main islands. Figure 3-14 shows morning truck speeds on Oahu. It shows that some segments of interstate have average truck speeds of less than 30 mph. There are several non-interstate roads with average speeds of less than 20 mph during the morning peak period, with the most concentrated locations of low truck speeds in the downtown Honolulu area.

Figure 3-15 has a zoomed-in view of truck speeds in Honolulu. It highlights that there are average truck speeds of less than 20 mph on most of the segments of H-1 running through Urban Honolulu and along Nimitz Highway and Ala Moana Boulevard. There are also several portions of H-1 with average speeds between 20 mph and 30 mph throughout Honolulu.

Figure 3-16 shows average truck speeds on the Big Island. It shows that segments of Mamalahoa Highway and Kamehameha Avenue in Hilo have average truck speeds of less than 30 mph. Other segments with relatively slow truck speeds during the morning peak are the Mamalahoa Highway connecting Kawaihae Harbor and Waimea-Kohala Airport along with Mamalahoa Highway on the southwest part of the Big Island.

Figure 3-17 shows average truck speeds on Kauai, with the slowest truck speeds on several segments in the Hanamaula urbanized area and along Kuhio Highway north of Hanamaula, between Wailua and Kapaa. Figure 3-18 shows average truck speeds on Maui. This figure shows that there are locations with average truck speeds of less than 20 mph in the areas surrounding Kahului Harbor and speeds of less than 30 mph in Kihei.

Figure 3-14 Truck Morning Peak Period Speeds - Oahu



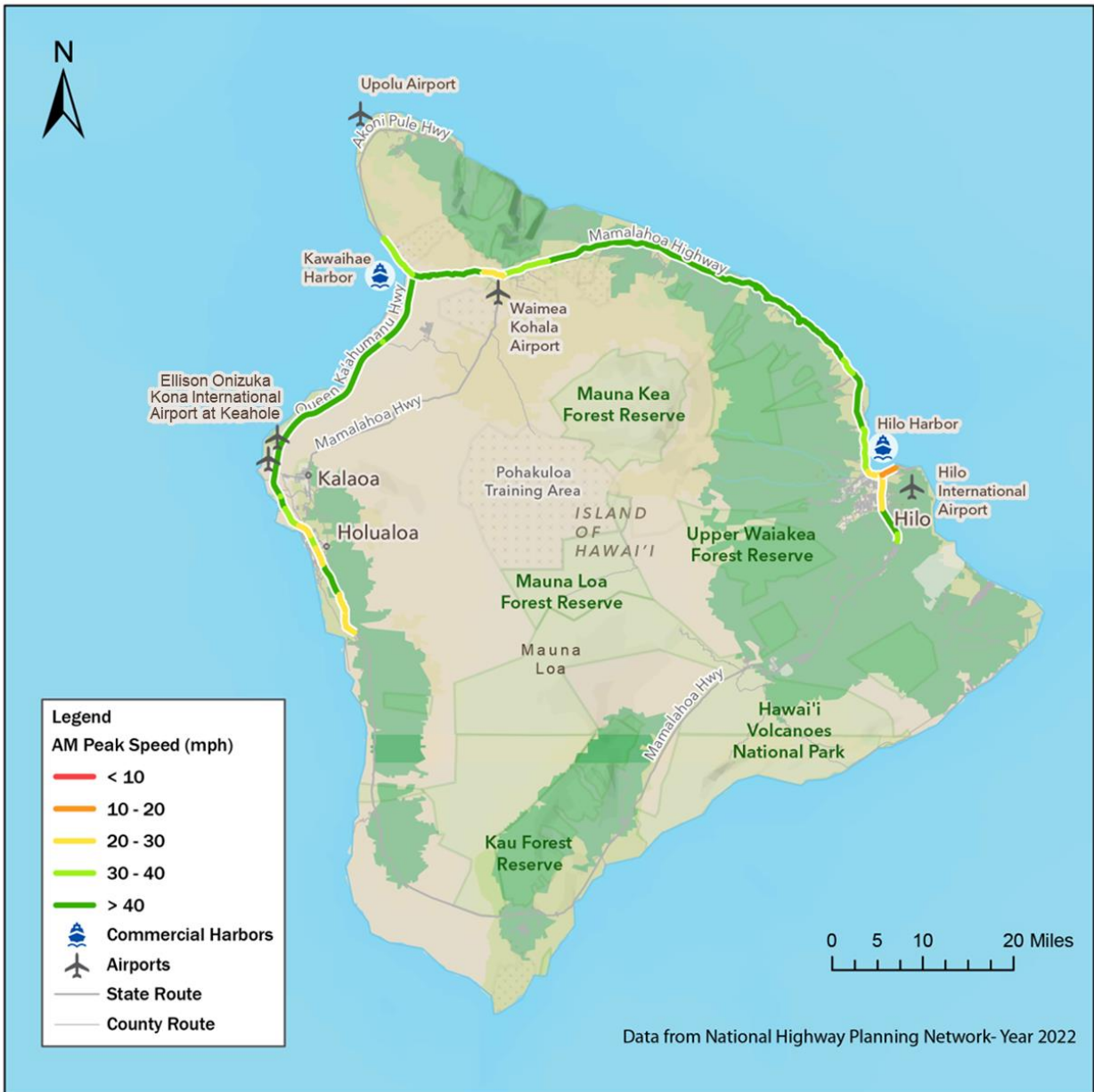
Source: NPMRDS (15-minute interval, Truck, 2022)

Figure 3-15 Truck Morning Peak Period Speeds – Honolulu, Oahu



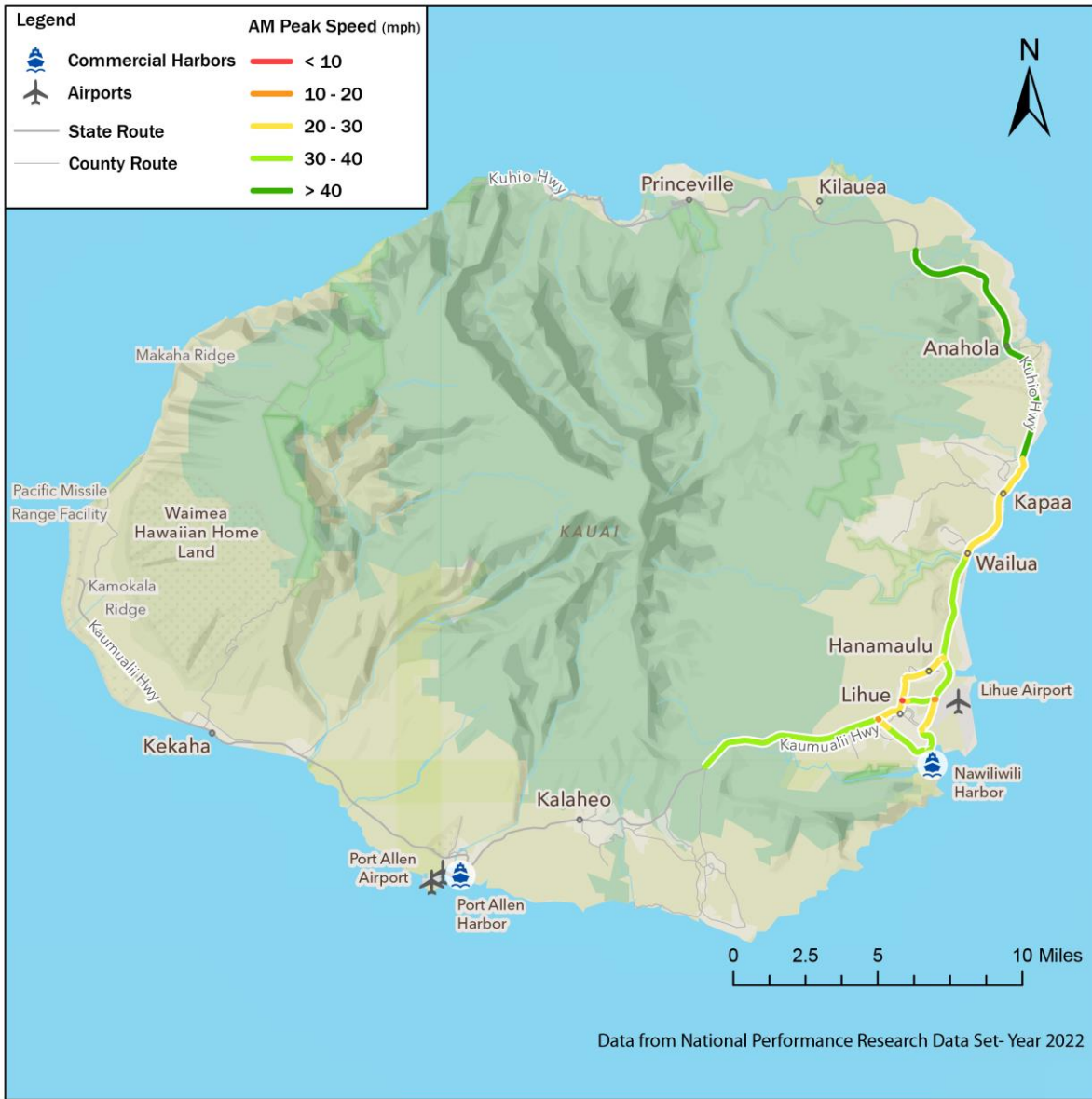
Source: NPMRDS (15-minute interval, Truck, 2022)

Figure 3-16 Truck Morning Peak Period Speeds – Hawaii (Big Island)



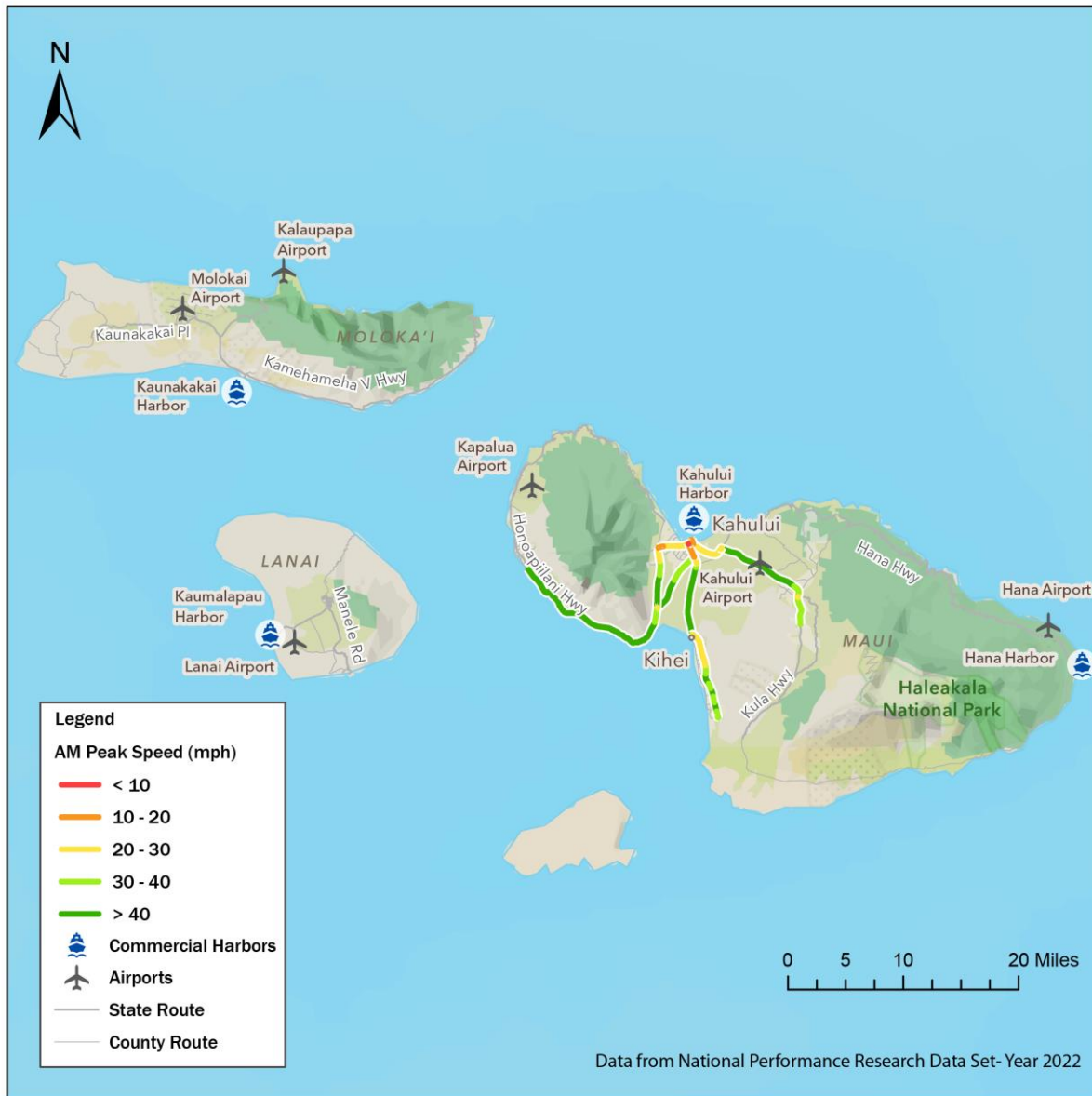
Source: NPMRDS (15-minute interval, Truck, 2022)

Figure 3-17 Truck Morning Peak Period Speeds – Kauai



Source: NPMRDS (15-minute interval, Truck, 2022)

Figure 3-18 Truck Morning Peak Period Speeds – Maui

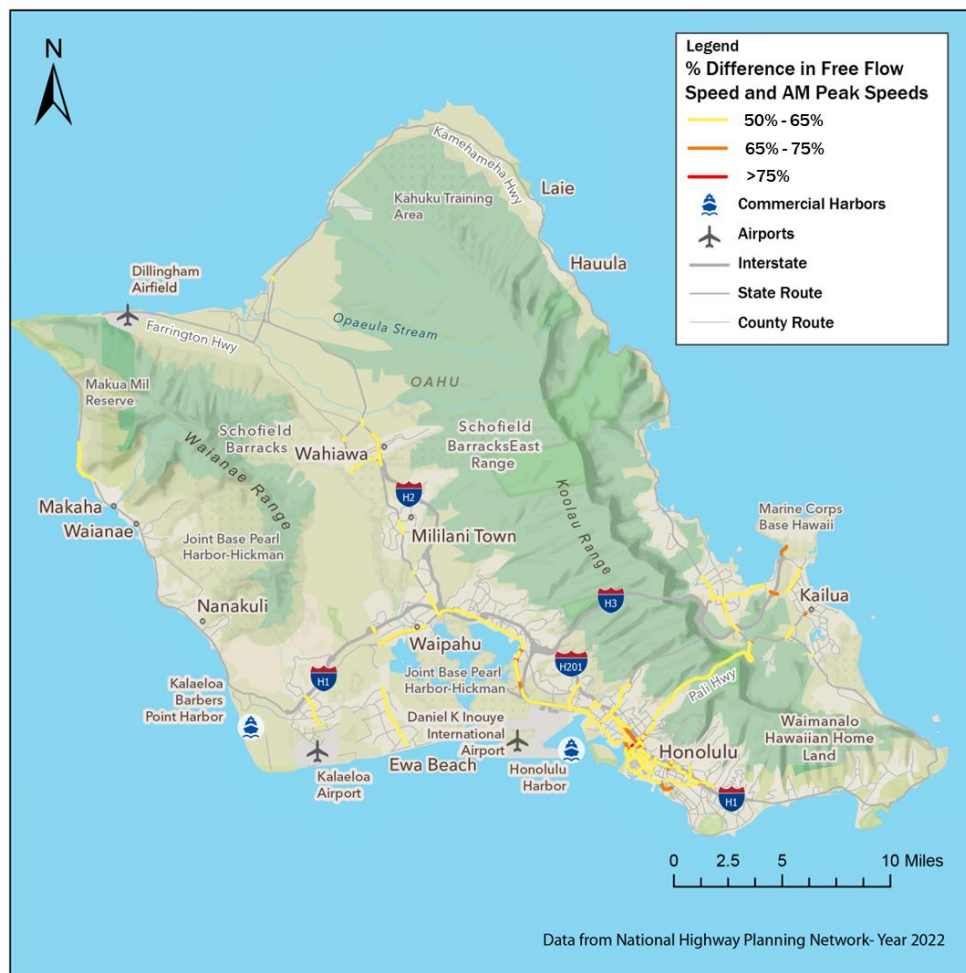


Source: NPMRDS (15-minute interval, Truck, 2022)

## Top Truck Bottleneck Locations in Hawaii

Top truck bottleneck locations in Hawaii were identified by computing the percent difference in free flow speed (average travel speed if there was no congestion) and peak traffic AM speeds.<sup>3</sup> Using this methodology, some of the top locations for truck bottlenecks are mostly on principal arterial roadways in Chinatown, Vineyard Boulevard, Kamehameha Highway, Ala Moana Boulevard, Kapiolani Boulevard, Pali Highway (in Oahu); and Puunene Avenue and Kuihelani Highway (in Maui). Figure 3-19 to Figure 3-23 show the locations of these truck bottlenecks using this criterion.

Figure 3-19 Truck Bottleneck Locations with 50% or Greater Difference in Free Flow Speeds and AM Peak Speeds – Oahu



Source: Truck Volume and Speed Data from Hawaii Department of Transportation, 2022; Station location and speed limit data from 2020.

<sup>3</sup> Source: Hawaii Department of Transportation 2022 Traffic Counts with 2021( $\gamma$ ), 2020( $\infty$ ) and 2019 ( $\beta$ ) truck volumes where available; 2022 FHWA NPMRDS Speed Data

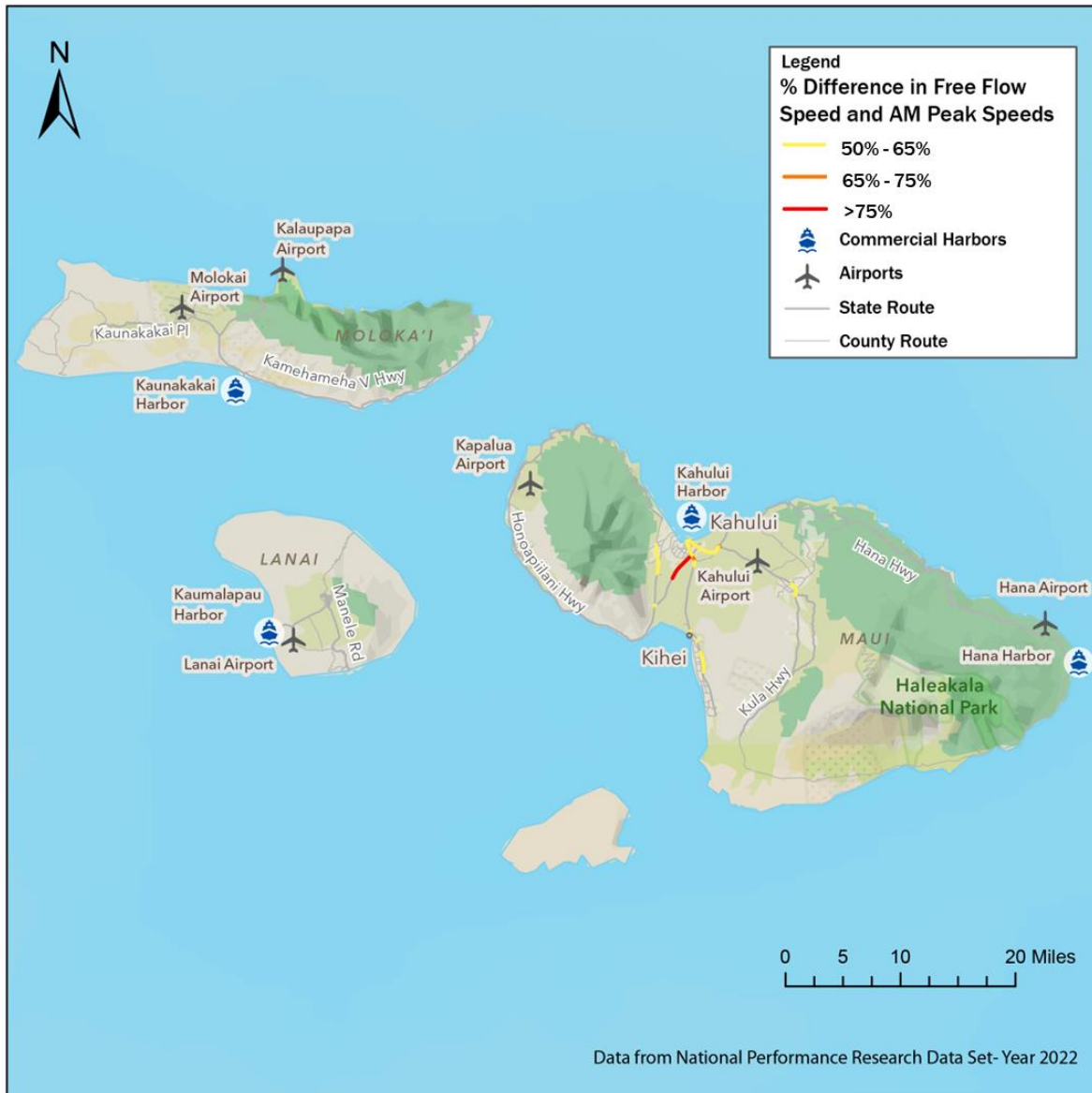


Figure 3-20 Truck Bottleneck Locations with 50% or Greater Difference in Free Flow Speeds and AM Peak Speeds – Honolulu, Oahu



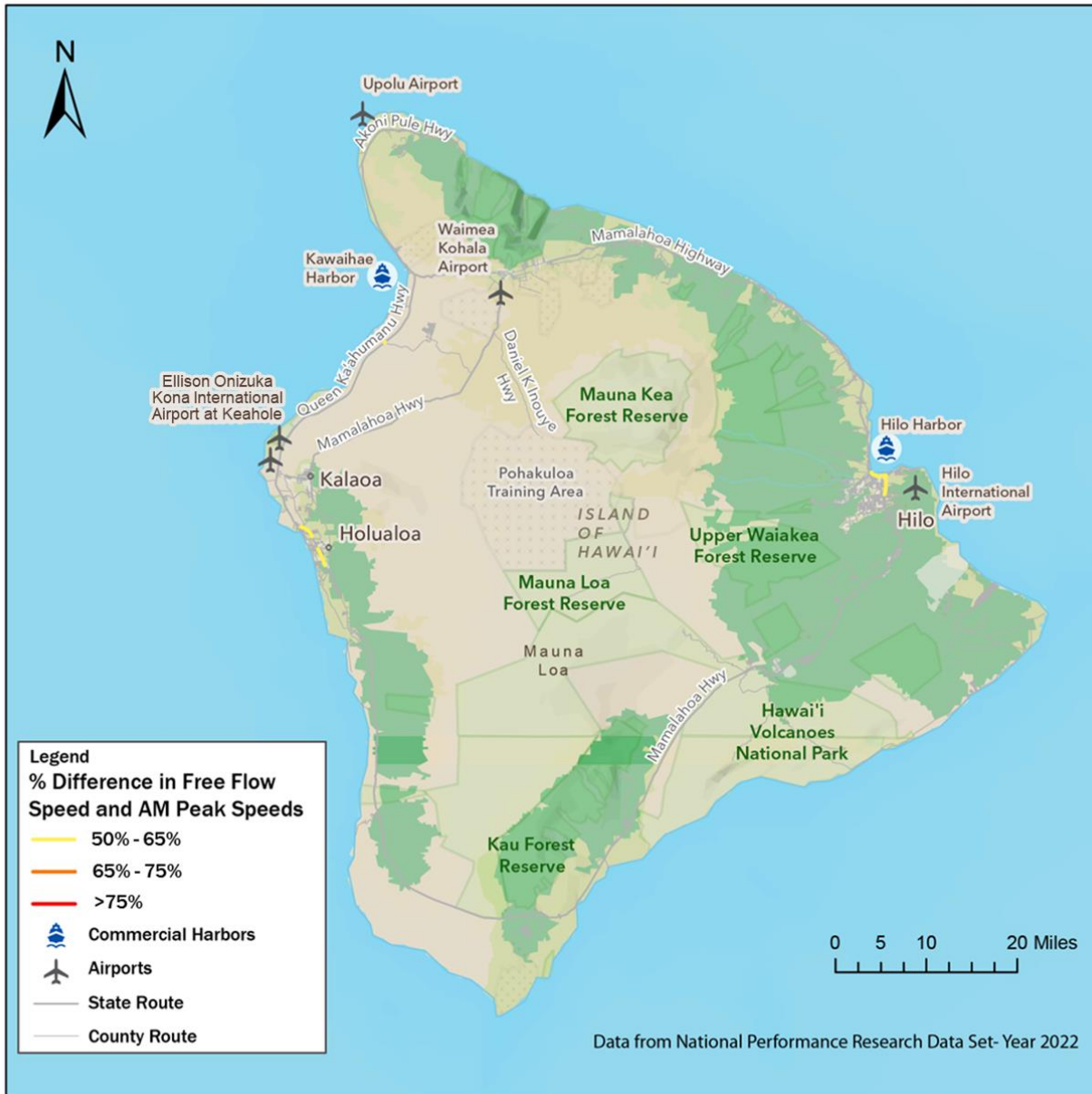
Source: Truck Volume and Speed Data from Hawaii Department of Transportation, 2022; Station location and speed limit data from 2020.

Figure 3-21 Truck Bottleneck Locations with 50% or Greater Difference in Free Flow Speeds and AM Peak Speeds – Maui



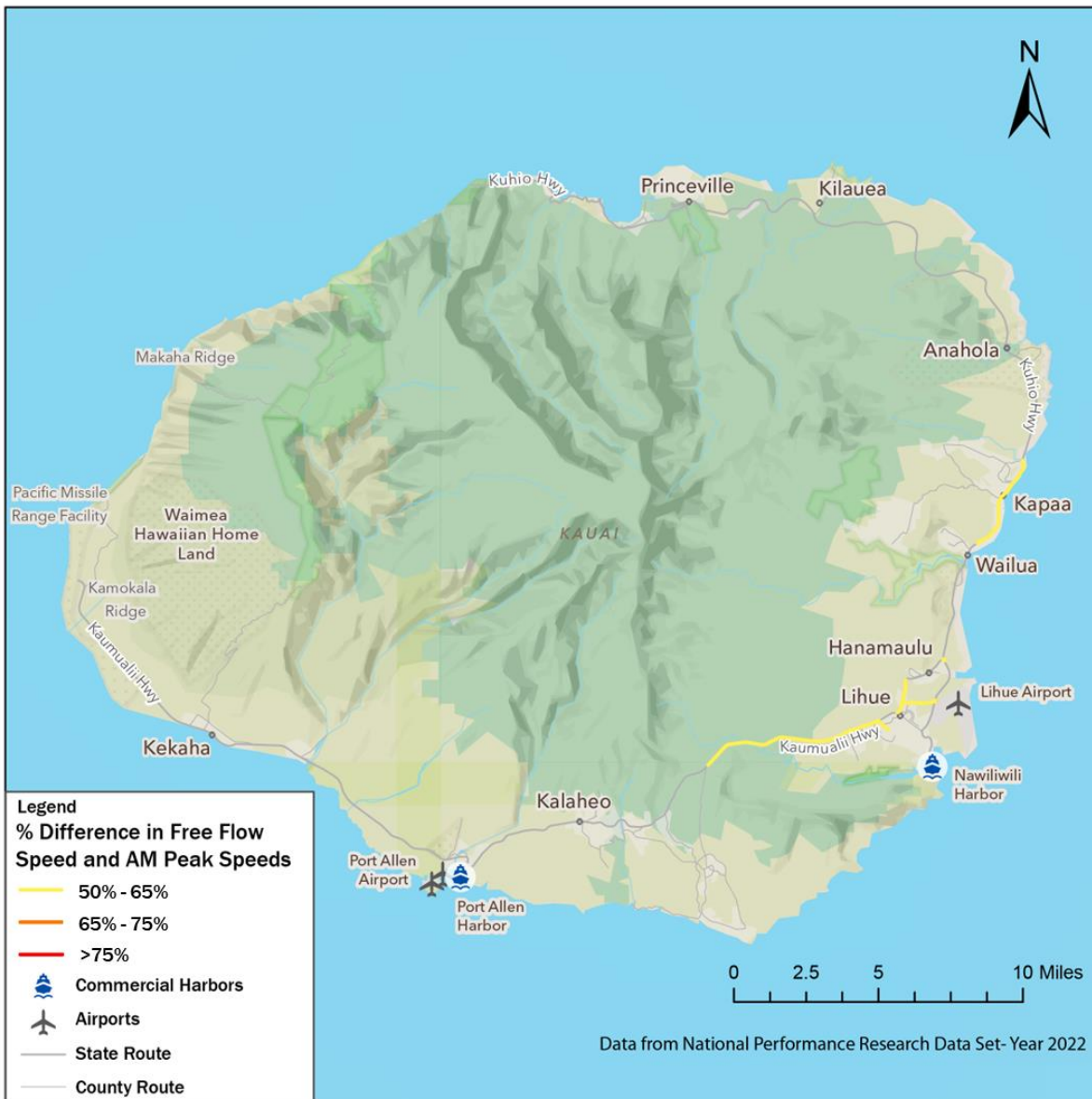
Source: Truck Volume and Speed Data from Hawaii Department of Transportation, 2022; Station location and speed limit data from 2020.

Figure 3-22 Truck Bottleneck Locations with 50% or Greater Difference in Free Flow Speeds and AM Peak Speeds – Hawaii (Big Island)



Source: Truck Volume and Speed Data from Hawaii Department of Transportation, 2022; Station location and speed limit data from 2020.

Figure 3-23 Truck Bottleneck Locations with 50% or Greater Difference in Free Flow Speeds and AM Peak Speeds – Kauai



Source: Truck Volume and Speed Data from Hawaii Department of Transportation, 2022; Station location and speed limit data from 2020.

## Truck Travel Time Reliability

Truck Travel Time Reliability (TTTR) is the consistency or predictability in travel times, as measured from day to day and/or across different times of the day.<sup>4</sup> Truck travel time reliability is a critical operational issue for shippers and truck fleet operators. It causes trucks to build in a significant buffer time into their delivery windows to ensure that they meet the desired level of on-time performance for their shipments. Truck fleet operations are optimized much more based on truck travel time reliability than they are optimized based on average truck travel times. Truck fleet sizes and dispatch systems are typically designed (either formally or informally) to ensure that on-time performance can be met at over 95% of travel conditions.

TTTR is computed by dividing the 95th percentile truck travel time by the 50th percentile truck travel time. For truck travel, the threshold for the percentage of time utilized is consistent with the desired on-time performance for a specific trip. Therefore, if it is desirable to have a 95% on-time performance for a specific trip, then the TTTR would be calculated as the time it takes to successfully travel the link 95% of the time divided by the average travel time. For example, a trip with an average travel time of 30 minutes and requiring 45 minutes to travel during congested periods would have a TTTR of 45 / 30, or 1.5. For this analysis, the TTTR is calculated separately for each link based on the FHWA NPMRDS highway network link system. The NPMRDS links tend to average one-quarter of a mile in urban areas and can be a mile or longer in rural areas.

Table 3-7 shows TTTR indexes by road classification and time in Hawaii. The TTTR index ranges from a low value of 1.27 to 2.47. The lowest TTTR indexes occurred on the NHS interstate roadways during nighttime, while roadways that are part of the non-interstate NHS tended to have higher TTTR indexes.

*Table 3-7 Weighted Average Truck Travel Time Reliability (TTTR) by Road Classification*

Road Type	AM	Midday	PM	Night	Weekend
	Average TTTR	Average TTTR	Average TTTR	Average TTTR	Average TTTR
NHS on the Interstate System	2.24	1.73	2.06	1.36	1.39
NHS is not on the Interstate System	2.27	2.28	2.34	2.12	2.21

Source: NPMRDS (15-minute interval, Truck, 2022)

Table 3-8 shows TTTR indexes for the three major interstates in Hawaii by time. H-1 has the highest TTTR index (meaning it has the worst reliability) for each one of the defined times. During the morning peak period, the average H-1 TTTR is 2.47, meaning that a truck driver

<sup>4</sup> FHWA, Office of Operations, Travel Time Reliability: Making It There On Time, All The Time. Available at [https://ops.fhwa.dot.gov/publications/tt\\_reliability/ttr\\_report.htm](https://ops.fhwa.dot.gov/publications/tt_reliability/ttr_report.htm)

needs to add a 147% buffer to the average morning period peak period travel time to ensure that they are on time to their destination 95% of the time. H-2 has the lowest TTTR index of all three interstates for all times, with values ranging from 1.27 to 1.29, meaning for a travel time of 10 minutes during the peak period, a truck driver would need to leave 3 minutes in advance of the desired arrival time to ensure on time performance of 95%.

*Table 3-8 Weighted Average Truck Travel Time Reliability (TTTR) by Interstate*

Interstate	AM Average TTTR	Midday Average TTTR	PM Average TTTR	Night Average TTTR	Weekend Average TTTR
H-1	2.47	1.84	1.88	1.37	1.44
H-2	1.27	1.27	1.27	1.29	1.28
H-3	1.41	1.45	1.70	1.29	1.36
Combined	2.18	1.71	1.78	1.35	1.42

Source: NPMRDS (15-minute interval, Truck, 2022)

Figure 3-24 maps the TTTR index for roadways on Oahu during the morning peak period. It shows that Interstate H-1 and Farrington Highway are not reliable north of Kalaeloa Harbor towards Makaha and Kalaniana'ole Highway in the southeast region of the island through Waimanalo during the morning peak hours. Kamehameha Highway, adjacent to Interstate H-2 and extending northward to connect with Joseph P. Leong Highway from both the west and central parts of the island, has also been shown to be unreliable. The most unreliable segments of the highway are the Pali Highway, which runs through Nuuanu, and the segments of the Kalaniana'ole Highway, which runs through Waimanalo. The travel time delays along these segments can be attributed to ongoing construction work.

Figure 3-25 maps the TTTR for the urbanized portion of Honolulu during the morning peak period. It shows that most of the main interstate segments are reliable, with the exceptions being segments of Interstate H-1 that connect to Honolulu Harbor, moving towards the Daniel K. Inouye International Airport connecting to Nimitz Highway. Ala Moana Boulevard and other segments that run through Urban Honolulu show varying levels of unreliability. Pali Highway shows very high levels of unreliability amongst all the highlighted segments.

Figure 3-24 Morning Peak Truck Travel Time Reliability Index – Oahu



Source: NPMRDS (15-minute interval, Truck, 2022)

Figure 3-25 Morning Peak Truck Travel Time Reliability Index – Honolulu, Oahu

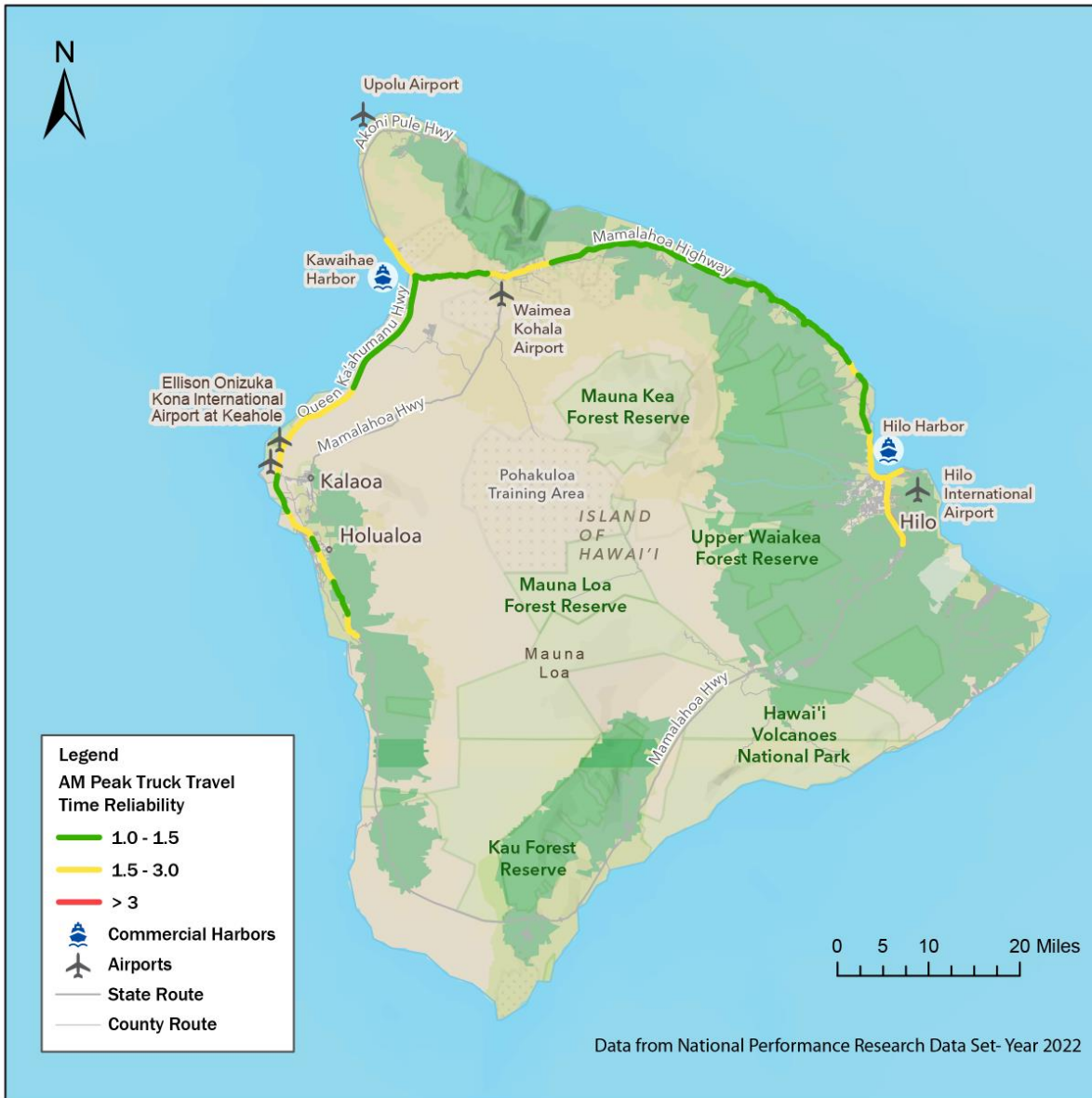


Source: NPMRDS (15-minute interval, Truck, 2022)



Figure 3-26 maps the TTTR for the Big Island for the morning peak period. Overall, the network is generally reliable, except for four areas. The first is around the Kona International Airport, the second is around Kawaihae Harbor, the third is in Waimea, and the fourth is around Hilo International Airport to Hilo Harbor.

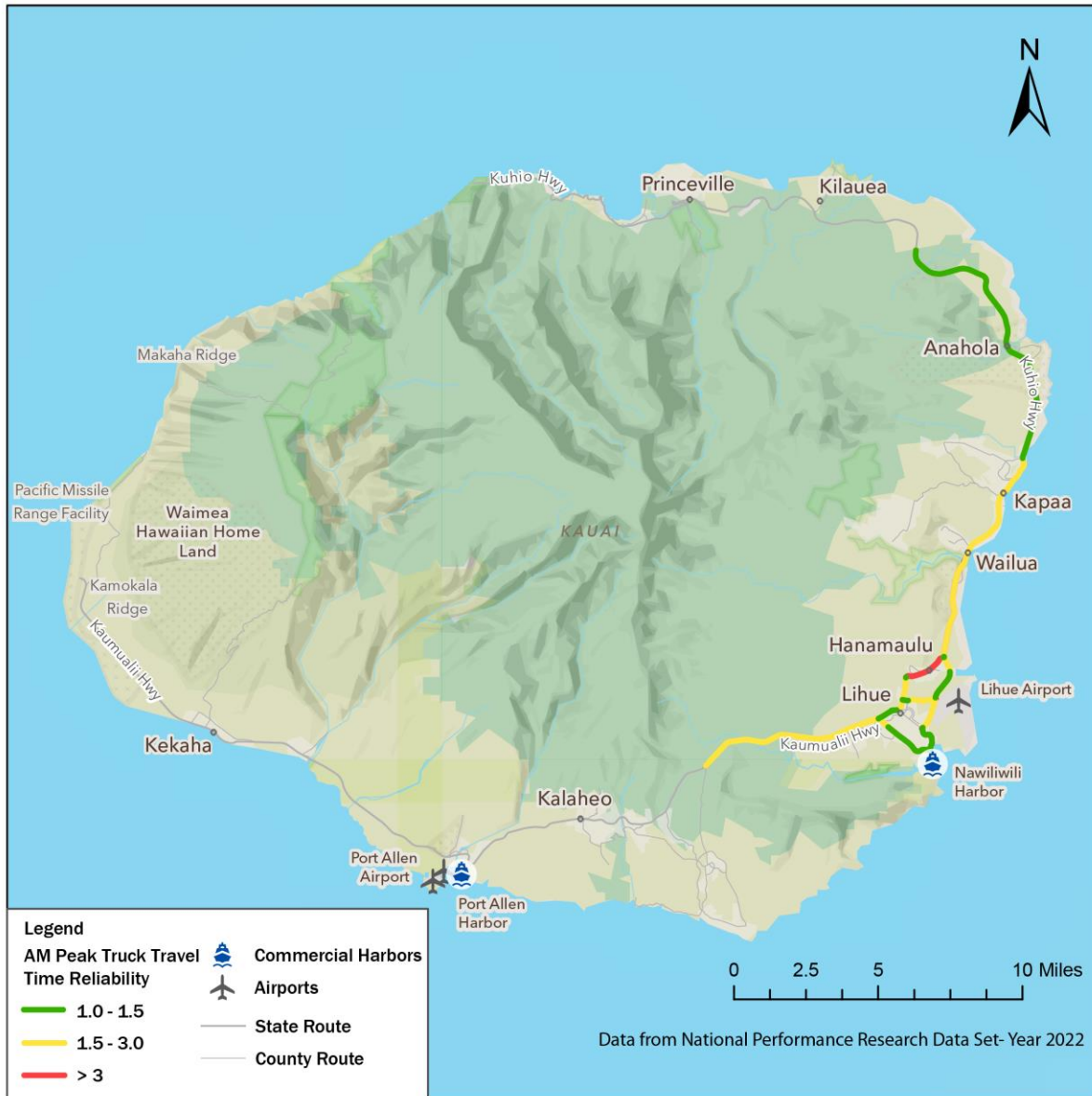
Figure 3-26 Morning Peak Truck Travel Time Reliability Index – Hawaii (Big Island)



Source: NPMRDS (15-minute interval, Truck, 2022)

Figure 3-27 maps the TTTR index for Kauai for the morning peak period. The island shows varying reliability during the morning peak, with unreliable segments occurring southwards from Kapaa towards Hanamaulu and extending towards Kaunualii Highway.

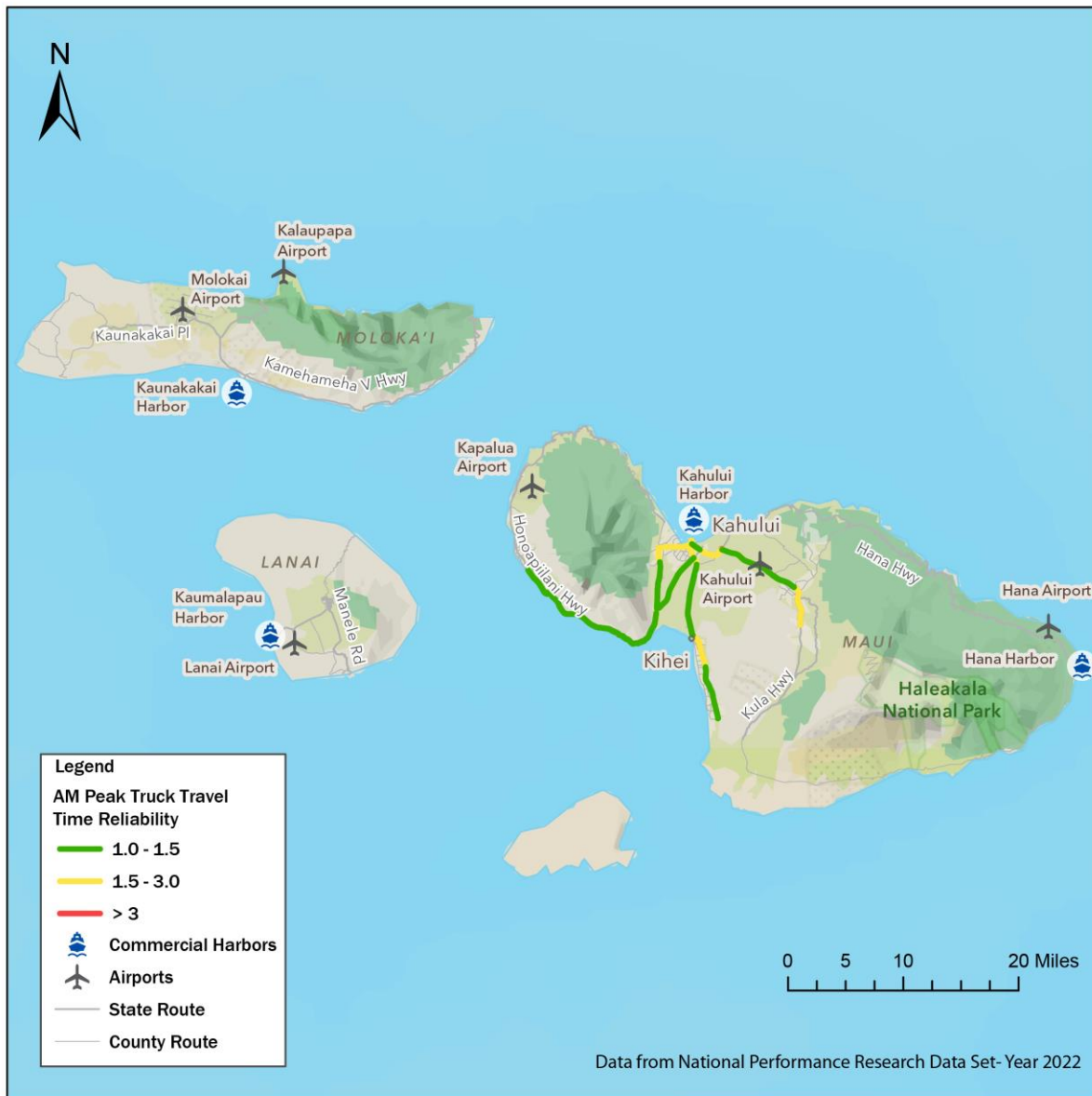
Figure 3-27 Morning Peak Truck Travel Time Reliability Index – Kauai



Source: NPMRDS (15-minute interval, Truck, 2022)

Figure 3-28 maps the TTR index for Maui for the morning peak period. Maui performs well overall when it comes to reliability. The unreliable portions are around Kahului Harbor and minor segments of Kula Highway.

Figure 3-28 Morning Peak Truck Travel Time Reliability Index – Maui

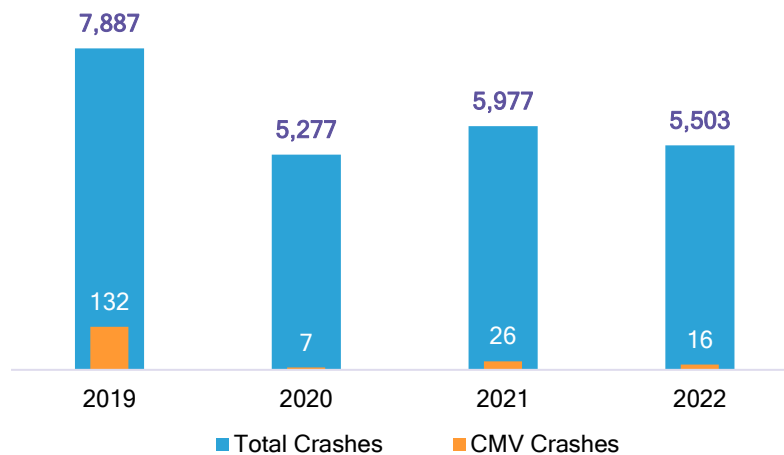


Source: NPMRDS (15-minute interval, Truck, 2022)

## Truck Safety

Between 2019 and 2022, there were 181 commercial motor vehicle (CMV) -related crashes in Hawaii. This represents less than 1% of all crashes. Three commercial motor vehicle-related crashes resulted in fatalities, which represented less than 1% of all fatal crashes in Hawaii. Since the COVID-19 pandemic in 2020, the total of all vehicle crashes on HDOT highways has reduced by 30% annually, on average, and CMV-related crashes have reduced by 88% annually, as shown in Figure 3-29 and Figure 3-30.

Figure 3-29 All Vehicle vs Commercial Motor Vehicle-Related Crashes



Source: HDOT, Crash Data, 2019-2022

Figure 3-30 All Vehicle vs Commercial Motor Vehicle-Related Fatalities



Source: HDOT, Crash Data, 2019-2022

Table 3-9 shows the number of CMV-related collisions by county. More than 60% of the collisions occurred in Honolulu County (Oahu), while more than 27% occurred in Maui County. Truck safety appears to be more of an issue in Honolulu County and Maui County. Table 3-10 shows the number of collisions by crash action. Collision with motor vehicles remains the top contributing factor, followed by collisions with objects/animals between 2019 and 2022.

*Table 3-9 Number of CMV-Related Collisions by County (2019 to 2022)*

County	Number of Crashes	Number of Fatalities	Number of Injuries	Number of Property Damage
Honolulu (Oahu)	110	6	47	57
Hawaii (Big Island)	10	0	4	6
Kauai	12	1	5	6
Maui	49	1	24	24
Total	181	8	80	93

Source: HDOT, Crash Data, 2019-2022

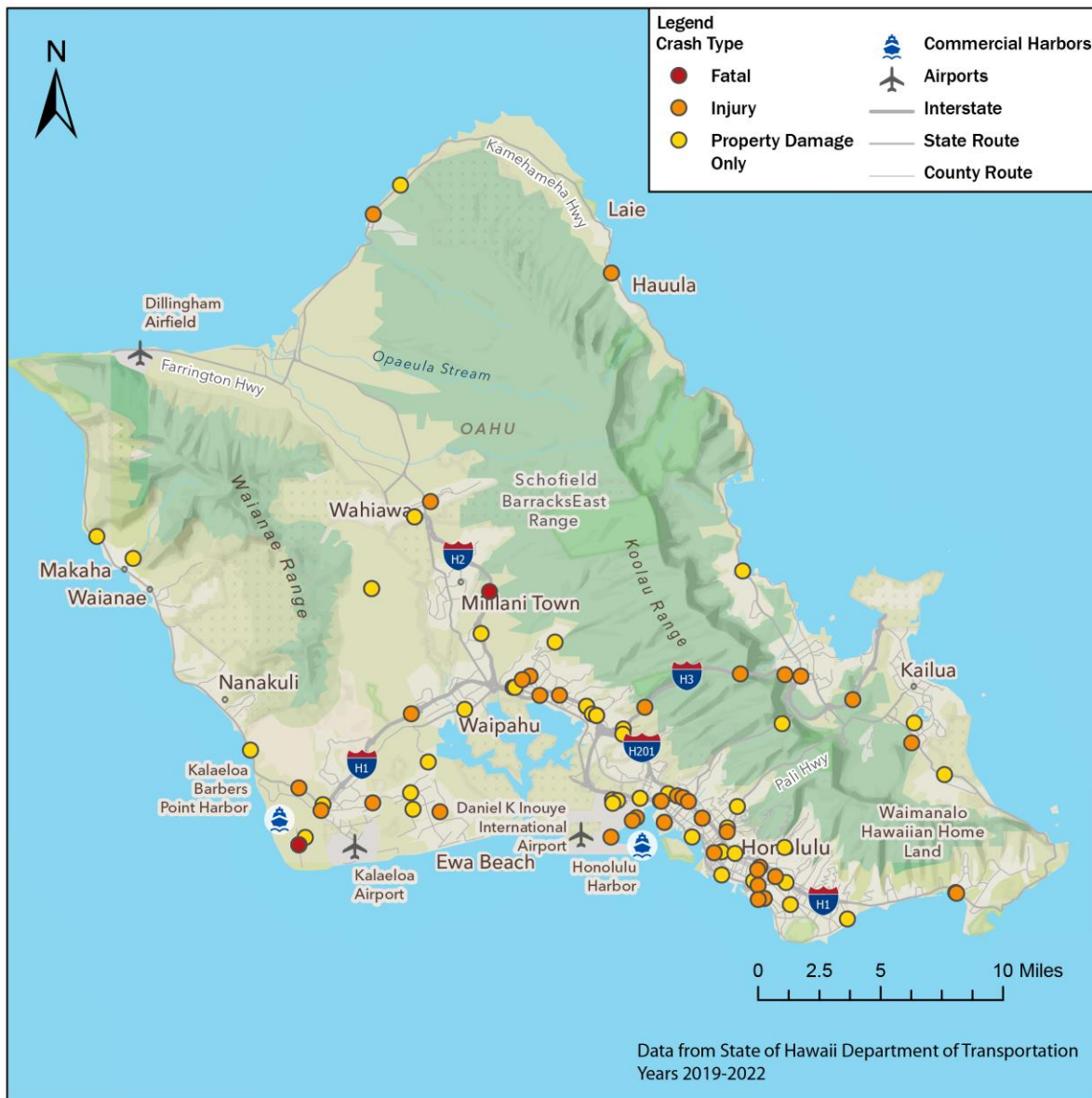
*Table 3-10 Number of CMV-Related Collisions by Crash Action (2019 to 2022)*

County	Non-Collision	Collision with Object/Animal	Collision with Person	Collision with a Bicycle or Moped	Collision with MV in Transport (Except Moped)	Collision with MV-Other
Honolulu (Oahu)	16	32	1	2	60	15
Hawaii (Big Island)	0	4	0	0	8	0
Kauai	0	2	1	0	10	0
Maui	3	19	2	3	25	7
Total	19	57	4	5	103	22

Source: HDOT, Crash Data, 2019-2022

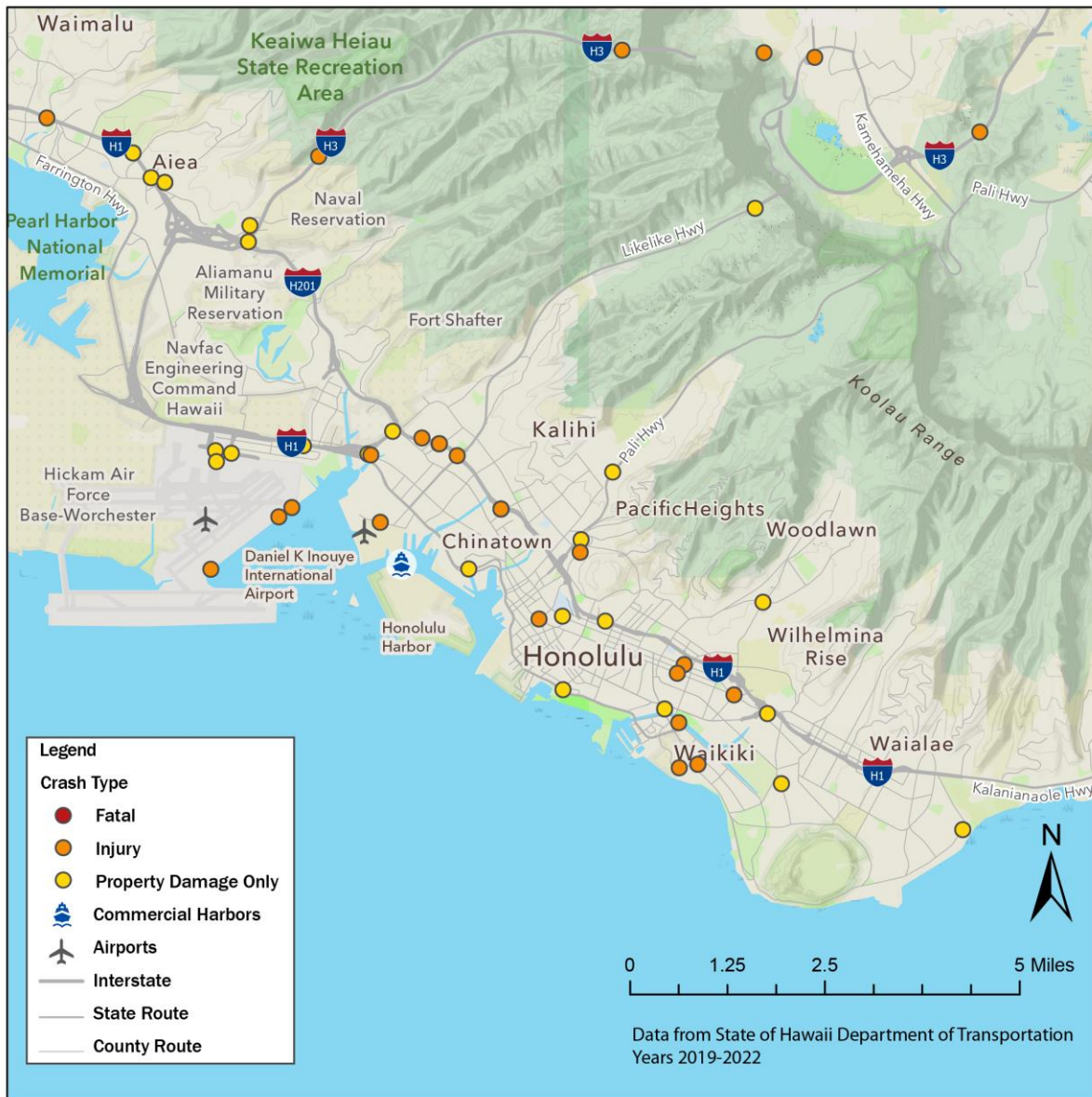
Figure 3-31 shows CMV-related crashes on Oahu. It illustrates the predominance of crashes on the interstate system. It also shows that there are a large proportion of crashes in Honolulu. Figure 3-32 shows that the CMV-related crashes in the Honolulu area are primarily on H-1 and H-3, with a few on Ala Moana Boulevard and near the Daniel K. Inouye International Airport. Figure 3-33 and Figure 3-34 show the dispersion of CMV-related crashes on the Big Island and Maui, respectively. Figure 3-35 shows that most CMV-related crashes occurred on Kaunualii and Kuhio Highways on Kauai.

Figure 3-31 CMV-Related Collisions – Oahu



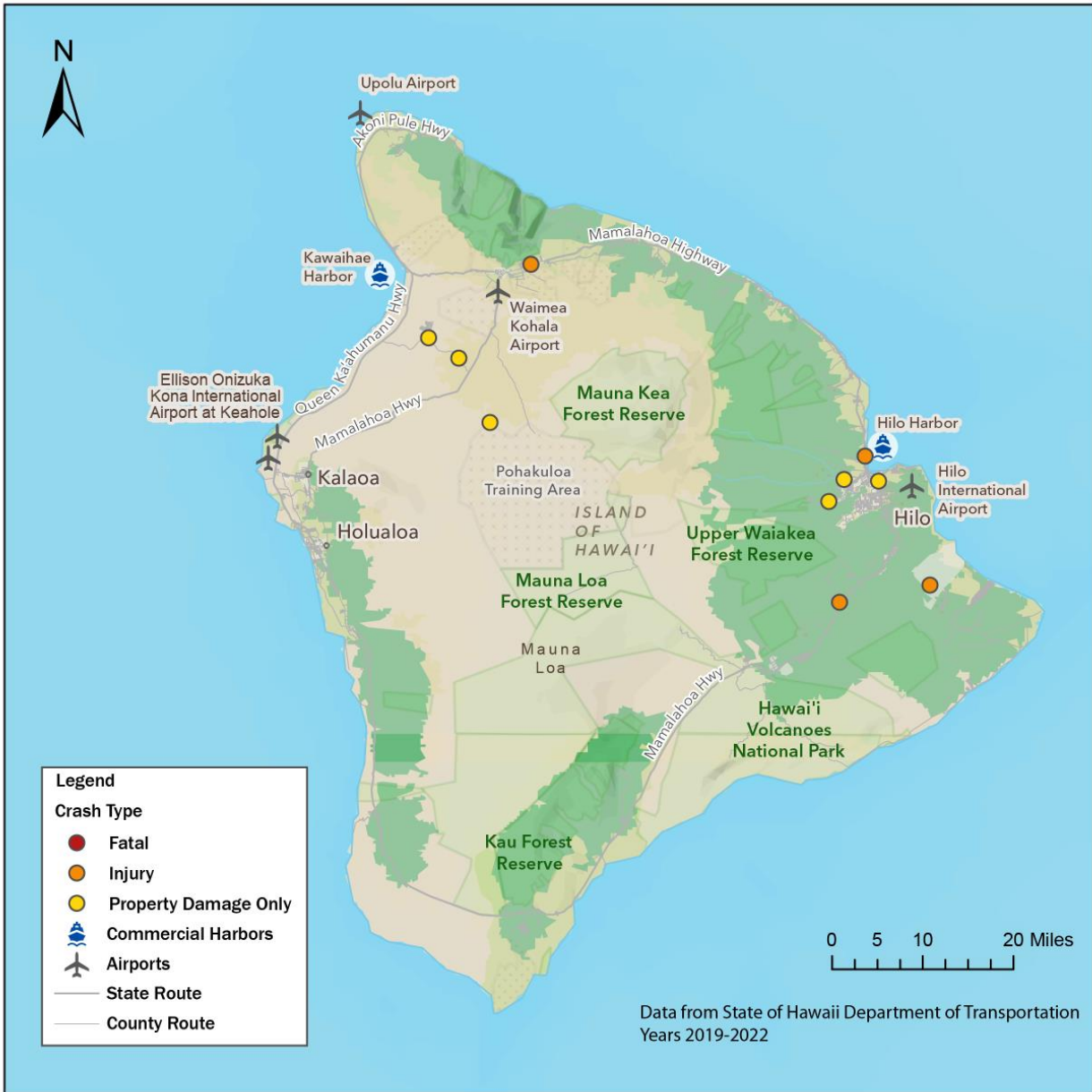
Source: HDOT, Crash Data, 2019-2022

Figure 3-32 CMV-Related Collisions – Honolulu, Oahu



Source: HDOT, Crash Data, 2019-2022

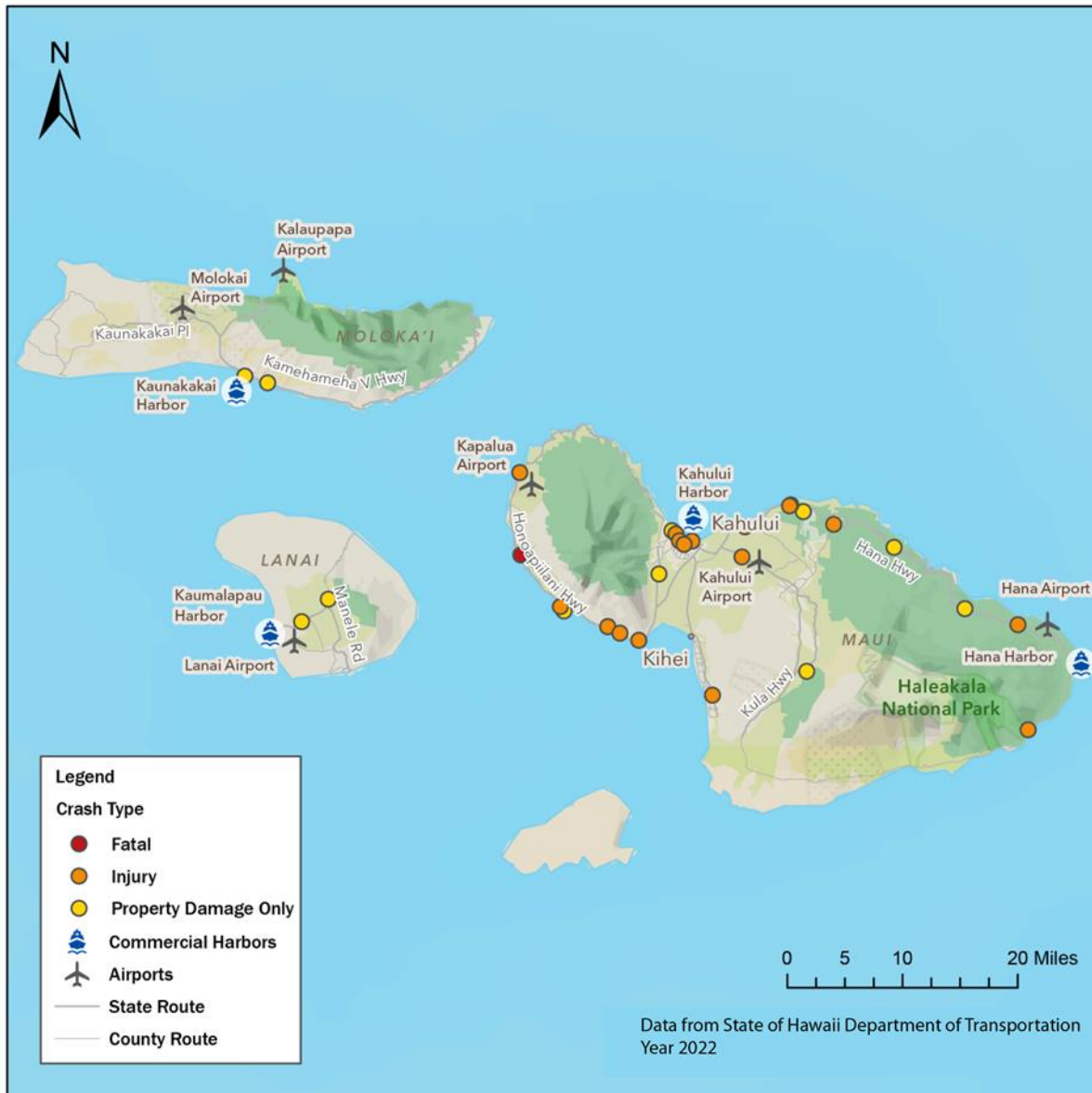
Figure 3-33 CMV-Related Collisions – Hawaii (Big Island)



Source: HDOT, Crash Data, 2019-2022

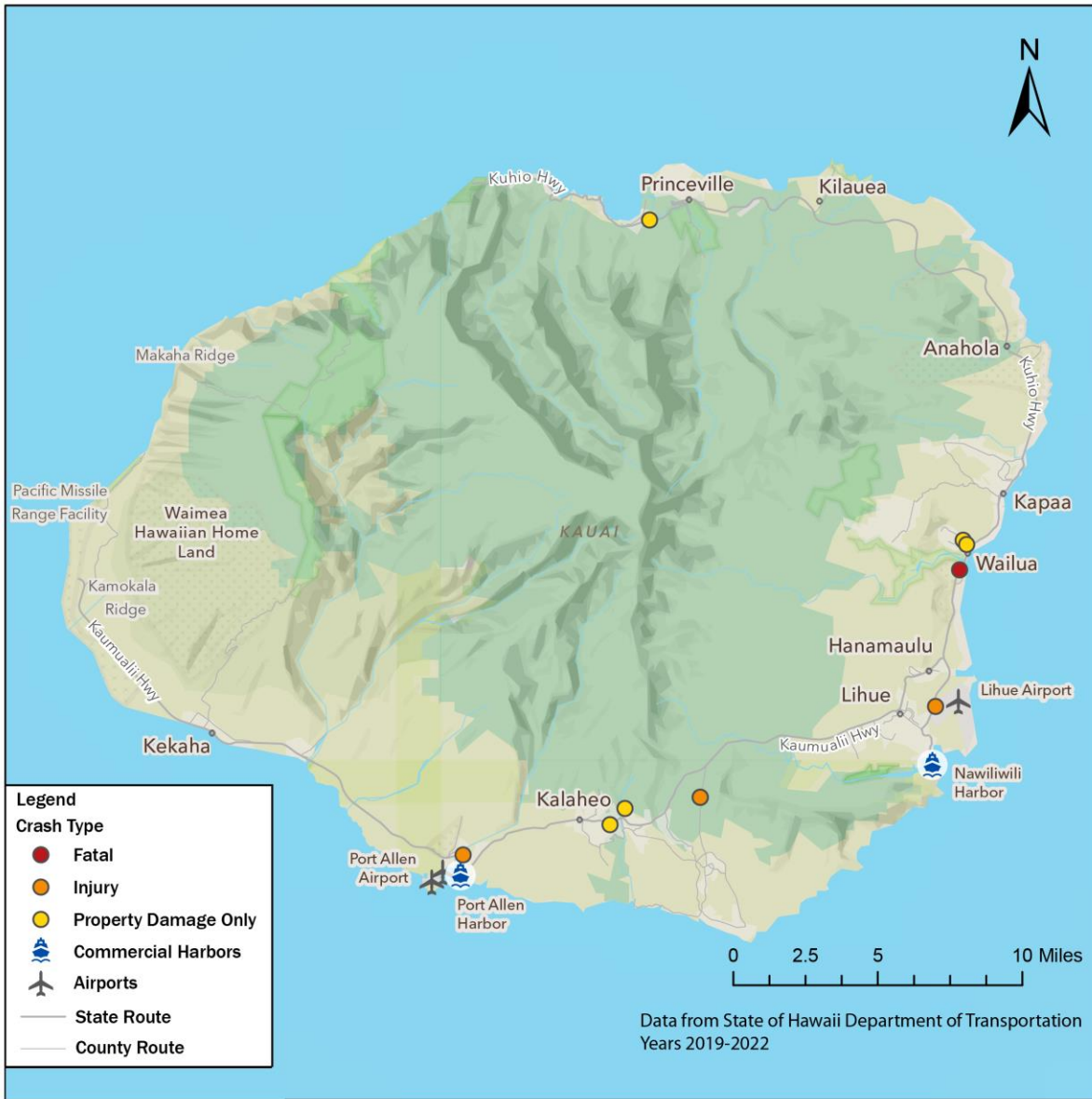


Figure 3-34 CMV-Related Collisions – Maui



Source: HDOT, Crash Data, 2019-2022

Figure 3-35 CMV-Related Collisions – Kauai



Source: HDOT, Crash Data, 2019-2022

## Pavement Condition

The Hawaii DOT classifies roadways as good, fair, and poor based on the International Roughness Index. Trucks cause a disproportionate amount of road wear and tear than passenger vehicles. Conversely, poor pavement conditions can cause significant damage to trucks and the goods being transported by truck.

Table 3-11 shows a high-level breakdown of pavement conditions by island in 2021. Overall, most pavement sections are considered in either good or fair condition for each island, and the percentage considered in poor condition is minimal except for Maui, Hawaii Island, and Oahu, with 12% to 16% of the pavement in poor condition.

*Table 3-11 Pavement Condition Distribution by Island*

Island	Good	Fair	Poor	Total
Oahu	51%	27%	16%	94%*
Hawaii (Big Island)	54%	32%	14%	100%
Maui	56%	32%	12%	100%
Kauai	86%	14%	0%	100%
Lanai	98%	0%	2%	100%
Molokai	53%	47%	0%	100%
Total				100%

Source: HDOT, 2021; Note: \*6% of the roadway pavement sections were not classified on Oahu in 2021.

Figure 3-36 through Figure 3-40 show roadway pavement conditions for each island. Overall, Oahu has fair to good pavement condition on its interstate highway, other than the northern section of Interstate H-2 in Wahiawa, the southernmost section of Interstate H-2 in Waipio, and Interstate H-1 in Makakilo. Some locations in Urban Honolulu also have roadways with poor pavement conditions, such as Ala Moana Boulevard and Sand Island Parkway. The less urbanized areas have better pavement conditions. However, areas such as Farrington Highway in the northwest near the Dillingham Airfield and Kalaniana'ole Highway in the East in Kailua and near the shoreline have poor pavement conditions.

Figure 3-36 Overall Pavement Condition - Oahu



Source: HDOT, 2022

Figure 3-37 Overall Pavement Condition - Honolulu, Oahu



Source: HDOT, 2022

As shown in Figure 3-38, the poor pavement sections of roads on the Big Island are also clustered in the more urban areas. The North and South Kohala districts (Waimea, Hawi, Kapaau, and Halaula) have one of the worst pavement sections on the island, with higher concentration closer to the two airports, Upolu Airport and Waimea Kohala Airport. Mamalahoa Highway (northwest of Hilo) also has one of the worst pavement sections on the island, with segments of poor pavement conditions also found on the Hamakua Coast from Honomu to Honokaa, as well as the Hilo Harbor and the Hilo Harbor International Airport. The roads in poor condition in the less urbanized areas are near the Hawaii Volcanoes National Park.

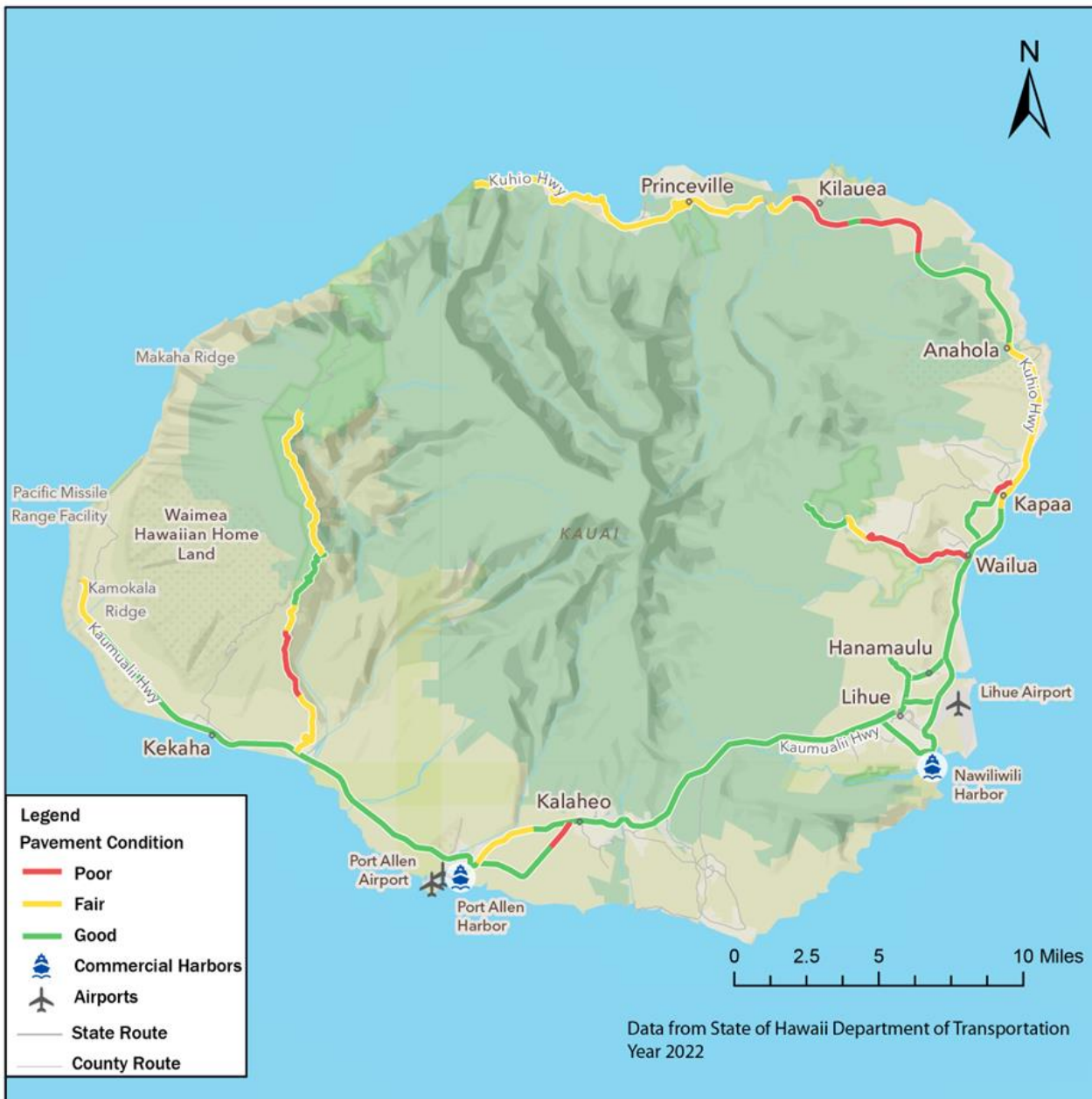
Figure 3-38 Overall Pavement Condition – Hawaii (Big Island)



Source: HDOT, 2022

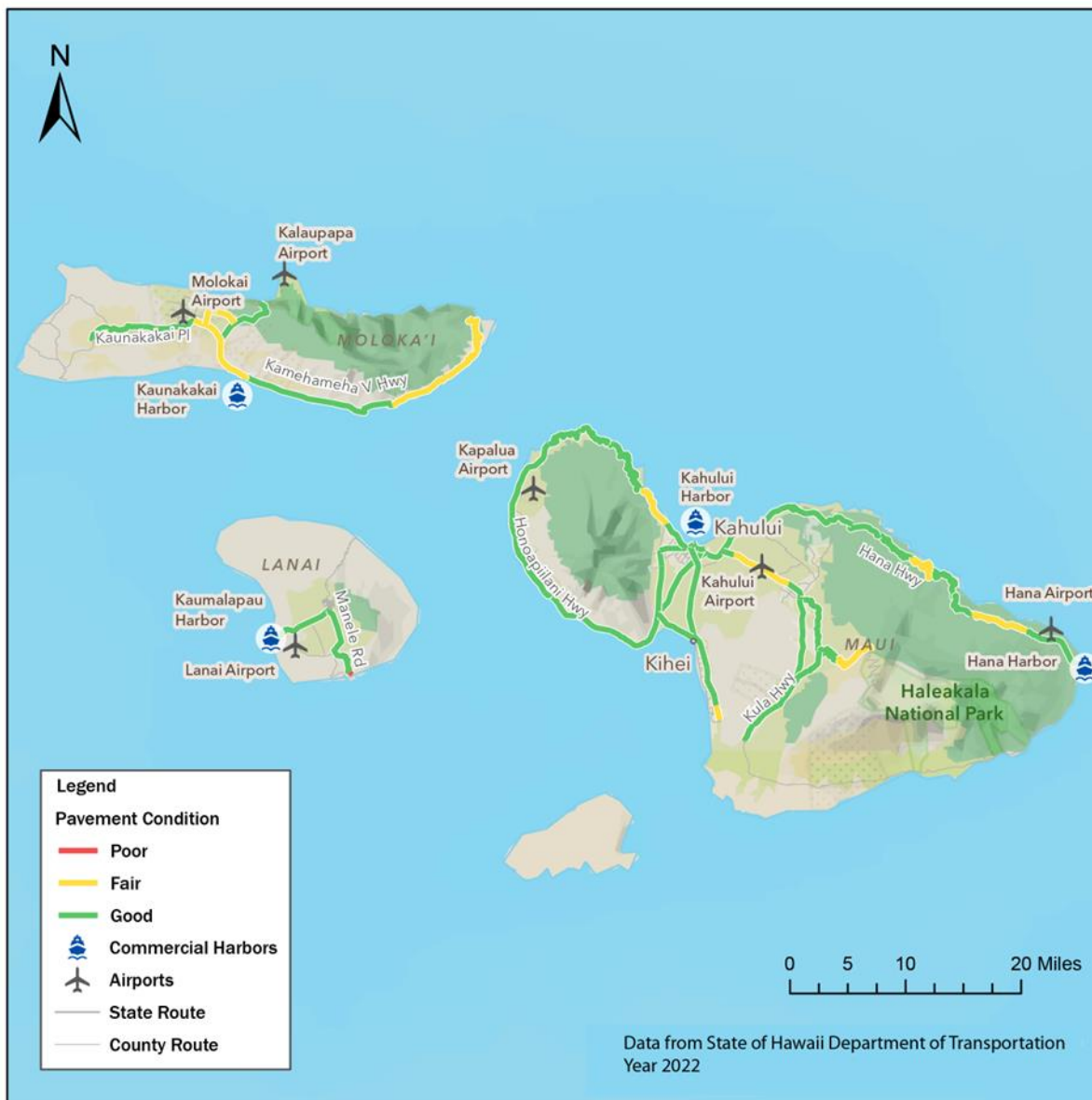
The remaining islands have sporadic locations of poor pavement, unrelated to urbanization. On Kauai, the roads with the worst pavement include Kuhio Highway near Kilauea, Halewili Road near Kalaheo, Waimea Canyon Drive near Waimea, Olohena Road near Wailua, and Kuamoo Road near Wailua (see Figure 3-39). On Maui, Lanai, and Molokai, there are barely any locations with poor pavement, as shown in Figure 3-40.

Figure 3-39 Overall Pavement Condition - Kauai



Source: HDOT, 2022

Figure 3-40 Overall Pavement Condition - Maui



Source: HDOT, 2022



## Bridge Condition

The Hawaii DOT classifies bridge conditions as good, fair, and poor. Table 3-12, Table 3-13, and Table 3-14 show a high-level breakdown of bridge condition by island in 2022 for on and off system combined, on system only, and off system only. Overall, most bridges are considered in good or fair condition for each island, and only a small percentage are considered in poor condition.

### Key Bridge Rating Definitions (Source: FHWA)

- I. Good – A bridge classified in good condition indicates the structural elements of the bridge have no deterioration or some minor deterioration. A bridge in good condition may need preservation or cyclic maintenance activities.
- II. Fair – A bridge classified in fair condition indicates that some structural elements of the bridge have minor deterioration that could include section loss, cracking, spalling, scour, or other defects of similar significance. A bridge in fair condition may need preservation, cyclic maintenance activities, or condition-based maintenance activities.
- III. Poor – A bridge classified in poor condition indicates that some structural elements of the bridge have advanced deterioration. Typical needs of a bridge in poor condition would include condition-based maintenance activities, rehabilitation, or replacement. A bridge in poor condition may require more frequent inspections, closer monitoring, or weight restrictions to ensure it remains safe for public travel. Unsafe bridges are closed.

*Table 3-12 Bridge Condition Distribution by Island (On and Off System)*

Island	Good	Fair	Poor	Total
Oahu	140 (22%)	459 (73%)	31 (5%)	630 (100%)
Hawaii (Big Island)	81 (34%)	137 (58%)	18 (8%)	236 (100%)
Kauai	26 (29%)	53 (59%)	11 (12%)	90 (100%)
Maui	30 (17%)	134 (76%)	13 (7%)	177 (100%)
Total				100%

Source: HDOT, 2022

*Table 3-13 Bridge Condition Distribution by Island (On System)*

Island	Good	Fair	Poor	Total
Oahu	121 (23%)	370 (72%)	24 (5%)	515 (100%)
Hawaii (Big Island)	65 (42%)	85 (54%)	6 (4%)	156 (100%)
Kauai	20 (29%)	45 (65%)	4 (6%)	69 (100%)
Maui	23 (14%)	128 (79%)	12 (7%)	163 (100%)
Total				100%

Source: HDOT, 2022

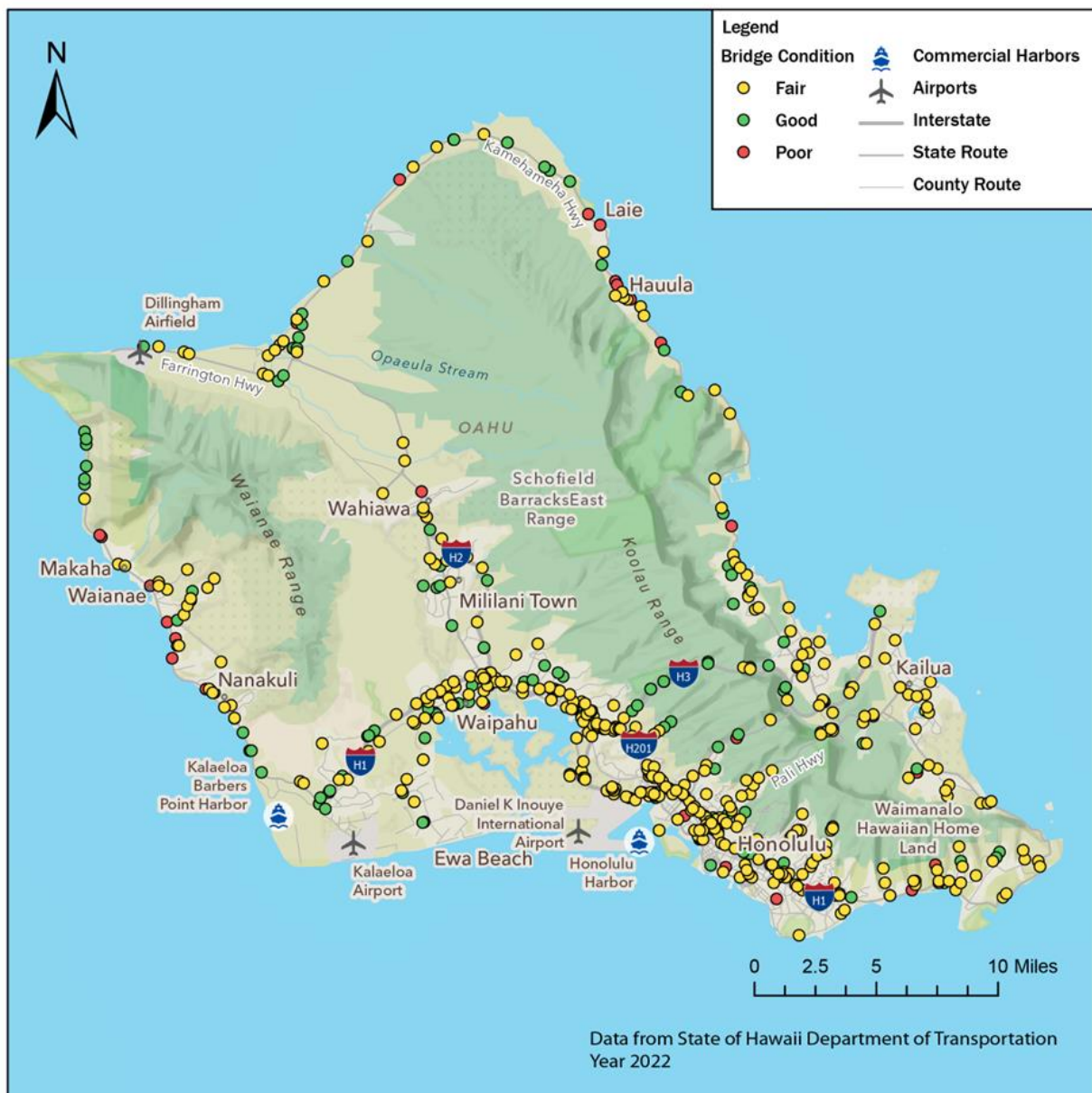
*Table 3-14 Bridge Condition Distribution by Island (Off System)*

Island	Good	Fair	Poor	Total
Oahu	19 (17%)	89 (77%)	7 (6%)	115 (100%)
Hawaii (Big Island)	16 (20%)	52 (65%)	12 (15%)	80 (100%)
Kauai	6 (29%)	8 (38%)	7 (33%)	21 (100%)
Maui	7 (50%)	6 (43%)	1 (7%)	14 (100%)
Total				100%

Source: HDOT, 2022

Figure 3-41 to Figure 3-45 illustrate bridge conditions for each island. 95% of bridges are in fair or good condition on Oahu. The bridges that are in poor condition are mostly owned by the state and part of the on-system. 92% of bridges are in fair or good condition on the Big Island. The bridges that are in poor condition are mostly owned by the county and are part of the off system. 88% of bridges are in fair or good condition on Kauai. The bridges that are in poor condition are mostly owned by the county and are part of the off system. On Maui, 93% of bridges are in fair or good condition. The bridges that are in poor condition are mostly owned by the county and part of the on-system.

Figure 3-41 Overall Bridge Condition - Oahu



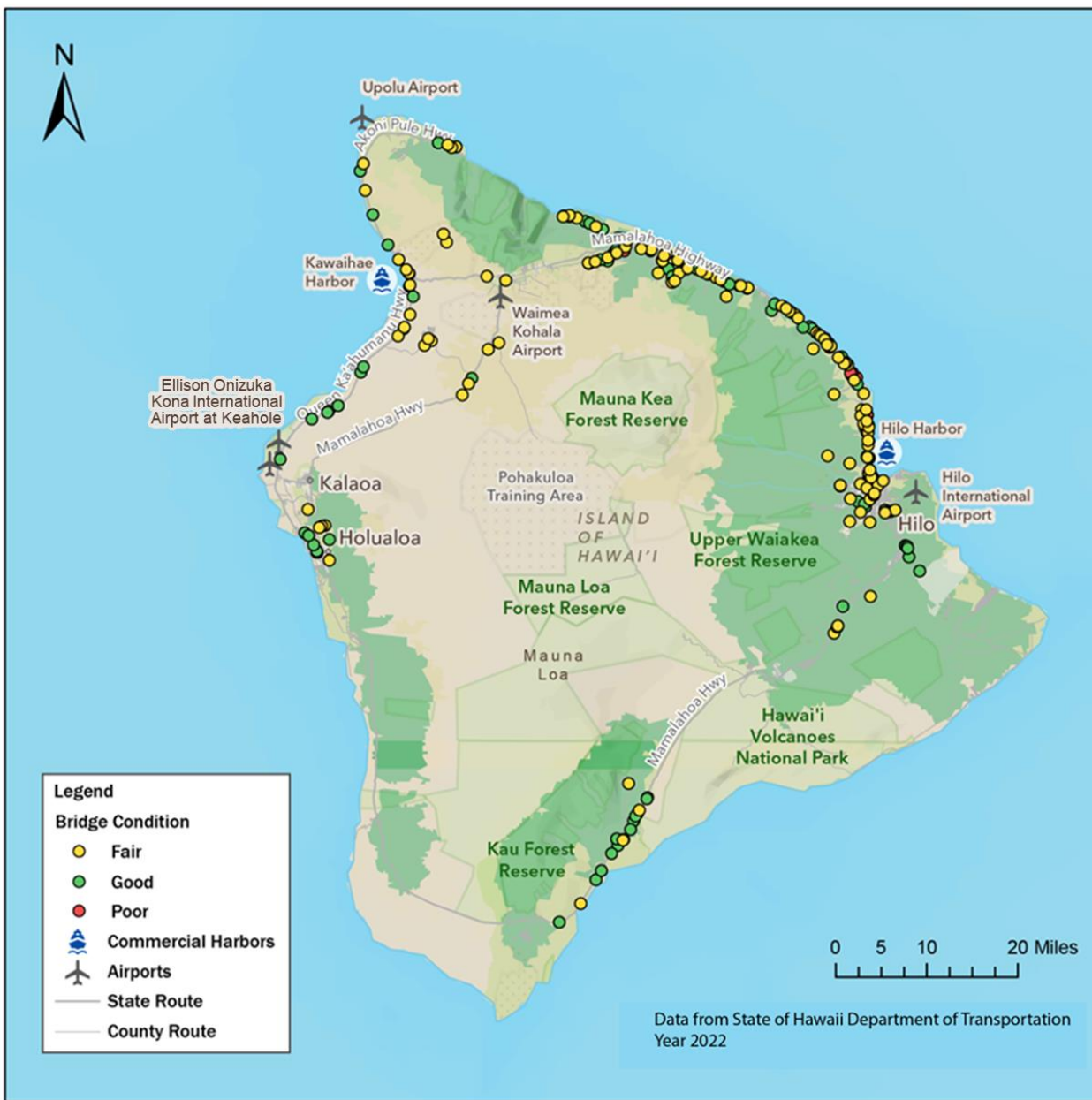
Source: HDOT, 2022

Figure 3-42 Overall Bridge Condition - Honolulu, Oahu



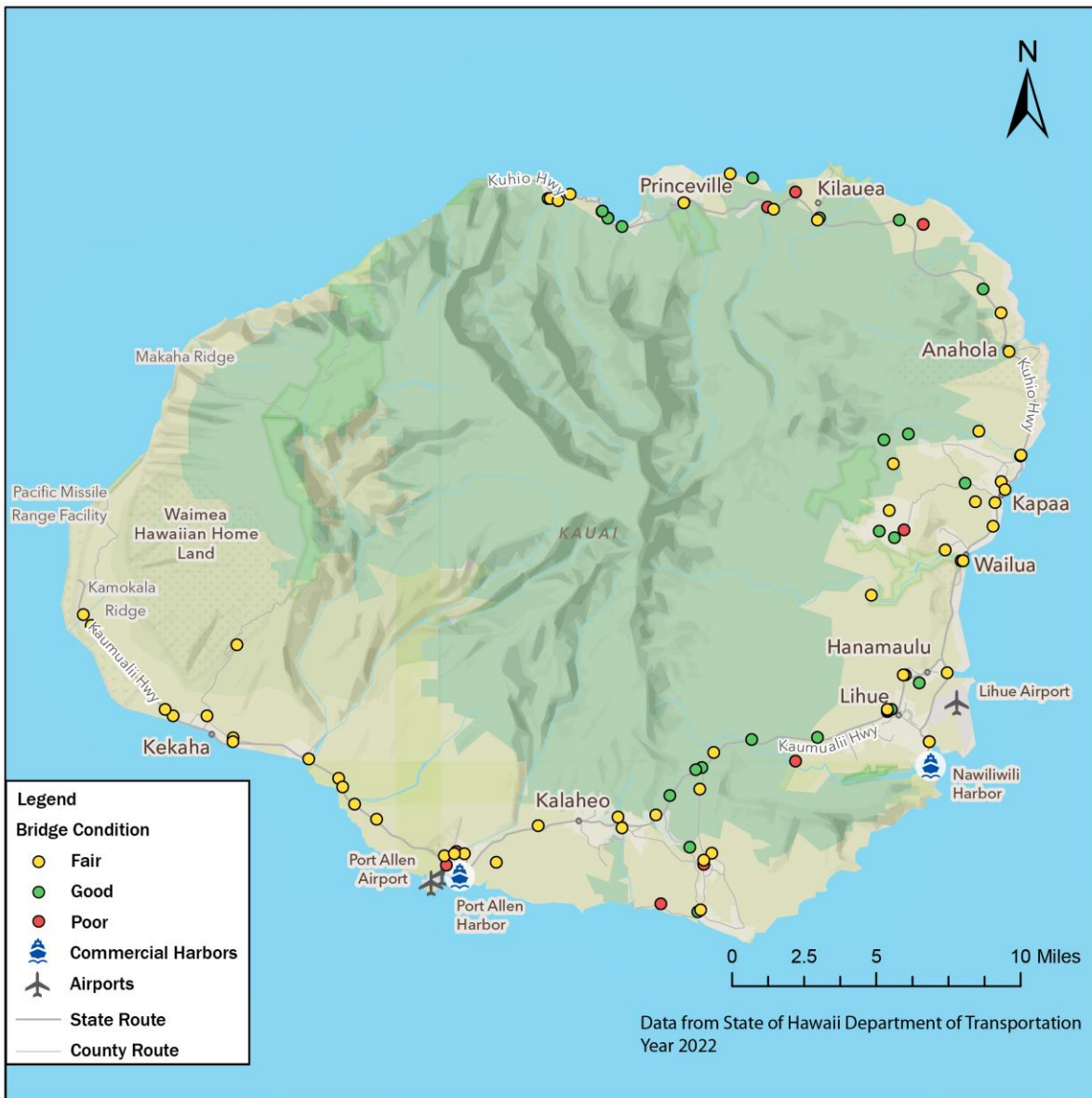
Source: HDOT, 2022

Figure 3-43 Overall Bridge Condition - Hawaii (Big Island)



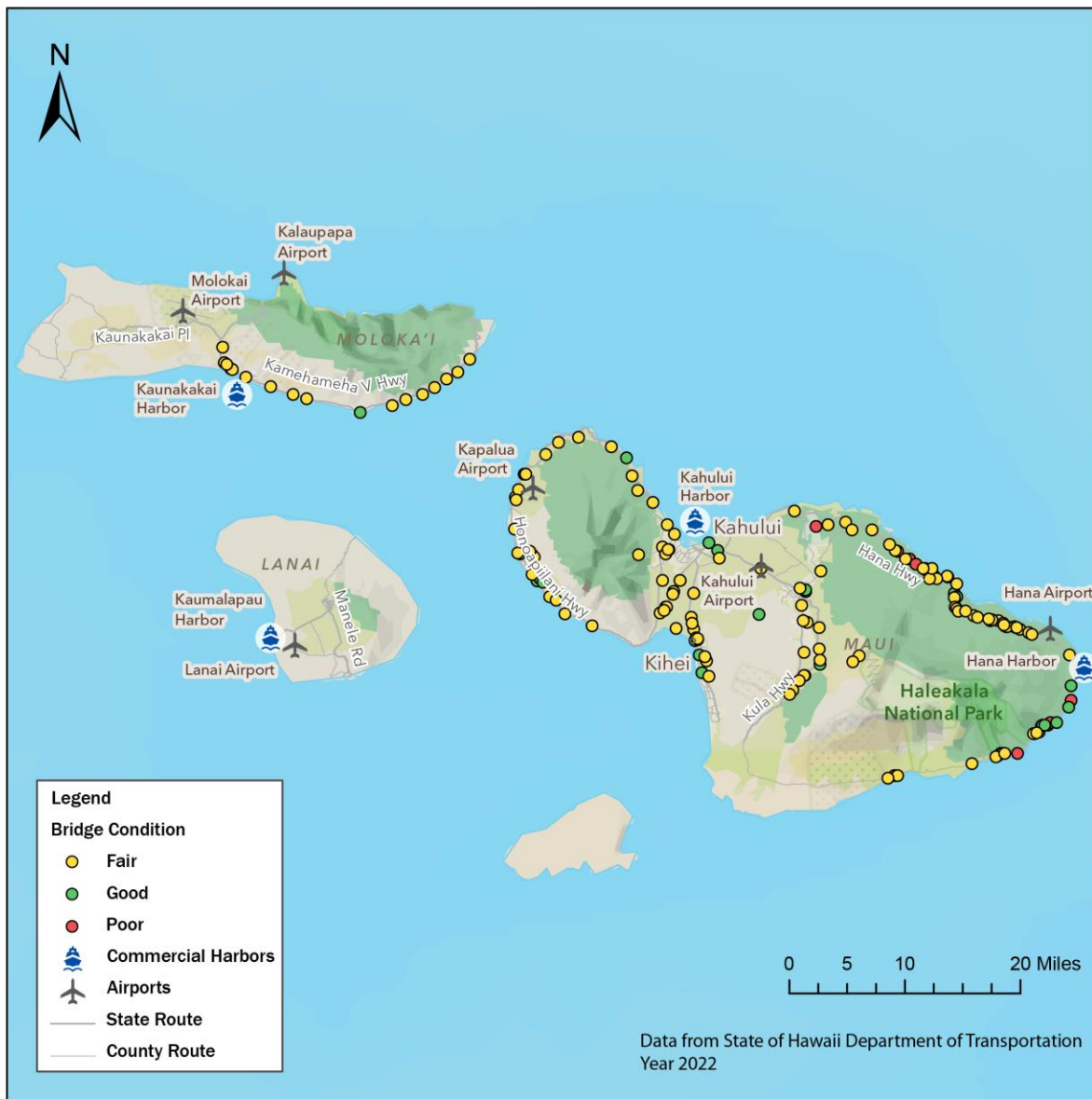
Source: HDOT, 2022

Figure 3-44 Overall Bridge Condition - Kauai



Source: HDOT, 2022

Figure 3-45 Overall Bridge Condition - Maui



Source: HDOT, 2022

### Commercial Motor Vehicle Parking

During interviews with stakeholders, overnight truck parking or rest areas for commercial facilities was not expressed as a major need due to the nature of truck operations in the state of Hawaii. The majority of trucking operations involve pickup and delivery, which take place within the Federal Motor Carrier Safety Administration's (FMCSA) mandated 8 hours of cumulative driving time window before a 30-minute break is required. The longest trip is typically on the Big Island, where truckers may drive 50 to 80 miles non-stop. Trucks and tractor trailers may take breaks along the Daniel K. Inouye Highway, however, this was not raised as a major concern. The Gilbert Kahele Recreation Area, for example, is located between Kona and Hilo, and has a public

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restroom and rest area which can be used by truck drivers. Many commercial vehicle drivers will use the rest areas at public parks, at the customer, or return to their warehouse for breaks and lunch.

Of concern to commercial vehicle operators is the limited loading and unloading zones at most establishments that do not have a loading dock, which results in trucks parking along the curb. Curbs and the homeless are a challenge for the operator if they need to roll the deliveries on a pallet jack. They shared that better enforcement of loading zones would be appreciated.

Deliveries are limited to the first mile freight arrivals and gate hours (Matson, Pasha Hawaii, Young Brothers Hawaii, Aloha Air Cargo, etc.) and the last mile customer hours. Most deliveries are reported to happen early in the morning, if possible, to avoid traffic congestion after picking at the ports. As an example, deliveries along Kalakaua Avenue, through the popular Waikiki resort corridor, are limited from 10pm to 9am during light traffic conditions. For container-sized trucks delivering to big box stores like Walgreens, Target, and Walmart, deliveries are usually made in the evening from 10pm to 3am. However, the majority of containers are delivered between 5am to 2pm. Congestion does spillover from the harbor facilities to the highway system, such as Nimitz Highway, Sand Island Parkway, and Waiakamilo Road, due to limited operational space within the harbors. The HDOT highways and harbors staff are working with shippers and users to improve the internal congestion and multimodal connectivity.

## Marine Cargo

Hawaii's remote location underscores the significance of ocean cargo transport as the lifeline and only viable means to serve and support every facet of the local economy, including tourism, construction, national defense, agriculture, and all other industries. An estimated 85% of all goods consumed in Hawaii are imported, and 91% of the imported goods arrive through HDOT commercial ports.<sup>5</sup> Hawaii's residents heavily depend on its commercial harbor system. A disruption of ocean transport services and the delay of cargo movement from the harbor to the destination will severely impair the state economy.

The Pacific Ocean serves as Hawaii's "interstate" highway system. Unlike the continental U.S., where multiple modes of transportation are available to transport goods, Hawaii's only alternative to ocean transport of cargo is air transport, which is relatively expensive and incapable of satisfying Hawaii's total demand. To match the cargo load carried by a single 2,600 TEU containership, the equivalent of 150 Boeing 747 cargo aircraft is required. In other words, there is no economically feasible alternative to ocean transport of cargo.

Hawaii Department of Transportation Harbors (HDOT Harbors) is tasked with the mission of effectively managing and operating the statewide commercial harbors system that facilitates the efficient movement of people and goods to, from, and between the Hawaiian Islands. This harbor system operates on the MH-1 Daniel K. Akaka Marine Highway as a hub-and-spoke system with Honolulu Harbor on the island of Oahu (where 68% of Hawaii's 1.4 million residents live) as the hub and primary entry point for incoming cargo from the continental United States and foreign countries. From Honolulu, cargo is distributed to five other islands served by seven commercial harbor facilities on those islands.

Hawaii's economy operates on a just-in-time supply chain. There are no large-scale warehouses to store consumer goods between arrival on a cargo vessel and delivery to store shelves. The shipping containers that carry these goods often serve as the "warehouse." It is common to see containers on chassis in the parking lots of retail stores. This just-in-time system means service disruptions and loss of efficiency at Hawaii's ports can greatly impact the daily lives of residents and businesses.

There are 10 (ten) commercial harbors across the six major Hawaiian Islands. Nine are currently active, while Hana Pier is currently inactive. Figure 3-46 shows a map of all commercial harbors in Hawaii. In 2023, the Kawaihae Harbor was awarded a \$23.46 million Port Infrastructure Development Program grant from the U.S. Department of Transportation Maritime Administration to enhance operational efficiency and reduce highway traffic congestion.<sup>6</sup>

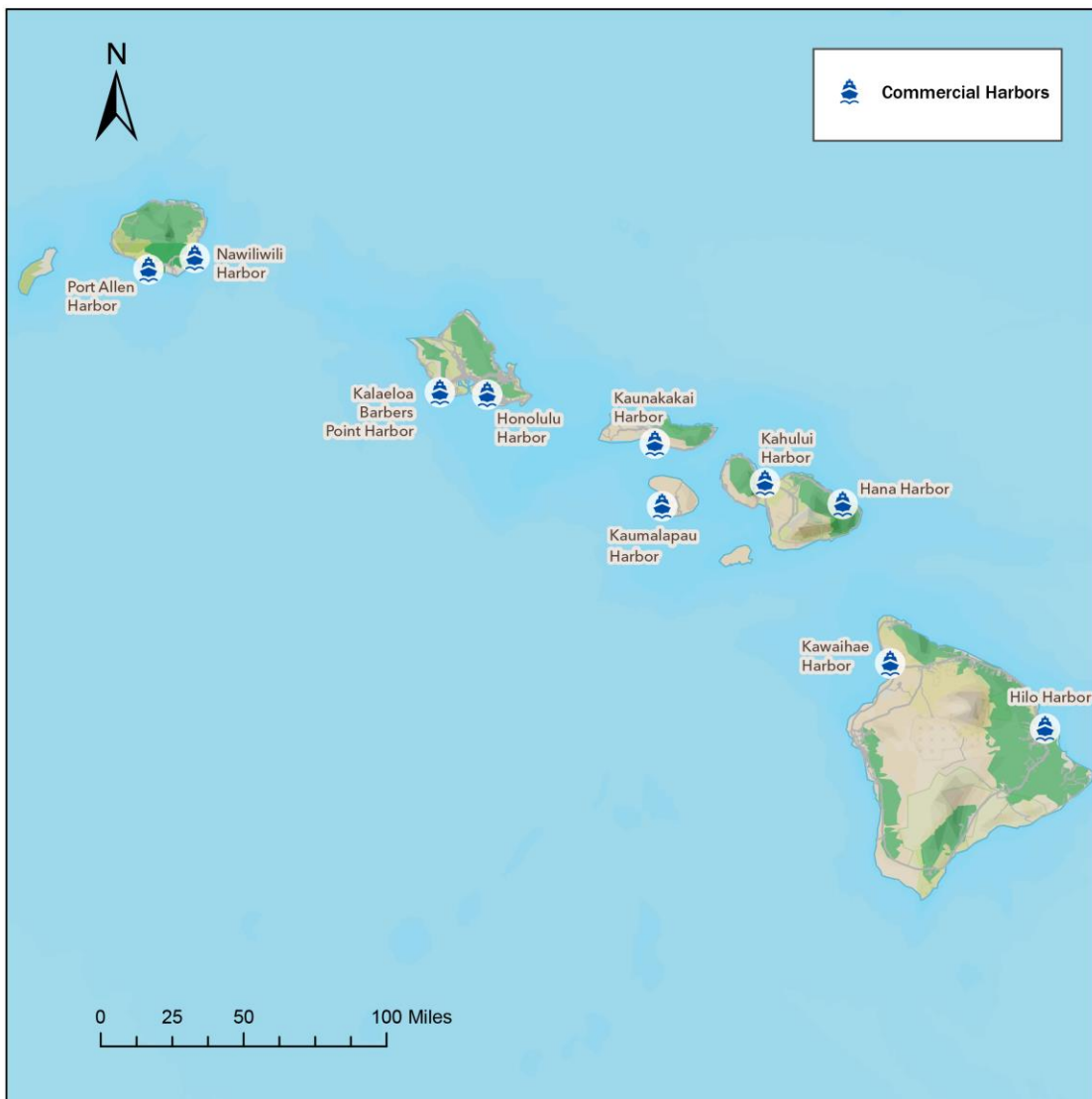
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<sup>5</sup> 2050 Honolulu Harbor Freight Master Plan

<sup>6</sup> State of Highway, Department of Transportation, U.S. Dot Awards \$23.46 Million for Improvements to Port Of Kawaihae. Posted on Nov 2, 2023.



Figure 3-46 Commercial Harbors in Hawaii



Source: HDOT Harbors. Note: Hana Pier is not in operation.

### Marine Freight Traffic Volumes

Table 3-15 and Figure 3-47 show the annual trends of cargo volume for Hawaii harbors between 2018 and 2022. Table 3-16 and Figure 3-48 show the annual trends of revenue dollars for Hawaii harbors between 2018 and 2022. Containers are measured in twenty-foot equivalent units (TEUs). The year 2022 was the highest volume year between 2018 and 2022. During 2022, 1.7 million TEUs were moved through Hawaii’s harbors. The TEU volume for Hawaii decreased to a five-year low of 1.5 million TEUs in 2020. This moderate decrease is likely attributable to the disruptions in the supply chain, which reduced the cargo traffic. Similar to trends for revenue dollars, the year 2022 was the highest revenue year between 2018 and 2022. During 2022, 133 million dollars of revenue were generated from TEUs moved through Hawaii’s harbors.

Table 3-15 Cargo Volume in Thousand Units (2018 to 2022)

Cargo Type	Containers	Autos and Trucks	General Merchandise & Bulk Items	Pipelines	Other	Passenger
2018	1,590	275	3,956	29,455	65	1,082
2019	1,591	279	4,061	36,326	67	1,167
2020	1,544	210	3,679	32,989	67	813
2021	1,557	169	3,439	22,519	69	-
2022	1,733	167	3,437	30,839	70	168

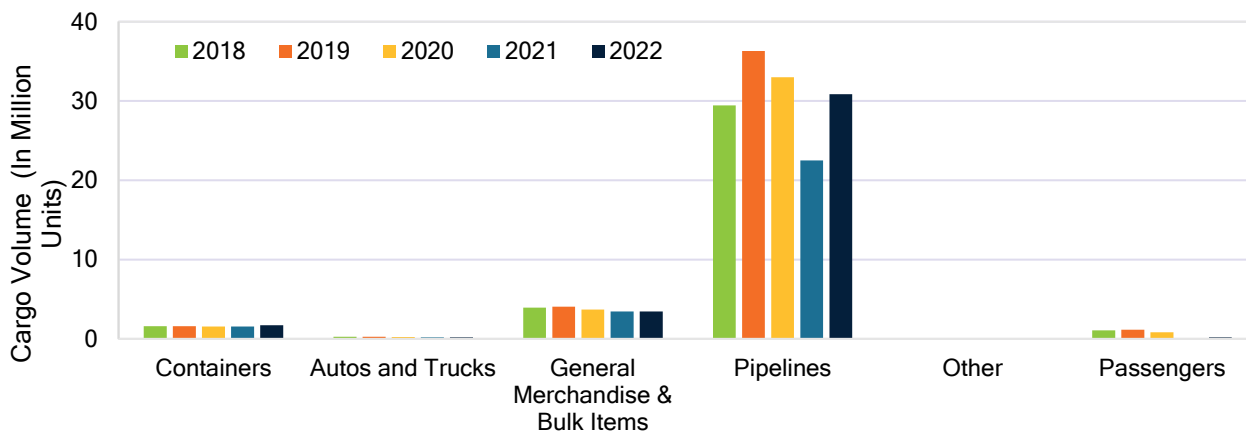
Source: Hawaii Department of Transportation, Harbors Data, 2018-2022. Annual information for the fiscal year ended June 30, 2022, specifically only the audited financial statements for the fiscal year ended June 30, 2022.<sup>7</sup>

Table 3-16 Revenues Dollars in Thousand Dollars (2018 to 2022)

Cargo Type	Containers	Autos and Trucks	General Merchandise & Bulk Items	Pipelines	Other	Passenger
2018	96,216	10,058	11,843	5,002	521	8,164
2019	113,883	12,198	14,619	7,366	630	9,046
2020	109,155	8,713	13,174	6,888	562	6,298
2021	117,950	7,594	13,157	4,730	559	-
2022	132,599	7,745	13,752	6,820	461	1,796

Source: Hawaii Department of Transportation, Harbors Data, 2018-2022. Annual information for the fiscal year ended June 30, 2022, specifically only the audited financial statements for the fiscal year ended June 30, 2022.

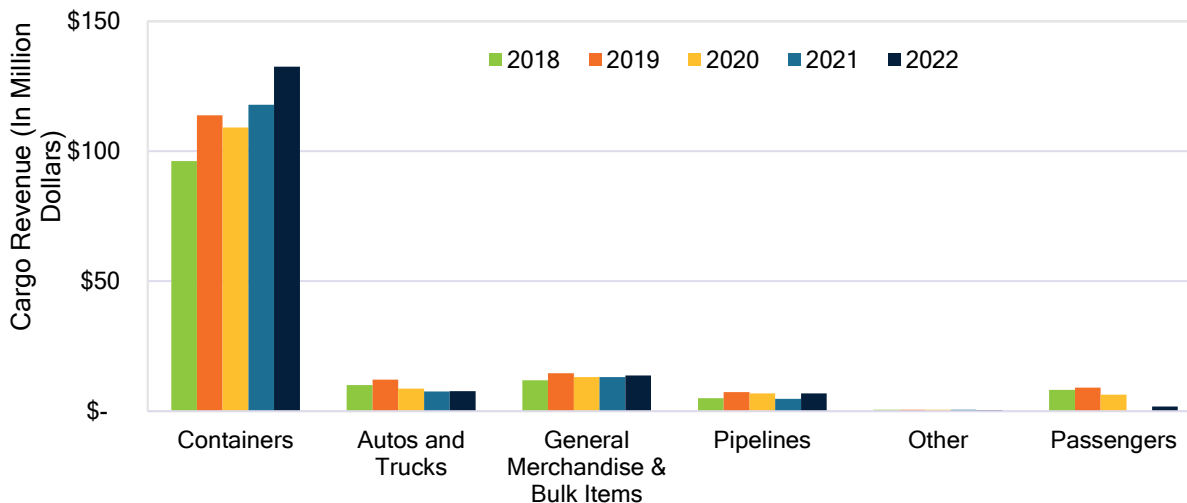
Figure 3-47 Cargo Volume in Million Units (2018 to 2022)



Source: Hawaii Department of Transportation, Harbors Data, 2018-2022. Annual information for the fiscal year ended June 30, 2022, specifically only the audited financial statements for the fiscal year ended June 30, 2022.

<sup>7</sup> Containers are expressed in twenty-foot equivalent units (TEU's) and include empty containers, loaded containers and autos and trucks in containers; the surcharge units for foreign cargo are not included in the cargo volume data.

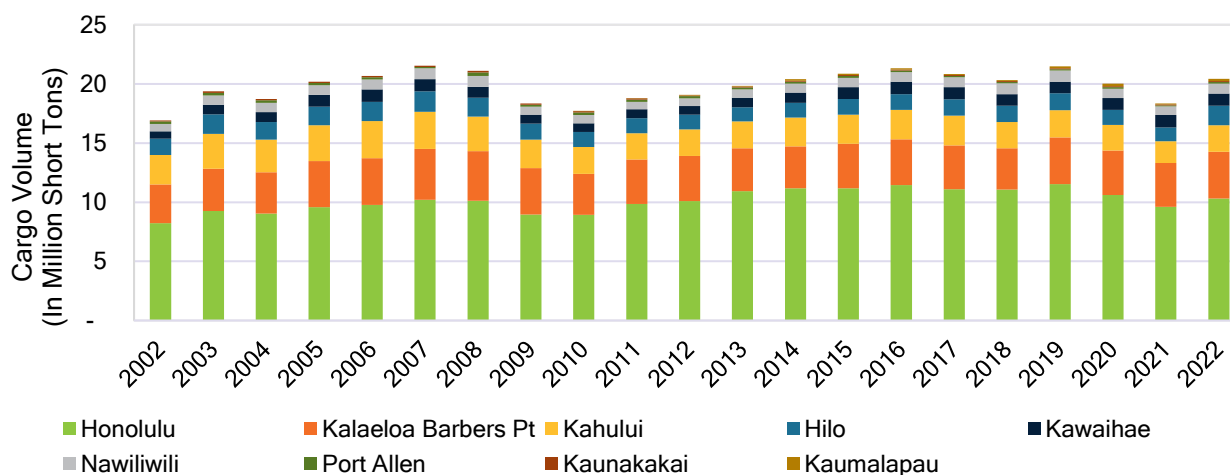
Figure 3-48 Cargo Revenue in Million Dollars (2018 to 2022)



Source: Hawaii Department of Transportation, Harbors Data, 2018-2022. Annual information for the fiscal year ended June 30, 2022, specifically only the audited financial statements for the fiscal year ended June 30, 2022.

Figure 3-49 shows that Honolulu Harbor has the largest cargo volume in Hawaii, with over 10 million short tons (51% of total cargo volume) moved in 2022. Kalaeloa Barbers Point Harbor has the second largest cargo volume in Hawaii, with over 3 million short tons (19% of total cargo volume) moved in 2022. This represents approximately 70% of the total cargo volume moved in Hawaii. Kahului Harbor and Hilo Harbor are third and fourth highest, with the harbors moving approximately 2.3 million (11% of total cargo volume) and 1.6 million (8% of total cargo volume) in 2022, respectively. The remaining five harbors (Kawaihae Harbor, Nawiliwili Harbor, Port Allen Harbor, Kaunakakai Harbor, and Kaumalapau Harbor) moved less than 5% of the cargo volume in Hawaii during 2022 respectively.

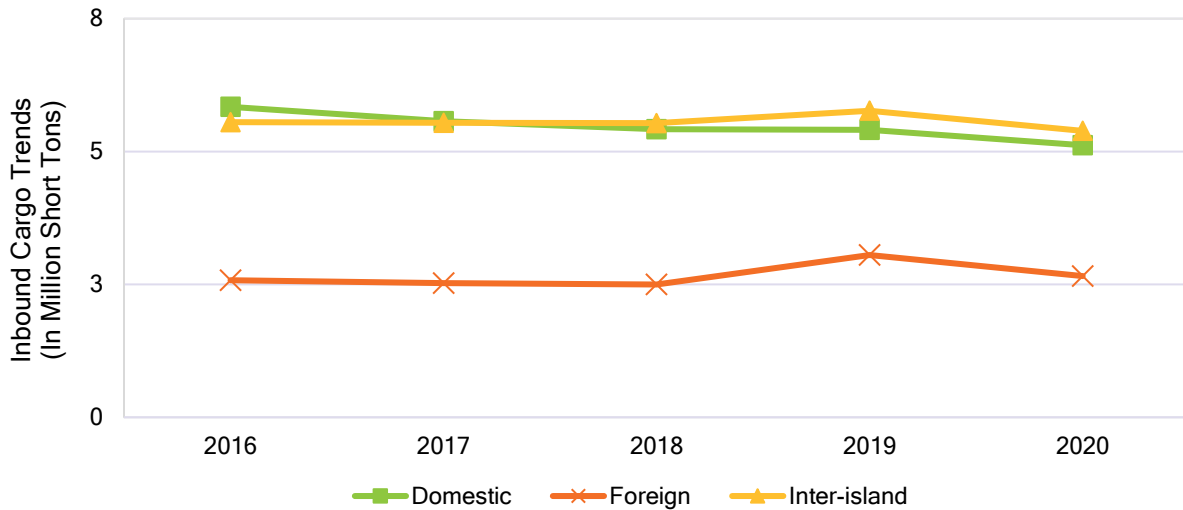
Figure 3-49 Annual Trends in Cargo Volume for Hawaii Harbors in Million Short Tons (2002 to 2022)



Source: Hawaii Department of Transportation, Harbors Data, 2002-2022. Annual information for the fiscal year ended June 30, 2022, specifically only the audited financial statements for the fiscal year ended June 30, 2022. Kaumalapau cargo volume record commenced on 3/1/10.

Figure 3-50 and Figure 3-51 show the inbound and outbound cargo trends for domestic, inter-island, and foreign cargo traffic from 2016 to 2020 to all ports in Hawaii. For inbound cargo trends, inter-island cargo traffic has remained relatively flat, with slight fluctuations over the years. Domestic cargo traffic decreased by a relatively small amount (approximately 3%), while foreign cargo traffic increased by a relatively small amount (approximately 2%) from 2016 to 2020. For outbound cargo trends, all cargo traffic has remained relatively flat, with minimal fluctuations over the years.

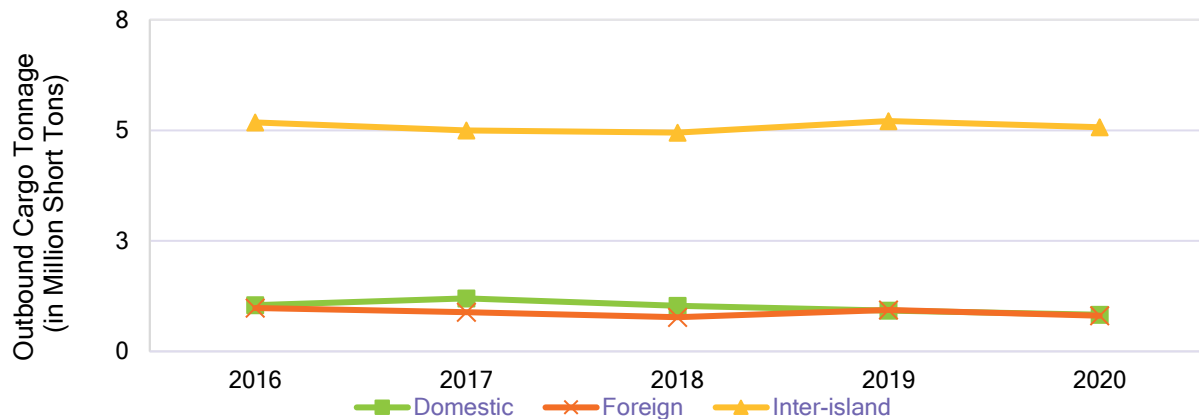
Figure 3-50 Inbound Cargo Trends in Million Short Tons (2016 to 2020)



Source: HDOT Harbors Data, 2016-2020.

Notes: Fiscal Year 2020 data is preliminary and estimated; the above data excludes tonnage resulting from bunkering or fueling activities. For instance, in fiscal year 2020, the difference between the total tonnage of 20,025,000 tons and the total tonnage of inbound and outbound cargo of 19,873,000 tons is 152,000 tons resulting from Bunkering activities.

Figure 3-51 Outbound Cargo Trends in Million Short Tons (2016 to 2020)

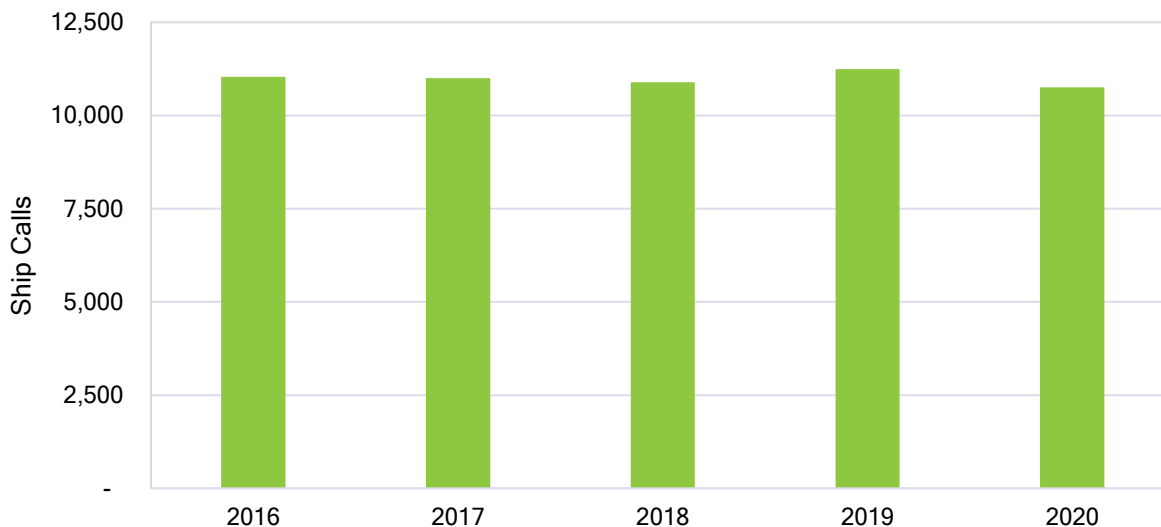


Source: HDOT Harbors Data, 2016-2020.

Notes: Fiscal Year 2020 data is preliminary and estimated; the above data excludes tonnage resulting from bunkering or fueling activities. For instance, in fiscal year 2020, the difference between the total tonnage of 20,025,000 tons and the total tonnage of inbound and outbound cargo of 19,873,000 tons is 152,000 tons resulting from Bunkering activities.

Figure 3-52 shows the annual trend in ship calls (when a vessel loads/unloads cargo or embarks/disembarks passengers) between 2016 and 2020. The number of ship calls was relatively consistent over the years. On average, over 10 thousand ship calls were received annually.

Figure 3-52 Annual Trends in Number of Ship Calls (2016 to 2020)



Source: HDOT Harbors Data, 2016-2020

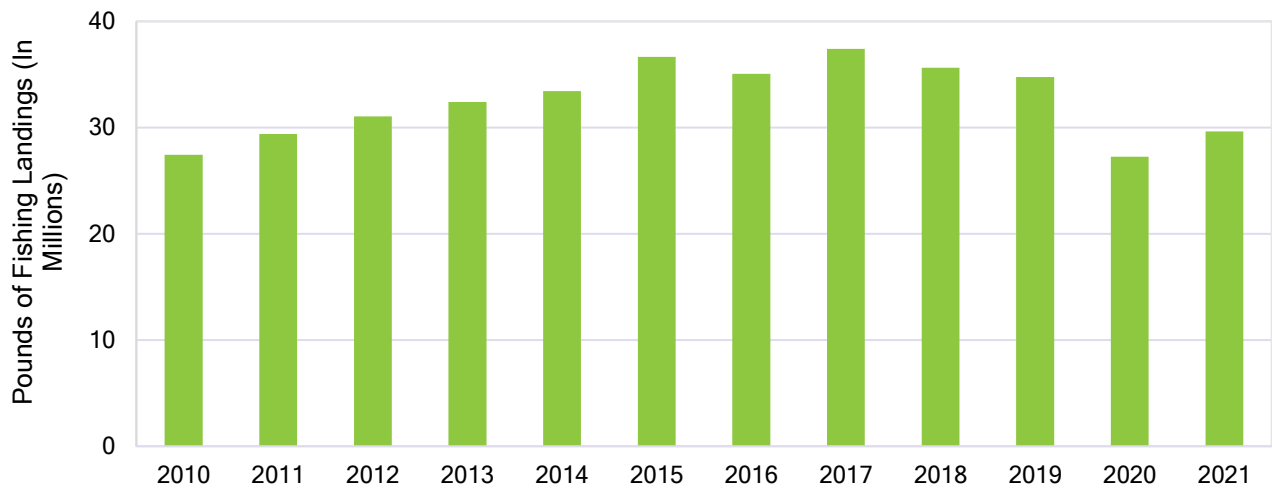
Notes: Fiscal Year 2020 data is preliminary and estimated; the above data excludes tonnage resulting from bunkering or fueling activities. For instance, in fiscal year 2020, the difference between the total tonnage of 20,025,000 tons and the total tonnage of inbound and outbound cargo of 19,873,000 tons is 152,000 tons resulting from Bunkering activities.

## Commercial Fishing Landings

Figure 3-53 shows that the volume of commercial fishing landings in the State was over 29.6 million pounds in 2021, a decrease of 7.8 million pounds (down 21%) compared with 2017, a historical high since 2010. However, the value of the commercial fishing landings in Hawaii was over 129 million dollars in 2021, a historical high since 2010, as shown in Figure 3-54.

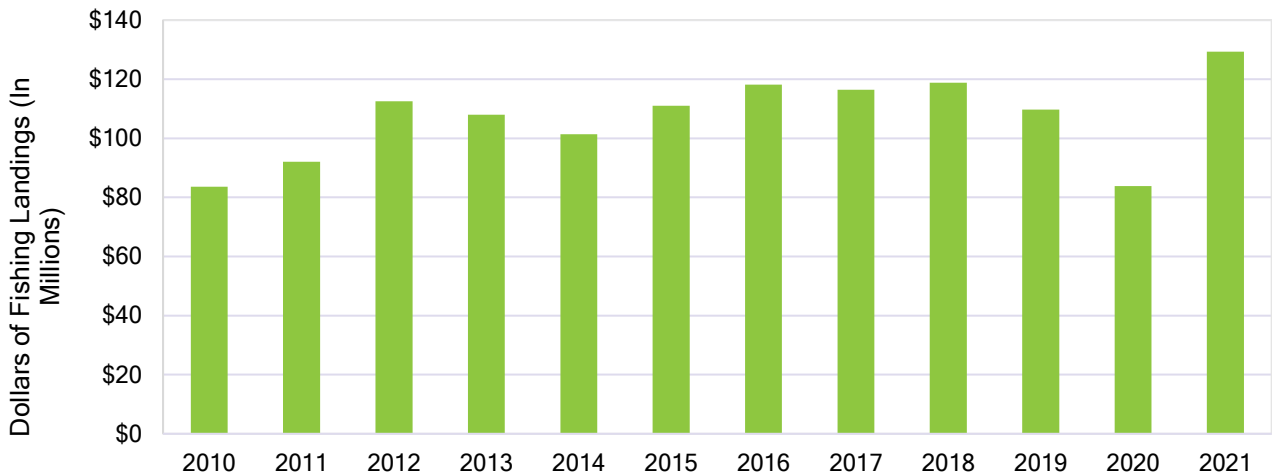
In 2020, Honolulu Harbor ranked 8th for the port with the most value of commercial fishery landings among major ports nationwide (approximately 76 million dollars), despite that the volume of commercial fishing landings was at a historical low since 2010. The volume of commercial fishing landings in the State increased by a relatively small amount from 2010 to 2017 (the highest volume since 2010) and then decreased by a relatively small amount from 2018 to 2020 (the lowest volume since 2010). The value of commercial fishing landings in the State increased by a relatively small amount from 2010 to 2012 and then remained relatively flat, with slight fluctuations between 2012 and 2019. The value of commercial fishing landings started to show signs of recovery in 2021 from the historical low in 2020.

Figure 3-53 Pounds of Commercial Fishing Landings in Hawaii (2010 to 2021)



Source: NOAA Fisheries, Foreign Fishery Trade Data, 2010-2021.

Figure 3-54 Value of Commercial Fishing Landings in Hawaii (2010 to 2021)



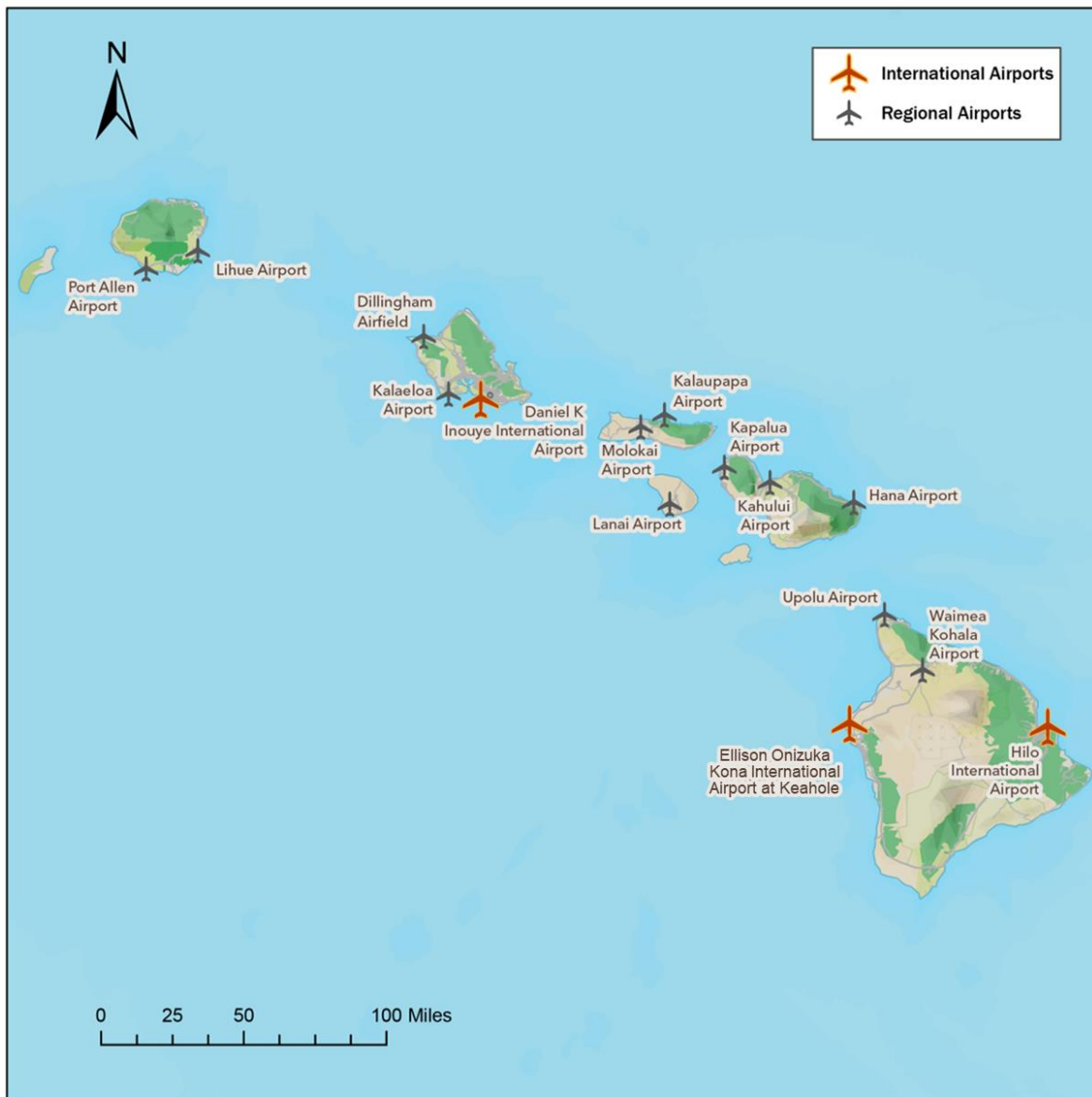
Source: NOAA Fisheries, Foreign Fishery Trade Data, 2010-2021.

Notes: The dollar value of fishing landings is reported as nominal (current at the time of reporting) values and not adjusted for inflation.

## Air Cargo

Hawaii has a total of 15 commercial airports, nine of which service air cargo. The airports that service air cargo include Daniel K. Inouye International Airport (HNL), Hilo International Airport (ITO), Ellison Onizuka Kona International Airport at Keahole (KOA), Lihue Airport (LIH), Kahului Airport (OGG), Kapalua Airport (JHM), Lanai Airport (LNY), Molokai Airport (MKK), and Kalaupapa Airport (LUP). Figure 3-55 shows the locations of commercial airports in Hawaii.

Figure 3-55 Commercial Airports in Hawaii



Source: HDOT Airports

The Daniel K. Inouye International Airport is the largest in terms of air cargo and mail, with about 626,000 tons carried in 2022. It is ten times larger than the second largest airport in terms of air cargo, which is the Kahului Airport on Maui, with over 49,000 tons carried. The Daniel K. Inouye International Airport has over 1 million square feet of cargo in its ramp area. It is supported by over 450,000 square feet of warehouse space adjacent to the airport property and over three million square feet of warehouse space in its industrial submarket in Oahu. The airport includes a mix of public and private cargo terminal facilities. The state-owned facilities are currently leased to Continental Airlines, Japan Airlines, Delta Airlines, and American Airlines. Privately owned air cargo facilities include those owned and operated by FedEx, Hawaiian Airlines, Kallita/Pacific Air Cargo, United Airlines, and UPS.

The Big Island features two airports that service air cargo and mail: Hilo International Airport, which moved over 22,000 tons of air cargo in 2022, and the Ellison Onizuka Kona International Airport at Keahole, which moved over 34,000 tons of air cargo in 2022. Hilo International Airport is serviced by the all-cargo carrier Aloha Air Cargo, along with Hawaiian Airlines, which carries cargo in the belly of passenger planes. Air cargo in Kauai is moved through Lihue Airport. Airlines moving air cargo through this airport include Aloha Airlines, Hawaiian Airlines, FedEx, and UPS.

### Air Cargo and Mail Traffic Volumes

In 2022, approximately 776,000 tons of cargo and mail were transported in, out, and around Hawaii - 684,000 tons of air cargo and 92,000 tons of mail. Figure 3-56 shows that over half of air cargo were domestic shipments. Inter-island shipments represented less than one-third of the total shipments. The remaining 15% are international shipments. Figure 3-57 shows that over half of mail traffic was domestic shipments. Inter-island shipments represented less than half of the total shipments. The remaining 3% are international shipments.

Figure 3-56 Statewide Air Cargo Traffic (2022)

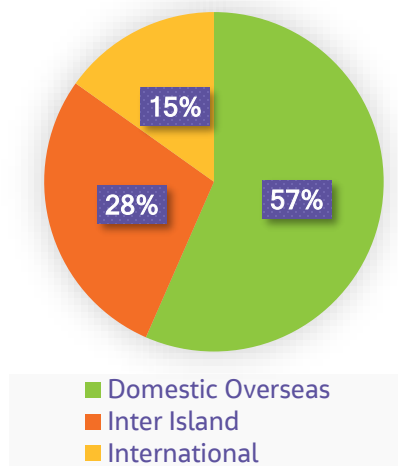
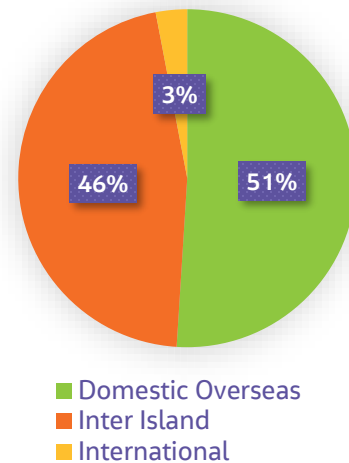


Figure 3-57 Statewide Mail Traffic (2022)

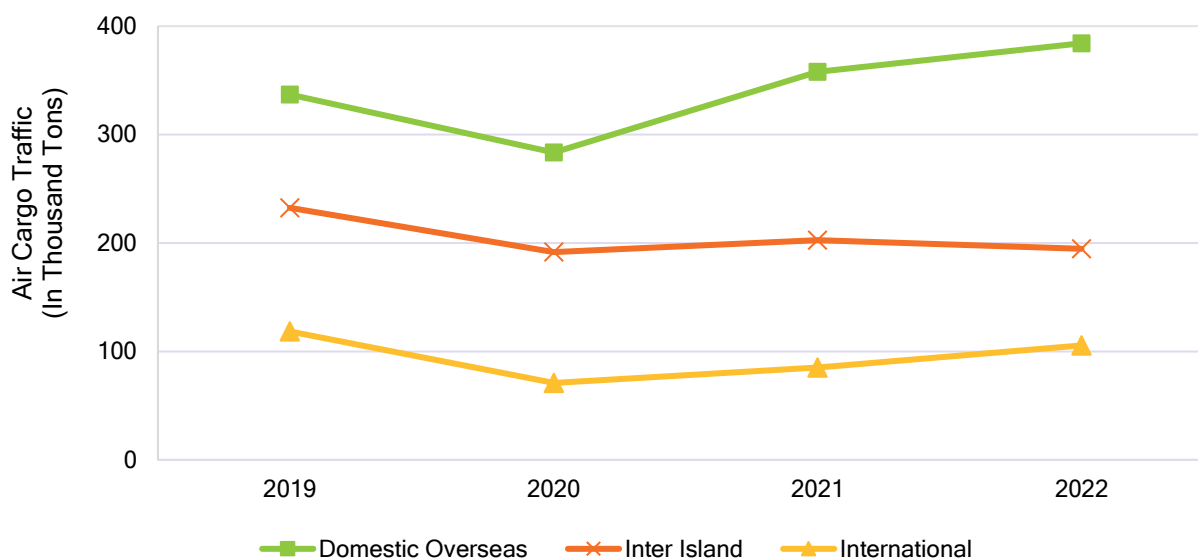


Source: Hawaii Department of Transportation, Cargo, and Mail Traffic Data, 2022



Figure 3-58 and Table 3-17 show the trend of domestic overseas, inter-island, and international air cargo (excluding mail) traffic from 2019 to 2022. It shows that cargo (excluding mail) traffic for all movement decreased in 2020 compared to 2019 due to the impact of pandemic. However, starting in 2021, domestic overseas cargo traffic had the most rapid increase. This rapid increase is likely attributable to the recovery in the supply chain, which increased the demand for cargo to mainland states. International cargo traffic has grown at a moderate amount, while inter-island cargo traffic has remained relatively flat with a slight decrease.

Figure 3-58 Statewide Air Cargo Traffic (excluding mail) by Direction in Thousand Tons (2019 to 2022)



Source: Hawaii Department of Transportation, Cargo, and Mail Traffic Data, 2019-2022

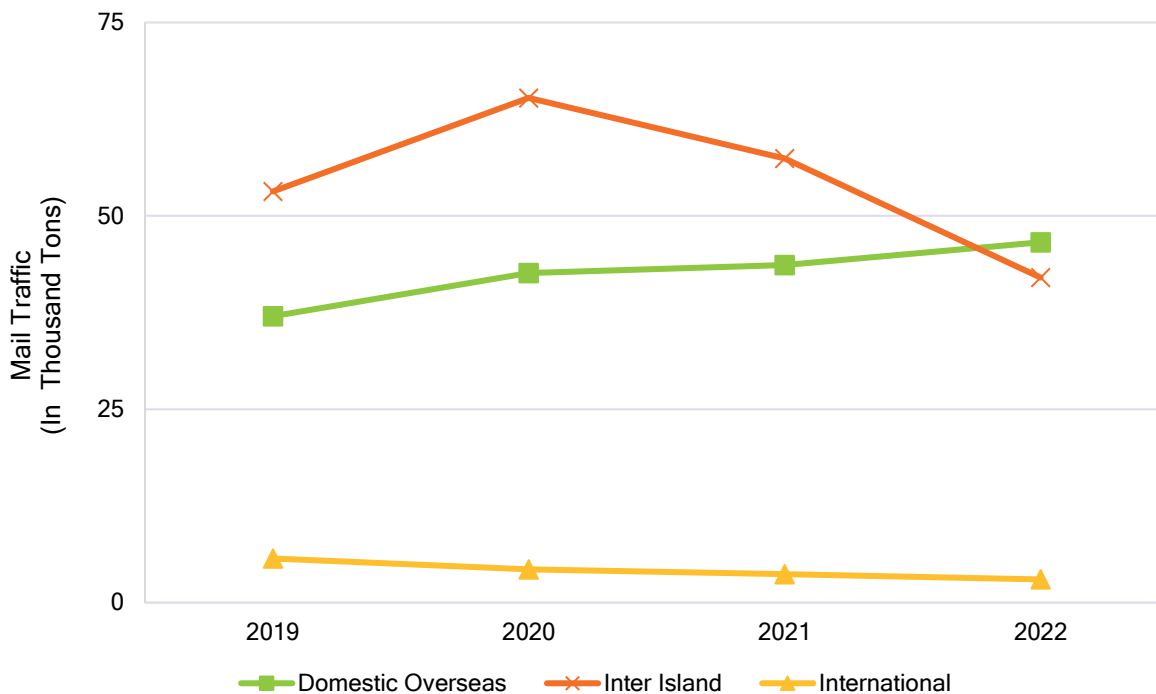
Table 3-17 Statewide Air Cargo Traffic (excluding mail) in Tons (2019 to 2022)

	Domestic Overseas	Inter-Island	International	Total
2019	336,979	232,421	118,398	687,798
2020	283,459	191,589	70,935	545,983
2021	357,763	202,504	85,287	645,554
2022	384,179	194,608	105,442	684,229

Source: Hawaii Department of Transportation, Cargo, and Mail Traffic Data, 2019-2022

Figure 3-59 shows the trend of domestic, overseas, inter-island, and international mail traffic from 2019 to 2022. It shows that international cargo traffic decreased while domestic overseas and inter-island cargo traffic increased in 2020 compared to 2019 due to the impact of the pandemic. However, starting in 2021, inter-island mail traffic had the most rapid decrease. This rapid decrease is likely attributable to the recovery in the supply chain, which reduced the need for mail cargo between islands. Domestic overseas mail traffic has grown moderately, while international mail traffic has remained relatively flat with a slight decrease.

Figure 3-59 Statewide Mail Traffic by Direction in Thousand Tons (2019 to 2022)



Source: Hawaii Department of Transportation, Cargo, and Mail Traffic Data, 2019-2022

Table 3-18 and Figure 3-60 show the trend of air cargo and mail combined traffic by two carrier types between 2019 and 2022: passenger airlines and all-cargo airlines. It shows that air cargo and mail combined traffic moved by passenger airlines decreased to half of the volume in 2020 compared to 2019 due to the impact of the pandemic. However, starting in 2021, air cargo and mail combined traffic moved by passenger airlines rapidly increased. In 2022, air cargo and mail combined traffic moved by passenger airlines exceeded the volume compared to 2019. Air cargo and mail combined traffic moved by all-cargo airlines grew slightly in 2020 and 2021 compared to 2019 due to the impact of a pandemic. However, the volume dropped slightly in 2022. This slight decrease is likely attributable to the recovery in the capacity of the passenger airlines.

Table 3-18 Statewide Air Cargo and Mail Combined Traffic by Type of Carrier in Tons (2019 to 2022)

	Passenger Airline	All-Cargo Airline	Total
2019	260,936	522,738	783,674
2020	132,279	525,838	658,117
2021	207,593	542,650	750,243
2022	266,710	509,121	775,831

Source: Hawaii Department of Transportation, Cargo, and Mail Traffic Data, 2019-2022

Figure 3-60 Statewide Cargo and Mail Combined Traffic by Type of Carrier in Thousand Tons (2019 to 2022)



Source: Hawaii Department of Transportation, Cargo, and Mail Traffic Data, 2019-2022

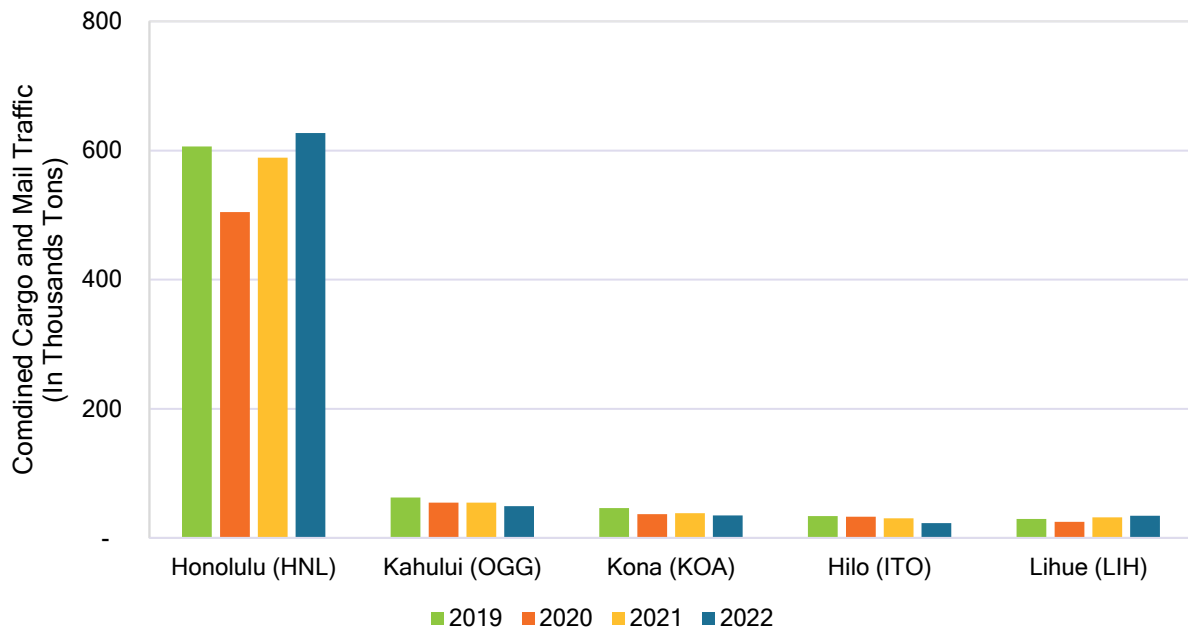
Table 3-19 and Figure 3-61 show the top 5 airports by air cargo and mail combined traffic between 2019 and 2022: Honolulu, Kahului, Kona, Hilo, and Lihue. It shows that air cargo and mail combined traffic at all five airports decreased in 2020 compared to 2019 due to the impact of the pandemic. However, starting in 2021, air cargo and mail combined traffic at all five airports recovered except for the Hilo International Airport (ITO). In 2022, only air cargo and mail combined traffic at Honolulu and Lihue recovered to the pre-pandemic level. Daniel K. Inouye International Airport (HNL) remained the top airport in terms of air cargo and mail combined traffic between 2019 and 2022, with the other four airports carrying similar air cargo and mail combined traffic.

Table 3-19 Top 5 Air Cargo and Mail Combined Traffic in Thousand Tons (2019 to 2022)

	Honolulu (HNL)	Kahului (OGG)	Kona (KOA)	Hilo (ITO)	Lihue (LIH)
2019	606	63	46	34	29
2020	505	55	37	33	25
2021	589	55	38	30	32
2022	627	49	35	23	35

Source: Hawaii Department of Transportation, Cargo, and Mail Traffic Data, 2019-2022

Figure 3-61 Top 5 Cargo and Mail Combined Traffic in Thousand Tons (2019 to 2022)



Source: Hawaii Department of Transportation, Cargo, and Mail Traffic Data, 2019-2022



## Military Freight

Similar to other goods movement, military-related cargo gets shipped to the Hawaiian Islands by ship or airplane and then delivered by truck for the last-mile connection. Hawaii's maritime and aviation ports of entry are, thus, a critical component in sustaining military freight movement. When items travel by ship, most military-related cargo from the US mainland arrives through Honolulu Harbor. If bound for another island, it is transloaded to an inter-island barge for delivery. For those items traveling by air, most military-related cargo from the US mainland also arrive primarily through Honolulu, and transloaded to other islands. Forecasting the tonnage of military-related cargo presents some challenges since the military does not release shipment information, and the need depends on the size of the U.S. military presence or involvement on foreign soil.

A primary purpose of the NHS is to connect the nation's major economic centers and military bases for national security reasons (significant for both domestic and international security). It handles most truck traffic due to its connectivity to major population centers, businesses, logistics centers, marine ports, military installations, international and domestic gateways, and water ports. A subsystem of the NHS is the Strategic Highway Network (STRAHNET). STRAHNET is a network of highways that are important to the United States' strategic defense policy and that provide defense access, continuity, and emergency capabilities for defense purposes.

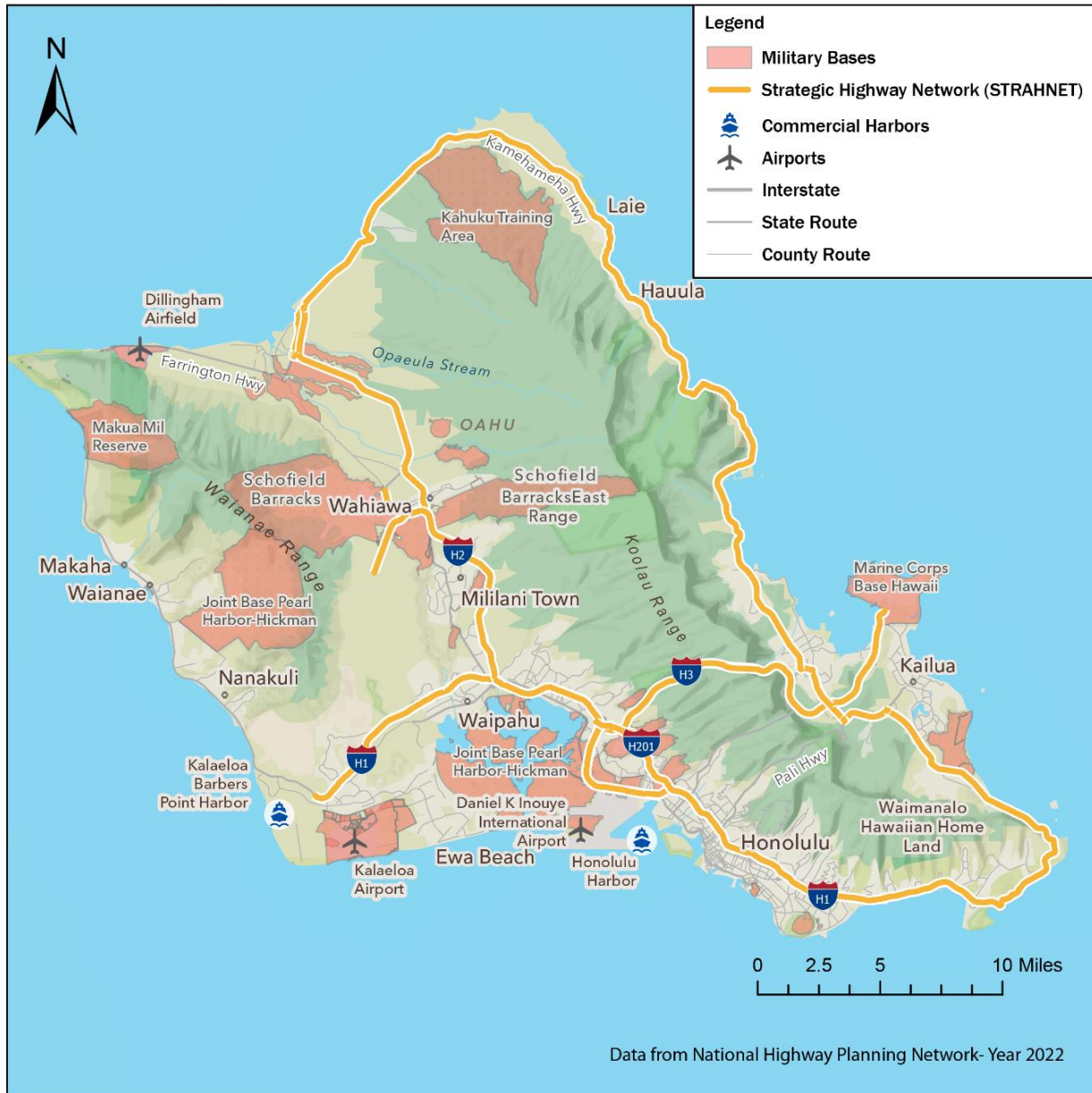
As shown in Figure 3-62 and Figure 3-63, Oahu has the most developed network of interstate, state highways, and county roads that are part of the NHS. The interstate roads connect Honolulu Harbor with Joint Base Pearl Harbor-Hickam via H-1, Scholfield Barracks and Wheeler Army Airfield in Wahiawa via H-2, and Marine Corps Base Hawaii in Kaneohe Bay via H-3. The state highways and county roads on the NHS provide supplemental connections to Joint Base Pearl Harbor-Hickam and Bellows Air Force Station, as well as a majority of Oahu.

As shown in Figure 3-65, Kauai has limited NHS and STRAHNET roads located primarily on the southeastern side of the island. Still, only non-National Highway System roads provide a connection to the Pacific Missile Range Facility, Barking Sands on the west side of the island. Hawaii Island also has a limited National Highway System of roads that form a partial ring around the west, north and east sides of the island. Still, only non-National Highway System roads provide a connection to the Pohakuloa Training Area in North Central Hawaii. Pohakuloa Training Area is accessed by Daniel K. Inouye Highway (Saddle Road). Pacific Missile Range Facility, Barking Sands, is accessed by Kaunualii Highway, which is partially on the NHS. While Maui has limited National Highway System roads primarily found on the central and western side of the island, it does not have formal military installations.

Roadway connections to the military installations on Oahu are adequate to meet national security goals. However, the non-National Highway System Road connections to the Pacific Missile Range Facility, Barking Sands on western Kauai, and Pohakuloa Training Area in North

Central Hawaii Island may need improvements to help meet national security goals for these installations.

Figure 3-62 Military Bases and Strategic Highway Network (STRAHNET) - Oahu



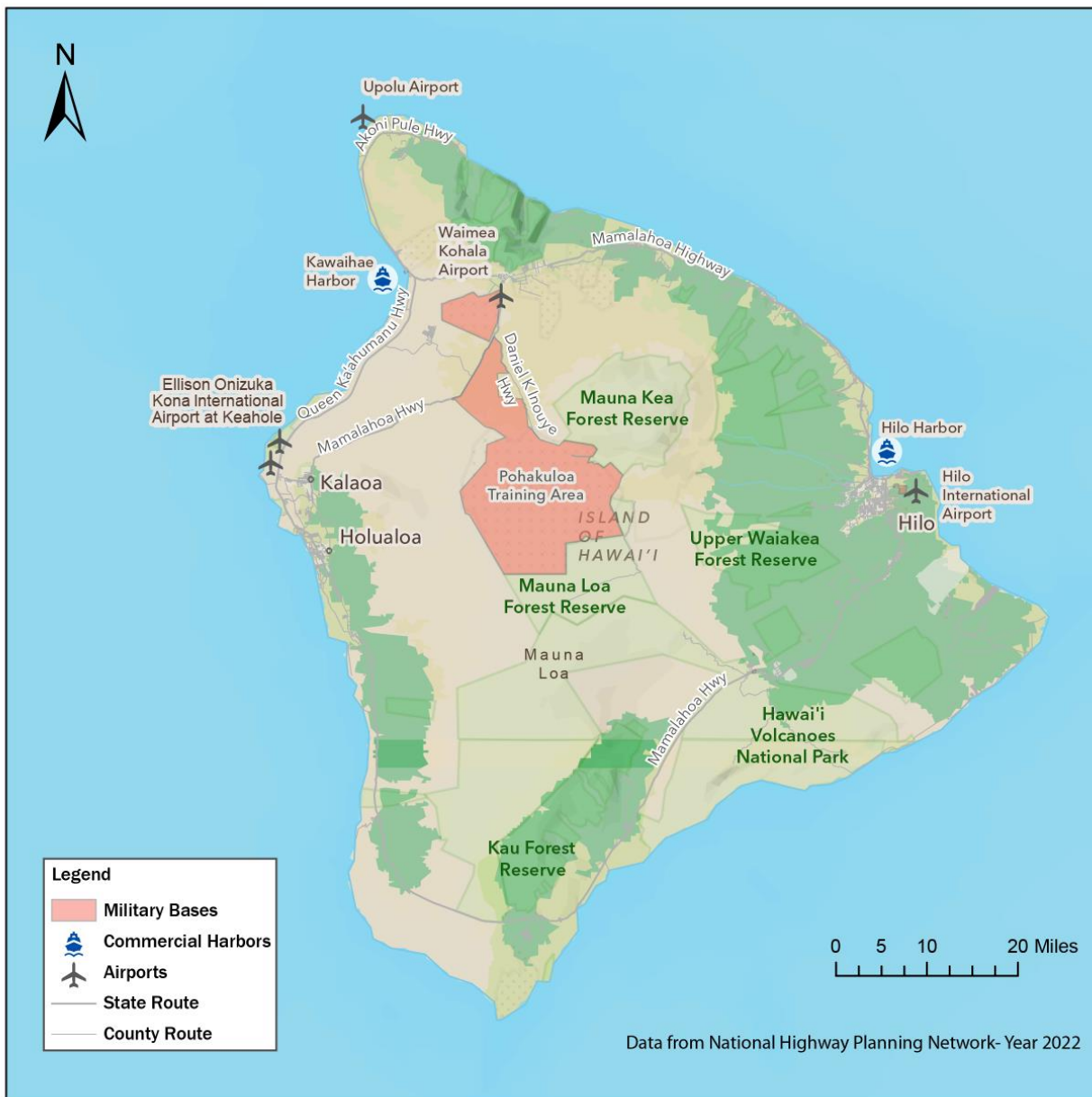
Source: FHWA, 2022

Figure 3-63 Military Bases and Strategic Highway Network (STRAHNET) – Honolulu, Oahu



Source: FHWA, 2022

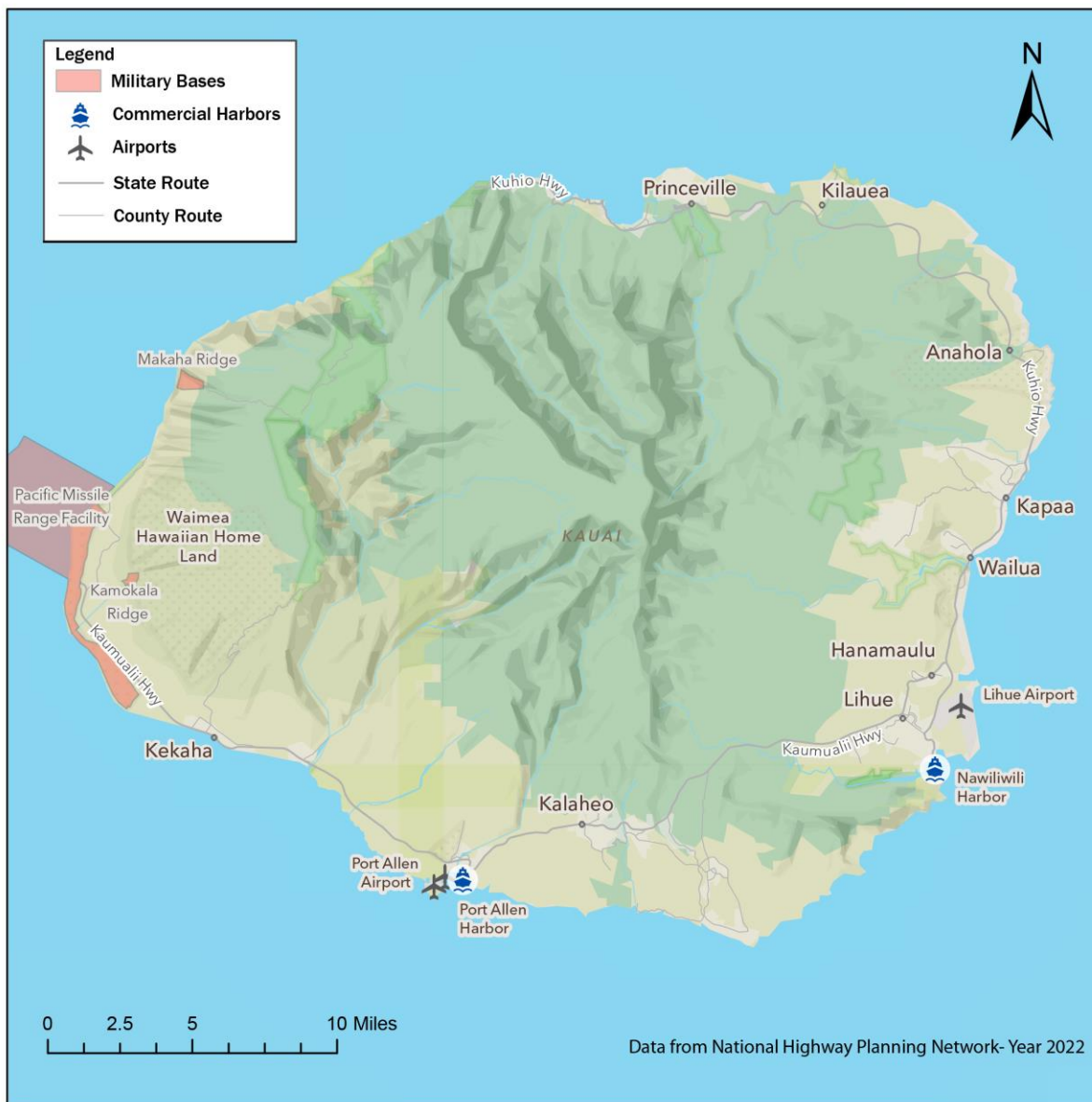
Figure 3-64 Military Bases and Strategic Highway Network (STRAHNET) – Hawaii (Big Island)



Source: FHWA, 2022



Figure 3-65 Military Bases and Strategic Highway Network (STRAHNET) – Kauai

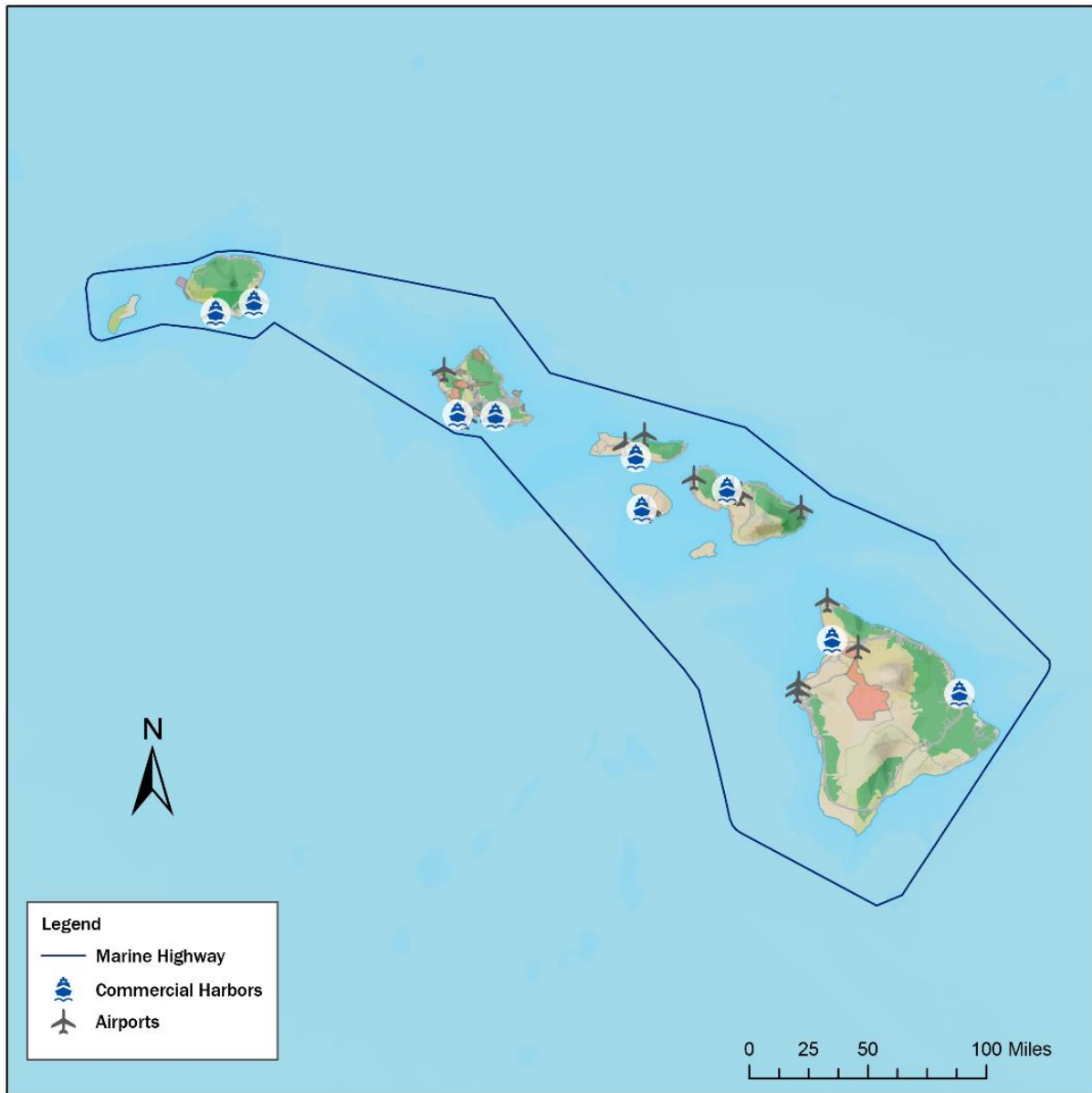


Source: FHWA, 2022

As shown in Figure 3-66, ocean water around and between the Hawaiian Islands is designated as the Daniel K. Akaka Marine Highway (MH-1) by the USDOT. The Marine Highway designation reinforced the importance of this highway as Hawaii’s lifeline. It enabled HDOT’s participation in U.S. Marine Highways program, which provides federal resources to increase operation efficiency in moving cargo through the State’s commercial harbors.

In 2021, Young Brothers LLC (YB) received more than \$200,000 in federal grant funds from the U.S. Maritime Administration (MARAD) U.S. Marine Highway Program to purchase forklift scales – this was the first project funded by the MH-1 Daniel K. Akaka Marine Highway since its designation.

Figure 3-66 Daniel K. Akaka Marine Highway (MH-1)



Source: FHWA, 2022

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## Supply Chain Analysis

Hawaii's economic vitality and livability depend on a safe, reliable, and interconnected freight transportation network between the contiguous United States, international trade partners, and the islands. The movement and handling of freight generate significant economic and community benefits and are critical to the key industries in the state. Due to its location, geography, and limited natural resources, Hawaii is heavily dependent on a very efficient freight transportation system to meet the needs of its residents in comparison to other states. Hawaii's freight connectivity with other states is heavily dependent on its maritime and air modes of transport. With the recent national focus on supply chains and their sensitivity to disruption, the 2023 HSFP further analyzes the key commodities' supply chains impacting Hawaii to support future freight investment and decision-making better. These analyses include the movement of freight between Hawaii and other states.

### Top Commodities

In coordination with HDOT, five key commodity groups were selected for supply chain analysis.

- Gasoline, Fuel Oils, and Crude Petroleum;
- Transportation Equipment and Motorized Vehicles;
- Nonmetal Mineral Products, Gravel, and Natural Sand;
- Electronics;
- Other foodstuffs and agricultural products.

Based on the Freight Analysis Framework (FAF) Version 5 2022 estimates<sup>8</sup>, these five commodity groups contribute 74% of the total commodity weight and 60% of the total commodity value moved to, from, and through Hawaii.

Figure 3-67 shows the top ten domestic commodities by weight and by value, and Figure 3-68 shows the top ten international commodities by weight and by value, respectively. Gasoline is the number one domestic commodity both by weight and by value. Crude Petroleum and Fuel Oils are the top two international commodities by weight. Together, they contribute 46% of the total commodity weight and 11% of the total commodity value. They are vital to the day to day living and economic development. Transportation Equipment is the top international commodity by value, and Motorized Vehicles is the fifth domestic commodity by value. Together, they contribute to 39% of the total commodity value and are critical to economic development. Nonmetal Mineral Products, Gravel, and Natural Sand are the second-highest domestic commodities by weight and are important to the construction industry. Electronics, the second

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<sup>8</sup> FAF data are forecasts based on 2017 base data. Base year data are consolidated from multiple data sources.

highest international commodity by value, are one of the top manufacturing exports from Hawaii and are crucial to economic prosperity. Lastly, the movements of other foodstuffs and agricultural products (5% of total weight/value) are essential for the quality of living in Hawaii.

Figure 3-67 Top Domestic Commodity by Weight and Value

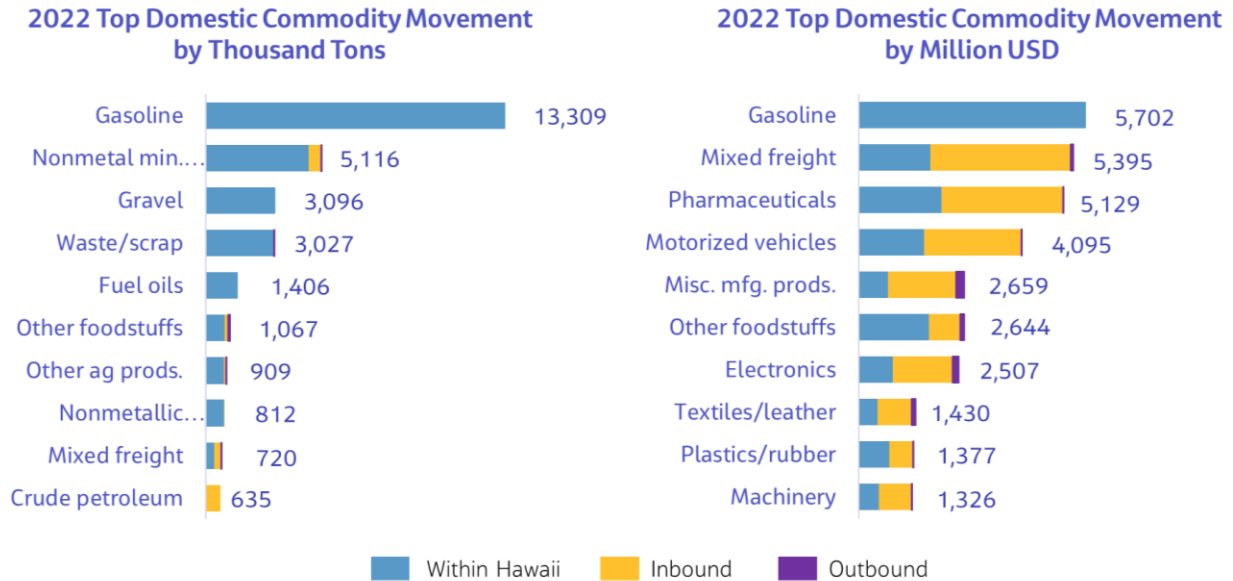
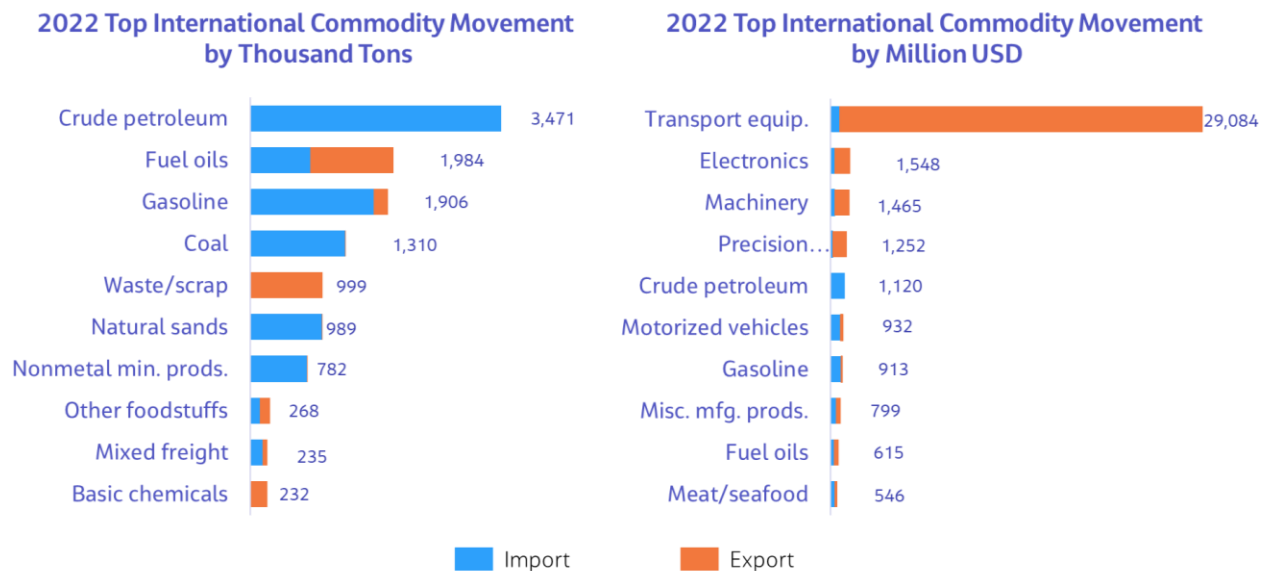


Figure 3-68 Top International Commodity by Weight and Value



## Gasoline, Fuel Oils, and Crude Petroleum Supply Chain

Crude Petroleum is a naturally occurring, unrefined fossil fuel that can be refined into petroleum products, including gasoline, fuel oils, and various petrochemicals. Gasoline is used in automobiles, while fuel oils are used in heating and power generation. Hawaii depends on these commodities for transportation and electricity generation.

Figure 3-69 Gasoline, Fuel Oils, and Crude Petroleum Supply Chain

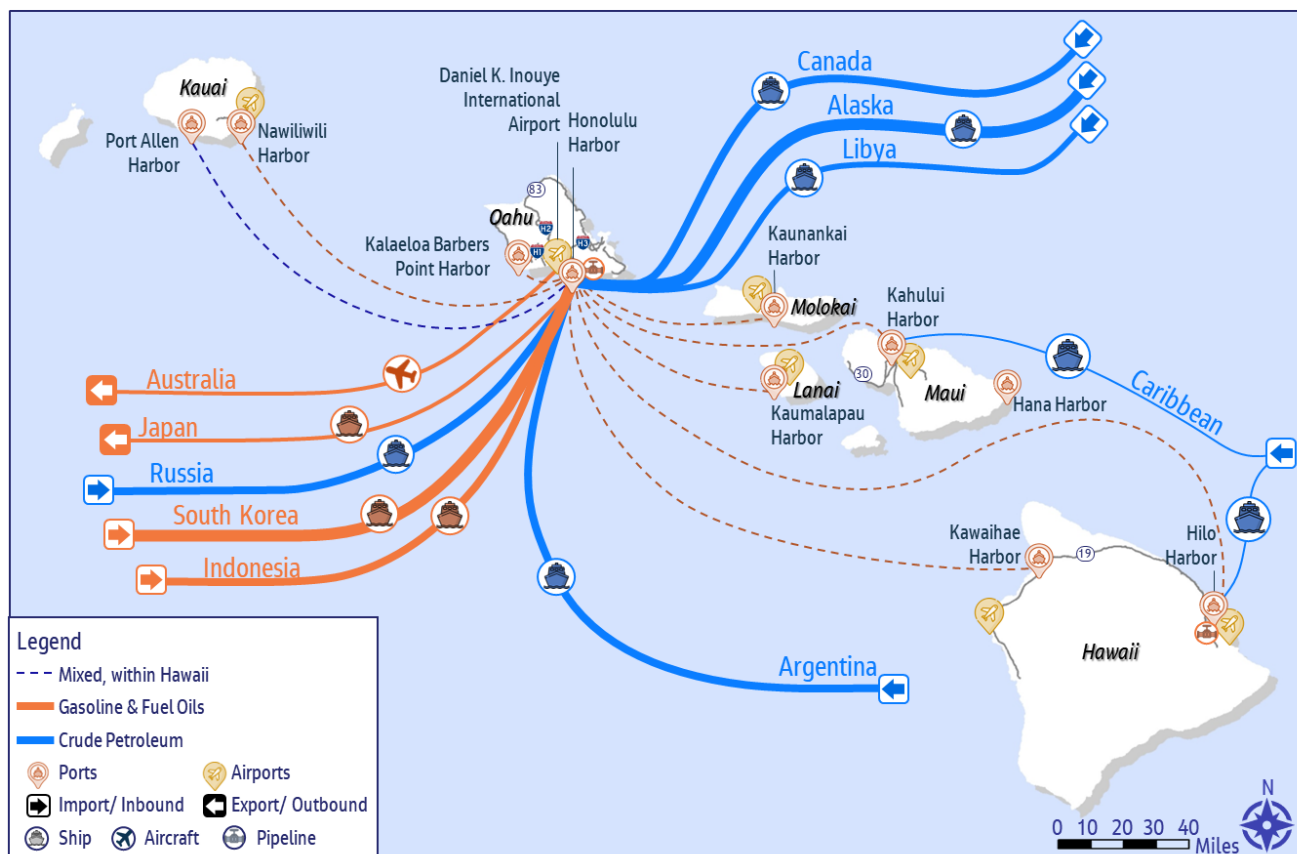


Figure 3-69 shows the supply chain for Gasoline, Fuel Oils, and Crude Petroleum in Hawaii. Hawaii does not have proved crude oil reserves or production. It therefore, relies on Crude Petroleum from other states or countries, including Argentina, Russia (suspended during the war in Ukraine), Libya, Canada, and Alaska. The Crude Petroleum is transported across the Pacific Ocean and is offloaded at Kalaeloa Barbers Point Harbor. The major players, Par Pacific and Island Energy, process or refine the petroleum products for distribution to customers on Oahu and the neighboring islands. Additionally, Hawaii also imports and exports fuel oils and gasoline directly. South Korea and Indonesia are the major exporters, while Australia and Japan are the major importers. These commodities are transported by water mainly overseas and between islands and by truck or pipeline within each island.

## Transportation Equipment and Motorized Vehicles Supply Chain

Transportation Equipment and Motorized Vehicles include aircraft/spacecraft, railway/tramway, ships/boats, traffic signal equipment, and vehicles. These commodities are significant to Hawaii due to its isolated geographical location and reliance on tourism.

Figure 3-70 Transportation Equipment and Motorized Vehicles Supply Chain

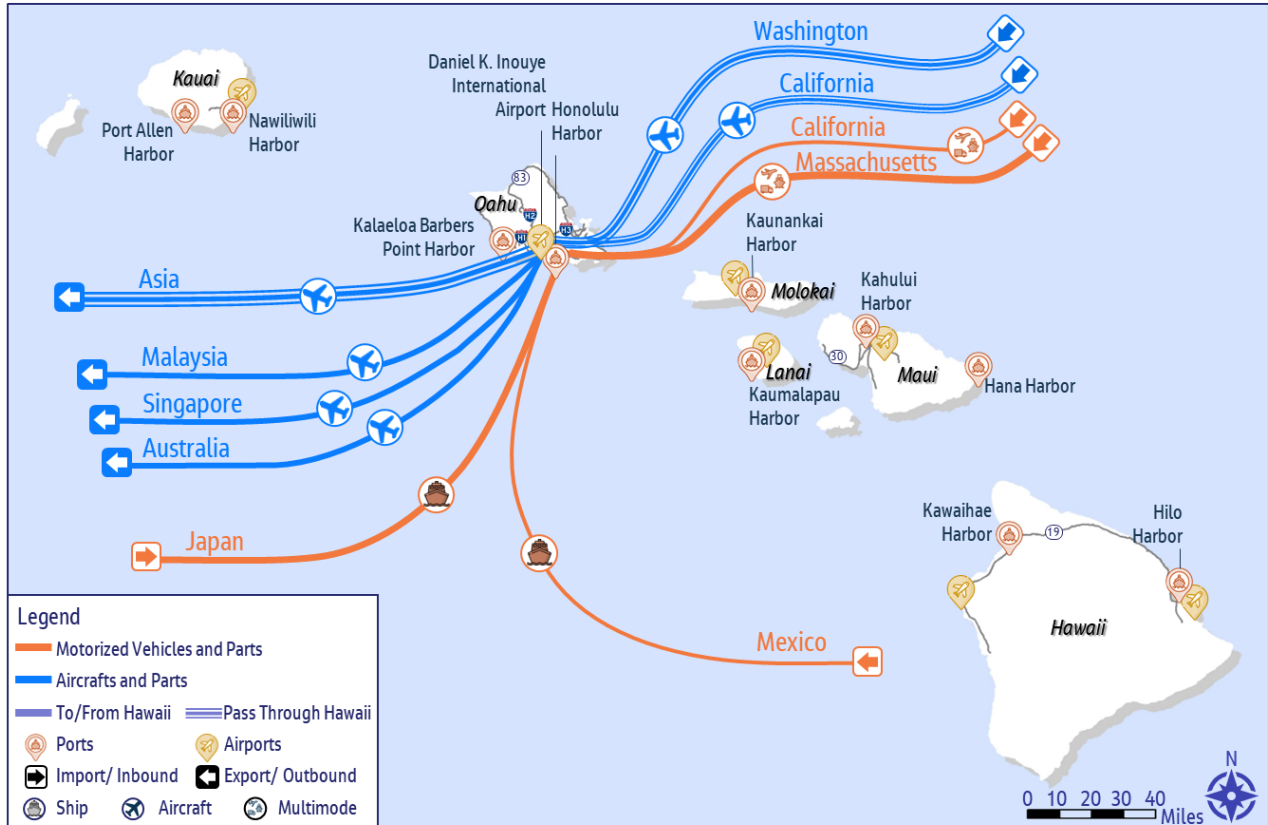


Figure 3-70 shows the supply chain for Transportation Equipment and Motorized Vehicles in Hawaii. Aircraft and Parts are one of the top exports in the U.S. It is also the main Transportation Equipment commodity in Hawaii. While Hawaii does not contribute to a substantial part of Aircraft and Parts manufacturing, it serves as a hub for other mainland states exporting abroad. Specifically, a lot of Aircrafts and Parts are exported by air from Washington and California to Asia through Honolulu International Airport. Hawaii exports some aircraft parts to Malaysia, Singapore, and Australia. Hawaii does not have significant vehicle manufacturing and does not produce vehicles on a large scale. Therefore, Hawaii relies on motorized vehicles and parts transported by air or maritime from the mainland or overseas, including Japan, Mexico, California, and Massachusetts.

## Nonmetal Mineral Products, Gravel, and Natural Sand Supply Chain

Gravels are rocks used for making roads, driveways, and paths. Natural sands are grains of sand that could be used to make concrete or for landscaping. Nonmetal Mineral Products are nonmetallic materials extracted from the Earth, including limestone, clay, gypsum, and such. These commodities are crucial to the construction industry in Hawaii.

Figure 3-71 Nonmetal Mineral Products, Gravel, and Natural Sand Supply Chain

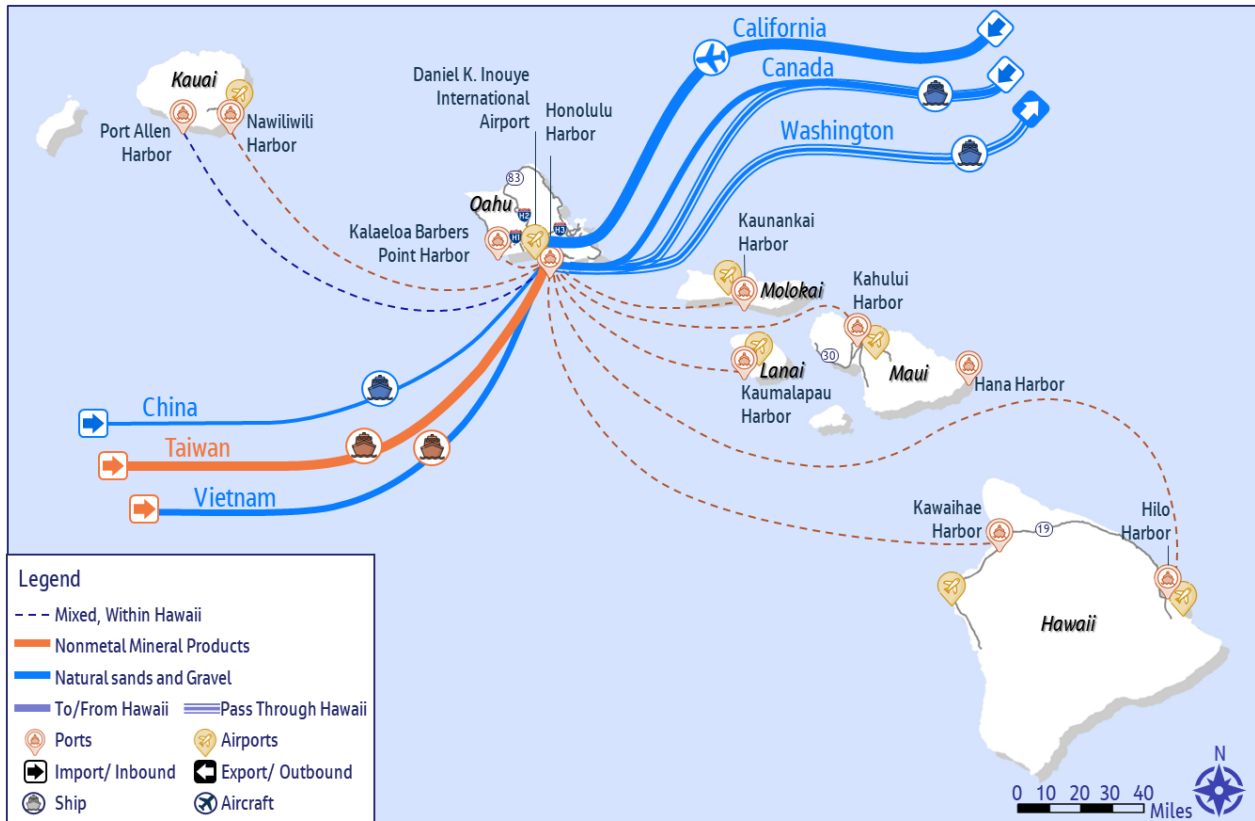
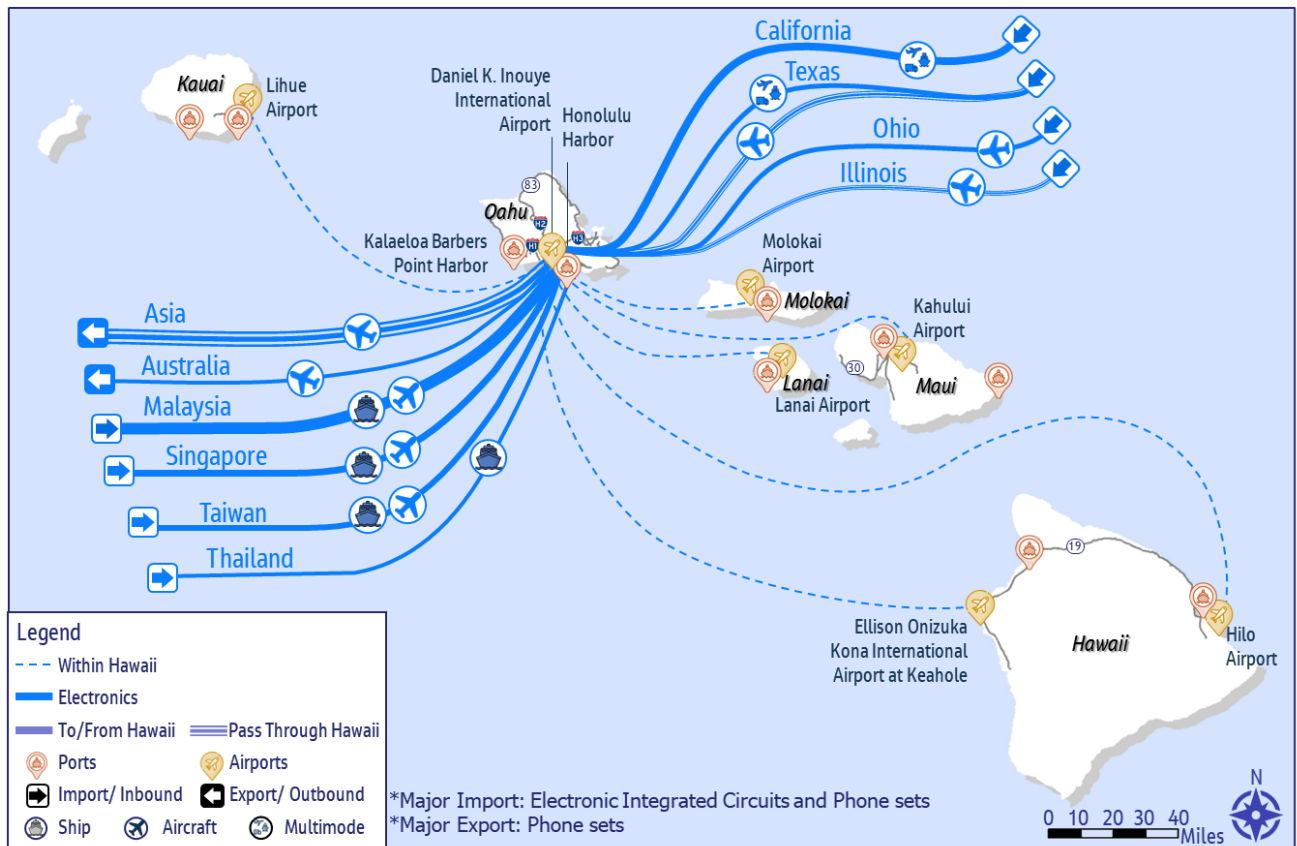


Figure 3-71 shows the supply chain of Nonmetal Mineral Products, Gravel, and Natural Sand. Most of them are extracted, processed, distributed, and used within each island. Thus, they are transported by truck mainly. Portions of the commodities are imported from other states and countries. Specifically, Hawaii imports gravel and natural sand from Canada and China by water and from California by air. The state imports nonmetal mineral products from Taiwan and Vietnam by water. These commodities are offloaded at Oahu and distributed to other islands by water and then processed and distributed for construction purposes in Hawaii. Additionally, Honolulu Harbor also imports natural sand and gravel for Washington state from Canada.

## Electronics Supply Chain

Figure 3-72 shows the supply chain of electronic products in Hawaii. Electronics play a crucial role in day-to-day living and economic development in Hawaii. They are primarily from the manufacturers outside the state. Top imports include Electronic Integrated Circuits and Phone sets. They are mainly from Malaysia, Taiwan, Singapore, and South Korea. These electronics travel by either water or air (mainly by air) to Honolulu and then distributed to other islands. The major domestic electronics suppliers are California, Texas, and Ohio. Once they arrive at each island, these commodities are distributed to wholesale or retail on the island by truck. Hawaii is also home to several leading computer and electronic products manufacturing companies, particularly Oahu.<sup>9</sup> Specifically, a lot of phone sets, wire and cable, and electronic integrated circuits are exported from Hawaii to Australia by air. Hawaii also serves as the hub for mainland states (for example, Illinois and Texas) exporting electronics to Asia.

Figure 3-72 Electronics Supply Chain



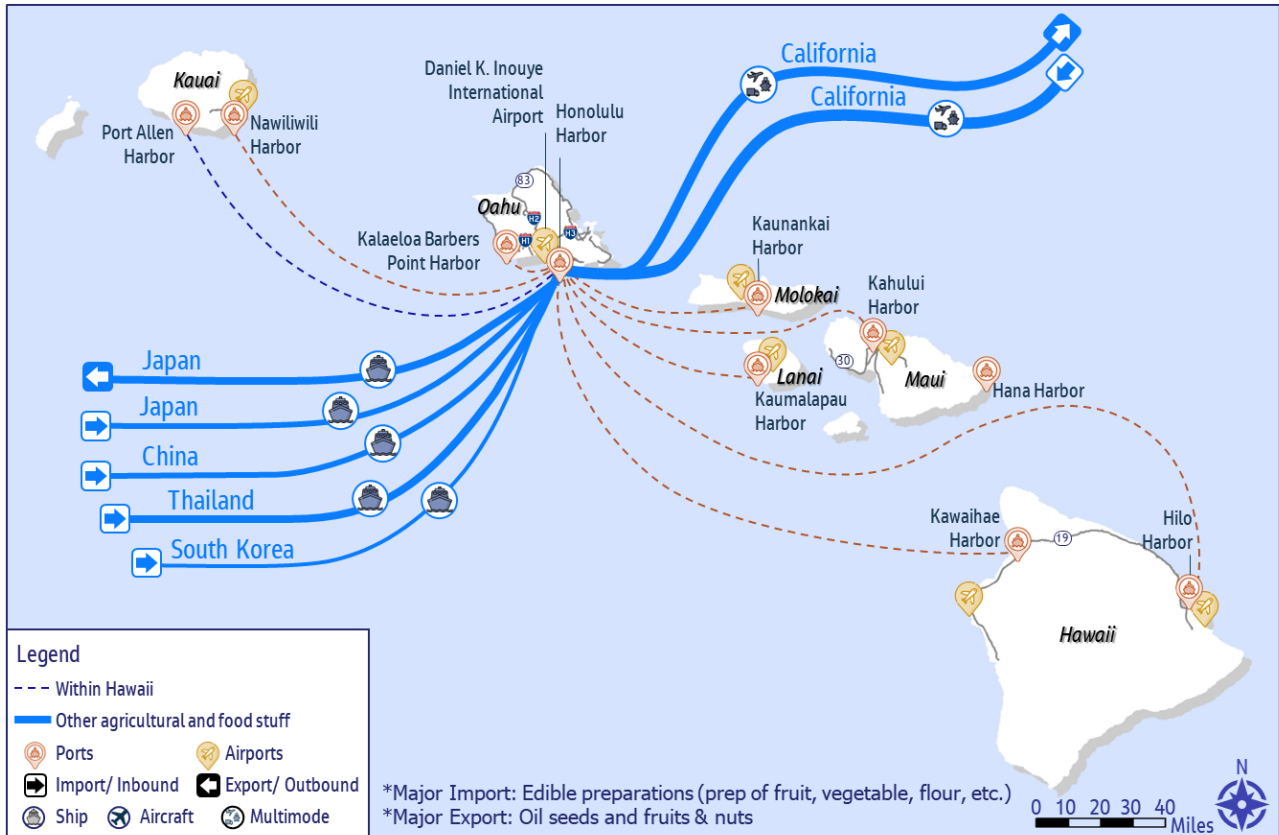
<sup>9</sup> <https://www.trade.gov/sites/default/files/2020-12/Hawaii%20USMCA%20State%20Fact%20Sheet.pdf>



## Other Food Stuffs and Agricultural Products Supply Chain

Figure 3-73 shows the supply chain of Other Food Stuffs and Agricultural Products in Hawaii. The state has limited land area and resources for large-scale agriculture. It thus imports goods from Japan, China, Thailand, and South Korea, particularly edible preparations, including preparation of fruit, vegetables, and flour. These commodities arrive at the Honolulu Harbor and are then distributed to other islands by water mainly.

Figure 3-73 Other Food Stuffs and Agricultural Products Supply Chain



However, there is still a strong local agricultural industry that produces a variety of products to meet the demand for fresh and local food, as well as exporting to other locations. Hawaii has a diverse range of agricultural products, including coffee, pineapple, and macadamia nuts. These commodities are produced on the island, processed, and then distributed to retail by truck. The state also exports a variety of agricultural products, including macadamia nuts, tropical fruits, and oil seeds.

# 4.

## ENSURING A MODERNIZED FREIGHT NETWORK IN HAWAII



- I. Environmental Impacts
- II. Emerging Trends
- III. Innovative Technologies

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## Environmental Impacts

### Impacts of Extreme Weather and Natural Disasters on Freight Mobility

Freight mobility in Hawaii is particularly vulnerable to the impacts of extreme weather and natural disasters as many of the freight routes within the state are located along the perimeter of the island and adjacent to the coastline, where coastal flooding and erosion are becoming more frequent and severe because of global climate change. Hawaii is also at risk of other natural disasters such as earthquakes, wildfires, landslides, tsunamis, hurricanes, and volcanic eruptions, some of which are also related to climate change. The HDOT Climate Adaptation Action Plan identifies potential impacts to the highway system and relevant strategies, goals, and actions to improve resiliency of the highway system.

Strategies and goals to decrease the severity of impacts of extreme weather and natural disasters on freight mobility would be to account for the potential damages and disruptions from these events throughout the planning process and strategically place freight infrastructure in areas that are less vulnerable to extreme weather and natural disasters where possible.

Strategies to reduce future impacts of damage caused by climate-related hazards, as outlined under Goal 6 of the statewide freight plan, include identifying freight corridors that are impacted by climate change-related hazards and identifying a long-range plan to re-align or reduce the risk of the affected freight corridors (see Section 5.II.) and well as implementation of Highways' Climate Adaptation Action Plan. The Highways Climate Adaptation Action Plan identifies the potential impacts to the highway system and relevant strategies, goals, and actions to improve resiliency of the highway system.

### Impacts of Freight Movement on Local Air Pollution

Improving freight mobility, including reducing congestion on the existing freight network would result in improvements to travel time and decreased idling time, which would result in decreased emission of air pollutants. Strategies to reduce congestion and eliminate bottlenecks on key freight networks are identified under Goal 3 of this statewide freight plan (see Section 5.II.). These strategies would improve freight mobility and decrease the impacts of freight movement on local air pollution.

Transitioning to alternative fuels would also reduce local air pollution and greenhouse gas (GHG) emissions. HDOT currently does not have authority over the state's fleet but would be in support of adopting cleaner energy sources and sustainable fleet management strategies. Goal 5 of this statewide freight plan (see Section 5.II.) identifies strategies to reduce air toxins and emissions related to freight movement.

## Impacts of Freight Movement on Flooding and Stormwater Runoff

Any newly proposed freight infrastructure improvement would be required to conform to existing floodway requirements to minimize the impacts of freight movement on flooding. Similarly, any proposed improvements would be required to minimize impacts on stormwater runoff and conform to existing specifications and standards.

## Impacts of Freight Movement on Wildlife Habitat Loss

Strategies to decrease the impacts of freight movement on wildlife habitat loss would include assessing the impacts at the early planning stage of a proposed improvement and implementing mitigation measures to avoid impacts, if any, are identified. Use of the public review process to identify and mitigate freight-related impacts to wildlife habitat loss is listed under Goal 5 of this statewide freight plan (see Section 5.II.).

## Emerging Trends

### E-commerce

The evolution of e-commerce has been transformative on a global scale, and its impacts are particularly noteworthy in regions with unique geographic challenges, such as Hawaii. The ongoing trend of increased online shopping leads to a rise in the volume of small parcel deliveries as well as higher expectations on delivery time, necessitating adjustments in freight infrastructure, particularly the capacity at the transportation hubs, to accommodate the growing demand and expectations.

With E-commerce, last-mile delivery has become a critical part of the logistics chain. Given Hawaii's unique geography, last-mile delivery logistics can be more complex – ensure timely and cost-effective delivery while navigating through different islands. Delivery times can be much longer in Hawaii compared to other locations on the U.S. mainland due to its remote location and the additional distance and time required to deliver goods from Honolulu, the main hub within the state, to the outer islands.

With the increase in e-commerce, there has been an increasing trend in Hawaii where brick-and-mortar stores are converting to shipping locations for both interisland and shipment to the U.S. mainland. There is also an overall trend in local businesses utilizing e-commerce and shipping local products to locations such as California, Las Vegas, and Washington State.

Integrating Technologies such as route optimization, real-time tracking, and automated logistics systems can streamline freight operations, providing more effective solutions for e-commerce shipments in Hawaii. To address the complexities of last-mile delivery and enhance overall efficiency, assessing the impact of e-commerce on freight infrastructure in Hawaii is crucial (Goal 4, Objective 1).

## Climate Change

As climate change accelerates, Hawaii faces a range of environmental challenges, including sea level rise, extreme weather events, and increased greenhouse gas emissions. These factors collectively pose significant implications for the state's freight infrastructure, which is vital for the transportation of goods between islands and to and from the mainland.

### *Sea Level Rise*

Hawaii is particularly vulnerable to sea level rise due to its island geography. Coastal infrastructure, including ports and shipping facilities critical to freight operations, may face increased exposure to inundation and storm surges. Rising sea levels urge adaptive measures to protect these vital transportation nodes.

### *Extreme Weather*

Climate change also contributes to an increase in the frequency and intensity of extreme weather events, such as hurricanes and tropical storms. These events can disrupt maritime and air freight operations, leading to delays, damage to cargo, and the need for emergency response measures to secure both infrastructure and shipments.

### *Greenhouse Gas Emissions*

Greenhouse gas (GHG) emissions are identified as a key contributor to climate change. A Hawaii Climate Change Mitigation and Adaptation Commission has formally been established, and targets have been set to achieve net zero emissions (carbon neutrality) throughout the state by 2045. The transportation sector, including freight operations, is the largest contributor to statewide GHG emissions. Despite steady emission reduction, more work is needed to adopt cleaner energy sources, more fuel-efficient transportation modes, and the integration of eco-friendly technologies within Hawaii's freight infrastructure.

## Alternative Fuels, Zero-emission Vehicles, and Electrification

To intensify efforts to combat climate change, Hawaii is highly dependent on transitioning to clean fuels and renewable energy sources, especially in the transportation sector. Incentivizing electric and alternative-fuel vehicles and planning for and investing in electric vehicle (EV) charging infrastructure are key actions that Hawaii is advancing to reduce its reliance on fossil fuels and curb the impacts of climate change. In 2021, Hawaii ranked second to only California in EV registrations per capita by state. By 2045, 55% of personally owned, light-duty vehicles are expected to be fully electric on Oahu roads. The freight infrastructure will need to accommodate charging and refueling stations, potentially requiring investments in power distribution systems and storage facilities.

## Autonomous and Connected Vehicles

Hawaii is poised to be a leader in the self-driving car revolution due to an open regulatory environment, pilot programs, and extensive research (including the University of Hawaii at Manoa's autonomous vehicle institute). The Autonomous Vehicle Legal Preparation Task Force finalized a report of recommendations in December 2020 regarding the legal and insurance regulation of autonomous vehicles in the state (Department of the Attorney General 2020). Automated and connected vehicle technology is poised to increase freight efficiency and safety. Specifically, it will increase last-mile delivery efficiency for e-commerce, contribute to traffic optimization by leveraging real-time data and machine-learning algorithms, and prioritize safety through advanced sensing technologies.

## Innovative Technologies

### Freight Intelligent Transportation Systems

Freight Intelligent Transportation Systems (ITS) is another transformative force in the freight industry. The integration of Freight ITS holds the potential to revolutionize the efficiency, safety, and sustainability of freight infrastructure.

Freight ITS provides real-time tracking and monitoring capabilities, enhancing supply chain visibility, ensuring timely deliveries, and proactively responding to problems, such as extreme weather. Freight ITS leverages data analytics to optimize freight routes, considering factors such as traffic conditions, weather, and road infrastructure. Route optimization has the potential to facilitate seamless intermodal transportation, reduce congestion, and improve inter-island transport. Additionally, Freight ITS includes safety features such as collision avoidance systems and predictive analytics, which could enhance safety for freight movement.

### Unmanned Aerial Vehicles

Automation and connectivity are not limited to motor vehicles. Unmanned aerial vehicles (UAVs), such as drones, are being used for data collection and tested for goods delivery. UAVs can navigate the open waters between islands and access challenging-to-access areas, revolutionizing inter-island cargo transport in Hawaii.

### Next-generation Air Traffic Control

With the growing adoption of UAVs, the next-generation Air Traffic Control needs to facilitate the seamless integration of UAVs, ensuring safe and coordinated operations in Hawaii's airspace. Moreover, the next-generation Air Traffic Control will provide more efficient routes to reduce both delays and emissions in air freight.

# 5.

## DEVELOPING A RESILIENT FREIGHT NETWORK IN HAWAII



- I. Stakeholder Engagement
- II. Goals, Objectives, and Strategies
- III. Performance Measures and Evaluation Criteria
- IV. Needs Identification and Assessment
- V. Policy and Program Recommendations

## Stakeholder Engagement

The development of the Hawaii Statewide Freight Plan included extensive public involvement through a project committee, stakeholder interviews, and outreach to the shipping and trucking industry. The following sections summarize the public involvement activities.

### Freight Advisory Committee (FAC)

The FAC provides a balanced representation of stakeholder interests and affected industries and serves as a communication link between the project team and local interests and communities. Members of the FAC include technical staff of federal, state, and local agencies and jurisdictions with interest in the project, as well as affected industry groups and representatives of local and regional business and labor sectors. Responsibilities of the FAC members include representing their constituents' perspectives during group deliberations, communicating project progress with their constituents, providing feedback at key milestones throughout the project, providing recommendations to the HDOT, and acting as ambassadors for the project. The diverse categories of interests represented on the FAC are shown in Table 5-1. New FAC members were added as recommended by the FAC.

*Table 5-1 Freight Advisory Committee Agencies*

FAC Member Agencies
<b>State Agencies</b>
HDOT Statewide Transportation Planning Office
HDOT Highways Planning Branch
HDOT Highways Motor Vehicle Safety Office
HDOT Highways Districts (Kauai, Oahu, Maui, and Hawaii)
HDOT Airports, Engineering Branch, Planning Section
HDOT Airports Districts (Kauai, Oahu, Maui, and Hawaii)
HDOT Harbors, Engineering Branch, Planning Section
HDOT Harbors Districts (Kauai, Oahu, Maui, and Hawaii)
Hawaii Emergency Management Agency
Office of Planning and Sustainable Development
Hawaii State Energy Office
<b>Federal Agencies</b>
Federal Highway Administration (FHWA)
Federal Motor Carrier Safety Administration (FMCSA)
Federal Aviation Administration (FAA)
Maritime Administration (MARAD)



FAC Member Agencies	
Federal Transit Administration (FTA)	
Federal Emergency Management Agency (FEMA)	
County Agencies	
City and County of Honolulu, Department of Transportation Services	
County of Hawaii, Planning Department	
County of Maui, Department of Public Works	
County of Kauai, Planning Department	
Oahu Metropolitan Planning Organization (Oahu MPO)	
Maui Metropolitan Planning Organization (Maui MPO)	
Industries	
<i>Agriculture/Manufacturing</i>	Agribusiness Development Corporation
<i>Construction</i>	General Contractors Association of Hawaii
<i>Trucking</i>	Hawaii Transportation Association
	Aloha Freight Forwarders
	Five Star Transportation
<i>Warehouse/Distribution - Food</i>	Hawaii Foodservice Alliance LLC
	Y. Hata and Company
	Sysco
	Suisan Co. Ltd.
<i>Shopping Center</i>	Ka Makana Alii
<i>Petroleum</i>	Island Energy Services
<i>Moving</i>	M. Dyer Global
<i>Air Cargo</i>	Air Cargo Association of Hawaii
	Airlines Committee of Hawaii
	Aloha Air Cargo
	Pacific Air Cargo
<i>Harbor Users</i>	Hawaii Harbor Users Groups
<i>Shipping Operator</i>	Matson
<i>Short Sea Shipping</i>	Young Brothers
<i>Business Advocacy Groups</i>	Maui Chamber of Commerce

Additional representatives from the tourism, restaurant, grocery store, warehouse distribution (building materials), big box retail, private transit, recycling, parcel delivery, and business advocacy group industries were invited to participate in the FAC, but neither responded nor declined.

There were three FAC meetings during the update of the Statewide Freight Plan. The FAC actively participated in the meetings, providing feedback on the goals and objectives, evaluation criteria, industry needs and concerns, and the existing and future forecast conditions. The meetings and work plan were designed to provide a step-by-step process, building on the decision-making made along the way. The FAC used an interactive tool to identify needs and opportunities and also reviewed GIS maps, and provided comments, which were addressed on the identification of the CUFN, CRFN, and Hawaii Freight Network route selections. The meeting goals for each FAC meeting are shown in Table 5-2, and the meeting summaries from all FAC meetings are included in Appendix C.

### Stakeholder Interviews

In addition to the FAC meetings, interviews in smaller group settings were conducted to discuss specific needs, interests, and priorities with representatives from the freight industry. Stakeholder outreach occurred at key milestones during the development of the plan. Discussion during the interviews helped provide insight into current issues and freight system needs. Separate outreach meetings were held with Matson, the Air Cargo Association of the Pacific, HTA Hawaii, Pacific Transfer, and Aloha Freight Forwarders, Inc.

### Decision-Making Process

The FAC and technical resources were an integral part of the decision-making process throughout the development of the statewide freight plan. The HDOT project management team reviewed recommendations from the FAC and technical resources and made final recommendations to the HDOT Director (Figure 5-1). This decision-making structure was shared early on to be fully transparent. The FAC acknowledged that the HDOT Director retains all final decision-making authority with respect to this Plan.

*Figure 5-1 Decision-Making Structure*

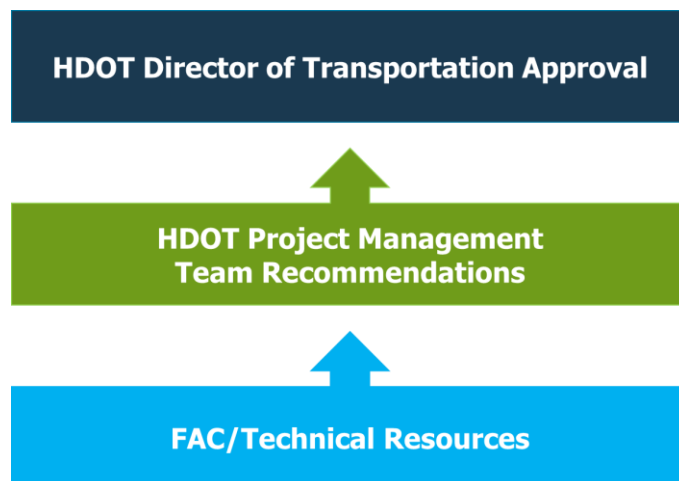


Table 5-2 Freight Advisory Committee Meeting Goals

FAC Meeting Goals	
Meeting 1 – Jun 15, 2023	<ul style="list-style-type: none"> <li>✓ Share highlights of the 2018 Freight Plan</li> <li>✓ Build a common understanding of the project purpose.</li> <li>✓ Share existing conditions.</li> <li>✓ Get input on goals and objectives</li> </ul>
Meeting 2 – Sep 27, 2023	<ul style="list-style-type: none"> <li>✓ Review and get input on evaluation criteria.</li> <li>✓ Discuss freight needs and opportunities.</li> <li>✓ Share the freight network and corridors.</li> </ul>
Meeting 3 – Nov 9, 2023	<ul style="list-style-type: none"> <li>✓ Get input on the Critical Rural Freight Corridors (CRFCs) &amp; Critical Urban Freight Corridors (CUFCs) designations.</li> <li>✓ Review and get input on the prioritized solutions.</li> <li>✓ Review Freight Investment Plan</li> <li>✓ Review components of the Draft Plan</li> </ul>

## Goals, Objectives, and Strategies

To align with the national multimodal freight policy goals (IIJA Section 21104 [49 USC 70202]), the following recommended changes (color-coded) are made to the 2018 *Statewide Freight Plan Goals, Objectives, and Strategies*.

### Goal 1. Safety



Develop a state freight network that provides for the safety and security of people, infrastructure, and goods movement.

Objectives	Strategies
1. Provide a safe transportation system for all users	<ul style="list-style-type: none"> <li>Decrease the number and severity of crashes involving freight-related vehicles.</li> <li>Provide adequate emergency response access to the State freight network, including marine and airports.</li> <li>Establish effective educational and training programs to improve safety along identified priority freight corridors.</li> </ul>
2. Consider the security of the State freight network.	<ul style="list-style-type: none"> <li>When evaluating infrastructure improvements, minimize future risk by considering security threats, particularly at marine, airports, and military bases.</li> </ul>

### Goal 2. Infrastructure Preservation



Maintain and improve the state of good repair of the freight transportation system.

Objectives	Strategies
1. Maintain freight facility pavement conditions on the National Multimodal Freight Network with a minimum of 96% in fair or better condition	<ul style="list-style-type: none"> <li>Inventory major freight assets and define and quantify system deterioration to ascertain status.</li> <li>Set acceptable standards at or above fair conditions for freight facilities and take steps to improve facility conditions when needed.</li> </ul>
2. Maintain a minimum of 96% of state bridges in fair or better condition.	<ul style="list-style-type: none"> <li>Inventory state bridges and define and quantify system deterioration to ascertain status.</li> <li>Set acceptable standards at or above fair conditions for state bridges and take steps to improve facility conditions when needed.</li> </ul>
3. Use life-cycle cost assessments in the prioritization of freight improvements.	<ul style="list-style-type: none"> <li>Leverage transportation funds for long-term operations and maintenance by incorporating life-cycle cost assessments.</li> </ul>

### Goal 3. Infrastructure Mobility Improvements



Improve the multimodal freight infrastructure to provide mobility and connectivity for freight and to support the needs of the local economy, including the tourism industry and military.

Objectives	Strategies
1. Reduce congestion and eliminate bottlenecks on key freight routes.	<ul style="list-style-type: none"> <li>Implement projects that address deficiencies or congestion on the National Multimodal Freight Network and other key freight routes important to the State.</li> <li>Improve the first- and last-mile connections.</li> <li>Improve the freight infrastructure in rural areas to provide access to markets and promote economic development.</li> </ul>
2. Improve intermodal connectivity.	<ul style="list-style-type: none"> <li>Implement projects that improve access and connectivity to intermodal facilities.</li> </ul>

### Goal 4. Reliable Freight Network



Create a reliable freight network that allows shippers and receivers to plan around predictable travel times.

Objectives	Strategies
1. Optimize the efficiency and reliability of the State freight network.	<ul style="list-style-type: none"> <li>Use technology, performance management, innovation, and accountability in operating and maintaining the State Freight network.</li> <li>Assess the status of Hawaii's current technology use and emerging innovations, particularly at marine, airports, and intermodal facilities.</li> <li>Assess the impact of e-commerce on freight infrastructure in the State</li> </ul>

### Goal 5. Minimize Environmental Impacts



Minimize the environmental impacts of freight movement on the State freight network to surrounding communities and the natural environment.

Objectives	Strategies
1. Reduce environmental impacts of freight movement on the State freight network on surrounding communities and the natural environment.	<ul style="list-style-type: none"> <li>Use the public process to identify and mitigate freight-related impacts to the community, the natural environment, and wildlife habitat loss.</li> <li>Promote environmental stewardship through energy conservation, reducing air toxins, addressing climate change, and improving quality of life.</li> <li>Use education to promote the reduction of emissions related to the operation of freight vehicles and marine and airports.</li> <li>Assess the impact of freight infrastructure development on environmental justice and equity</li> </ul>

## Goal 6. Resiliency to Global Climate Change



Create and maintain a resilient freight infrastructure able to withstand the effects of global climate change.

Objectives	Strategies
<p>1. Reduce the future impacts of damage caused by climate-related hazards by using innovative technology and infrastructure improvements.</p>	<p>Model the potential damage that <b>climate-related hazards could cause</b>; identify a range of strategies and cost estimates for minimizing the effects; and estimate the potential cost of damage for doing nothing.</p> <ul style="list-style-type: none"> <li>○ Identify freight corridors that are impacted by <b>climate change-related hazards such as rockfalls and landslides, sea level rise (marine flooding and groundwater inundation), annual high wave flooding, coastal erosion, storm surges, tsunamis, wildfires, and other exposure hazards such as lava flows.</b></li> <li>○ Identify a long-range plan to re-align or reduce the risk of the affected freight corridors.</li> <li>○ <b>Implement freight relevant actions from the HDOT Climate Adaptation Action Plan.</b></li> </ul>

## Performance Measures and Evaluation Criteria

Individual projects in the Freight Program are prioritized based on criteria for the established goals. The process, like most, uses a benefit scale for each goal to describe how well that project will achieve the desired goal or, in another way, the improvement that would result from the project. This is typically a qualitative score. However, two projects might have the same benefit score, but one will be dramatically more important to the overall improvement of the system because more users benefit from it. Therefore, the project prioritization criteria for this program of improvements combines a subjective benefit factor with the volume of trucks benefiting from the project.

The Average Annual Daily Truck Traffic (AADTT) is scored on different scales for rural and urban projects. Otherwise, the prioritization would incorrectly favor urban projects. Rural highways have lower volumes than urban highways. Nevertheless, they provide critical interregional connectivity. This process normalizes the rural and urban truck volumes. Urban AADTT is assigned a numeric value of 1, 2, or 3 for volumes below 1,000 (low), 1,000 – 5,000 (medium), or over 5,000 (high). Rural AADTT is assigned a numeric value of 1, 2, or 3 for volumes below 350 (low), 350 – 1,000 (medium), or over 1,000 (high).

A numeric value is assigned to each criterion, whether subjective or quantitative, and the total score for each goal area is the product of the Benefit and Usage factors. Goals one and three are

broken into two sub-goals each. A summary description of the criteria for each goal is provided below.

### Goal 1a. Multimodal Mobility (Congestion)

Benefit Factor: How well does this project reduce congestion, scored on a subjective scale of low, medium, or high (with corresponding point values of 1, 5.5, or 10)?

A congestion factor (Average AM Speed)/(Speed Limit) can be used to assist with the scoring. For instance, a project in an area with a high congestion factor may benefit mobility significantly more than a project where congestion is not an issue.

Usage Factor (AADTT): Urban and rural truck volumes are scored on different scales (described above) as low, medium, or high (with corresponding point values of 1, 2, or 3).

Total Score = Benefit Factor \* Usage Factor (AADTT)

### Goal 1b. Multimodal Mobility (Access / Connectivity)

Benefit Factor: How well does this project provide access or connectivity to freight-dependent land uses, scored on a subjective scale of low, medium, or high (with corresponding point values of 1, 5.5, or 10)?

Usage Factor (AADTT): Urban and rural truck volumes are scored on different scales (described above) as low, medium, or high (with corresponding point values of 1, 2, or 3).

Total Score = Benefit Factor \* Usage Factor (AADTT)

### Goal 2. Safety

Benefit Factor: How well does this project improve safety, scored on a subjective scale of low, medium, or high (with corresponding point values of 1, 5.5, or 10)?

The number of historic crashes occurring at the project location can be used to assist with the scoring. For instance, a project in an area with a large number of crashes may provide a greater safety benefit than a project where safety is not an issue.

Usage Factor (AADTT): Urban and rural truck volumes are scored on different scales (described above) as low, medium, or high (with corresponding point values of 1, 2, or 3).

Total Score = Benefit Factor \* Usage Factor (AADTT)

### Goal 3a. Infrastructure Preservation (Pavement)

Benefit Factor: Point values are assigned to the type of pavement preservation project, with major projects receiving a higher point value than minor projects, as follows:

- 1 Point: Preventive Maintenance

- 2 Points: Rehab
- 3 Points: Reconstruction

Usage Factor (AADTT): Urban and rural truck volumes are scored on different scales (described above) as low, medium, or high (with corresponding point values of 1, 2, or 3).

Total Score = Benefit Factor \* Usage Factor (AADTT)

### Goal 3b. Infrastructure Preservation (Bridges)

Benefit Factor: Point values are assigned to the type of bridge project, with major projects receiving a higher point value than minor projects, as follows:

- 1 Point: Repair
- 2 Points: Rehab
- 3 Points: Replace

Usage Factor (AADTT): Urban and rural truck volumes are scored on different scales (described above) as low, medium, or high (with corresponding point values of 1, 2, or 3).

Total Score = Benefit Factor \* Usage Factor (AADTT)

### Goal 4. Reliable Freight Network

Benefit Factor: How well does this project improve truck travel time reliability (TTTR), scored on a subjective scale of low, medium, or high (with corresponding point values of 1, 5.5, or 10)?

The current TTTR near the project site can be used to assist with the scoring. For instance, a project in an area with a high TTTR value (low reliability) may benefit reliability significantly more than a project where reliability is not an issue.

Usage Factor (AADTT): Urban and rural truck volumes are scored on different scales (described above) as low, medium, or high (with corresponding point values of 1, 2, or 3).

Total Score = Benefit Factor \* Usage Factor (AADTT)

### Goal 5. Minimize Environmental Impacts

There are no specific evaluation criteria for this goal since all projects will strive to minimize environmental impacts.

### Goal 6. Resiliency to Global Climate Change

Benefit Factor: How well does this project improve resiliency to global climate change, scored on a subjective scale of low, medium, or high (with corresponding point values of 1, 5.5, or 10)?



A Usage Factor (AADTT) is not used because projects could have system-wide impacts.

Total Score = Benefit Factor

## Goal Weighting

The relative importance or value of each goal may vary, and therefore, the goals should be assigned varying weights or values to prioritize the set of projects accurately. In a facilitated group workshop, each member of the State Freight Advisory Committee (FAC) was asked to rank the six goals in order of importance, numbering them from 1 through 6. Once all the goals were ranked, each member was asked to assign a weight of 100 points to the top-ranked goal and then to assign points to the remaining goals in accordance with how important they are relative to the top-ranked goal. For example, if someone assigned 100 points to goal 1, and 50 points to goal 2, they are saying that achieving goal 2 is about half as important as achieving goal 1. Each member was allowed to assign 0 – 100 points to any goal—the objective was to document how important each goal was relative to their top-ranked goal.

The average relative weighting for each goal, calculated by averaging the participant responses, was converted to a percent weighting factor and multiplied by the Total Score to create a Weighted Score, as shown in Table 5-3.

*Table 5-3 Goal Weighting Results*

Goal	Consensus Weight	Consensus Percent
Safety	100	20%
Reliable Freight Network	95	19%
Infrastructure Preservation	85	17%
Infrastructure Mobility Improvements	80	16%
Resiliency to Global Climate Change	75	15%
Minimize Environmental Impacts	70	14%

## Needs Identification and Assessment

An online ArcGIS map-based application, Hawaii Freight Needs Identification Tool, was developed to identify needs and issues on the Hawaii Freight network. Need and Issue types include the following:

- Climate Impact
- Connectivity
- Design
- Maintenance
- Parking
- Reliability
- Safety
- Traffic/Congestion
- Workforce Impact

Figure 5-2 Hawaii Freight Needs Identification Tool



An industry survey, [Hawaii Freight Plan Industry Survey](#), was developed to gain feedback on the needs and issues of the Hawaii Freight Network. The industry survey consisted of a total of 17 questions with focused questions for each island. The questions were aimed at gathering feedback on the needs and issues that the stakeholders consider to be most important in improving the existing freight network. Nine survey responses provided insight into the stakeholders' view of the critical needs and issues for the statewide freight network. Feedback from the stakeholders was used to develop the policy and program recommendations for the Hawaii Statewide Freight Plan. Further details of the industry survey responses obtained are included in Appendix C, Public Involvement Process.

Specific locations identified throughout the islands are potential impediments to Hawaii's freight system and, therefore, to the state's economy. Using these locations for reference, projects, and programs can be tailored to address these issues to optimize the state's economy and growth.

While the technical analysis provides a helpful overview of the system's needs, some issues cannot be deduced from the data alone. With additional outreach completed through individual interviews with stakeholders, a further level of insight was made into the system's needs. Further details of the stakeholder interview guideline are included in Appendix C, Public Involvement Process.

## Policy and Program Recommendations

The primary goal of the policy and program recommendations is to guide an informed decision-making process for freight investment. The implementation of the policies and programs endorses the HDOT's mission to provide a safe, efficient, accessible, and sustainable inter-modal transportation system that ensures the mobility of people and goods and enhances and/or preserves economic prosperity and the quality of life.

### ENTRY TO HAWAII / ISLANDS Harbors/Airports

#### SAFETY

- Ensure adequate emergency response.
- Mitigate security risks/threats.

#### RELIABILITY

- Optimize efficiency and predictability.
- Adopt technology in operations and maintenance.

#### INFRASTRUCTURE PRESERVATION

- Set acceptable standards with harbor/airport users.
- Prioritize harbor/airport improvements based on utility and value to economy.

#### INFRASTRUCTURE MOBILITY IMPROVEMENTS

- Reduce congestion at harbors/ airports.
- Improve intermodal connectivity on roads adjacent to harbors/airports, add all roads to CUFC/CRFC.

#### RESILIENCY TO GLOBAL CLIMATE CHANGE

- Develop and implement a climate adaptation action plan for harbors/airports.

#### MINIMIZE ENVIRONMENTAL IMPACTS

- Reduce emissions at harbors/airports by supporting the deployment of technologies and infrastructure that integrate options and encourage sustainable freight transport.
- Reduce impacts to neighboring communities.

### MIDDLE MILE Highways

#### SAFETY

- Decrease crashes involving trucks.
- Mitigate security risks/threats near bases.

#### RELIABILITY

- Optimize efficiency and predictability.
- Adopt technology in operations and maintenance.
- Assess impact of e-commerce on facilities.

#### INFRASTRUCTURE PRESERVATION

- Maintain "fair" or better conditions for roads and bridges.
- Prioritize improvements based on life-cycle cost assessments.

#### INFRASTRUCTURE MOBILITY IMPROVEMENTS

- Address deficiencies on National Multimodal Freight Network and key freight routes.
- Improve infrastructure in rural areas to promote economic development.
- Evaluate design standards for freight vehicles to facilitate the safe and efficient movement of goods and people.

#### RESILIENCY TO GLOBAL CLIMATE CHANGE

- Implement strategies and actions from the Highways climate adaptation action plan.

#### MINIMIZE ENVIRONMENTAL IMPACTS

- Reduce emissions by supporting the deployment of technologies and infrastructure that improve the fuel-efficiency of commercial vehicles.
- Provide mode-choice and integration options to encourage the sustainable freight transport.
- Mitigate wildlife habitat loss and impacts.

## LAST MILE Highways/County Roads

### SAFETY

- Decrease crashes involving trucks.
- Consider freight delivery into Complete Street designs.

### RELIABILITY

- Optimize efficiency and predictability.
- Adopt technology in operations and maintenance.
- Assess impact of e-commerce on facilities

### INFRASTRUCTURE PRESERVATION

- Maintain "fair" or better conditions for roads and bridges.
- Prioritize improvements based on life-cycle cost assessments.

### INFRASTRUCTURE MOBILITY IMPROVEMENTS

- Address deficiencies on National Multimodal Freight Network and key freight routes
- Improve infrastructure in rural areas to promote economic development.
- Evaluate design standards for freight vehicles to facilitate the safe and efficient movement of goods and people.
- Ensure appropriate loading zones on roadways and within ports.

### RESILIENCY TO GLOBAL CLIMATE CHANGE

- Develop and implement county climate adaptation action plan.

### MINIMIZE ENVIRONMENTAL IMPACTS

- Reduce emissions by supporting the deployment of technologies and infrastructure that improve the fuel-efficiency of commercial vehicles.
- Provide better mode-choice and integration options to encourage the sustainable freight transport

## HDOT PROGRAMS SUPPORTING POLICY RECOMENDATIONS

### SAFETY

- Highway Safety Improvement Program (HSIP)

### RELIABILITY

- Hawaii Freight Network

### INFRASTRUCTURE PRESERVATION

- System Preservation (Pavement and Bridge Programs)

### INFRASTRUCTURE MOBILITY IMPROVEMENTS

- Hawaii Freight Network
- Capacity Program and Congestion Management Program
- Rural Transportation Assistance Program

### RESILIENCY TO GLOBAL CLIMATE CHANGE

- GHG Program, Zero-Emission Vehicle Program, and Carbon Offset Program

### MINIMIZE ENVIRONMENTAL IMPACTS

- GHG Program, Zero-Emission Vehicle Program, and Carbon Offset Program

# 6.

## PRIORITIZING FREIGHT INVESTMENTS IN HAWAII



- I. Fiscally Constrained Projects
- II. Fiscally Unconstrained Projects
- III. Multimodal Freight Projects
- IV. Funding Sources

## Fiscally Constrained Projects

Freight Investment Plan was developed to guide investments that benefit freight transportation in Hawaii and to comply with freight transportation planning requirements established in federal law. The United States Code (49 U.S.C. 70202) contains specific requirements for state freight transportation plans. These requirements were established in the 2015 Fixing America's Surface Transportation (FAST) Act and expanded in the 2021 Bipartisan Infrastructure Law (BIL). HDOT must fulfill these requirements to access the NHFP funds for state and local freight projects. Specifically, each state freight plan is required to include a freight investment plan that:

- Includes a list of priority projects and describes how NHFP funds made available to the state will be invested and matched.
- Is fiscally constrained, and only includes projects or identified projects where funding for the completion of the project can be reasonably anticipated to be available for the project within the time identified in the freight investment plan.

The National Freight Program is a funding program for a specific set of activities. Eligible projects shall contribute to the efficient movement of freight on the NHFN and be identified in a freight investment plan included in a State Freight Plan (SFP) (required in FY 2018 and beyond). NHFP funds may be obligated for one or more of the following:

1. Development phase activities, including planning, feasibility analysis, revenue forecasting, environmental review, preliminary engineering and design work, and other preconstruction activities.
2. Construction, reconstruction, rehabilitation, acquisition of real property (including land relating to the project and improvements to land), construction contingencies, acquisition of equipment, and operational improvements directly relating to improving system performance.
3. Intelligent transportation systems and other technology to improve the flow of freight, including intelligent freight transportation systems.
4. Efforts to reduce the environmental impacts of freight movement.
5. Environmental and community mitigation for freight movement.
6. Railway-highway grade separation.
7. Geometric improvements to interchanges and ramps.
8. Truck-only lanes.
9. Climbing and runaway truck lanes.

10. Adding or widening of shoulders.
11. Truck parking facilities eligible for funding under section 1401 of MAP-21
12. Real-time traffic, truck parking, roadway condition, and multimodal transportation information systems.
13. Electronic screening and credentialing systems for vehicles, including weigh-in-motion truck inspection technologies.
14. Traffic signal optimization, including synchronized and adaptive signals.
15. Work zone management and information systems.
16. Highway ramp metering.
17. Electronic cargo and border security technologies that improve truck freight movement.
18. Intelligent transportation systems that would increase truck freight efficiencies inside the boundaries of intermodal facilities.
18. Additional road capacity to address highway freight bottlenecks.
19. Physical separation of passenger vehicles from commercial motor freight.
20. Enhancement of the resiliency of critical highway infrastructure, including highway infrastructure that supports national energy security, to improve the flow of freight.
21. A highway or bridge project to improve the flow of freight on the NHFN.

A total of \$30,525,058 in NHFP funding is expected to be available for Hawaii between 2022 and 2026. Table 6-1 shows the breakdown of specific amounts of NHFP funding. The projects to receive NHFP funds between 2022 and 2026 are listed in Table 6-2.

*Table 6-1 Summary of NHFP Funding by Federal Fiscal Year*

Funding*	2022	2023	2024	2025	2026	2022-2026 Total
NHFP Obligation Limitation Available	\$ 5,865,646	\$ 5,982,959	\$ 6,102,618	\$ 6,224,671	\$ 6,349,164	\$ 30,525,058

\*Funding will be used for ongoing projects or projects ready to start construction. Other federal and state funds will be used to supplement the freight funds to cover the cost of the project.

Table 6-2 Summary of Projects to receive NHFP Funding by Federal Fiscal Year

Project	Phase	Estimated Cost	2022	2023	2024	2025	2026
Interstate Route H-1 Improvements, Eastbound, Ola Lane Overpass to Likelike Highway	Construction	\$110,000,000	\$5,865,646	\$5,982,959	\$6,102,618	-	-
Sand Island Bridge Needs Assessment	Planning	\$500,000	-	-	-	\$500,000	-
Interstate Route H-1, Kapolei Interchange Complex, Phase 3	Construction	\$47,000,000	-	-	-	\$2,724,671	\$3,349,164
Kuhio Highway (Route 56) Improvements, Kapule Highway to Wailua Bridge	Preliminary Engineering	\$45,000,000	-	-	-	-	\$3,000,000
Bridge and Pavement Improvement Program, Hawaii Route 11, Mile Marker 0-3.31	Construction	\$20,000,000	-	-	-	\$3,000,000	-



## Fiscally Unconstrained Projects

The complete list of freight projects submitted for NHFP consideration but not funded is provided in Appendix B, Freight Investment Plan Project List. Other federal and state funds will be used to supplement the freight funds to cover the cost of the project.

## Multimodal Freight Projects

Priority Freight Projects for Harbors between 2023 and 2028 are listed in Table 6-3 Table 6-3 .



Table 6-3 Department of Transportation – Harbors; Priority Freight Projects, 2023-2028

\* Project numbers are listed geographically, and numbers do not reflect project priority.

#*	Island	Harbor	Description	Cost	Schedule/Status
1	Hawaii	Hilo	<b>Land Acquisition and Redevelopment:</b> Facility expansion, roadway widening, dedicated left turn/storage lane, construction of internal queueing areas.	\$52 M	Final EA to be posted Q1 2024
2	Hawaii	Kawaihae	<b>Kawaihae Harbor Improvements:</b> Highway widening, dedicated left turn/storage lane, terminal pavement repairs and strengthening, lighting replacement.	\$34 M	\$23.46 M funded through Port Infrastructure Development Program grant in October 2023
3	Maui	Kahului	<b>Land Acquisition and Redevelopment:</b> Facility expansion, roadway widening, external/internal queueing areas.	\$108 M	Draft EA scheduled to begin Q2 2024
4	Oahu	Honolulu	<b>Piers 39/40, Interisland Barge Terminal Redevelopment:</b> Redesign terminal, improve for sea level rise, in-fill between existing berths.	\$480 M	Draft EIS underway
5	Oahu	Honolulu	<b>Piers 51-53, Sand Island Terminal Redevelopment – Wharf Improvement;</b> Improve for sea level rise (raise piers).	\$945 M	Re-design concept development underway
6	Oahu	Honolulu	<b>Piers 19-23, Warehouse Demolition and Redevelopment:</b> Removal of aged structures, construction of new facilities designed to meet current and future space-use demands.	\$150 M	RFP for design/planning scheduled for Q1 2024
7	Oahu	Honolulu	<b>Harbor Access Road:</b> Create new ingress/egress into harbor, connects harbor directly to new highway improvements, new utility connections to facility harbor expansion and development.	\$20 M	To be constructed by Kapolei Development, pending request for federal funds
8	Oahu	Kalaeloa	<b>Wilcox Road Acquisition &amp; Rockfall Mitigation at Waapa Road:</b> Acquire a portion of Wilcox Road from County of Kauai, complete rockfall study and assessment, implement mitigation measures.	\$15 M	Preliminary request for transfer to be done by end of 2023; RFP for study scheduled for Q2 2024

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## Funding Sources

NHFP funding will not be sufficient in meeting Hawaii's freight system needs. This section provides a summary of additional sources that support the funding of transportation projects in Hawaii.

### HDOT Revenue Sources

- Revenue sources for highways include taxes, charges for services, operating and capital grants, and proceeds from highway revenue bonds. Revenues are deposited into the State Highway Fund and are used for the design, construction, repair, and maintenance of public highways.
- Revenue sources for harbors include bonds, service revenues (wharfage, passenger fees, and ship related fees) and rentals.
- Revenue sources for airports include rates and charges, fuel taxes, grants, and proceeds from airports system revenue bonds.

### Federal Sources

Federal sources of funding are available from various federal agencies. These funds include grants, loans, and loan guarantees. Some federal programs are competitive and require a demonstration of compliance to meet their specified funding criteria. The following information summarizes federal aid sources identified and presented by USDOT<sup>10</sup> and the Hawaii Statewide Transportation Plan (April 2023) which may be used to support freight projects in the state:

- Hawaii is expected to receive approximately \$1.5 billion over five years in Federal highway formula funding for highways and bridges from the BIL.
- **Highway Safety Improvement Program (HSIP)** - Hawaii will receive approximately \$15 million in 402 formula funding for highway safety traffic programs, which help states to improve driver behavior and reduce deaths and injuries from motor vehicle-related crashes.
- **Federal Motor Carrier Safety Administration's Motor Carrier Safety Assistance Program (FMCSA MCSAP)** - Hawaii can expect to receive approximately \$9.2 million over five years in funding to augment commercial motor vehicle (CMV) safety efforts to reduce CMV crashes.
- **Safe Streets for All (\$6B)** – Provides funding directly to local and tribal governments to support their efforts to advance "vision zero" plans and other improvements to reduce crashes and fatalities, especially for cyclists and pedestrians.

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<sup>10</sup> USDOT, The Bipartisan Infrastructure Law Will Deliver for Hawaii, <https://www.transportation.gov/briefing-room/bipartisan-infrastructure-law-will-deliver-hawaii>, April 13, 2022

- **Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grants (\$15B)** – RAISE grants support surface transportation projects of local and/or regional significance.
- **Infrastructure for Rebuilding America (INFRA) Grants (\$14B)** – INFRA grants offer aid to freight infrastructure by providing funding to state and local government for projects of regional or national significance. The BIL also raises the cap on multimodal projects to 30% of program funds.
- **Federal Aviation Administration (FAA) Terminal Program (\$5B)** – To provide funding for airport terminal development and other landside projects.
- **MEGA Projects (\$15B)** – This new National Infrastructure Project Assistance grant program supports multi-modal, multi-jurisdictional projects of national or regional significance.
- **Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation (PROTECT) Program (\$8.7B)** – PROTECT provides \$7.3 billion in formula funding to states and \$1.4 billion in competitive grants to eligible entities to increase the resilience of our transportation system. This includes funding for evacuation routes, coastal resilience, making existing infrastructure more resilient, or efforts to move infrastructure to nearby locations not continuously impacted by extreme weather and natural disasters.
- **Port Infrastructure Development Program (\$2.25B)** – For coastal ports and inland waterways to improve the supply chain and enhance the resilience of the shipping industry.
- **Bridge Investment Program (\$15.77B)** – To assist state, local, federal, and tribal entities in rehabilitating or replacing bridges, including culverts.
- **Strengthening Mobility and Revolutionizing Transportation (SMART) Grant Program (\$1B)** – For projects that improve transportation safety and efficiency.
- **Rural Surface Transportation Grant Program (\$2B)** – To improve and expand surface transportation infrastructure in rural areas, increasing connectivity, improving safety and reliability of the movement of people and freight, and generate regional economic growth.

## REFERENCES

CBRE MarketView, Hawaii Industrial Q3 2017.

CBRE MarketView, Hawaii Industrial Q4 2022.

Federal Highway Administration (FHWA). National Highway System (NHS).

Federal Highway Administration (FHWA). National Highway Freight Network (NHFN).

Federal Highway Administration (FHWA). Primary Highway Freight System (PHFS).

Federal Highway Administration (FHWA). Critical Rural Freight Corridors (CRFC).

Federal Highway Administration (FHWA). Critical Urban Freight Corridors (CUFC).

Federal Highway Administration (FHWA). Strategic Highway Network (STRAHNET).

Federal Highway Administration (FHWA). Key Bridge Rating Definitions.

Federal Highway Administration (FHWA). 2018-2022 National Performance Management Research Data Set (NPMRDS).

Federal Highway Administration (FHWA). 2023. *National Highway Freight Network – FHWA Freight Management and Operations*. Last modified July 12, 2023.

<https://ops.fhwa.dot.gov/freight/infrastructure/nfn/index.htm>.

Freight Analysis Framework (FAF) Version 5 2022 estimates

National Oceanic and Atmospheric Administration (NOAA) Fisheries. Foreign Fishery Trade Data, 2010-2021

State of Hawaii Department of Transportation (HDOT). 2018. "*State Waterways Receive Official Designation as the Daniel K. Akaka Marine Highway*."

<https://hidot.hawaii.gov/administration/state-waterways-receive-official-designation-as-the-daniel-k-akaka-marine-highway/>.

State of Hawaii Department of Transportation (HDOT). Hawaii Freight Network (HFN).

State of Hawaii Department of Transportation (HDOT), Highways. Traffic Count Data, 2019-2022.

State of Hawaii Department of Transportation (HDOT), Highways. Pavement Condition Data, 2019-2022.

State of Hawaii Department of Transportation (HDOT), Highways. Bridge Condition Data, 2019-2022.

State of Hawaii Department of Transportation (HDOT), Highways. Crash Data, 2019-2022.

State of Hawaii Department of Transportation (HDOT), Harbors. 2020 Official Statement.

State of Hawaii Department of Transportation (HDOT), Harbors. Financial Statements and Supplementary Information, 2022.

State of Hawaii Department of Transportation (HDOT), Airports. Cargo and Mail Traffic Data, 2019-2022.



---

State of Hawaii Department of Transportation (HDOT), Highways. 2018. *Hawaii Statewide Freight Plan*. Final. December.

U.S. Census Bureau. North American Industry Classification System (NAICS) 2022.

U.S. Bureau of Economic Analysis, "CAGDP1 County and MSA gross domestic product (GDP) summary".

U.S. Bureau of Economic Analysis, "SAEMP25N Total full-time and part-time employment by NAICS industry 1/".

U.S. Department of Commerce International Trade Administration. 2020. *USMCA Hawaii State Fact Sheet*. 2020. December. <https://www.trade.gov/sites/default/files/2020-12/Hawaii%20USMCA%20State%20Fact%20Sheet.pdf>.

U.S. Energy Information Administration. Hawaii State Profile and Energy Estimates. 2023. March. <https://www.eia.gov/state/analysis.php?sid=HI>.

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# APPENDIX A – SELECTION CRITERIA FOR HAWAII CRFC AND CUFC

In consideration of the new requirements set forth by the BIL/IIJA, a review of the criteria and rationale used to identify the CRFCs and CUFCs in the 2018 Statewide Freight Plan was updated to include considerations for mission-critical military facilities:

- **Criteria: NHS Intermodal Freight Connectors (not on the PHFS)**
  - **Rationale:** NHS freight connectors are the public roads leading to major intermodal terminals. Access to intermodal transfer locations is key to the efficient movement of raw materials and finished goods.
- **Criteria: Access to intermodal facilities (not part of NHS Intermodal Freight Connectors)**
  - **Rationale:** Same as above.
- **Criteria: Annual Average Daily Truck Traffic (AADTT)**
  - **Rationale:** Those corridors, or corridor segments with higher relative AADTT, are serving key connectivity and distribution functions within the existing freight transportation network. Maintaining or improving the operational efficiency and functionality of these corridors will be vital to the effectiveness of the overall network.
- **Criteria: Access to freight-dependent employment centers**
  - **Rationale:** Providing adequate access to existing and planned commercial and industrial developments that serve or have the potential to attract freight-dependent/intensive businesses will be essential to Hawaii’s economic development efforts and continued economic growth.
- **Criteria: Access or connectivity to mission-critical military facilities**
  - **Rationale:** Infrastructure critical to military installations, particularly priority corridors established by the United States Transportation Command (USTRANSCOM).
- **Criteria: Location of a high-priority project**
  - **Rationale:** Only projects on the NHFN are eligible for funding from the National Highway Freight Program and the new freight-related discretionary grant program Infrastructure for Rebuilding America (INFRA). If a high-priority project is identified, HDOT will want to ensure it’s eligible for funding.

New BIL/IIJA State Freight Plan Elements Requirements
<ol style="list-style-type: none"> <li>1. Commercial motor vehicle parking facilities assessment.</li> <li>2. Supply chain cargo flows by mode of transportation.</li> <li>3. Inventory of commercial ports</li> <li>4. Multi-State freight compact (not applicable in this freight plan)</li> <li>5. Impacts of e-commerce on freight infrastructure</li> <li>6. Military freight considerations</li> <li>7. Strategies and goals to decrease impacts of extreme weather and natural disasters on freight mobility, as well as the impacts of freight movement local air pollution, flooding and stormwater runoff, and wildlife habitat loss.</li> </ol>

The Additional Hawaii Freight Corridors were identified by selecting roads with higher truck volumes that are not already designated on the NHFN—specifically, roads in urban areas with

greater than 500 AADTT and roads in rural areas with greater than 100 AADTT. Additional road segments were included if they helped to create a continuous freight network. To meet the new threshold set in the BIL/IIJA for CUFC and CRFC designation (Table A-1), it was recommended that roadway segments previously identified in the Hawaii Freight Network be considered (see Table A -2). The applicable criteria are to be considered based on guidance from the FAST Act (Sec. 1116):

For CUFC, the criteria derived from roadways in an urbanized area are:

- A. connects an intermodal facility to:
  - a. the PHFS;
  - b. the Interstate System; or
  - c. an intermodal freight facility;
- B. is located within a corridor of a route on the PHFS and provides an alternative highway option important to goods movement;
- C. serves a major freight generator, logistic center, or manufacturing and warehouse industrial land or
- D. is important to the movement of freight within the region, as determined by the MPO or the State.

For CRFC, the criteria derived from the FAST Act (Section 1116) for roadways in rural areas are:

- 1) a rural principal arterial roadway and has a minimum of 25% of the annual average daily traffic of the road measured in passenger vehicle equivalent units from trucks (Federal Highway Administration vehicle class 8 to 13);
- 2) provides access to energy exploration, development, installation, or production areas
- 3) provides access to intermodal;
- 4) connects to an international port of entry;
- 5) provides access to significant air, rail, water, or other freight facilities in the State;
- 6) is determined to be vital to improving the efficient movement of military freight and all other freight important to Hawaii's economy.

*Table A-1 2023 Hawaii's Highway Freight Network Mileage by Island*

Freight Network Classification	Hawaii	Kauai	Maui	Oahu	Total
PHFS	113.28	17.26	59.85	88.4	278.8
CRFC	120.3	61.2	48.7	69.5	299.7
CUFC	27.2	6.5	3.9	112.1	149.7
NHFN (Total)	260.78	84.96	112.5	270	728.3
Hawaii Freight Network	128.6	25.8	35.9	95.9	286.2

*Table A-2 2018 Hawaii's Highway Freight Network Mileage by Island*

Freight Network Classification	Hawaii	Kauai	Maui	Oahu	Total
PHFS	111	17	58	90	277
CRFC	122	4	4	19	150





Freight Network Classification	Hawaii	Kauai	Maui	Oahu	Total
CUFC	0	0	4	71	75
NHFN (Total)	234	21	67	180	501
Hawaii Freight Network	63	90	71	185	409

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# APPENDIX B – FREIGHT INVESTMENT PLAN PROJECT LIST

## OAHU - Prioritized Solutions

ROUTE #	ISLAND	PROJECT TITLE	POTENTIAL SOLUTION	NEEDS DESCRIPTION	PROGRAM	SOURCE	COST ESTIMATE (\$M)	TOTAL SCORE
H-1 EB	Oahu	H-1 Eastbound	H-1 EB Widening: Ola Lane to Likelike Off-Ramp	There is a lot of weaving near the Middle Street and Kalihi interchange	Safety and Capacity	Truckers' Forum, H-I Corridor Study	\$100.0	107.95
92	Oahu	Nimitz/Sand Island Access Rd. Grade Separation/IC	Nimitz/Sand Island Access Rd. Grade Separation/IC to Sand Island (new Sand Island Bridge)		Safety and Capacity, Redundancy	HHUGS; H1Corridor Study	\$108.4	107.95
H-1 EB	Oahu	Makakilo (makai bound): H1 EB on ramp	H-1 Makakilo On-ramp Improvements	Banking on the clover-leaf on-ramp seems off. Check the on-ramp to H1 mauka bound on Makakilo, as well.	Safety	Truckers' Forum	N/A	107.95
H-1 EB	Oahu	H-1 Eastbound	Braid Ramps on H-1 between Pali Hwy. and Kinau St.		Safety	H-I Corridor Study	\$275.5	95.13
H-1	Oahu	Ft. Weaver Ramp Modification - Kunia Interchange	Ft. Weaver Ramp Modification at Kunia Interchange			H-I Corridor Study	\$106.9	94.45
H-1 EB	Oahu	H-1 Eastbound	H-1 EB Widening: Kualakai Parkway to Waiawa Interchange		Capacity	H-I Corridor Study	\$181.1	94.45
H-1 WB	Oahu	H-1 Westbound	H-1 WB Widening: Kualakai Parkway to Waiawa Interchange	P.M. traffic/congestion: H1 WB near Waialeke (Ewa Beach exit) is the next bottleneck – short merge lanes	Congestion Mitigation and Safety	HTA Meeting, Truckers' Forum, H-I Corridor Study	\$133.7	94.45
H-1 WB	Oahu	H-1 Westbound	Aux. Lane Waialae Ave On-Ramp to University Off		Safety and Capacity	H-I Corridor Study	\$0.7	94.45
H-1	Oahu	H-1: Kalihi Interchange Modifications	H-1: Kalihi Interchange Modifications	Kalihi Street/Likelike On-Ramp Impr.	Safety	H-I Corridor Study	\$46.0	94.45
H-1 EB	Oahu	North Vineyard Bl./Olomea St. Off-ramp Widening	North Vineyard Bl./Olomea St. Off-ramp Widening		Safety and Capacity	H-I Corridor Study	\$10.8	94.45
H-1 EB	Oahu	Punchbowl St. Off-Ramp Improvements	Punchbowl St. Off-Ramp Improvements		Safety and Capacity	H-I Corridor Study	\$40.0	94.45
H-1 WB	Oahu	H-1 WB Auxiliary Lane (Punchbowl to School Street)	Aux. Lane Punchbowl St. to School St. Off		Safety	H-I Corridor Study	\$4.1	84.33
H-1 WB	Oahu	H-1 Westbound	H-1 WB Widening: Halawa Interchange to Waiawa		Capacity	H-I Corridor Study	\$717.2	83.65
H-1 EB	Oahu	H-1 Eastbound	H-1 EB Widening: Waiawa Interchange to Halawa Interchange	A.M. traffic/congestion	Capacity	Truckers' Forum, H-I Corridor Study	\$1,044.7	83.65
H-1 WB	Oahu	H-1 Westbound	H-1 WB Widening: Vineyard Boulevard to Middle Street		Capacity	H-I Corridor Study	\$298.2	83.65
H-1 EB	Oahu	H-1 Eastbound	H-1 EB Mainline Widening from Vineyard to University		Capacity	H-I Corridor Study	\$216.2	83.65

ROUTE #	ISLAND	PROJECT TITLE	POTENTIAL SOLUTION	NEEDS DESCRIPTION	PROGRAM	SOURCE	COST ESTIMATE (\$M)	TOTAL SCORE
H-1 WB	Oahu	H-1 Westbound	WB Mainline Widening from University to Vineyard		Capacity	H-I Corridor Study	\$219.6	83.65
92	Oahu	Nimitz Highway and Waiakamilo Road	Intersection Improvements	The intersection is very congested when Young Brothers is open. Increasing the operating hours (days) of YB would decrease the congestion at the intersection. Lights for Waiakamilo Road are not synchronized with lights on Nimitz Highway, leading to congestion at the intersection	Congestion Mitigation	Truckers' Forum	N/A	81.63
H-1	Oahu	Waiawa IC - Direct Ramp from EB H-1 to Kamehameha Hwy	Waiawa IC - Direct Ramp from EB H-1 to Kamehameha Hwy		Congestion Mitigation	H-I Corridor Study	\$164.3	81.63
H-1	Oahu	Kaonohi IC	H-1: New Kaonohi St. Interchange		Capacity	H-I Corridor Study; Truckers' Forum	\$69.1	80.95
H-2	Oahu	Interstate Route H-2, Widening, Waipio Interchange	Widen both on- and off-ramps on Interstate Route H-2 at the Waipio Interchange. This project includes the widening of the Ka Uka Boulevard overpass and intersection improvements to facilitate movement to and from the on- and off-ramps.		Developer-Funded Modernization Projects	Oahu 2040 Long-Range Plan	\$46.2	80.95
H-1	Oahu	H-1 Geometric Improvements near Kaamilo Street	H-1 Curve (at Ka`amilo Street)		Safety	H-I Corridor Study	\$150.0	73.53
H-1 WB	Oahu	H-1, WB, near JBPHH	H-1 Westbound Geometric Improvements (near JBPHH)	Slow-down due to curve in the road (geometry)	Safety	Truckers' Forum	N/A	73.53
80	Oahu	Kamehameha Hwy (Route 80) Widening	Adds NB Lane from Interstate Route H-2 to California Avenue		Capacity	Oahu 2040 Long-Range Plan	N/A	58.00
H-1 EB	Oahu	Waiawa IC Eastbound direction	Widen ramp - SB Kamehameha Hwy to EB Farrington Hwy/H-1		Capacity	H-I Corridor Study	\$20.7	54.45
H-1 WB	Oahu	H-1 Westbound; Waiawa IC	Widen Waipahu Off-Ramp from H-1 to Farrington/Kamehameha		Capacity	H-I Corridor Study	\$71.6	54.45
93	Oahu	Farrington Hwy, Ewa-Schofield Junction area	Farrington Highway Geometrics	Slow-down due to curve in the road (geometry) and weaving; Not sure where this is - Need to check	Safety	Truckers' Forum	N/A	49.50
H-1	Oahu	H1 Waiau Interchange	H1 Waiau Interchange Improvements	H1 WB near the Sears Distribution Center (Waiau Interchange) – dangerous crash spot near the on/off ramps (two off and one on); not enough merging distances and poor pavement conditions/load shifting/settled slab on H-1	Safety and System Preservation	HTA Meeting; Truckers' Forum	N/A	44.20

ROUTE #	ISLAND	PROJECT TITLE	POTENTIAL SOLUTION	NEEDS DESCRIPTION	PROGRAM	SOURCE	COST ESTIMATE (\$M)	TOTAL SCORE
H-1 WB	Oahu	H1 WB off-ramp to Kalaeloa Blvd	H-1 WB Kalaeloa Off-Ramp	Cloverleaf banking seems off; there are lots of truck accidents (every other month)	Safety	Truckers' Forum	N/A	39.10
99	Oahu	Moanalua/Kamehameha Off-Ramp	New Capacity on-ramp from Interstate Route H-201 to Kamehameha Highway (Aiea)		Capacity	Oahu 2040 Long-Range Plan	N/A	37.35
H-1	Oahu	Hanua Street Extension, Farrington Highway to Malakole Street; Interstate Route H-1, New On- & Off-Ramps, Palailai Interchange	Hanua Street: • Extend Hanua Street from Malakole Street to Farrington Highway. This new four-lane roadway will provide access to Kalaeloa Harbor. Interstate Route H-1, Palailai Interchange: • Construct new on- and off-ramps at Interstate Route H-1 Palailai Interchange to Hanua Street extension.	Provides an alternate route to Kalaeloa	Developer-Funded Modernization Projects	Oahu 2040 Long-Range Plan	\$182.0	37.35
H-1	Oahu	H1 Waiawa Interchange Ramp Braid	Improve the Waiawa IC Ramp Braid		Safety	H-I Corridor Study	\$40.5	36.95
H-1 WB	Oahu	H-1 Westbound; Waiawa IC	WB H-1 curve modifications in Waiawa IC off H-2 ramps	Slow-down due to curve in the road (geometry); H-2 EB ramp	Safety	H-I Corridor Study, Truckers' Forum	\$19.2	32.68
Kalaeloa	Oahu	Kalaeloa Boulevard and Malakole Street Intersection	Intersection Improvements	The intersection is at LOS D and will be at LOS F in the future.	Congestion Mitigation	FEIS Kalaeloa Barbers Point Harbor Fuel Pier and Harbor Improvements	N/A	28.85
H-1 WB	Oahu	Waiawa IC: New Kamehameha Hwy WB On Ramp	New Kamehameha Hwy WB On Ramp at Waiawa IC		Capacity	H-I Corridor Study	\$6.8	27.95
92	Oahu	Nimitz Highway	Nimitz Highway: Kapalama (EB) Bridge Rehabilitation/Replacement	The bridge is structurally deficient	System Preservation	FAC, Bridge Program	N/A	27.40
92	Oahu	Ala Moana Boulevard/Ward Avenue intersection	Intersection Improvements	Safety issue	Safety	Truckers' Forum	N/A	26.55
92	Oahu	Nimitz Highway and Puuhale Road	Intersection Improvements	The intersection is at LOS D and will be at LOS F in the future.	Congestion Mitigation	FEIS Kapalama Container Terminal	N/A	25.60
92	Oahu	Nimitz Highway and Mokauea Street	Intersection Improvements	The intersection is at LOS D and will be at LOS F in the future.	Congestion Mitigation	FEIS Kapalama Container Terminal	N/A	25.60
Kalaeloa	Oahu	Kalaeloa Boulevard	Put in adaptive signal technology	Traffic signals are not synchronized and are always congested	Congestion Mitigation	Truckers' Forum	N/A	24.35

ROUTE #	ISLAND	PROJECT TITLE	POTENTIAL SOLUTION	NEEDS DESCRIPTION	PROGRAM	SOURCE	COST ESTIMATE (\$M)	TOTAL SCORE
Kalaeloa	Oahu	Kalaeloa Boulevard and Kapolei Parkway Intersection	Intersection Improvements (add an additional left turn lane for the EB approach)		Congestion Mitigation	FEIS Kalaeloa Barbers Point Harbor Fuel Pier and Harbor Improvements	N/A	24.35
99	Oahu	Kamehameha Highway near Waiawa IC	Pearl Highlands Aux. lane from Waihona Street to H-1		Safety	H-1 Corridor Study	\$5.9	23.90
H-1 EB	Oahu	H1 EB/H201 EB Interchange	H1 EB on-ramp to H201 EB	Cloverleaf banking seems off	Safety	Truckers' Forum	N/A	21.88
H-1	Oahu	H-1, near Kaonohi Street	H-1 Pavement Preservation (near Kaonohi Street)	Pavement issues in the middle lane	System Preservation	Truckers' Forum	N/A	19.75
63	Oahu	Likelike Highway	Likelike Highway Repaving near the tunnel (grind pavement to ensure the signed height clearance)	Recent repaving has resulted in truck height clearance warning signals going off; drivers are taking alternate routes (H-3) to avoid the problem	Safety/ Congestion	Truckers' Forum	N/A	13.65
64	Oahu	Sand Island Access Road and UH Snug Harbor Access	Intersection Improvements	The current unsignalized intersection operates at LOS and will be LOS F in the future.	Congestion Mitigation	FEIS Kapalama Container Terminal	N/A	13.10
92	Oahu	Nimitz Highway	Nimitz Highway: Nuuanu Street (WB) Bridge Rehabilitation/Replacement	The bridge is structurally deficient	System Preservation	FAC, Bridge Program	N/A	10.10

## HAWAII (BIG ISLAND) - Prioritized Solutions

ROUTE #	ISLAND	PROJECT TITLE	POTENTIAL SOLUTION	NEEDS DESCRIPTION	PROGRAM	SOURCE	COST ESTIMATE (\$M)	TOTAL SCORE
1100	Hawaii	Kuakini Highway - Henry Street to Kamehameha III Road	Improve/provide additional 2 travel lanes and include bicycle facilities and sidewalks		Capacity and Congestion	LRLTP	\$117.0	65.15
1370	Hawaii	Kalaniana'ole Avenue - Kanoelehua Avenue to Hilo Harbor	Improve/provide additional 2 travel lanes with turn lanes at major intersections, bicycle facilities, and sidewalks		Capacity	LRLTP	\$39.0	65.15
2000	Hawaii	Puainako Street - Kanoelehua Avenue to Komohana Street	Realign/provide an additional 2 travel lanes between Kanoelehua Avenue and Komohana Street to include sidewalks	Poor pavement; safety issues	Capacity, System Preservation	Truckers' Forum; Technical Analysis; LRLTP	\$91.0	65.15
19	Hawaii	Hawaii Belt Road from Honokaa to Mud Lane	Widen existing two-lane highway to provide passing lanes and intersection safety improvements.		Congestion	LRLTP	N/A	52.55
19	Hawaii	Hawaii Belt Road from Honomu to Honokaa	Widen existing two-lane highway to provide passing lanes, as intersection and safety improvements.		Congestion	LRLTP; Truckers' Forum	N/A	52.55
11	Hawaii	Mamalahoa Highway - Keaau to Makalika Street	Improve/provide an additional 2 travel lanes between Makalika Street and Keaau-Pahoa Bypass Road.		Capacity	LRLTP	\$125.0	43.55
19	Hawaii	Queen Kaahumanu Highway	Analyze intersection operations, including grade separation of interchanges, to allow uninterrupted flow between Palani Road and Waikoloa Road.		Congestion	LRLTP; Truckers' Forum	N/A	42.20
2000	Hawaii	West Puainako Street - vicinity of Waiakea High School, University of Hawaii at Hilo and Hawaii Community College	Review intersection safety and operations and perform necessary warrants for intersection controls.		Congestion	LRLTP	N/A	42.20
19	Hawaii	Kamehameha Avenue Widening	Widen Kamehameha Avenue from Mamalahoa to Hilo Harbor	Both ends accessing Hilo/Hilo Harbor are congested; the road narrows from four-lane to two-lane roads at both ends; only one lane to Hilo Airport	Capacity	Truckers' Forum	N/A	42.20
200	Hawaii	Saddle Road - existing terminus to West Puainako Street/Iwalani Street intersection	Complete Saddle Road widening into the center of the industrial/commercial area.		Capacity	LRLTP	N/A	37.80
19	Hawaii	Kamehameha Avenue at Lihikai Street and Manono Street	Intersection operations improvements		Congestion	LRLTP	N/A	35.00
19	Hawaii	Hawaii Belt Road - portions of the highway at Maulua, Laupahoehoe and Kaawalii Gulches	Construct rockfall mitigation and slope stabilization.		Safety	LRLTP	N/A	31.63

ROUTE #	ISLAND	PROJECT TITLE	POTENTIAL SOLUTION	NEEDS DESCRIPTION	PROGRAM	SOURCE	COST ESTIMATE (\$M)	TOTAL SCORE
19	Hawaii	Hawaii Belt Road - Saddle Road to Kona International Airport	Install guardrails		Safety	LRLTP	N/A	28.25
19	Hawaii	Kawainui Bridge (Puna)	Rehab/replace existing bridge		System Preservation	LRLTP	N/A	27.75
19	Hawaii	Kawaihae Road - Kohala Mountain Road to Mamalahoa Highway	Improve/provide additional 2 travel lanes with turn lanes at major intersections		Capacity	LRLTP	\$97.0	26.10
19	Hawaii	Waiaka Bridge and Kohala Mountain Road/Kawaihae Road Intersection	Widen and realign Waiaka Bridge and reconstruct the adjacent intersection		System Preservation	LRLTP	N/A	22.70
N/A	Hawaii	Hilo and Kawaihae Harbors vicinity	Install permanent weigh station equipment		Other	LRLTP	N/A	22.05
19	Hawaii	Queen Kaahumanu Highway - Keahole Airport Road to Kawaihae Harbor	Conduct planning and environmental study to assess alternatives and impacts to provide additional 2 travel lanes	Three truck crashes along this stretch of highway.	Capacity and Safety	LRLTP; Technical Analysis; Truckers' Forum	N/A	21.83
19	Hawaii	Hawaii Belt Road near Laupahoehoe	Review and improve highway illumination		Safety	LRLTP	N/A	19.25
270	Hawaii	Kawaihae Harbor (Akoni Pule Highway)	Shift the access	The TSA screening location is in a bad location	Safety	Truckers' Forum	N/A	18.45
11	Hawaii	Mamalahoa Highway - Palani Road to Kuakini Highway	Highway upgrades (curves, shoulders, crosswalks)		Safety	LRLTP	N/A	14.85
11/180	Hawaii	Mamalahoa Highway and Hawaii Belt Road - Kona Airport to Milolii	Improve lane and shoulder widths, install guardrails, rockfall netting, and speed signs		Safety	LRLTP	N/A	14.85
200	Hawaii	Saddle Road, on the East side, between MP 11 and MP 19	Construct truck runaway ramps		Other	LRLTP	N/A	14.85
190	Hawaii	Mamalahoa Highway - MP 14 to 17	Upgrade substandard sections, widen shoulders, and remove rock outcroppings.		System Preservation	LRLTP	N/A	14.85
270	Hawaii	Kawaihae Road Safety Improvements	Safety improvements along the highway (geometry, sight distance, and truck ramps)		System Preservation	LRLTP	N/A	14.85
19	Hawaii	Hawaii Belt Road, Pahoehoe Stream Bridge (Puna)	Rehab bridge		System Preservation	LRLTP	N/A	13.75
2000	Hawaii	Puainako Street, near Saddle Road	Puainako Street: Pavement Preservation	Poor pavement; safety issues	System Preservation/Safety	Truckers' Forum; Technical Analysis	N/A	12.05
11	Hawaii	Kanoelehua Avenue - Hilo Harbor to Puainako St to Daniel K. Inouye Highway, MM 0-3.31	Pavement Preservation	Poor pavement; safety issues	System Preservation/Safety		\$20.0	12.05
11	Hawaii	Hawaii Belt Road - Glenwood Road to Kahaualea Road	Pavement Preservation		System Preservation/Safety		N/A	12.05
Kealakehe	Hawaii	Kealakehe Parkway - Kamanu Street to Ane Keohokalole Highway	Pavement Preservation		System Preservation/Safety		N/A	12.05



ROUTE #	ISLAND	PROJECT TITLE	POTENTIAL SOLUTION	NEEDS DESCRIPTION	PROGRAM	SOURCE	COST ESTIMATE (\$M)	TOTAL SCORE
270	Hawaii	Akoni Pule Highway	Upgrade substandard sections, install guardrail from MP 4 to MP 15		Safety	LRLTP	N/A	10.35

## KAUAI - Prioritized Solutions

ROUTE #	ISLAND	PROJECT TITLE	POTENTIAL SOLUTION	NEEDS DESCRIPTION	PROGRAM	SOURCE	COST ESTIMATE (\$M)	TOTAL SCORE
56	Kauai	Kuhio Highway - Kapule Highway to Mailihuna Road	Additional 2 travel lanes	Always congested	Capacity	LRLTP; Truckers' Forum	\$179.2	97.00
50	Kauai	Kaumualii Highway - Kalaheo Town to Koloa Road	Additional 2 travel lanes to allow safe passage of vehicles		Capacity	LRLTP	\$46.9	65.15
50	Kauai	Kaumualii Highway - Kipu Road to Vicinity of Haiku Airstrip (West of Humane Society, M.P. 3.47 Phase 1C)	Additional 2 travel lanes to allow safe passage of vehicles		Capacity	LRLTP	\$31.3	65.15
51	Kauai	Kapule Highway	Additional 2 travel lanes with bike lanes and sidewalks		Capacity	LRLTP	\$137.4	57.95
50	Kauai	Kaumualii Highway - Anonui Street to Kipu Road (Phase 1B)	Additional 2 travel lanes to allow safe passage of vehicles		Capacity	LRLTP	\$31.3	57.95
50	Kauai	Kaumualii Highway - Hanapepe Road to Eleele Road	Additional 2 travel lanes		Capacity	LRLTP	\$18.0	57.95
50	Kauai	Kaumualii Highway, Vicinity of Haiku Airstrip (West of Humane Society, M.P. 3.47) to Huleia Bridge (Phase 2)	Highway Improvements		Capacity	LRLTP	\$81.9	56.60
50	Kauai	Kaumualii Highway, Huleia Bridge to West of Kahili Mountain Park Road (Approx. 1000 ft, Phase 3)	Highway Improvements		Capacity	LRLTP	\$78.1	42.20
50	Kauai	Kaumualii Highway - Kahili Mountain Park Road to Koloa Road	Highway Improvements		Capacity	LRLTP	\$100.0	42.20
56	Kauai	Kuhio Highway - near Hanamaulu	Contraflow in operation during peaks		Capacity		N/A	42.20
50	Kauai	Kaumualii Highway and Akemama Road	Improve intersection sight distance and geometrics		Safety	LRLTP	N/A	36.80
N/A	Kauai	Lihue Airport and Nawiliwili Harbor	Conduct Lihue Airport and Nawiliwili Harbor Access studies		Other	LRLTP	N/A	33.20
51	Kauai	Kapule Highway	Install center rumble strips		Safety	LRLTP	N/A	28.25
56	Kauai	Kuhio Highway - near Hanamaulu	Install rumble strips/center barriers and lower the speed limit		Safety	LRLTP	N/A	28.25
58	Kauai	Nawiliwili Road vicinity of Nawiliwili Harbor	Address highway drainage and flooding		System Preservation	LRLTP	N/A	28.25
583	Kauai	Maalo Road	Blind Curve at MP 0.7		Safety		N/A	28.25
50	Kauai	Kaumualii Highway, Omao Bridge	Rehabilitate bridge		System Preservation	LRLTP	N/A	26.05
51	Kauai	Kapule Highway, Nawiliwili Stream Bridge	Rehab and widen the bridge		System Preservation	LRLTP	N/A	26.05
56	Kauai	Kuhio Highway - Wailua Bridge	Address segment Wailua Bridge/Beach erosion		Safety		N/A	26.03
56	Kauai	Kuhio Highway in Anahola	Preserve Anahola Bridge		System Preservation	LRLTP	N/A	24.35

ROUTE #	ISLAND	PROJECT TITLE	POTENTIAL SOLUTION	NEEDS DESCRIPTION	PROGRAM	SOURCE	COST ESTIMATE (\$M)	TOTAL SCORE
56	Kauai	Kuhio Highway - Kapaia Bridge	Rehabilitate bridge		System Preservation	LRLTP	N/A	13.75
56	Kauai	Kuhio Highway, Kapaa Stream Bridge	Rehab bridge		System Preservation	LRLTP	N/A	13.75
50	Kauai	Kaumualii Highway - Kala Road to Iwa Road	Address falling seawall		Safety		N/A	13.73
560	Kauai	Kuhio Highway - Lumahai Beach Park to Waioli Beach Park	Address shoreline erosion		Safety		N/A	9.23
50	Kauai	Kaumualii Highway (Waimea Town to Kekaha Town)	Resurface highway		System Preservation	LRLTP	N/A	6.70

## MAUI - Prioritized Solutions

ROUTE #	ISLAND	PROJECT TITLE	POTENTIAL SOLUTION	NEEDS DESCRIPTION	PROGRAM	SOURCE	COST ESTIMATE (\$M)	TOTAL SCORE
30	Maui	Honoapiilani Highway - Wailuku to Maalaea	Additional 2 travel lanes		Capacity	LRLTP	\$170.0	59.55
32	Maui	Kaahumanu Avenue	Additional 2 travel lanes with bike lanes, sidewalks, and intersection improvements		Capacity	LRLTP	\$91.9	59.55
36	Maui	Hana Highway - Dairy Road to Baldwin Avenue	Additional 2 travel lanes		Capacity	LRLTP	N/A	59.55
3000	Maui	Honoapiilani Highway (Lahaina Bypass) Phase 1C - Keawe Street Extension to Kaanapali Connector	Construct a new 2-lane bypass roadway between Keawe Street and Kaanapali Connector.		Capacity	LRLTP	\$56.0	42.45
30	Maui	Honoapiilani Highway - Maalaea to Launiupoko	Widen/relocate Honoapiilani Highway inland		System Preservation	LRLTP	N/A	40.00
30	Maui	Honoapiilani Highway - Maalaea to Launiupoko	Rockfall protection		Safety	LRLTP	N/A	39.10
37	Maui	New Haleakala Highway - Old Haleakala Highway to Kula Highway	Additional one lane		Capacity	LRLTP	\$35.2	30.50
32	Maui	Lower Main Street - Waena Street to Mill Street	Additional travel lane and provide center turn lane or separate left-turn lanes at major intersections		Capacity	LRLTP	N/A	30.50
37	Maui	Kula Highway - Kula Junction to Pulehu Road	Additional 2 travel lanes		Capacity	LRLTP	\$146.3	30.50
340	Maui	Kahekili Highway - Waiehu Beach Road to Waihee Valley Road	Additional one travel lane and improve highway operations		Congestion	LRLTP	N/A	21.95
3000	Maui	Honoapiilani Highway (Lahaina Bypass) Phase 1D - Kaanapali Connector to northern terminus	Construct a new 2-lane bypass roadway between Kaanapali Connector and the northern terminus on Honoapiilani Highway.		Capacity	LRLTP	\$183.4	21.95
30	Maui	Main Street/High Street Intersection	Traffic signal operational improvements		Congestion	LRLTP	N/A	16.48
30	Maui	Honoapiilani Highway, Honolua Bridge	Bridge replacement		System Preservation	LRLTP	N/A	10.10
37	Maui	Kula Highway, Kaipoioi Stream Bridge	Bridge rehabilitation		System Preservation	LRLTP	N/A	6.70
3400	Maui	Kahului Beach Road	Modify traffic signal and intersection traffic control to improve system efficiency. Apply access management along the corridor.		Congestion	LRLTP	N/A	5.00

# APPENDIX C – FREIGHT ADVISORY COMMITTEE MEETING SUMMARIES



# Freight Advisory Committee – Meeting #1

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June 15th, 2023

## Meeting Objective

To provide an overview of the 2023 Hawaii Freight Plan Update, share updated draft goals, objectives, and performance measures as well as review the existing freight conditions.

## Agenda

- i. Welcome & Introductions – 10 minutes
  - o Planning Team Introductions
  - o Freight Advisory Committee Members Introductions
- ii. Role of the Freight Advisory Committee – 5 minutes
- iii. Highlights of the 2018 Hawaii Statewide Freight Plan – 10 minutes
- iv. 2023 Hawaii Statewide Freight Plan – 15 minutes
- v. 2023 Plan Vision, Goals, and Objectives (Interactive Session) – 30 minutes
- vi. BREAK – 10 minutes
- vii. 2023 Project Prioritization Process Evaluation Criteria Review – 15 minutes
  - o Review of 2018 Prioritization Criteria
  - o Suggested Updates/Changes for 2023
- viii. 2023 Freight Network Update – 15 minutes
  - o Review of the 2018 Criteria
- ix. Next Steps – 10 minutes
  - o Identification of Needs
  - o Schedule of activities
- x. Closing Remarks – 5 minutes



## Freight Advisory Committee – Meeting #2

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September 27th, 2023

### Meeting Objective

To review identified freight deficiencies and discuss freight needs, future conditions, potential solutions, and project prioritization criteria. A review of candidate roadways to be selected from the Hawaii Freight Network and designated as Critical Rural Freight Corridors (CRFCs) and Critical Urban Freight Corridors (CUFCs) will also be conducted.

### Agenda

- i. Welcome & Introductions – 5 minutes
- ii. Highlights of 1<sup>st</sup> FAC Meeting – 5 minutes
- iii. Freight Network Deficiencies and Needs from Tech Memo 1 – 15 minutes
- iv. FAC Needs Identification Exercise in GIS – 20 minutes
  - o Break Out Room Assignment
  - o [Link to Needs Identification Tool](#)
- v. BREAK – 10 minutes
- vi. Review Critical Rural Freight Corridors (CRFCs) and Critical Urban Freight Corridors (CUFCs) designations – 15 minutes
- vii. Review 2023 Project Prioritization Evaluation Criteria – 15 minutes
  - o [Prioritization Memo](#)
- viii. Next Steps – 10 minutes
  - o Prioritization of Solutions
  - o Freight Investment Plan
  - o Draft Freight Plan Key Components
- ix. Closing Remarks – 5 minutes



## Freight Advisory Committee – Meeting #3

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November 9th, 2023

### Meeting Objective

To review project prioritization solutions, Freight Investment Plan, and draft Statewide Freight Plan Key Components. A review of candidate roadways to be selected from the Hawaii Freight Network and designated as Critical Rural Freight Corridors (CRFCs) and Critical Urban Freight Corridors (CUFCs) will also be conducted.

### Agenda

- i. Welcome & Introductions – 5 minutes
- ii. Highlights of 2<sup>nd</sup> FAC Meeting – 10 minutes
- iii. Review Critical Rural Freight Corridors (CRFCs) and Critical Urban Freight Corridors (CUFCs) designations – 15 minutes
- iv. Project Prioritization Solutions – 15 minutes
- v. Freight Investment Plan – 15 minutes
- vi. BREAK – 10 minutes
- vii. Draft Statewide Freight Plan Key Components – 10 minutes
- viii. Next Steps – 5 minutes
  - o Final Report Open to Comments
- ix. Closing Remarks – 5 minutes





# Freight Advisory Committee Meeting #1

Point your phone or tablet's camera toward the QR code below



Scan this QR code  
with your phone or  
tablet's camera

Or go to [www.menti.com](http://www.menti.com) in your browser and use code **3715 7501**

Type in your name  
and organization

&

Which 2 items are you most  
likely to purchase online?

- Welcome and Introductions
- Role of the Freight Advisory Committee
- Highlights of the 2018 Hawaii Statewide Freight Plan
- 2023 Hawaii Statewide Freight Plan
- 2023 Plan Vision, Goals and Objectives
- Project Prioritization Process and Evaluation Criteria Review
- 2023 Freight Network Update
- Next Steps



# Welcome and Introductions





# Role of the Freight Advisory Committee (FAC)



- ❑ Advise HDOT on freight-related priorities, issues, projects, and funding needs.
- ❑ Serve as a forum for discussion regarding HDOT decisions affecting freight mobility.
- ❑ Communicate and coordinate regional priorities with stakeholder organizations.
- ❑ Promote the sharing of information between the private and public sectors on freight issues.
- ❑ Provide advice regarding the development of the Freight Investment Plan.
- ❑ Serve as a conduit to their constituents and peers by disseminating information regarding the study and obtaining input that can be shared with the FAC and HDOT.

HDOT Director of Transportation Approval

↑  
HDOT Project Management  
Team Recommendations

↑  
FAC/Technical Resources

# 2023

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC



## Task 1

Update Goals, Objectives, and Evaluation Criteria

Memo: Project goals, objectives and evaluation criteria/ performance measures

## Task 2

Update Existing and Future Conditions

● Freight Advisory Committee Meeting

Memo: Existing and Future Conditions

## Task 3

Update Needs, Deficiencies, and Potential Solutions

● Freight Advisory Committee Meeting

Memo: Needs and Deficiencies  
Prioritization of Solutions  
Freight Investment Plan

## Task 4

Draft and Final: Statewide Freight Plan

● Freight Advisory Committee Meeting





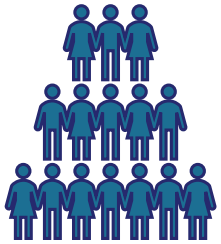


# Highlights of the 2018 Statewide Freight Plan

The 2018 Hawaii Statewide Freight Plan (HSFP) laid out a well-connected multimodal global freight transportation system that moves people and goods in a manner that supports and improves the state's economic vitality, natural beauty, and high quality of life.

- More than 80% of all goods consumed in Hawaii are imported
- Hawaii has 2,400 miles of federal-aid roadway system, including interstates, expressways, principal/major arterials, and minor arterials
- Freight-related sectors accounted for \$23.4 billion or 32% of the state's overall economic activity.
- Major domestic trade partners are California, Alaska, Washington and Texas.
- Major recipients of air cargo from Hawaii include Australia, New Zealand, Japan, South Korea, and Canada.

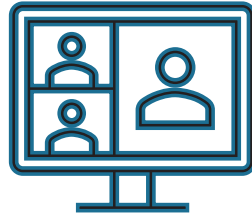




Growing Population



E-Commerce



Technology Evolution



Aging Workforce

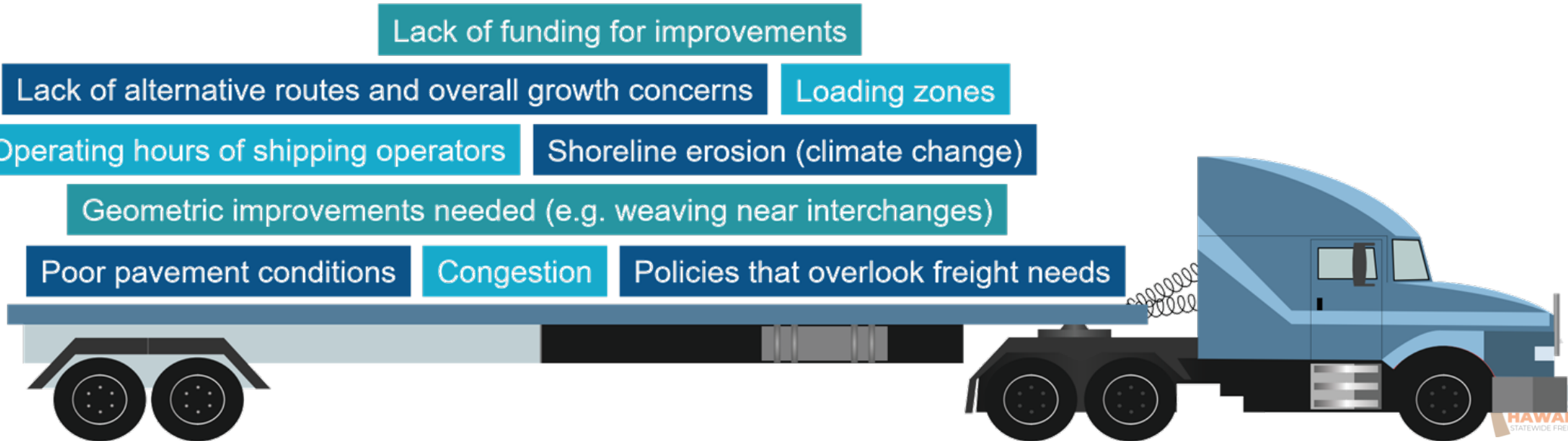


Cost of doing Business



Supply Constraints

## Other Needs





## Safety

Develop a State freight network that provides for the safety of people, infrastructure, and goods movement.



## Infrastructure Preservation

Maintain and improve the state of good repair of the freight transportation network.



## Infrastructure Mobility Improvements

Improve the multimodal freight infrastructure to provide mobility and connectivity for freight, and to support the needs of the local economy, including the tourism industry and military.



## Reliable Freight Network

Create a reliable freight network that allows shippers and receivers to plan around predictable travel times.



## Minimize Environmental Impacts

Minimize the environmental impacts of freight movement on the State freight network to surrounding communities and the natural environment.



## Resiliency to Global Climate Change

Create and maintain resilient freight infrastructure able to withstand the effects of global climate change.



# The 2023 Hawaii Statewide Freight Plan



# What's in this Freight Plan Update?



Major trip generators  
and attractors



Supply chain  
cargo flow



Critical rural and  
urban freight corridors



Truck  
Parking



E-Commerce



Military  
Freight



Commercial  
Ports



Multi-state  
freight initiatives



Natural disasters  
and climate change



Air pollution



Flooding



Wildlife habitat  
loss

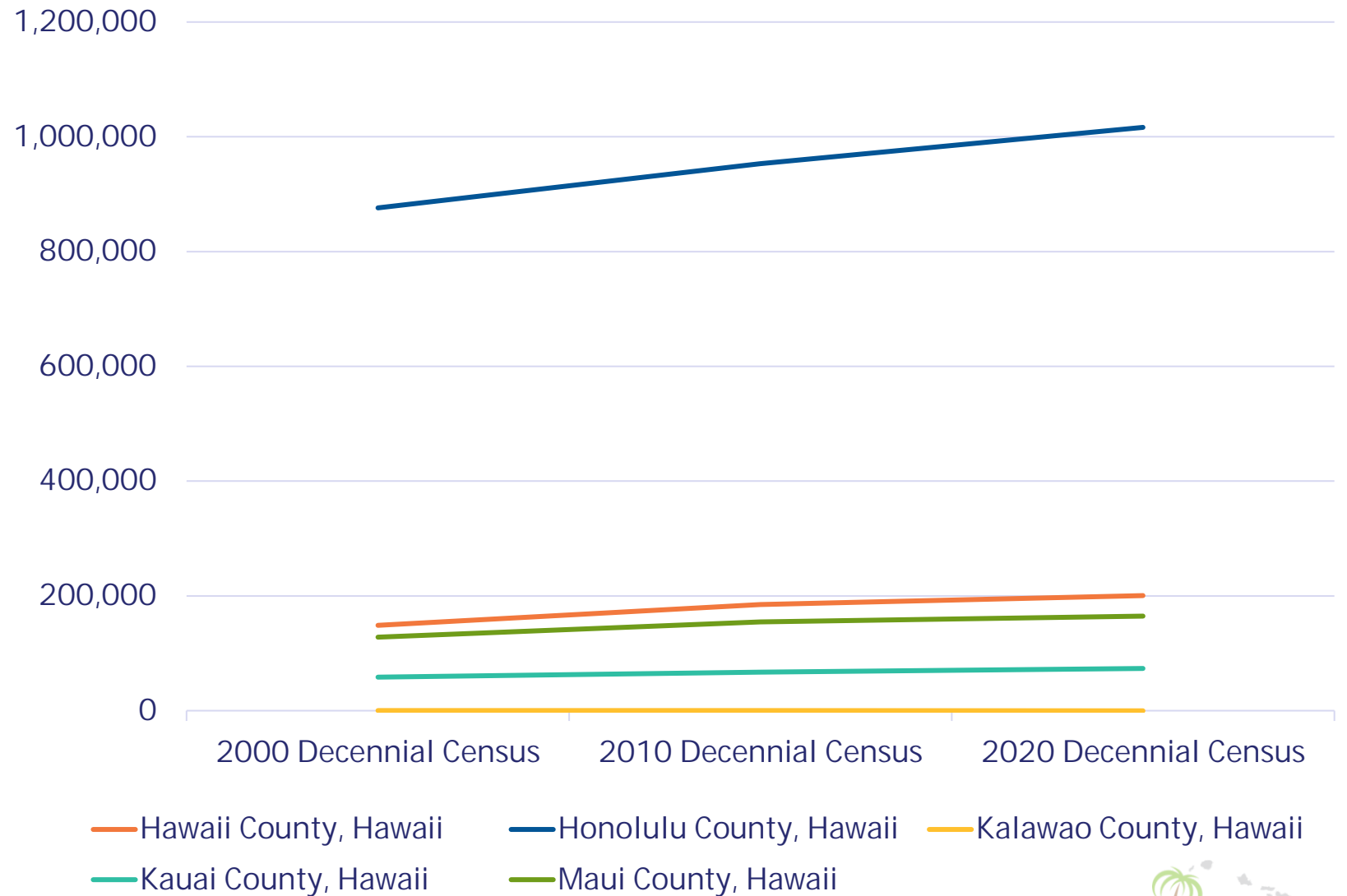




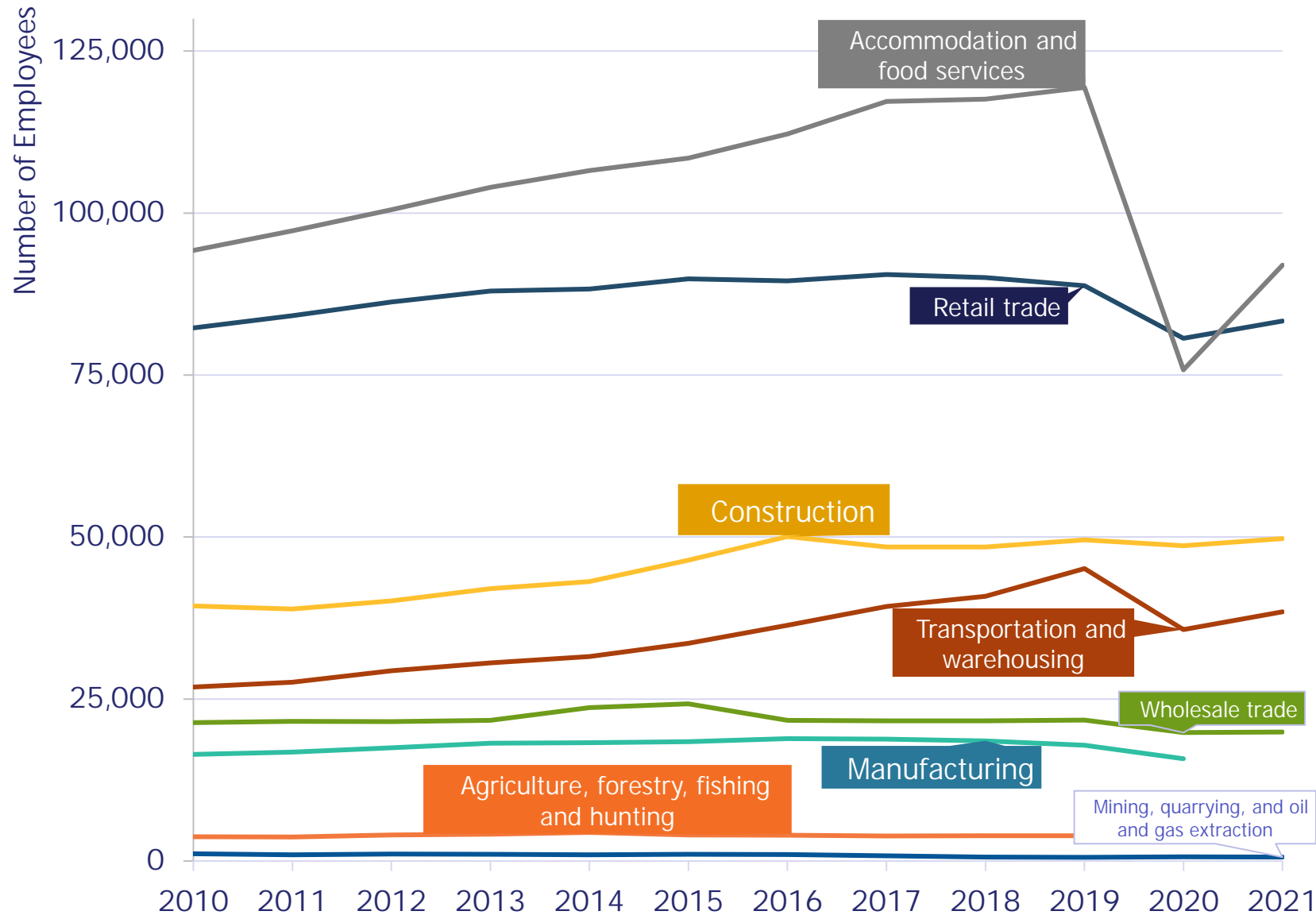
Percent Growth  
(2000 to 2020)

The population of Hawaii increased by 20% from 2000 to 2020.

Honolulu County grew by 16%,  
Hawaii County by 35%,  
Maui County by 29%, and  
Kauai County by 25%



# Freight Industry Employment Trends in Hawaii



In 2020, there were nearly 281,000 people employed in freight industry sectors, representing 9% of the state's total employment

Majority were in the accommodation/food services and retail trade industries

Source: U.S. Bureau of Economic Analysis, "SAEMP25N Total full-time and part-time employment by NAICS industry 1/".

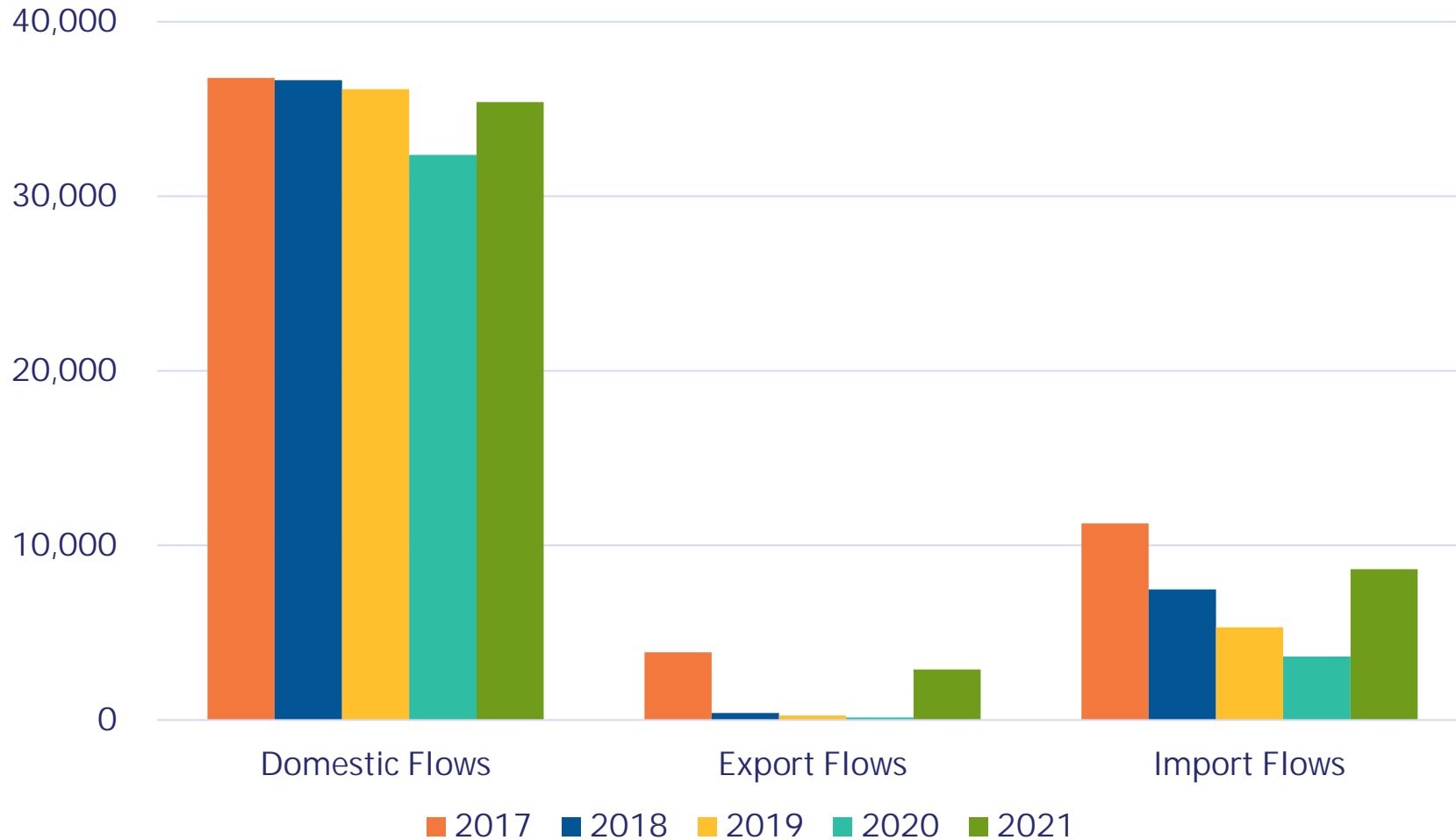
Year 2021 employment trends for two industries (Agriculture, forestry, fishing and hunting & Manufacturing) are not shown to avoid disclosure of confidential information.





# Trade Type by Tonnage (2017-2021)

Total Freight Volume by Trade Type  
(Thousands Tons)



Recovering from the COVID-19 pandemic and supply chain challenges, freight tonnage increased 9% for domestic flows, 1,932% for exports, and 137% for imports, from 2020 to 2021.

Domestic Flows contains only shipments associated with domestic freight moved between domestic origins and domestic destinations. Domestic movements of foreign trade flows (i.e., movements of international shipments inside the U.S.) are not included in the Domestic Flows. Mode of transportation for the Domestic Flows is the mode used within domestic regions or states.

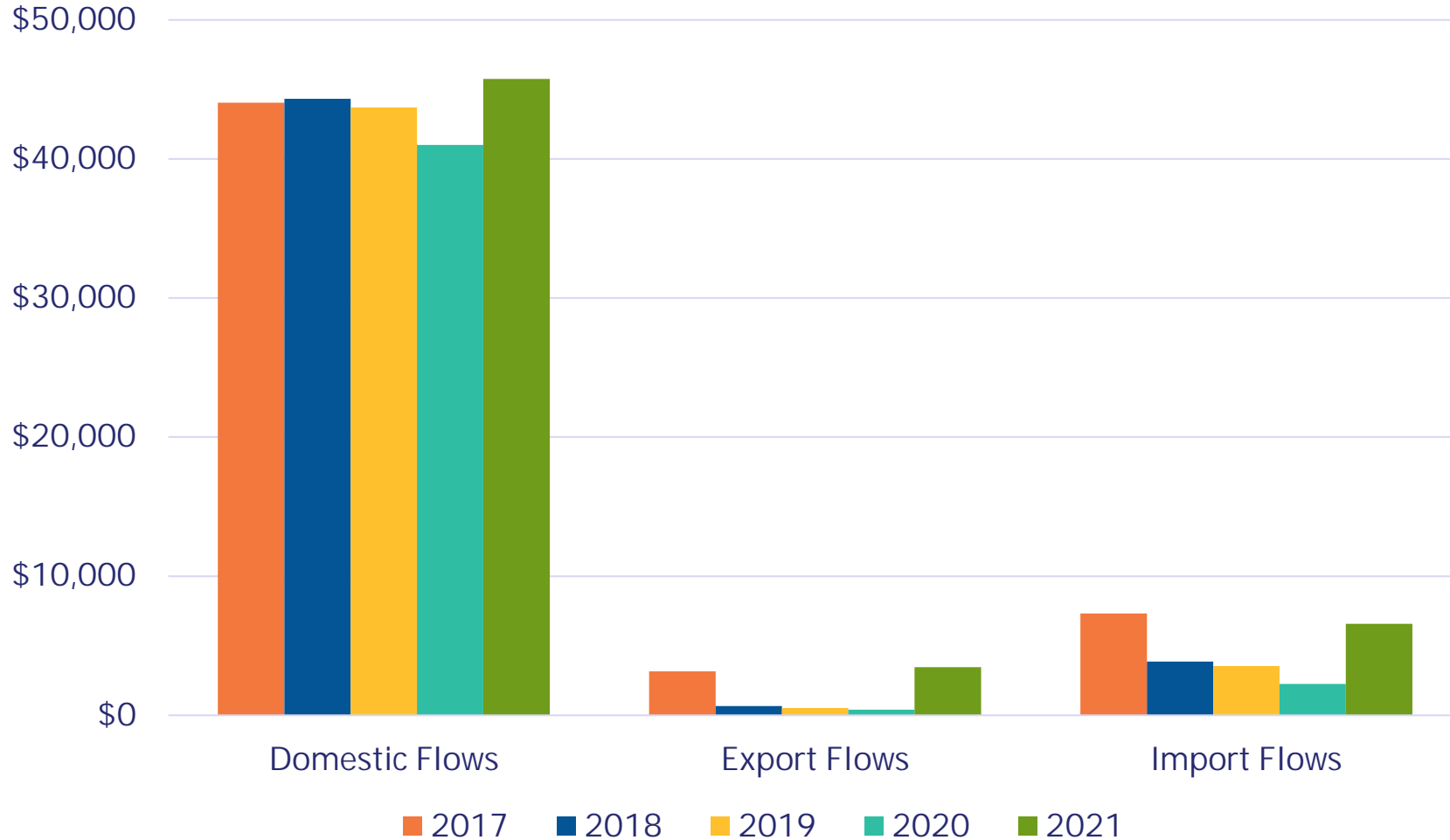
Import Flows contains data associated with freight moved from foreign origins to domestic destinations. Geographies for this flow data include Foreign Origin, US Entry Region (Domestic Origin), and Domestic Destination. Mode of transportation consists of two parts: (1) foreign mode used between a foreign origin zone and a zone of entry in the United States and (2) domestic mode used between the zone of entry and its domestic destination.

Export Flows contains data associated with freight moved from domestic origins to foreign destinations. Geographies for this flow data include Domestic Origin, US Exit Region (Domestic Destination), and Foreign Destination. Mode of transportation consists of two parts: (1) domestic mode used between the domestic origin of the shipment and its zone of exit and (2) foreign mode used between the zone of exit and foreign destination.



# Trade Type by Value (2017-2021)

### Total Freight Value by Trade Type (Million U.S. Dollars)



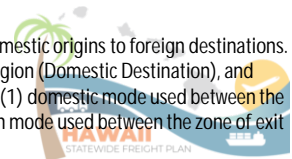
Recovering from the COVID-19 pandemic and supply chain challenges, freight value increased 12% for domestic flows, 768% for exports, and 191% for imports, from 2020 to 2021.

Domestic Flows contains only shipments associated with domestic freight moved between domestic origins and domestic destinations. Domestic movements of foreign trade flows (i.e., movements of international shipments inside the U.S.) are not included in the Domestic Flows. Mode of transportation for the Domestic Flows is the mode used within domestic regions or states.

Import Flows contains data associated with freight moved from foreign origins to domestic destinations. Geographies for this flow data include Foreign Origin, US Entry Region (Domestic Origin), and Domestic Destination. Mode of transportation consists of two parts: (1) foreign mode used between a foreign origin zone and a zone of entry in the United States and (2) domestic mode used between the zone of entry and its domestic destination.

Export Flows contains data associated with freight moved from domestic origins to foreign destinations. Geographies for this flow data include Domestic Origin, US Exit Region (Domestic Destination), and Foreign Destination. Mode of transportation consists of two parts: (1) domestic mode used between the domestic origin of the shipment and its zone of exit and (2) foreign mode used between the zone of exit and foreign destination.

Source: Freight Analysis Framework (FAF) 5.  
Unit of measure is million U.S. dollars (2017 constant \$).



The background features a stylized palm tree in the top left corner. A thick, dark blue wavy line curves across the middle of the slide. In the background, a light gray map of the Hawaiian Islands is visible. The text "Break - 5 minutes" is positioned on the left side of the slide.

Break - 5 minutes



# The 2023 Hawaii Statewide Freight Plan – Goals and Objectives



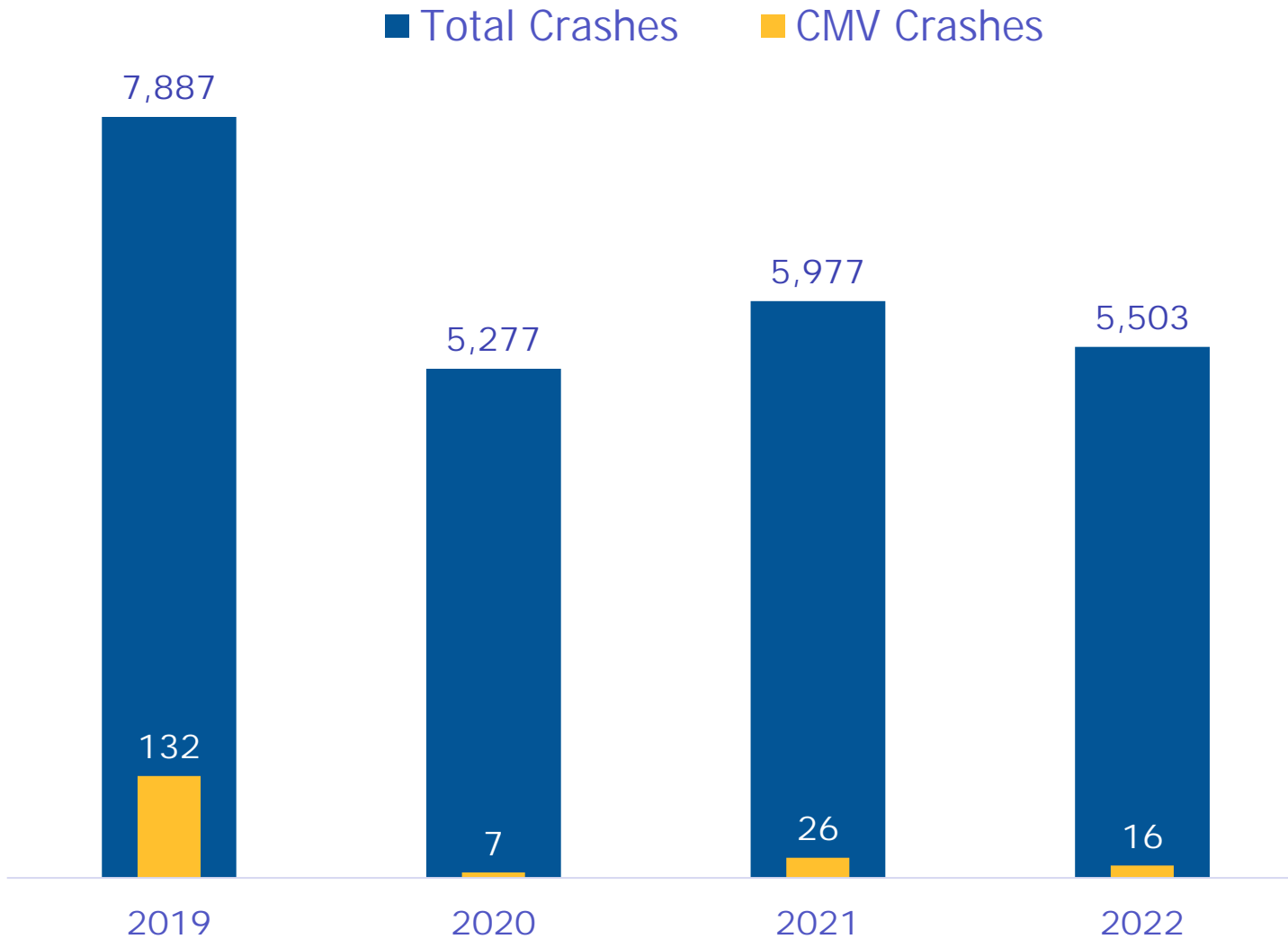


# Goal 1: Safety

Develop a state freight network that provides for the safety **and security** of people, infrastructure, and goods movement.

Objectives	Strategies
Provide a safe transportation system for all users	<ul style="list-style-type: none"><li data-bbox="698 534 2074 625">❑ Decrease the number and severity of crashes involving freight-related vehicles.</li><li data-bbox="698 682 1992 773">❑ Provide adequate emergency response access to the State freight network, including marine and airports.</li><li data-bbox="698 831 2033 922">❑ Establish effective educational and/or training programs to improve safety along identified priority freight corridors.</li></ul>
Consider security of the State freight network.	<ul style="list-style-type: none"><li data-bbox="698 1012 2074 1158">❑ When evaluating infrastructure improvements, minimize future risk by considering security threats, particularly at marine, airports, and <b>military bases</b>.</li></ul>





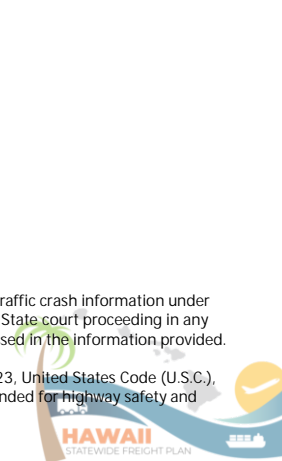
Since the COVID-19 pandemic in 2020, total annual crashes on HDOT highways have reduced by 30%, on average.

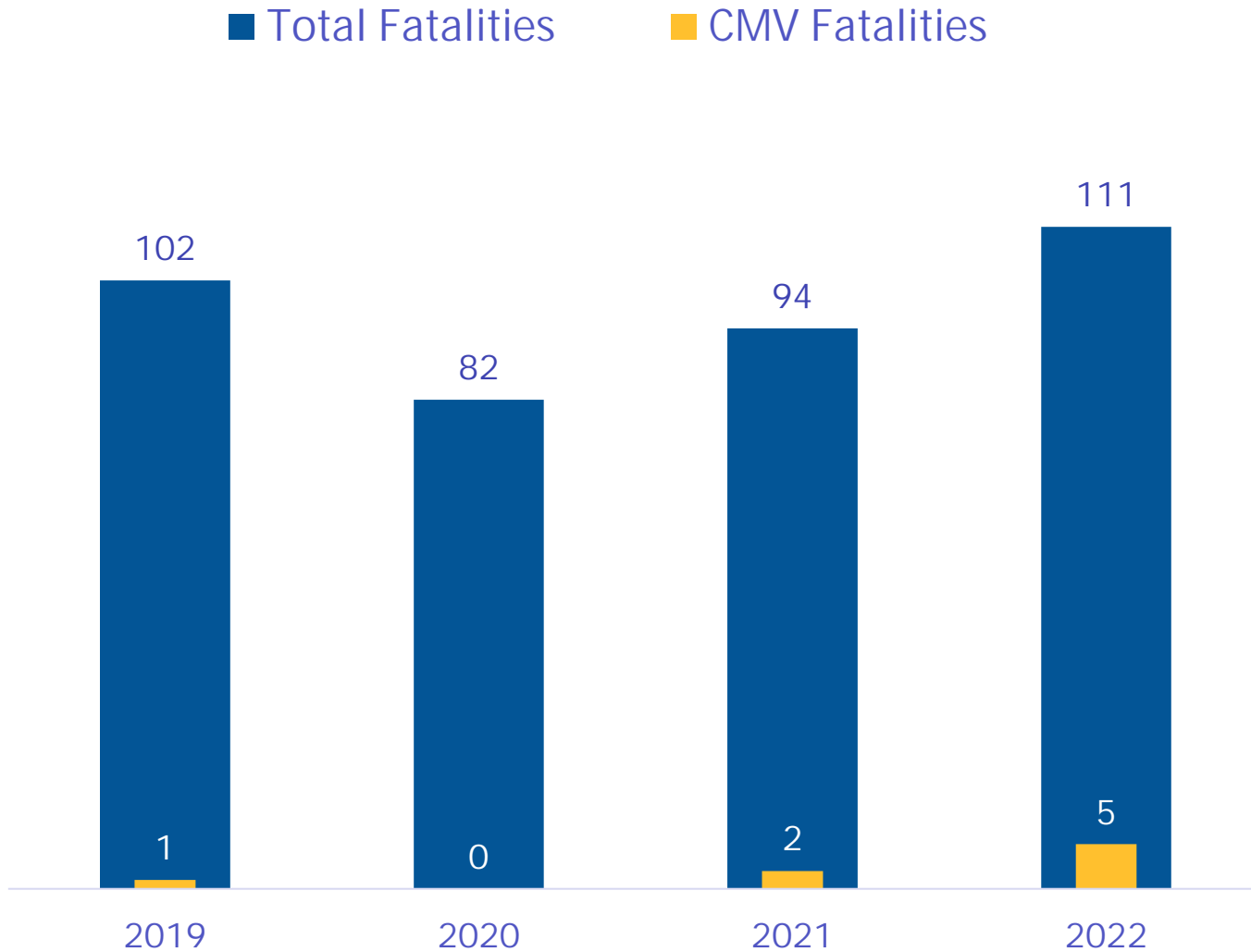
Commercial motor vehicle (CMV) crashes reduced 88%, on average.

Source: HDOT 2019-2022 Crash Data.

Disclaimer: The State of Hawaii, Department of Transportation, has provided this traffic crash information under the protection of 23USC 407. This information may not be used in any Federal or State court proceeding in any action for damages arising from any occurrence at a location mentioned or addressed in the information provided.

This data was collected under the Highway Safety Improvement Program of Title 23, United States Code (U.S.C.), Section 148. This data is protected under Title 23, U.S.C., Section 407, and is intended for highway safety and educational purposes only.





Total number of fatalities have increased since 2020 – reaching a peak of 111 in 2022 – with Five recorded CMV-related fatalities

CMV: Commercial Motor Vehicles

Source: HDOT 2019-2022 Crash Data.

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# CMV Crash Characteristics in Oahu

6 fatal    47 injury    57 property damage

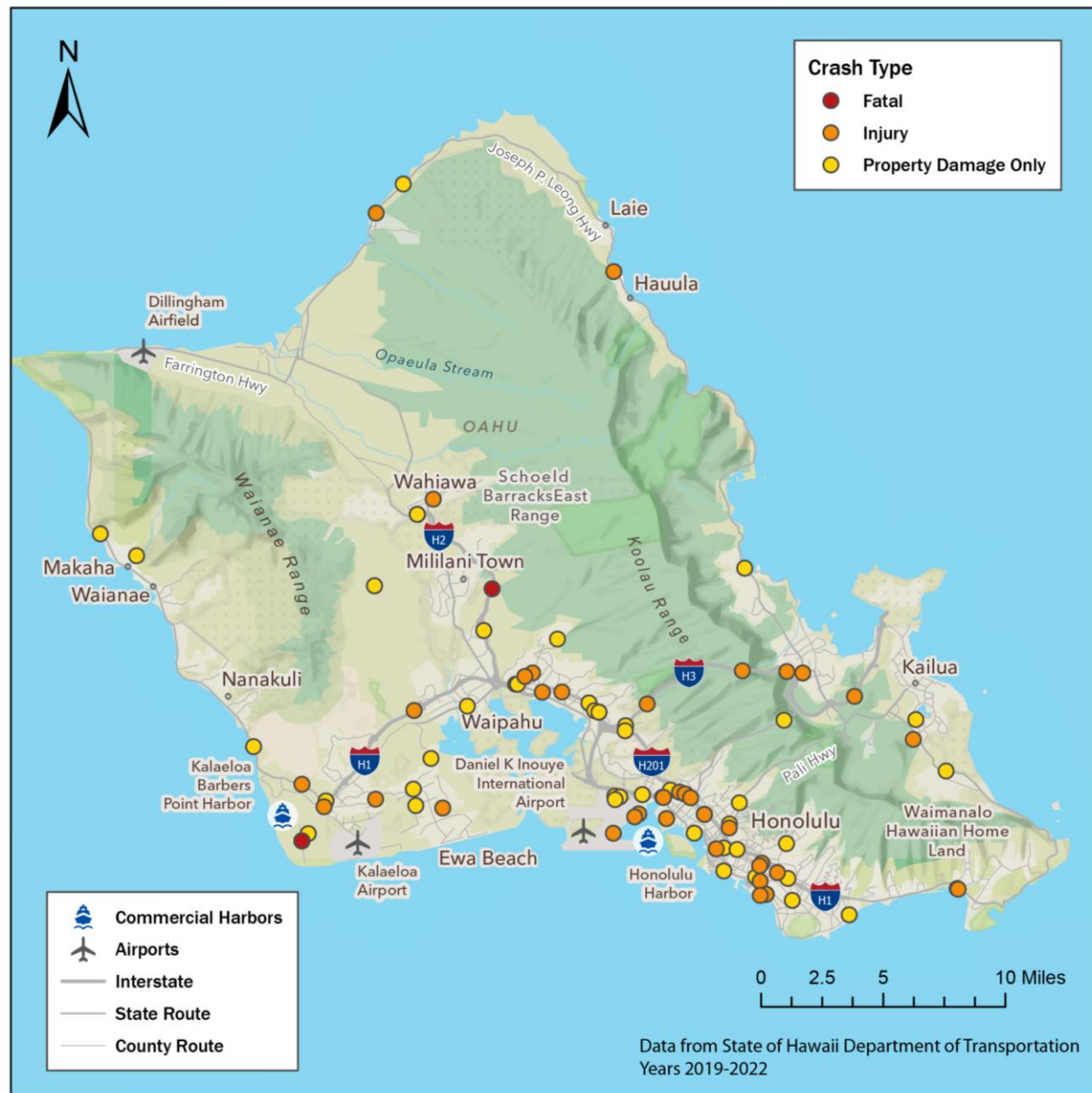
Crash Action	Count
Non-collision	16
Collision with object/animal	32
Collision with person	1
Collision with bicycle or moped	2
Collision with motor vehicle in transport (except moped)	60
Collision with motor vehicle-other	15

CMV: Commercial Motor Vehicles

Source: HDOT 2019-2022 Crash Data.

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# CMV Crash Characteristics in Big Island

0 fatal    4 injury    6 property damage

Crash Action	Count
Non-collision	0
Collision with object/animal	4
Collision with person	0
Collision with bicycle or moped	0
Collision with motor vehicle in transport (except moped)	8
Collision with motor vehicle-other	0

CMV: Commercial Motor Vehicles

Source: HDOT 2019-2022 Crash Data.

Disclaimer: The State of Hawaii, Department of Transportation, has provided this traffic crash information under the protection of 23USC 407. This information may not be used in any Federal or State court proceeding in any action for damages arising from any occurrence at a location mentioned or addressed in the information provided.

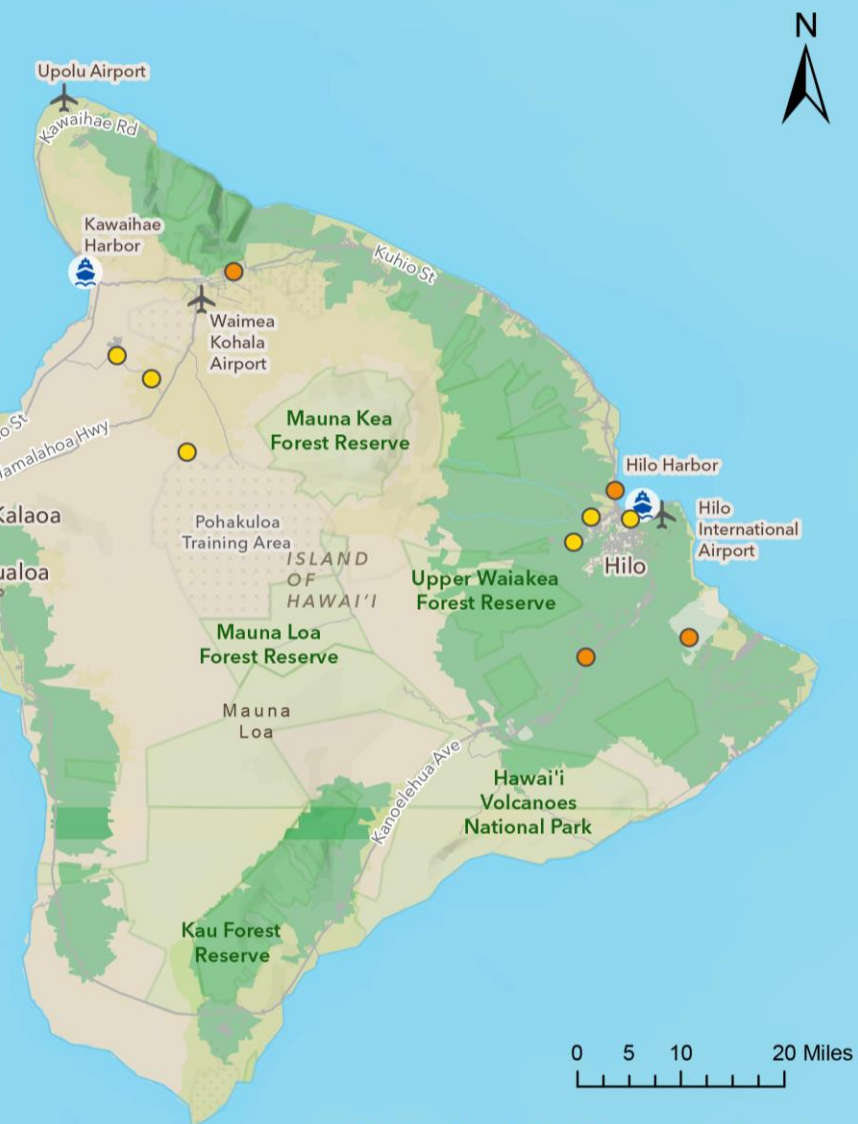
This data was collected under the Highway Safety Improvement Program of Title 23, United States Code (U.S.C.), Section 148. This data is protected under Title 23, U.S.C., Section 407, and is intended for highway safety and educational purposes only.



**Crash Type**

- Fatal
- Injury
- Property Damage Only

- Commercial Harbors
- Airports
- Interstate
- State Route
- County Route



Data from State of Hawaii Department of Transportation Years 2019-2022

# CMV Crash Characteristics in Kauai

1 fatal 5 injury 6 property damage

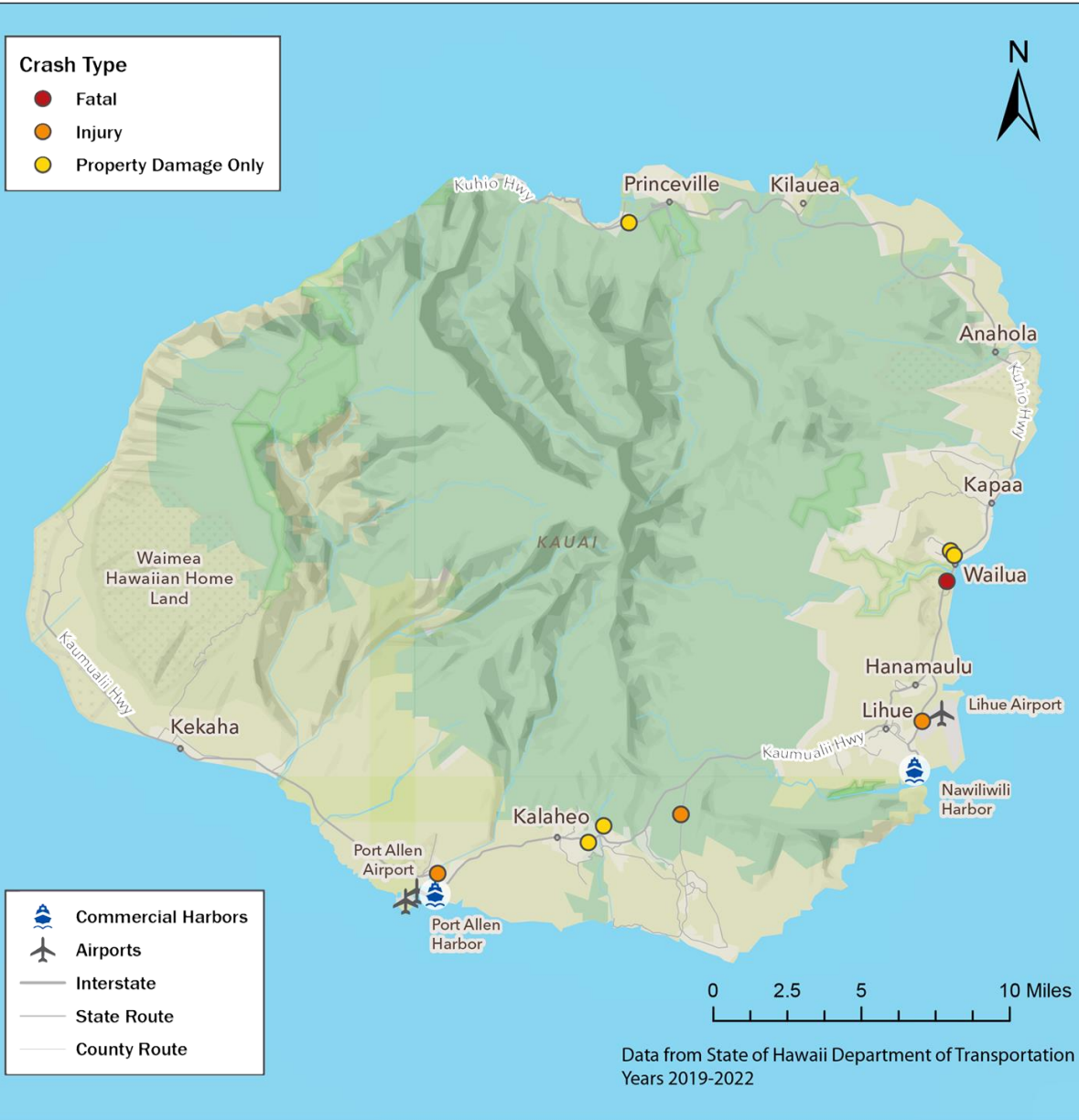
Crash Action	Count
Non-collision	0
Collision with object/animal	2
Collision with person	1
Collision with bicycle or moped	0
Collision with motor vehicle in transport (except moped)	10
Collision with motor vehicle-other	0

CMV: Commercial Motor Vehicles

Source: HDOT 2019-2022 Crash Data.

Disclaimer: The State of Hawaii, Department of Transportation, has provided this traffic crash information under the protection of 23USC 407. This information may not be used in any Federal or State court proceeding in any action for damages arising from any occurrence at a location mentioned or addressed in the information provided.

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# CMV Crash Characteristics in Maui

1 fatal 24 injury 24 property damage

Crash Action	Count
Non-collision	3
Collision with object/animal	19
Collision with person	2
Collision with bicycle or moped	3
Collision with motor vehicle in transport (except moped)	25
Collision with motor vehicle-other	7

CMV: Commercial Motor Vehicles

Source: HDOT 2019-2022 Crash Data.

Disclaimer: The State of Hawaii, Department of Transportation, has provided this traffic crash information under the protection of 23USC 407. This information may not be used in any Federal or State court proceeding in any action for damages arising from any occurrence at a location mentioned or addressed in the information provided.

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# Goal 1: Safety

What would you change or add to this goal?



Go to [www.menti.com](https://www.menti.com) and use the code 3715 7501



Develop a state freight network that provides for the safety **and security** of people, infrastructure, and goods movement.

Objectives	Strategies
Provide a safe transportation system for all users	<ul style="list-style-type: none"><li>❑ Decrease the number and severity of crashes involving freight-related vehicles.</li><li>❑ Provide adequate emergency response access to the State freight network, including marine and airports.</li><li>❑ Establish effective educational and/or training programs to improve safety along identified priority freight corridors.</li></ul>
Consider security of the State freight network.	<ul style="list-style-type: none"><li>❑ When evaluating infrastructure improvements, minimize future risk by considering security threats, particularly at marine, airports, and <b>military bases</b>.</li></ul>

Go to [www.menti.com](https://www.menti.com) and use the code **3715 7501**





# Goal 2: Infrastructure Preservation

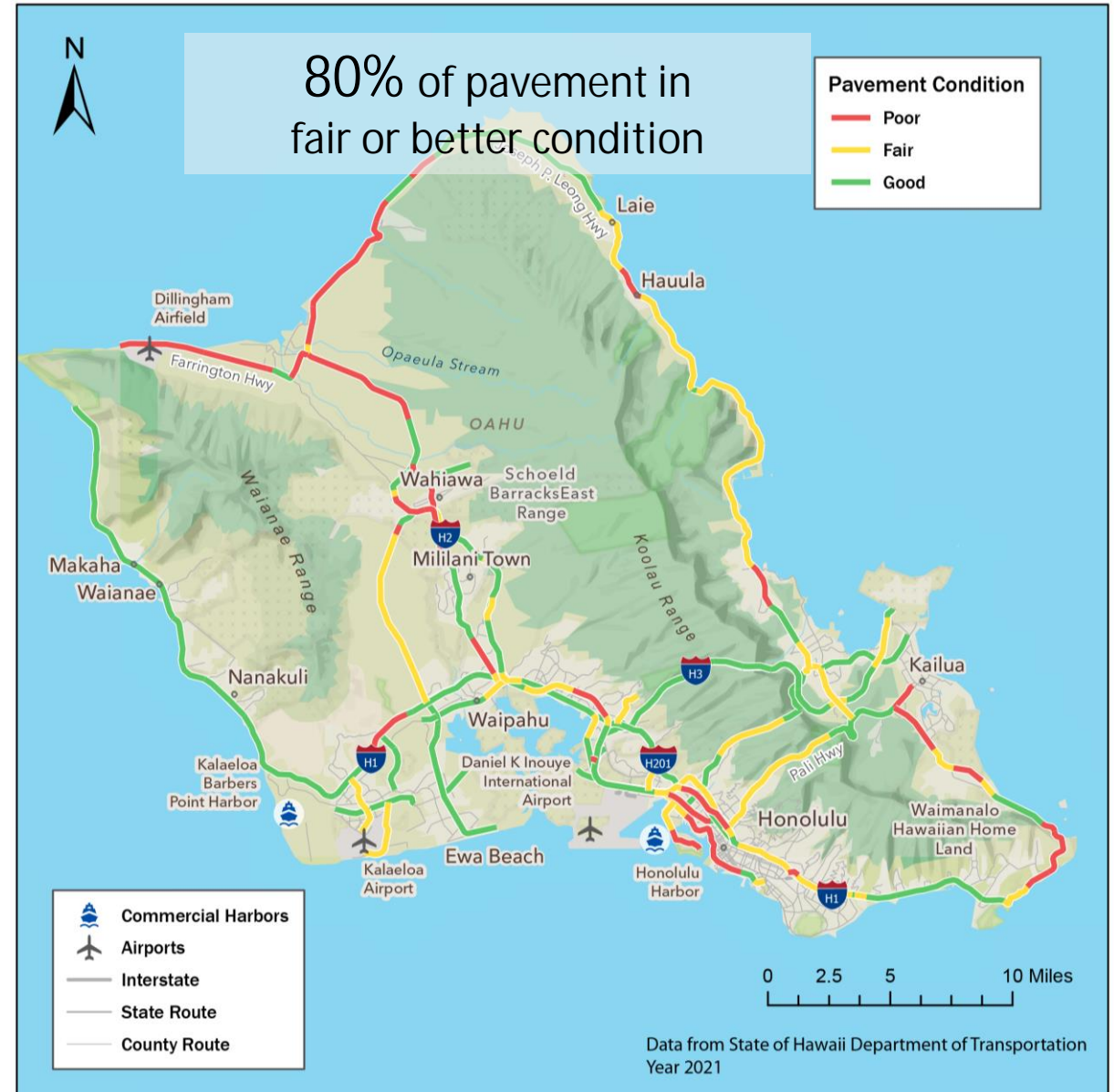
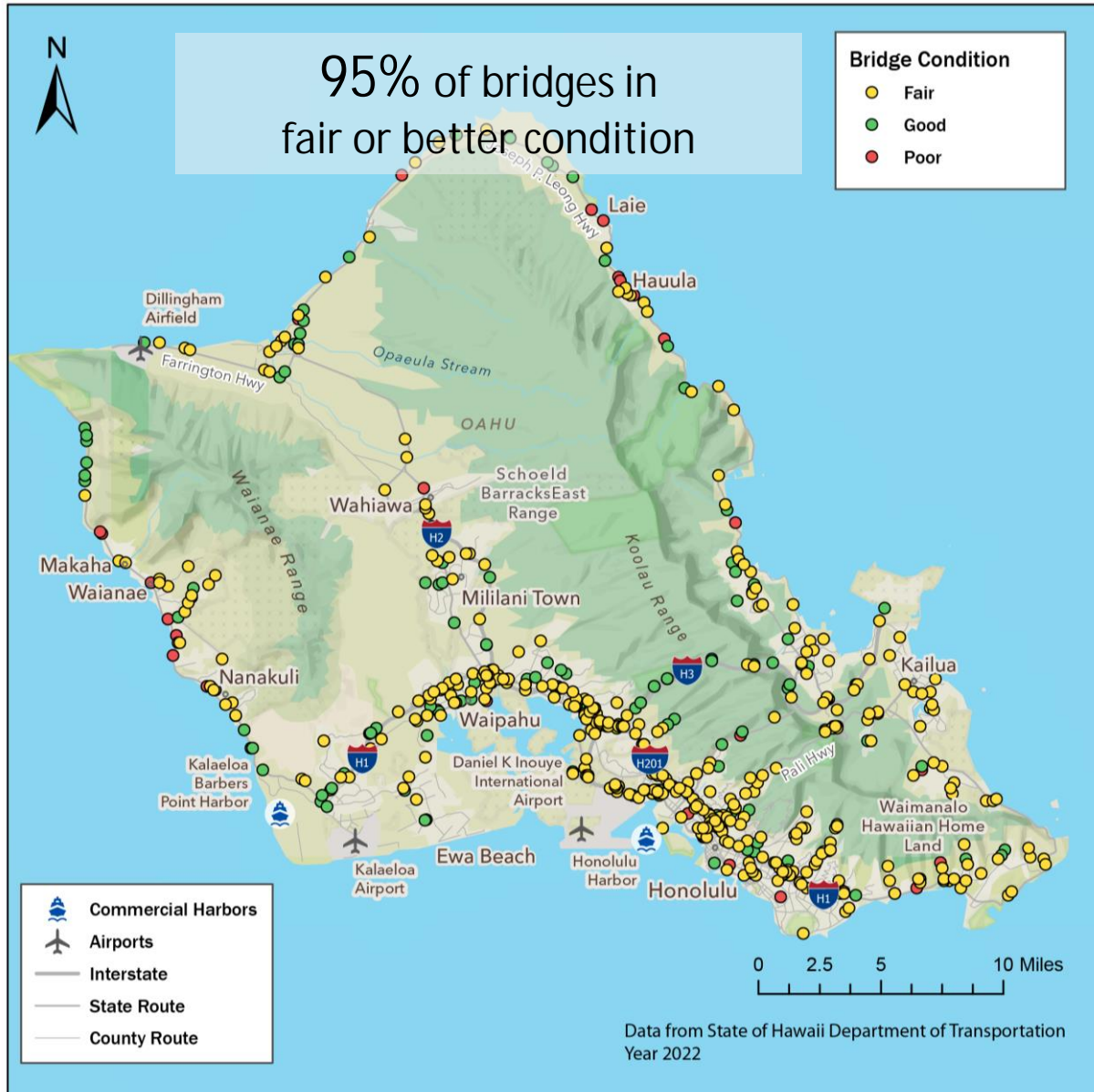
Maintain and improve the state of good repair of the freight transportation system.

Objectives	Strategies
<p>Maintain freight facility conditions on the National Multimodal Freight Network with a minimum of 30% in fair or better condition</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Inventory major freight assets and define and quantify system deterioration to ascertain status.</li> <li><input type="checkbox"/> Set acceptable standards at or above fair condition for freight facilities and take steps to improve facility conditions when needed.</li> </ul>
<p>Maintain a minimum of 30% of state bridges in fair or better condition.</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Inventory state bridges and define and quantify system deterioration to ascertain status.</li> <li><input type="checkbox"/> Set acceptable standards at or above fair condition for state bridges and take steps to improve facility conditions when needed.</li> </ul>
<p>Use life-cycle cost assessments in the prioritization of freight improvements.</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Leverage transportation funds for long-term operations and maintenance by incorporating life-cycle cost assessments.</li> </ul>

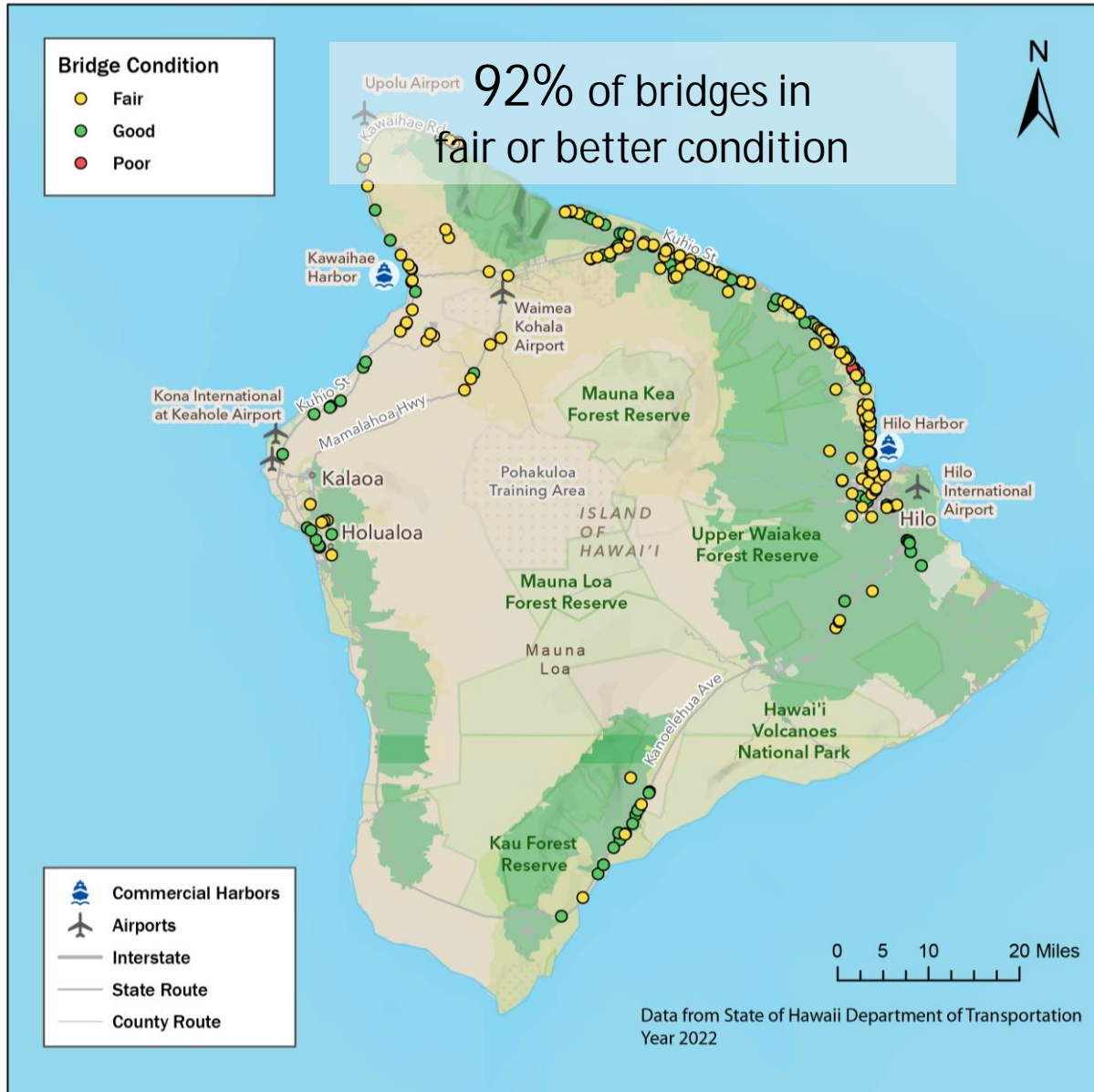
Note: 30% is from TAMP 4-year good target



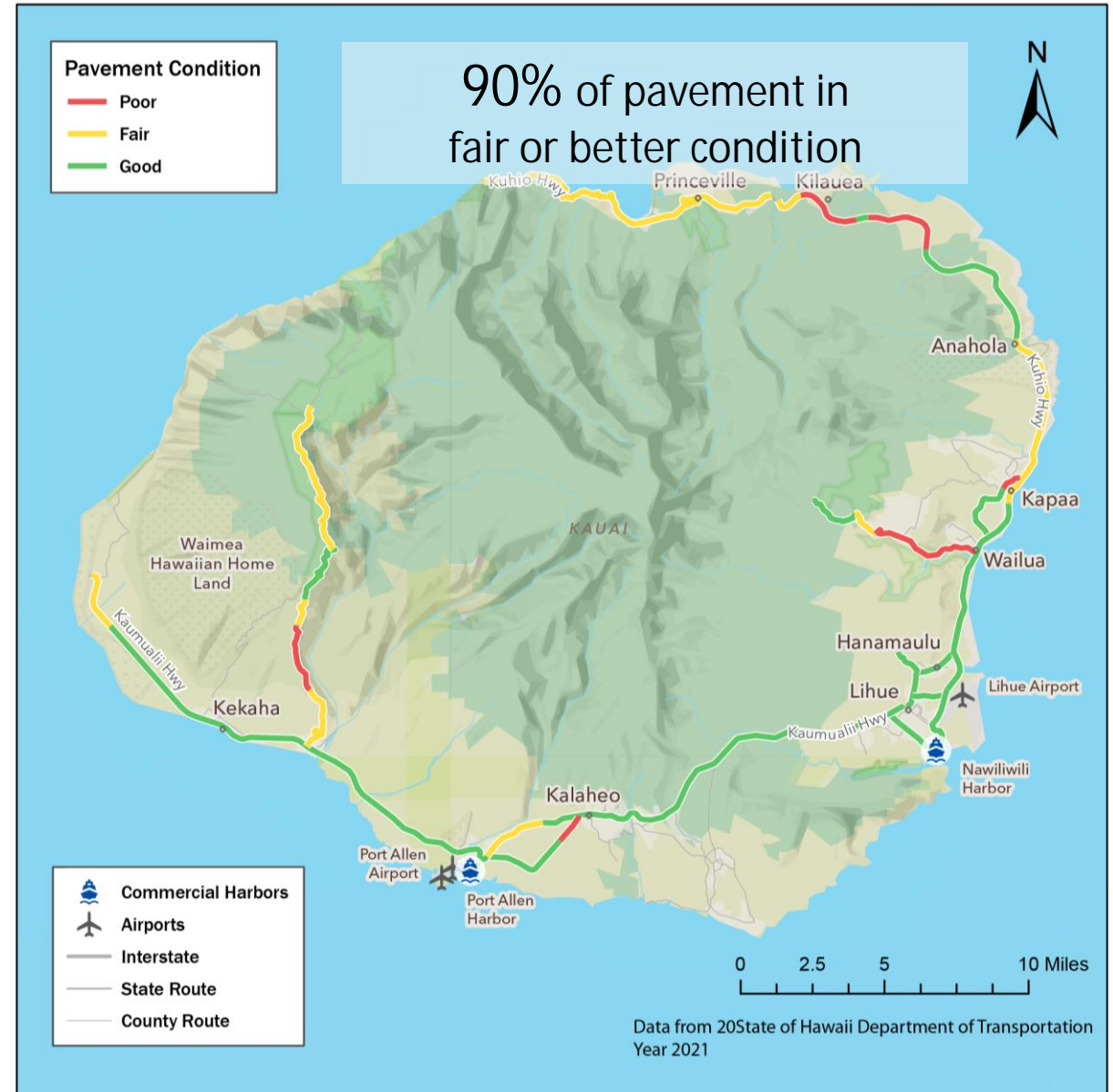
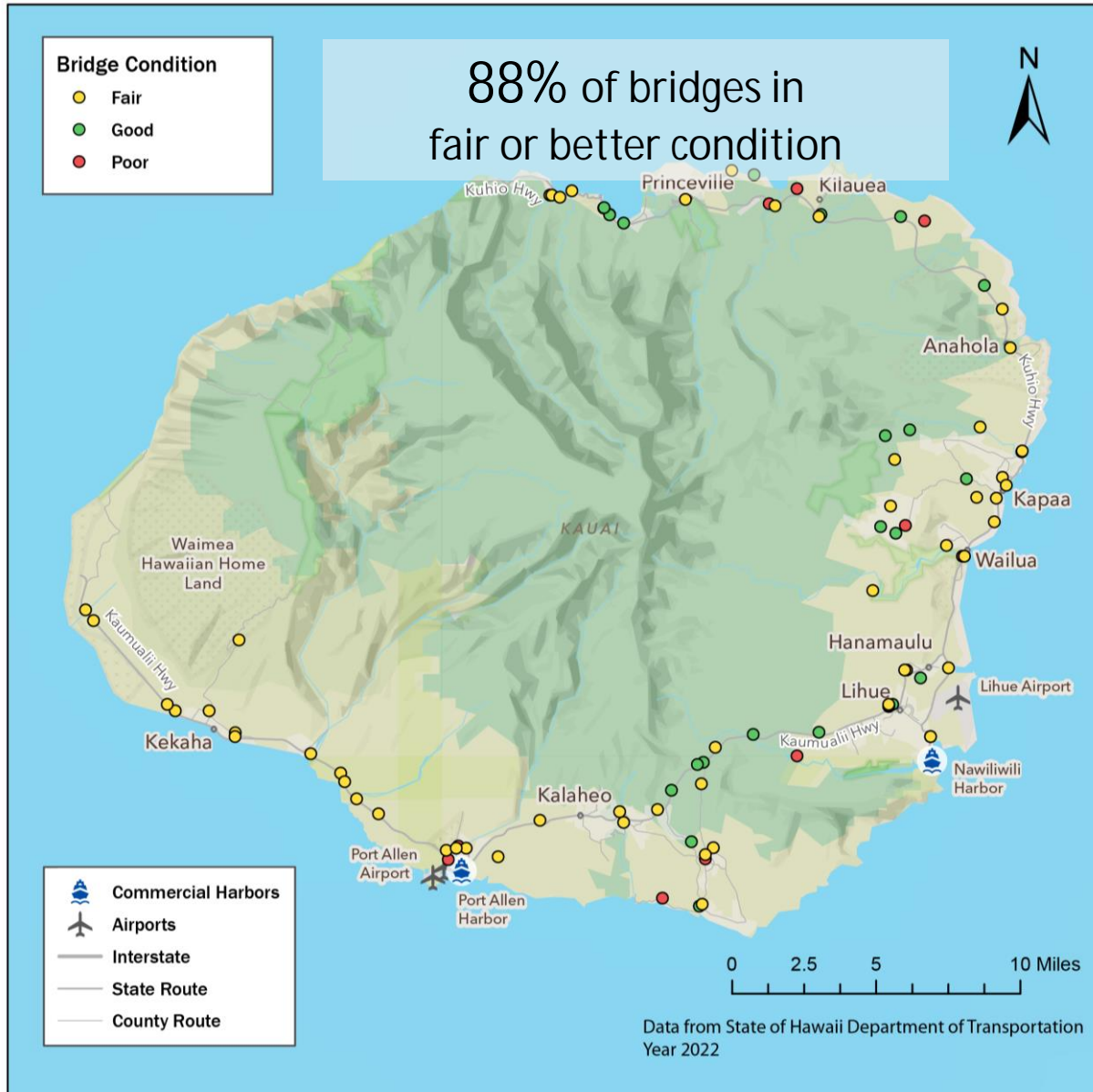
# Bridge and Pavement Conditions in Oahu



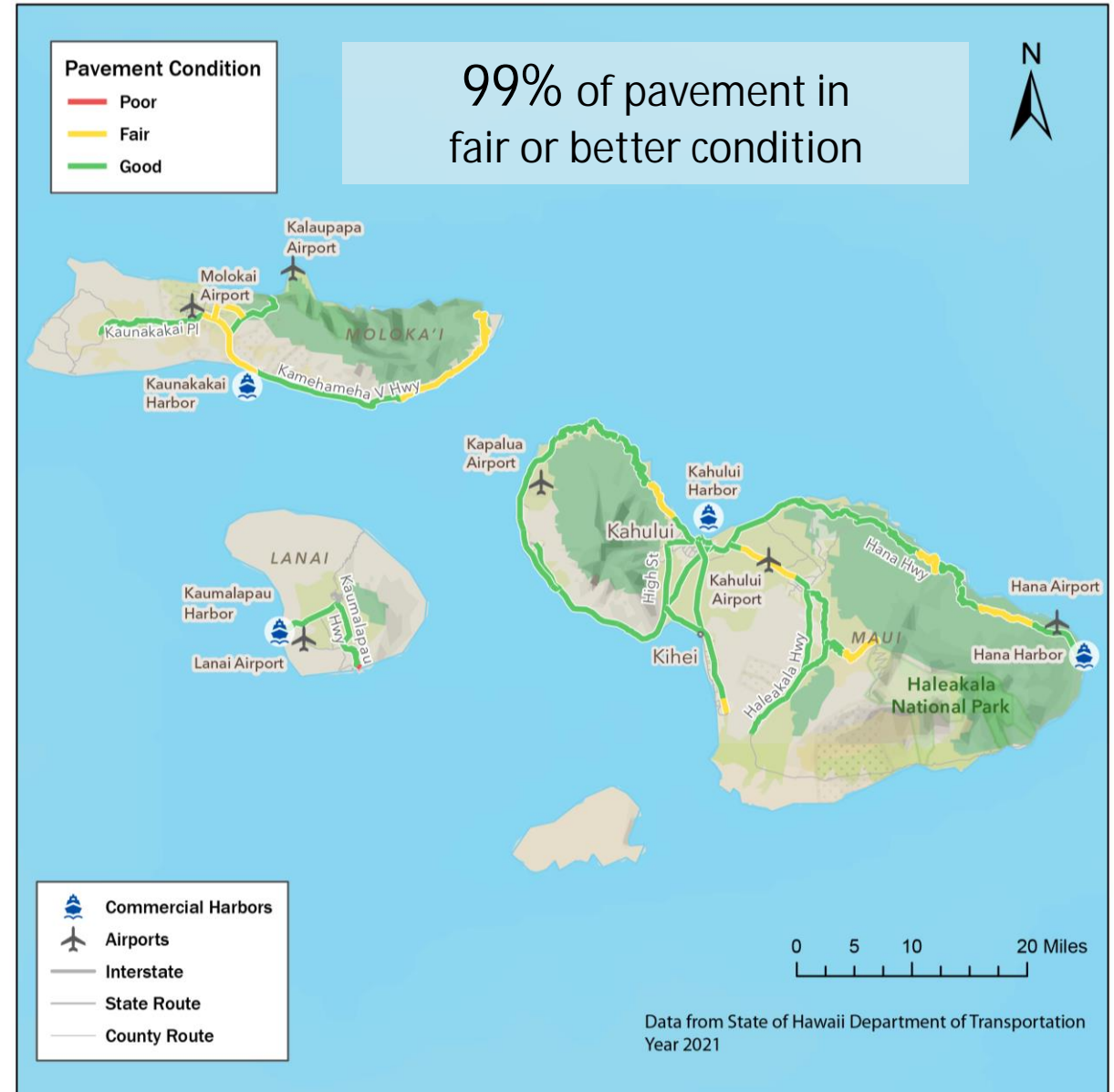
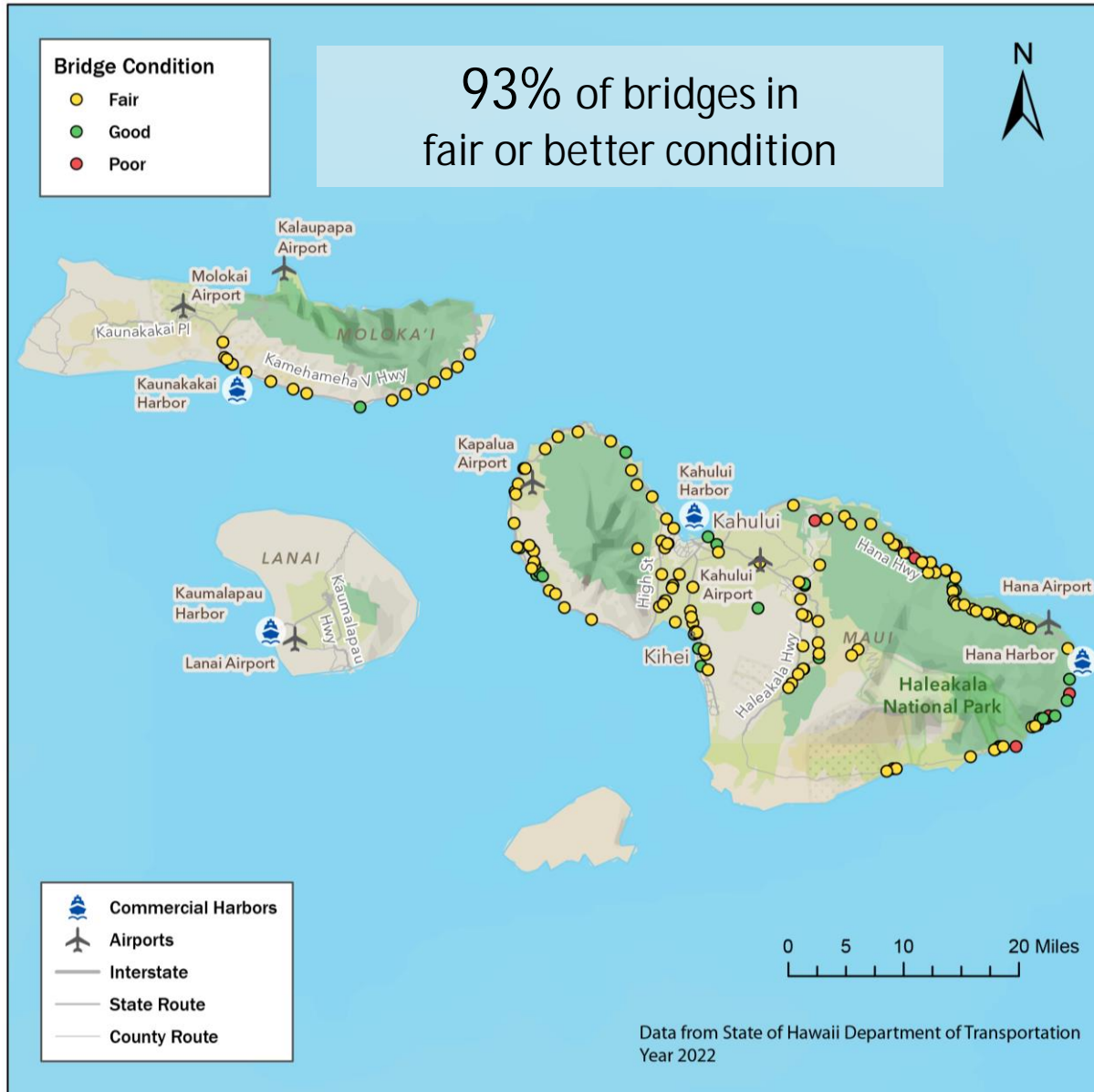
# Bridge and Pavement Conditions in Big Island



# Bridge and Pavement Conditions in Kauai



# Bridge and Pavement Conditions in Maui



## Goal 2: Infrastructure Preservation

What would you change or add to this goal?



Go to [www.menti.com](https://www.menti.com) and use the code 3715 7501



Maintain and improve the state of good repair of the freight transportation system.

Objectives	Strategies
Maintain freight facility conditions on the National Multimodal Freight Network with a minimum of 30% in fair or better condition	<ul style="list-style-type: none"><li data-bbox="766 501 2295 586">❑ Inventory major freight assets and define and quantify system deterioration to ascertain status.</li><li data-bbox="766 648 2313 733">❑ Set acceptable standards at or above fair condition for freight facilities and take steps to improve facility conditions when needed.</li></ul>
Maintain a minimum of 30% of state bridges in fair or better condition.	<ul style="list-style-type: none"><li data-bbox="766 822 2346 908">❑ Inventory state bridges and define and quantify system deterioration to ascertain status.</li><li data-bbox="766 969 2270 1055">❑ Set acceptable standards at or above fair condition for state bridges and take steps to improve facility conditions when needed.</li></ul>
Use life-cycle cost assessments in the prioritization of freight improvements.	<ul style="list-style-type: none"><li data-bbox="766 1186 1951 1272">❑ Leverage transportation funds for long-term operations and maintenance by incorporating life-cycle cost assessments.</li></ul>



Go to [www.menti.com](https://www.menti.com) and use the code **3715 7501**

Note: 30% is from TAMP 4-year good target



# Goal 3: Infrastructure Mobility Improvements

# Goal 3. Infrastructure Mobility Improvements

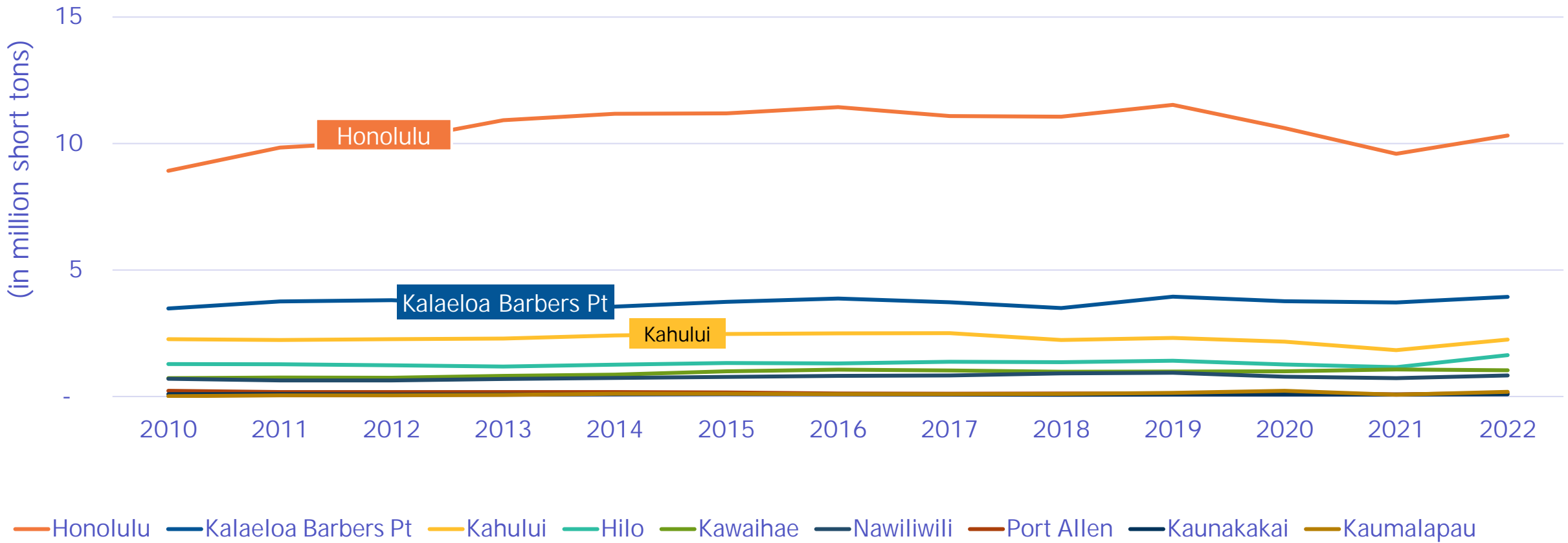
Improve the multimodal freight infrastructure to provide mobility and connectivity for freight, and to support the needs of the local economy, including the tourism industry and military.

Objectives	Strategies
Reduce congestion and eliminate bottlenecks on key freight routes.	<ul style="list-style-type: none"><li data-bbox="759 701 2321 793">❑ Implement projects that address deficiencies or congestion on the National Multimodal Freight Network and other key freight routes important to the State.</li><li data-bbox="759 848 1658 891">❑ Improve the first- and last-mile connections.</li><li data-bbox="759 945 2328 1038">❑ Improve the freight infrastructure in rural areas to provide access to markets and promote economic development.</li></ul>
Improve intermodal connectivity.	<ul style="list-style-type: none"><li data-bbox="759 1165 1888 1258">❑ Implement projects that improve access and connectivity to intermodal facilities.</li></ul>



# Annual Trends in Cargo Volume for Hawaii Harbors

Total cargo volumes in 2021 was lowest for Hawaii since 2011, but increased again by 11% by 2022 to 20.4 million short tons



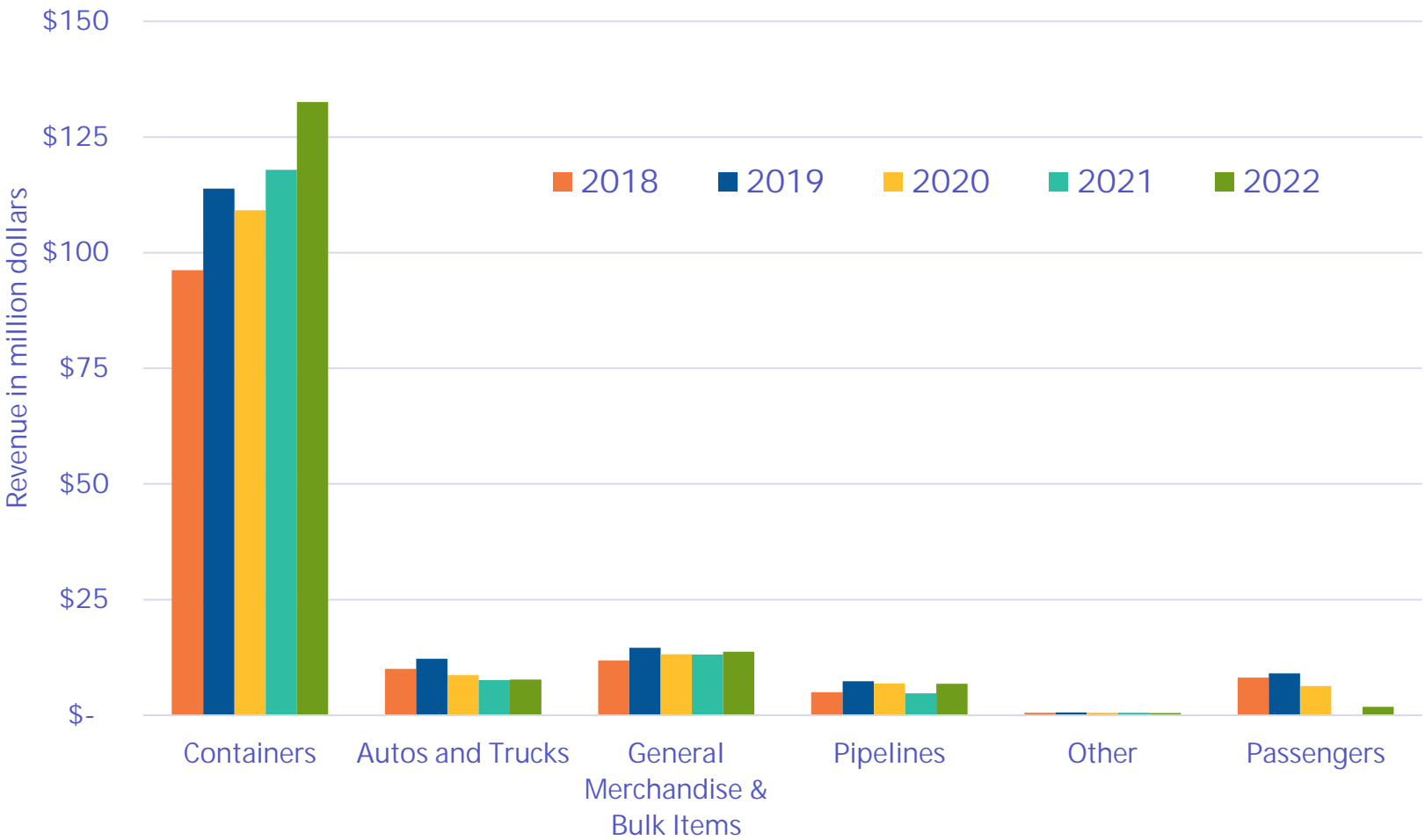
HDOT Harbors Division. Annual information for the fiscal year ended June 30, 2022, specifically only the audited financial statements for the fiscal year ended June 30, 2022.



# Annual Trends in Cargo Traffic for Hawaii Harbors

## Revenues Dollars (in million dollars)

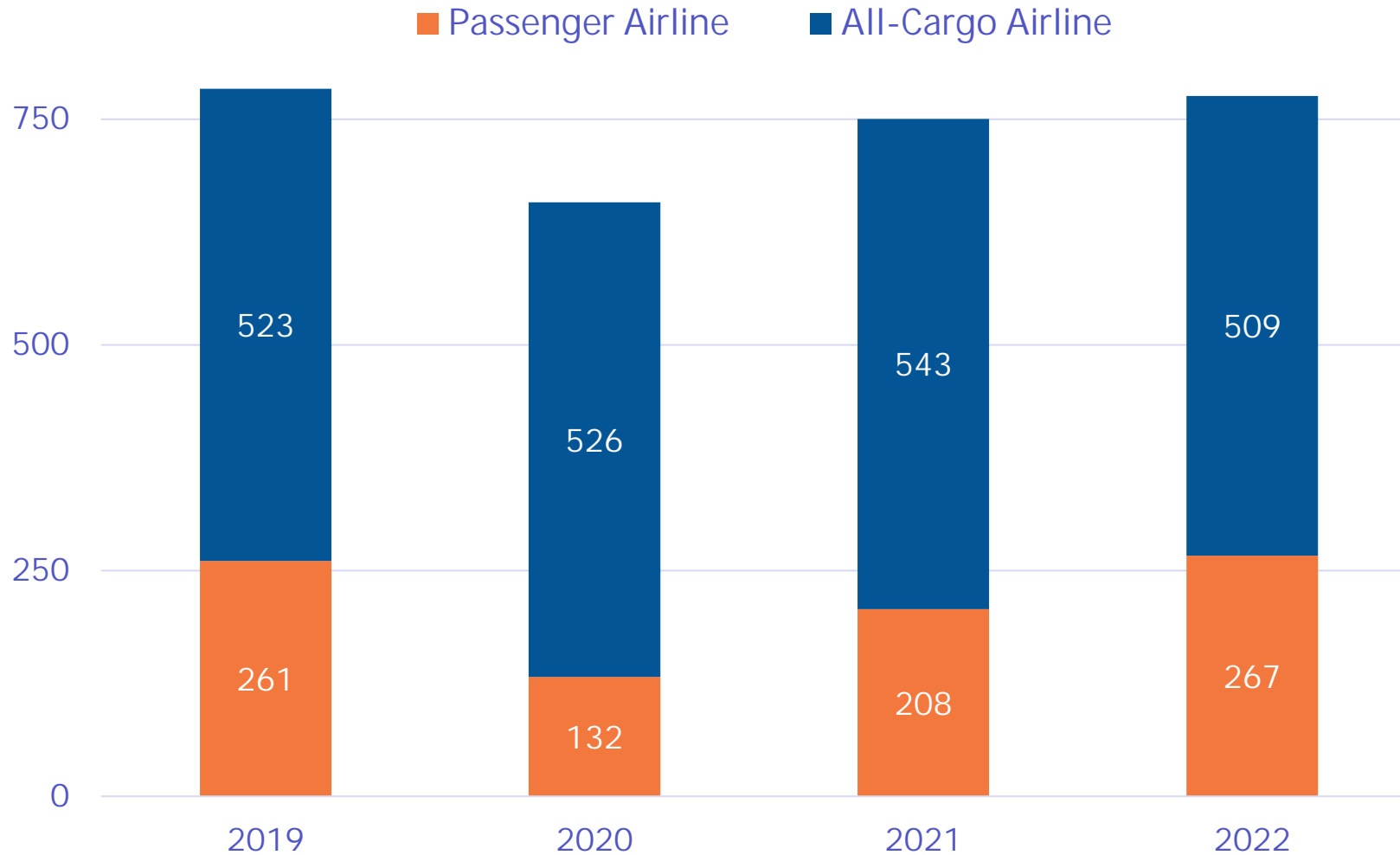
Revenues from container shipments account for 81% of cargo traffic through Hawaii Harbors in 2022



HDOT Harbors Division. Annual information for the fiscal year ended June 30, 2022, specifically only the audited financial statements for the fiscal year ended June 30, 2022.



# Air Cargo & Mail Traffic (in US Thousands Tons) by Carrier Type



Passenger airlines moved 30% \* of air cargo to and from Hawaii

\*The tons moved by passenger airlines accounts for 30% of total tons moved by passenger airlines and all-cargo airlines combined.



# Goal 3: Infrastructure Mobility Improvements

What would you change or add to this goal?



Go to [www.menti.com](https://www.menti.com) and use the code 3715 7501



# Goal 3. Infrastructure Mobility Improvements

Improve the multimodal freight infrastructure to provide mobility and connectivity for freight, and to support the needs of the local economy, including the tourism industry and military.

Objectives	Strategies
Reduce congestion and eliminate bottlenecks on key freight routes.	<ul style="list-style-type: none"><li data-bbox="759 701 2321 793">❑ Implement projects that address deficiencies or congestion on the National Multimodal Freight Network and other key freight routes important to the State.</li><li data-bbox="759 848 1658 891">❑ Improve the first- and last-mile connections.</li><li data-bbox="759 945 2328 1038">❑ Improve the freight infrastructure in rural areas to provide access to markets and promote economic development.</li></ul>
Improve intermodal connectivity.	<ul style="list-style-type: none"><li data-bbox="759 1165 1888 1258">❑ Implement projects that improve access and connectivity to intermodal facilities.</li></ul>



Go to [www.menti.com](http://www.menti.com) and use the code 3715 7501



Break - 5 minutes





# Goal 4: Reliable Freight Network

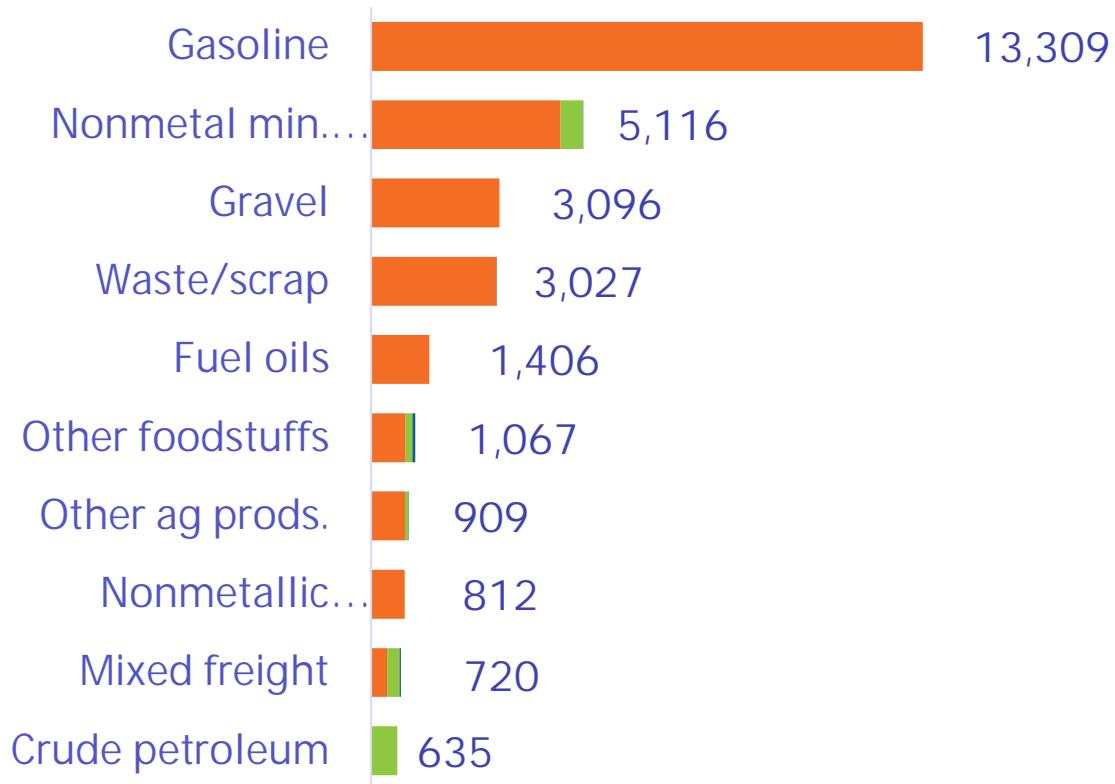
Create a reliable freight network that allows shippers and receivers to plan around predictable travel times.

Objectives	Strategies
Optimize the efficiency and reliability of the State freight network.	<ul style="list-style-type: none"><li data-bbox="751 618 2262 715">❑ Use technology, performance management, innovation, and accountability in operating and maintaining the State Freight network.</li><li data-bbox="751 768 2295 865">❑ Assess the status of Hawaii’s current technology use and emerging innovations, particularly at marine, airports, and intermodal facilities.</li><li data-bbox="751 918 2135 962">❑ Assess the impact of e-commerce on freight infrastructure in the State</li></ul>

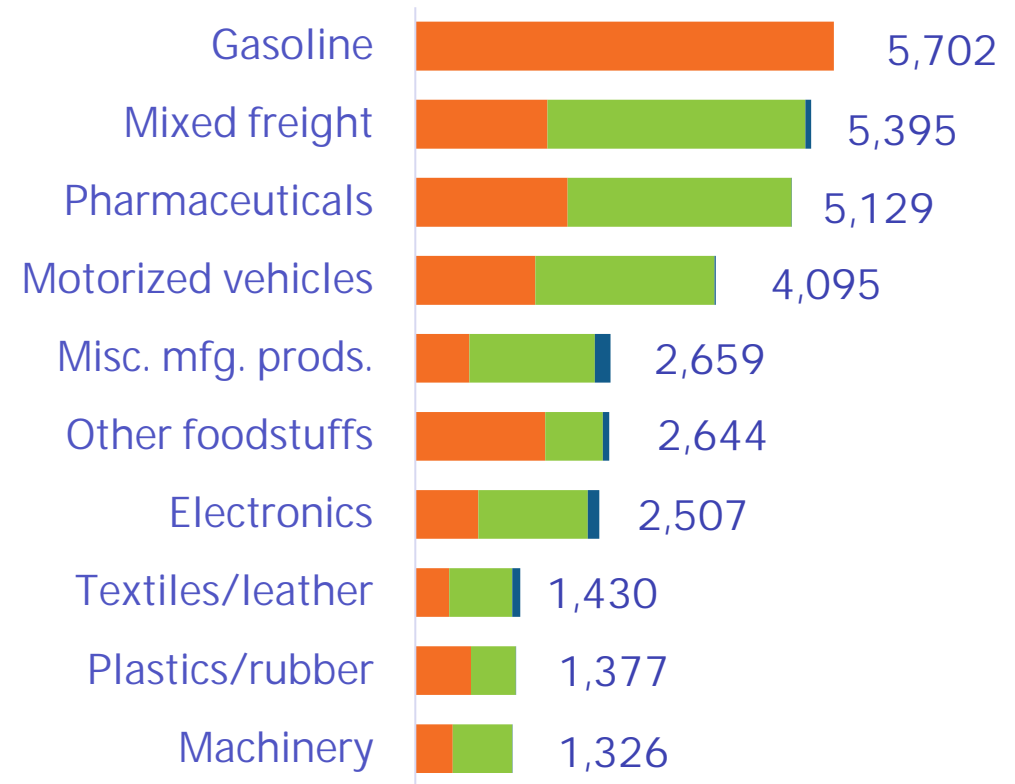


# Top Domestic Commodities (from US State to US State)

## 2022 Top Domestic Commodity Movement by Thousand Tons



## 2022 Top Domestic Commodity Movement by Million USD

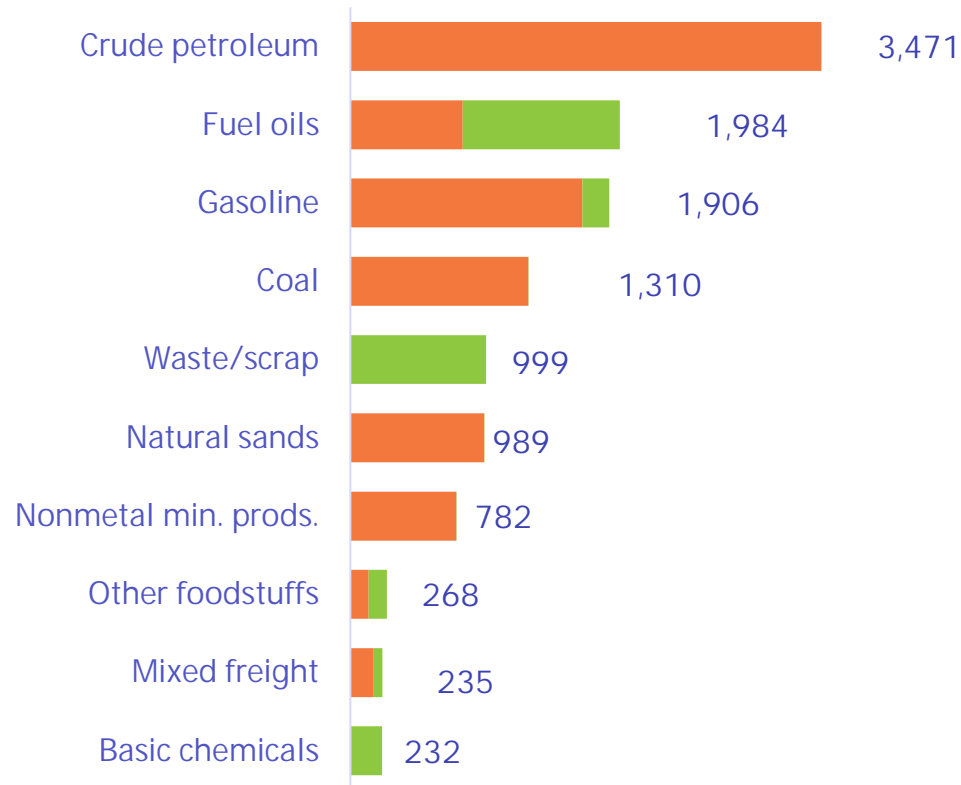


■ Within Hawaii    
 ■ Inbound    
 ■ Outbound

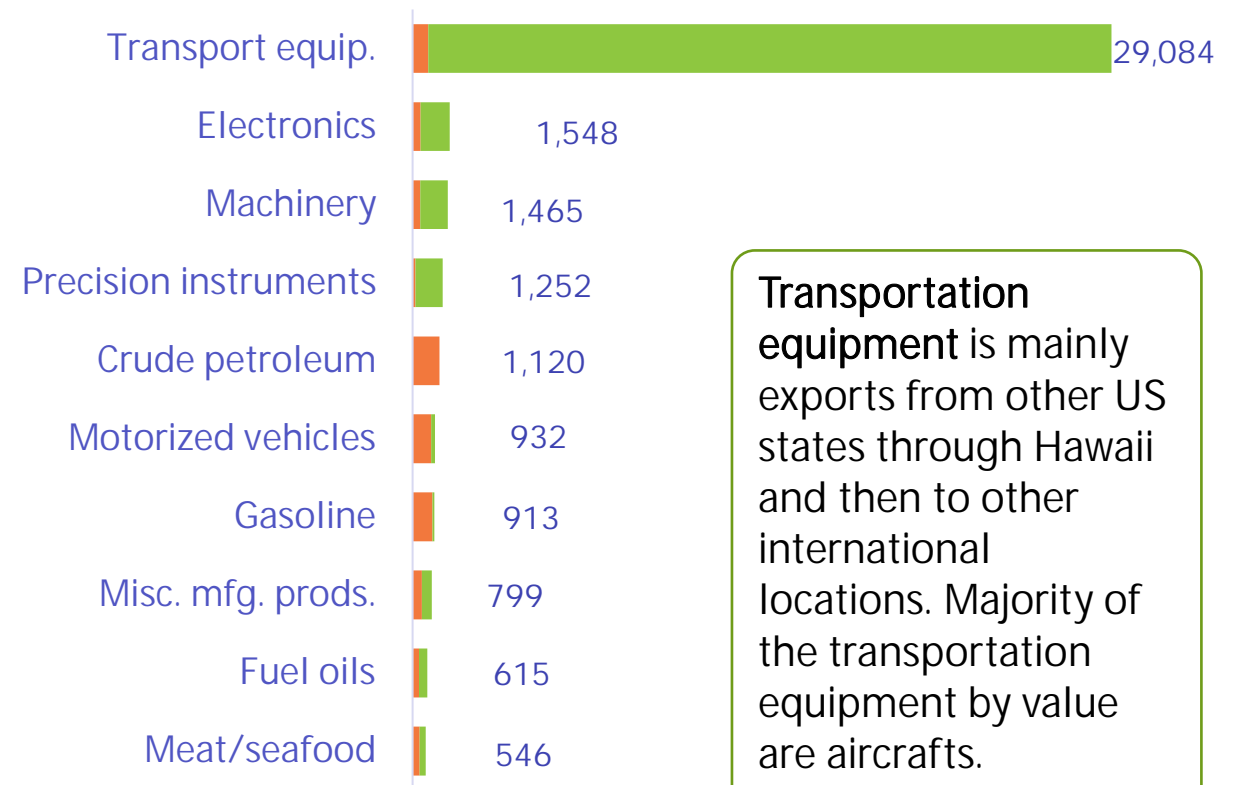
Source: Freight Analysis Framework, Version 5  
 \*FAF data are forecasts based on 2017 base data. Base year data are consolidated from multiple data source



## 2022 Top International Commodity Movement by Thousand Tons




## 2022 Top International Commodity Movement by Million USD



**Transportation equipment** is mainly exports from other US states through Hawaii and then to other international locations. Majority of the transportation equipment by value are aircrafts.

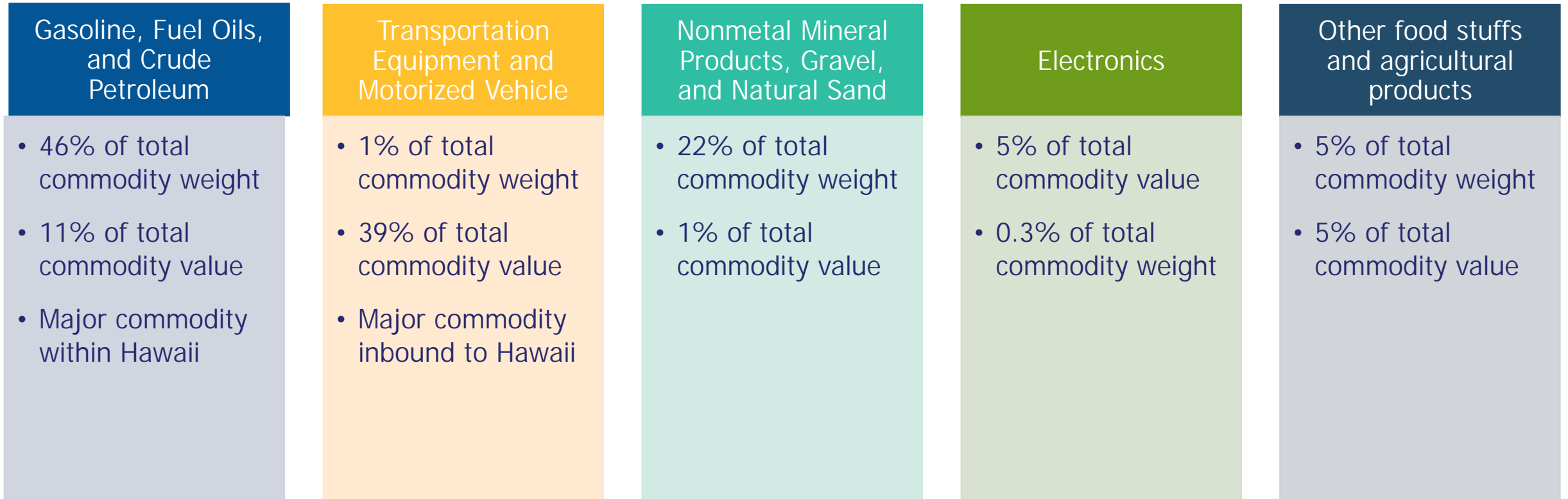
Source: Freight Analysis Framework, Version 5

 Import

 Export



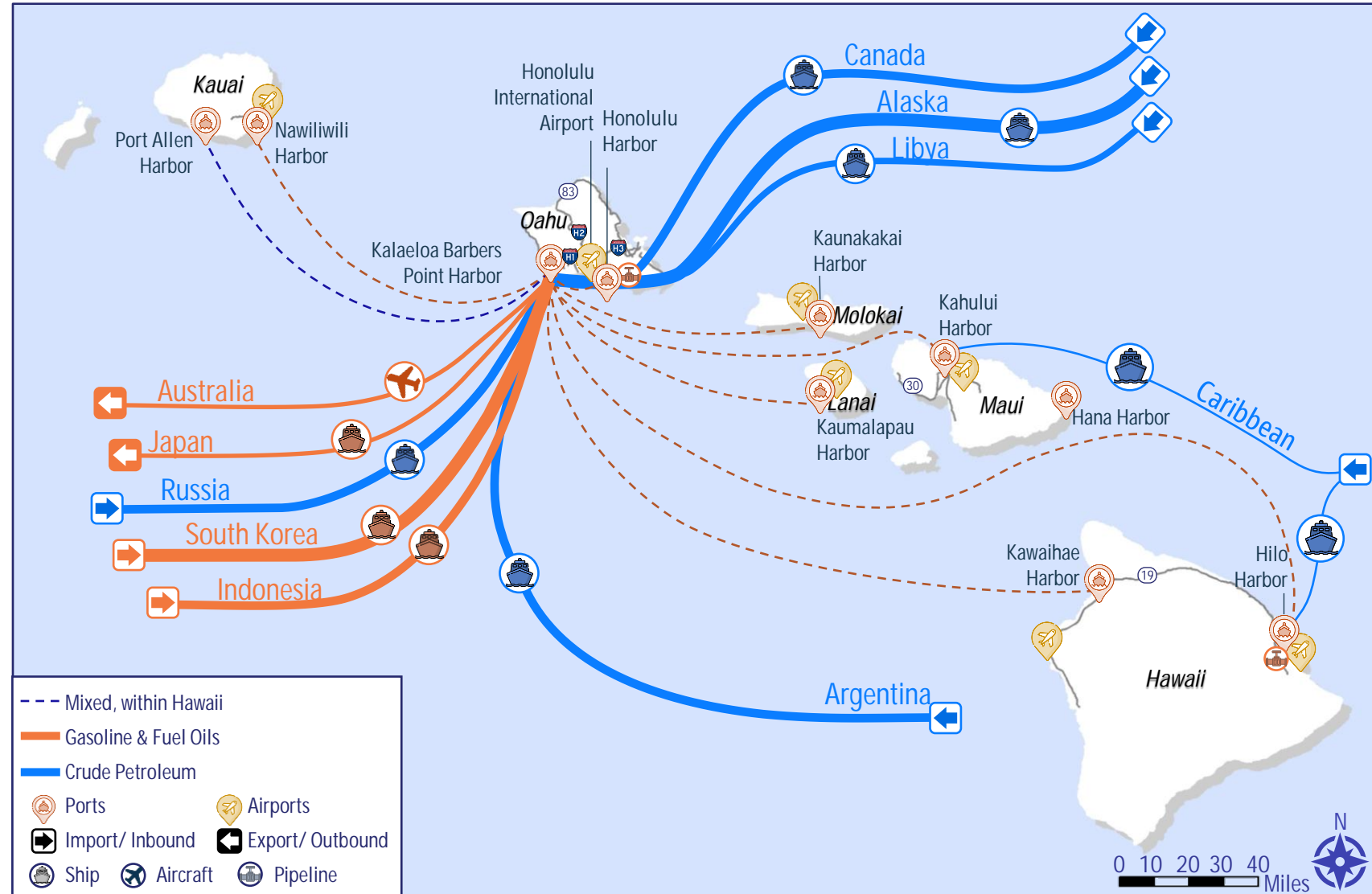
- 74% total commodity weight and 60% total commodity value



\* The majority of the transportation equipment are aircraft

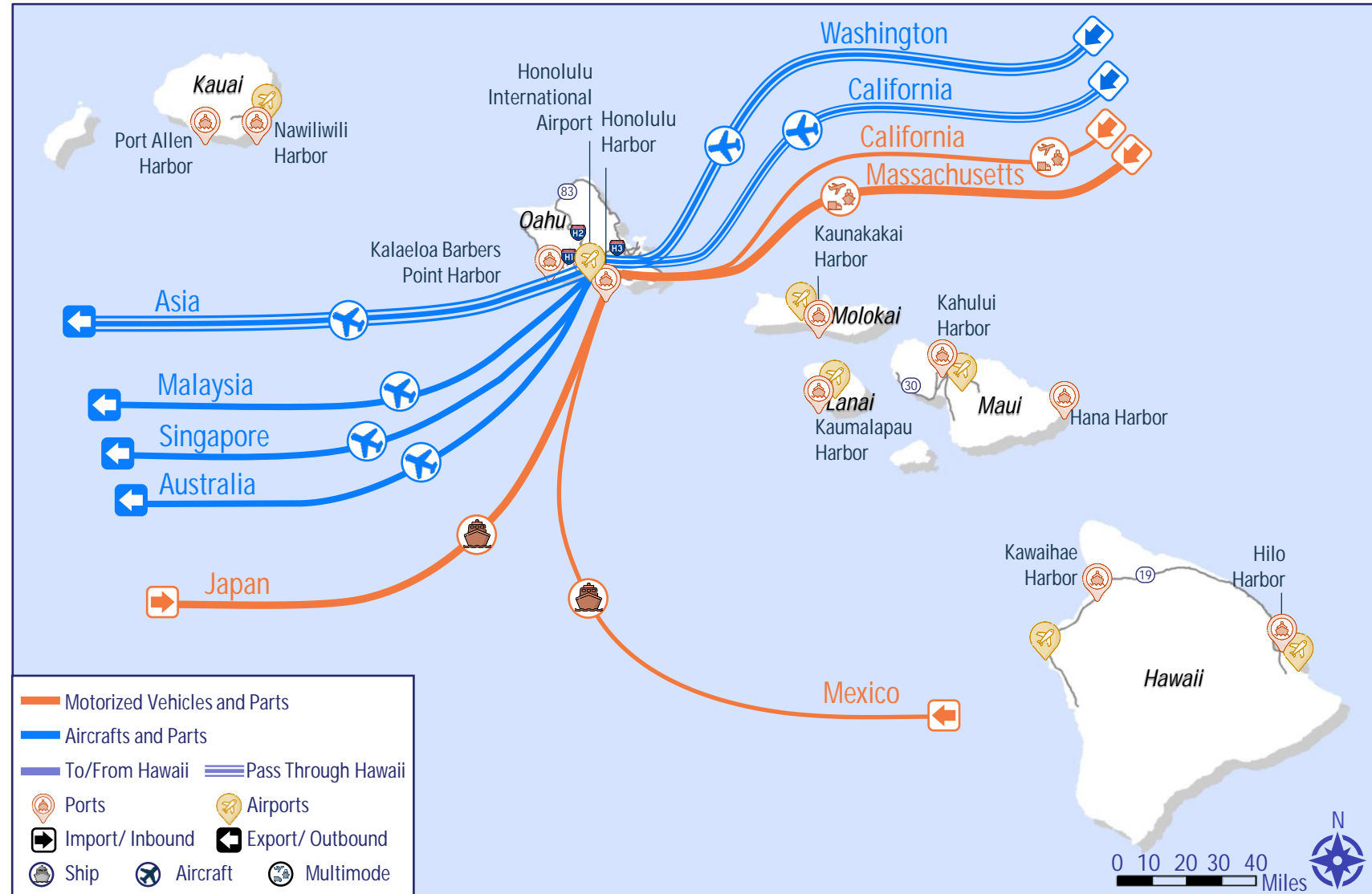


- Within Hawaii (14.7M tons)
  - Top Domestic Partner
    - Alaska (634K tons)
  - Top International Partners
    - South Korea (598K tons)
    - Russia (210K tons)
    - Argentina (154K tons)
- Major Facilities
  - Kalaeloa (Barbers Point) Deep Draft Harbor



Source: US Census Bureau, USA Trade Online

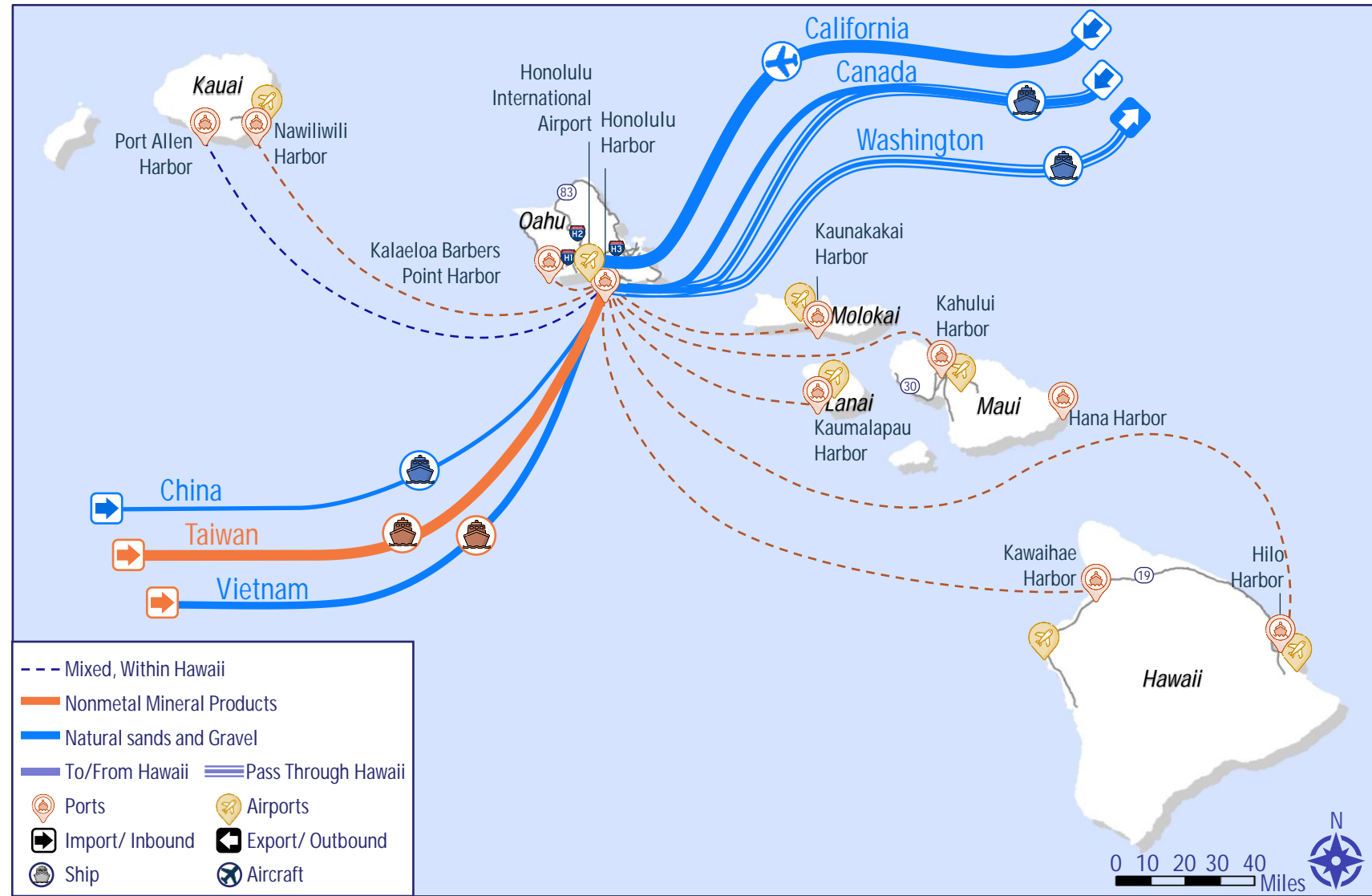
- Within Hawaii (\$1.6 B)
- Top Domestic Partners
  - Massachusetts (\$1.3 B)
  - California (\$1.7 B pass through)
  - Washington (\$23.7 B pass through)
- Top International Partners
  - Japan (\$430 M)
  - Singapore (\$313 M)
- Major Facilities
  - Honolulu International Airport
  - Honolulu Port



Source: US Census Bureau, USA Trade Online

# Nonmetal Mineral Products, Gravel, and Natural Sand

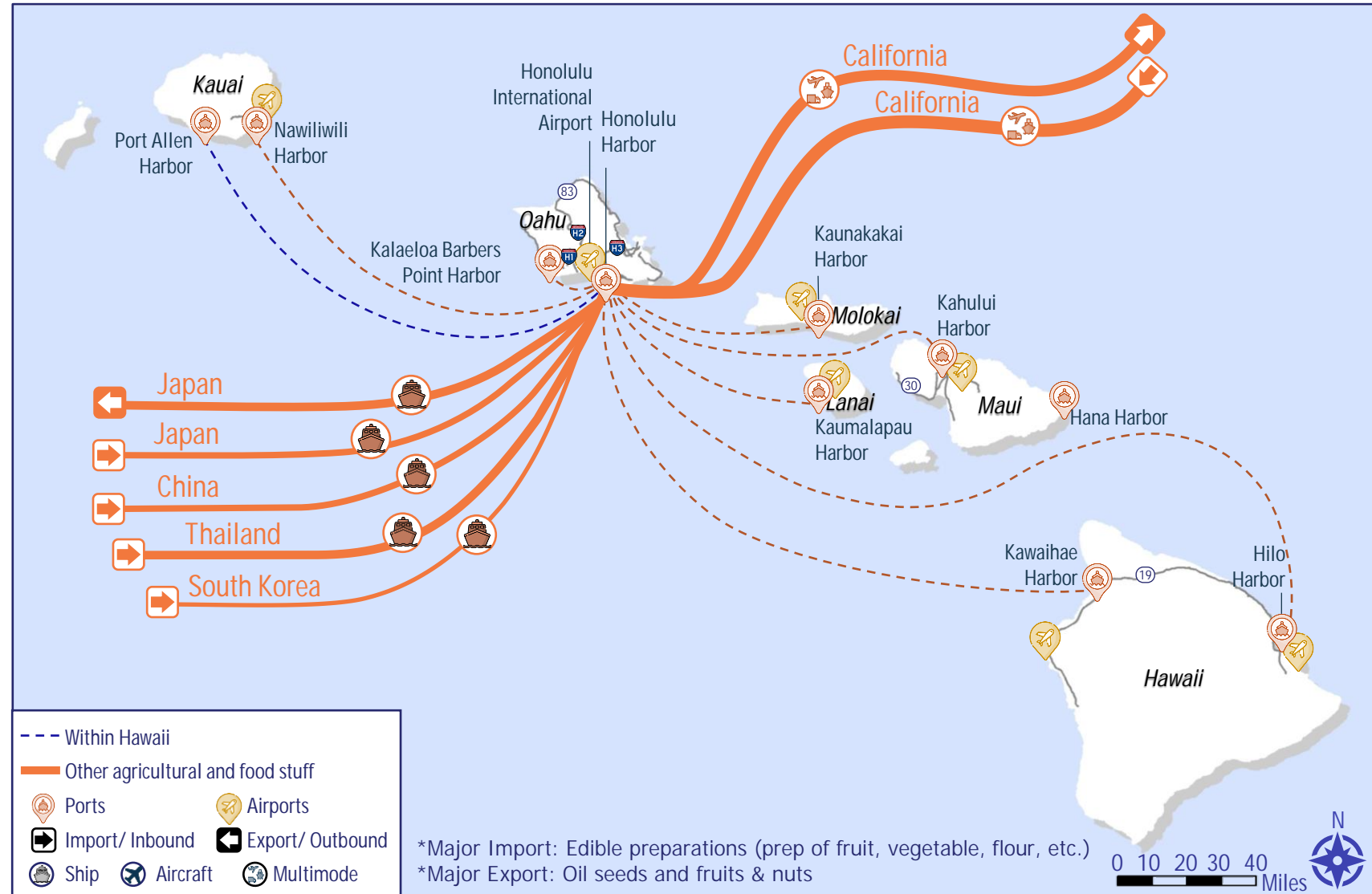
- Within Hawaii (8 M tons)
- Top Domestic Partners
  - California (522 K tons)
  - Washington (533 K tons pass through)
- Top International Partners
  - Taiwan (279 K tons)
  - Vietnam (30 K tons)
- Major Facilities
  - Honolulu Port



Source: US Census Bureau, USA Trade Online

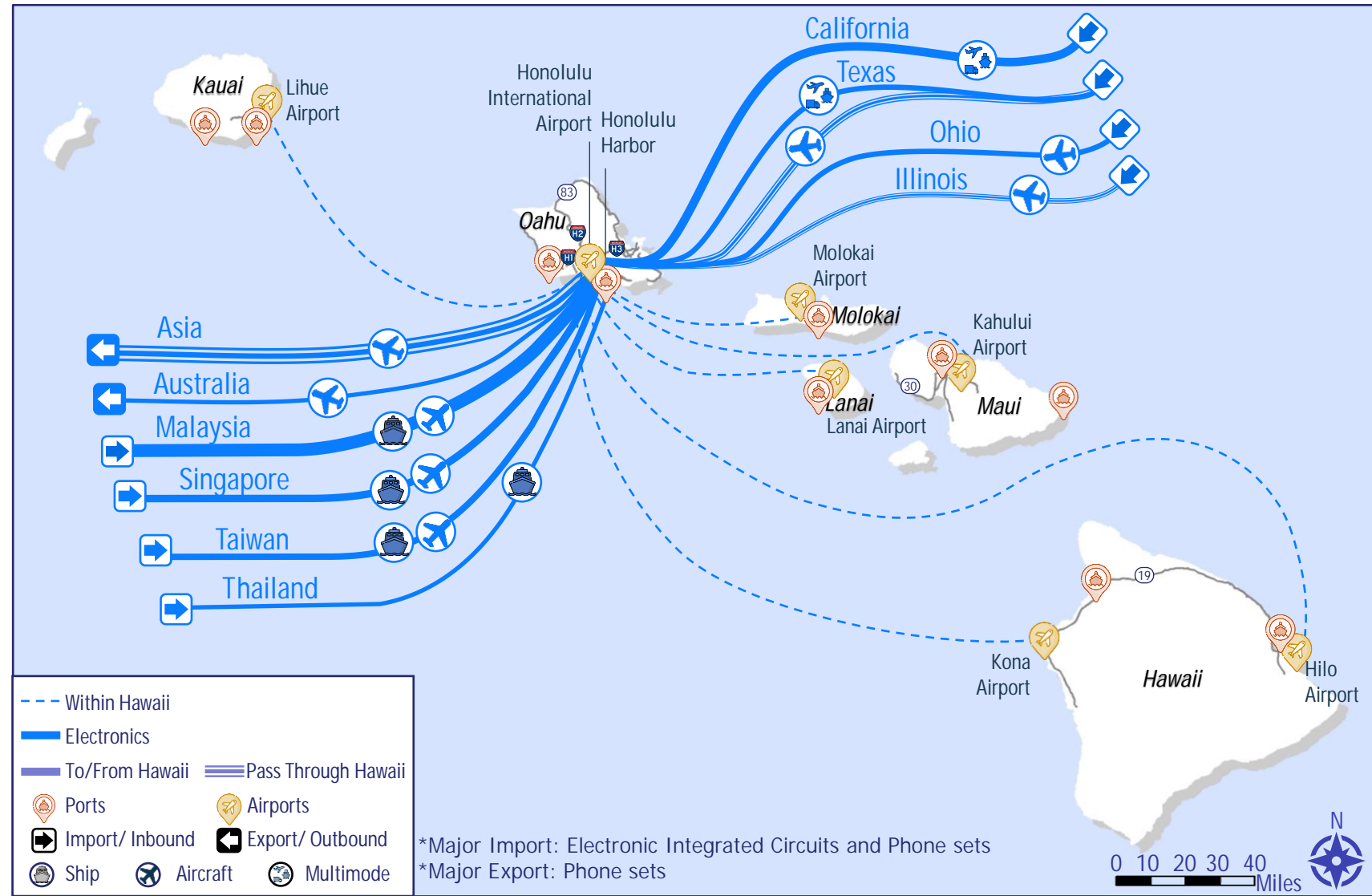
# Other food stuffs and agricultural products

- Within Hawaii (1.7 M tons)
- Top Domestic Partners
  - California (265 K tons)
- Top International Partners
  - Japan (14.5 K tons)
  - China (12.5 K tons)
  - Thailand (10 K tons)
- Major Facilities
  - Honolulu Port
  - Honolulu International Airport



Source: US Census Bureau, USA Trade Online

- Within Hawaii (\$ 862 M)
- Top Domestic Partners
  - California (\$728 M)
  - Texas (\$302 M pass through)
- Top International Partners
  - Malaysia (\$1,000 M)
  - Singapore (\$512 M)
  - Taiwan (\$357 M)
- Major Facilities
  - FedEx Corporation Honolulu Port
  - Honolulu International Airport



Source: US Census Bureau, USA Trade Online



# Goal 4: Reliable Freight Network

What would you change or add to this goal?



Go to [www.menti.com](https://www.menti.com) and use the code 3715 7501



Create a reliable freight network that allows shippers and receivers to plan around predictable travel times.

Objectives	Strategies
Optimize the efficiency and reliability of the State freight network.	<ul style="list-style-type: none"><li data-bbox="754 619 2262 715">❑ Use technology, performance management, innovation, and accountability in operating and maintaining the State Freight network.</li><li data-bbox="754 768 2295 863">❑ Assess the status of Hawaii’s current technology use and emerging innovations, particularly at marine, airports, and intermodal facilities.</li><li data-bbox="754 916 2135 961">❑ Assess the impact of e-commerce on freight infrastructure in the State</li></ul>



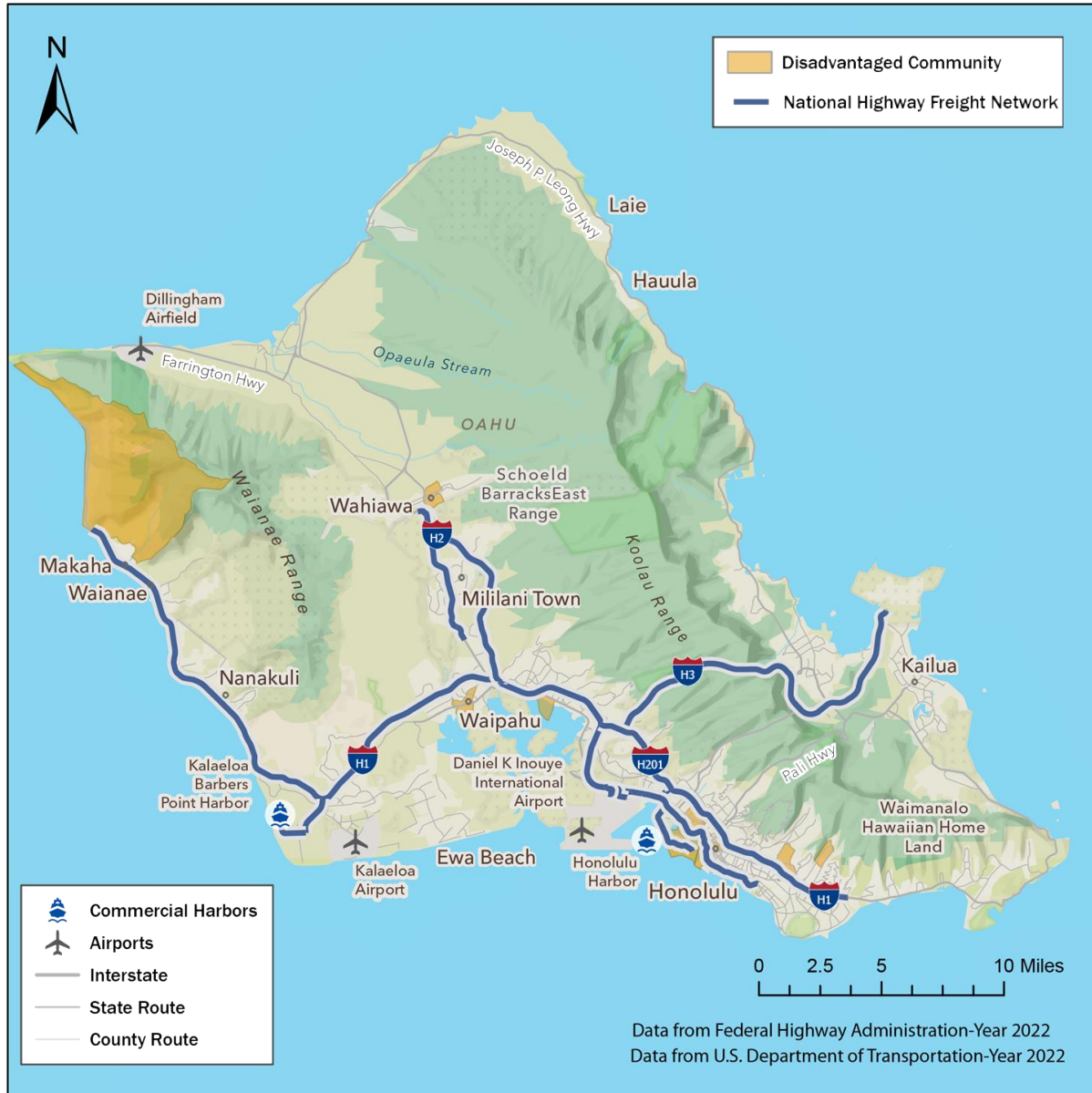


# Goal 5: Minimize Environmental Impacts

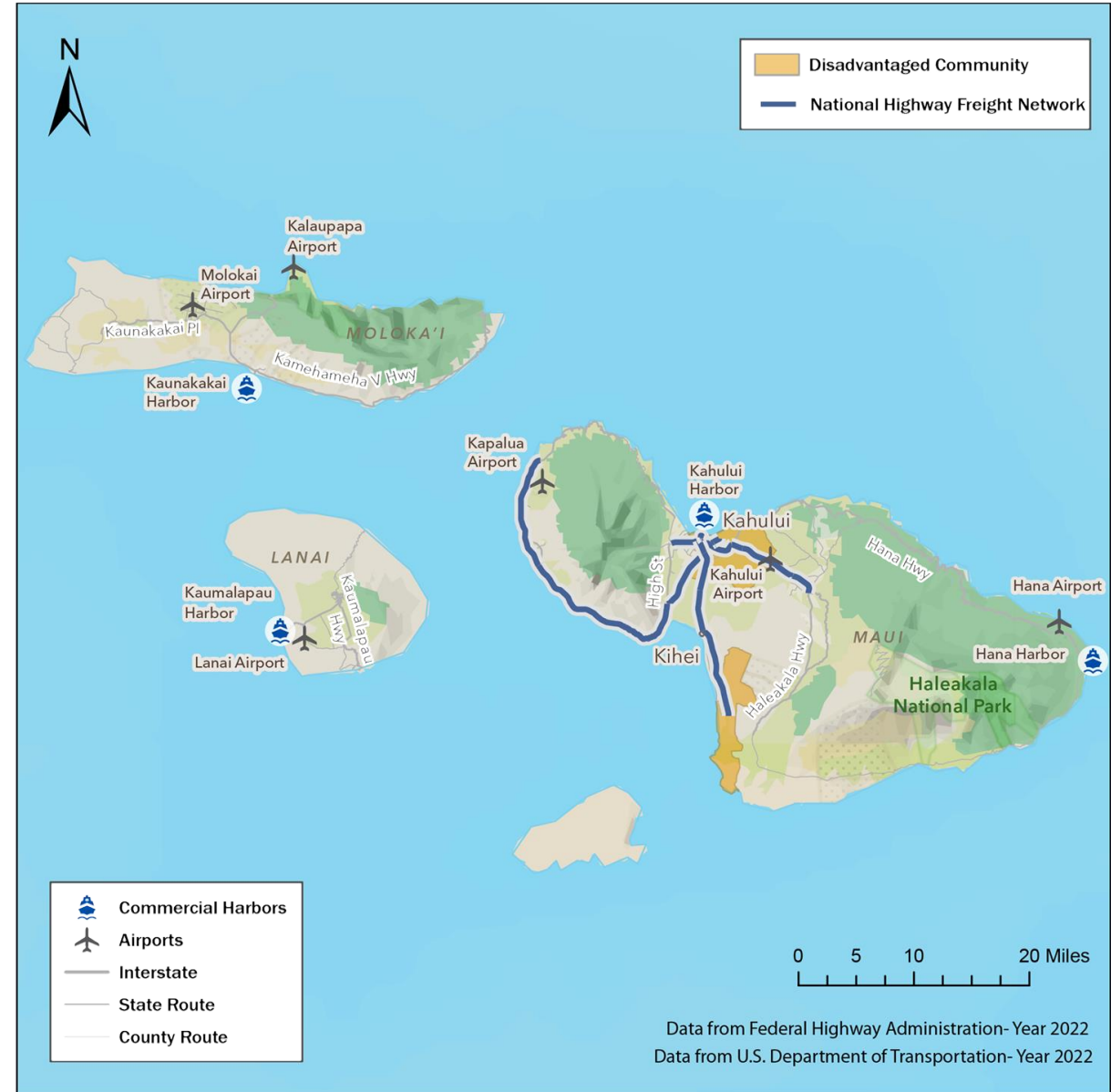
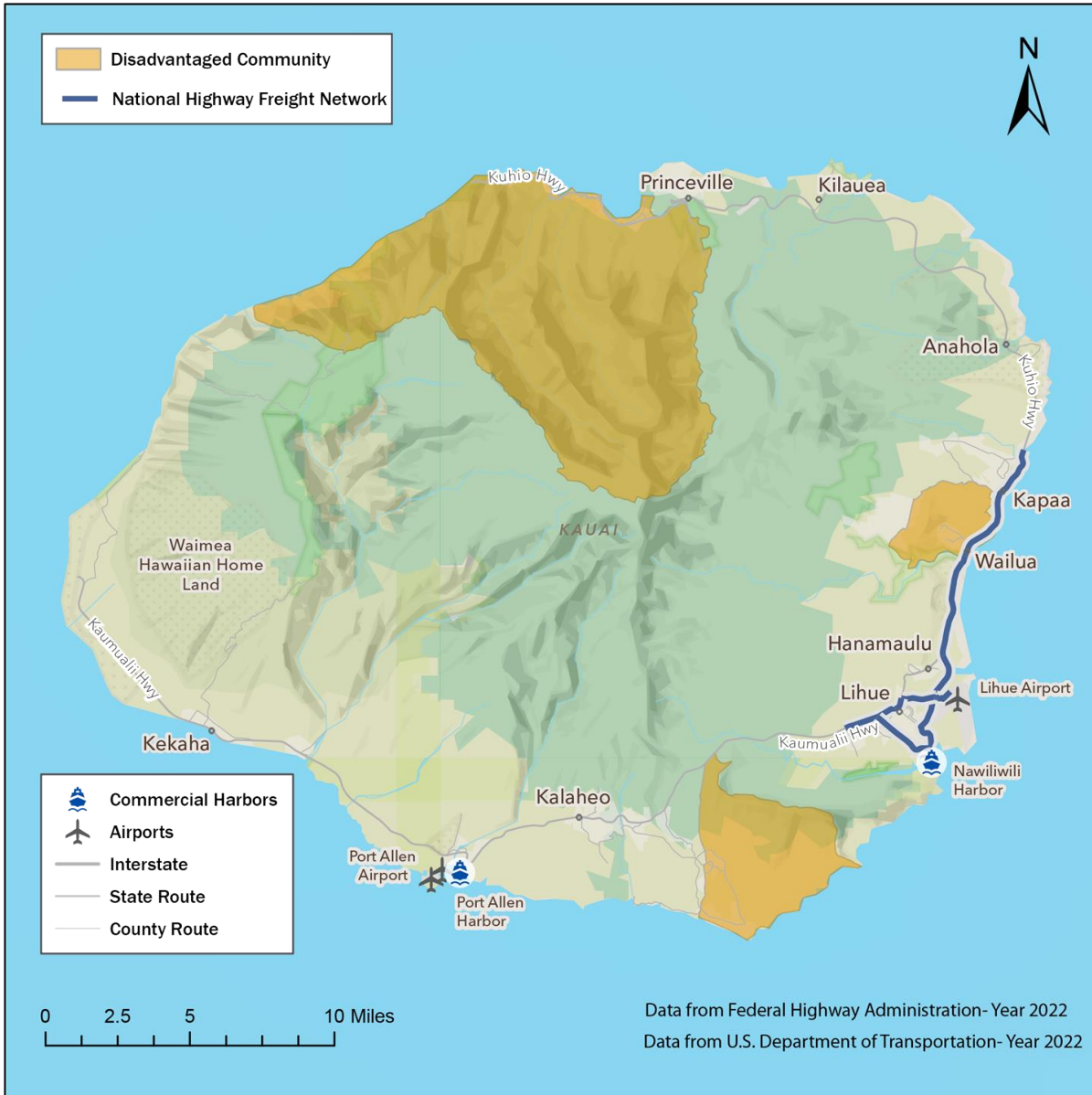
Minimize the environmental impacts of freight movement on the State freight network to surrounding communities and the natural environment.

Objectives	Strategies
Reduce environmental impacts of freight movement on the State freight network on surrounding communities and the natural environment.	<ul style="list-style-type: none"><li data-bbox="772 558 2270 648">❑ Use the public process to identify and mitigate freight related impacts to the community, the natural environment, and wildlife habitat loss.</li><li data-bbox="772 708 2252 801">❑ Promote environmental stewardship through energy conservation, reducing greenhouse gases, addressing climate change, and improving quality of life.</li><li data-bbox="772 861 2333 953">❑ Use education to promote reduction of greenhouse gas emissions related to the operation of freight vehicles and marine and airports.</li><li data-bbox="772 1012 1939 1105">❑ Assess the impact of freight infrastructure development on environmental justice and equity.</li></ul>

# National Highway Freight Network in Oahu and Big Island



# National Highway Freight Network in Kauai and Maui



# Goal 5: Minimize Environmental Impacts

What would you change or add to this goal?



Go to [www.menti.com](https://www.menti.com) and use the code 3715 7501



# Goal 5: Minimize Environmental Impacts

Minimize the environmental impacts of freight movement on the State freight network to surrounding communities and the natural environment.

Objectives	Strategies
Reduce environmental impacts of freight movement on the State freight network on surrounding communities and the natural environment.	<ul style="list-style-type: none"><li data-bbox="772 558 2270 648">❑ Use the public process to identify and mitigate freight related impacts to the community, the natural environment, and wildlife habitat loss.</li><li data-bbox="772 708 2252 801">❑ Promote environmental stewardship through energy conservation, reducing greenhouse gases, addressing climate change, and improving quality of life.</li><li data-bbox="772 861 2333 953">❑ Use education to promote reduction of greenhouse gas emissions related to the operation of freight vehicles and marine and airports.</li><li data-bbox="772 1012 1939 1105">❑ Assess the impact of freight infrastructure development on environmental justice and equity.</li></ul>



Go to [www.menti.com](https://www.menti.com) and use the code 3715 7501





# Goals 6: Resiliency to Global Climate Change

Create and maintain resilient freight infrastructure able to withstand the effects of global climate change.

Objectives	Strategies
<p>Reduce the future impacts of damage caused by <del>changing weather patterns</del> <b>climate-related hazards</b> by use of innovative technology and infrastructure improvements.</p>	<ul style="list-style-type: none"><li data-bbox="759 611 2323 806">❑ Model the potential damage that could be caused by <del>changing weather patterns</del> <b>climate-related hazards</b>; identify a range of strategies and cost estimates for minimizing the effects; and estimate the potential cost of damage for doing nothing.</li><li data-bbox="851 862 2346 1058">❑ Identify freight corridors that are impacted by <del>Sea Level Rise</del> <b>climate-related hazards such as rockfalls and landslides, sea level rise (marine flooding and groundwater inundation), annual high wave flooding, coastal erosion, storm surges, tsunamis, wildfires, and other exposure hazards such as lava flows</b></li><li data-bbox="851 1113 2002 1206">❑ Identify a long-range plan to re-align or reduce the risk of the affected freight corridors</li></ul>

# Hawaii Highways Climate Adaptation Action Plan

Hazard	Roads		Bridges	
	Miles	%	Units	%
Rockfall and landslide	167.6	17%	126	32%
Sea Level Rise	9.4	1%	92	23%
Annual high wave flooding	23.9	2%	50	13%
Coastal erosion	23.7	2%	22	6%
Storm surge	74.1	8%	120	30%
Tsunami	178.1	18%	135	34%
Wildfire	139.2	14%	97	24%
Lava flow	151.8	16%	18	5%



# Goal 6: Resiliency to Global Climate Change

What would you change or add to this goal?



Go to [www.menti.com](https://www.menti.com) and use the code 3715 7501



# Goal 6: Resiliency to Global Climate Change

Create and maintain resilient freight infrastructure able to withstand the effects of global climate change.

Objectives	Strategies
<p>Reduce the future impacts of damage caused by <del>changing weather patterns</del> <b>climate-related hazards</b> by use of innovative technology and infrastructure improvements.</p>	<ul style="list-style-type: none"><li data-bbox="759 611 2323 808">❑ Model the potential damage that could be caused by <del>changing weather patterns</del> <b>climate-related hazards</b>; identify a range of strategies and cost estimates for minimizing the effects; and estimate the potential cost of damage for doing nothing.</li><li data-bbox="851 862 2346 1105">❑ Identify freight corridors that are impacted by <del>Sea Level Rise</del> <b>climate-related hazards such as rockfalls and landslides, sea level rise (marine flooding and groundwater inundation), annual high wave flooding, coastal erosion, storm surges, tsunamis, wildfires, and other exposure hazards such as lava flows</b></li><li data-bbox="851 1162 2002 1258">❑ Identify a long-range plan to re-align or reduce the risk of the affected freight corridors</li></ul>



Go to [www.menti.com](http://www.menti.com) and use the code **3715 7501**

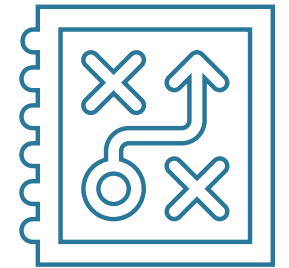


# Project Prioritization Process Evaluation Criteria Review

- Step 1 – Develop criteria
- Step 2 – Develop scoring system
- Step 3 – Evaluate potential solution according to the criteria
- Step 4 – Calculate scores
- Step 5 – Prioritize and report results



- Projects are prioritized based on criteria established for each of the goals.
- **Benefit factor:** Qualitatively Describes how well a project will achieve the desired goal
- **Usage factor:** Quantitatively Differentiates projects with similar benefits by comparing their scale of impact (truck volumes, total miles).





Maintain and improve the state of good repair of the freight transportation system.

- **Benefit Factor:** Point values are assigned to the type of pavement preservation project, with major projects receiving a higher point value than minor projects, as follows:
  - 1 Point: Chip Seal
  - 2 Points: Preventive Maintenance
  - 3 Points: Ultra Thin Overlay
  - 4 Points: Minor Rehab
  - 5 Points: Major Rehab
  - 6 Points: Reconstruction
- **Usage Factor (AADTT):** Urban and rural truck volumes are scored on different scales (described above) as low, medium, or high (with corresponding point values of 1, 2, or 3).
- Additional Usage Factor: The total lane miles improved are calculated.
- **Total Score** = Benefit Score \* AADTT Score \* Lane Miles



- The importance or value of each goal will vary.
- Goals can be weighted to accurately prioritize the program of projects.
- **Goal Weighting Exercise:** Assign 100 points to the goals in accordance with how important they are relative to the top ranked goal.



# Weight the goals



Go to [www.menti.com](https://www.menti.com) and use the code 3715 7501





# Hawaii Freight Network Update



- To receive Federal freight funds projects must be located on the National Highway Freight Network (NHFN) comprised of:
  - Priority Highway Freight System (PHFS) and Interstate System
    - Designated by FHWA
  - Critical Urban Freight Corridors (CUFC)
    - Maximum of 150 miles can be designated in Hawaii
  - Critical Rural Freight Corridors (CRFC)
    - Maximum of 300 miles can be designated in Hawaii
- CUFC and CRFC are high volume truck corridor sections that connect to the PHFS, Interstate System, intermodal freight facilities, and major economic activity centers



# National Highway Freight Network in Hawaii

National Highway Freight Network	2018	2023
Primary Highway Freight Network	277 miles	278.79 miles
Non-PHFS Interstate	0	0
Critical Rural Freight Corridors (CRFC)	150 miles	300 miles
Critical Urban Freight Corridors (CUFC)	75 miles	150 miles
NHFN Max Total in Highway	501 miles	~ 728.79 miles
High PHFS Mileage Compared to Other States	No	No
Hawaii Freight Network	409 miles	?

Sources: HDOT Freight Plan 2018, FHWA National Highway Freight Network, 2022



- The National Highway Freight Network (NHFN) artificially restricts the number of miles of critical freight corridors
- The Hawaii Freight Network includes corridors with over 500 trucks per day to create a more complete freight network for Hawaii
- Federal freight funds will not be available for projects on the “Hawaii Freight Network”
- Projects will be eligible for other Federal funding and State funding
- Expanded “Hawaii Freight Network” will aid the State in prioritizing projects across funding programs

# 2023

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC



## Task 1

Update Goals, Objectives, and Evaluation Criteria

Memo: Project goals, objectives and evaluation criteria/ performance measures

## Task 2

Update Existing and Future Conditions

● Freight Advisory Committee Meeting

Memo: Existing and Future Conditions

## Task 3

Update Needs, Deficiencies, and Potential Solutions

● Freight Advisory Committee Meeting

Memo: Needs and Deficiencies  
Prioritization of Solutions  
Freight Investment Plan

## Task 4

Draft and Final: Statewide Freight Plan

● Freight Advisory Committee Meeting







*Mahalo!*

Questions?

Contact Information:

Dean Matsui  
Planning Branch, Highways  
Hawaii Department of Transportation  
Email: [dean.m.matsui@hawaii.gov](mailto:dean.m.matsui@hawaii.gov)

Kathleen Chu  
Email: [kchu@bowersandkubota.com](mailto:kchu@bowersandkubota.com)



# Hawaii Statewide Freight Plan

## Freight Advisory Committee – Meeting Summary #1



**MEETING DATE** June 15, 2023, 9 am to 11 am

**AND TIME:**

**LOCATION:** MS Teams Meeting

### ATTENDEES:

#### Project Management Team

- Hawai'i Department of Transportation (HDOT): Ken Tatsuguchi, Dean Matsui, and Rachel Roper-Noonan
- Jacobs: Dan Seedah, Miya Akiba, and Stephanie Lind
- Bowers + Kubota: Kathleen Chu and Carah Kadota

#### FAC/TAC Members

- HDOT Statewide Transportation Planning: Pradip Pant
- HDOT Highways: Robin Shishido, George Abcede, Jeff Aguinaldo, Annette Matsuda, and Harry Takiue
- HDOT Airports: Ford Fuchigami and Traci Lum
- HDOT Harbors: Dre Kalili, Arnold Liu, Niko Salvador, Celia Shen, Michael Dichner, Peter Pillone, Jeff Hood, and Shayna Asuncion
- Hawai'i Emergency Management Agency: James Barros
- Department of Business, Economic Development & Tourism (DBEDT) Office of Planning and Sustainable Development: Mary Alice Evans
- DBEDT, State Energy Office: Mark Glick
- Federal Highways Administration: Richelle Takara
- Federal Motor Carrier Safety Administration: John Weeks
- Federal Aviation Administration: Kim Evans
- Maritime Administration: Gustav Hein
- Federal Emergency Management Agency: Dennis Pelina and Jason Coe
- City and County of Honolulu, Department of Transportation Services: Scott Brady
- County of Kaua'i, Planning Department: Marie Williams
- County of Maui, Department of Public Works: John Smith and Nolly Yagin
- O'ahu Metropolitan Planning Organization (MPO): Zakari Mumuni
- Maui MPO: Pam Eaton
- Agribusiness Development Corporation: Mark Takemoto
- General Contractors Association of Hawai'i: Steve Baginski and Gladys Hagemann
- Hawai'i Transportation Association: Gareth Sakakida
- Aloha Freight Forwarders: Carlos Sullivan
- Hawai'i Foodservice Alliance LLC: Chad Buck
- Suisan Co. Ltd.: Stephen Ueda
- Ka Makana Alii: Stephanie England
- Island Energy Services: Andy Seigle
- M. Dyer Global: Anthony Shipp
- Airlines Committee of Hawai'i: Rod Aoki
- Aloha Air Cargo: Kyle Nishitomi
- Pacific Air Cargo: Thomas Ingram
- Hawai'i Harbors Users Group: Chris Martin
- Matson: Lek Friel
- Young Brothers: Tiffanie Hiramawa
- Others: Masatomo Murata, Bob Fenton, Shawn Matz, Kayla Ibarra, and Charles McNicoll

### Welcome and Introductions

Slides 1 to 4

Kathleen Chu (Bowers + Kubota) opened the meeting by welcoming the participants and thanked everyone for joining the first FAC/TAC meeting. She shared the meeting agenda and the instructions to use Menti (<https://www.menti.com/al4cdh6ok8sc>) to participate in interactive questions asked throughout the presentation.

*In this meeting summary, discussions made verbally and in the Chat Room, as well as the Menti results are included at the end of each relevant discussion topic.*

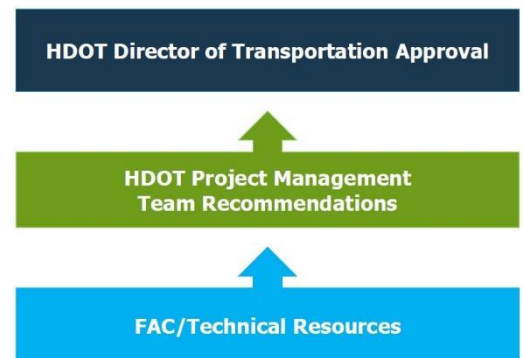
### Role of the Freight Advisory Committee (FAC)

Slides 5 to 8

The FAC is comprised of representatives from various public and private industries; their role is to advise the HDOT on freight related priorities, issues, projects and funding needs. HDOT is in the process of updating the first Statewide Freight Plan that was completed in 2018, and the role of the FAC is to serve as a forum for discussion regarding HDOT decisions affecting freight mobility. Kathleen asked the group to review the list of FAC (sent to participants following the meeting) and to provide feedback if any members are missing and should be added.

The structured decision-making process for the Freight Plan was shared. Input from the FAC/TAC are reviewed by the HDOT Project Management Team (PMT), then recommended to the HDOT Director who has the final decision-making authority.

The project workplan that shows the step-by-step process and tasks for the update of the Freight Plan was shared. The update process was started earlier this year and the goal of this meeting is to share the data that has been gathered to date and also obtain feedback from the group. The 2<sup>nd</sup> FAC meeting is planned in August 2023 and the 3<sup>rd</sup> in September or October 2023.



### Highlights of the 2018 Statewide Freight Plan

Slides 9 to 12

Highlights of the previous Freight Plan was shared as a refresher. Links to the 2018 Statewide Freight Plan ([HDOT Freight Plan \(hawaii.gov\)](https://hawaii.gov/hdot/freight-plan)) and its Executive Summary ([HDOT FreightPlan ExeSummary.pdf \(hawaii.gov\)](https://hawaii.gov/hdot/freight-plan/exe-summary)) were also shared for reference. Additional information shared included freight needs and issues identified during the 2018 Freight Plan as well as the Plan goals.

*[Comments]*

- *Over 90% of the goods imported come through the State's commercial harbors system.*
- *Even 10% of cargo that doesn't come from out of state comes mostly through our ports. More and more, I'm seeing other (neighbor) islands products in our stores.*
- *What are geometric improvements/weaving near interchanges?*

- *This concerns things like merge lanes for trucks at interchanges - example is Kapolei interchange cloverleaf where it is not easy for trucks to make the turn movement and resulted in truck overturning. This was one of the issues identified during the 2018 Plan.*

### The 2023 Hawaii Statewide Freight Plan

Slides 13 to 19

The presentation was handed over to Dan Seedah (Jacobs) who shared the new requirements and contents of the 2023 Freight Plan.

The new Federal requirements for the Freight Plan update are established by the Infrastructure Investment and Jobs Act (IIJA) that include some new provisions. Dan emphasized the following key requirements of the IIJA:

- Requirement for states to conduct a supply chain analysis
- Expansion of the critical rural and urban freight corridors
- Understand the impacts of e-commerce
- Consideration of military freight movements
- Importance of commercial ports
- Impacts of freight movement on natural disasters and climate change, air pollution, flooding, and wildlife habitat loss

In addition, current data on Hawaii's population trends, freight industry employment trends, and freight tonnage by trade type and by value were shared to inform the group on current trends related to freight movement. In general, the data shows that the state is recovering from impacts of the COVID-19 pandemic on the supply chain and freight movement.

*[Comments]*

- *Is the value adjusted for inflation on the Trade Type by Value (2017-2021) graphic (Slide 18)?*
  - *Yes, the values are adjusted for inflation.*

### The 2023 Hawaii Statewide Freight Plan – Goals and Objectives

Dan shared the proposed 2023 Hawaii Statewide Freight Plan goals, objectives, and strategies for the group to review and share feedback on. The 2023 Plan goals, objectives, and strategies are based on the 2018 Plan; updates are indicated in **orange text** in the following sections.

Goal 1: Safety

Slides 20 to 30

Develop a state freight network that provides for the safety and security of people, infrastructure, and goods movement.

Objectives	Strategies
Provide a safe transportation system for all users	<ul style="list-style-type: none"> <li><input type="checkbox"/> Decrease the number and severity of crashes involving freight-related vehicles.</li> <li><input type="checkbox"/> Provide adequate emergency response access to the State freight network, including marine and airports.</li> <li><input type="checkbox"/> Establish effective educational and/or training programs to improve safety along identified priority freight corridors.</li> </ul>
Consider security of the State freight network.	<ul style="list-style-type: none"> <li><input type="checkbox"/> When evaluating infrastructure improvements, minimize future risk by considering security threats, particularly at marine, airports, and military bases.</li> </ul>

Background statistics related to safety were shared and included crash and fatality data (all vs commercial motor vehicle [CMV] related) as well as CMV crash characteristics per island/county. Participants were asked to provide feedback using Menti. The following shows an overview of the feedback received.

Goal 1 : Develop a state freight network that provides for the safety and security of people, infrastructure, and goods movement.

17 Answers



Looks good to me.	Yes	Looks good
Yes... I'm good with this	covers it - thank you	Yes
OK	link to Vision Zero?	Looks good
this looks good	yes	Good Goal
looks good	Yes	Perhaps efficiency also?
In the overall goals, I'd also search for ways to include resilience, and surge capacity, ability to recover from disruption.	Is "establishing effective ..training" considered a strategy? It is more of a how to achieve the decrease the number of fatalities... similar to implementing infrastructure countermeasures.	

Goal 2: Infrastructure Preservation

Slides 31 to 38

Maintain and improve the state of good repair of the freight transportation system.

Objectives	Strategies
Maintain freight facility conditions on the National Multimodal Freight Network with a minimum of 30% in fair or better condition	<input type="checkbox"/> Inventory major freight assets and define and quantify system deterioration to ascertain status. <input type="checkbox"/> Set acceptable standards at or above fair condition for freight facilities and take steps to improve facility conditions when needed.
Maintain a minimum of 30% of state bridges in fair or better condition.	<input type="checkbox"/> Inventory state bridges and define and quantify system deterioration to ascertain status. <input type="checkbox"/> Set acceptable standards at or above fair condition for state bridges and take steps to improve facility conditions when needed.
Use life-cycle cost assessments in the prioritization of freight improvements.	<input type="checkbox"/> Leverage transportation funds for long-term operations and maintenance by incorporating life-cycle cost assessments.

No changes or updates were made to this goal. Bridge and pavement conditions per island/county were shared as background statistics. Participants were asked to provide feedback using Menti. The following shows an overview of the feedback received.

Goal 2 : Maintain and improve the state of good repair of the freight transportation system.

12 Answers



Looks good	Good	Yes
I'm good	yes	Looks good
good	Bridges are critical so should be upgraded to at least 50%	agree
I would like a bit more time to review, but I believe most everything looks accurate. I would like to see the 30% increased to at least 60% if not 70%.	If conditions are good already 80-90% adequacy, why is goal so low (30%)?	yes

[Comments]

- Is "freight network" clearly defined? Does it include the shipping lanes from outside of the State of Hawaii; the State's commercial harbors; then the roadways?
  - Hawaii Freight Network to be discussed further later in the meeting.

- Marine highways are included in the freight network.
- Is there any update as to the delay with Historic bridges repair due to SHPD? There are several on the TIP that have been delayed, year after year.
  - HDOT has a priority list that is discussed with SHPD; certain bridges can be prioritized based on urgency for repair.

### Goal 3: Infrastructure Mobility Improvements

Slides 39 to 46

Improve the multimodal freight infrastructure to provide mobility and connectivity for freight, and to support the needs of the local economy, including the tourism industry and military.

Objectives	Strategies
Reduce congestion and eliminate bottlenecks on key freight routes.	<ul style="list-style-type: none"> <li><input type="checkbox"/> Implement projects that address deficiencies or congestion on the National Multimodal Freight Network and other key freight routes important to the State.</li> <li><input type="checkbox"/> Improve the first- and last-mile connections.</li> <li><input type="checkbox"/> Improve the freight infrastructure in rural areas to provide access to markets and promote economic development.</li> </ul>
Improve intermodal connectivity.	<ul style="list-style-type: none"> <li><input type="checkbox"/> Implement projects that improve access and connectivity to intermodal facilities.</li> </ul>

No changes or updates were made to this goal. Annual trends in cargo volume and traffic for the state harbors, as well as air cargo and mail traffic by carrier type to and from Hawaii were shared as background statistics. Participants were asked to provide feedback using Menti. The following shows an overview of the feedback received.

#### Goal 3 : Improve the multimodal freight infrastructure to provide mobility and connectivity for freight, and to support the needs of the local economy,

9 Answers



Looks good	Yes...	Looks good to me.
looks good	Okay	OK
Good goal	Yes	yes

Goal 4: Reliable Freight Network

Slides 47 to 58

Create a reliable freight network that allows shippers and receivers to plan around predictable travel times.

Objectives	Strategies
<p>Optimize the efficiency and reliability of the State freight network.</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Use technology, performance management, innovation, and accountability in operating and maintaining the State Freight network.</li> <li><input type="checkbox"/> Assess the status of Hawaii’s current technology use and emerging innovations, particularly at marine, airports, and intermodal facilities.</li> <li><input type="checkbox"/> Assess the impact of e-commerce on freight infrastructure in the State</li> </ul>

Background statistics related to freight movement were shared and included statistics on top domestic commodity movement and top international commodity movement. In addition, results of the supply chain analysis conducted for the top five commodities for the state was shared. The top five commodities included the following:

- Gasoline, fuel oils, and crude petroleum
- Transportation equipment and motorized vehicles
- Nonmetal mineral products, gravel, and natural sand
- Other food stuffs and agricultural products
- Electronics

Statistics on the movement of these commodities in and out of the state were shared. Participants were asked to provide feedback using Menti. The following shows an overview of the feedback received.

**Goal 4 : Create a reliable freight network that allows shippers and receivers to plan around predictable travel times.**

9 Answers



yes	I really like the addition of e-commerce, it certainly is affecting my environment, everything else looks good as well.	OK
Yup... Good	Ok	Yes
the e-commerce piece is helpful to consider when looking at overall future plans	Yes.	Thanks for staying on top of this



[Comments]

- *Russia is no longer sending crude petroleum to us (maybe someone from the Hawaii State Energy Office can clarify). I think the U.S. stopped importing fuel commodities from Russia when they invaded Ukraine. Maybe the timeframe reflected in this map they were still sending crude petroleum*
  - *Mark Glick (Hawaii State Energy Office): That is correct, we can provide updates for that.*
  - *Mark later shared that in response to the war in Ukraine in April 2022, Hawaii's only refinery announced suspension of Russian crude oil purchase. Imports are shifting to Argentina and Libya.*
- *Gasoline, Fuel Oils, and Crude Petroleum slide: Are the lines all meeting in KBP or Honolulu Harbor? looks like Honolulu Harbor in the picture?*
  - *Yes, they should be pointing to KBP - will fix the map.*
- *Does electronics include PV panels?*
  - *We can verify but most likely it is included.*
- *I work in the commercial retail/commercial management sector; e-commerce certainly impacts my tenants and our overall operation. From demand perspective and direct connectivity, it affects sales, ability to expand our centers, and various other elements. We have brick and mortars converting to be shipping locations for interisland and even to the mainland. We are also seeing trends in local businesses utilizing e-commerce and shipping local products to locations such as California, Las Vegas, and Washington State. I can provide more information.*
- *Gasoline, Fuel Oils, and Crude Petroleum slide: The slide shows California as main food supplier, but there is also a lot of food shipped from Tacoma. In addition, the majority of products coming from California are actually coming from Arizona. There maybe other states from where products are trucked to California and then shipped to Hawaii.*
  - *The data shared does not necessarily show where the products originate but where they are shipped from (i.e., ports, airports).*
- *Significant tonnage of food also comes from Seattle and Oregon.*
- *Also closely monitoring Amazon presence at harbors – numbers are going to change significantly as far as what comes from where.*
- *Kaunakakai Harbor is misspelled on the map slides.*
  - *The slides will be corrected.*

Goal 5: Minimize Environmental Impacts

Slides 59 to 64

Minimize the environmental impacts of freight movement on the State freight network to surrounding communities and the natural environment.

Objectives	Strategies
Reduce environmental impacts of freight movement on the State freight network on surrounding communities and the natural environment.	<ul style="list-style-type: none"> <li><input type="checkbox"/> Use the public process to identify and mitigate freight related impacts to the community, the natural environment, and wildlife habitat loss.</li> <li><input type="checkbox"/> Promote environmental stewardship through energy conservation, reducing greenhouse gases, addressing climate change, and improving quality of life.</li> <li><input type="checkbox"/> Use education to promote reduction of greenhouse gas emissions related to the operation of freight vehicles and marine and airports.</li> <li><input type="checkbox"/> Assess the impact of freight infrastructure development on environmental justice and equity.</li> </ul>

Maps showing the national highway freight network per island/county were shared. Participants were asked to provide feedback using Menti. The following shows an overview of the feedback received.

**Goal 5 : Minimize the environmental impacts of freight movement on the State Freight network to surrounding communities and the natural environment.**



5 Answers

good. I liked the SLR comments	yes	Good
OK, but need to ensure we do not require technologies beyond our abilities.	Looks good to me	

[Comments]

- No disadvantaged communities are shown for Molokai. There maybe localized disadvantaged community data for Hawaii (and not sourced by FHWA).
- The Oahu EJ map does not look like what we have here?
  - The disadvantaged communities are based on the equity index from the USDOT website. Will look into other data sources.
- More and more roadways going to Waianae are being exposed to sea level rise. Are there any plans to harden the shoreline to accommodate sea level rise. Same for Honoapiilani Highway going to Lahaina on the west side of Maui. Sometimes when you drive down there, the roadway gets washed out due to surge.
  - We will document sea level rise concerns. Once all of the freight needs are compiled, projects will go through a prioritization process.

Goal 6: Resiliency to Global Climate Change

Slides 65 to 69

Create and maintain resilient freight infrastructure able to withstand the effects of global climate change.

Objectives	Strategies
Reduce the future impacts of damage caused by <del>changing weather patterns</del> <b>climate-related hazards</b> by use of innovative technology and infrastructure improvements.	<ul style="list-style-type: none"> <li><input type="checkbox"/> Model the potential damage that could be caused by <del>changing weather patterns</del> <b>climate-related hazards</b>; identify a range of strategies and cost estimates for minimizing the effects; and estimate the potential cost of damage for doing nothing.</li> <li><input type="checkbox"/> Identify freight corridors that are impacted by <del>Sea Level Rise</del> <b>climate-related hazards</b> such as rockfalls and landslides, sea level rise (marine flooding and groundwater inundation), annual high wave flooding, coastal erosion, storm surges, tsunamis, wildfires, and other exposure hazards such as lava flows</li> <li><input type="checkbox"/> Identify a long-range plan to re-align or reduce the risk of the affected freight corridors</li> </ul>

Data from the Hawaii Highways Climate Adaptation Action Plan and locations of highway assets exposed to climate hazard was shared. Participants were asked to provide feedback using Menti. The following shows an overview of the feedback received.

Goal 6 : Create and maintain resilient freight infrastructure able to withstand the effects of global climate change.

7 Answers



yes	looks good	Good
OK	I really like the changes, they certainly add specificity that is required in our state. We are unlike any other state so it is nice to see those details being considered.	This area needs a lot of work. Especially the roads along the ocean. For all islands.
Looks very good.		

[Comments]

- *The impacts of climate change on Harbors should be included as part of this goal*
- *Maybe substitute "Climate related disaster" with "Natural, climate, and weather related disasters" to cover all hazards in Hawaii.*
- *Additional consideration somewhere in goals and policy- multimodal connectivity: harbors/highways airports/highways*

## Project Prioritization Process Evaluation Criteria Review

Slides 70 to 75



One of the primary objectives of the Freight Plan update is to identify freight needs and prioritize projects identified. Kathleen explained that the projects will be prioritized based on prioritization criteria established based on each of the Plan goals. The criteria will be weighted based on what is considered most important.

The project evaluation process will be based on two factors: a benefit factor and usage factor. The benefit factor qualitatively describes how well a project will achieve the desired goals whereas the usage factor quantitatively differentiates projects with similar benefits by comparing their scale of impact such as truck volumes or total miles. Urban and rural truck volumes will be scored using the average annual daily truck traffic (AADTT) and on different scales to account for roadways with higher truck traffic vs those that are not used as much.

### [Comments]

- *Will the scores generated by this tool be provided to OahuMPO's policy group and TAC to influence what OahuMPO's TIP includes? Some highway funding needs OahuMPO approval.*
  - *Maui MPO and OahuMPO each evaluate their projects based on their own evaluation criteria; movement of freight is an important criteria. OahuMPO will consider the Freight Plan's priority project scoring and will consider that when putting together the TIP.*
  - *All of these plans are federally funded and need to be consistent with the (federal) process. Lot of the goals are very similar for all federal plans, including the Freight Plan. There needs to be consistency and coordination with its efforts. In terms of how coordination (amongst different plans) occurs, further discussion would be needed between HDOT, the MPOs, and Counties. The process on the actual plan(s) implementation requires further discussion.*
- *Federal funding for the "projects" mentioned; could the list of "projects" include projects needed for commercial harbors that tie back to the resiliency of the "freight network"?*
  - *There are different pots of money for port related projects, but freight plan is not just highways, but includes all modes freight movement.*
  - *If it's a priority project that comes out of this process in identifying freight needs and HDOT chooses to apply for federal discretionary grant funds then this will help HDOT identify the project*

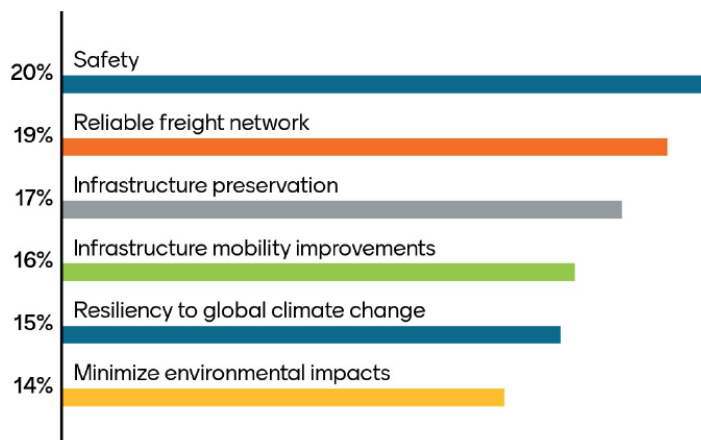
*as a need. Having gone through a stakeholder evaluation process, the need for the project(s) is strengthened.*

### Goal Weighting

As the importance or value of each goal may vary, goals can be weighted for more accurate project prioritization. The group was asked to participate in a goal weighting exercise, assigning 100 points total to the Plan goals to rank them in accordance with what is considered a priority.

It was emphasized that this exercise is important in understanding what the FAC/TAC considers a priority. As not all of the projects identified can be implemented, this is an important part of the prioritization process. The following shows the results of the exercise.

## Distribute 100 points between the following



### Hawaii Freight Network Update

Slides 76 to 79

#### National Highway Freight Network in Hawaii

To receive Federal freight funds, projects must be located on the National Highway Freight Network (NHFN) comprised of:

- Priority Highway Freight System (PHFS) and Interstate System – this was shown on previous maps.
  - Designated by FHWA
- Critical Urban Freight Corridors (CUFC)
  - Maximum of 150 miles can be designated in Hawaii
- Critical Rural Freight Corridors (CRFC)
  - Maximum of 300 miles can be designated in Hawaii

CUFC and CRFC are high volume truck corridor sections that connect to the PHFS, Interstate System, intermodal freight facilities, and major economic activity centers. Since the last 2018 Freight Plan, the

## Hawaii Statewide Freight Plan Freight Advisory Committee – Meeting Summary #1

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CUFC and CRFC has been doubled, giving us an opportunity to designate an additional 75 miles of CUFC and 150 miles of CRFC during this Plan update.

### Hawaii Freight Network

During the last 2018 Freight Plan process, other important freight routes that are not on the NHFN were identified as the 'Hawaii Freight Network'. This included routes with high truck volumes and those that were considered important locally as major intermodal connections between the roads, port systems, airports, and economic activity centers. Identifying the Hawaii Freight Network allowed HDOT to prioritize freight projects based on local needs and use other Federal/State funds (i.e., not Federal freight funds) for implementation.

Breakdown of the Hawaii Freight Network from 2018 will be sent out to the group for review. During this Plan update, we will take a look at the current truck volumes on the Hawaii Freight Network and evaluate which routes can be added to the CUFC and CRFC.

### *[Comments]*

- *Urban/Rural is this from Census?*
  - *Yes, it's from the Census*
- *Just curious, can roads be added in between updates of the freight plan?*
  - *Assuming you're asking if a road can be added to the national highway freight network - this would require an update to the freight plan. Also remember we have a maximum number of freight miles, so if you want to add then we'd also have to subtract. If you're talking about Hawaii freight network, then it would be between the County and State and doesn't involve FHWA as much so assume it could be done.*
- *Could the Marine Highway be included/recognized as part of the Freight Plan?*
  - *Yes, it was in the 2018 Plan, this is a multimodal freight plan, anything that moves freight.*
- *Can a proposed (likely to be constructed) road be designated as a freight route?*
  - *Would have to be designated as federal-aid and would have to meet certain criteria.*
  - *If it's officially part of the freight network then would need to verify that process...but if it's part of the Hawaii freight network, one would want to make sure it's federal-aid first. Would have to do some estimates on truck volume, but since it's a new road you might need to make assumptions.*

### Next Steps

- FAC members to review goals and objectives, and presentation materials and provide comments.
- Update baseline conditions and share updated existing and future conditions during the next FAC Meeting.
- Update needs, deficiencies, and potential solutions.

Kathleen and Ken thanked everyone for their time and participation and closed the meeting.



# Freight Advisory Committee Meeting #2

Sept. 27, 2023



Welcome





1. Welcome & Introductions
2. Highlights of 1<sup>st</sup> FAC Meeting
3. FAC Needs Identification Exercise in GIS
4. BREAK
5. Intro to Critical Rural Freight Corridors (CRFCs) and Critical Urban Freight Corridors (CUFCs) designations
6. Review 2023 Project Prioritization Evaluation Criteria
7. Next Steps – 10 minutes
8. Closing Remarks



# Highlights of 1st FAC Meeting

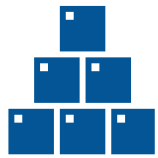


- ❑ Advise HDOT on freight-related priorities, issues, projects, and funding needs.
- ❑ Serve as a forum for discussion regarding HDOT decisions affecting freight mobility.
- ❑ Communicate and coordinate regional priorities with stakeholder organizations.
- ❑ Promote the sharing of information between the private and public sectors on freight issues.
- ❑ Provide advice regarding the development of the Freight Investment Plan.
- ❑ Serve as a conduit to their constituents and peers by disseminating information regarding the study and obtaining input that can be shared with the FAC and HDOT.

HDOT Director of Transportation Approval

↑  
HDOT Project Management  
Team Recommendations

↑  
FAC/Technical Resources



- Reviewed the role of the Freight Advisory Committee



- Discussed highlights from the 2018 Hawaii Statewide Freight Plan

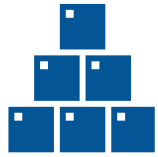


- Developed the Vision, Goals, and Objectives of the 2023 Hawaii Statewide Freight Plan



- Reviewed the 2023 Project Prioritization Process Evaluation Criteria

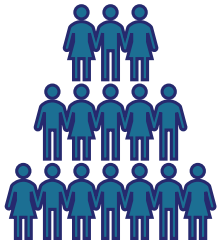




- 90% of imported commodities come through the commercial harbors.
- In response to the war in Ukraine in April 2022, Hawaii has suspended Russian crude oil purchase. Imports are shifting to Argentina and Libya.
- Noticing trends in local businesses utilizing e-commerce
  - *Brick and mortar stores converting to shipping locations for inter-island and mainland operations.*
  - *Businesses shipping local products to locations such as California, Las Vegas, and Washington State*
- Products coming from California may actually be shipped from other US States, for example Arizona, Seattle, and Oregon.
- Localized disadvantaged communities need to be included for Molokai.
- Sea level rise concerns along with other natural, climate, and weather-related disasters should be taken into consideration, especially on roads along the ocean.

A stylized graphic featuring a green palm tree on the left, a thick blue wave curving across the middle, and a light gray map of the Hawaiian Islands in the background. The text 'Needs Identification Exercise in GIS' is positioned on the left side of the blue wave.

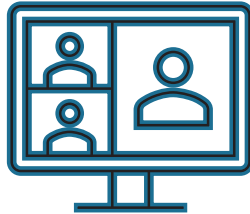
# Needs Identification Exercise in GIS



Growing Population



E-Commerce



Technology Evolution



Aging Workforce

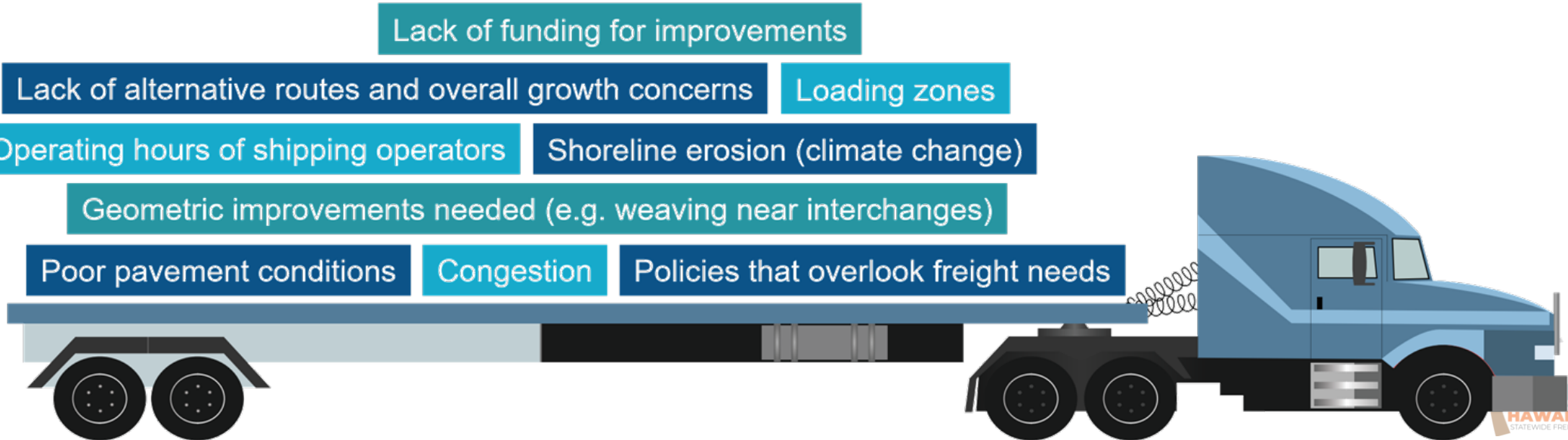


Cost of doing Business



Supply Constraints

## Transportation System Needs





# 2022 Traffic Analysis vs. 2018 Trucker's Forum Feedback: Identified Freight Needs and Issues in Oahu

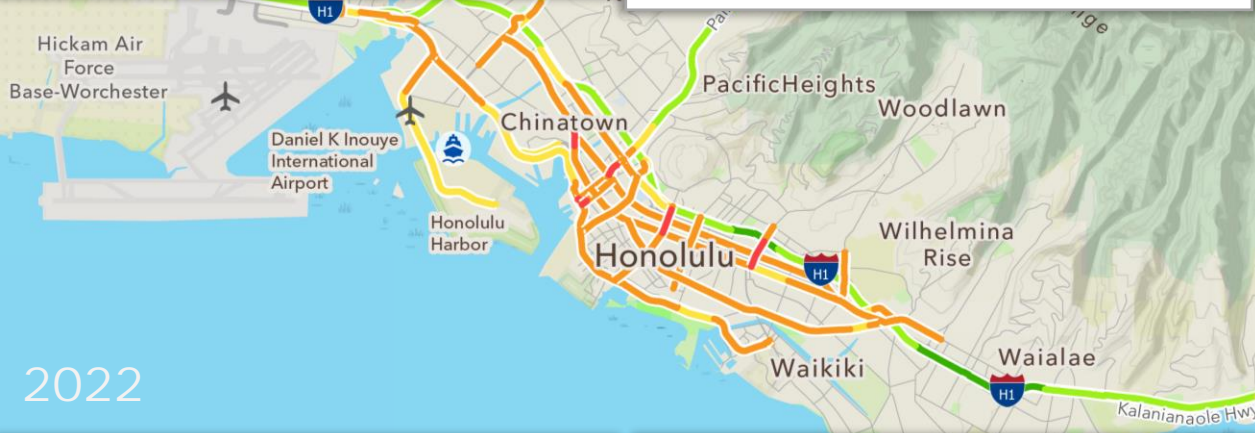


2018 Congestion and Pavement Concerns

- Multiple locations

2018 Inadequate Loading Zones

- Waikiki
- Downtown/Chinatown
- Ala Moana Shopping Center



2018 Geometric Alignment (Weaving)

- H-1 WB past Sears Distribution Center
- H-1 EB from Middle Street to Likelike Highway

2018 Geometric Alignment (Turning Movement)

- H-1 EB past Ewa-Schofield Junction
- H-1 WB near JBPHH

# 2022 Traffic Analysis vs. 2018 Trucker's Forum: Identified Freight Needs and Issues in Big Island

2022



Data from State of Hawaii Department of Transportation  
Year 2021

## 2018 Pavement Concerns

- Kawaihae Road
- Waikoloa Road

## 2018 Inadequate Loading Zones

- Kona

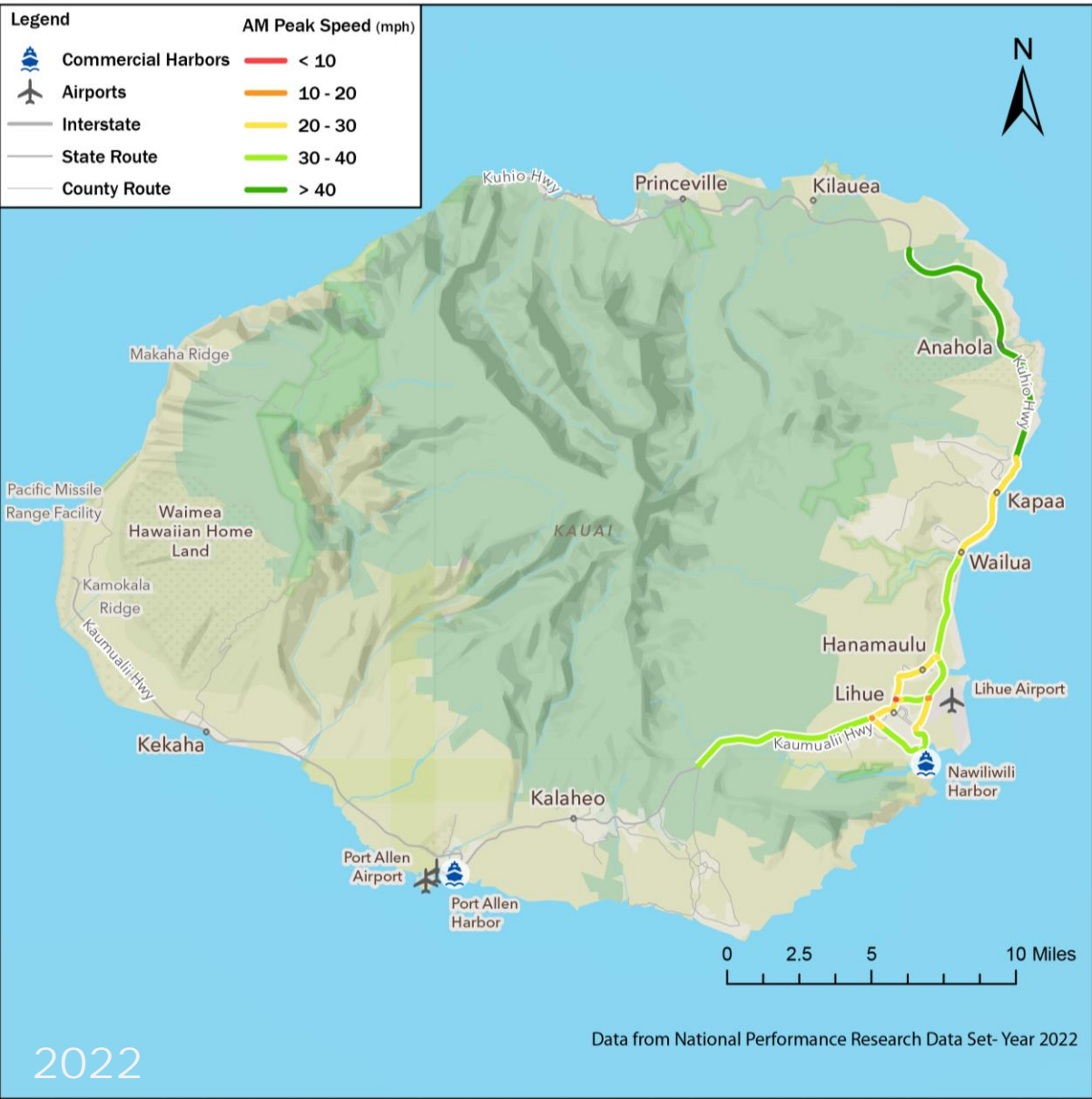
## 2018 Congestion Concerns

- Kamehameha Avenue
- Queen Kaahumanu Highway between Kona International Airport and Kona

## 2018 Bridge Concerns

- 81k Weight Restriction on Mamalahoa Highway

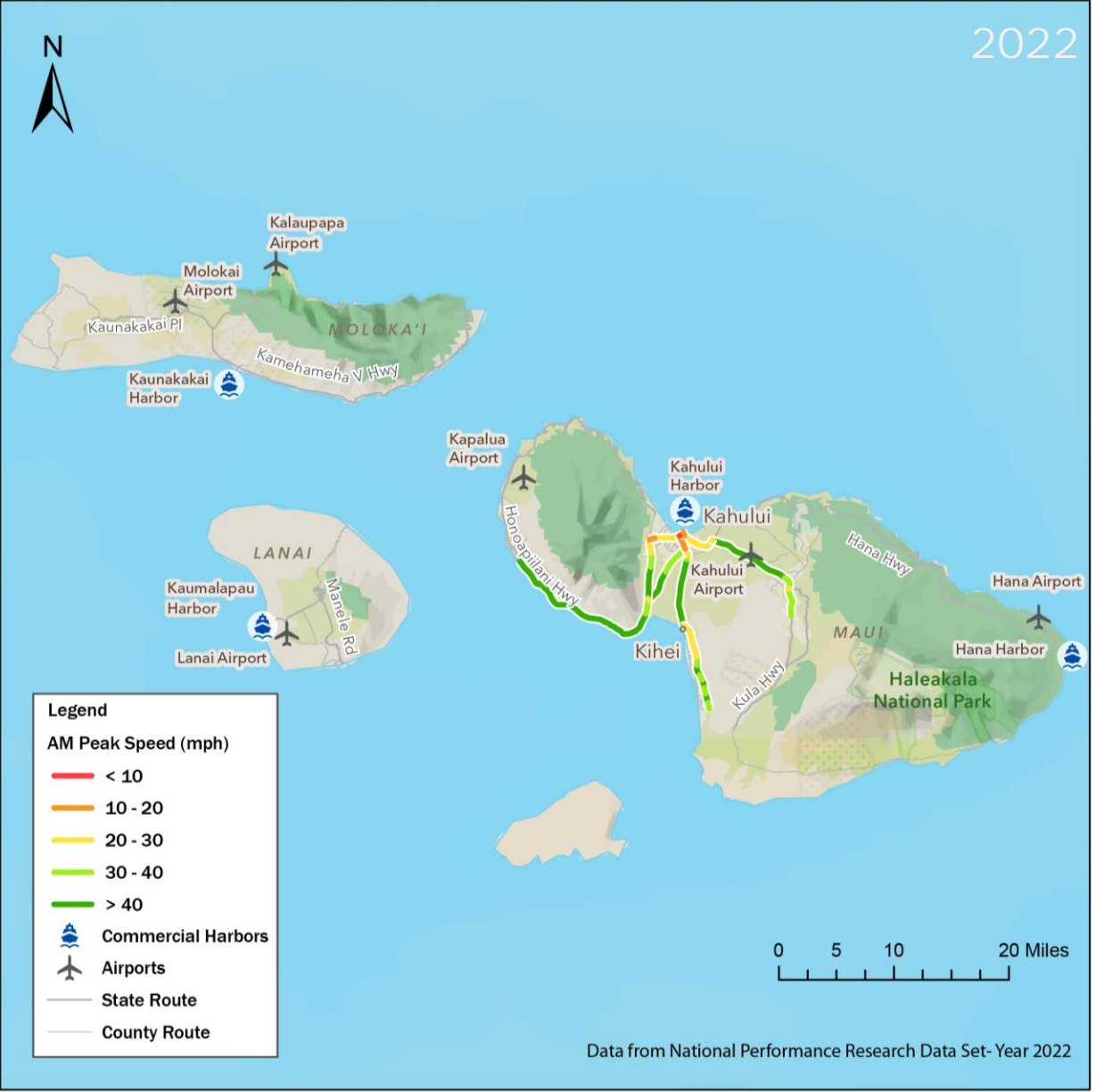
# 2022 Traffic Analysis vs. 2018 Trucker's Forum: Identified Freight Needs and Issues in Kauai



2018 Congestion Concerns

- Kuhio Highway between Wailua and Kapaa



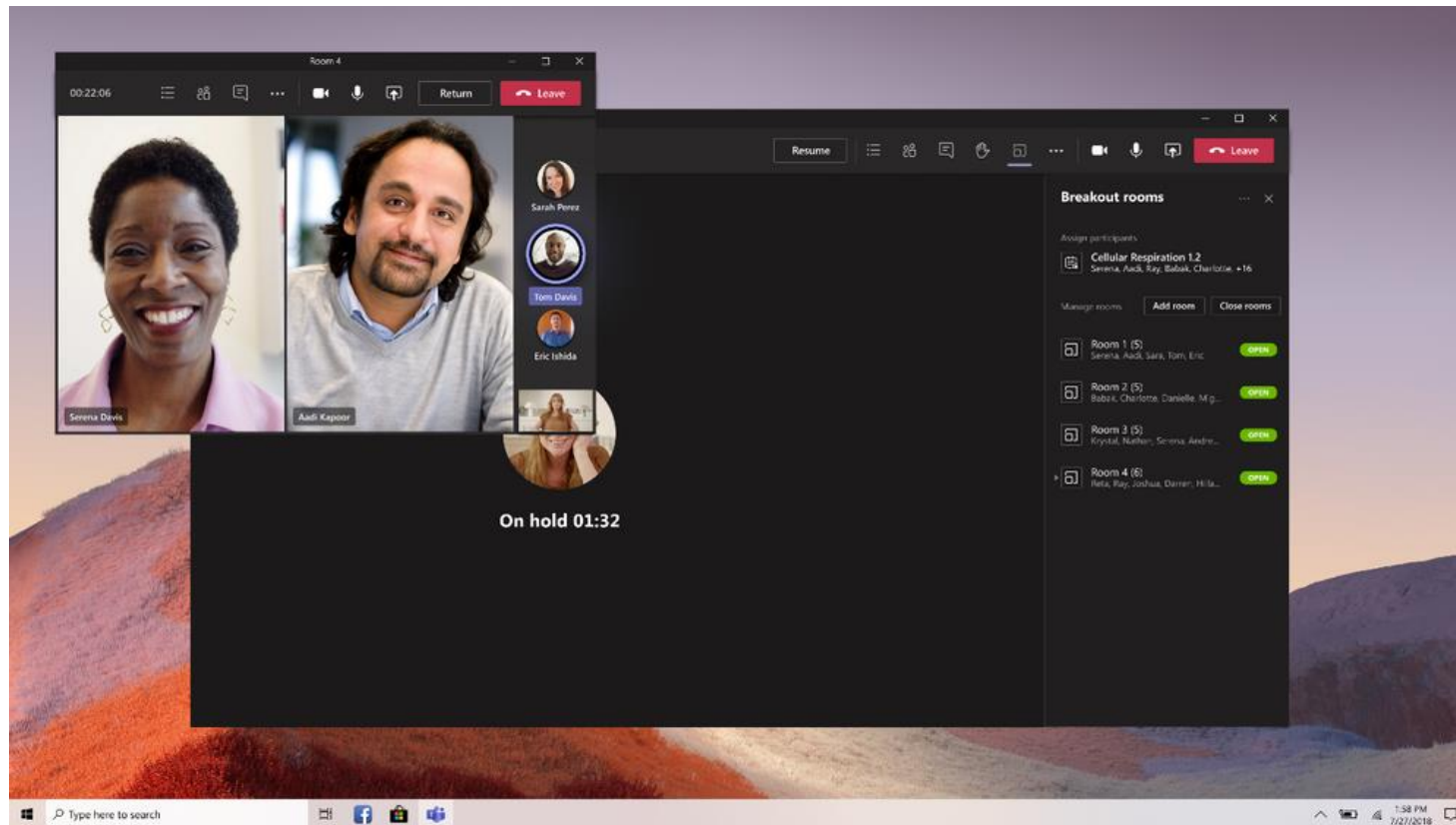


- ### 2018 Environmental Concerns (Sea Level Rise)
- South Kihei Road - Kaonoulu Street
  - Honoapiilani Highway - Maalaea to Launiupoko

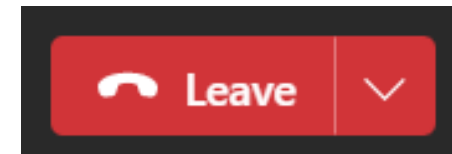
- ### 2018 Congestion Concerns
- Honoapiilani Highway between Wailuku and Maalaea
  - Kaahumanu Avenue
  - Hana Highway - Dairy Road to Baldwin Avenue
  - New Haleakala Highway - Old Haleakala Highway to Kula
  - Honoapiilani Highway - Maalaea to Launiupoko



- Breakout rooms by Island (Oahu, Hawai'i Big Island, Kaua'i, and Maui-Lāna'i-Moloka'i)
- Participation in the breakout rooms



Do not click this button



# Breakout Room Assignments:

Facilitator: Kathleen

Breakout Room	HDOT Personnel	Consultant Team Member 1	Consultant Team Member 2
Oahu	Ken	Kathleen	Bobie/Dan
Hawai'i (Big Island)	Dean	Carah	Carl
Kaua'i	Austin	Heather	Steph
Maui-Lanai'i-Molokai'i	Rachel	Miya	Disha



# Hawaii Freight Needs Identification Tool Layout

**Hawaii Freight Needs Identification Tool**

Find address or place

Smart Editor

Use preset values (new features only)

Name

Agency/Organization

Select an issue type to begin placing points on the map.

**HDOT\_Issues**

- Climate Impact
- Connectivity
- Design
- Maintenance
- Parking
- Reliability
- Safety
- Traffic/Congestion
- Workforce Impact
- Other

40mi

-156.862 18.945 Degrees

Powered by esri

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Breakout Rooms – 15 minutes





Break – Come back at 9:30 a.m.



# Critical Rural Freight Corridors (CRFCs) and Critical Urban Freight Corridors (CUFCs) Designations



- To receive Federal freight funds projects must be located on the National Highway Freight Network (NHFN) comprised of:
  - Priority Highway Freight System (PHFS) and Interstate System
    - Designated by FHWA
  - Critical Urban Freight Corridors (CUFC)
    - Maximum of 150 miles can be designated in Hawaii
  - Critical Rural Freight Corridors (CRFC)
    - Maximum of 300 miles can be designated in Hawaii
- CUFC and CRFC are high volume truck corridor sections that connect to the PHFS, Interstate System, intermodal freight facilities, and major economic activity centers

# National Highway Freight Network in Hawaii

National Highway Freight Network	2018	2023
Primary Highway Freight Network	277 miles	278.79 miles
Non-PHFS Interstate	0	0
Critical Rural Freight Corridors (CRFC)	150 miles	300 miles
Critical Urban Freight Corridors (CUFC)	75 miles	150 miles
NHFN Max Total in Highway	501 miles	~ 728.79 miles
High PHFS Mileage Compared to Other States	No	No
Hawaii Freight Network	409 miles	184

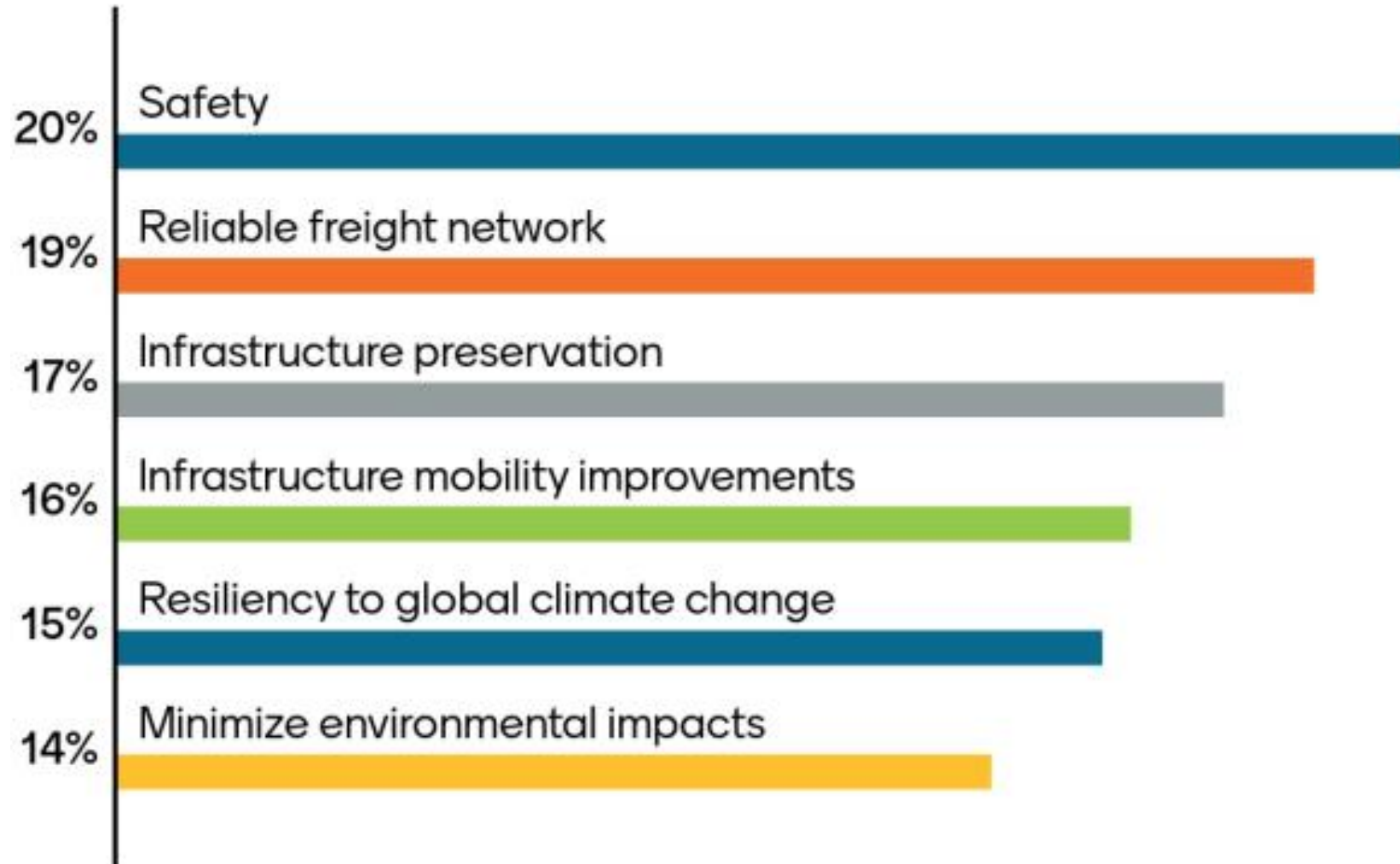
Sources: HDOT Freight Plan 2018, FHWA National Highway Freight Network, 2022







# Project Prioritization Process Evaluation Criteria Review

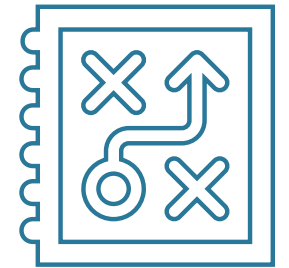


- Step 1 – Develop criteria
- Step 2 – Develop scoring system
- Step 3 – Evaluate potential solution according to the criteria
- Step 4 – Calculate scores
- Step 5 – Prioritize and report results





- Projects are prioritized based on criteria established for each of the goals.
- **Benefit factor:** Qualitatively Describes how well a project will achieve the desired goal
- **Usage factor:** Quantitatively Differentiates projects with similar benefits by comparing their scale of impact (truck volumes, total miles).



Point your phone or tablet's camera toward the QR code below



Scan this QR code  
with your phone or  
tablet's camera

Or go to [www.menti.com](https://www.menti.com) in your browser and use code **3120 1001**

Develop a state freight network that provides for the safety and security of people, infrastructure, and goods movement.

- **Benefit Factor:** How well does this project improve safety, scored on a subjective scale of low, medium, or high (with corresponding point values of 1, 5.5, or 10).
  - Additional Benefit Factor: Historic crashes occurring at the project location can be used to assist with the scoring.
- **Usage Factor (AADTT):** Urban and rural truck volumes are scored on different scales as low, medium, or high (with corresponding point values of 1, 2, or 3).
  - Urban AADTT is assigned a numeric value of 1, 2, or 3 for volumes below 1000 (low), 1000 – 5,000 (medium), or over 5,000 (high).
  - Rural AADTT is assigned a numeric value of 1, 2, or 3 for volumes below 350 (low), 350 – 1000 (medium), or over 1000 (high).
- **Total Score** = Benefit Score \* Usage Factor (AADTT Score)

Go to [www.menti.com](http://www.menti.com) and use the code 3120 1001



Maintain and improve the state of good repair of the freight transportation system.

- **Benefit Factor:** Point values are assigned to the type of pavement preservation project, with major projects receiving a higher point value than minor projects, as follows:
  - 1 Point: Chip Seal
  - 2 Points: Preventive Maintenance
  - 3 Points: Ultra Thin Overlay
  - 4 Points: Minor Rehab
  - 5 Points: Major Rehab
  - 6 Points: Reconstruction
- **Usage Factor (AADTT):** Urban and rural truck volumes are scored on different scales as low, medium, or high (with corresponding point values of 1, 2, or 3).
- **Total Score** = Benefit Score \* Usage Factor (AADTT Score)

Go to [www.menti.com](https://www.menti.com) and use the code 3120 1001



Maintain and improve the state of good repair of the freight transportation system.

- **Benefit Factor:** Point values are assigned to the type of bridge project, with major projects receiving a higher point value than minor projects, as follows:
  - 2 Points: Joint Replace
  - 3 Points: Deck Seal
  - 4 Points: Deck Rehab or Bridge Repair
  - 6 Points: Deck Replace or Bridge Rehab
  - 8 Points: Replace a box culvert that is less than 20'
  - 10 Points: Bridge Replace
- **Usage Factor (AADTT):** Urban and rural truck volumes are scored on different scales as low, medium, or high (with corresponding point values of 1, 2, or 3).
- **Total Score = Benefit Score \* Usage Factor (AADTT Score)**

Go to [www.menti.com](http://www.menti.com) and use the code 3120 1001



Improve the multimodal freight infrastructure to provide mobility and connectivity for freight, and to support the needs of the local economy, including the tourism industry and military.

- **Benefit Factor:** How well does this project reduce congestion, scored on a subjective scale of low, medium, or high (with corresponding point values of 1, 5.5, or 10).
  - **Additional Benefit Factor:** A congestion factor (Average AM Speed)/(Speed Limit) can be used to assist with the scoring. For instance, a project in an area with a high congestion factor may benefit mobility significantly more than a project where congestion is not an issue.
- **Usage Factor (AADTT):** Urban and rural truck volumes are scored on different scales as low, medium, or high (with corresponding point values of 1, 2, or 3).
- **Total Score = Benefit Score \* Usage Factor (AADTT Score)**

Go to [www.menti.com](http://www.menti.com) and use the code **3120 1001**



Improve the multimodal freight infrastructure to provide mobility and connectivity for freight, and to support the needs of the local economy, including the tourism industry and military.

- **Benefit Factor:** How well does this project provide access or connectivity to freight-dependent land uses, scored on a subjective scale of low, medium, or high (with corresponding point values of 1, 5.5, or 10).
- **Usage Factor (AADTT):** Urban and rural truck volumes are scored on different scales as low, medium, or high (with corresponding point values of 1, 2, or 3).
- **Total Score = Benefit Score \* Usage Factor (AADTT Score)**

Go to [www.menti.com](http://www.menti.com) and use the code **3120 1001**



Create a reliable freight network that allows shippers and receivers to plan around predictable travel times.

- **Benefit Factor:** How well does this project improve truck travel time reliability (TTTR), scored on a subjective scale of low, medium, or high (with corresponding point values of 1, 5.5, or 10).
  - Additional Benefit Factor: Current TTTR near the project site can be used to assist with the scoring.
- **Usage Factor (AADTT):** Urban and rural truck volumes are scored on different scales as low, medium, or high (with corresponding point values of 1, 2, or 3).
- **Total Score = Benefit Score \* AADTT Score**

Go to [www.menti.com](http://www.menti.com) and use the code **3120 1001**





Minimize the environmental impacts of freight movement on the State freight network to surrounding communities and the natural environment.

- There are no specific evaluation criteria for this goal since all projects will strive to minimize environmental impacts.

Create and maintain resilient freight infrastructure able to withstand the effects of global climate change.

- **Benefit Factor:** How well does this project improve resiliency to global climate change, scored on a subjective scale of low, medium, or high (with corresponding point values of 1, 5.5, or 10).
- **Usage Factor (AADTT):** An AADTT factor is not used because projects could have system-wide impacts.
- **Total Score = Benefit Score**

Go to [www.menti.com](https://www.menti.com) and use the code **3120 1001**



- Prioritization of Solutions
- Freight Investment Plan
- Draft Freight Plan Key Components

# 2023

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC



## Task 1

Update Goals, Objectives, and Evaluation Criteria

Memo: Project goals, objectives and evaluation criteria/ performance measures

## Task 2

Update Existing and Future Conditions

● Freight Advisory Committee Meeting

Memo: Existing and Future Conditions

## Task 3

Update Needs, Deficiencies, and Potential Solutions

● Freight Advisory Committee Meeting

Memo: Needs and Deficiencies  
Prioritization of Solutions  
Freight Investment Plan

## Task 4

Draft and Final: Statewide Freight Plan

● Freight Advisory Committee Meeting





*Mahalo!*

Questions?

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# Hawaii Statewide Freight Plan

## Freight Advisory Committee – Meeting Summary #2



**MEETING DATE AND TIME:** September 27, 2023, 8:30 am to 10:30 am  
**LOCATION:** MS Teams Meeting  
**ATTENDEES:** HDOT, FAC, TAC, Consultant Team (Jacobs and Bowers + Kubota), see attached list

### Welcome and Introductions

Slides 1 to 3

Ken Tatsuguchi (HDOT Highways) and Kathleen Chu (Bowers + Kubota) opened the meeting by welcoming the participants and thanked everyone for joining the second FAC meeting. The meeting agenda was shared.

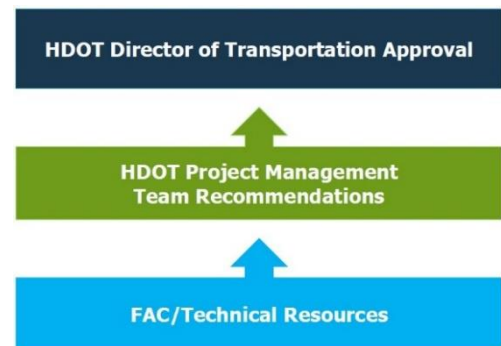
*In this meeting summary, discussions made verbally and in the Chat Room, as well as the Menti results are included at the end of each relevant discussion topic.*

### Highlights of 1st FAC Meeting

Slides 4 to 8

Dan Seedah (Jacobs) and Kathleen shared the highlights of the 1st FAC meeting:

- Role and Commitment of the FAC – As a reminder, the main roles of the FAC was shared (slide 5). The importance of the FAC in advising the HDOT on freight-related priorities and issues was stressed. It was also emphasized that today's meeting will be essential in receiving input from the FAC and identifying freight needs.
- FAC Responsibility: Structured Decision-Making – Input from the FAC/Technical Resources are reviewed by the HDOT Project Management Team (PMT), then recommended to the HDOT Director who has the final decision making authority.
- Highlights of 1st FAC Meeting – Topics covered during the 1st FAC Meeting included the following:
  - Review of the role of the Freight Advisory Committee
  - Highlights from the 2018 Hawaii Statewide Freight Plan
  - Development of the vision, goals, and objectives of the 2023 Hawaii Statewide Freight Plan
  - Review of the 2023 project prioritization process evaluation criteria
- What we heard – Inputs provided during the 1st FAC Meeting included the following:
  - 90% of imported commodities come through the commercial harbors.
  - In response to the war in Ukraine in April 2022, Hawaii has suspended Russian crude oil purchase. Imports are shifting to Argentina and Libya.



- Noticing trends in local businesses utilizing e-commerce.
  - Brick and mortar stores converting to shipping locations for inter-island and mainland operations.
  - Businesses shipping local products to locations such as California, Las Vegas, and Washington State.
- Products coming from California may actually be shipped from other US States, for example Arizona, Seattle, and Oregon.
- Localized disadvantaged communities need to be included for Molokai.
- Sea level rise concerns along with other natural, climate, and weather-related disasters should be taken into consideration, especially on roads along the ocean.

### Needs Identification Exercise in GIS

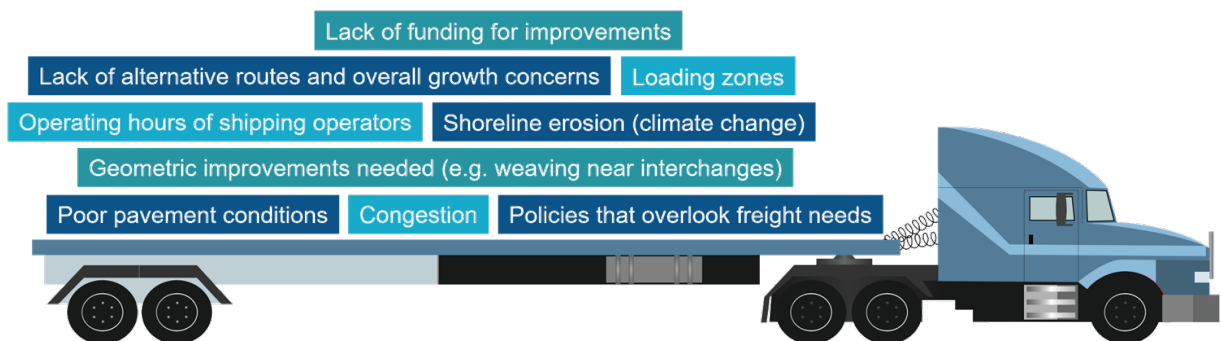
Slides 9 to 19

#### Freight Needs and Issues from the 2018 Statewide Freight Plan

Freight needs and issues during the development of the 2018 Statewide Freight Plan were categorized in the following topics:

- Growing population
- E-commerce
- Technology evolution
- Aging workforce
- Cost of doing business
- Supply constraints

The objective of today's meeting is to identify specific issues pertaining to some of the overall freight issues that have been identified. We will be discussing current needs that are geographically and location specific on the freight network. Examples of specific freight needs/issues are shown in the graphic below:



2022 Traffic Analysis vs 2018 Freight Needs and Issues

Freight needs and issues that were identified during the 2018 Statewide Freight Plan may have been resolved or may remain as existing needs or issues. A 2022 traffic analysis has been conducted based on existing data to verify whether the previously identified needs and issues have been addressed.

In addition to the traffic analysis, we would like your feedback to assist in determining whether some of the previously identified issues and needs have been resolved or not. The 2022 traffic analysis vs freight needs and issues identified in 2018 per island/county were shared for verification and feedback.

*[Comments & Discussion]*

- *For the congestion analysis data map, the AM peak speed needs to be shown in relation to the posted speed limit. If the posted speed limit is relatively low, a lower AM peak speed doesn't necessarily indicate a problem.*
- *Instead of speed, we can have truck travel time reliability (TTTR)*
  - *Agree, we have TTTR maps and can add.*
- *Do we know whether the 2018 issues have been addressed?*
  - *HDOT is reviewing the project list to see what has been accomplished since 2018 in terms of the freight routes.*
  - *2018 issues were not just projects but included other issues such as policy concerns. These issues require verification with the freight community to determine whether they have been addressed.*
- *Just for clarification - how is the peak defined?*
  - *Peak is usually provided by FHWA and defined as times when people are either going to work or school (or being dropped off). AM peak is from 6 am to 10 am; PM peak varies by location but is usually between 4 pm and 7 pm.*
- *Physical limitations at most of the commercial harbor intersections: There have been talks about bringing in longer containers; therefore, longer chassis. Special accommodations (e.g., police escort for wide loads and turns) will be needed when this happens as the roadways are currently not built to accommodate transportation of longer containers from the harbors to the destination of the container.*
  - *Thank you for your input. If there are specific locations of concern, they can be added to the GIS needs map during the breakout sessions.*
- *Geometric concerns out of Kawaihae Harbor*
- *Kauai: Widening of Kuhio Highway between Wailua and Kapaa was completed in June 2023. This project should address the congestion concerns in the area. It would be great to see the project reflected in the current traffic analysis.*
  - *Yes, we will update the 2022 data to reflect the completion of the project.*

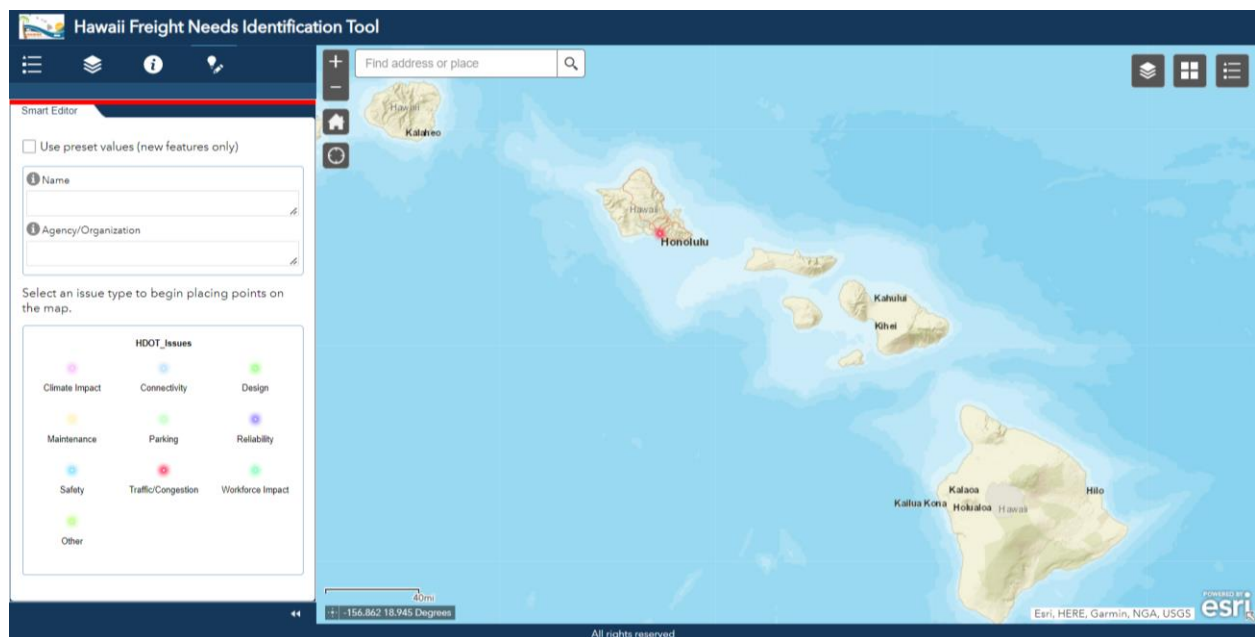


### Needs Identification Exercise

Participants were assigned to breakout rooms per island/county to discuss specific freight needs and issues. A GIS tool was used to mark the specific location with color-coded markers to indicate the category of the need/issue. The link to the online tool was shared with the group so that participants can continue to mark up the map after the meeting:

<https://jacobs.maps.arcgis.com/apps/webappviewer/index.html?id=ab0ead52f5284e81919d8e90339fdaa8>

The following sections summarize the discussions held in each breakout room.



### Oahu

- *When you ask about climate or sea level rise, we are concerned about the whole harbors. What level of granularity do you want? What kind of information is helpful for this exercise?*
  - *Freight Plan will be focused on the surface roads. On the Freight Highway System basically. Even though Harbors is not part of the Freight Highway System, it is still important to know the issues that Harbors have.*
- *At this point of time, we are concerned if there is any contingency plan for the bridge.*
- *About the harbors that bring in the cargos - they might be in the sea level rise exposure areas. I assume the bridge is included and you will have those layers. I think that will cover the concerns that Harbors have about the sea level rise.*
- *Emphasize the roads around the ports.*
- *Any key bottleneck areas that we want to address as well? There are a lot of issues with Pali Highway? In terms of congestion?*
  - *HDOT is currently working on it. Once we finish, it will be good.*

## Hawaii Statewide Freight Plan Freight Advisory Committee – Meeting Summary #2

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- *Thank you for having this conversation. We are looking at existing issues. Not sure if you are looking at forecasted issues in the future. If that is the case, there are more studies that need to be looked at. Encourage you guys to continue to work together with Airports. Potential traffic increase in air at airports and roadway capability. I am also curious about other airports on other islands. I am wondering if you guys see any needs.*
- *At Hawaii Transportation Association (HTA) conference, we heard about expanding Kahaluu Harbor; whether there are plans to expand Kahaluu Harbor for container ships. There is so much congestion around Honolulu Harbor. A lot of the warehousing space is in the Kapolei area.*
  - *I don't think we will be able to move the volume of containers like we see in Honolulu without a lot of investments on expansion. We have targeted operations for containers. So much lower operation. Are you asking about sea level rise or just general operations at Kahaluu?*
  - *Everything. Are there any sea level rise concerns at Kahaluu Harbor as well?*
  - *Yes. Half of the Kahaluu Harbor is unimproved. It is just like standing coral. That is definitely a concern. We are in an early discussion with an energy company who might be interested in developing it. We are looking at increasing cargo volumes everywhere. We are looking at how to expand and keep up. We are also looking at land acquisition. Another component is James Campbell. They have a MOA/MOU with Highways to build out. A lot of roads are under construction, which significantly changes the travel patterns out of the Kahaluu Harbor.*

### Hawaii (Big Island)

- *Improvements made to benefit freight may have negatively impacts other modes. Need to consider other modes of transportation. Request to see pedestrian and bike facilities on the map.*
- *Route 11 near Volcano – this segment (marked on map) has not been repaved in years; pavement is bad.*
- *All bridges on the Hamakua coast are scheduled for improvement starting next year to 2027.*
- *Kealakehe Parkway, east of Kamanu Street – check pavement condition.*
- *Coming out of Kawaihae Harbor on Kawaihae Road - the truckers have a hard time coming out of the harbor and keep hitting the guardrail. A grant application has been submitted by HDOT Harbors to address this issue.*
- *The main gate into Kawaihae Harbor – need a dedicated left turn lane and stacking lane to avoid creating congestion in and out of the harbor. Since 2021, one of the shipping companies has been discharging all of their cargo at Kawaihae and then trucking over to Hilo; as such, there has been an increase in incoming cargo at Kawaihae Harbor.*

### Kauai

- *One climate concern is the stretch of highway north of Wailua Bridge. It is along a stretch of roadway that is adjacent to an eroding bridge (Highway 56). There is a potential "sand savers project" that is being considered to restore the beach*
  - *We have a plan to protect the highway. There will be a rock embankment, coastal dune and sandsavers to replenish beach.*
- *It seems the main issues are going to be near the cities.*

- *Climate Impacts: Existing seawall on Kekaha – where the highway is close to the coast – there is a long seawall that was designed and constructed by Army Corps of Engineers many years ago. It isn't failing, but it has some issues. It was constructed without a geotextile below it, there is a migration of pilings below it. It would be more stable if there was a geotextile, there has been some settling that has occurred.*
- *Hanalei Bay/Waikoko (Kuhio Highway) – when there are big storm events there can be erosion.*
- *Another project near Wailua Bridge – replacing the foundations of the southbound bridges. The bridge is about 75 years old and on timber pilings, lots of scouring occurring. The northbound bridge is not as susceptible, but may have the same issues as well.*
  - *The bridge is very important asset – connects the island and is the only way to cross the river.*
- *There were some concerns raised by truckers, does anyone know what those were? There were also some policy changes they were concerned about.*
- *Kauai recently completed a substantial project that addressed a major congestion area; some of the follow up locations are: Kuhio Highway (between Wailua River and Kapule Highway) and Kaunualii Highway (between Puhi Road and the merge at Maluhia Road).*
- *Geometric issue: "blind curve" on Route 583 Maalo Road (MP 0.7) - large trucks have to go into the opposite lane to make the turn. A project has been set up to flatten the curve.*

#### Maui, Lanai, and Molokai

- *With respect to climate impacts, one of the major concerns for HDOT Harbors is making sure that the piers and harbors can adapt to sea level rise and being able to manage to get freight across the berth safely and efficiently. Raising the piers create issues with connectivity to the existing highway system. As harbors cannot retreat from the shoreline, the focus is on how to best adapt to sea level rise and assessing what the implications are in regard to linkages and impacts to surrounding land areas.*

### Critical Rural Freight Corridors (CRFCs) and Critical Urban Freight Corridors (CUFCs) Designations

Slides 20 to 23

To receive Federal freight funds, projects must be located on the National Highway Freight Network (NHFN) comprised of:

- Priority Highway Freight System (PHFS) and Interstate System - Designated by FHWA
- Critical Urban Freight Corridors (CUFC) - Maximum of 150 miles can be designated in Hawaii
- Critical Rural Freight Corridors (CRFC) - Maximum of 300 miles can be designated in Hawaii

CUFC and CRFC are high volume truck corridor sections that connect to the PHFS, Interstate System, intermodal freight facilities, and major economic activity centers.

The table below shows the number of miles per freight system/corridor that was designated in 2018 vs the number of miles that can be designated during the 2023 update of the Statewide Freight Plan. We have an opportunity to designate an additional 150 miles of CRFC and 75 miles of CUFC. Our current recommendation is to assign some of the 409 miles of the Hawaii Freight Network that was previously not included in the NHFN to the CRFC or CUFC.

National Highway Freight Network	2018	2023
Primary Highway Freight Network	277 miles	<b>278.79 miles</b>
Non-PHFS Interstate	0	0
Critical Rural Freight Corridors (CRFC)	150 miles	<b>300 miles</b>
Critical Urban Freight Corridors (CUFC)	75 miles	<b>150 miles</b>
NHFN Max Total in Highway	501 miles	<b>~728.79 miles</b>
High PHFS Mileage Compared to Other States	No	No
Hawaii Freight Network	409 miles	<b>184</b>

The Hawaii Freight Network consists of routes with high truck volumes that were identified as important internally to Hawaii during the 2018 Freight Plan development. Our strategy will be to identify routes within the Hawaii Freight Network with the highest truck volumes, which will be shared during the next FAC meeting, and assign those routes to the CRFC/CUFC.

For discussion purposes, an interactive map session was held to go over any candidate routes of the Hawaii Freight Network that should be upgraded to the CRFC or CUFC. A complete list of the current freight network/routes will be sent out to the group following the meeting for review.

*[Comments & Discussion]*

- *How were the critical freight corridors determined previously in 2018?*
  - *We looked at connectivity as well as truck volume.*
- *Kauai:*
  - *Extend Kaunualii Hwy to the next intersection at the intersection of Route 50 and Route 520*
  - *Rice Street in Lihue*
- *Does designating a road to the freight network create conflicts with Kauai County's plan to implement Complete Streets policy on the existing roads in Lihue? For example, would a freight route mean not being able to lower the speed limit to accommodate bicyclists/pedestrian, etc.?*
  - *There should be no conflict. Designation to a freight network would allow the route to be eligible for Federal freight funds for freight improvements, which would include consideration for creating sufficient space for safety for all modes.*
- *Technically, the PHFS is designated by Congress.*
- *The National Freight Program as a funding program is for specific set of activities. Eligible Projects: Eligible projects shall contribute to the efficient movement of freight on the NHFN, and be identified in a freight investment plan included in a State Freight Plan (SFP) (required in FY 2018 and beyond). NHFP funds may be obligated for one or more of the following:*

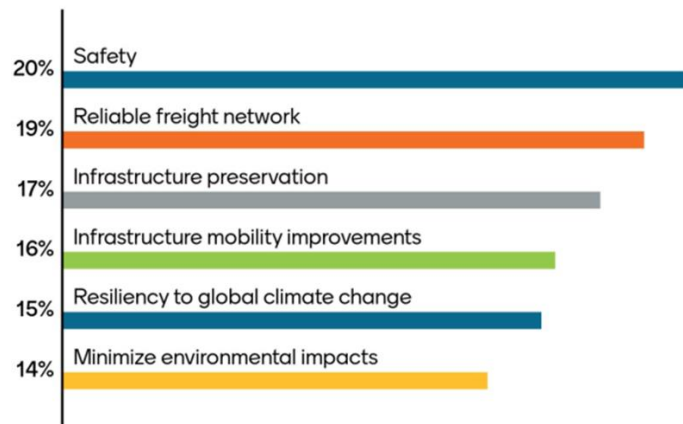
1. *Development phase activities including planning, feasibility analysis, revenue forecasting, environmental review, preliminary engineering and design work, and other preconstruction activities.*
  2. *Construction, reconstruction, rehabilitation, acquisition of real property (including land relating to the project and improvements to land), construction contingencies, acquisition of equipment, and operational improvements directly relating to improving system performance.*
  3. *Intelligent transportation systems and other technology to improve the flow of freight, including intelligent freight transportation systems.*
  4. *Efforts to reduce the environmental impacts of freight movement.*
  5. *Environmental and community mitigation for freight movement.*
  6. *Railway-highway grade separation.*
  7. *Geometric improvements to interchanges and ramps.*
  8. *Truck-only lanes.*
  9. *Climbing and runaway truck lanes.*
  10. *Adding or widening of shoulders.*
  11. *Truck parking facilities eligible for funding under section 1401 of MAP-21*
  12. *Real-time traffic, truck parking, roadway condition, and multimodal transportation information systems.*
  13. *Electronic screening and credentialing systems for vehicles, including weigh-in-motion truck inspection technologies.*
  14. *Traffic signal optimization, including synchronized and adaptive signals.*
  15. *Work zone management and information systems.*
  16. *Highway ramp metering.*
  17. *Electronic cargo and border security technologies that improve truck freight movement.*
  18. *Intelligent transportation systems that would increase truck freight efficiencies inside the boundaries of intermodal facilities.*
  18. *Additional road capacity to address highway freight bottlenecks.*
  19. *Physical separation of passenger vehicles from commercial motor freight.*
  20. *Enhancement of the resiliency of critical highway infrastructure, including highway infrastructure that supports national energy security, to improve the flow of freight.*
  21. *A highway or bridge project to improve the flow of freight on the NHFN.*
- *Appropriation for Federal freight funding is \$30M for the next 5 years.*
  - *Big Island:*
    - *Kawaihae Harbor*
    - *There is no Hawaii Freight Network going to Kau and coming back to Kailua-Kona, which is important in terms of connectivity.*
      - *The Hawaii Freight Network was determined based solely on truck volume. We will check whether there has been any increase in truck volumes that may make the route eligible to be considered for the critical corridors.*

- *As the route is long and may take up too much mileage of the allowable critical routes, we could consider designating a portion of the route. Another option would be to assign the route to the Hawaii Freight Network during this update, which would allow the route to be considered for upgrade to the critical corridors during the next update.*

### Project Prioritization Process Evaluation Criteria Review

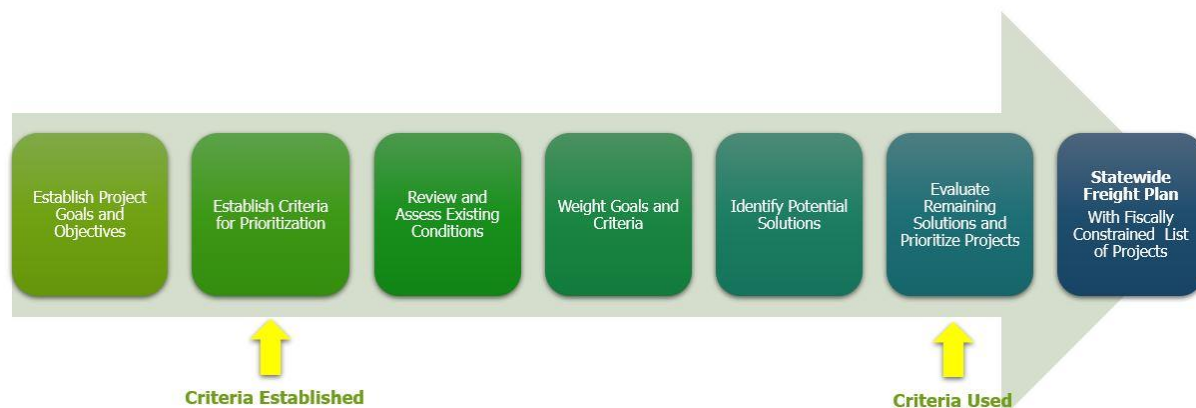
Slides 24 to 36

The results of the Freight Plan goal weighting exercise from the 1st FAC meeting was shared as shown below:



The weights will help establish the criteria that will be used to prioritize the identified needs and improvements. The evaluation process will consist of the following five steps and will follow the flow chart shown below:

- Step 1 – Develop criteria
- Step 2 – Develop scoring system
- Step 3 – Evaluate potential solution according to the criteria
- Step 4 – Calculate scores
- Step 5 – Prioritize and report results



Once the criteria are established and agreed upon, the project team will score each of the potential solutions and share the results during the next FAC meeting.

The project evaluation process will be based on the following two factors:

- Benefit factor - qualitatively describes how well a project will achieve the desired goal
- Usage factor - quantitatively differentiates projects with similar benefits by comparing their scale of impact (truck volumes, total miles).

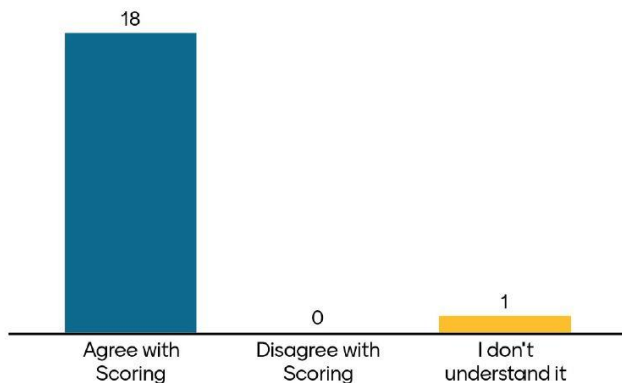
The following sections describe the evaluation criteria that was shared for each Freight Plan goal and the feedback received using the Menti tool.

### Goal 1: Safety

Develop a state freight network that provides for the safety and security of people, infrastructure, and goods movement.

- **Benefit Factor:** How well does this project improve safety, scored on a subjective scale of low, medium, or high (with corresponding point values of 1, 5.5, or 10).
  - **Additional Benefit Factor:** Historic crashes occurring at the project location can be used to assist with the scoring.
- **Usage Factor (AADTT):** Urban and rural truck volumes are scored on different scales as low, medium, or high (with corresponding point values of 1, 2, or 3).
  - Urban AADTT is assigned a numeric value of 1, 2, or 3 for volumes below 1000 (low), 1000 – 5,000 (medium), or over 5,000 (high).
  - Rural AADTT is assigned a numeric value of 1, 2, or 3 for volumes below 350 (low), 350 – 1000 (medium), or over 1000 (high).
- **Total Score** = Benefit Score \* Usage Factor (AADTT Score)

## Criteria Scoring: Safety



[Comments & Discussion]

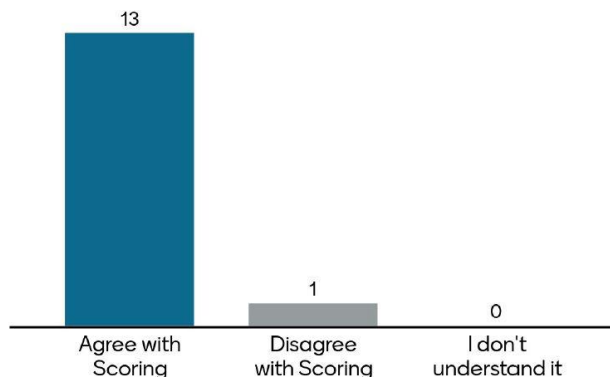
- How were the truck volume scales determined? Truck volumes are relatively low on Kauai so would end up on the lower end of the threshold. Without knowing the existing truck volumes on Kauai, it would be hard to comment on the threshold values being used/proposed.
  - The rural scales account for areas with lower truck volumes. We will check the existing truck volumes on Kauai to determine whether the proposed values are appropriate.
- Are the two types of scores (benefit factor and usage factor) cumulative?
  - They are multiplied with each other to amplify safety benefits. The correct equation should be:  
 $Total\ Score = Benefit\ Factor * Usage\ Factor\ (AADTT\ Score)$

## Goal 2: Infrastructure Preservation (Pavement)

Maintain and improve the state of good repair of the freight transportation system.

- **Benefit Factor:** Point values are assigned to the type of pavement preservation project, with major projects receiving a higher point value than minor projects, as follows:
  - 1 Point: Chip Seal
  - 2 Points: Preventive Maintenance
  - 3 Points: Ultra Thin Overlay
  - 4 Points: Minor Rehab
  - 5 Points: Major Rehab
  - 6 Points: Reconstruction
- **Usage Factor (AADTT):** Urban and rural truck volumes are scored on different scales as low, medium, or high (with corresponding point values of 1, 2, or 3).
- **Total Score** = Benefit Score \* Usage Factor (AADTT Score)

## Criteria Scoring: Pavement





[Comments & Discussion]

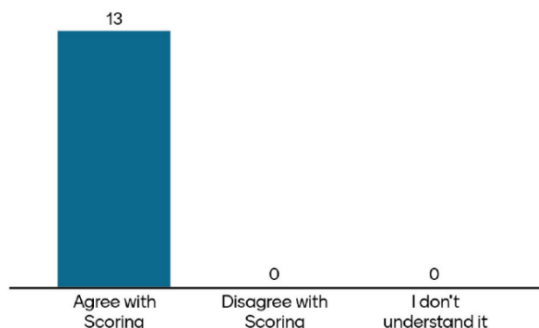
- *Pavement does not take into account preservation of infrastructure of the entry points (i.e., harbors and airports) into the freight system.*
- *When planning pavement projects, treatment is determined based on the most efficient use of available resources and the condition of the road. Pavement management strategy is based on how to keep the roadway in a state of good repair. The scoring system presented does not take this into account. Roadways requiring reconstruction would score the highest and imply the best solution (vs a more economical solution of frequent chip seal to preserve the roadway).*
  - *The assumption for this criteria is that the roadway has poor pavement vs roadways requiring maintenance to keep them in good repair. There has been feedback from the trucking industry that roadways with poor pavement require reconstruction as most of the time, the subbase and base need to be reconstructed. Overlay does not last very long and is only a short-term solution.*
- *It would have been easier if the max for pavement was 17 if the criteria weightage was 17.*
  - *The goal weights will not be used for the criteria scoring.*

## Goal 2: Infrastructure Preservation (Bridges)

Maintain and improve the state of good repair of the freight transportation system.

- **Benefit Factor:** Point values are assigned to the type of bridge project, with major projects receiving a higher point value than minor projects, as follows:
  - 2 Points: Joint Replace
  - 3 Points: Deck Seal
  - 4 Points: Deck Rehab or Bridge Repair
  - 6 Points: Deck Replace or Bridge Rehab
  - 8 Points: Replace a box culvert that is less than 20'
  - 10 Points: Bridge Replace
- **Usage Factor (AADTT):** Urban and rural truck volumes are scored on different scales as low, medium, or high (with corresponding point values of 1, 2, or 3).
- **Total Score** = Benefit Score \* Usage Factor (AADTT Score)

## Criteria Scoring: Bridges



*[Comments & Discussion]*

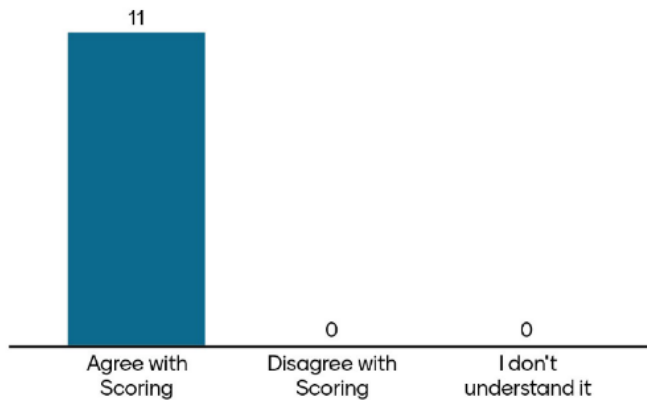
- *The assumption for bridges is that the bridge is already in poor condition or that it is weight restricted. Weight restricted bridges are also a concern for freight movement.*
- *The scoring calculation does not take into account preservation needs and could affect funding availability for preservation projects.*
  - *The criteria development addresses freight needs and is internal to the Freight Plan. Preservation needs are evaluated in the TAMP; funding is programmed through the HDOT's Mid-Range Plan.*
- *Are we able to get a list of the bridges that have been downgraded and are currently on plan for repair?*
- *What if any funding from this statewide freight plan effort could be directed to Airports and Commercial Harbors since they are the entry and exit points of freight, because we have roads, etc. at these facilities as well. That would be a strategy to focus a small pot of funding rather than spreading it widely.*
  - *This prioritization exercise is geared toward roadways. A separate needs list could be created for airports and harbors in addition to the roadways needs list. Different sources of funding could be assigned to each list.*
  - *Intermodal connectors are already identified as part of the primary freight network.*
- *AADTT: 1, 2, 3 score thresholds, are they same for all islands/urban and rural roads?*
  - *Urban and rural truck volumes are scored on different scales as low, medium, or high (1, 2, or 3); the threshold values for the different scales are shown on the 'Safety' criteria.*

### Goal 3: Infrastructure Mobility Improvements (Mobility)

Improve the multimodal freight infrastructure to provide mobility and connectivity for freight, and to support the needs of the local economy, including the tourism industry and military.

- **Benefit Factor:** How well does this project reduce congestion, scored on a subjective scale of low, medium, or high (with corresponding point values of 1, 5.5, or 10).
  - **Additional Benefit Factor:** A congestion factor (Average AM Speed)/(Speed Limit) can be used to assist with the scoring. For instance, a project in an area with a high congestion factor may benefit mobility significantly more than a project where congestion is not an issue.
- **Usage Factor (AADTT):** Urban and rural truck volumes are scored on different scales as low, medium, or high (with corresponding point values of 1, 2, or 3).
- **Total Score** = Benefit Score \* Usage Factor (AADTT Score)

## Criteria Scoring: Mobility

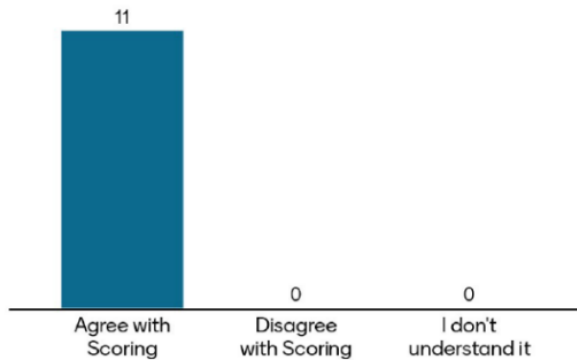


### Goal 3: Infrastructure Mobility Improvements (Connectivity)

Improve the multimodal freight infrastructure to provide mobility and connectivity for freight, and to support the needs of the local economy, including the tourism industry and military.

- **Benefit Factor:** How well does this project provide access or connectivity to freight-dependent land uses, scored on a subjective scale of low, medium, or high (with corresponding point values of 1, 5.5, or 10).
- **Usage Factor (AADTT):** Urban and rural truck volumes are scored on different scales as low, medium, or high (with corresponding point values of 1, 2, or 3).
- **Total Score** = Benefit Score \* Usage Factor (AADTT Score)

## Criteria Scoring: Connectivity

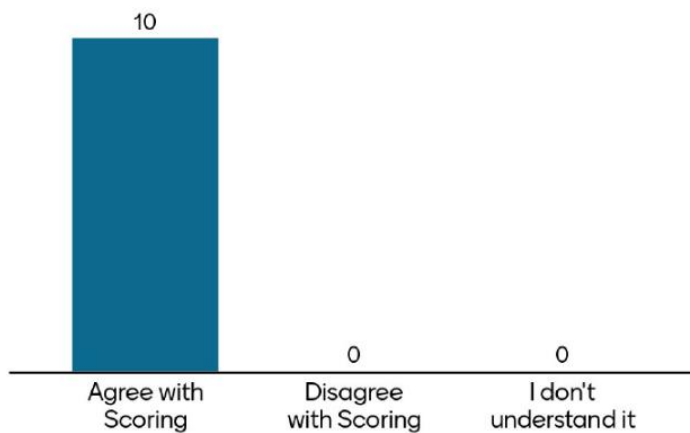


### Goal 4: Reliable Freight Network

Create a reliable freight network that allows shippers and receivers to plan around predictable travel times.

- **Benefit Factor:** How well does this project improve truck travel time reliability (TTTR), scored on a subjective scale of low, medium, or high (with corresponding point values of 1, 5.5, or 10).
  - **Additional Benefit Factor:** Current TTTR near the project site can be used to assist with the scoring.
- **Usage Factor (AADTT):** Urban and rural truck volumes are scored on different scales as low, medium, or high (with corresponding point values of 1, 2, or 3).
- **Total Score** = Benefit Score \* AADTT Score

## Criteria Scoring: Reliable Freight Network



### Goal 5: Minimize Environmental Impacts

Minimize the environmental impacts of freight movement on the State freight network to surrounding communities and the natural environment.

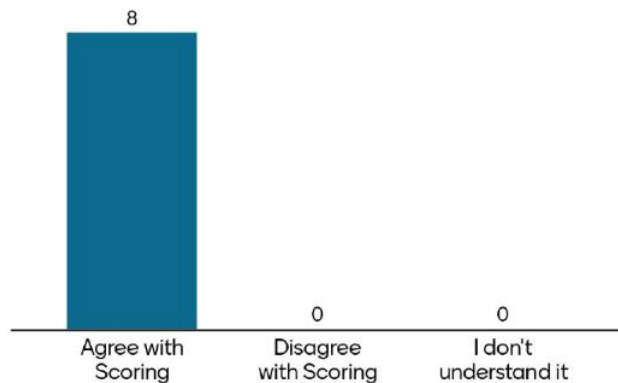
There are no specific evaluation criteria for this goal since all projects will strive to minimize environmental impacts.

### Goal 6: Resiliency to Global Climate Change

Create and maintain resilient freight infrastructure able to withstand the effects of global climate change.

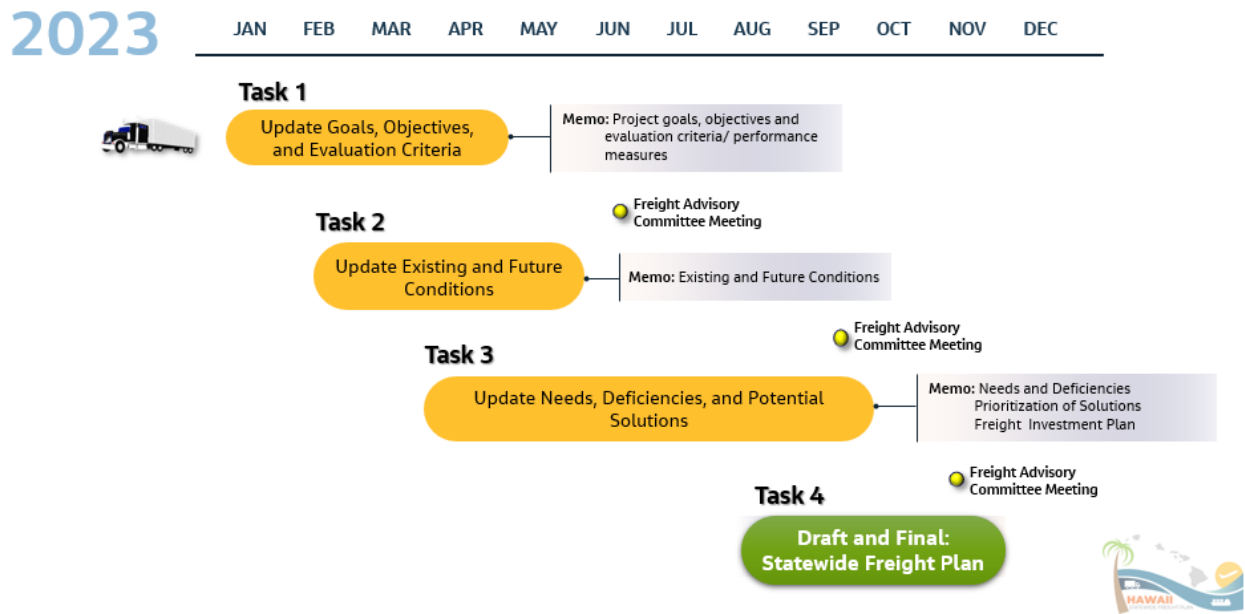
- **Benefit Factor:** How well does this project improve resiliency to global climate change, scored on a subjective scale of low, medium, or high (with corresponding point values of 1, 5.5, or 10).
- **Usage Factor (AADTT):** An AADTT factor is not used because projects could have system-wide impacts.
- **Total Score = Benefit Score**

## Criteria Scoring: Resiliency to Global Climate Change



### Next Steps

- Prioritization of Solutions
- Freight Investment Plan
- Draft Freight Plan Key Components
- Next FAC Meeting: November 2023



Dan, Kathleen, and Ken thanked everyone for their time and participation and closed the meeting.



# Freight Advisory Committee Meeting #3

November 9th, 2023





Welcome



1. Welcome
2. Highlights of 2<sup>nd</sup> FAC Meeting
3. Review Critical Rural Freight Corridors (CRFCs) & Critical Urban Freight Corridors (CUFCs) Designations
4. Review of Prioritized Solutions
5. Freight Investment Plan
6. Draft Statewide Freight Plan Key Components
7. Next Steps
8. Closing Remarks



# Highlights of 2nd FAC Meeting





- Needs Identification Exercise
  - New needs were identified and included in Project Prioritization Spreadsheet



- Critical Rural Freight Corridors (CRFCs) & Critical Urban Freight Corridors (CUFCs) Designation
  - New routes were added, and some older routes were redesignated



- 2023 Project Prioritization Process Evaluation Criteria
  - The Benefit Factors for Goal 2: Infrastructure Preservation (Bridges & Pavement) were re-categorized





# Critical Rural Freight Corridors (CRFCs) & Critical Urban Freight Corridors (CUFCs) Designations



- To receive Federal freight funds projects must be located on the National Highway Freight Network (NHFN) comprised of:
  - Priority Highway Freight System (PHFS) and Interstate System
    - Designated by FHWA
  - Critical Urban Freight Corridors (CUFC)
    - Maximum of 150 miles can be designated in Hawaii
  - Critical Rural Freight Corridors (CRFC)
    - Maximum of 300 miles can be designated in Hawaii
- CUFC and CRFC are high volume truck corridor sections that connect to the PHFS, Interstate System, intermodal freight facilities, and major economic activity centers

National Highway Freight Network	2018	2023
Primary Highway Freight Network	277 miles	278.8 miles
Non-PHFS Interstate	0	0
Critical Rural Freight Corridors (CRFC)	150 miles	299.5 miles
Critical Urban Freight Corridors (CUFC)	75 miles	149.9 miles
NHFN Max Total in Highway	501 miles	728.2 miles
High PHFS Mileage Compared to Other States	No	No
Hawaii Freight Network	409 miles	195.2 miles



# Roadway Designations by Island

Island	CRFC	CUFC	PHFS	Total NHFN	Hawaii Freight Network
Hawaii	121.1	33.4	113.3	267.8	29.4
Kauai	60.2	7.3	17.3	84.8	27.0
Maui	48.7	4.3	59.8	112.8	35.9
Oahu	69.5	104.9	88.4	262.8	102.9
Total	299.5	149.9	278.8	728.2	195.2





# Interactive Map Session - CUFC and CRFC Candidate Routes



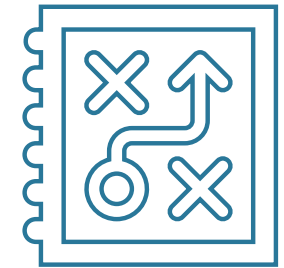


# Project Prioritization Results

- Step 1 – Develop criteria
- Step 2 – Develop scoring system
- Step 3 – Evaluate potential solution according to the criteria
- Step 4 – Calculate scores
- Step 5 – Prioritize and report results



- Projects are prioritized based on criteria established for each of the goals.
- **Benefit factor:** Qualitatively Describes how well a project will achieve the desired goal
- **Usage factor:** Quantitatively Differentiates projects with similar benefits by comparing their scale of impact (truck volumes, total miles).



# Project Prioritization Scoring

Goal	Category	Goal Weight	Benefit Factor (Qualitative)	Usage Factor (Quantitative)
1. Safety		20%	Low – 1 Medium – 5.5 High – 10	
2. Infrastructure Preservation	Pavement	17%	Pavement Maintenance – 1 Rehab – 2 Reconstruction – 3	Urban AADTT 1,000 (low) – 1 1,000 – 5,000 (medium) – 2 over 5,000 (high) – 3
	Bridges		Repair – 1 Rehab – 2 Replace – 3	
3. Infrastructure Mobility Improvements	Mobility (reduce congestion)	16%	Low – 1 Medium – 5.5 High – 10	Rural AADTT 350 (low) – 1 350 – 1,000 (medium) – 2 over 1,000 (high) – 3
	Connectivity (connectivity to freight-dependent land uses)		Low – 1 Medium – 5.5 High – 10	
4. Reliable Freight Network	Improves truck travel time reliability (TTTR)	19%	Low – 1 Medium – 5.5 High – 10	
5. Minimize Environmental Impacts		14%	No specific evaluation criteria for this goal since all projects will strive to minimize environmental impacts.	
6. Resiliency to Global Climate Change		15%	Low – 1 Medium – 5.5 High – 10	N/A



## 2023 Hawaii Statewide Freight Plan

DRAFT Prioritized Solutions

Kauai Island .....	1
Oahu Island .....	2
Maui Island .....	4
Hawaii Island .....	5





# Freight Investment Plan



- It includes a list of priority projects and describes how NHFP funds made available to the state will be invested and matched.
- It is fiscally constrained, and only includes projects or identified projects where funding for the completion of the project can be reasonably anticipated to be available for the project within the period identified in the freight investment plan.
- A total of \$30,525,058 in NHFP funding is expected to be available for Hawaii between 2022 and 2026.

Funding	2022	2023	2024	2025	2026	2022-2026 Total
NHFP Obligation Limitation Available	\$ 5,865,646	\$ 5,982,959	\$ 6,102,618	\$ 6,224,671	\$ 6,349,164	\$ 30,525,058

Funds will be used for ongoing projects or projects ready to start construction







# Draft Statewide Freight Plan Key Components



CHAPTER 1 – Introduction

CHAPTER 2 – Industry Assessment: The Importance of Freight Industries to Hawaii

CHAPTER 3 – Freight System: The Importance of Maintaining Connected Freight Network in Hawaii

CHAPTER 4 – Changing Environment: The Importance of Ensuring Modernized Freight Network in Hawaii

CHAPTER 5 – Implementation Plan: The Importance of Developing Resilient Freight Network in Hawaii

CHAPTER 6 – Investment Plan: The Importance of Prioritizing Freight Investments in Hawaii



## 1. INTRODUCTION



- I. Plan Purpose
- II. Federal Guidance
- III. Plan Outline



## Introduction

- I. Plan Purpose
- II. Federal Guidance
- III. Plan Outline



## 2.

### THE IMPORTANCE OF FREIGHT INDUSTRIES TO HAWAII



- I. Definition of Freight-Intensive Sectors
- II. Economic Output in Freight Intensive Sectors
- III. Employment in Freight-Related Sectors
- IV. Major Trip Generators



## The Importance of Freight Industries to Hawaii

- I. Definition of Freight-Intensive Sectors
- II. Economic Output in Freight-Intensive Sectors
- III. Employment in Freight-Related Sectors
- IV. Major Trip Generators



## 3.

### MAINTAINING A CONNECTED FREIGHT NETWORK IN HAWAII



- I. Multimodal Freight Network
- II. Highway
- III. Marine Freight
- IV. Air Cargo
- V. Military Freight
- VI. Supply Chain



## The Importance of Maintaining A Connected Freight Network in Hawaii

### I. Multimodal Freight Network

- National Highway Freight Network (NHFN)
- Primary Freight Highway System (PFHS)
- Critical Urban Freight Corridors (CUFCs)
- Critical Rural Freight Corridors (CRFCs)

### II. Highway

- Safety
- Mobility and Reliability
- Infrastructure Preservation (Pavement and Bridges)
- Commercial Motor Vehicle Parking

### III. Marine Freight

### IV. Air Cargo

### V. Military Freight

### VI. Supply Chain



## 4.

### ENSURING A MODERNIZED FREIGHT NETWORK IN HAWAII



- I. Environmental Impacts
- II. Emerging Trends
- III. Innovative Technologies



## The Importance of Ensuring A Modernized Freight Network in Hawaii

- I. Environmental Impacts
- II. Emerging Trends
- III. Innovative Technologies



## 5.

### DEVELOPING A RESILIENT FREIGHT NETWORK IN HAWAII



- I. Stakeholder Engagement
- II. Goals, Objectives, and Strategies
- III. Performance Measures and Evaluation Criteria
- IV. Needs Identification and Assessment
- V. Policy and Program Recommendations



## The Importance of Developing Resilient Freight Network in Hawaii

- I. Stakeholder Engagement
- II. Goals, Objectives, and Strategies
- III. Performance Measures and Evaluation Criteria
- IV. Needs Identification and Assessment
- V. Policy and Program Recommendations



## 6.

### PRIORITIZING FREIGHT INVESTMENTS IN HAWAII



- I. Fiscally Constrained FIP
- II. Fiscally Unconstrained FIP
- III. Multimodal Freight Projects



## The Importance of Prioritizing Freight Investments in Hawaii

- I. Fiscally Constrained FIP
- II. Fiscally Unconstrained FIP
- III. Multimodal Freight Projects





# 2023

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC



## Task 1

Update Goals, Objectives, and Evaluation Criteria

Memo: Project goals, objectives and evaluation criteria/ performance measures

## Task 2

Update Existing and Future Conditions

● Freight Advisory Committee Meeting

Memo: Existing and Future Conditions

## Task 3

Update Needs, Deficiencies, and Potential Solutions

● Freight Advisory Committee Meeting

Memo: Needs and Deficiencies  
Prioritization of Solutions  
Freight Investment Plan

## Task 4

Draft and Final: Statewide Freight Plan

● Freight Advisory Committee Meeting



## FAC – Provide Comments by Nov. 24<sup>th</sup>

- Review and provide any feedback on the Critical Rural Freight Corridors (CRFCs) & Critical Urban Freight Corridors (CUFCs)
  - [Hawaii Freight Network - 2023 Update \(arcgis.com\)](#)
- Review and provide any feedback on the draft prioritized solutions

## PMT

- Prepare the draft Statewide Freight Plan



*Mahalo!*

Questions?

Contact Information:

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Hawaii Department of Transportation  
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Kathleen Chu  
Email: [kchu@bowersandkubota.com](mailto:kchu@bowersandkubota.com)



# Hawaii Statewide Freight Plan

## Freight Advisory Committee – Meeting Summary #3



**MEETING DATE AND TIME:** November 9, 2023, 8:30 am to 9:30 am  
**LOCATION:** MS Teams Meeting  
**ATTENDEES:** HDOT, FAC, TAC, Consultant Team (Jacobs and Bowers + Kubota), see attached list

### Welcome and Introductions

Slides 1 to 3

Dan Seedah (Jacobs) opened the meeting by welcoming the participants and thanked everyone for joining the third FAC meeting. The meeting agenda was shared followed by a brief introduction of the project team.

*In this meeting summary, discussions made verbally and in the Chat Room, as well as the Menti results are included at the end of each relevant discussion topic.*

### Highlights of 2nd FAC Meeting

Slides 4 to 5

Highlights of the 2nd FAC meeting included the following:

- Needs Identification Exercise – New needs were identified and included in Project Prioritization Spreadsheet
- Critical Rural Freight Corridors (CRFCs) & Critical Urban Freight Corridors (CUFCs) Designation – New routes were added, and some older routes were redesignated
- 2023 Project Prioritization Process Evaluation Criteria – The Benefit Factors for Goal 2: Infrastructure Preservation (Bridges & Pavement) were re-categorized

### Critical Rural Freight Corridors (CRFCs) & Critical Urban Freight Corridors (CUFCs) Designations

Slides 6 to 10

#### National Highway Freight Network in Hawaii

To receive Federal freight funds, projects must be located on the National Highway Freight Network (NHFN) comprised of:

- Priority Highway Freight System (PHFS) and Interstate System - Designated by FHWA
- Critical Urban Freight Corridors (CUFC) - Maximum of 150 miles can be designated in Hawaii
- Critical Rural Freight Corridors (CRFC)- Maximum of 300 miles can be designated in Hawaii

CUFC and CRFC are high volume truck corridor sections that connect to the PHFS, Interstate System, intermodal freight facilities, and major economic activity centers.

#### Roadway Designations

The number of miles per freight system/corridor that was designated in 2018 vs the number of miles that has been designated for the current 2023 update of the Statewide Freight Plan was shared as shown in the following table:

## Hawaii Statewide Freight Plan Freight Advisory Committee – Meeting Summary #3

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National Highway Freight Network	2018	2023
Primary Highway Freight Network	277 miles	<b>278.8 miles</b>
Non-PHFS Interstate	0	0
Critical Rural Freight Corridors (CRFC)	150 miles	<b>299.5 miles</b>
Critical Urban Freight Corridors (CUFC)	75 miles	<b>149.9 miles</b>
NHFN Max Total in Highway	501 miles	<b>728.2 miles</b>
High PHFS Mileage Compared to Other States	No	No
Hawaii Freight Network	409 miles	<b>195.2 miles</b>

During this Plan update, we have an opportunity to designate an additional 150 miles of CRFC and 75 miles of CUFC. As such, some of the 409 miles of the Hawaii Freight Network that was previously not included in the NHFN, thus not being eligible for Federal freight funds, has been reassigned to the CRFC or CUFC.

### Roadway Designations by Island

The number of miles per freight system/corridor (for the current update) per island was shared as shown in the following table:

Island	CRFC	CUFC	PHFS	Total NHFN	Hawaii Freight Network
Hawaii	121.1	33.4	113.3	<b>267.8</b>	29.4
Kauai	60.2	7.3	17.3	<b>84.8</b>	27.0
Maui	48.7	4.3	59.8	<b>112.8</b>	35.9
Oahu	69.5	104.9	88.4	<b>262.8</b>	102.9
<b>Total</b>	<b>299.5</b>	<b>149.9</b>	<b>278.8</b>	<b>728.2</b>	<b>195.2</b>

### Interactive Map Session – CUFC and CRFC Candidate Routes

An interactive map session was held to review the CUFC and CRFC routes that have been added to the NHFN. Dan and Kathleen Chu (Bowers + Kubota) walked the group through each island to show the locations of the new CUFC and CRFC routes. The link to the interactive map was shared for the group to review and provide input.

Kathleen mentioned that the freight network routes are still being worked on to incorporate some of the recent changes that have been made. For example, on Maui, the CUFC/CRFC mileage on Airport Access Road can be used elsewhere as the road has been newly added to the PHFS by FHWA.

*[Comments & Discussion]*

- *What is the significance of the Hawaii Freight Network?*
  - *The Hawaii Freight Network consists of routes with high truck volumes that were identified as important internally to Hawaii by the FAC during the 2018 Freight Plan development. The Hawaii Freight Network is not eligible for Federal freight funds; however, is important in the context that it is recognized as a key corridor to transport goods and may be eligible for other types of grants.*
  - *Since the amount of CRFC/CUFC has been doubled this time compared to the previous 2018 Plan development, our current effort is to reassign some of the Hawaii Freight Network to the CRFC/CUFC so that they can be eligible for Federal freight funding.*
- *Koloa, Kauai: Prefer to keep Poipu Road (Koloa Road to the roundabout) as the Hawaii Freight Network since there are schools, resident, churches along that road. Ala Kinoiki and Ala Kalanikaumaka Street are locally referred to as bypass roads and would be preferable to detour freight down those roads.*
- *Lihue, Kauai:*
  - *The end of Ahukini Road (section to Ahukini Recreational Pier State Park) may not need to be designated as a freight route (currently designated as the Hawaii Freight Network).*
  - *Puhi Road – extend the new CUFC route all the way down the road.*
- *Are we using a threshold truck AADT to designate urban or rural freight network?*
  - *We assigned the CUFC and CRFC designations to routes with the highest truck volumes within the urban and rural areas, respectively. If there were additional mileage left, we looked at routes that provided key connections to other freight routes. A technical memorandum that provides further details on how the CUFC and CRFC designations were determined has been prepared and shared with you for review.*

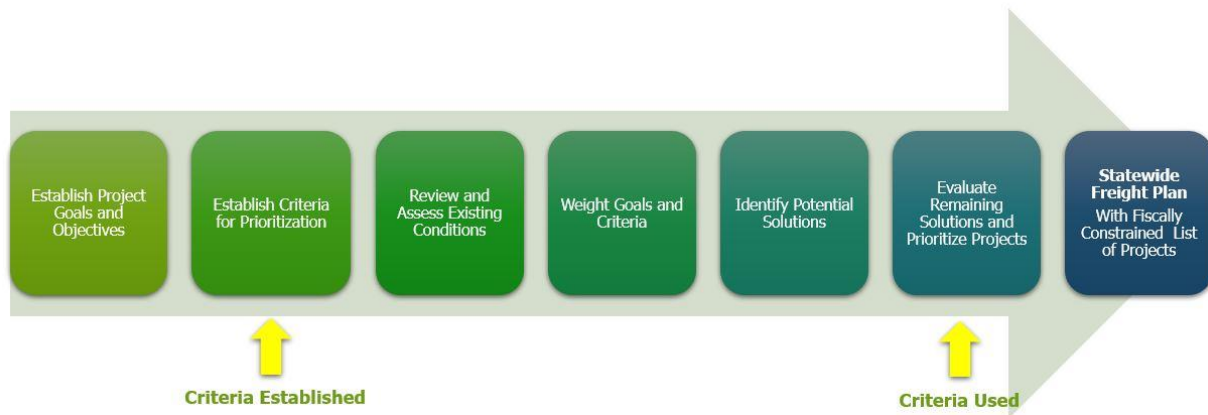
## Project Prioritization Results

Slides 11 to 15

### 2018 Evaluation process – A Planning Tool

The evaluation process to prioritize the identified needs and improvements will consist of the following five steps and will follow the flow chart shown below:

- Step 1 – Develop criteria
- Step 2 – Develop scoring system
- Step 3 – Evaluate potential solution according to the criteria
- Step 4 – Calculate scores
- Step 5 – Prioritize and report results



As part of the evaluation process, the project team looked at the project list from the previous 2018 plan update and identified projects that have been completed. The project list for the current Plan update consists of projects from the previous 2018 plan (that have not been completed) with some additional projects that have been added to the list.

### Evaluation process – Prioritization Methodology

The projects were prioritized based on evaluation criteria established for each of the six Plan goals. The evaluation criteria were based on the following two factors:

- o Benefit factor - qualitatively describes how well a project will achieve the desired goal.
- o Usage factor - quantitatively differentiates projects with similar benefits by comparing their scale of impact (truck volumes, total miles).

### Project Prioritization Scoring

An overview of the project prioritization scoring system was shared as shown below:

Goal	Category	Goal Weight	Benefit Factor (Qualitative)	Usage Factor (Quantitative)
<b>1. Safety</b>		20%	Low – 1 Medium – 5.5 High – 10	
<b>2. Infrastructure Preservation</b>	Pavement	17%	Pavement Maintenance – 1 Rehab – 2 Reconstruction – 3	<b>Urban AADTT</b> 1,000 (low) – 1 1,000 – 5,000 (medium) – 2 over 5,000 (high) – 3
	Bridges		Repair – 1 Rehab – 2 Replace – 3	
<b>3. Infrastructure Mobility Improvements</b>	Mobility (reduce congestion)	16%	Low – 1 Medium – 5.5 High – 10	<b>Rural AADTT</b> 350 (low) – 1 350 – 1,000 (medium) – 2 over 1,000 (high) – 3
	Connectivity (connectivity to freight-dependent land uses)		Low – 1 Medium – 5.5 High – 10	
<b>4. Reliable Freight Network</b>	Improves truck travel time reliability (TTTR)	19%	Low – 1 Medium – 5.5 High – 10	
<b>5. Minimize Environmental Impacts</b>		14%	No specific evaluation criteria for this goal since all projects will strive to minimize environmental impacts.	
<b>6. Resiliency to Global Climate Change</b>		15%	Low – 1 Medium – 5.5 High – 10	N/A

The goal weights are based on the input provided during the first FAC meeting. The benefit factors for infrastructure preservation have been updated based on discussions during the second FAC meeting.

### Prioritization Results Review

A draft list of prioritized solutions for each island was shared briefly. The draft list had also been shared with the group prior to the meeting; the group was asked to review and provide any comments or input.

#### [Comments & Discussion]

- *Pavement and bridges share 17% equally?*
  - *It is 17 percent total for infrastructure preservation and has to be split between pavement and bridges.*
- *What could be the highest and lowest scores?*
  - *We can find out and share later.*
- *\$100M is being planned to be spent on expanding Salt Lake Boulevard, for which Federal funds are being sought. If Salt Lake Boulevard is currently not within the freight network, would it make sense to add to the freight network?*
  - *Salt Boulevard is designated as part of the Hawaii Freight Network, which does not make it eligible for Federal freight funds but eligible for other Federal funds. The amount of Federal freight funds allocated to Hawaii is approximately \$30M over a 5-year period.*

### Freight Investment Plan

Slides 16 to 17

The freight investment plan (FIP) includes a list of priority projects and describes how National Highway Freight Program (NHFP) funds made available to the state will be invested and matched. It is fiscally constrained, and only includes projects or identified projects where funding for the completion of the project can be reasonably anticipated to be available for the project within the period identified in the freight investment plan.

A total of \$30,525,058 in NHFP funding is expected to be available for Hawaii between 2022 and 2026 as shown below:

Funding	2022	2023	2024	2025	2026	2022-2026 Total
NHFP Obligation Limitation Available	\$ 5,865,646	\$ 5,982,959	\$ 6,102,618	\$ 6,224,671	\$ 6,349,164	\$ 30,525,058

Funds are available for ongoing projects or projects that are ready to start construction.

#### [Comments & Discussion]

- *Is only construction eligible for funding or are other components such as design or environmental eligible for funding as well?*



- *Funding can be used for preliminary engineering, right-of-way acquisition, construction and rehabilitation, operational improvements, and highway bridge projects that improve the flow of freight on the National Highway freight network.*

### Draft Statewide Freight Plan

Slides 18 to 25

The key components of the draft Statewide Freight Plan will consist of the following:

- o Chapter 1 – Introduction
  - I. Plan Purpose
  - II. Federal Guidance
  - III. Plan Outline
- o Chapter 2 – Industry Assessment: The Importance of Freight Industries to Hawaii
  - I. Definition of Freight-Intensive Sectors
  - II. Economic Output in Freight-Intensive Sectors
  - III. Employment in Freight-Related Sectors
  - IV. Major Trip Generators
- o Chapter 3 – Freight System: The Importance of Maintaining Connected Freight Network in Hawaii
  - I. Multimodal Freight Network
    - National Highway Freight Network (NHFN)
    - Primary Freight Highway System (PFHS)
    - Critical Urban Freight Corridors (CUFCs)
    - Critical Rural Freight Corridors (CRFCs)
  - II. Highway
    - Safety
    - Mobility and Reliability
    - Infrastructure Preservation (Pavement and Bridges)
    - Commercial Motor Vehicle Parking
  - III. Marine Freight
  - IV. Air Cargo
  - V. Military Freight
  - VI. Supply Chain
- o Chapter 4 – Changing Environment: The Importance of Ensuring Modernized Freight Network in Hawaii
  - I. Environmental Impacts
  - II. Emerging Trends

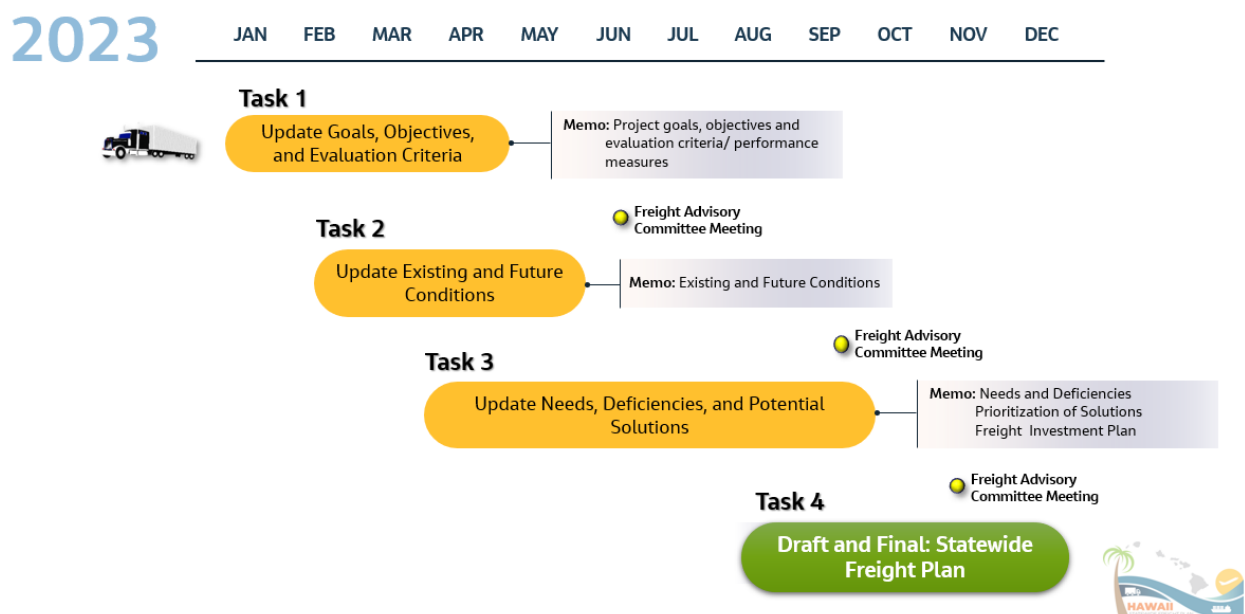
III. Innovative Technologies

- o Chapter 5 – Implementation Plan: The Importance of Developing Resilient Freight Network in Hawaii
  - I. Stakeholder Engagement
  - II. Goals, Objectives, and Strategies
  - III. Performance Measures and Evaluation Criteria
  - IV. Needs Identification and Assessment
  - V. Policy and Program Recommendations
- o Chapter 6 – Investment Plan: The Importance of Prioritizing Freight Investments in Hawaii
  - I. Fiscally Constrained FIP
  - II. Fiscally Unconstrained FIP
  - III. Multimodal Freight Projects

The group was asked to provide input on any additional content that could be included in the Plan. The draft Plan is currently planned to be completed by early December.

The group was reminded that in addition to discussing needs eligible for NHFP funds in the Plan, emphasizing needs that are related to freight but not eligible for NHFP funds could help with applying for other types of Federal funds.

Next Steps



## Hawaii Statewide Freight Plan Freight Advisory Committee – Meeting Summary #3

---

- FAC – Provide Comments by November 24<sup>th</sup>
  - Review and provide any feedback on the Critical Rural Freight Corridors (CRFCs) & Critical Urban Freight Corridors (CUFCs)
  - Review and provide any feedback on the draft prioritized solutions
- PMT
  - Prepare the draft Statewide Freight Plan

# 2023 Hawaii Freight Plan Industry Survey

9  
Responses

16:27  
Average time to complete

Active  
Status

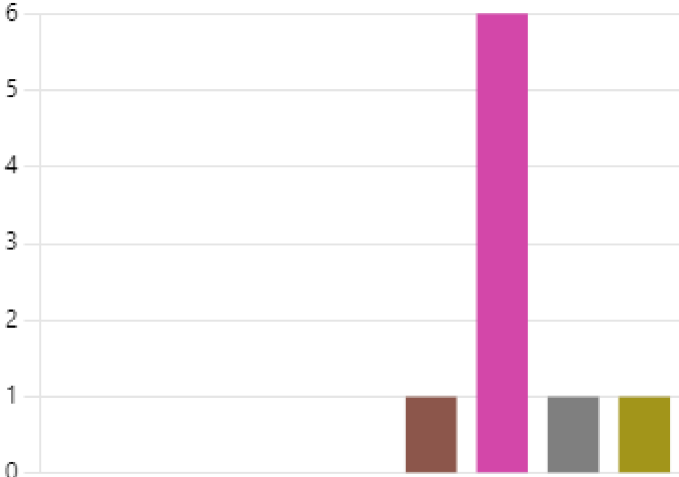
## 1. Your Name and Organization

9  
Responses

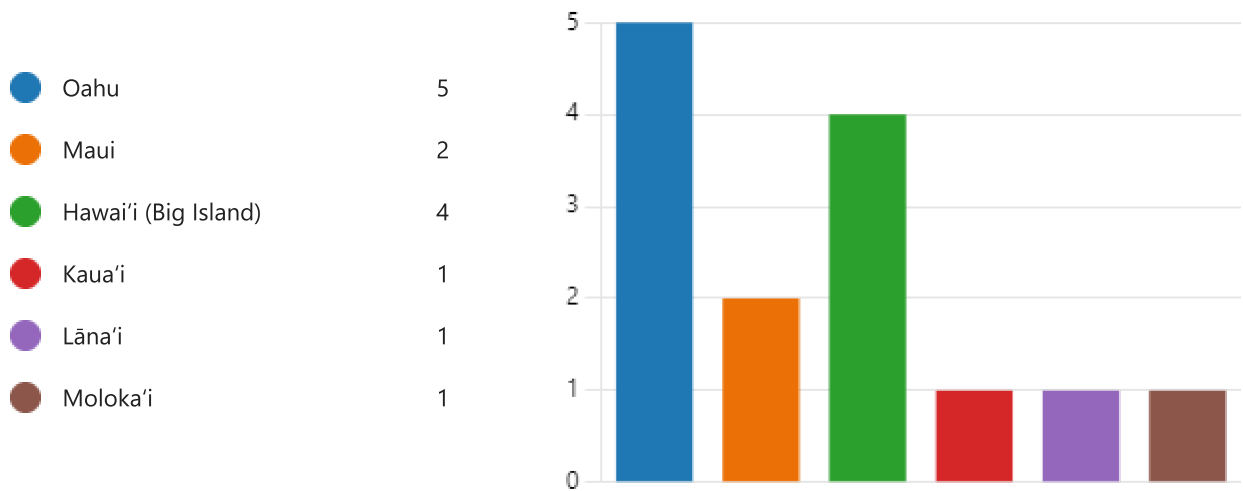
Latest Responses  
"KTA Super Stores"  
"Hansen Distribution Group"  
"Alinna Figueroa, Hawai'i Gas"

## 2. Which industry (or industries) is your organization associated with?

- Agriculture, Forestry, Fishing, an... 0
- Mining, Quarrying, and Oil and ... 0
- Construction 0
- Manufacturing 0
- Wholesale Trade 0
- Retail Trade 1
- Transportation and Warehousing 6
- Accommodation and Food Servi... 1
- Other 1



3. Which island(s) do you operate on? (Choose at least one answer)



4. Where are the origin(s) of most of your common supplies or commodities? (For example, US State, foreign country name)

9  
Responses

Latest Responses  
*"West Coast and Honolulu"*  
*"US MAINLAND"*  
*"Hawaii and Foreign Brokerages"*

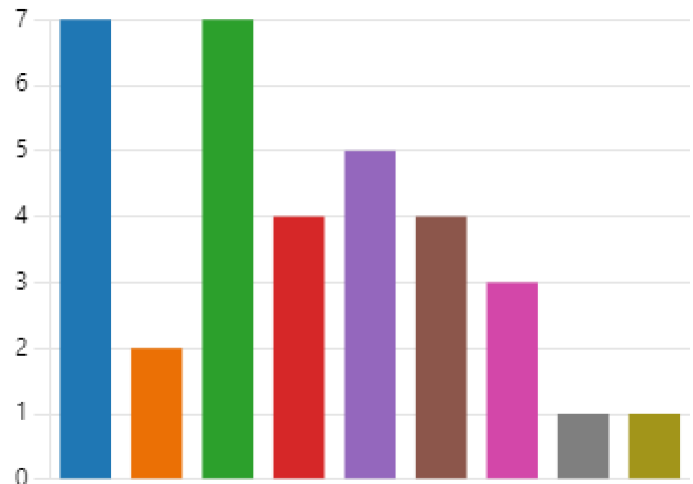
5. Where are the destinations(s) of most of your products or services? (For example, US State, foreign country name)

8  
Responses

Latest Responses  
*"Hilo or Kawaihae harbor"*  
*"HAWAII"*  
*"All major islands in Hawai'i."*

6. From your perspective, what potential infrastructure improvements could help your industry and the State of Hawaii the most, with respect to economic opportunities? (Check all that apply)

- Better access to marine ports 7
- Better access to airports 2
- Better pavement conditions 7
- Better bridge conditions 4
- Better traffic information 5
- More loading/unloading zones 4
- More alternative routes 3
- Better geometric alignment 1
- Other 1



7. Optionally use this comment box to elaborate further.

0  
Responses

Latest Responses

8. Using the truck volume map as a reference, which locations do you perceive as primary truck bottlenecks in **Oahu**?

What solutions would you recommend at these locations?

5  
Responses

Latest Responses  
"EAST H1 & H2 MERGE "

"We try to avoid traffic by adjusting our delivery times. We are ..."

9. Using the truck volume map as a reference, which locations do you perceive as primary truck bottlenecks in **Hawai'i (Big Island)**?

What solutions would you recommend at these locations?

6

Responses

Latest Responses

*"Multiple traffic lanes across island from Hilo to Kona."*

*"HILO"*

---

10. Using the truck volume map as a reference, which locations do you perceive as primary truck bottlenecks in **Kaua'i**?

What solutions would you recommend at these locations?

3

Responses

Latest Responses

*"LIHUE "*

---

11. Using the truck volume map as a reference, which locations do you perceive as primary truck bottlenecks in **Maui, Lāna'i,** and **Moloka'i**?

What solutions would you recommend at these locations?

4

Responses

Latest Responses

*"KAHULUI"*

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12. Using the commercial motor vehicle crash location map as a reference, where do you perceive are primary safety concerns in **Oahu**?

What solutions would you recommend at these locations?

4

Responses

Latest Responses

"WIDEN LANES "

---

13. Using the commercial motor vehicle crash location map as a reference, where do you perceive are primary safety concerns in **Hawai'i (Big Island)**?

What solutions would you recommend at these locations?

5

Responses

Latest Responses

"Traveling downslope on the saddle road both east bound and ...

"ADD LANES"

---

14. Using the commercial motor vehicle crash location map as a reference, where do you perceive are primary safety concerns in **Kaua'i**?

What solutions would you recommend at these locations?

2

Responses

Latest Responses

"ADD LANES"

---



15. Using the commercial motor vehicle crash location map as a reference, where do you perceive are primary safety concerns in **Maui**, **Lānaʻi**, and **Molokaʻi**?

What solutions would you recommend at these locations?

3

Responses

Latest Responses

"ADD LANNES"

---

16. Did the 2021 global supply chain disruptions affect your operations? If so, what operational changes did you make to respond to future disruptions?

7

Responses

Latest Responses

*"Needed to find alternative sources of product supply."*

*"YES SHORTAGES FROM MANUFACTURERS "*

*"Yes, we had to prioritize our gas distribution."*

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17. What other issues should be addressed in this freight plan?

4

Responses

Latest Responses

*"What happens if Honolulu Harbor becomes not operational du..."*

*"UPDATE INFRASTRUCTURES "*

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## Hawaii DOT Freight Plan Interview Guide

### Impact and Response to Supply Chain Disruptions

- What were some of the major impacts of the COVID-19 pandemic and the subsequent supply chain disruptions to your business?
- What operational changes have you made to mitigate the impact of future supply chain disruptions?
- What is the origin of your most common supplies or commodities?
- What is the destination of your most common goods or commodities?

### Suggested Improvements

- From your industry's perspective, what potential infrastructural improvements in Hawaii could help your industry the most?
- From your industry's perspective, what potential infrastructural improvements could help the State of Hawaii the most with respect to economic competitiveness?
- Where do you think are the primary truck bottlenecks in Hawaii? What solutions would you recommend at these locations?
- Where do you think are the primary truck safety hotspots or concerns in Hawaii? What solutions would you recommend at these locations?
- Based on your knowledge, what kind of land use changes are occurring in Hawaii with a potential to impact your industry?
- Any specific climate change concerns?

What other issues should be addressed in the freight plan (for example, truck loading/unloading zones, additional space for cargo movement, etc.)?