CHAPTER FOUR

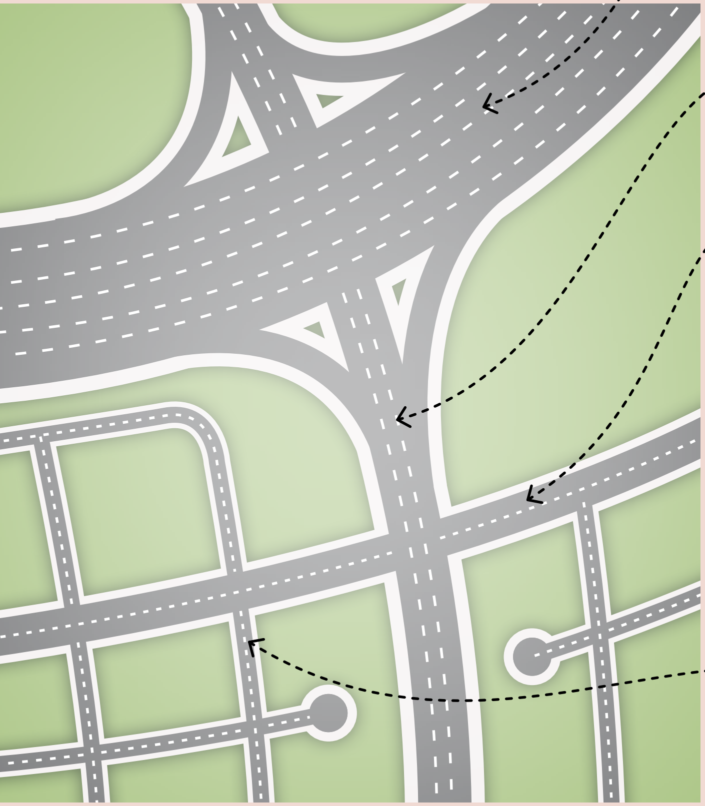
The Existing Transportation System

Roadways

The region's roadways and bridges are essential parts of the regional transportation infrastructure. Personal motor vehicle travelers, public and private transportation providers, bicyclists, pedestrians, and freight truck operators are all dependent on roadways and bridges. This means that the condition of the region's roadways and bridges affect the overwhelming majority of household and business travel.

The Roadway Network

Federal-aid and State highways serve the region and constitute its main roadway network. Each roadway serves a function in the overall roadway network based on its balance of mobility and accessibility. The classification of roadways based on these factors is known as functional classification. The U.S. Department of Transportation divides roadways into four broad categories:



PRINCIPAL ARTERIAL

A. Interstate

Interstates are the highest classification of arterials. They are defined as a series of continuous, limited-access routes that have trip lengths and volumes indicative of substantial Statewide or interstate travel.

B. Other Freeways and Expressways

These roadways look very similar to interstates in that they must be divided with limited access and egress points that are typically grade-separated. They primarily serve through-traffic and major circulation movements.

C. Other Principal Arterial

These roadways provide long-distance connections, but do not fit the two categories above. Other principal arterials are not access-controlled, so abutting land uses can have direct access.

MINOR ARTERIAL

These roadways serve trips of moderate length, providing for relatively high overall travel speeds with minimum interference to through-movement.

COLLECTORS

These roadways collect traffic from the local roads and direct it to the arterials. In rural areas, collectors generally serve intra-county travel, with distances shorter than arterials. In urban areas, they provide both land access and traffic circulation within residential neighborhoods and commercial and industrial areas. Collectors are divided into two categories:

D. Major Collector

The difference between a major and minor collector is very subtle. Major collectors are typically longer in length than minor collectors, with fewer access points, higher speed limits, higher traffic volumes, and more travel lanes.

E. Minor Collector

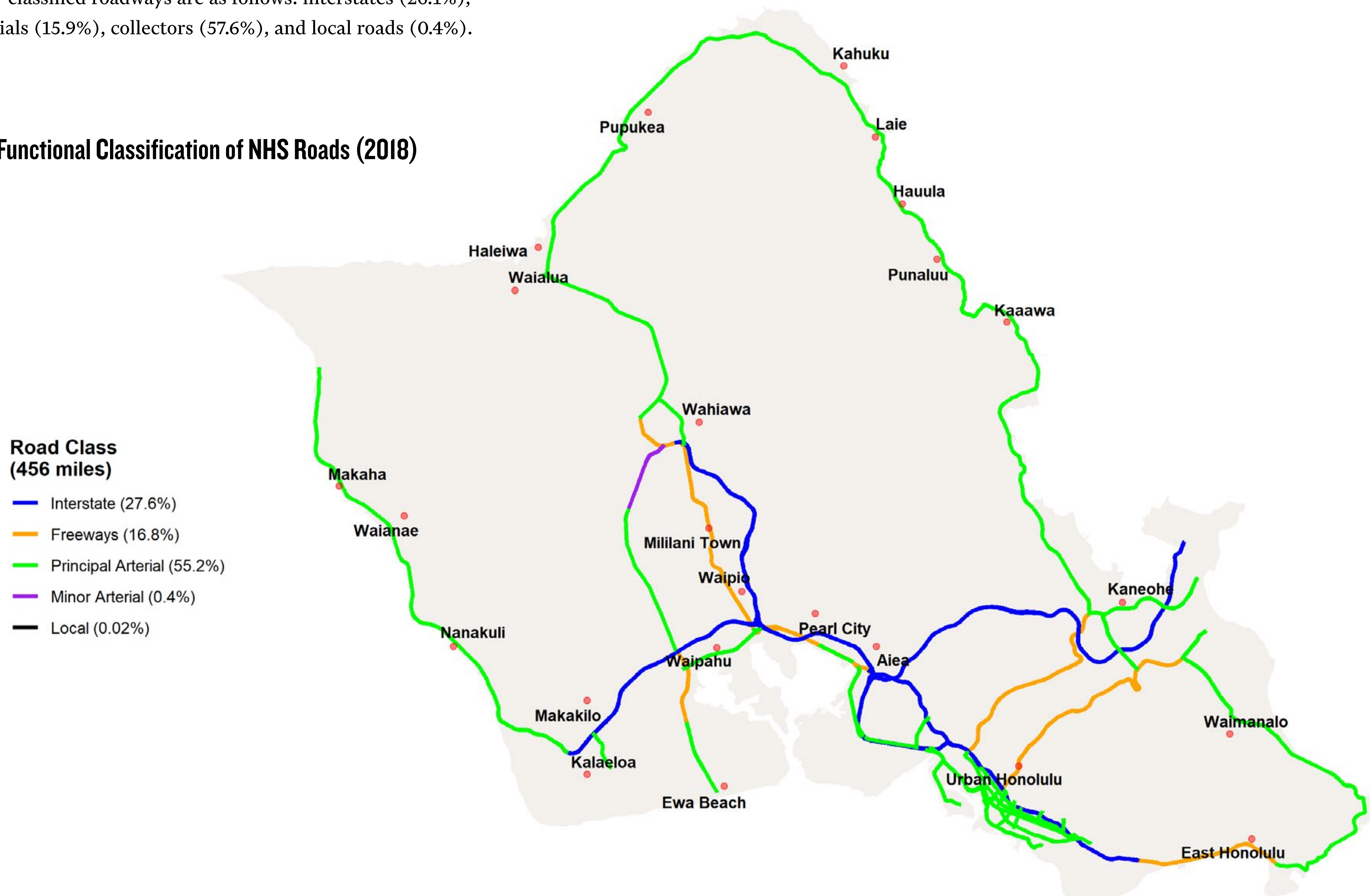
Minor collectors are typically shorter in length, with more access points, lower speeds, lower volumes, and fewer travel lanes.

LOCAL ROADS

Local roads provide access to adjacent private property or low-volume public facilities. Travel distance on local roads is relatively short when compared to the higher classifications.

THE 2018 HIGHWAY PERFORMANCE MONITORING SYSTEM (HPMS) reports 425 centerline miles of roads. The distribution of the functionally classified roadways are as follows: interstates (26.1%), minor arterials (15.9%), collectors (57.6%), and local roads (0.4%).

Figure 4.1: Functional Classification of NHS Roads (2018)



1. Pavement Conditions

One fundamental component of system preservation is maintaining sufficient pavement conditions so that roadways can operate at their full capacity. Good pavement conditions provide roadway users with safe and comfortable travel experiences, while minimizing vehicle wear and tear.

PAVEMENT CONDITIONS ON NATIONAL HIGHWAY SYSTEM

Pavement condition ratings for the region's roadways were obtained from data submitted by Hawaiʻi Department of Transportation (HDOT) to the Federal Highway Administration (FHWA). This data is found in the Highway Performance Monitoring System (HPMS). The HPMS is a national level highway information system that includes data on the extent, condition, performance, and operating characteristics of the nation's highways.

The HPMS data are sample dataset that are collected across the entire transportation facilities eligible for Federal funds. The pavement condition in the HPMS is based on the International Roughness Index (IRI), cracking, rutting, and faulting. The monitoring of pavement condition performance is a requirement of the FAST Act. All pavements on the Interstate or non-Interstate NHS are required to be classified in good, fair, or poor condition.

FEDERAL PERFORMANCE MEASURES

Federal performance measures for assessing the condition of pavements, based on Performance-Based Planning and Programming (PBPP) agreement, are:

- Percentage of pavement of the interstate in good condition;
- Percentage of pavement of the interstate in in poor condition;
- Percentage of pavement of the non-interstate NHS in good condition; and
- Percentage of pavement of the non-interstate NHS in poor condition.

States are required to have no more than 5 percent of their interstate pavements in poor condition and no more than 10 percent of NHS bridges, by total deck area, in poor condition. As shown in Table 4.1, the State of Hawaiʻi meets both of these minimum condition requirements. The location of pavement conditions are shown in Figure 4.2.

Table 4.1: Hawaiʻi Pavement Performance Measures and Targets

NHS	Measure	GOOD	POOR
Interstate	Baseline (2017)	15%	2%
	2-Year Target (2019)	N/A	N/A
	4-Year Target (2021)	7%	4%
Non-Interstate NHS	Baseline (2017)	18%	6%
	2-Year Target (2019)	15%	4%
	4-Year Target (2021)	15%	4%

Source: Department of Transportation. (2019). Asset Management Plan. pg. 33. https://hidot.hawaii.gov/highways/files/2019/06/HDOT_TAMP_Final_June2019.pdf

Figure 4.2: Pavement Conditions

Source: HDOT Highways Program Status (https://histategis.maps.arcgis.com/apps/MapSeries/index.html?appid=39e4d804242740a89d3fd0bc76d8d7de&utm_medium=email&utm_source=govdelivery)

2. Bridge Conditions

Bridges are an essential element of regional infrastructure and economic development, and preservation of the existing system is the region's top priority for transportation investment. Therefore, maintenance, rehabilitation, and replacement of deficient bridges is vital.

A crucial preservation issue is bridge maintenance, especially in light of declining transportation funds. Bridge closures not only affect the routes the bridges traverse but can also put added strain on alternative routes. Timely bridge maintenance helps preserve this infrastructure without incurring the additional costs of major reconstruction. In addition, investments toward the upkeep of bridges pay dividends by improving mobility, accessibility, and safety, as well as the prosperity of the region. A bridge is defined as being structurally deficient if it has any component in poor or worse condition. Tracking deficiencies helps prioritize infrastructure spending and preserve the integrity of the transportation system as a whole. As a measure to aid State and local efforts, FHWA collects bridge data from a variety of agencies and stores the results in a centralized database, the National Bridge Inventory (NBI). Figure 4.3 depicts bridges in need of repair or upgrade based on condition, mobility and risk.

FEDERAL PERFORMANCE MEASURES

The FAST Act requires the performance monitoring of bridge conditions by the states and/or MPOs. The applicable performance measures are:

- The percentage of NHS bridges classified as being in good condition; and
- The percentage of NHS bridges classified as being in poor condition.

While a "poor" classification is the lowest condition rating for a bridge, it should be noted that it does not necessarily mean that a specific bridge is unsafe, only that it requires more frequent inspection. - Based on 2017 baseline data, the State is on course to achieving the 2019 and 2021 targets.

Table 4.2: State Bridge Condition Performance and Targets

NHS	Measure	GOOD	POOR
NHS	Baseline (2017)	23%	2%
	2-Year Target (2019)	20%	2%
	4-Year Target (2021)	20%	2%

Source: Department of Transportation. (2019). Asset Management Plan. pg. 33. https://hidot.hawaii.gov/highways/files/2019/06/HDOT_TAMP_Final_June2019.pdf

In addition to the two bridge condition performance measures which MPOs must track, all states must ensure that no more than ten (10) percent of the total deck area of NHS bridges in the state is classified as structurally deficient. The same report above finds only two percent of the total deck area of NHS bridges in the state is classified as structurally deficient, hence meeting the additional requirement.

Figure 4.3: Location of Bridges in Need of Upgrade or Repair

Source: HDOT. Highways Program Status Map (https://histategis.maps.arcgis.com/apps/MapSeries/index.html?appid=39e4d804242740a89d3fd0bc76d8d7de&utm_medium=email&utm_source=govdelivery)

3. Congestion and System Reliability

Congestion both nationally and regionally continues to detrimentally impact the economy, environment, community livability, and the traveler's experience. Congestion now costs the nation over $166 billion annually in terms of the cost of additional fuel and the value of commuters' extra time spent in congestion.[1] The same report found that congestion has caused commuters to travel for 8.8 billion additional hours and buy an extra 3.3 billion gallons of fuel. in addition, the congestion cost per auto commuter in the Urban Honolulu region totaled an extra $515 annually while the yearly extra delay for the average commuter totaled 23 extra hours.

Two measures are used to gauge roadway recurring congestion in this report: Travel Time Index (TTI) and Level of Service (LOS). While TTI measures how much longer vehicles are traveling versus average speeds, LOS looks at how much daily vehicle volumes exceed designed capacities. Roadway non-recurring congestion or reliability is measured by the Planning Time Index (PTI) and Level of Travel Time Reliability (LOTTR). Generally, non-recurring congestion—delays due to incidents such as construction, crashes, large events, and weather—accounts for an estimated 55 percent or more of congestion in large urban areas.[2]

Travel Time Index

The spatial distribution of travel times is shown in Figures 4.4a-d. Much of the congestion depicted in this data will be unsurprising to Oʻahu motorists. Overall, the regional congestion had a Travel Time Index (TTI) of 1.55, indicating that a 20-minute free-flow trip requires 31 minutes during the peak period. The difference in the level of congestion for different roadways was non-trivial, with freeways (1.50) trailing behind arterials (1.57).

The arterial peak-period distribution of congestion was 1.56 and 1.58 for morning and evening peak-periods, respectively. For freeways, evening peak-period congestion (1.54) was more pronounced than in the morning (1.46).

1 The 2019 Urban Mobility Report, published by the Texas Transportation Institute at Texas A&M University

2 Falcocchio, J. C., and H. S. Levinson. 2015. Road traffic congestion: a concise guide. Springer Tracts on Transportation and Traffic No. 7. Springer International Publishing, Cham, Switzerland.

Figure 4.4a: Spatial Distribution of Travel Times - Principal Arterials, AM

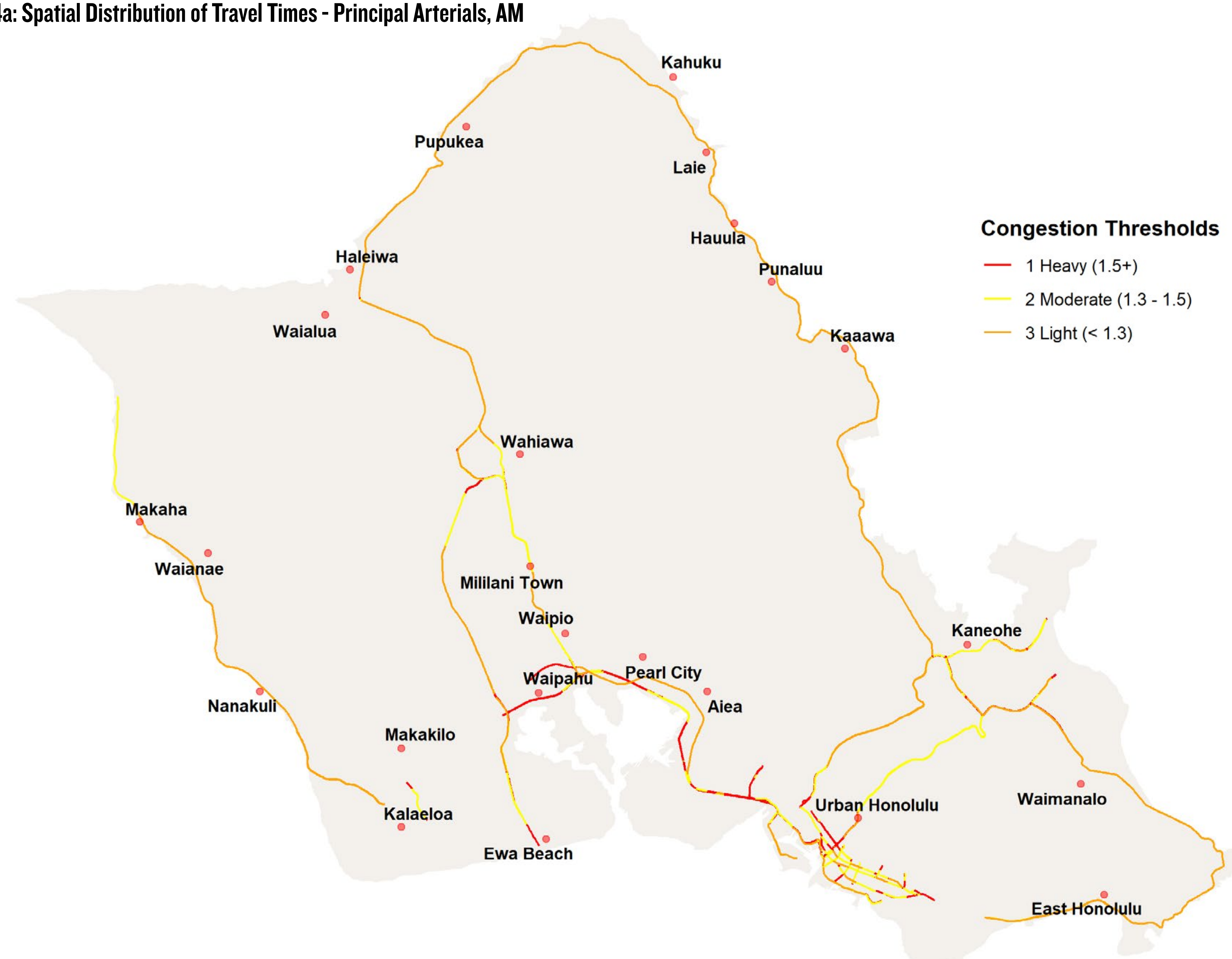


Figure 4.4b: Spatial Distribution of Travel Times - Principal Arterials, PM

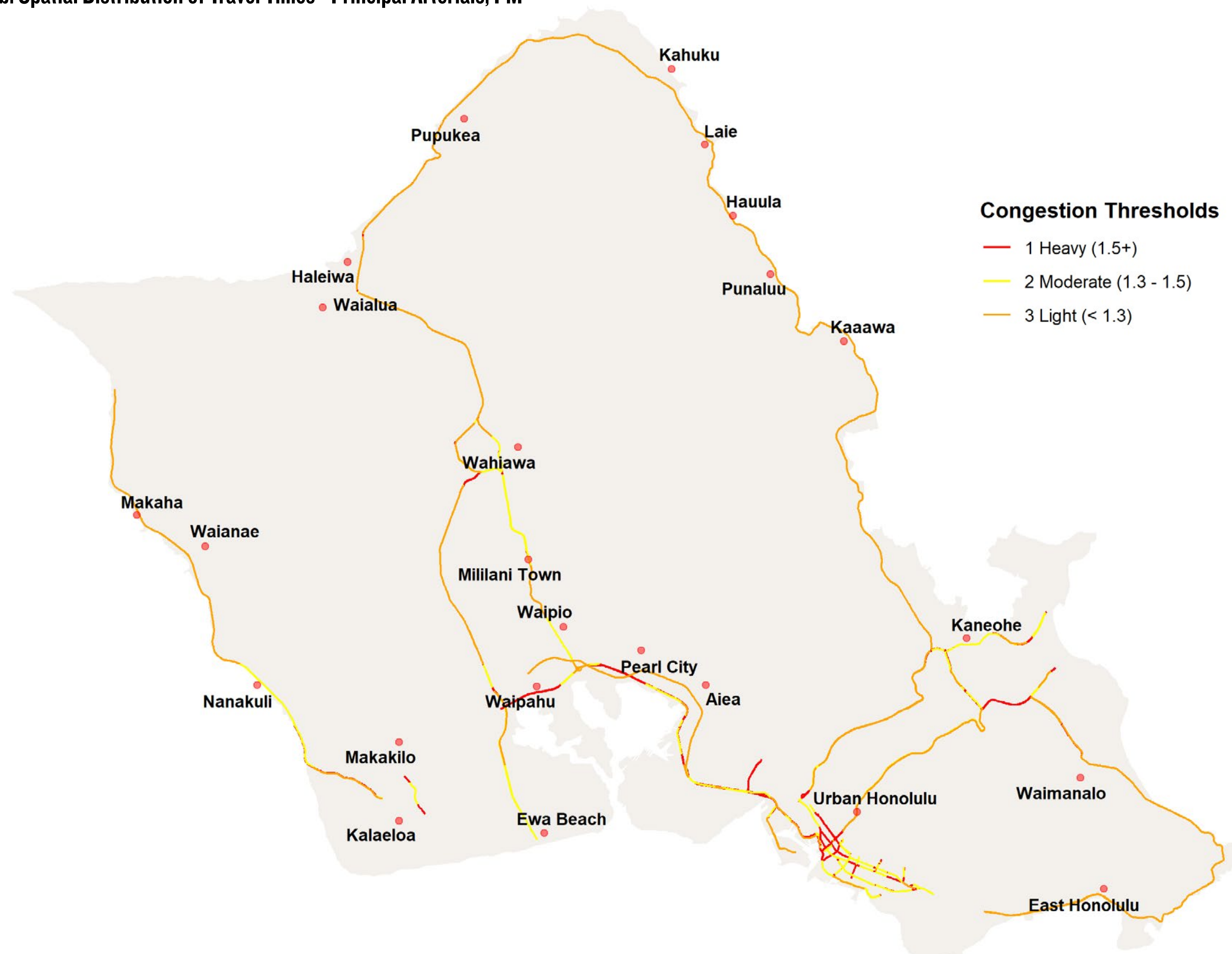
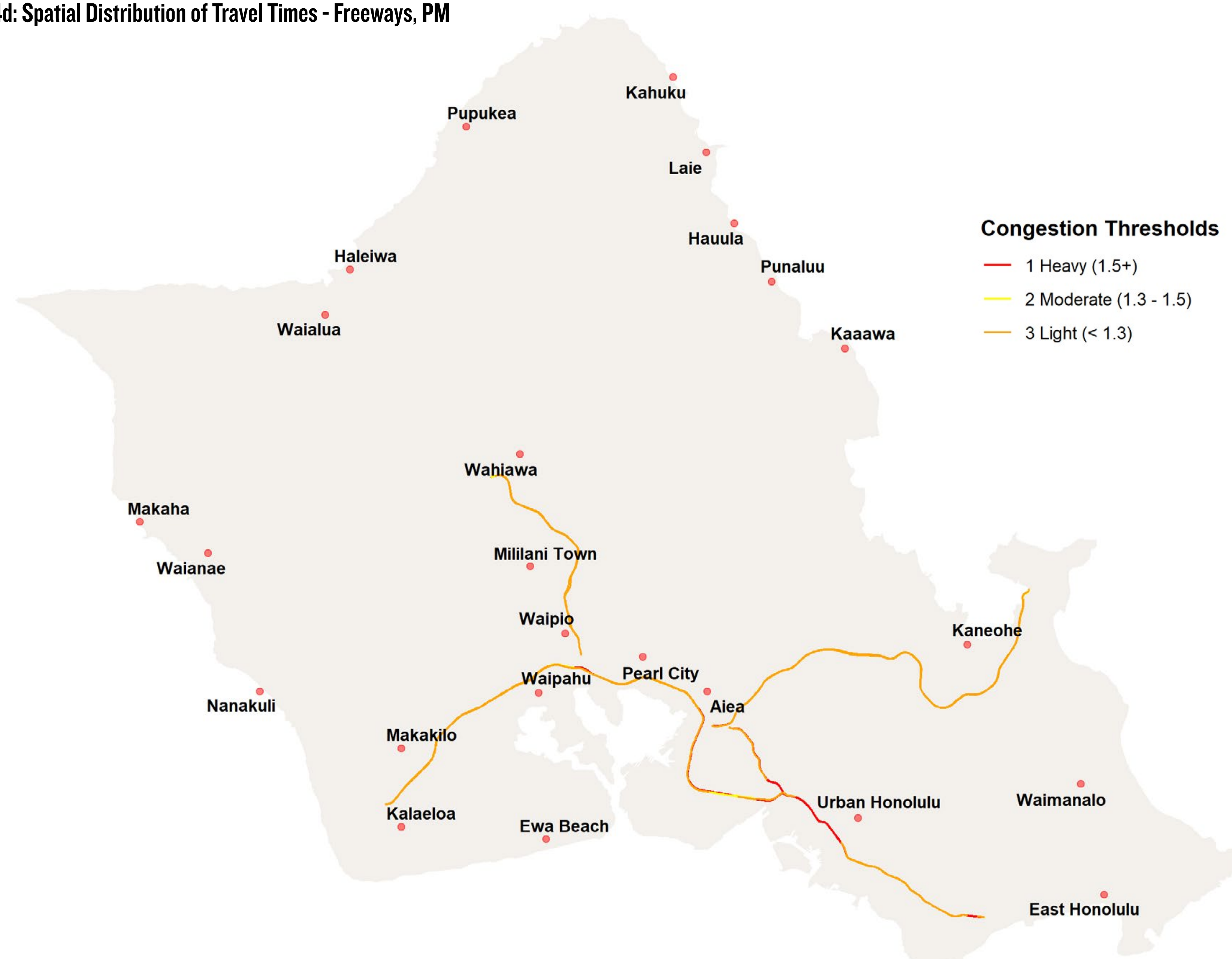


Figure 4.4c: Spatial Distribution of Travel Times - Freeways, AM

Figure 4.4d: Spatial Distribution of Travel Times - Freeways, PM



Level of Service (LOS)

Roadway congestion is often measured by Volume to Capacity Ratios (V/C) and Levels of Service (LOS). Typically, the V/C Ratio is translated into level of service. Table 4.3, below, describes generalized Levels of Service and their associated V/C ratios. Table 4.4 shows the location of significant congestion and Figure 4.5 depicts the spatial location of congested roadways.

Table 4.3: Levels of Service and V/C Ratios

Level of Service is defined by the Highway Capacity Manual as a "qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers". A level of service definition generally describes these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. Six levels of service are defined, and they are given letter designations from A to F, with level-of-service "A" representing the best operational conditions and level-of-service "F" the worst. The following is a list of the various levels of service with abbreviated definitions quoted directly from the Highway Capacity Manual.

LEVEL-OF-SERVICE “A” represents free flow. Individual users are virtually unaffected by the presence of others in the traffic stream. Associated V/C Ratio: 0.0 - 0.6

LEVEL-OF-SERVICE “B” is in the range of stable flow, but the presence of other users In the traffic stream begins to be noticeable. Associated V/C Ratio: 0.61 - 0.70

LEVEL-OF-SERVICE “C” is in the range of stable flow, but it marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream.
Associated V/C Ratio: 0.71 - 0.80

LEVEL-OF-SERVICE “D” represents high-density, but stable flow. Speed and freedom to maneuver are severely restricted, and the driver or pedestrian experiences a generally poor level of comfort or convenience.
Associated V/C Ratio: 0.81 - 0.90

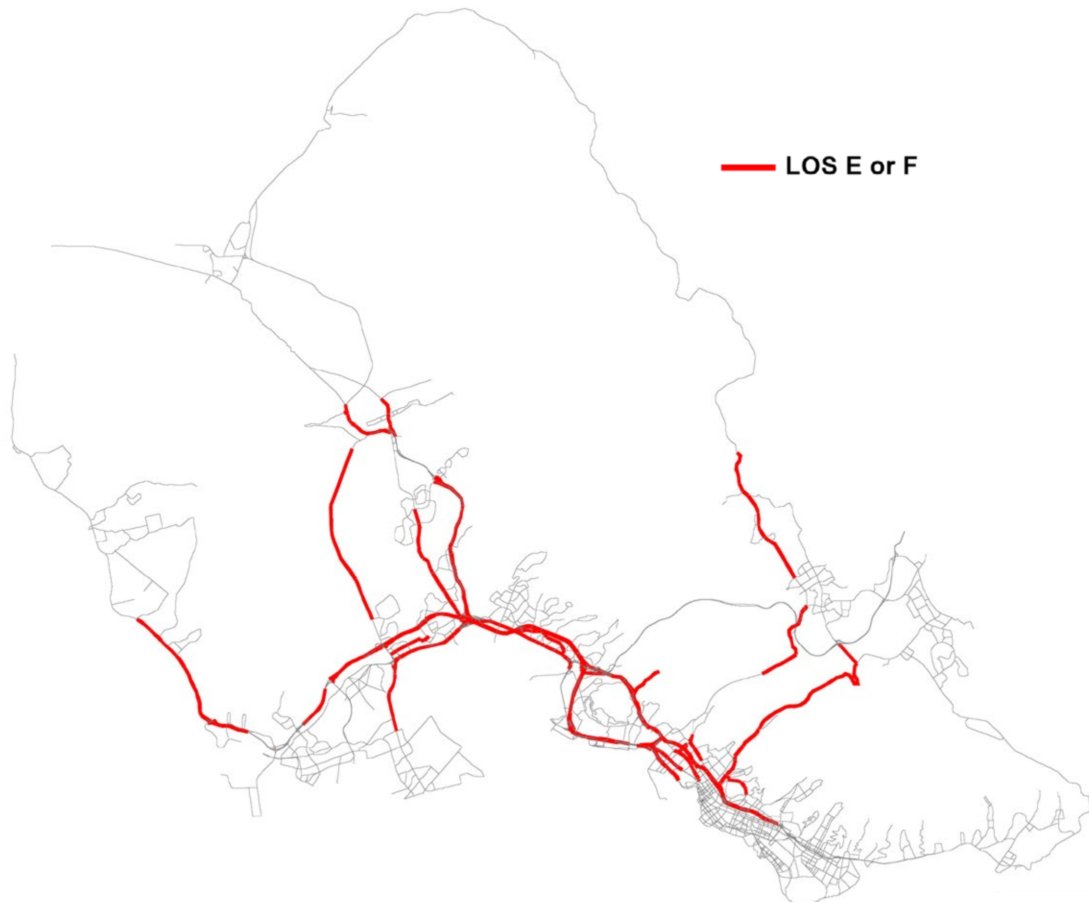
LEVEL-OF-SERVICE “E” represents operating conditions at or near the capacity level. All speeds are reduced to a low, but relatively uniform value. Freedom to maneuver with in the traffic stream is extremely difficult.
Associated V/C Ratio: 0.91 - 1.0

LEVEL-OF-SERVICE “F” is used to define forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queues form behind such locations.
Associated V/C Ratio: 1.0+

Table 4.4: Locations of Significant Congestion (LOS E OR F)

1	Farrington Highway, Hakimo Road to Kalaeloa Boulevard
2	Farrington Highway, Fort Weaver Road to Waiawa Interchange
3	Interstate H-1, Makakilo Interchange to Waiawa Interchange
4	Interstate H-1, Waiawa Interchange to Hālawa Interchange
s	Interstate H-1, Hālawa Interchange to Ke‘ehi Interchange
6	Interstate H-1, Ke‘ehi Interchange to University Avenue Interchange
7	Interstate H-201 (Moanalua Freeway), Hālawa Interchange to Ke‘ehi Interchange
8	Pali Highway, Highway 83 (Kamehameha Highway) to H-1
9	Kunia Road, Wheeler Army Airfield to Royal Kunia
10	Kamehameha Highway, Mililani to Waiawa Interchange
11	Kamehameha Highway, Waiawa H-1 Interchange to Hālawa
12	Interchange H-2, Mililani to H-2
13	Kahekili Highway, Kāne‘ohe to ‘Āhuimanu

Figure 4.5: O’ahu’s CMP Network Two-Hour AM Peak



The Level of Travel Time Reliability (LOTTR)

LOTTR is defined as a roadway segment's ratio of a longer travel time (80th percentile) to a "normal" travel time (50th percentile.) The MPO's LOTTR data was obtained from the HPMS. Roadway segments with an LOTTR less than 1.5 are defined by the FHWA as reliable.

FEDERAL PERFORMANCE MEASURES

There are two federal system reliability performance measures associated with LOTTR:

- Percent of the Person-Miles Traveled on the Interstate that are Reliable; and
- Percent of the Person-Miles Traveled on the Non-Interstate NHS that are Reliable.

The latest published data on LOTTR indicate that theState of Hawai'i met the non-interstate NHS target, but not the interstate target. Table 5 displays the baseline reliability conditions of the interstate and non-interstate NHS routes. Figure 4.6 show the location of reliable NHS roadways for morning and evening peak periods, respectively.

Table 4.5: LOTTR Performance and Targets

NHS	Measure	Reliability
Interstate	Baseline (2017)	66.8%
	2-Year Target (2019)	70.0%
	4-Year Target (2021)	74.0%
Non-Interstate	Baseline (2017)	N/A
	2-Year Target (2019)	N/A
	4-Year Target (2021)	70.0%

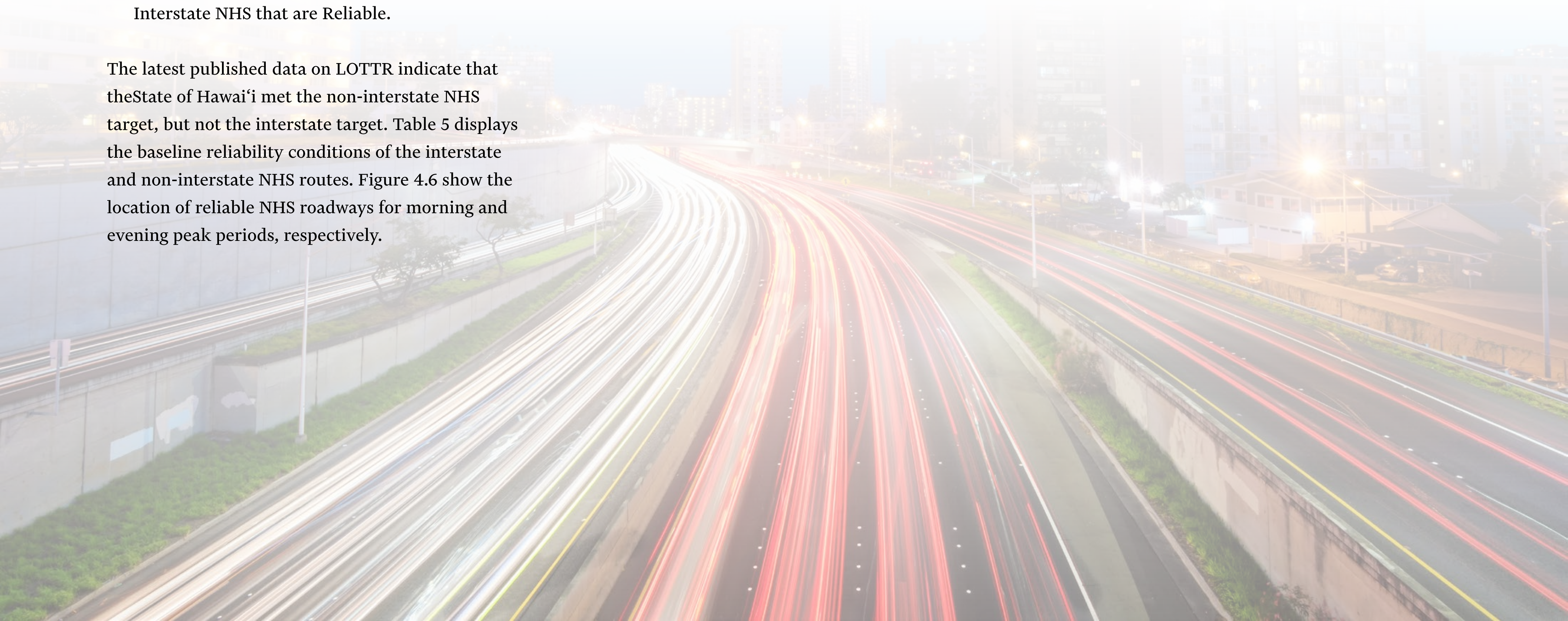


Figure 4.6: LOTTR

Bicycle

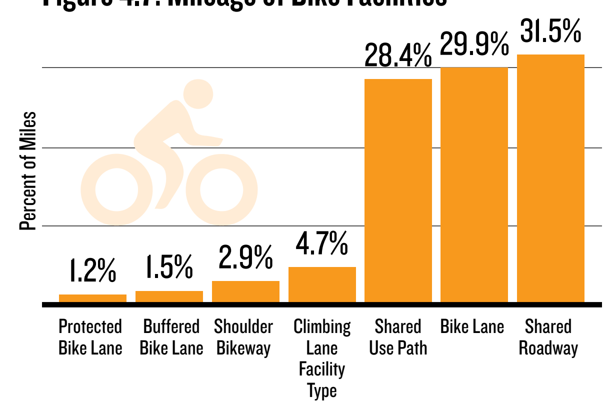
In 2014 and 2018, Honolulu was recognized by the League of American Bicyclists as a bronze-level Bicycle-Friendly Community. According to the 2017 American Community Survey, approximately 1.2% of Oʻahu commuters get to work by bicycle. However, many areas in urban and rural town centers see much higher rates of bike commuting with rates approaching 10% in some census tracts in Lāʻie and urban Honolulu. Recently completed protected bike lane projects on South King and South Streets have seen ridership along those corridors increase by 94% and 502%, respectively.[3]

Additionally, Honolulu's bikeshare system, Biki, has experienced sustained ridership growth through its first year and a half of operation. It is now averaging 3,500 rides per day which places Biki among the most popular bikeshare systems in the nation.[4] All of this points to an expanding bicycling community on Oʻahu with a growing demand for safe and convenient bicycle facilities. The COVID-19 pandemic is expected to negatively affect bike ridership.

Oʻahu currently has 211 miles of bikeways. The existing bicycle network is primarily of three types of bicycle facilities: shared use paths, conventional bike lanes, and shared roadways. In the past five years, the City has begun installing buffered and protected bike lanes to provide lower-stress bikeways that meet the needs of people who are interested in biking, but are concerned about their safety. Following the project priorities provided in the 2012 Oʻahu Bike Plan, and taking advantage of opportunities provided by its street repaving schedule, the City has installed over 67 miles of new bikeways since 2012. This represents a 47% increase in the island's bikeway network.

The distribution of bicycle network miles by type of facility is shown in Figure 4.7 below. The graph shows that Shared-Use Path, Bike Lanes, and Shared Roadways account for about 90% of total bicycle network miles. Figure 4.8 and 4.9 depict the spatial distribution of existing and proposed bicycle facilities in the region. This ORTP has no report on the pedestrian system as the Oahu Pedestrian Plan is still in development.

Figure 4.7: Mileage of Bike Facilities



Source: O'ahu Bike Plan 2019 Update.

3 DTS surveyed bicycle ridership pre and post-construction.
4 National Association of City Transportation Officials. Bike Share in the US: 2017.

Figure 4.8: Spatial Distribution of Existing Bicycle Facilities

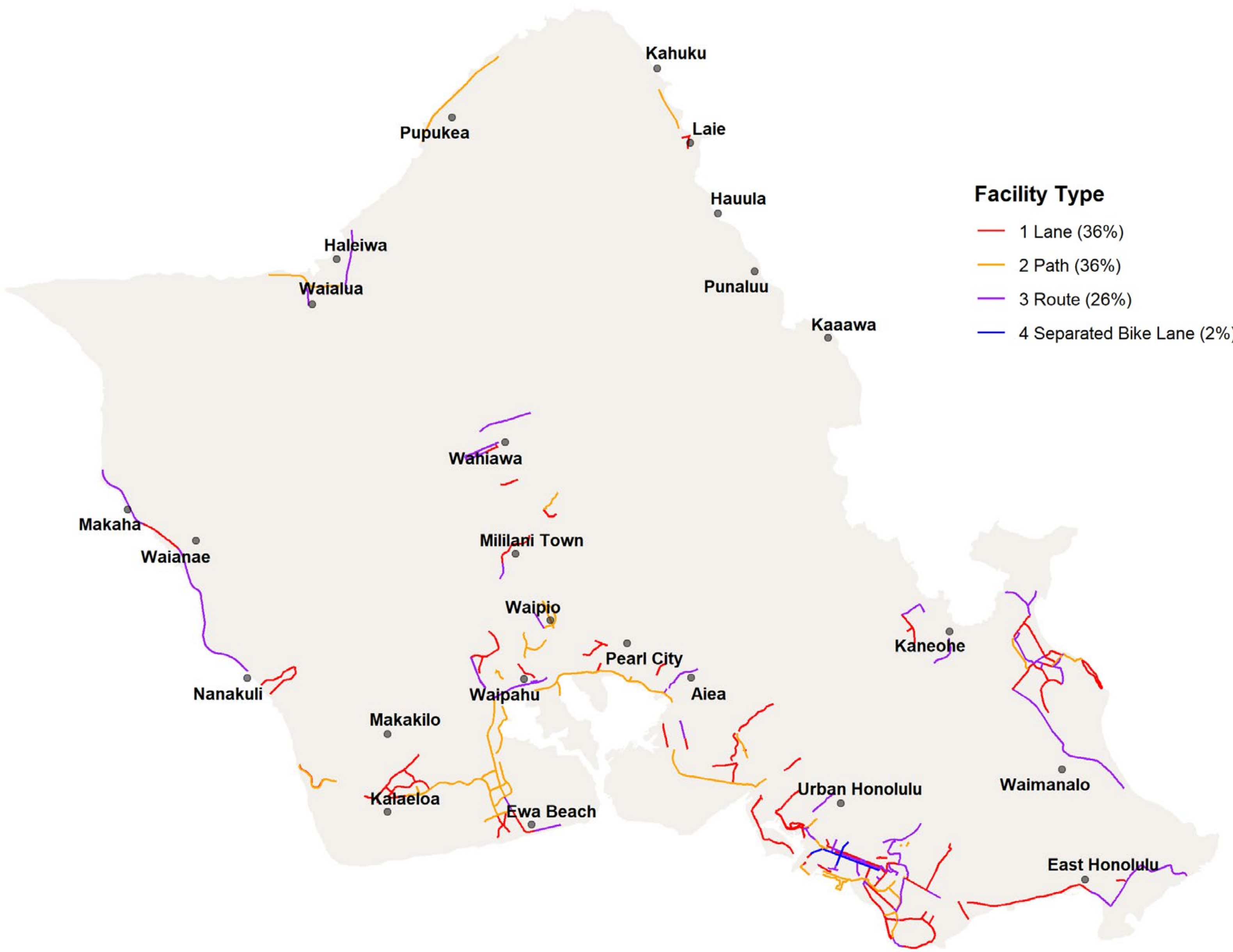
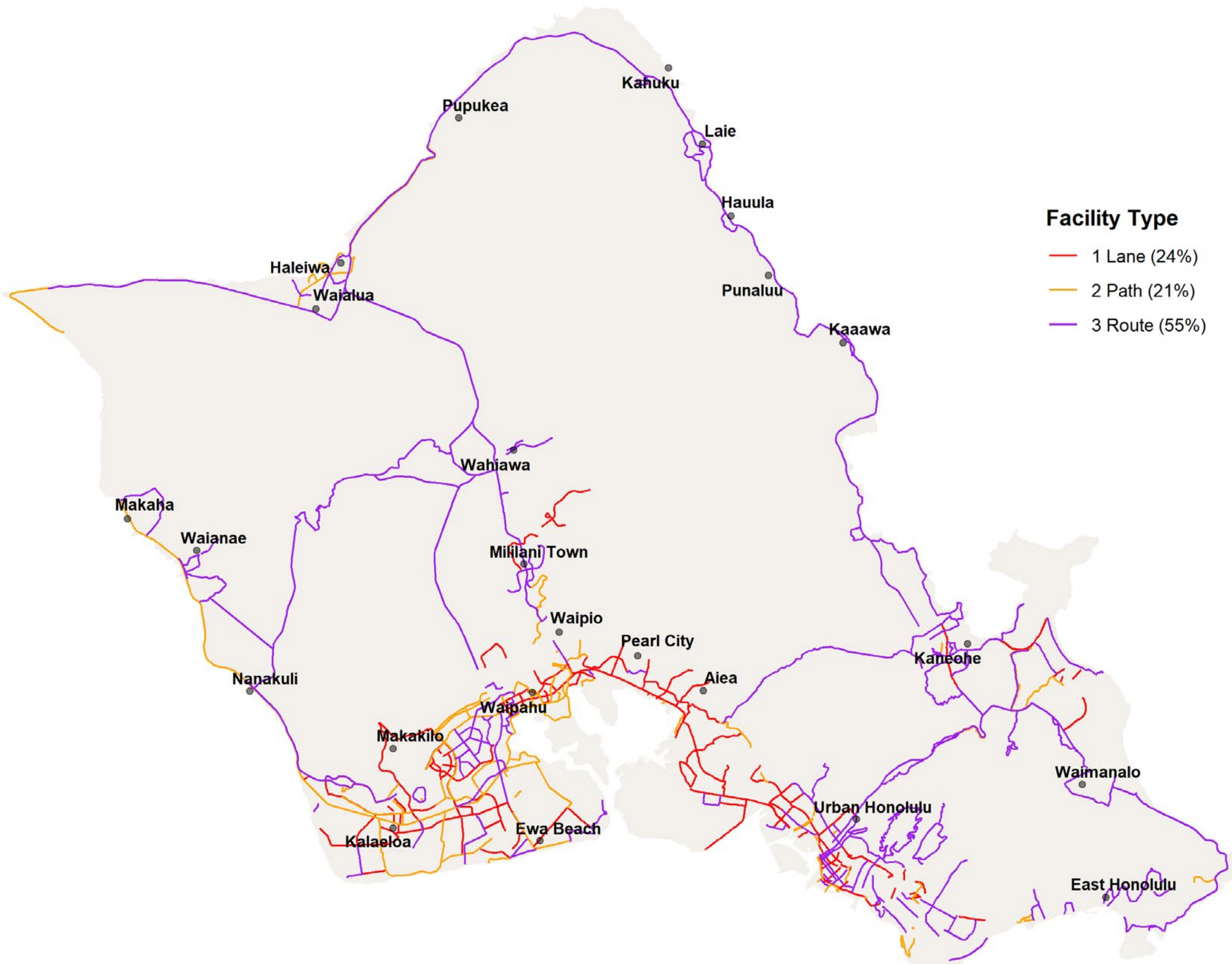


Figure 4.9: Spatial Distribution of Proposed Bicycle Facilities

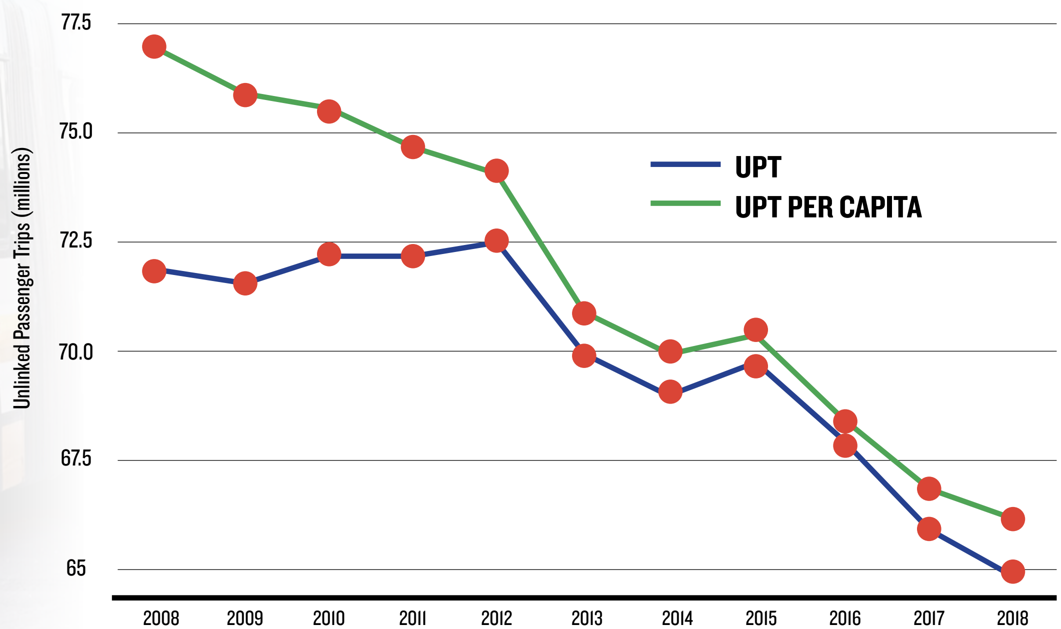


Regional Transit System

Public transportation plays an increasingly important role in meeting the travel needs of the population. The City & County of Honolulu manage both fixed route (TheBus) and demand response (Handi-Van) systems.

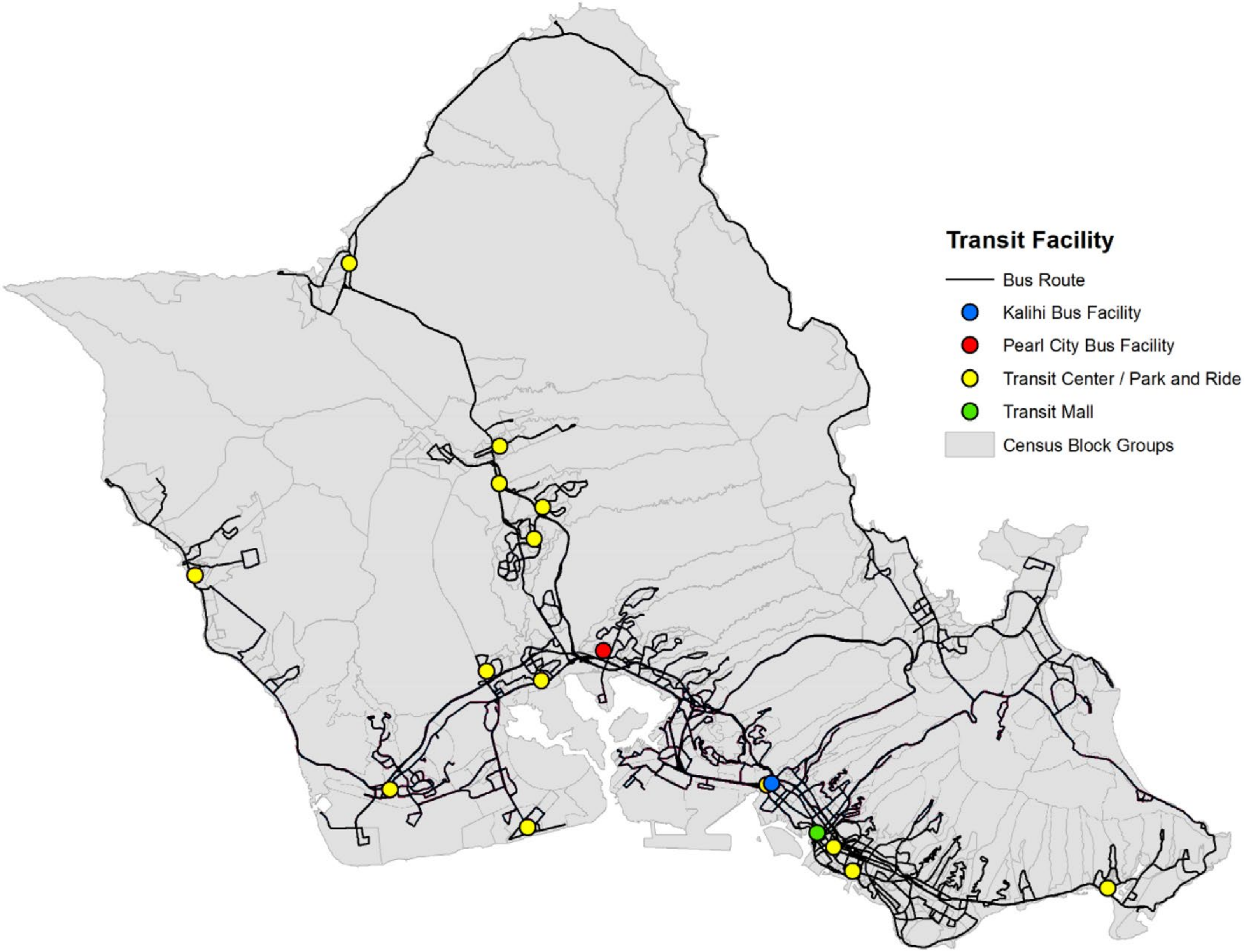
The decline in transit ridership on O‘ahu is consistent with national ridership trends. Per capita ridership indicates the use of the transit system relative to total population. Generally, transit ridership per capita closely follows total ridership, an indication that transit service is keeping pace with growth in population. Figure 4.10 shows transit ridership trends in urban Honolulu for TheBus and Handi-Van.

Figure 4.10: Transit Ridership Trends



Source: National Transit Database

Figure 4.11: Transit Facility Locations



Source: Department of Transportation Services (2019). Public Transit Title VI Program.

FEDERAL PERFORMANCE MEASURES

Every transit agency must develop a transit asset management (TAM) plan if it owns, operates, or manages capital assets used to provide public transportation and receives federal financial assistance under 49 U.S.C. Chapter 53 as a recipient or subrecipient. Under FTA's TAM Final Rule, transit operators are required to track current performance and establish performance targets for the following asset categories in their TAM plan. MPOs are required to include TAM targets for transit providers serving their planning area in their performance reports.

- **Facilities:** The percentage of facilities within an asset class and for which agencies have capital rehabilitation and replacement responsibility, rated below condition 3 on the FTA TERM (Transit Economic Requirements Model) scale;
- **Rolling Stock (Revenue Vehicles):** The percentage of revenue vehicles by asset class that either meet or exceed their Useful Life Benchmark (ULB); and
- **Equipment (Service Vehicles):** The percentage of non-revenue, support-service, and maintenance vehicles that either meet or exceed their ULB.

Based on the Transit Economic Requirements Model (TERM) rating scale for facilities, DTS found a rating less than 3.0, an indication of adequate condition of facilities (see Table 4.6). As expected, revenue vehicles exceed their ULBs more than non-revenue vehicles. For revenue vehicles, about 24% of vehicles have exceeded ULB (see Table 4.7). On average, 16% of non-revenue vehicles have also exceeded their ULBs (see Table 4.8).

Table 4.6: FY 2018 DTS Facilities Performance Targets

Asset Category/Class	Total	Avg. Age	% Rated Below 3.0	Target
Passenger facilities	7	9.1	14%	10%
Passenger parking facilities	3	26	0%	10%
Maintenance facilities	11	22.8	0%	10%
Administrative facilities	1	29	0%	10%
TOTAL	22	19.2	5%	10%

Table 4.7: FY2018 DTS Revenue Vehicles (Rolling Stock) Performance Targets

Asset Category/Class	Total	Avg. Age	# of Vehicles At/ Beyond ULB	Target
Articulated Bus	115	10.6	23%	20%
Bus	429	10.4	24%	20%
Cutaway Bus	174	4.5	28%	20%
Van	16	1	0%	20%
TOTAL	734	8.5	24%	20%

Table 4.8: FY2018 DTS Non-Revenue Vehicles (Equipment) Performance Targets

Asset Category/Class	Total	Avg. Age	# of Vehicles At/ Beyond ULB	Target
Non-Revenue/Service Auto	67	8.4	15%	20%
Trucks	17	14.4	17%	40%
Maintenance	31	13.7	19%	20%
Operations	8	14.7	12%	20%
IT	4	5.2	0%	20%
TOTAL	127	10.8	16%	30%

Source (all): Transit Asset Management Plan (2018). Department of Transportation Services

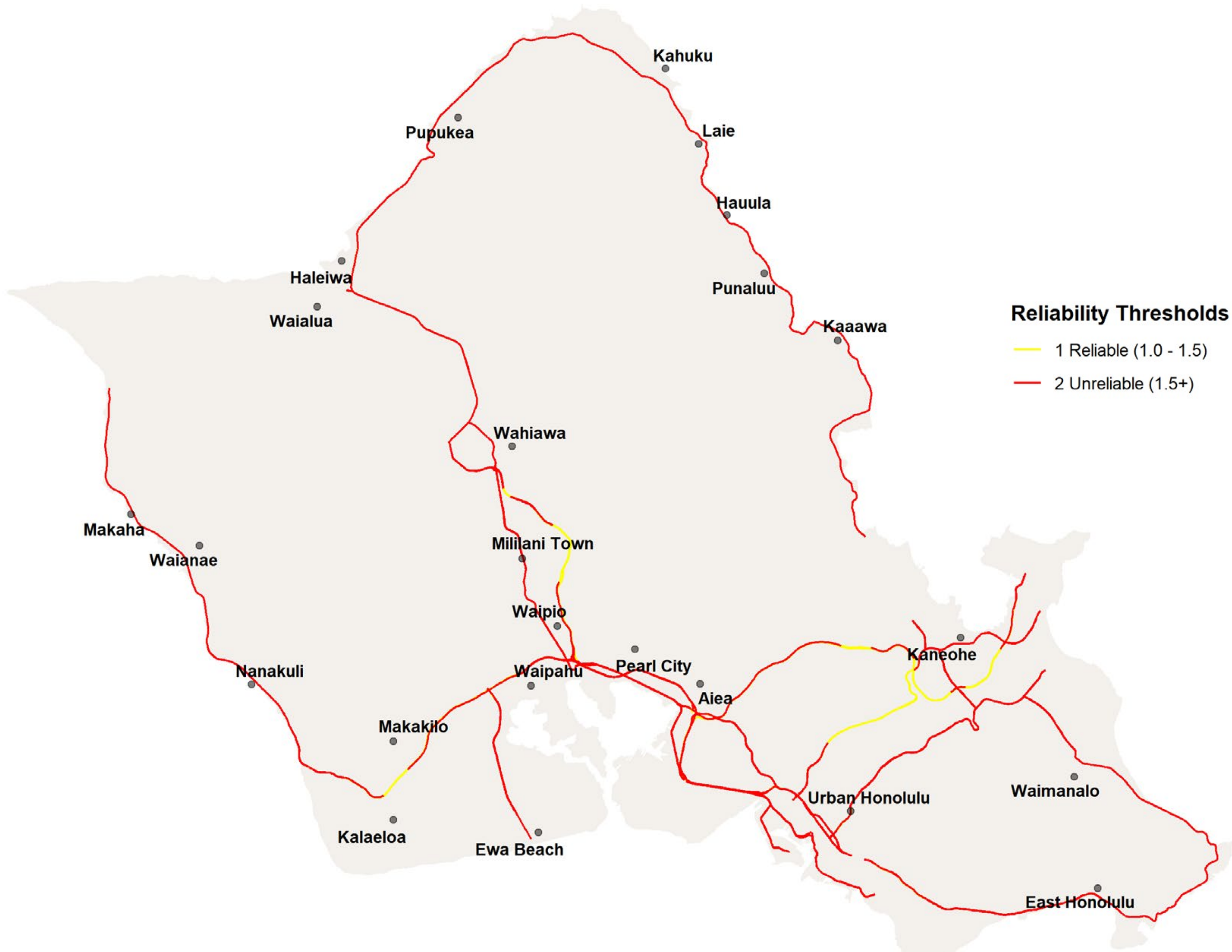
Freight

Commercial vehicle reliability was measured by Truck Travel Time Reliability (TTTR). The TTTR index was reported for five different time periods (AM peak 6:00am -10:00am, Midday Peak 10:00am-4:00pm, PM peak 4:00pm-8:00pm for Mondays through Fridays; 6:00am-8:00pm for weekends; and overnights for all days 8:00pm-6:00am). For each interstate segment over each time period, TTTR values were computed as a ratio of the 95th percentile truck travel time to the 50th percentile truck travel time, and then the highest TTTR value among the five time periods was multiplied by the length of the segment. TTTR ratios larger than 1.5 are considered unreliable. A regional TTTR index was generated by summing up all length-weighted TTTR values, and then dividing the total length of the interstate segments in the analyzed region. The methods for calculating the TTTR are published by the FHWA.[5]

The region's 2018 average TTTR is 2.75. As shown in Figure 12, most of the improvement in truck reliability was from Wahiawā, Mililani, and Kāneʻohe sections of the freeway. Also, the regional TTTR was greater than the regional non-commercial vehicle freeway reliability (PTI) of 2.29, indicating that commercial vehicles experienced a greater level of unreliability. The Hawaiʻi Statewide Freight Plan[6] has important information about State freight trends and issues confronting the region.

5 https://www.fhwa.dot.gov/tpm/guidance/hif18040.pdf
6 https://hidot.hawaii.gov/highways/files/2019/03/HDOT_FreightPlan_FINAL.pdf

Figure 4.12: 2018 Truck Travel Time Reliability

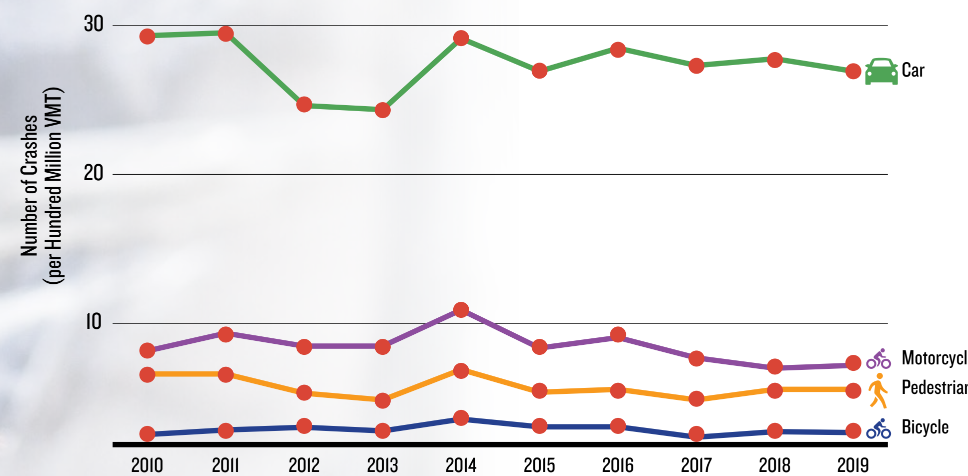


Transportation Safety

The region's transportation network emphasizes safety for all users of the region's transportation system. Safety is an ongoing concern for OahuMPO with an emphasis on safety for users of non-motorized transportation modes within the region.

Regional crash rate is measured by the number of crashes divided by a hundred million vehicle miles traveled (VMT) and it is reported for each mode. Generally, crashes within the region decreased slightly from 2010 to 2019, as shown in Figure 4.13. The crash data show stark inter-modal differences with cars having at least three times the rate for the next in rank (motorcycles).

Figure 4.13: Regional Crash Rate 2010 to 2019



Crash Locations

A heat map of crash locations was developed to show clusters of crash hotspots for 2019 for each transportation mode as in Figure 4.14 to 4.17. A hotspot analysis provides a quick screening that identifies high crash locations. The degree of crash clustering is scaled in a decreasing order from red to blue.

Although, generally, crash hotspots are located on the H-1 highway between Kapiʻolani Boulevard and Likelike Highway, there exist pockets of intense crash sites across the region. Figures 4.14 to 4.17 show the spatial distribution of crash hotspots and other locations in the region.

FEDERAL PERFORMANCE MEASURES (HIGHWAYS)

Highway Safety is the fulcrum around which the multi-faceted interaction between drivers, their behavior, and the highway infrastructure revolve around. The five (5) performance measures for Highway Safety are:

(1) the number of fatalities;
(2) the rate of fatalities;
(3) the number of serious injuries;
(4) the rate of serious injuries; and
(5) the number of non-motorized fatalities and serious injuries.

Figure 4.14: Bike Crash Locations

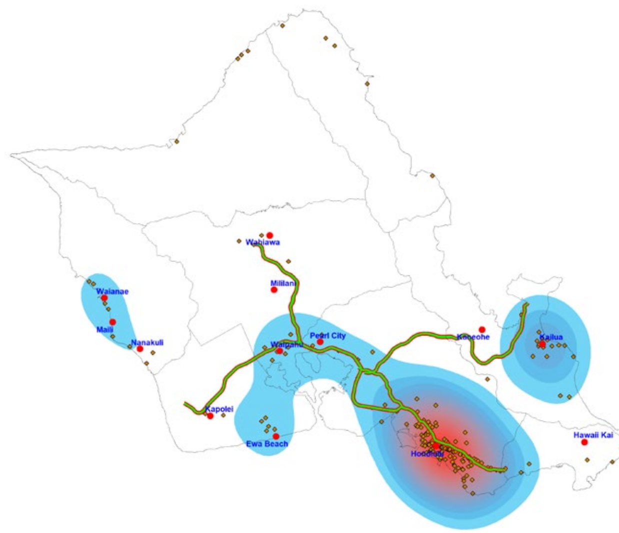


Figure 4.15: Car Crash Locations

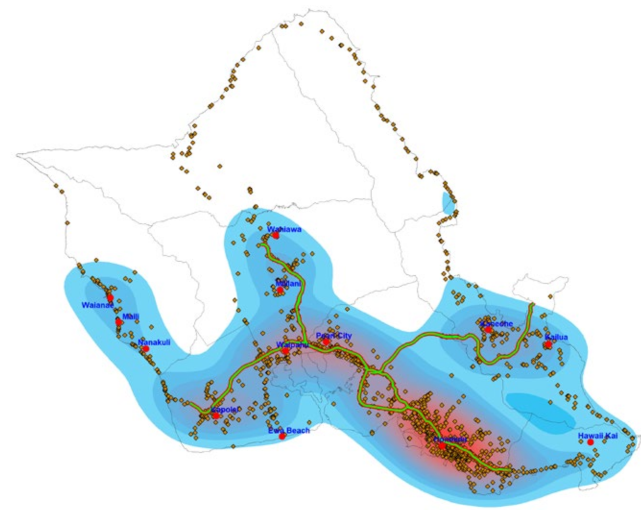


Figure 4.16: Motorcycle Crash Locations

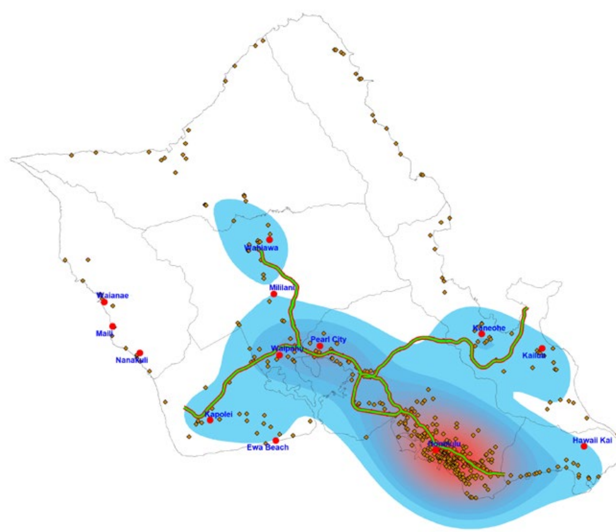
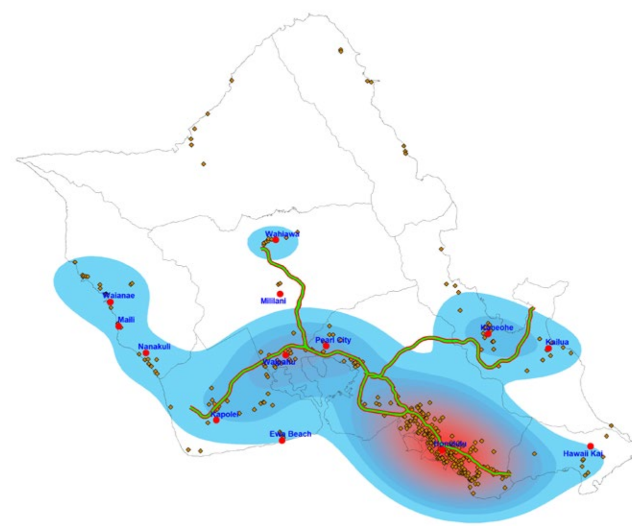


Figure 4.17: Pedestrian Crash Locations



The safety performance measures were the first established by the FHWA, with an effective date of April 14, 2016. The rules for the effective performance measures required all states to develop anHighway Safety Improvement Program (HSIP) which coordinates with the State's Strategic Highway Safety Plans (SHSP). As part of the HSIP, the states are required to establish their initial targets for the performance measures in their August 31, 2017, HSIP Annual Report. These targets are updated with each HSIP Annual Report.

Based on baseline safety performance data, all the safety targets were met, except for number of fatalities and rate of fatalities. The adopted safety target and their achievement under the review period is shown in Table 4.9 below.

Table 4.9: Safety Target and Achievement Under Review Period

No.	Measure	Target	2014-18 Performance
1	Fatalities	97.6	106.4
2	Fatalities Rate (fatalities/100 million VMT)	0.946	1.006
3	Serious Injuries	517.4	437
4	Serious Injuries Rate (serious injuries/100 million VMT)	4.978	4.156
5	Non-Motorized Fatalities and Serious Injuries	119.4	112.6

Transit Safety

Enacted in July 2019, the Federal Transit Administration's (FTA) Public Transportation Agency Safety Plan Final Rule (49 CFR Part 673) requires the implementation of safety plans that include the processes and procedures for Safety Management Systems. The regulation further requires that:

- *"The Public Transportation Agency Safety Plan must include performance targets based on the safety performance measures established under the National Public Transportation Safety Plan."*
- *"A State or transit agency must make its safety performance targets available to States and Metropolitan Planning Organizations to aid in the planning process."*
- *"To the maximum extent practicable, a State or transit agency must coordinate with States and Metropolitan Planning Organizations in the selection of State and MPO safety performance targets."*
- *"Safety measures are based on data reported to the Federal Transit Administration's National Transit Database."*

FEDERAL SAFETY PERFORMANCE MEASURES

Seven (7) transit performance measures adopted by OahuMPO for bus and paratransit are:

(1) number of fatalities;
(2) rate of fatalities;
(3) number of injuries;
(4) rate of injuries;
(5) number of safety events;
(6) rate of safety events; and
(7) system reliability.

Table 4.10 reports the targets under each performance measure.

Table 4.10: Transit Safety Performance Targets

Mode	Fatalities	Fatality Rate (per 1M VRM)	Injuries	Injury Rate (per 100K VRM)	Safety Events	Safety Events Rate (per 100K VRM)	System Reliability (VRM/Mechanical Road Calls)
Bus	0	0	109	0.5	122	0.56	10.556
Paratransit	0	0	12	0.155	15	0.196	18.846