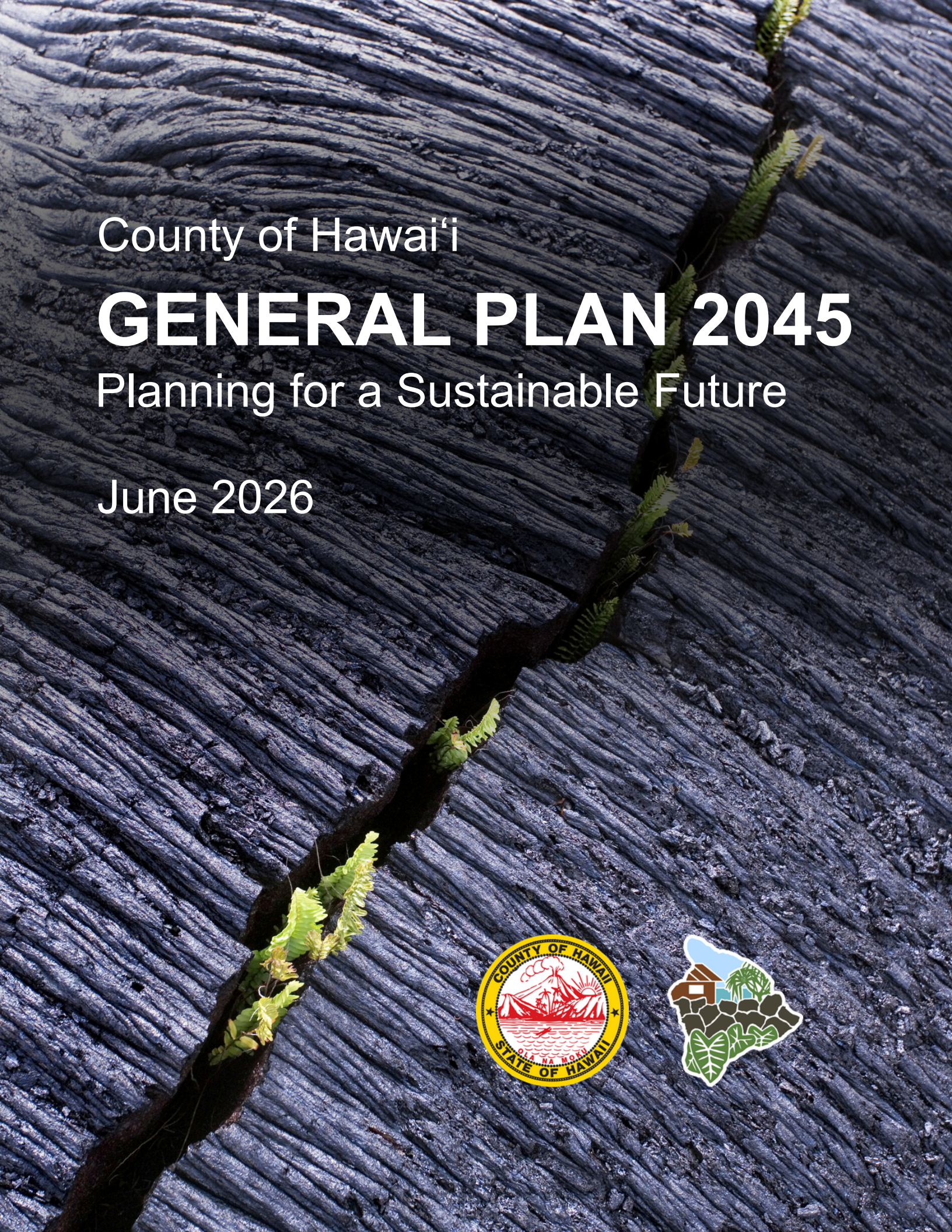


County of Hawai‘i

# GENERAL PLAN 2045

## Planning for a Sustainable Future

June 2026

# COUNTY OF HAWAI'I STATE OF HAWAI'I

**BILL NO.** 66
(DRAFT 2)

**ORDINANCE NO.** 26 46

**AN ORDINANCE ADOPTING THE COUNTY OF HAWAI'I GENERAL PLAN 2045 AND REPEALING ORDINANCE NO. 05-025, AS AMENDED.**

**BE IT ORDAINED BY THE COUNCIL OF THE COUNTY OF HAWAI'I:**

**SECTION 1.** The purpose of this ordinance is to adopt a General Plan in compliance with Section 3-15, Hawai'i County Charter and to repeal the 2005 General Plan adopted by Ordinance No. 05-025, as amended.

**SECTION 2.** The attached document identified as Appendix A, which also includes the General Plan Land Use Maps and the Facilities Maps, is hereby adopted as the Hawai'i County General Plan.

**SECTION 3.** Ordinance No. 05-025 (2005 General Plan) and subsequent amending Ordinance Nos. 06-153, 07-070, 09-161, and 14-087 are hereby repealed.

**SECTION 4.** Severability. If any provision of this ordinance, or the application thereof to any person or circumstance, is held invalid, the invalidity does not affect other provisions or applications of the ordinance which can be given effect without the invalid provision or application, and to this end the provisions of this ordinance are severable.

**SECTION 5.** This ordinance shall take effect upon its approval.

INTRODUCED BY:

B/R

COUNCIL MEMBER, COUNTY OF HAWAI'I

Hilo, Hawai'i
Date of Introduction: May 20,,2026
Date of 1st Reading: May 20, 2026
Date of 2nd Reading: June 3, 2026
Effective Date: June 26, 2026

REFERENCE Comm. 372.30

# Acknowledgements


**County Agencies**

Aging
CDP Action Committees
Civil Defense
Corporation Counsel
County Council
Environmental Mgmt. (Solid Waste & Wastewater)
Finance
Fire
Housing & Community Devel.
Leeward Planning Commission
Mass Transit
Mayor & Managing Director
Parks & Recreation
Planning
Police
Prosecuting Attorney
Public Works
Research & Development
Water Supply
Windward Planning Commission

**State Agencies**

Climate Change Mitigation & Adaptation Commission
Dept. of Agriculture
Dept. of Health
Dept. of Hawaiian Home Lands
Dept. of Land & Natural Resources
Dept. of Transportation
Energy Office
Hawai'i Emergency Management Agency
Hawai'i Housing Finance & Development Corp.
Office of Planning & Sustainable Development
Transit Oriented Development Council
University of Hawai'i at Hilo
University of Hawai'i at Manoa

**Federal Agencies**

Dept. of Housing & Urban Devel.
Environmental Protection Agency
Federal Housing Assoc.
Forest Service
National Park Service & Ala Kahakai

**Consultants**
(research & analysis)

City Explained
Clarion Associates
Dept. of Urban & Regional Planning (UHM)
Focused Planning Solutions
Munekiyo Hiraga
Placeways
Planning Consultants Hawai'i
Smart Growth America
SMS Hawai'i Research & Marketing






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# Glossary

The following list, arranged alphabetically, provides definitions for planning terms used throughout this document. The translations for Hawaiian words are taken and adapted as necessary from Ulukau, the Hawaiian Electronic Library, available online at https://wehewehe.org/.

**Accessory Dwelling Unit (ADU)** means a structure or portion thereof designed and used for single-family residential purposes and which can be detached from or attached to an existing residence, to be used for single-family occupancy and containing one kitchen.

**Action Committee (AC)** is a citizen-composed committee established for an adopted community development plan and administered by the Planning Department.

**Actions** specify how a planning policy will be implemented. Actions are meant to be refined during the process of implementation in consideration of available resources, more detailed analysis, feasibility, and other factors. Thus, these actions are not legally binding but are meant to provide specific directional guidance for plan implementation and to be implemented in good faith.

**Active Living Corridor** is a planned or existing linear space within a community designed to promote physical activity, active transportation, and community interaction. These corridors often integrate pedestrian and bicycle infrastructure, such as sidewalks, bike lanes, and trails, connecting residential areas with key destinations like parks, schools, shopping centers, and public transit stations. The design of active living corridors prioritizes safety, accessibility, and aesthetic appeal, encouraging residents to engage in walking, jogging, cycling, and other forms of active recreation as part of their daily routines. These corridors contribute to public health by facilitating active lifestyles and reducing reliance on motor vehicles, thereby promoting sustainable and vibrant urban environments.

**Active Transportation** (or non-motorized transportation) refers to any way of getting from place to place that is powered by human energy, such as walking or cycling.

**Adaptation** is the process of observing changes in social, environmental, and economic systems and adjusting operations to meet present and anticipated future needs.

**Affordable Housing** consists of dwelling units that may be rented or purchased at cost levels that can be afforded by persons or families who are within the definition of "qualified households" and whose total household income is within the affordable housing income guidelines, as defined in the Hawai‘i County Code.

**Agricultural Parks** are areas set aside by the State of Hawai‘i, specifically for agricultural activities to encourage the continuation or initiation of such agricultural operations. The State's Agricultural Parks Program makes land available to small farmers at a reasonable cost with long-term tenure.

**Agricultural-Based Commercial Operations** are allowed on lands within the State Land Use Agricultural District and includes a roadside stand, retail activities, retail food establishment, farmers' market, and food hub (in accordance with HRS 205-2(d)(15)).

**Agriculture Tourism** (or agritourism) is tourism related to experiencing and appreciating agriculture products, settings, and lifestyles.

**Agroforestry** is the intentional integration of trees and shrubs into crop and animal farming systems to create environmental, economic, and social benefits.

**Ahupua‘a** is a Native Hawaiian comprehensive and holistic system of careship of biocultural and sociopolitical systems and resources that are inclusive of wao or horizontal bioregions.

**‘Āina** is a Hawaiian term that means land or earth that sustains and feeds the ecosystems and its communities.

**Alternative Energy** refers to energy sources other than fossil fuels. This includes all renewable sources.

**Anchialine Pools** are unique and sensitive coastal groundwater features found in Hawai‘i and other volcanic islands. These pools are landlocked bodies of water that have varying levels of salinity due to their connection with both freshwater from precipitation and seawater from the ocean through underground channels. Anchialine pools are typically shallow and characterized by their clear, calm waters, often hosting diverse ecosystems that include endemic species adapted to the fluctuating salinity levels. They are culturally significant in Hawai‘i and provide habitat for unique flora and fauna, making their conservation crucial for biodiversity and local ecosystems.

**Aquaculture** is the production of aquatic plant or animal life for food or fiber within ponds and other bodies of water, as defined in the Hawai‘i County Code.

**Biofuel** is a fuel that is produced through contemporary biological processes, such as agriculture and anaerobic digestion. Biofuels can be derived directly from plants, or indirectly from agricultural, commercial, domestic, and/or industrial wastes.

**Biosphere Reserve Buffer Zone (BRBZ)** is enacted either separately or as an overlay district for the Volcano area, to guide development within the region’s native forest through regulatory measures and economic incentives.

**Brownfield** is an abandoned or underused site where redevelopment or reuse is complicated by the presence or perceived presence of contamination.

**Bulk Regulations** are standards that govern the provisions for lots based on housing type and by zoning district. Bulk regulations include:

- Height limit
- Minimum building site area
- Minimum building site average width
- Minimum yards
- Setbacks
- Floor area ratio

**Capital Improvements** comprise all forms of physical structures intended for long-term use by the public and include roads, water and sewer systems, communication systems, flood control structures, other forms of infrastructure, and facilities such as active recreation areas and buildings, meeting rooms, public safety operation centers, government service centers and other structures supporting public activities.

**Capital Improvements Budget** is adopted by ordinance for the ensuing fiscal year.

**Capital Improvements Program (CIP)** is a six-year program of planned capital improvements that sets forth what improvements will be funded, when each will be funded, and how much each will cost. It is provided to Hawai‘i County Council for information purposes for the ensuing six fiscal years.

**Cesspool** is any buried chamber including but not limited to any metal tank, perforated concrete vault, or covered hollow or excavation, which receives or discharges sanitary sewage from a building sewer to collect solids or discharge liquids to the surrounding soil. Cesspools are not an approved method of sewage disposal under these regulations and all existing cesspools are substandard.

**Climate Adaption** refers to actions that adjust to actual or expected future climate with the goal of reducing risks from the harmful effects of climate change and maximizing any potential benefit opportunities.

**Climate Change** refers to the long-term (usually at least 30 years) regional or even global average of temperature, humidity, and rainfall patterns over seasons, years, or decades. Human-induced climate change is resulting in global warming, the long-term heating of Earth’s surface.

**Climate Change Impacts** refer to the effect on social, economic, and environmental systems that are caused by human-driven climate change including, but not limited to, increases in natural disaster severity, unstable and extreme weather patterns, and loss of native ecosystems.

**Climate Mitigation** means actions and strategies aimed at reducing the risk of harm and damage to human communities, natural ecosystems, infrastructure, and the economy due to the impacts of climate change. These actions and strategies include but are not limited to reduction of greenhouse gas emissions and removal of greenhouse gases from the atmosphere.

**Climate Resilience** is the ability to is the ability to anticipate, prepare for, and respond to hazardous events, trends, or disturbances related to climate change. Improving climate resilience involves assessing how climate change will create new, or alter current, climate-related risks, and taking steps to better cope with these risks.

**Cluster** refers to a concentrated grouping of buildings, activities, or land uses within a defined area. The concept of clustering is used to promote efficient land use, enhance connectivity, and foster synergies among different functions or uses. Clusters can include residential, commercial, industrial, or mixed-use developments that are strategically located to optimize infrastructure and resources while minimizing environmental impacts. Planning for clusters often involves zoning regulations, design guidelines, and infrastructure investments to support compact, walkable, and sustainable development patterns.

**Cluster Plan Development (CPD)** refers to a land use planning strategy where residential or commercial development is concentrated in specific areas while preserving larger portions of the land as open space or natural areas. In this approach, buildings are grouped closely together, often in a compact or clustered manner, rather than being evenly dispersed across a site. Cluster development aims to promote efficient land use, preserve natural resources, and protect sensitive environmental areas by reducing overall land disturbance and infrastructure costs. It can also foster a sense of community by encouraging shared open spaces and amenities among residents or businesses within the development. (See Hawai‘i County Code 25-6-20)

**Clustered Rural Subdivision** is a type of land development where residential lots are grouped together in compact clusters or nodes within a larger rural area. This approach contrasts with traditional rural subdivisions where lots are typically larger and spread out across the landscape.

**Coastal High Hazard Areas** include tsunami inundation, sea level, rise, and special flood hazard areas.

**Coastal Zone Management (CZM) Area** encompasses all lands of the State of Hawai‘i and the area extending seaward from the shoreline to the limit of the State’s police power and management authority, including the United States territorial sea.

**Coastal Zone Management (CZM) Program** was created through passage of the Federal CZM Act of 1972. The Hawai‘i Coastal Zone Management Program is a State program that was enacted to focus on a common focus for state and county actions dealing with land and water uses and activities. As the State’s resource management policy umbrella, it is the guiding perspective for the design and implementation of allowable land and water uses and activities throughout the State. Hawai‘i Revised Statutes Chapter 205A requires the legal and operational compliance with CZM objectives and policies.

**Collaborative Biocultural Stewardship** represents an approach to sustainable development that emphasizes collaboration and partnership building among stakeholders and refers to the integration of cultural and natural resource management strategies to promote conservation, sustainability, and resilience.

**Community Conservation Areas** are natural or modified ecosystems, including significant biodiversity, ecological services, and cultural values, voluntarily conserved by local communities through customary laws or other effective means.

**Community Development Plan (CDP**) is a regional community plan for a specific planning area, typically comprising, but not necessarily bounded by, one or more of the County's judicial districts.

**Community-Based Food System** are networks of farms and food businesses that do business in order to build community health, wealth, connection, and capacity, as well as to sustain themselves financially.

**Cottage Industry** is a small-scale industry that can be carried on at home generally by family members using their own equipment.

**Crime Prevention Through Environmental Design (CPTED)** is a multidisciplinary approach of crime prevention that uses urban and architectural design and the management of built and natural environments.

**Critical Environmental Areas** include but are not limited to:

- Watershed and recharge areas
- Wildlife habitats (on land and in the ocean)
- Areas with endangered species of plants and wildlife
- Natural streams and water bodies
- Scenic and recreational shoreline resources
- Open space and natural areas
- Historic and cultural sites
- Areas particularly sensitive to reduction in water and air quality; and scenic resources
- Lands designated for acquisition by public agencies for conservation and natural resource protection
- Lands designated as Conservations in the State Land Use (SLU), Future Land Use maps, or Zoning maps
- Identified wetlands

**Critical Facilities** include public and private facilities that need to be operational during and after a hazardous event to meet public health and safety needs, or to speed economic recovery.

**Critical Habitat** is a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery**.**

**Demand Management**, or Transportation Demand Management, is a defined set of strategies aimed at maximizing traveler choices.

**Development** is the placement or erection of any solid material, grading, grubbing, or extraction of any materials, change in density or intensity of use of land, or construction, reconstruction, demolition, or alteration of any structure.

**Development Rights** are the rights to develop land by a land owner who maintains fee simple ownership over the land or by a party other than the owner who has obtained the rights to develop. Such rights usually are expressed in terms of density allowed under existing zoning. (See Transfer of Development Rights).

**Director** is the Planning Director unless otherwise specified.

**Eco-Industrial parks** include a community of firms that exchange and make use of each other's byproducts.

**Ecosystem Services** include any positive benefit that wildlife or ecosystems provide to people. The benefits can be direct or indirect, small or large.

**Eco-Tourism** in Hawai'i refers to sustainable travel and recreation activities that prioritize the conservation of Hawai'i's unique natural environment, cultural heritage, and local communities. It involves exploring and appreciating Hawai'i's diverse ecosystems, such as rainforests, coral reefs, and volcanic landscapes, while supporting efforts to protect these environments. Ecotourism in Hawai'i encourages responsible behaviors among visitors, such as respecting wildlife, minimizing waste, and supporting local businesses that prioritize environmental stewardship and cultural preservation. This approach aims to ensure that tourism benefits Hawai'i's natural and cultural

resources while fostering awareness and appreciation of its unique island ecosystems.

**Embodied Carbon** in the building industry refers to the greenhouse gas emissions arising from the lifecycle of building materials, including extraction, manufacturing, transportation, installation, maintenance, and disposal.

**Endemic Species** are native species that are unique to a defined geographical location. They are of conservation concern because they are not widespread and may be confined to only one or two areas.

**Energy Producer** is any entity that produces energy of any kind, including (without limitation) gas or oil-fueled, coal, nuclear, hydro, chemical reaction, electromagnetic, wave or tidal action, biofuels-based, geothermal, and renewable energy production.

**Energy Sustainability Standards** or certificates are voluntary guidelines used by producers, manufacturers, traders, retailers, and service providers to demonstrate their commitment to good environmental, social, ethical, and safety practices. (E.g., LEED)

**Environmental Justice** means the fair treatment and meaningful involvement of all people in the development, implementation, and enforcement of environmental laws, regulations, and policies.

**Environmental Stewardship** involves the responsible use and protection of the natural environment through conservation and sustainable practices to enhance ecosystem resilience and human wellbeing.

**Equity** means the consideration of cumulative impacts on lower- and middle-income individuals and historically marginalized groups during decision-making.

**Firm Generation** is energy available on demand, which can be adjusted as needed.

**Food Insecurity** is defined as the "limited or uncertain availability of nutritionally adequate and safe foods or uncertain ability to acquire acceptable foods in socially acceptable ways."

**Functional Classification** describes the process by which streets and highways are grouped into classes or systems according to the character of service they are intended to provide.

**Functional Plan** is typically a public agency plan that addresses a specific need, program, or issue usually prepared by the agency responsible for implementation that may but is not required to be adopted by resolution.

**General Plan** is the County's policy document for the long-range comprehensive development and preservation of the Island of Hawai'i pursuant to provisions for its purposes and contents, as set forth in Hawai'i Revised Statutes and the County Charter.

**Geographic Information System (GIS)** is a spatial system that creates, manages, analyzes, and maps all types of data.

**Gig Economy** is a labor market that relies heavily on temporary and part-time positions filled by independent contractors and freelancers rather than full-time permanent employees. This segment of the service economy often involves connecting clients and customers through an online platform.

**Green Infrastructure** uses vegetation, soils, and other elements and practices to restore some of the natural processes required to manage water and create healthier urban environments. Green infrastructure detains stormwater or directs it to engineered systems for infiltration or remediation at a slower rate before it enters groundwater, sewer systems, or aquatic or marine environments.

**Greenfield Development** is any kind of real estate development in previously undeveloped areas.

**Greenhouse Gases (GHG)** are gases in the Earth's atmosphere that trap heat, contributing to the greenhouse effect and influencing Earth's climate. These gases include carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), fluorinated gases, and water vapor. They absorb and emit radiation within the thermal infrared range, which warms the planet's surface and lower atmosphere. Human

activities, such as burning fossil fuels, deforestation, and industrial processes, have significantly increased the concentrations of greenhouse gases in the atmosphere since the Industrial Revolution, leading to global warming and climate change.

**Greenhouse Gas Effect** refers to the process by which greenhouse gases in Earth's atmosphere trap heat from the sun, preventing it from escaping back into space. These gases, such as carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and water vapor, absorb and re-emit infrared radiation emitted by the Earth's surface. This absorption and re-emission of energy create a warming effect, similar to how a greenhouse traps heat, hence the term "greenhouse effect".

**Harden** (or hardening) refers to physically changing infrastructure or structures to make them less susceptible to damage from extreme wind, flooding, or flying debris. Hardening improves the durability and stability of facilities, making them better able to withstand the impacts of hurricanes and other natural events without sustaining major damage or losing functionality.

**High-Risk Hazard Areas** are areas within the Coastal High Hazard Area or Lava Flow Hazard Zones 1 or 2.

**Historic District** is a geographically definable area, urban or rural, possessing a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united by past events or aesthetically by plan or physical development. In addition, historic districts consist of contributing and non-contributing properties. Historic districts possess a concentration, linkage, or continuity of the other four types of properties. Objects, structures, buildings, and sites within a historic district are usually thematically linked by architectural style or designer, date of development, distinctive urban plan, and/or historic associations. Under Hawai'i Revised Statutes, Chapter 6E, a historic property is an object, district, structure, site, or building that is 50 years or older. Historic properties that meet the significance criteria and retain historic integrity may be eligible for, or listed to, the Hawai'i or National Register of Historic Places.

**Hub and Spoke** are a centralized location within a specific service area. The hub generally has various passenger amenities including information, shelter, benches, bicycle storage, restrooms, security, and lighting. The hubs are served by transit routes or "spokes", which are those localized routes providing neighborhood connections to the hubs.

**Impact Fee** is a fee levied on the developer or builder of a project by the County or other public agency as compensation for otherwise unmitigated impacts the project will probably produce.

**Impervious Surface** (or Impervious Area) is any hard-surfaced, man-made area that does not readily absorb or retain water.

**Important Agricultural Lands (IAL)** State Designation, enacted as Article XI, Section 3, of the Constitution of the State of Hawai'i, the State is required to conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency and assure the availability of agriculturally suitable lands. Important Agricultural Lands (IAL) means those lands that: (1) are capable of producing sustained high agricultural yields when treated and managed according to accepted farming methods and technology; (2) contribute to the State's economic base and produce agricultural commodities for export or local consumption; or (3) are needed to promote the expansion of agricultural activities and income for the future, even if currently not in production.

**Incompatible Development**, or (Incompatible Land Use), is the transfer over a property line of negative economic or environmental effects.

**Indigenous Data Science** applies data science principles to issues relevant to Indigenous communities while respecting their knowledge systems and cultural practices. It emphasizes data sovereignty, ensuring Indigenous control over data, and cultural relevance, aligning methodologies with Indigenous worldviews. The field prioritizes community engagement, ethical considerations, and capacity building within Indigenous communities. By integrating interdisciplinary approaches and advocating for

Indigenous rights, Indigenous data science aims to empower communities and support their self- determination and governance.

**Infill Development** is the development of vacant land or rehabilitation of existing structures in already urbanized areas where infrastructure and services are in place.

**Innovative Housing** includes the efficient and creative use of spaces, features, and amenities both within the overall development and individual homes. Examples of innovative housing include factory-built homes and manufactured housing, modular and volumetric builds, panelized wall systems, accessory dwelling units (ADU), and alternatives to lumber and wood framing.

**Integrated Resource Plans** is the identification of the resources or the mix of resources for meeting near and long-term consumer energy needs in an efficient and reliable manner at the lowest reasonable cost including the need and timing of any new generation and new cross-island transmission lines.

**Intergenerational Equity** refers to the principle of fairness and justice between different generations. It emphasizes the responsibility of current generations to manage resources and make decisions in ways that do not compromise the ability of future generations to meet their needs. This concept is central to sustainable development, ensuring that economic, social, and environmental policies consider long-term impacts. Intergenerational equity seeks to balance the needs and rights of present and future populations, promoting sustainability and continuity over time.

**Invasive Species** are alien species that have been introduced to an area, arriving through human intervention, and cause or could cause harm in at least one of three areas: the environment, the economy, or human health.

**Kākou** is the Hawaiian pronoun for we (inclusive, three or more).

**Kuleana** is a Hawaiian word that means right, privilege, concern, responsibility.

**Kūpuna** is a Hawaiian word that means elders.

**Land Study Bureau (LSB)** Detailed Land Classification is based on the Land Study Bureau of the University of Hawai‘i’s inventory and evaluation of the State’s land resources. The Bureau grouped all lands in the State, except those in the urban district, into homogeneous units of land types; described their condition and environment; rated the land on its overall quality in terms of agricultural productivity; appraised its performance for selected alternative crops; and delineated the various land types and groupings based on soil properties and productive capabilities.

**Large Development** is the creation of 25 or more residential units, or commercial, industrial, or resort space of 30,000 square feet of gross floor area or any combination greater than 35,000 square feet of gross floor area. (See Development)

**Leachate** is formed when rain water filters through wastes placed in a landfill. When this liquid comes in contact with buried wastes, it leaches, or draws out, chemicals or constituents from those wastes.

**Level of Service (LOS) Standard** is a measure of the relationship between service capacity and service demand for public facilities.

**Lo‘i** is a traditional Hawaiian taro patch, designed specifically for cultivating taro (kalo) in wetland environments. These patches are often found in valleys or along streambanks, where they can be irrigated and flooded to create optimal growing conditions.

**Loko I‘a** is an ancestral Hawaiian fishpond that is a unique aquaculture system that optimizes natural patterns of watersheds, nutrient cycles, and fish biology. Loko I‘a feed and connect communities.

**Low- and Moderate-Income** families earn less than 80 percent of the area median income (AMI) for the County of Hawai‘i, based on 2010 or 2020 Census data.

**Low-Impact Development (LID)** is a general term for a wide array of site planning principles and engineered treatment practices used to manage both water runoff volume and water quality. (See green infrastructure)

**Low-Impact Development (LID) Best Practices** include undisturbed pervious areas, vegetated filter strips, grass channels, rain gardens, edible landscapes, stormwater planters, dry wells, rainwater harvesting, bioretention areas, and dry swales.

**Low-Income Housing Tax Credit (LIHTC)** was created by the United States Tax Reform Act of 1986 and gives state and local agencies the authority to issue tax credits for the acquisition, rehabilitation, or new construction of rental housing targeted to lower-income households.

**Makai** is a Hawaiian word that means toward the ocean.

**Master Plan** is a private land-use plan focused on one or more sites within an area that identifies site access and general improvements and is intended to guide growth and development over a number of years, or in several phases.

**Mauka** is a Hawaiian word that means inland or toward the upland.

**Microgrid** is a local energy grid with control capability, which means it can disconnect from the traditional grid and operate autonomously.

**Micromobility** is any small, low-speed, human- or electric-powered transportation device, including bicycles, scooters, electric-assist bicycles, electric scooters (e-scooters), and other small, lightweight, wheeled conveyances.

**Missing Middle Housing** is a range of house-scale buildings with multiple units, compatible in scale and form with detached single-family homes, located in a walkable neighborhood. Missing Middle Housing refers to housing types that fall somewhere between a single-family home and mid-rise apartment buildings, such as townhomes, duplexes, triplexes, and courtyard clusters.

**Mixed-Use** is a land use pattern that integrates compatible residential, commercial, industrial, office, institutional, or other uses.

**Mixed-Use Development** is a structure with multiple functions, such as residential and commercial

**Multimodal Transportation** describes the practice of integrating multiple forms of transportation into the planning process. Examples include pedestrian, cycling, automobile, and mass transit.

**Native Species** include plant and animal species that arrived in Hawai‘i without the assistance of humans.

**Natural Hazards** are dangerous natural events that can threaten life and property. Examples include wildfires, earthquakes, volcanic eruptions, floods, landslides, and tsunamis.

**Natural Systems Planning** refers to the land use planning process of working toward the goal of protecting, conserving, and improving the biodiversity and sustainability of a region’s natural systems.

**Net Zero** refers to achieving a balance between the amount of greenhouse gases emitted into the atmosphere and the amount removed from it. This balance is typically achieved by reducing greenhouse gas emissions as much as possible and offsetting any remaining emissions through measures such as carbon removal or carbon offsetting projects. The ultimate goal of net zero is to limit global warming to a level considered safe and sustainable, aiming to stabilize the Earth’s climate by reducing the overall impact of human activities on the environment. Achieving net zero emissions is a critical component of global efforts to combat climate change and transition towards a sustainable, low-carbon future.

**Not In My Backyard (NIMBY)** describes opposition by residents to proposed developments in their local area, often due to concerns about potential negative impacts on the environment, property values, and quality of life.

**One Water** is an integrated and holistic approach to managing all aspects of the water cycle— drinking water, wastewater, stormwater, and other water resources—as a single, interconnected system. This framework emphasizes the interdependence of different water sources and seeks to maximize the sustainable use of water resources through coordinated management and policy-making.

**Open Space** is largely undeveloped land or water body which is free of structures and equipment, except for those incidental to the permitted uses. Open space may include the following: flood protection, creating a sense of special separation from incompatible land uses, areas for agricultural operations, passive recreation, active recreation, conservation uses, forests, or historical site preservation. Lands with a general slope of 20 per cent or more that provide open space amenities or possess unusual scenic qualities. Lands necessary for the preservation of forests, park lands, wilderness and beach/shoreline areas.

**Operating Budget** is a complete financial plan for the current operations of the county and its agencies and executive agencies in the ensuing fiscal year, showing all funds and reserves.

**Optimal** is most desirable or satisfactory.

**Overlay** is an area where certain additional requirements are superimposed upon a base zoning district or underlying district and where the requirements of the base or underlying district may or may not be altered.

**Overlay Zone** is a zoning designation applied to a specific geographic area that imposes additional standards on top of the underlying zoning regulations and are used to address particular issues or goals that may not be adequately addressed by the base zoning district alone. Common purposes of overlay zones include special management area, promoting environmental conservation, managing floodplains, encouraging mixed-use development, or enhancing design standards.

**Paratransit** is special transportation services for people with disabilities and the elderly, often provided as a supplement to fixed-route bus systems by public transit agencies.

**Performance Conditions** are requirements or obligations that an applicant must complete before certain rights or obligations can take effect.

**Permeable** refers to a pavement system with traditional strength characteristics, but which allows rainfall to percolate through it rather than running off.

**Placemaking** is a multifaceted approach to planning, design, and management of public spaces that capitalizes on a local community's assets, inspiration, and potential to promote the health, happiness, and well-being of residents.

**Planned Unit Development (PUD)** refers to a zoning and development strategy that allows for flexibility in land use and design within a defined area. It typically involves a comprehensive plan for mixed-use development, including residential, commercial, and recreational spaces, with an emphasis on preserving natural resources and promoting sustainable practices. PUDs are intended to encourage innovative land use planning while ensuring compatibility with surrounding areas and meeting community needs.

**Planning Areas** are the geographical regions that define the community development plan boundaries.

**Planning Commission** refers to either the Leeward Planning Commission or the Windward Planning Commission. The two Planning Commissions consist of members appointed from within each judicial district, advise the Mayor, County Council, and Planning Director on land use matters pursuant to law and the Hawai‘i County Charter.

**Pono** is a Hawaiian word that means goodness, uprightness, morality, moral qualities, correct or proper procedure, excellence, well-being,

prosperity, welfare, benefit, behalf, equity, sake, true condition or nature, duty; moral, fitting, proper, righteous, right, upright, just, virtuous, fair, beneficial, successful, in perfect order, used in this plan to describe an aspirational course of action.

**Principle** is a professionally accepted practice or guiding rule used by planning agencies and professional planners in formulating policies and standards for community development.

**Project District** is a comprehensive planning method which provides for a flexible planning approach and incorporates a variety of uses as well as open space, parks, and other project uses, as further defined in the Hawai'i County Code.

**Pu'u** is a Hawaiian word that means any protuberance including a hill, mountain, cone, peak, or elevation.

**Rangeland** refers to large, natural landscapes such as grasslands, shrublands, woodlands, and deserts that are primarily used for grazing livestock and wildlife. These areas are characterized by native vegetation, open spaces, and minimal human modification. Rangelands provide essential ecosystem services, including habitat for wildlife, soil stabilization, water filtration, and carbon sequestration. They are managed to balance the needs of livestock production, conservation, and recreation while maintaining ecological health and sustainability.

**Regenerative Agriculture** is a farming approach that focuses on restoring and enhancing soil health, biodiversity, and ecosystem functions. It employs practices such as cover cropping, crop rotation, reduced tillage, and holistic grazing to improve soil structure, increase organic matter, and promote beneficial soil microorganisms. This method aims to sequester carbon, improve water retention, and reduce reliance on synthetic inputs, contributing to more resilient and sustainable agricultural systems. Regenerative agriculture not only enhances farm productivity and profitability but also supports environmental health and climate change mitigation.

**Regenerative Tourism** is a movement that seeks to balance the economics of tourism with the well- being of communities, natural resources, and culture. This includes attracting and educating positive-impact travelers and group attendees who are mindful of how they respect and interact with residents, or how their movement through Hawai'i impacts the environment positively, and of how they value and respect the Hawaiian culture and other cultures of Hawai'i.

**Regional Centers** are intended for mixed-use and higher-density residential, retail, commercial, employment, and/or regional one-of-a-kind facilities, such as major civic, medical, educational, and entertainment facilities.

**Renewable Energy** refers to energy derived from natural resources that are continually replenished on a human timescale. These resources include sunlight, wind, rain, tides, waves, and geothermal heat. Unlike fossil fuels, which are finite and contribute to environmental degradation through greenhouse gas emissions and pollution, renewable energy sources are considered sustainable and environmentally friendly. Technologies used to harness renewable energy, such as solar panels, wind turbines, hydropower plants, and geothermal systems, generate electricity and heat without depleting natural resources or significantly contributing to climate change. Embracing renewable energy plays a crucial role in reducing dependence on fossil fuels, mitigating climate change impacts, and promoting energy security and economic resilience.

**Resilience** is the ability to withstand social, environmental, and economic shocks and stressors with minimal human, environmental, and economic costs, risks, and damages.

**Resort Area** is an area with facilities to accommodate the needs and desires primarily of visitors, tourists, and transient guests.

**Roads in Limbo (RIL)** were built or, planned by the State or the Territorial government. They are classified into either existing or paper roads. For

decades, the State and County government argued over maintenance responsibility because of limited resources. Typically, existing roads are referred to as "government roads" or "homestead roads".

**Shelter-Burdened**, also known as cost-burdened, are those who pay more than 30 percent of their income for housing and may have difficulty affording necessities such as food, clothing, transportation, and medical care. Severe rent burden is defined as paying more than 50 percent of one's income on rent.

**Shoreline** is the upper reaches of the wash of the waves, other than storm and seismic waves, at high tide during the season of the year in which the highest wash of the waves occurs, usually evidenced by the edge of vegetation growth, or the upper limit of debris left by the wash of the waves.

**Shoreline Setback Area** is the land area between the shoreline and the shoreline setback line established by the Planning Department running inland from and parallel to the certified shoreline at a horizontal plane.

**Silviculture** is the development or maintenance of a forest or wooded preserve.

**Silvopasture** is the deliberate integration of trees and grazing livestock operations on the same land.

**Smart Growth** is the overall approach to development that encourages a mix of building types and uses, diverse housing and transportation options, development within existing neighborhoods, and robust community engagement.

**Special Area Plans** are plans prepared by a county department or agency for a specific area for the purpose of master planning, redevelopment planning, or other purpose that may but is not required to be adopted by resolution or ordinance.

**Special Management Area (SMA)** is the area that extends inland from the shoreline and is designated for special protections. The State of Hawai'i Office of Planning administers Hawai'i Revised Statutes (HRS) Chapter 205A, the Coastal Zone Management (CZM) law, and the purpose of HRS Chapter 205A is to "provide for the effective management, beneficial use, protection, and development of the Coastal Zone." The SMA permitting system is part of the CZM Program approved by Federal and State agencies.

**Sprawl** is low-density land-use patterns that are automobile-dependent, energy and land consumptive, and may lead to an inefficient and undesirable distance between residences and their needed infrastructure and services.

**Stakeholder** is any individual, group, or organization that has an interest or concern in a particular project, decision, or activity and can be affected by its outcomes. Stakeholders can include a wide range of entities, such as employees, customers, suppliers, investors, government agencies, community members, and non-governmental organizations. They can influence or be influenced by the objectives, policies, and performance of an organization or project. Effective stakeholder engagement and management are crucial for the success and sustainability of any initiative, as it helps ensure that diverse perspectives and interests are considered.

**Sustainability** is defined as meeting the needs of the present without compromising the ability of future generations to meet their own needs. Sustainability requires a balanced approach of managing present-day environmental, social, and economic needs to ensure harmony between economic growth, environmental systems, and social well-being.

**Sustainable Yield**, according to Hawai'i Revised Statutes Chapter 174C, is the maximum rate at which water may be withdrawn from a water source without impairing the utility or quality of the water source as determined by the commission.

**Tax Increment Financing (TIF)** is a public funding method that uses future property tax increases to pay for community improvements.

**Time Share Unit** is any multiple-family dwelling unit or hotel, which is owned, occupied or possessed, under an ownership and/or use

agreement among various persons for less than a sixty-day period in any year for any occupant, and is regulated under the provisions of chapter 514E, Hawai'i Revised Statutes, as amended.

**Traditional Ecological Knowledge (TEK)** is a cumulative body of knowledge, belief, and practice handed down through generations and focused on the relationship of plants, animals, and humans with place-specific traditional practices and with their environment.

**Traditional Neighborhood Development (TND)** involves compact, mixed-use neighborhood where residential, commercial, and civic buildings are within proximity to each other.

**Transfer of Development Rights (TDR)** is a process by which development rights may be transferred from one parcel of land to another. (See Development Rights)

**Transient Accommodation** means the furnishing of a room, apartment, suite, single family dwelling, or the like to a transient for a designated period of time that provides living, sleeping, or housekeeping accommodations.

**Transit Oriented Development (TOD)** is a development of high-density mixed land use that uses a transit facility as a focal point and thereby seeks to encourage the use of public transit.

**Underserved Subdivisions** are characterized by having:

- Lot sizes that do not conform to State or County standards or other zoning criteria;
- At least 10 lots; and
- Limited access to public infrastructure and services; and
- High lot vacancy rates or a pattern of "leapfrog" development; and
- Lot sizes too small for agricultural development (1/2 to 3 acres); and
- A location outside County designated preferred development areas

**Universal Design Principles** aim to create environments, products, and services that are accessible and usable by all people, regardless of their age, ability, or disability. These principles emphasize inclusivity, ensuring that designs accommodate a wide range of users with varying needs and preferences. Key aspects include simplicity, flexibility, intuitive use, and equitable access, which together promote usability and accessibility for everyone. By integrating universal design principles, designers and planners create more inclusive, functional, and user-friendly solutions that benefit all members of society.

**Urban Development Plan** is a plan having a local scale primarily comprising one or more existing or proposed urban areas including towns, villages, resort-residential nodes and/or suburban residential neighborhoods where more intensive uses are contemplated. These may include redevelopment plans for all or part of such urban areas.

**Urban Forestry** is the planting, maintenance, care, and protection of tree populations in urban settings. Urban forests come in many different shapes and sizes. They include urban parks, street trees, landscaped boulevards, gardens, river and coastal promenades, greenways, river corridors, wetlands, nature preserves, shelter belts of trees, and working trees at former industrial sites. Urban forests, through planned connections of green spaces, form the green infrastructure on which communities depend. Green infrastructure works at multiple scales from the neighborhood to the metro area to the regional landscape.

**Urban Growth Areas (UGA)** are established as land that is envisioned for future areas of urban use and should include only those lands that meet the following criteria:

- Are characterized by urban development that can be efficiently and cost-effectively served by roads, water, sanitary sewer and storm drainage, schools, and other urban governmental services within the next 20-40 years
- Respect topographical features that form a natural edge, such as watercourses and ridgelines
- Are sufficiently free of environmental

constraints to be able to support urban growth without major environmental impacts
- Do not unnecessarily overlap with State Land Use Agricultural
- Shall not overlap with State Land Use Conservation District

**Urban Heat Island Effect** is a phenomenon where the metropolitan areas are generally hotter than the surrounding countryside. Without as many trees and green cover, the impervious surfaces of man-made structures absorb sunlight and convert it into heat energy.

**Urban Service Area** defines the geographical limits of government-supplied public facilities and services.

**Variable Generation** is energy that may not always be available or controllable.

**Variance**, in the context of planning permits, is a legal authorization that allows a property owner to deviate from the requirements of local zoning ordinances or land use regulations. It grants permission to use the land in a way that does not strictly comply with the existing zoning rules, typically due to unique circumstances or hardships specific to the property.

**Vehicle Miles Traveled (VMT)** is defined by the United States Department of Transportation as the total annual miles of vehicle travel divided by the total population in a state or in an urbanized area. This metric, along with travel times and costs, to measure vehicle travel demand and make policy decisions regarding roadways and other transportation infrastructure.

**Viewshed** is the area within view from a defined observation point typically used to define a view scenic quality such as a puʻu (hill) or the coastline.

**Village Plan** is a strategic document that guides the development and management of a specific community or village. It outlines goals and policies related to land use, infrastructure, environmental conservation, community services, transportation, economic development, and community character. Developed through collaboration with stakeholders, village plans serve as blueprints to ensure orderly growth, preserve natural resources, enhance community services, and maintain or enhance the unique identity of the village over time. Regular updates ensure alignment with evolving community needs and priorities.

**Wahi Pana** means living space and place of ecological, cultural and/or historical significance. Wahi Pana may also mean legendary place.

**Waste-to-Energy (WtE)** is a process in solid waste management that involves converting non-recyclable waste materials into usable forms of energy, such as electricity, heat, or fuel, and reduces the volume of waste sent to landfills, minimizes greenhouse gas emissions, and provides a sustainable energy source, contributing to environmental protection and energy sustainability. This is achieved through various technologies, including:

- Incineration: Burning waste at high temperatures to produce steam, which can then be used to drive turbines and generate electricity. The heat generated can also be used for district heating.
- Gasification: Converting organic or fossil-based materials into carbon monoxide, hydrogen, and carbon dioxide by reacting the material at high temperatures with a controlled amount of oxygen or steam. The resulting syngas can be used to generate electricity or produce fuels.
- Pyrolysis: Decomposing organic materials at high temperatures in the absence of oxygen, producing a mixture of solids (char), liquids (tar and pyrolysis oil), and gases (syngas). These by-products can be utilized as fuels or raw materials for chemical processes.
- Anaerobic Digestion: Breaking down organic waste in the absence of oxygen to produce biogas (primarily methane and carbon dioxide), which can be used for electricity and heat generation, or upgraded to biomethane for use as a renewable natural gas.

**Watershed** is an area of land that collects rainwater and directs it to a common outlet, such as a stream, lake, or ocean.

**Water Systems** is any water system, whether publicly or privately owned and managed, that provides water for human consumption to at least 15 connections or regularly serves at least 25 individuals.

**Yes In My Backyard (YIMBY)** refers to a movement that describes advocates who support housing development as a response to the outcomes of restrictive zoning and planning policies.

**Zone of Influence** in the context of drinking water refers to the area surrounding a water source, such as a well or a reservoir, where the extraction of water affects the local groundwater levels or flow patterns. This zone is crucial for managing and protecting drinking water supplies, as it delineates the region where human activities, such as pumping, can impact the quality and quantity of water available. Properly understanding and managing the zone of influence helps ensure sustainable water extraction, prevents contamination, and protects the integrity of the drinking water source.

# Acronyms and Abbreviations

The following list, arranged alphabetically, provides acronyms, abbreviations, and their corresponding definitions used throughout this document.

| | |
|---|---|
| **A** | Agricultural District |
| **AC** | Action Committee |
| **ADA** | Americans with Disabilities Act |
| **ADU** | Accessory Dwelling Unit |
| **AFOLU** | Agriculture, Forestry, and Other Land Use |
| **ALICE** | Asset Limited, Income Constrained, Employed (ALICE) households earn above the Federal Poverty Level but cannot afford the basic cost of living. Despite struggling to make ends meet, ALICE households often do not quality for public assistance. |
| **AMI** | Area Median Income |
| **APD** | Agricultural Project District |
| **BRBZ** | Biosphere Reserve Buffer Zone |
| **CD** | Civil Defense Agency |
| **CDH** | Downtown Hilo Commercial District |
| **CDP** | Community Development Plan |
| **CERT** | Community Emergency Response Team |
| **CFD** | Community Facilities District |
| **CG** | General Commercial District |
| **CIP** | Capital Improvement Program |
| **CN** | Neighborhood Commercial District |
| **COH** | County of Hawai‘i |
| **CPD** | Cluster Plan Development |
| **CPTED** | Crime Prevention Through Environmental Design |
| **CRS** | Community Rating System |
| **CV** | Village Commercial District |
| **CZM** | Coastal Zone Management Area |
| **DBEDT** | Department of Business, Economic Development, and Tourism |
| **DEM** | Department of Environmental Management |
| **DF** | Department of Finance |
| **DHHL** | Department of Hawaiian Home Lands |
| **DHR** | Department of Human Resources |
| **DIT** | Department of Information Technology |
| **DLNR** | Department of Land and Natural Resources |
| **DOA** | Department of Agriculture |
| **DOE** | Department of Education |
| **DOH** | Department of Health |
| **DPR** | Department of Parks and Recreation |
| **DPW** | Department of Public Works |
| **DRD** | Department of Research and Development |
| **DU** | Dwelling Unit |
| **DWS** | Department of Water Supply |
| **EPA** | Environmental Protection Agency |
| **FA** | Family Agricultural District |
| **GHG** | Greenhouse Gas |
| **GIS** | Geographic Information System |
| **H+T** | Housing and Transportation Affordability Index |
| **HELCO** | Hawai‘i Electric Light Company, Inc. |
| **HFD** | Hawai‘i Fire Department |
| **HIDEC** | Hawai‘i Island Digital Equity Coalition |
| **HPD** | Hawai‘i Police Department |
| **HRS** | Hawai‘i Revised Statutes |

| | |
|---|---|
| **HUD** | Department of Housing and Urban Development |
| **IAL** | Important Agriculture Land |
| **ICT** | Information and Communication Technologies |
| **IWS** | Individual Wastewater System |
| **LID** | Low-Impact Development |
| **LIHTC** | Low-Income Housing Tax Credit |
| **LMI** | Low- and Moderate-Income |
| **LOS** | Level of Service |
| **LSB** | Land Study Bureau |
| **LSB** | Land Study Bureau Detailed Land Classification |
| **MCX** | Industrial-Commercial Mixed District |
| **MG** | General Industrial District |
| **ML** | Limited Industrial |
| **MS4** | Municipal Separate Storm Sewer System |
| **MTA** | Mass Transit Agency |
| **MTCO2e** | Metric Tons of Carbon Dioxide Equivalent |
| **NELHA** | Natural Energy Laboratory of Hawai‘i Authority |
| **NFIP** | National Flood Insurance Program |
| **NIMBY** | Not In My Backyard |
| **O** | Open District |
| **OA** | Office of Aging |
| **OHCD** | Office of Housing and Community Development |
| **OPA** | Office of Prosecuting Attorney |
| **OPSD** | Office of Planning and Sustainable Development |
| **OSCER** | Office of Sustainability, Climate, Equity, and Resilience |
| **OTEC** | Ocean Thermal Energy Conversion |
| **PC** | Planning Commission |
| **PCS** | Public Charter School |
| **PD** | Project District |
| **PONC** | Public Access, Open Space, & Natural Resource Preservation Commission |
| **PUD** | Planned Unit Development |
| **RA** | Residential and Agricultural District |
| **RCX** | Residential-Commercial Mixed-Use District |
| **RD** | Double-Family Residential District |
| **RM** | Multiple-Family Residential District |
| **RS** | Single-Family Residential District |
| **SHPD** | State Historic Preservation Division |
| **SLU** | State Land Use |
| **SMA** | Special Management Area |
| **TDR** | Transfer of Development Rights |
| **TIF** | Tax Increment Financing |
| **TMK** | Tax Map Key |
| **TND** | Traditional Neighborhood Development |
| **TOD** | Transit Oriented Development |
| **UGA** | Urban Growth Areas |
| **UGB** | Urban Growth Boundary |
| **UH** | University of Hawai‘i |
| **UHH** | University of Hawai‘i at Hilo |
| **UNV** | University District |
| **USDA** | United States Department of Agriculture |
| **USGS** | United States Geological Survey |
| **V** | Resort-Hotel District |
| **VMT** | Vehicle Miles Traveled |

# 1. INTRODUCTION



The County of Hawai‘i encompasses the Island of Hawai‘i, which is the southeastern-most and youngest island of the Hawaiian archipelago. Hawai‘i Island is nearly twice the combined land area of the remainder of the State and has a diverse climate and topography.



## Navigating Growth on Hawai‘i Island

Hawai‘i Island is unique in the world. Hawai‘i Island is a community of rooted heritage, constant change, and unique beauty. As our community navigates our future, integrating a sustainable balance between environmental stewardship, social and community equity, and economic sufficiency is paramount. We should be confident in our ability to meet our current needs and the needs of our future generations to come, ensuring that our keiki are able to stay here and raise their keiki. We must be ready, willing, and able to consistently pursue bold actions that address our challenges and help us arrive at a better future. Navigating our island’s future growth requires hearing the voices of our diverse population and balancing their needs. Effective growth plans evaluate the past, incorporate current realities, assess future challenges, and craft meaningful solutions.

Careful consideration of these factors are intended to result in successful long-range planning and the application of Native Hawaiian ahupua‘a framework in all planning and development analyses. This section should articulate the critical importance of the Native Hawaiian ahupua‘a framework in all planning and development analyses.

## Advancing Hawai‘i Island Together

In an increasingly polarized world, the importance of collaborating to navigate through a variety of situations should be of utmost importance. Recognizing and embracing our diversity, as well as our individual and communal sense of kuleana is where we find our strengths. Steering our island in the right direction takes all of us. Setting the best path for our future relies on ensuring buy-in for solutions and accurately and collectively representing community sentiments. Hawai‘i Island is an exemplary leader with healthy and resilient communities that are built by sustainable development, a thriving and diversified local economy, and collaborative environmental stewardship. The General Plan serves as a 25-year blueprint for the long-term growth and sustainable development of Hawai‘i County. It envisions a future that balances growth with the preservation of the County’s unique natural and cultural resources. A sustainable future is not a distant dream but an attainable reality. A reality that can only be achieved through the powerful combination of government and community collaboration. The task ahead of us is substantial, and it calls for unity, vision, and unwavering dedication.



## Key Themes and Goals



Cultural & Natural Resource Protection: Safeguard the county's unique cultural sites, traditions, and natural resources.




Sustainable Growth & Development: Encourage growth in areas with existing infrastructure, while minimizing impacts on sensitive environments and agricultural lands.



Infrastructure: Enhance and maintain critical infrastructure including roads, public transit, water, and wastewater systems.



Public Health & Safety: Strengthen emergency preparedness and improve public health facilities and services.



Recreation & Open Spaces: Develop parks and recreational facilities and preserve open spaces for the enjoyment of residents and visitors.



Housing: Promote the development of affordable housing and support diverse housing types for all residents.



Economic Development: Foster a diversified economy that offers a range of employment opportunities and supports local businesses.

## Implementation Strategies

**Zoning & Land Use Regulations**
Update regulations to align with the goals of the General Plan.

**Public-Private Partnerships**
Collaborate with private entities to achieve mutual development and conservation objectives.

**Community Engagement**
Continuously engage residents and stakeholders in the decision-making process.

**Investment**
Prioritize funding for projects that align with the General Plan's vision and goals.

**Monitoring & Evaluation**
Regularly review and assess the implementation of the plan to ensure its effectiveness and relevance.

# 1.1 Purpose and Authority of the General Plan

The County of Hawai'i's General Plan is the policy document for the long-range comprehensive development of the island of Hawai'i. The purposes of the General Plan are to:

- Guide the pattern of future development in this County based on long-term goals;
- Identify the visions, values, and priorities important to the people of this County;
- Provide the framework for regulatory decisions, capital improvement priorities, acquisition strategies, and other pertinent government programs within the County organization and coordinated with State and Federal programs.
- Improve the physical environment of the County as a setting for human activities; to make it more functional, beautiful, healthful, interesting, and efficient.
- Promote and safeguard the public interest and the interest of the County as a whole.
- Facilitate the democratic determination of community policies concerning the utilization of its natural, man-made, and human resources.
- Effect political and technical coordination in community improvement and development.
- Inject long-range considerations into the determination of short-range actions and implementation.

The 2045 General Plan is the primary policy document for county agencies, planning commissions, elected officials, landowners, developers, and citizens to guide land use policy decisions for the Island of Hawai'i. Section 3-15 of the Hawai'i County Charter states:

> "The county council shall adopt by ordinance a general plan which shall set forth the council's long-range policy for the comprehensive physical, economic, environmental, and sociocultural well- being of the county.
>
> (a) The general plan shall contain a statement of development objectives, standards and principles with respect to the most desirable use of land within the county for residential, recreational, agricultural, commercial, industrial and other purposes which shall be consistent with proper conservation of natural resources and the preservation of our natural beauty and historical sites; the most desirable density of population in the several parts of the county; a system of principal thoroughfares, highways, streets, public access to the shorelines, and other open spaces; the general locations, relocations and improvement of public buildings, the general location and extent of public utilities and terminals, whether publicly or privately owned, for water, sewers, light, power, transit, and other purposes; the extent and location of public housing projects; adequate drainage facilities and control; air pollution; and such other matter as may, in the council's judgement, promote the general welfare, health, and prosperity of its people.
>
> (b) The council shall enact zoning, subdivision, and such other ordinances which shall contain the necessary provisions to carry out the purpose of the general plan.
>
> (c) No public improvement or project, or subdivision or zoning ordinance, shall be initiated or adopted unless the same conforms to and implements the general plan.
>
> (d) Amendments to the general plan may be initiated by the council or the planning director."

Pursuant to the Section 226-52 and 58 of the Hawai'i Revised Statutes (HRS), as well as Section 3- 15 of the County Charter, the General Plan includes overall themes, goals, principles, objectives, and policies, as well as implementation priorities and actions to carry out policies including, but not limited to, land use maps, programs, projects, regulatory measures, standards and principles, and interagency coordination. Neither the HRS nor the County Charter clearly define all the terms above, so for the purposes of the 2045 General Plan, they are defined in this section using references from professional planning practice. The authority of the General Plan includes three fundamental types: directional, regulatory, and programmatic.

### Authority Limits of the General Plan

The 2045 General Plan often relies on further implementation actions, such as zoning and budget ordinances, to move Hawai'i Island in the direction of our goals. Further, it contains no authority to change previously existing subdivisions or zoning, and no authority over lands governed by the Department of Hawaiian Home Lands (DHHL). The Hawaiian Homes Commission has the ultimate control over uses of the Hawaiian home lands leased to Native Hawaiians.

The 2002 Memorandum of Agreement (MOA) between the County and DHHL is formally referenced in the General Plan and included as an appendix to ensure institutional knowledge of DHHL's land use authority over its lands.

Achieving our island's vision will require collective long-term commitments that build on this plan.

**The General Plan *is***

- A long-range policy document, adopted by ordinance
- Based on community driven values, goals, and objectives
- A comprehensive and action-oriented framework for more specific planning

**The General Plan *is not***

- A specific plan for growth or development
- A master plan or regional plan
- A fixed or inflexible document

# 1.2 History of the Plan

General Plan studies in the County of Hawai'i were initiated in the late 1950s and were limited to particular regions of the island such as the Hilo, Kona, Kohala, Hāmākua, and Puna Districts. As such, these initial plans lacked a comprehensive, coordinated, and integrated overview of the entire County. The first of these studies, "A Plan for Kona", was completed in 1960 and encompassed the districts of North and South Kona. "A Plan for the Metropolitan Area of Hilo" was completed in 1961 for the districts of South Hilo and Puna. "The Kohala-Hāmākua Region General Plan" was completed in 1963 and covered part of the district of North Kona and the districts of North and South Kohala, Hāmākua, and North Hilo. These regional plans were adopted by Ordinance No. 317 in July 1965, as the General Plan for the County. The district of Ka'ū was the only area in the County not covered by this plan.

The first General Plan document to be completed after the ratification of the County Charter in 1968 was adopted by ordinance on December 15, 1971 by the County Council. Upon adoption of the General Plan in 1971, the Council laid the foundation for establishing a comprehensive planning program for the County of Hawai'i. This program consists of a hierarchical set of plans and activities. The initial development of the General Plan program, undertaken between 1968 and 1970, was funded through an agreement between the County of Hawai'i and the U.S. Department of Housing and Urban Development through the former State of Hawai'i Department of Planning

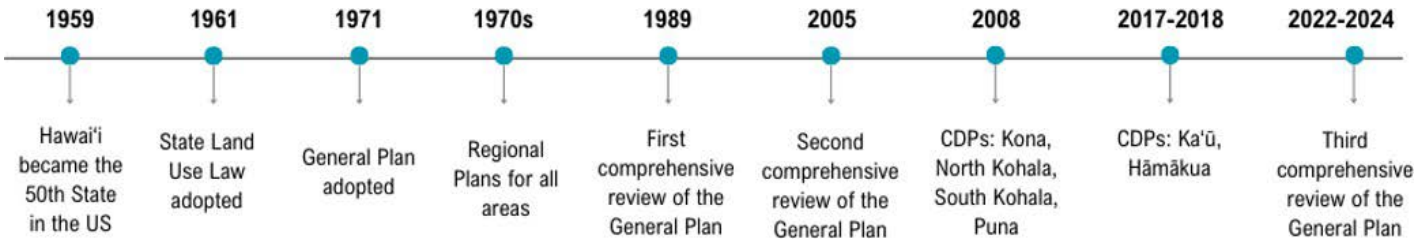
and Economic Development (currently the State Department of Business, Economic Development and Tourism). The initial General Plan study program was conducted over a 36-month period and completed by the Planning Department with the technical assistance of professional consultants in the fields of drainage and flood control, historic sites, sewerage, economics, and water.

The General Plan program is structured to investigate, analyze, and evaluate concurrently all aspects of the County under a common or standard methodology. The preparation of the General Plan involves the process of planning and provides the opportunity to broaden the base of citizen participation, review, and understanding. The 1971 General Plan required five- and ten-year comprehensive reviews and updates. The reviews and updates are intended to maintain the dynamism and flexibility of the General Plan and to accommodate major changes and trends that may occur within the County.

The County initiated a review of the Land Use Pattern Allocation Guide Map in 1978 that led to several changes to the map. Other changes included the addition of an Energy element and amendments to procedures for the comprehensive reviews and proposals for specific amendments to the General Plan.

Figure 1 provides a glimpse into the County's historical long-range planning initiatives. Since 1971, there have been two subsequent comprehensive reviews of the General Plan. The first was adopted in 1989 and the second was in 2005. The adoption of the 2005 General Plan identified the preparation of Community Development Plans to further guide implementation efforts. Significant public input helped guide the development and 2008 adoption of the Kona Community Development Plan, Puna Community Development Plan, North Kohala Community Development Plan, and South Kohala Community Development Plan. The Kaʻū Community Development Plan followed in 2017, and the Hāmākua Community Development Plan in 2018.

Figure 1 Timeline of Hawaiʻi County Long-Range Plans



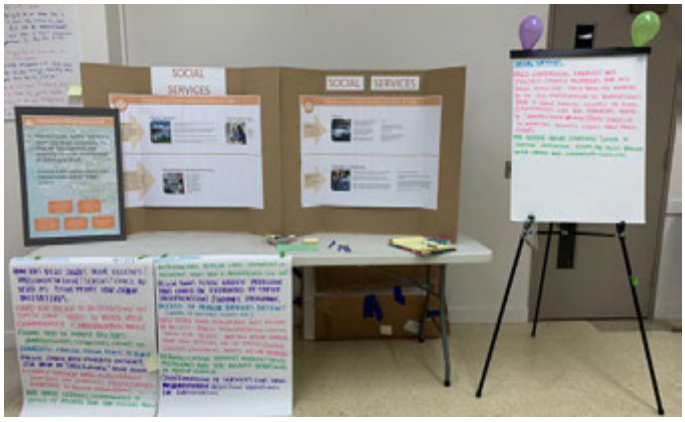

# 1.3 Planning Process

Since the adoption of the 2005 General Plan, Hawaiʻi Island has seen a lot of change, including population growth, natural disasters, technological advancements, and sustainability efforts. These topics have been considered in the General Plan 2045. On February 6, 2015, the Planning Director initiated the comprehensive review of the 2005 General Plan. The comprehensive review process involves many different stages, including collecting community feedback, examining the effectiveness of the previous plan, and research and analysis of existing conditions and trends. The comprehensive planning process requires a systems approach in order to effectively integrate key elements and develop a path for implementation. Throughout the review process, an overarching intention was to create an open

forum for discussion, reflect community input and values, encourage interagency coordination and participation, and direct growth patterns in ways that benefit our population and protect our unique island environment.




Community engagement event in 2019.




Cataloguing and reviewing community input.

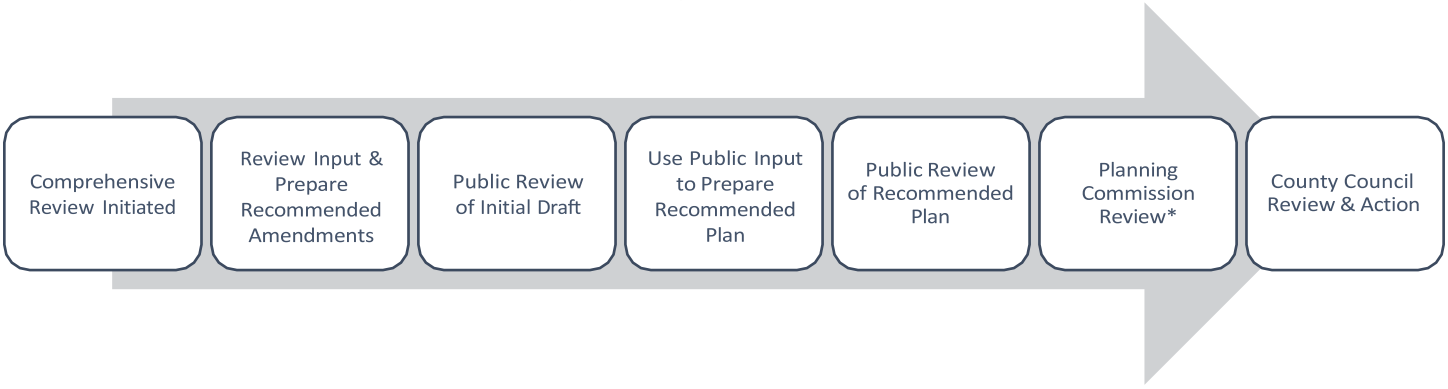


Public workshop event in 2023.



Public workshop event in 2024.

Figure 2 Comprehensive Review Process




*The Planning Commissions are responsible for reviewing and providing recommendations on the General Plan. Final approval and adoption of the General Plan rests solely with the Hawai'i County Council.

# 1.4 Sustainability Principles and Practices

Integrating sustainability into the General Plan is crucial for fostering long-term resilience and prosperity. There is a common need to improve the planning process across the State of Hawai‘i. This includes increasing the effectiveness of government and private actions, improving coordination among various agencies and levels of government, and providing guidance for the use of our precious natural and cultural resources. for sustainable development that balances environmental, social, and economic goals. The General Plan recognizes this need and aligns with the Hawai‘i 2050 Sustainability Plan[1], which sets a strategic framework for achieving a sustainable future. By embedding sustainability principles into its core, this Plan sets forth a cohesive and forward-thinking strategy that addresses key challenges and anticipates future needs.




The Hawai‘i 2050 Sustainability Plan created the State’s first definition of sustainability:

A Hawai‘i that achieves the following:

1. Respects the culture, character, beauty, and history of our state’s island communities;
2. Strikes balance among economic, social and community, and environmental priorities; and
3. Meets the needs of the present without compromising the ability of future generations to meet their own needs.

This definition was intended to form the basis of Hawai‘i’s sustainability efforts towards 2050 and establish a common language about sustainability Hawai‘i’s future.

[1] OPSD, Hawai‘i 2050 Sustainability Plan Ten Year Measurement Update (2018) https://planning.hawaii.gov/sustainability/hawaii2050/

# 1.5 County Planning System and General Plan Framework

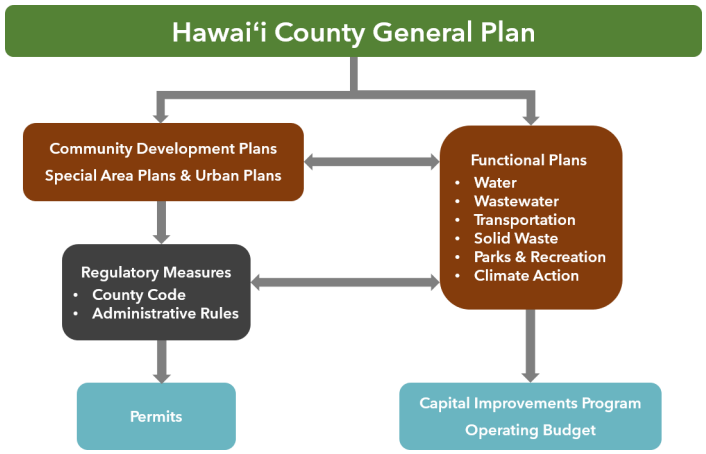
## County Planning System

The planning system, as illustrated in Figure 3, consists of a comprehensive County-wide General Plan, and includes Community Development Plans, Special Area Plans and Urban Development Plans, and Agency Functional or Strategic Plans as implementation mechanisms that carry out the goals, objectives, policies or standards, and actions of the General Plan. The General Plan represents the first level of the County planning system and encompasses long-range goals, objectives, policies, and courses of action for the entire County. The General Plan also provides the legal basis for all the other elements of the County's planning structure. As such, the Plan is the highest order, or "umbrella" plan. It establishes the boundaries within which the County must operate.

The second level consists of short and middle range plans that further define the long-range goals and policies of the General Plan. These plans are related to specific regions or districts (Hilo, Kona, Kohala, Kaʻū, etc.), functions (recreation, agriculture, drainage, highways, etc.), and specific areas within a region (Kailua-Kona, Downtown Hilo, etc.).

The third level consists of specific mechanisms to implement the two higher levels of the planning hierarchy. These include regulatory measures such as the Zoning and Subdivision Codes, and the operating and Capital Improvements Program (CIP) budgets.

Figure 3 County Planning System




## Directional Vision, Goals, Objectives, and Standard Guidelines

The General Plan vision statement, goals, and objectives provide a high-level integrated direction for the community and a holistic perspective. The Plan also incorporates standard guidelines to serve as strategic directions and standards to inform decisions regarding topics such as land use, infrastructure, housing, and resource management. These standard guidelines help to ensure consistency in planning and implementation, promoting sustainable growth, environmental stewardship, and community well-being.

- **Vision**: The ability to plan for the future with creativity and wisdom in alignment with community values.
- **Goal**: A desired state of affairs to which planned effort is directed.
- **Objective**: Measurable, achievable, and time-bound milestones toward achieving a goal.
- **Standard Guideline**: A stated course of action that shall take precedence when addressing areas of concern and should be

followed, unless a determination is made that it is not the most desirable in a particular case; thus, a guideline may be deviated from without penalty or sanction.[2]

## Regulatory Implementing Actions

Regulatory implementing actions are one of two types of approaches used in the General Plan to pursue the vision, goals, and objectives. Regulatory actions are controlling in that they define boundaries, development parameters, and measures intended to implement goals or objectives. The three regulatory implementing actions in the Plan include:

- **General Plan Land Use Map**: A map that graphically delineates the areas of intended future land use types.
- **Policy**: A general rule for action focused on a specific issue, derived from more general goals.[3]
- **Standard**: A regulatory measure that defines the meaning, quality, or quantity of a policy by providing a way to measure its attainment.

In the General Plan, future land use maps, policies, and standards are specific to the actions through which zoning ordinances, subdivisions, and public improvements or projects are initiated or adopted because, as they must conform to and implement the general plan in accordance with the County Charter, Section 3-15.

## Non-Regulatory Implementing Actions

The second approach of implementing actions is not regulatory or controlling and requires subsequent decisions and/or the allocation of resources. The following types of actions are intended to support and advance the goals and objectives of the plan without the enforcement power of laws or regulations. Non-regulatory implementing actions typically involve community engagement, education and outreach, partnership development, and resource allocation to encourage compliance and proactive efforts. This approach allows for flexibility and innovation in achieving the Plan's vision.

Throughout the General Plan, the objectives and policies are followed by a set of implementing actions. There are three types:

- **Program**: An action, activity, or strategy carried out in response to adopted policy to achieve a specific goal or objective.[4]
- **Project**: An enterprise that is carefully planned and designed to achieve a particular purpose.
- **Interagency Coordination:** A program or project that requires collaboration among organizations, including those external to the County.

[2] HRS, Section 226-2

[3] American Planning Association, A Planners Dictionary (2004)

[4] American Planning Association, A Planners Dictionary (2004)

# 1.6 Grounded Vision and Goals

As we navigate our future, maintaining a sustainable balance between environmental stewardship, social equity, and economic sufficiency is paramount. The values articulated by our community in the adopted Community Development Plans (CDP) are synthesized to form a singular vision statement for Hawai‘i Island. This vision statement represents the ability to plan for the future in alignment with community values.

The goals of the General Plan were formulated by incorporating concepts and value statements from the 2005 General Plan and the various CDPs. These foundational documents provided a comprehensive understanding of the community's priorities and aspirations. By integrating those established values and principles, the General Plan ensures continuity and reflects the collective vision of Hawai‘i Island residents, guiding sustainable development while honoring our unique cultural and environmental heritage. These goals are listed alongside the chapter they pertain to. The four primary chapters of the Plan encompass the sustainability pillars of environment, community, and economy, as outlined in the Hawai‘i State Planning Act Goals (HRS, Section 226-4).

**General Plan Vision Statement**

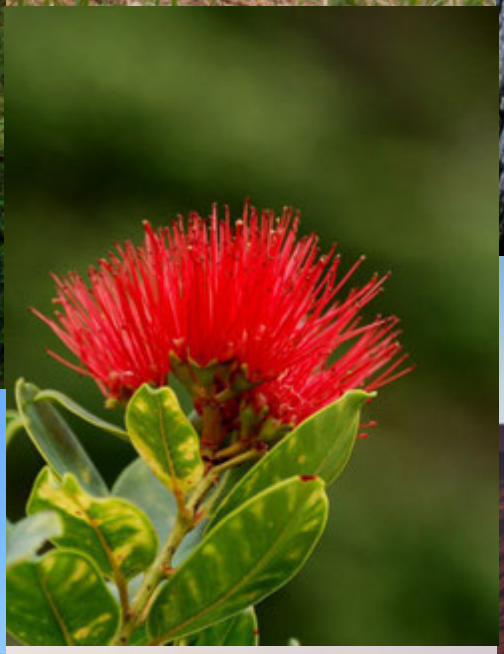
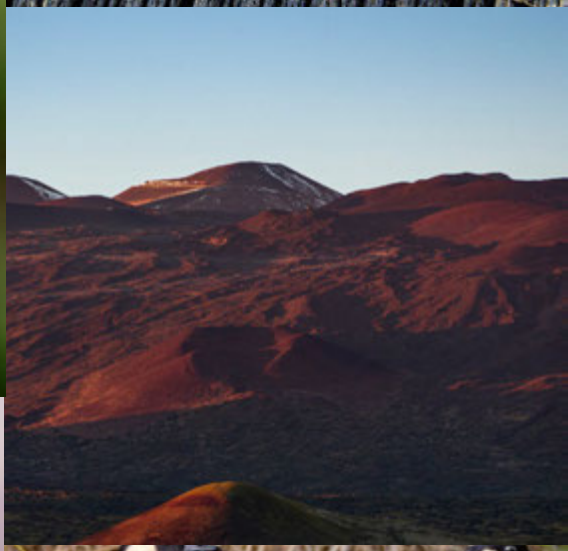
Hawai‘i Island is an exemplary leader with healthy and resilient communities that are built by sustainable development, a thriving and diversified local economy, and collaborative biocultural stewardship.

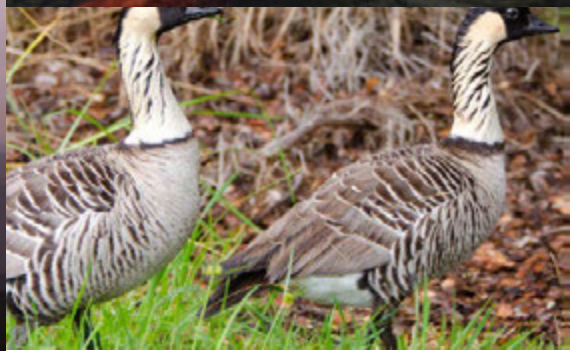
| General Plan Chapter | Goal |
|---|---|
| **Collaborative Biocultural Stewardship** | Natural and cultural resources are thriving and sustainably managed, preserved, and restored to maintain our unique and diverse environment. |
| **Addressing Climate Change for Island-Wide Health** | Ensure a just transition to a climate resilient island by addressing the causes and impacts of climate change through incorporating equitable climate mitigation and adaptation priorities into policies, programs, infrastructure, and decision-making. |
| **Sustainable Development & Resilient Communities** | We strategically apply progressive land use strategies incorporating indigenous and contemporary knowledge and place-based practices to direct and manage growth for the health, safety, and emergency response and preparedness services for our communities.<br><br>Each community is connected by a multimodal and modernized transportation network that provides a system for safe, efficient, and comfortable movement of people and goods. |

| | |
|---|---|
| | Our communities are adequately served by sustainable and efficient public infrastructure, utilities, and services based on existing and future growth needs, sound design principles, and effective maintenance practices.<br><br>Our communities are safe and protected, and have access to integrative health, education, and social services to support a high quality of life for all residents.<br><br>Residents have access to adequate and affordable housing to meet the needs of the population and provide equitable opportunities for household flexibility and mobility.<br><br>We employ integrated systems that are efficient, equitable, and organized to facilitate coordination and collaboration. |
| **Thriving, Diversified, & Regenerative Economy** | Our economy is diverse, regenerative, and innovative, improving and maintaining the financial well-being of our residents with a focus on increasing local economic opportunities.<br><br>Agriculture is a robust, diversified sector that addresses food security and includes a broad range of agricultural-based businesses that highlight value.<br><br>A high quality of life for residents is maintained when a regenerative visitor industry balances the preservation of natural and cultural resources with responsible visitation. |

# 2. COLLABORATIVE BIOCULTURAL STEWARDSHIP



# 2.1 Introduction

Collaborative biocultural stewardship is an approach to sustainable development that emphasizes collaboration and partnership building among stakeholders and integrates natural and cultural resource management strategies to promote conservation, sustainability, and resilience. This framework is foundational to the General Plan as it seeks to balance economic, social, and environmental goals. Cooperative efforts aimed at achieving sustainable management of ecological systems are crucial for protecting our natural and built environments. Land use planning and management should be holistic, inclusive, and adaptive to reflect community values, knowledge, and aspirations. The General Plan provides key strategies to achieve biocultural stewardship, including community engagement, partnership building, collaborative decision-making, and collective action.

Environmental and social systems are complex and dynamic. These systems will require adaptive management and continuous learning as we navigate the future. The policies presented in this section seek to foster partnerships that are based on mutual respect, trust, and shared values. The community engagement process must be inclusive to incorporate diverse perspectives and knowledge systems into conservation and development strategies. Following such practices can promote the co-creation of knowledge, the sharing of resources, and the empowerment of communities. By leveraging the strengths and resources of different stakeholders, we can enhance the capacity of communities to manage natural and cultural resources sustainably. We can also facilitate the creation of new networks and alliances, promoting social cohesion and resilience. Ultimately, the collaborative biocultural stewardship approach can foster a more integrated, inclusive, and equitable approach to conservation and development that reflects the aspirations and needs of local communities.

> According to the Hawai‘i County Charter, Section 13-29, “For the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawai‘i’s natural beauty and all natural resources, including land, water, air, minerals and energy sources, and shall promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the State.
> All public natural resources are held in trust by the State for the benefit of the people.”

This fundamental element of the Plan strives to cultivate a sense of place and connection to the environment and recognizes that the management of natural and cultural resources requires the participation of diverse actors, including communities, governments, non-governmental organizations, and private sector entities. By promoting collaborative decision-making and collective action, we can enhance the effectiveness, equity, and legitimacy of conservation and development policies. By promoting community-based conservation and restoration strategies, we can enhance ecological integrity, promote biodiversity, and preserve cultural heritage and scenic landscapes. Biocultural stewardship acknowledges the role of cultural diversity in shaping environmental perceptions, attitudes, and behaviors. It recognizes that cultural practices arising from traditional ecological knowledge are integral to maintaining ecosystem services and biological diversity.

## Table 1: Biocultural Stewardship Challenges

| | |
|---|---|
| **Native Habitat** | • Hawai‘i has been known as the extinction capital of the world.<br>• Climate change and sea level rise pose threats to existing habitats for native flora and fauna.<br>• Longer and/or more severe weather and climate change may increase the likelihood of wildfires.<br>• Invasive species continue to pose a threat to native and endemic species as well economic, environmental, and human health.<br>• The carrying capacity of our resources is not comprehensively modeled and monitored.<br>• The County lacks specific regulations for wetlands, riparian ecosystems, or other valuable habitats. |
| **Watersheds** | • Sea level rise has and will continue to impact freshwater resources through saltwater infiltration.<br>• The island’s coastal waters are affected by an increase in pollution, such as marine debris and plastics, as well as effluents, pollutants, and toxins from nearshore sources such as cesspools, septic systems, and injection wells.<br>• There is a lack of water quality monitoring on the island.<br>• Green infrastructure planning has not been institutionalized.<br>• Watershed protection and management require collaboration and coordination across all levels of government and must include effective community engagement. |
| **Stewardship** | • The County has a limited budget for its large-scale geographic responsibility for the protection of public trust natural and cultural resources.<br>• Hawai‘i Island has a large variation of unique biomes and ecosystems.<br>• The difference between traditional and modern practices along with varying mauka to makai ownership makes it difficult to comprehensively steward natural resources. |
| **Cultural & Historic Assets** | • The County’s role and involvement in cultural and historic resources can be difficult to discern.<br>• Miscommunication between different stakeholder groups can lead to conflict over community values.<br>• Restoration and reformation of cultural and historic resources are complex and incentives for remediation and conservation are limited.<br>• There is a lack of cultural understanding and ‘āina-based identity (e.g., place names) across the general population.<br>• Identification of cultural and historic resources rarely occurs unless triggered by a development permitting application, making it difficult to plan comprehensively. |
| **Scenic Character** | • The County has not developed a scenic resources protection program, including view impact procedures, criteria, and standards.<br>• The uncontrollable growth of and inability to eradicate invasive species (e.g., Albizia) obstruct viewsheds or can change the character of a scenic resource. |

## Table 2: Biocultural Stewardship Opportunities

| | |
|---|---|
| **Native Habitat** | • The County can collaborate with the State Office of Planning and Sustainable Development to create models for monitoring the carrying capacity of natural resources.<br>• Ongoing conservation work can continue to evolve from species-specific conservation (e.g., Albizia eradication) to focus on ecosystem restoration across multiple land ownership to protect Hawai‘i’s biodiversity.<br>• Maintaining healthy, native-dominant forests offers immense savings of biocultural and water resources that might otherwise be lost to the impacts of climate change and invasive species.<br>• Conservation lands hold significant value in the water resources they represent.<br>• Incentivizing and developing regenerative land uses, such as agroforestry, can provide sustainable opportunities to ecosystems and communities.<br>• Hawai‘i can become a statewide adaptation and resiliency leader by focusing on its unique strengths and diversity to evolve with changing realities.<br>• Urban forestry can be prioritized or incentivized in the County Code. |
| **Watersheds** | • Establish more place-based watershed partnerships to create unique management plans that incorporate the generational knowledge of those water systems and protect our island’s watersheds.<br>• Strengthen the integration of Hawaiian biocultural resource management and traditional ecological knowledge across County government.<br>• Practice an integrated approach to ecosystem-based collaborative management that considers the entire ecosystem.<br>• Watershed protection and management require collaboration and coordination across all levels of government and must include effective community engagement. |
| **Stewardship** | • Hawai‘i Island has a large variation of its unique natural biomes and ecosystems.<br>• Ongoing interagency coordination, including consultation with place-based land stewards, cultural and historical advisory groups, and other stakeholders.<br>• The County can take a more proactive role in exercising its protective public trust role for natural and cultural resources.<br>• Maintain and increase involvement with existing partnerships and identify new partners that help promote and enhance biocultural stewardship.<br>• Collaborate to complete additional EPA-approved watershed plans to increase eligibility for future conservation funding. |
| **Cultural & Historic Assets** | • Preservation of historic properties can enhance the educational, cultural, economic and general welfare of the island.<br>• Community Development Plans (CDP) can uplift community values and heritage character.<br>• Consult with place-based culture and history advisory groups as well as other organizations that continue to elevate, protect, and maintain community values, heritage, culture, and history. |
| **Scenic Character** | • The County has a strong policy foundation for scenic resources.<br>• Scenic resources include historic buildings that contribute to community character and preserve the history of the area.<br>• The scenic resources inventory and mapping project can be further developed into a program. |

# 2.2 Biocultural Stewardship Goal, Objectives, Policies, and Actions

Goal: Natural and cultural resources are thriving and sustainably managed, preserved, and restored to maintain our unique and diverse environment.

## Objective 1

***Increase the biodiversity and resilience of native habitats.***

### Policies

1.1 Minimize and mitigate significant impacts, such as degradation, incompatible uses, or other threats, to Native Hawaiian habitats and public trust resources.

1.2 Strive to improve the health of the island's forests, rangelands, watersheds, nearshore environments, riparian areas, and reefs.

1.3 Encourage the preservation and restoration of natural landscape features, such as reefs, beaches and dunes, forests, rangelands, streams, floodplains, wetlands, and aquifer recharge areas that have the inherent capacity to prevent, minimize, or mitigate the impacts of climate change.

1.4 Maintain the shoreline for recreational, cultural, educational, and/or scientific uses in a manner that is protective and respectful of resources and is of the maximum benefit to the general public.

1.5 Increase collaborative efforts to improve coordination to conserve and manage wetlands, streams, and watersheds.

1.6 Encourage the preservation of native vegetation and open space during development activities.

1.7 Improve the use of native or non-native plants of cultural or environmental importance.

1.8 Prioritize native landscaping for all County projects.

1.9 Limit the introduction and establishment of invasive species.

1.10 Maintain a program to identify and protect exceptional trees, groves, or stands of trees.

1.11 Encourage and incentivize green belts, tree plantings, and landscape plans and designs in urban areas.

1.12 Increase collaborative efforts to create and maintain community forests, food forests, silvopasture, and other agroforestry.

1.13 Incentivize private land management practices that protect and enhance natural resource values and, when appropriate, pursue the acquisition of lands for the protection of natural resources.

1.14 Partner with government, private and nonprofit agencies, communities, and other stakeholders to:

a) Implement the Hawai‘i State Wildlife Action Plan (SWAP)

b) Better understand and model carrying capacities of the island’s habitats and resources

c) Improve the inventory of forested lands and associated ecosystem services

d) Encourage the continued identification and inclusion of unique wildlife habitat areas of Native Hawaiian habitat within the Natural Area Reserve System

e) Anticipate future habitat migration, especially wetlands and coastal ecosystems

f) Prioritize quantitative wetland assessment to identify wetlands

g) Expand native and/or endemic forest cover

h) Improve enforcement for illegal activities that harm or degrade endemic habitats

1.15 Any development will not adversely impact the following resource asset(s):

a) Rivers, streams, springs, and other naturally flowing surface water bodies

b) Anchialine pools and estuaries

c) Shoreline setback areas, beaches, and dunes

1.16 Maintain shoreline setbacks to protect:

a) Natural shoreline vegetation;

b) Marine turtle nesting beaches/areas;

c) Nearshore water quality;

d) Structures from the effects of long-term sea level rise; and

e) Beaches and shorelines from erosion.

1.17 Allow the redevelopment of existing waterfront commercial structures consistent with the community character to preserve overwater views.

1.18 Landscaping and irrigation shall be designed to maximize water use efficiency and native plants.

## Actions

1.a Develop buffer policies to protect native forests, wildlife, rivers, streams, coastal waters, and other native habitats.

1.b Seek partnership opportunities to support wetland identification and assessments.

1.c Review tree survey requirements and amend the Code to incorporate as part of site planning.

1.d Consider the establishment of clearing limits within the Code and increase tree removal mitigation requirements, limiting the clearing of native vegetation during development.

1.e Revise floodplain management requirements to require consideration of nature-based solutions as alternatives for all projects that have the potential to affect floodplains or wetlands.

1.f Develop a regulatory list of invasive species for Hawai‘i County.

1.g Develop priorities for the management of fire-prone invasive species.

1.h Amend the Code to include an appropriate list of invasive species to be removed during development activities, to the extent feasible.

1.i Support programs designed to prevent the introduction and establishment of invasive species and the control and eradication of invasive species; particularly those that serve as disease vectors.

1.j Create incentives for landowners to retain and re-establish forest cover in upland watershed areas with an emphasis on native forest species.

1.k Identify partners and support a public awareness and education campaign to elevate recognition of the value of urban trees as essential infrastructure.

1.l Amend the landscape standards in Rule or Code to require the use of native plants for screening or landscaping.

1.m Amend the Code to incentivize the establishment of threatened and endangered endemic plant species within their habitable ranges during development approvals.

1.n Review the Code and consider amendments to encourage site clustering of development in order to avoid critical environmental areas and assets.

1.o Develop and establish Open Space Network Overlay for natural landscape features, such as beaches and dunes, forests, streams, floodplains, wetlands, estuaries, or recharge areas that have the inherent capacity to avoid, minimize, or mitigate the impacts of climate change.

1.p Study, develop, and establish Biosphere Reserve Buffer Zones, either separately or as an overlay district, to guide development within native forests through regulatory measures and economic incentives.

1.q Maintain a program for acquiring and/or restoring wetlands, estuaries, and anchialine pools.

1.r Develop comprehensive programs and policies and provide resources for enhancing urban forestry canopy cover.

1.s Improve urban and community forest management, maintenance, and arboricultural practices.

1.t Increase funding and grants for urban and community forestry.

1.u Support programs to prevent harmful invasive species from becoming established.

1.v Partner with government, private and nonprofit agencies, communities, and other stakeholders to develop a program for the identification and protection of plant species of special status, including plants significant for cultural practitioners.

1.w Support seedbanks of native and endemic plant species, especially species that are threatened or endangered.

1.x Partner with community groups to apply for funding to restore native habitats including marine, wetland, shoreline, and native upland systems on County-owned or managed lands.

1.y Prioritize removal of invasive species during maintenance of County-owned or maintained properties.

1.z Assess and prioritize County-owned areas for restoration in collaboration with government, private and nonprofit agencies, communities, and other stakeholders.

1.aa Review and update the exceptional tree code and inventory to support the protection of native species and habitats.

## Objective 2

***Apply the Native Hawaiian ahupuaʻa framework to preserve and enhance the health and function of watersheds to promote water recharge, improve water quality, and reduce runoff.***

### Policies

2.1 Engage in comprehensive watershed planning to protect all watersheds and identify priority watershed areas to develop or complete watershed management plans and projects.

2.2 Address water best management practices and implement plans for non-point source discharges, such as irrigation flows and agricultural or urban runoff.

2.3 Prioritize forest and land management above 2,500 to 3,000 feet elevation to ensure effective groundwater recharge.

2.4 Within mauka areas of high rainfall/fog-drip belt, ground disturbing activities such as excessive soil compaction and excessive removal of vegetative cover should be minimized and mitigated consistent with management strategies that encourage the retention of existing forested and pasture areas, reforestation, minimal coverage by impervious surfaces and other strategies that encourage effective infiltration to groundwater.

2.5 Watershed management planning should recognize the ecosystem service value of watersheds and open space to protect scenic vistas and aesthetic values; water recharge; carbon sequestration; oxygen production; habitat enhancement and preservation; fire suppression and fuel load management; soil conservation; preservation of cultural values; and the potential for additional public access and recreational opportunities.

2.6 Maintain participation in the development and implementation of the Ocean Resources Management Plan (ORMP), marine zoning plans, Marine Managed Areas (MMAs), or other appropriate tools.

2.7 Partner with government, private and nonprofit agencies, communities, and other stakeholders to:

a) Implement a comprehensive conservation plan that identifies priority watershed areas for habitat restoration and enhancement.

b) Review and designate forest, river corridors, and watershed areas into the conservation district during State land use boundary comprehensive reviews.

c) Monitor nearshore water quality and impacts to reefs and marine environments and address land-based sources of impacts.

d) Protect and restore wetlands and riparian corridors to ensure more pristine water quality, decrease erosion, and increase sediment management, groundwater infiltration, nutrient/pollutant uptake, soil moisture retention, stormwater abatement, and cultural/community connections.

e) Develop reasonable standards to improve stream and coastal water quality monitoring and encourage local communities to develop such projects.

### Actions

2.a Review and update the County grading and grubbing ordinances to ensure that they adequately address potential erosion and runoff problems.

2.b Adopt appropriate measures and provide incentives to control point and non-point sources of pollution.

2.c Identify and establish appropriate riparian buffer protection areas around streams, ponds, perennial flowing natural springs, and all springs and reservoirs serving as water supplies.

2.d Support research to identify and refine priority watershed areas meant to enhance groundwater recharge and improve surface water quantity and flows.

2.e Identify and establish appropriate wetland protection areas and regulations to mitigate impacts of development.

2.f Partner with and support land managers to improve infrastructure and grazing management practices for cattle and other livestock to promote soil and groundwater retention and mitigate fire risk.

2.g Amend the Special Management Area (SMA) to include wetlands, riparian areas, and adjacent buffer areas.

2.h Build community capacity and agency support for Community Conservation Areas (CCAs) as part of stewardship-based efforts.




## Objective 3

***Increase direct community restoration and collaborative efforts to conserve and nourish the island's biocultural resources.***

### Policies

3.1 Encourage an overall conservation ethic in the use of Hawai'i's resources by protecting, preserving, and conserving critical and significant natural resources.

3.2 Foster educational activities that promote the importance and value of Hawai'i's unique and limited environmental resources.

3.3 Integrate progressive strategies incorporating indigenous and contemporary knowledge and practices to maintain environmental quality at the highest standards, address a changing climate, protect natural resources, and restore ecosystem health for the benefit of present and future generations.

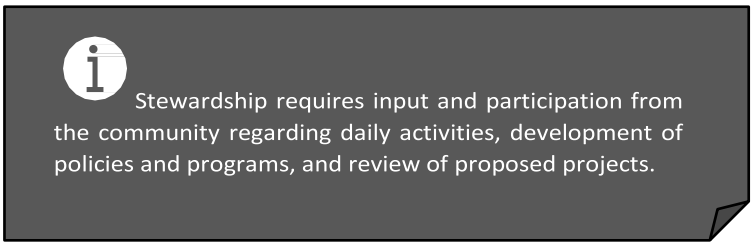
3.4 Promote and protect traditional exercised rights and customs of Native Hawaiians.

3.5 Promote resource management that is sustainable, responsible, and data driven.

3.6 Require the management of natural resources in a manner that fully minimizes adverse effects on the environment and depletion of energy and natural resources.

3.7 Ensure that activities authorized or funded by the County do not damage natural resources.

3.8 Increase community-based stewardship that focuses on management responsibilities and promote community education and shared learning.




3.9 Improve community planning capacity-building efforts toward coordination, leadership, effective action, connectivity, and impact.

3.10 Contribute to programs for the collection and dissemination of data concerning natural or cultural resources.

3.11 Partner with government, private and nonprofit agencies, communities, and other stakeholders to:

a) Protect special areas, structures, and elements that are an integral and functional part of Hawai‘i’s ethnic and cultural heritage.

b) Identify and protect wahi pana.

c) Promote the preservation and restoration of significant natural and historic resources.

d) Aid in programmatic education concerning historic sites.

e) Maintain the shoreline area for recreational, cultural, educational, and/or scientific uses in a manner that is protective of resources and is of the maximum benefit to the public.

f) Encourage the documentation and preservation of traditional ecological knowledge, identifying best management practices for integration.

### Actions

3.a Contribute on a regular basis to state or federal Geographic Information System (GIS) data stores and other programs for the collection and dissemination of basic data concerning natural, historic, or cultural resources.

3.b Create special (business) improvement districts to engage in environmental research, restoration and maintenance, natural resource management, climate change or sea level rise adaptation, or other purposes to improve environmental conditions and provide community benefit.

## Objective 4

***The historical integrity, character, scenic assets, and open spaces of our communities are protected, restored, and treated as unique assets with significant social and economic value and managed in perpetuity.***

## Policies

4.1 Require public and private developers to provide historical and archaeological surveys and cultural assessments, where appropriate, prior to the clearing or development of land when there are indications that the land under consideration has historical significance.

4.2 Increase public access opportunities to scenic places and vistas.

4.3 Public access to significant historic sites and objects shall be determined on a case-by-case basis in consultation with lineal descendants, those with kuleana to that site or object, or other local sources such as cultural or historic groups.

4.4 Encourage the restoration of significant sites on a case-by-case basis in consultation with lineal descendants, those with kuleana to that site or object, or other local sources such as cultural or historic groups.

4.5 The County shall use and promote the use of interpretive signs and/or other appropriate methods that are in keeping with the character of the area to recognize landscapes, sites, buildings, and objects of historic and cultural significance.

4.6 Historic preservation shall represent the full range and diversity of the multi-cultural heritage of Hawaiʻi Island.

4.7 Maintain an inventory of significant cultural and historic sites and districts compatible with that of the State Historic Preservation Division (SHPD).

4.8 Ensure that projects requiring preservation plans are identified on subdivision maps and plan approval site plans.

4.9 The County shall develop a comprehensive management plan for historic and cultural resources that are on County-owned or managed properties.

4.10 Maintain the character of County-owned historic structures and bridges, as appropriate.

4.11 Identify outstanding natural or cultural features, such as water courses, fine groves of trees, heiau, and historical sites and structures on subdivision preliminary plat maps.

4.12 Original place names should be restored wherever possible.

## Actions

4.a Seek private-public partnerships to maintain and steward the preservation of sites, buildings, objects, and landscapes of significant cultural and historical importance.

4.b Maintain Certified Local Government status and maximize funding opportunities.

4.c Support the identification of Heritage Landscapes, Corridors, Areas, and Centers.

4.d Support the development of multi-cultural centers.

4.e Support historic district surveys for our urban centers.

4.f Work with SHPD to establish a framework and database for Cultural Impact Assessments.

4.g Continue the dialogue between State and County agencies to identify guidance to protect Native Hawaiian customary and traditional practices.

4.h Partner with government, private and nonprofit agencies, communities, and other stakeholders to develop design guidelines for designated communities containing significant historic buildings, sites, or landscapes.

4.i Assess and prioritize County-owned lands for historic site restoration in collaboration with government, private and nonprofit agencies, communities, and other stakeholders.

4.j Create and maintain a GIS overlay of historic districts.

4.k Educate and encourage property owners, historical societies, preservation organizations, lineal descendants and others with close connections to nominate structures and sites to the State and National Register of Historic Places. Encourage collaboration among interested entities.

4.l Support property owners with the preservation of historic structures that are on the State and National Register of Historic Places.

4.m Provide real property tax incentives for historic properties, including commercial properties.

4.n Support the development of a multi-sector public education program regarding historic and cultural sites that target key partners such as the visitor industry, real estate agents, site developers, consultants, schools, youth groups, and civic organizations.

## Objective 5

***Protect, restore, and enhance our communities' unique scenic character.***

### Policies

5.1 Consider structural setbacks from major thoroughfares and highways and establish development and design guidelines to protect important view planes.

5.2 Preserve transportation corridors that have important scenic, historic, recreational, natural and/or cultural resources that enhance the character and scenic resources of communities.

5.3 Protect the views of areas endowed with natural beauty by carefully considering the effects of proposed construction and compatibility during all land use reviews.

5.4 Encourage the design of developments and activities that complement the natural beauty of the island.

5.5 Maintain a program to identify and protect viewing sites on the island.

5.6 Preserve and protect culturally significant lava tubes, caves, or other geologic features determined to be significant by a governmental agency or plan.

### Actions

5.a Prioritize maintaining the views at scenic overlooks with a frequently maintained vegetation management program which includes eradication of invasive species. Coordinate this work with a regular roadway vegetation management maintenance program.

5.b Develop and establish view plane criteria, rankings, and regulations to preserve and enhance views of scenic or prominent landscapes and/or corridors from specific locations and coastal aesthetics.

5.c Develop a process for reviewing and revising guidelines for designating Natural Beauty Sites.

5.d Establish a Scenic Resources Protection Program to identify, inventory, and protect areas of significant beauty. The program could include recommendations from the Scenic Resources Inventory and Mapping Project (2016).

5.e Utilize the Scenic Corridor Program for Aliʻi Drive (Mamalahoa Bypass Highway) between Keauhou and Captain Cook, with limited access and without commercial development.

5.f Utilize the Scenic Corridor Program for Akoni Pule Highway between Kawaihae and Puakea, with limited access and without commercial development.

# 2.3 Natural Beauty Sites

## Table 3: District of Puna

| Site | Tax Map Key | Ahupuaʻa or Region |
|---|---|---|
| Viewplane from Pāhoa-Kalapana Highway looking makai | 1-2-004,006, 007, 009 | |
| Kehena Black Sand Beach | 1-2-009:021 | Kehena |
| Viewpoint-Shoreline | 1-2-009:022 | Kekeekee |
| 1955 Lava Flow (Iilewa Cone) | 1-2-010:001 | Kamaili |
| Ironwood Groves along Kapoho-Kalapana Road | 1-3-003:005; 1-3-007:006, 026 | Kauaea; Malama-Ki |
| Viewpoint-Shoreline | 1-3-004:071 | Opihikao |
| MacKenzie Park | 1-3-007:026 | Malama-Ki |
| Mango Grove along Pohoiki Road | 1-3-008:004, 005 | Pohoiki |
| Keahialaka Spring & Pond | 1-3-008:015 | Keahialaka |
| Shoreline | 1-3-008:015 | Keahialaka |
| Viewpoint (Puʻu Kukae) | 1-4-002:002 | Kapoho |
| Kapela Bay (Black Sand Beach) | 1-4-003:013 | Kahuwai |
| Viewpoint-Shoreline (Hilo & Puna) | 1-4-003:013 | Kahuwai |
| Viewpoint & Tidal pool (Makaukiu Pt.) | 1-4-003:013 | Kahuwai |
| Ironwood Grove at Nanawale Park | 1-4-003:018 | Nanawale |
| Viewpoint-Shoreline (Honolulu Landing) | 1-4-003:019 | Honolulu |
| Mango Grove along Kapoho-Honolulu Landing Road | 1-4-003, 004 | Kahuwai & Halepuaa |
| Viewpoint-Shoreline | 1-5-063:001 to 004 | Waiakahuila |
| Cove with Stone Beach | 1-6-001:025 | Keaʻau |
| Royal Palms fronting Keaʻau Intermediate School | 1-6-002 | Keaʻau |
| View of Mauna Kea & Mauna Loa from Pāhoa-Keaʻau, Volcano-Keaʻau Roads, & various Puna subdivisions | Various | Various |
| Puʻu ʻŌʻō Lava Flow Region | Various | Various |
| Ahuʻailāʻau (Fissure 8) | Various | Various |

## Table 4: District of South Hilo

| Site | Tax Map Key | Ahupuaʻa or Region |
|---|---|---|
| Banyan Drive Scenic Area | 2-1-001, 003, 005 | Waiākea |
| Liliʻuokalani Gardens | 2-1-003:002 | Waiākea |
| Viewpoint of Hilo Bay area with Mauna Kea in Background | 2-1-003:002 | Waiākea |
| Viewpoint of Hilo Bay with Mauna Kea in Background | 2-1-003:017 | Waiākea |

| | | |
|---|---|---|
| Coconut Isle (Mokuola) | 2-1-003:019 | Waiākea |
| Reeds Bay (Shoreline) | 2-1-005:001 | Waiākea |
| Ice Pond | 2-1-006:010 | Waiākea |
| Viewpoint-Shoreline (Leleiwi Point) | 2-1-011:005 | Waiākea |
| Lehia Park (undeveloped) | 2-1-013:005 | Waiākea |
| Viewpoint-Shoreline (Kēōkea Point) | 2-1-014:013 | Waiākea |
| Lihikai (Onekahakaha) Beach Park shoreline | 2-1-014:013 | Waiākea |
| Waiāhole Fish Pond | 2-1-015:001 | Waiākea |
| Haleolono Fish Pond | 2-1-015:042 | Waiākea |
| Leleiwi Park shoreline | 2-1-016 to 019 | Waiākea |
| Lokoaka Pond, Akahi Pond, & Kionakapahu Pond | 2-1-016:001 | Waiākea |
| Viewpoint-Shoreline (Waiuli Point) | 2-1-019:009 | Waiākea |
| Wailoa River Area:<br>• Hoakimau Fish Pond;<br>• Mohouli Fish Pond;<br>• Waiākea Fish Pond | 2-2-013:003;<br>2-2-029:027;<br>2-2-031:001 | Waiākea |
| Puʻu o Hālaʻi | 2-3-022 | Ponahawai |
| Rainbow Falls & Area (Wailuku River Park) | 2-3-027:001, 002 | Piʻihonua |
| Kaimukanaka Falls & Area | 2-3-027:003, 005 | Piʻihonua |
| Boiling Pots & Area | 2-3-029:012 | Piʻihonua |
| Viewpoint on hilltop looking over Hilo Bay | 2-3-037 | Ponahawai |
| Waiʻale Falls & Area | 2-5-009:004 | Piʻihonua |
| Peʻepeʻe Falls & Area | 2-5-010:001 | Piʻihonua |
| Viewpoint from lower Wailuku Bridge looking makai | 2-6-002 | Piʻihonua |
| Viewpoint from lower Wailuku Bridge looking mauka | 2-6-003 | Piʻihonua |
| ʻĀleʻAleʻa Point looking towards Hilo Bay | 2-6-015:001 | Wailua |
| Keakanini Falls | 2-6-018:004 | Piʻihonua |
| Hawaiʻi Falls | 2-6-018:004 | Piʻihonua |
| Honoliʻi Beach Area and Stream | 2-6-024:001 to 004 | Alae |
| Onomea Bay Area | 2-7-009:001, 002, 026;<br>2-7-010:001 | Kahalii-Onomea |
| Onomea Arch (fallen) | 2-7-010:001 | Onomea |
| ʻAkaka & Kahūnā Falls | 2-8-010:034 | Honomu |
| Kolekole Gulch | 2-8-015,<br>2-9-003 | Kuhua-Kaiwiki |
| Hakalau Bay/Gulch Area | 2-9-002,<br>3-1-001 | Hakalaunui-Kamae |

## Table 5: District of North Hilo

| Site | Tax Map Key | Ahupuaʻa or Region |
|---|---|---|
| Viewpoint of Umauma Gulch (makai from bridge) | 3-1-001:001, 024 | Wailua |
| Viewpoint of Falls in Umauma Gulch (mauka from bridge) | 3-1-001:023, 030 | Wailua |
| Nanue Gulch-Makai | 3-2-001:001, 008 | Nanue |
| Honohina Falls (Nanue Gulch and stream) | 3-2-001:011, 017 | Nanue |
| Maulua Gulch | 3-4-04:009, 011, 012 | Maulua Iki |
| Kaiwilahilahi Gulch | 3-5-003 | Kaiwilahilahi |
| Manawaiopae Gulch | 3-5-004 | Manawaiopae |
| Kihalani Gulch | 3-5-004 | Kihalani |
| Kuwaikahi Gulch | 3-5-004 | Kihalani |
| Kilau Gulch | 3-6-001 | Laupāhoehoe |
| Scenic Lookout-Laupāhoehoe Point | 3-6-001:009 | Alaea |
| Laupāhoehoe Gulch | 3-6-004 | Laupāhoehoe |
| Kaʻawaliʻi Gulch | 3-6-005;<br>3-9-001 | Waipunalei-Humuula |

## Table 6: District of Hāmākua

| Site | Tax Map Key | Ahupuaʻa or Region |
|---|---|---|
| Kalōpā State Park | 4-4-014:001 | Kalōpā |
| Mauna Kea State Park area | 4-4-016:003 | Kaʻohe |
| ʻĀhualoa Road | 4-5-010 | Kaao-Nienie |
| Nienie (Native forest) | 4-6-012:025 | Nienie |
| Viewpoint Lookout Waipiʻo Valley, Kukuihaele | 4-8-004:017 | Lalakea |
| Windward Valley System:<br>• Muliwai to Awini;<br>• Waimanu Valley Area;<br>• Waipiʻo Valley Area | 4-9-001 to 015 | Waipiʻo, Muliwai-Awini, Waimanu |
| Hiʻilawe Falls | 4-9-009 | Waipiʻo |

## Table 7: District of North Kohala

| Site | Tax Map Key | Ahupuaʻa or Region |
|---|---|---|
| Windward Valley System:<br>• Honokane Valley;<br>• Islands off Awini Valley;<br>• Pololū Valley | 5-1-001, 002 | Awini, Pololū |
| Viewpoint-Pololū Valley | 5-2-001:001 | Pololū |
| Akoakoa Point | 5-2-001:007 | Waiʻāpuka |
| Nanue Bay Area | 5-2-001:007, 008 | Waiʻāpuka |
| Kapanaia Bay Area | 5-2-001:014;<br>5-2-007 | Makapala, Aʻamakao |

| | | |
|---|---|---|
| Keokea Beach & Kalalae Point | 5-2-001:014 to 016 | Makapala |
| Kauhola Point | 5-3-007:001 | Kukuiwaluhia |
| ʻUpolu Point | 5-5-006:007 | Kokoiki-Upolu |
| Old Honoipu Landing | 5-6-002 | Puakea |
| Kapaʻa Park | 5-6-001:060 | Kapa'a |
| Māhukona Harbor and Park | 5-7-003:003, 004, 014 | Māhukona-Hihiu |
| Keawanui Bay Area | 5-8-001 | Kehena, Puanui |
| Kaiopae Point | 5-9-001:006 | Waiaka |
| Waiakailio Bay Area | 5-9-001:008 | Kahualiilii |
| Coastline view plane from ʻAkoni-Pule Highway | Various | Various |
| Coastline view plane from Kohala Mountain Road | Various | Various |

## Table 8: District of South Kohala

| Site | Tax Map Key | Ahupuaʻa or Region |
|---|---|---|
| Viewpoint (Puʻu Makela) | 6-2-001:025 | Kawaihae 2nd |
| Mauʻumae Bay/Beach | 6-2-002 | Kawaihae 2nd |
| Kaunaʻoa Bay/Beach | 6-2-002:004 | Ouli |
| Kaluhiikanu Beach | 6-2-002:006 | Kawaihae 2nd |
| ʻOhaiʻula Beach (Spencer Park) | 6-2-002:008 | Kawaihae 2nd |
| Upper Waipiʻo Lookout | 6-3-001:004 | Waipiʻo |
| View of Kohala Mountain | 6-5-001 | Waiauia |
| Na Puʻu (Waimea): Puʻu Laʻelaʻe; Hōkūʻula; Puʻuiki | 6-5-001 | Keoniki-Puuiki |
| Waimea Church Row and Surrounding Churches | 6-5-004:001 to 006, 008 | Waikōloa (Waimea) |
| Hāpuna Bay/Beach | 6-6-001:008 | Lālāmilo |
| Kaunaʻoa Point | 6-6-002:038 | Ouli |
| Waimea Nature Park (Ulu Laʻau) | 6-6-003:007 | Lālāmilo |
| Scenic countryside around Waikiʻi | 6-7-001:003 | Waikōloa |
| Makaiwa Bay and Pond, Keawanui | 6-8-022 | Kalahuipuaa |
| Pauoa Bay Area | 6-8-022 | Kalahuipuaa |
| Puakō Bay Area | 6-9-001:002; 6-9-002:007, 008 | Lālāmilo |
| ʻAnaehoʻomalu Bay Area | 6-9-001:013 | ʻAnaehoʻomalu |
| Wailea Bay Area | 6-9-002:002 | Lālāmilo |
| Viewplane along Queen Kaʻahumanu Highway looking mauka & makai | Various | Various |

## Table 9: District of North Kona

| Site | Tax Map Key | Ahupuaʻa or Region |
|---|---|---|

| | | |
|---|---|---|
| Puʻu Waʻawaʻa | 7-1-001:004 | Puʻuwaʻawaʻa |
| Kīholo Bay/Beach Area | 7-1-002:008 | Puʻuwaʻawaʻa |
| Keawaiki | 7-1-002:008;<br>7-1-003:002 | Puʻuwaʻawaʻa; Puʻuanahulu |
| Hualālai | 7-2-001;<br>7-8-001 | Kaʻūpūlehu |
| Kaʻūpūlehu | 7-2-003:001, 002 | Kaʻūpūlehu |
| Kua Bay Area | 7-2-004 | Maniniʻowali |
| Opae Ula Pond | 7-2-004:001 | Makalawena |
| Makalawena | 7-2-004:001 | Makalawena |
| Kahoiawa | 7-2-004:003, 004 | Awakeʻe |
| Kakapa Bay Area | 7-2-004:004 | Kukio 2nd |
| Kukio Bay/Beach Area | 7-2-004:005 | Kukio lst |
| Mahaiʻula Bay/Beach Area | 7-2-005:003 | Mahaiʻula |
| Kaloko Pond | 7-3-009:002 | Kaloko |
| Honokōhau Fish Pond | 7-4-008 | Kealakehe |
| Honokōhau coastline | 7-4-008:004, 003 | Honokōhau-Kealakehe |
| ʻAimakapā | 7-4-008:010 | Honokōhau |
| White Sand Beach | 7-4-008:010 | Honokōhau |
| White Sand Beach | 7-5-005:007 | Keahuolu |
| Viewplane from Kuakini Highway going mauka & makai | 7-7 and 7-8 | Hōlualoa-Keauhou |
| Viewplane from Kamehameha III Road going mauka & makai | 7-8-010 | Kahaluʻu-Keauhou |
| Keauhou | 7-8-012 | Keauhou 1 & 2 |
| Kahaluʻu Bay Area | 7-8-014 | Kahaluʻu 2 |
| Viewplane along Queen Kaʻahumanu Highway going mauka & makai | Various | Various |

## Table 10: District of South Kona

| **Site** | **Tax Map Key** | **Ahupuaʻa or Region** |
|---|---|---|
| Kealakekua Bay from Kaʻawaloa Road & Lower Government Road | 8-1-007:001;<br>8-1-010:001, 002;<br>8-1-011;<br>8-2-002, 004 | Keōpuka, Kaʻawaloa, Kealakekua |
| Viewpoint | 8-3-003 | Kahauloa (2) |
| Cove | 8-3-004:001 | Keʻei (1) |
| White Sand Beach | 8-3-004:004 | Keʻei (1) |
| Viewpoint (Palemanō Point) | 8-3-004:005 | Keʻei (1) |
| Hōnaunau Bay & Scenic View from Ke Ala O Keawe Road | 8-4-011, 012, 013 | Hōnaunau, Keokea |
| Kealia Beach | 8-5-005:001 | Kealia |
| Kiʻilae | 8-5-005:019 | Kiʻilae |

| | | |
|---|---|---|
| Hoʻokena—Kauhakō Bay Area | 8-6-013, 014 | Hoʻokena, Kauhakō |
| Miloliʻi area | 8-9-004 | Miloliʻi |
| Lava flows of 1950, 1926 and 1919 | Various | Various |

## Table 11: District of Kaʻū

| **Site** | **Tax Map Key** | **Ahupuaʻa or Region** |
|---|---|---|
| Manukā Bay | 9-1-001:003 | Manukā |
| Pōhue Bay | 9-2-001:001 | Kahuku |
| Volcano area including National Park | 9-2-001:004;<br>9-9-001 | Kahuku, Keauhou |
| South Point (Ka Lae) | 9-3-001:001-003,<br>007,009 | Pakini Iki, Kamaoa |
| Mahana Bay | 9-3-001:002 | Kamaoa |
| Waiakukini | 9-3-001:006 | Pakini-nui |
| Kaʻaluʻalu Bay | 9-4-001: 012, 014 | Kiolakaʻa |
| Honuʻapo | 9-5-014:001, 007 | Honuʻapo |
| Kāwā (Kawaʻa) Bay & Spring | 9-5-016:020;<br>9-5-017:007 | Kaalaiki, Hilea Nui |
| Nīnole Cove & Springs | 9-5-019:012 | Nīnole |
| Punaluʻu Black Sand Beach | 9-6-001 | Punaluʻu |
| Lava Flows of 1868, 1887, & 1907 | Various | Various |
| View of Mauna Loa from Volcano-Kaʻū Highway | Various | Various |
| Scenic view of shoreline between Pahala & Punaluʻu | Various | Various |
| Waiʻōhinu Park | Various | Various |
| Na Puʻu: Enuhe, Makanau, Kaiholena & One | Various | Various |

# 3. ADDRESSING CLIMATE CHANGE FOR ISLAND-WIDE HEALTH









# 3.1 Introduction

The climate change section of the General Plan is intended to be used as a policy guide for the coordinated climate mitigation and adaptation efforts on Hawai‘i Island. This element provides a high-level policy framework, building on the scientific knowledge and government-level strategies and actions developed in the Integrated Action Plan (ICAP) for the island of Hawai‘i. The ICAP establishes the County's strategic roadmap for implementing climate action by identifying actions the County government can take to mitigate and adapt to climate change. The research collected, challenges identified, and strategies proposed in the ICAP provide a foundation for the General Plan. Recognizing the purpose and scope of the ICAP, the General Plan contains overarching policies and implementing actions to help the County achieve the following climate action objectives, in alignment with existing State and County priorities.

Climate change refers to the long-term regional or global average of temperature, humidity, and rainfall patterns over seasons, years, or decades. Human-induced climate change is resulting in global warming, or the long-term average heating of the Earth's surface. The United Nations Intergovernmental Panel on Climate Change (IPCC) has concluded in its most recent report that human activities have unequivocally caused global warming.[1] Climate change is already impacting the lands and waters on which we live and the health of our communities. Island communities such as those on Hawai‘i Island are at the forefront of climate change due to impacts, such as sea level rise. Our small population and island geography mean that a single climate change event has cascading effects that significantly impact the health of the land and people.

**Climate Change Adaptation Priority Guidelines**

In 2012, Act 286 was passed and signed into law, making Hawai‘i one of the few states in the country to adopt a statewide climate adaptation policy for addressing the impacts of climate change. Act 286 is codified as HRS, Section 226-109. As an amendment to the Hawai‘i State Planning Act, all county and state actions must consider the policy in land use, capital improvements, and program decisions.

## 3.1.1 The Impacts of Climate Change

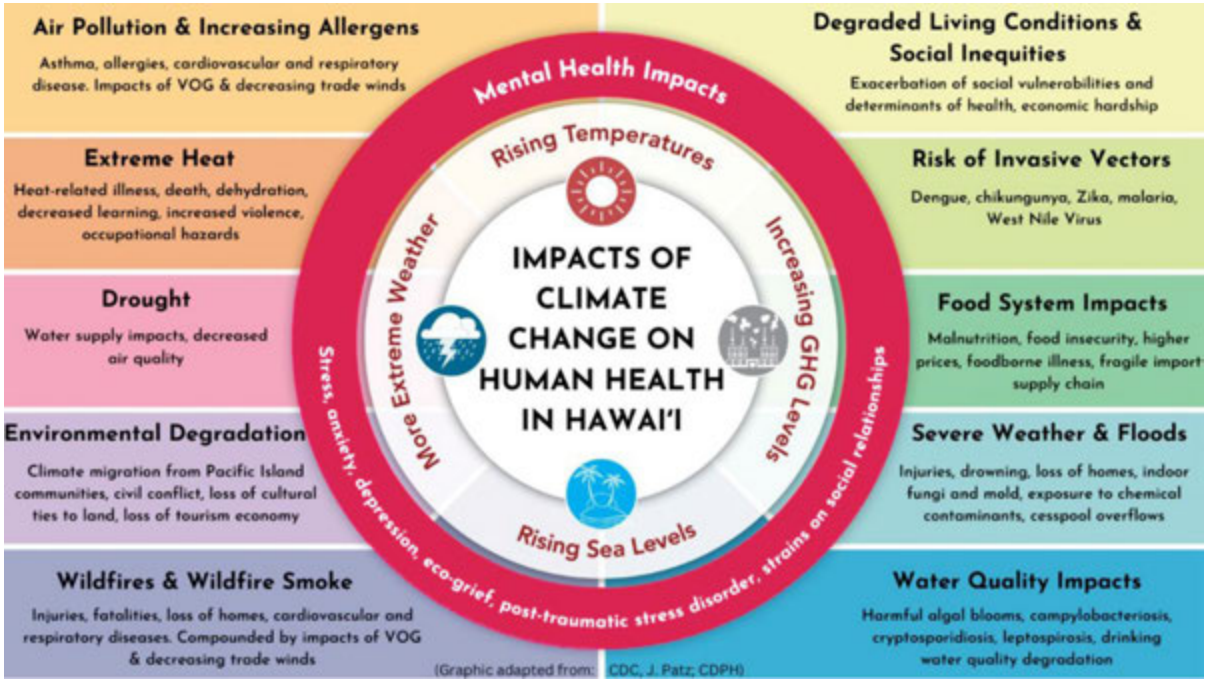
The islands of Hawai‘i are especially vulnerable to the effects of climate change due to our isolated geography. The County faces a unique set of challenges and opportunities as we plan for a sustainable future. Among the most pressing issues is the impact of climate change on public health, as illustrated in Figure 5. As global temperatures rise, our communities will continue to experience rising sea levels, more frequent and severe weather events, wildfires, increased coastal erosion, biodiversity loss, and other shifting ecological patterns. Residents will be directly impacted as critical infrastructure, homes, and other community assets along the coastline are exposed to coastal hazards exacerbated by sea level rise. Sea level rise also jeopardizes shallow groundwater aquifers used for drinking water wells and degrades water lines and wastewater systems,

[1] United Nations Intergovernmental Panel on Climate Change (IPCC) Synthesis Report of the IPCC Sixth Assessment (AR6) Summary for Policy Makers (2023) https://report.ipcc.ch/ar6syr/pdf/IPCC_AR6_SYR_SPM.pdf

which leak into groundwater aquifers and coastal ecosystems. These changes pose significant risks to our food and water sources, ecosystems, air quality, cultural connections to ʻāina, agriculture and visitor industries, and overall health and well-being.

The threats to public health from the climate crisis are extensive and may affect some areas and populations more than others. The Hawaiʻi County General Plan recognizes the critical need to address these vulnerabilities through comprehensive, proactive strategies. By integrating climate resilience into planning processes, we aim to protect our communities, ensure the availability of clean water and air, and promote sustainable development practices. Our approach emphasizes collaboration across sectors, community engagement, and the use of scientific data to guide decision-making. Incorporating climate change considerations into our planning processes not only safeguards public health but also strengthens the resilience of our communities. Through adaptive measures and innovative solutions, we are committed to fostering a healthy, thriving environment for current and future generations.

Figure 4 Impacts of Climate Change on Human Health in Hawaiʻi[2]




## 3.1.2 Climate Action in Hawaiʻi County

The County has a dual role to play: climate mitigation and climate adaptation. Climate mitigation refers to actions that reduce the flow of greenhouse gases (GHG) into the atmosphere, either by reducing sources of these gases or enhancing the sinks that accumulate and store these gases. Mitigation serves to ensure that future climate change is as moderate and manageable as possible. Climate adaptation refers to actions to help people adjust to the current and future effects of climate change. Adaptation primarily responds to and manages climate change that cannot be

[2] State of Hawaiʻi Department of Health (DOH), Hazard Evaluation and Emergency Response (HEER) Office, Impacts of Climate Change on Human Health in Hawaiʻi (Adapted from California Department of Public Health and CDC).

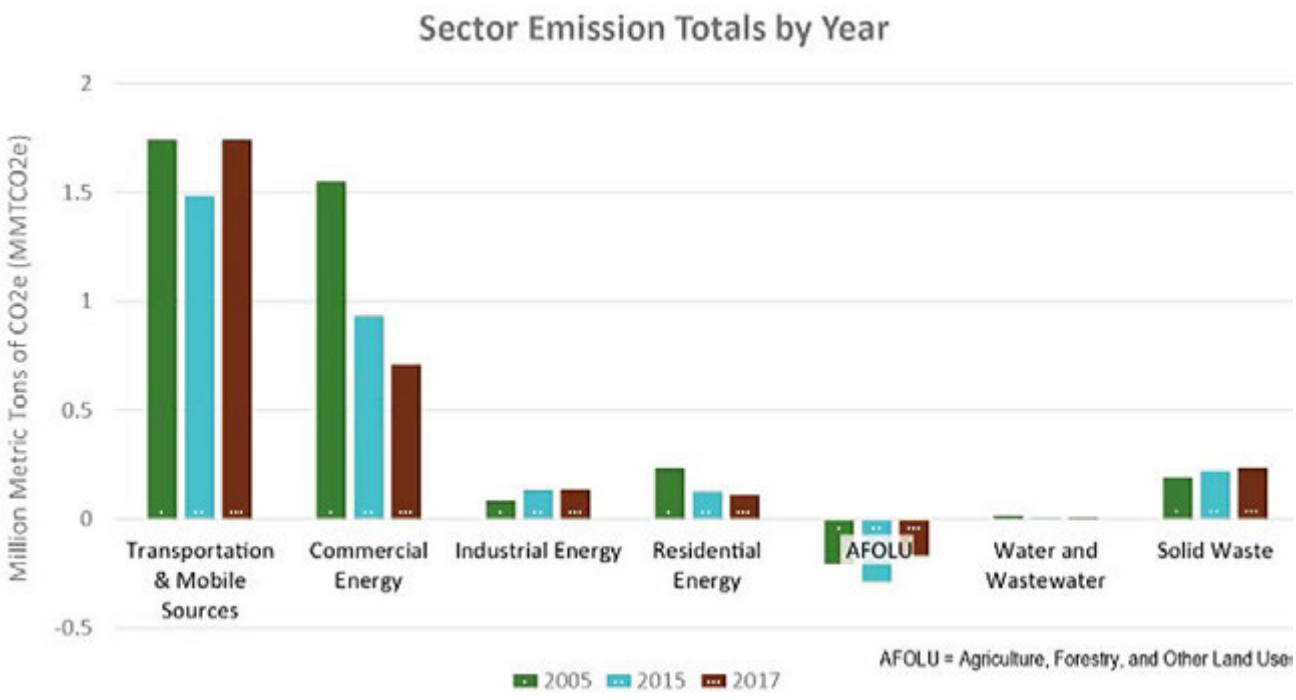
prevented. Both climate mitigation and adaptation are complementary and work in conjunction to protect communities from the harms of climate change.

## Climate Mitigation

The natural carbon cycle includes sources that emit GHGs and sinks that sequester GHGs. Greenhouse gases include carbon dioxide, methane, nitrous oxide, and fluorinated gases. The greenhouse gas effect occurs when GHGs trap heat by reducing the release of infrared light waves back into the atmosphere. In 2017, Hawai'i County produced 2,779,683 metric tons of GHGs.[3] As of 2023, GHG sources in Hawai'i County include emissions from burning of fossil fuels and biofuels for energy and transportation and from decomposition of organic and inorganic waste. GHGs are emitted to support community systems such as electricity, transportation, waste, and industries from agriculture to healthcare to tourism. Simultaneously, the cycles of land development, including land abandonment, have led to deforestation and biodiversity loss, decreasing natural carbon sinks on Hawai'i Island. The early 20th century expansion of plantation and cattle industries followed by the contraction of farming and ranching in the 21st century were major drivers of these impacts.

Emissions are expected to grow in all sectors with population growth, increases in electricity use and vehicle miles traveled (VMT), waste production, and new development.[4] As the effects of climate change emerge, so does the urgency to understand how to reduce emissions and ensure equity while pursuing solutions. While Hawai'i County's contribution to global emissions may be small by proportion, it's essential that we take responsibility for our contribution to global climate change and reduce our sources of emissions alongside the rest of the world.

Figure 5 Hawai'i County Sector Overview of $MTCO_2e$ Emissions for Years 2005, 2015, and 2017




Source: Integrated Climate Action Plan for the Island of Hawai'i, County of Hawai'i (2023)

[3] COH, Greenhouse Gas Emissions Inventory for 2017 (2021) https://www.hawaiicounty.gov/home/showpublisheddocument/304504/637834584810900000. Note: Emissions calculations do not include emissions from volcanic eruptions, although these emissions amplify the impacts of human-caused emissions on health.

[4] COH, Integrated Climate Action Plan for the Island of Hawai'i (2023)

### *Transportation*

Transportation is the primary source of emissions for Hawai'i County, with a total of 1,742,191 metric tons of carbon dioxide equivalent ($MTCO_2e$) released per year, as shown in Figure 6. In Hawai'i, transportation emissions are generated from ground, air, and marine transportation. Ground transportation contributes 16.8 percent of emissions annually on Hawai'i Island.[5] Due to the rural geography of the island and the distance between urban socioeconomic hubs and residential areas, many residents have long commutes. The visitor industry adds to the use of vehicles on the island, as visitors rent cars and drive to popular attractions around the island. With increasing population and commercial activity, ground transportation emissions increased 17.31 percent from 2015 to 2017 and are expected to continue to increase.[6] Airline transportation also contributes significantly to GHG emissions, accounting for 54 percent of total annual emissions. Airline travel is essential to residential, commercial, and visitor industry activity on island. Interisland commutes are a standard part of many industries, including construction. Increasing population and commercial activity amplify the need for flights and imported goods, so airline emissions are expected to increase. On a local level, reducing emissions that are generated from the transportation sector involves expanding opportunities for and access to multimodal options as well as prioritizing active transportation in planning and design processes. The General Plan further discusses strategies for decreasing vehicle reliance and improving commutes in the **Transportation Access and Mobility** section.

### *Energy and Electricity*

On- and off-grid energy production and electricity use make up the second largest source of emissions on Hawai'i Island, with a total of 959,900 $MTCO_2e$ released per year.[7] Energy production provides electricity, air conditioning, and heat. Our heavy reliance on fossil fuels for electricity generation and transportation, along with inefficient energy use, are contributing to increasing amounts of GHGs. Reducing fossil fuel use can relieve the burden of energy and fuel costs, especially in the face of global shocks and stressors that increase the price of imported fossil fuels.

Homes in Hawai'i use 40 percent less electricity on average than the national average.[8] However, the State of Hawai'i has the highest energy cost of any state in the country, at 42.37 cents per kilowatt-hour (kWh), compared to the national average of 12.52 cents.[9] These high prices stem from the State's dependence on energy importation, as Hawai'i uses 12 times more energy than it produces and pricing structures are dependent on the cost of foreign oil, even for renewable energy generation. Foreign oil generates about 60 percent of Hawai'i's energy.

The County can reduce its footprint by increasing the percentage of renewable fuel used to power public facilities and infrastructure, reducing VMT, and establishing more energy efficient buildings. One of the most cost-effective ways of reducing energy emissions is by making buildings more energy efficient, as improving energy standards costs less than 1 cent per kWh saved. Building energy efficiency refers to how effectively infrastructure uses energy generated. For example, buildings that are designed with natural cooling systems, such as windows and doors that allow for cross-ventilation or siding that better reflects sunlight, require fewer fans or small air conditioning units. Upgrading appliances such as light bulbs, refrigerators, and washing machines also reduces electricity usage. New building development inevitably increases GHG emissions

[5] COH, Greenhouse Gas Emissions Inventory for 2017 (2021)

[6] COH, Greenhouse Gas Emissions Inventory for 2017 (2021)

[7] COH Greenhouse Gas Emissions Inventory for 2017 (2021)

[8] U.S. Energy Information Administration, Hawai'i State Energy Profile https://www.eia.gov/state/print.php?sid=HI

[9] U.S. Energy Information Administration, Average Price of Electricity to Ultimate Customers by End-Use Sector https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_5_6_a

by adding load on or off the grid. New development also includes embodied emissions, also referred to as embodied carbon, from harvesting, transportation, and construction of materials. The General Plan expands on the opportunities for increasing renewable sources of energy and energy efficiency in the **Public Utilities** section.

### *Waste and Wastewater*

The third and fourth highest contributing sectors for Hawai'i County emissions are solid waste and wastewater, accounting for 8.79 percent of emissions.[10] In 2022, Hawai'i County collected 203,872 tons of waste in its landfill. Solid waste produces emissions through the process of decomposition, which releases nitrogen gases and methane. Additionally, transporting waste to and from transfer stations and the landfill produces additional emissions. Wastewater (sewage) produces GHG emissions during treatment processes, including nitrification and denitrification. Waste management is especially important for an island community, which has limited land for waste disposal and watersheds that are easily polluted. Residential, commercial, and industrial activity add to waste production on the island through materials used in construction, agriculture, and the visitor industry. Without finding ways to repurpose and reduce waste, waste production will continue to grow as population expands and economic activity increases. The County can divert waste from the landfill or incinerator through integrated waste management activities, including reducing, reusing, recycling, or composting waste. Waste minimization feeds into economic development, cesspool management, and toxic leakage. The General Plan explores opportunities for reducing waste in the **Public Utilities** and **Public Facilities and Services** sections.

**Renewable Energy in Hawai'i**

Hawai'i Island has the most diverse set of renewable sources in the State, which can be embraced to reduce fossil fuel use and decrease the cost of electricity and gas. The island has a long history of utilizing renewable energy. In 1890, Hilo was the site of one of the first hydropower projects in the State. Hawai'i Island also has the State's only geothermal plant, Puna Geothermal Ventures, founded in 1993. Since then, Hawaiian Electric has committed to cut its carbon emissions by 70 percent by 2030. Current renewable energy sources on-island include solar, wind, hydroelectric, geothermal, and biofuels.

### *Agriculture, Forestry, and Other Land Use*

Agriculture, forestry, and other land use serve as carbon sinks, which absorb a substantial amount of carbon dioxide from the atmosphere. Hawai'i Island forests are the largest source of carbon sequestration in the State.[11] Forests are also essential components of our watersheds. At higher elevations, forests catch and collect water that then travels down to lower elevations, providing fresh water from mauka to makai. As forests and shrublands are converted for commercial and residential activities, ranching and agriculture, essential natural carbon sinks, and vital cultural resources disappear. Deforestation and degradation of native forests can reduce the availability of fresh water, impacting potable water supply, agriculture, and ecosystem health. Moreover, the proliferation of invasive species can decrease groundwater recharge and have diminished the dominance of native ecosystems in

[10] COH, Greenhouse Gas Emissions Inventory for 2017 (2021)

[11] DOH, Hawai'i Greenhouse Gas Emissions Report for 2017 (2021) https://health.hawaii.gov/cab/files/2021/04/2017-Inventory_Final-Report_April-2021.pdf

Hawai'i. Given that increased development, deforestation, and certain land management practices can become carbon sources, the County will need to preserve open spaces and forested lands to maintain carbon sinks. The General Plan expands on opportunities for climate-conscious land development in the **Land Use** section.

## Climate Adaptation

Climate adaptation refers to actions to increase resilience to climate change impacts. Adaptation actions adjust to the actual or expected future climate to reduce risks from the harmful effects of climate change and maximize any potential benefit opportunities. The effects of climate change that are already starting to impact Hawai'i Island include increased air and sea surface temperature, drought, extreme rainfall, sea level rise, and increased hurricanes. These hazards exacerbate and are exacerbated by other hazards including wildfire, flooding, landslides, and high winds. Climate change poses a threat to ecosystem and community health. Climate change also endangers critical infrastructure and services, including structures, roads, bridges, potable water and watersheds, wastewater, parks, and emergency services.

### *Human and Environmental Health*

Rising GHG emissions result in higher air and sea surface temperatures and greater absorption of carbon dioxide in the ocean, which increases ocean acidity. Coastal communities are especially susceptible to increased temperatures, with longer stretches of temperatures well above 80 °F. Higher temperatures alone can be dangerous for the health of humans and other living organisms. Higher temperatures also change the natural cycles of our planet. For example, higher temperatures can affect how the atmosphere retains water, leading to increased rain in some areas and drought in others. High temperatures can be hazardous, particularly for vulnerable populations and those exposed for long durations. Kupuna and keiki are even more susceptible to the effects of extreme heat. Prolonged exposure to extreme heat can cause heat exhaustion, heat stroke, and death, as well as exacerbate preexisting chronic conditions such as respiratory, cerebral, and cardiovascular diseases.[12]

Plants, birds, and other living organisms will migrate and likely be more stressed with rising air temperature. Increased air temperature will affect the behavioral patterns of species on Hawai'i Island. For instance, avian mosquitoes are migrating mauka with warmer air temperatures, harming native bird populations that live at higher elevations.[13] While some plant species may benefit from higher concentrations of atmospheric carbon dioxide, other factors essential to plants' growth such as nutrients, temperature, and water may limit growth. For example, the seed production of koa decreases in response to higher temperatures. There are various ways plant and animal species can adapt to increased temperature. In alpine ecosystems throughout the Pacific, species have been migrating to higher elevations in response to climate change.[14] Higher temperature intensify drought conditions by increasing evaporation, which can lead to higher tree mortality and contribute to forest decline.[15] Urban areas often lack tree canopies and green spaces that absorb heat and provide shade. Instead, structures such as buildings and roads elevate the surrounding temperature, leading to an urban heat island effect.

[12] National Institutes of Environmental Health, Climate and Human Health (2022) https://www.niehs.nih.gov/research/programs/climatechange/health_impacts/heat/index.cfm#:~:text=Prolonged%20exposure%20to%20extreme%20heat,%2C%20cerebral%2C%20and%20cardiovascular%20diseases

[13] L. B. Fortini, L. R. Kaiser, D. A. LaPointe, Fostering real-time climate adaptation: Analyzing past, current, and forecast temperature to understand the dynamic risk to Hawaiian honeycreepers from avian malaria. Glob. Ecol. Conserv. 23, e01069 (2020).

[14] Frazier, A. G., & Brewington, L. (2020). Current Changes in Alpine Ecosystems of Pacific Islands. In M. I. Goldstein & D. A. DellaSala (Eds.), Encyclopedia of the World's Biomes (pp. 607-619). Oxford: Elsevier.

[15] Brodribb, T.J., Powers, J., Cochard, H. and Choat, B. (2020). Hanging by a thread? Forests and drought. Science, 368(6488), pp.261-266.

### *Water Resources*

A warmer ocean and more acidic ocean stresses reef ecosystems from increased rainfall and runoff containing sewage, pesticides, and fertilizers. Rising sea surface temperature, also associated with increasing storm intensity, can cause similar damage. This impacts fish populations, the food web in marine ecosystems, and the communities who depend on them. Hawai'i is impacted not only by global ocean acidification, but also coastal acidification resulting from localized land-based pollution, such as runoff and cesspools.[16]

Further, wastewater and water line segments as well as on-site disposal systems are exposed to sea level rise. Saltwater intrusion from sea level rise into shallow coastal aquifers impacts potable water supply from shallow coastal groundwater wells and underground infrastructure. Underground infrastructure may become corroded and contaminate freshwater and nearshore waters. The General Plan promotes One Water strategies in the **Public Utilities** section.

### *Agriculture and Native Ecosystems*

Extended droughts can have cascading effects on native ecosystems, the economy, agriculture, and public health. Drought reduces stream flow, which decreases the water available to support stream and wetland habitats, agricultural irrigation, cultural practices, and aquifer recharge and freshwater supplies.[17] Rain-fed fields and pastures are the most vulnerable to drought impacts in Hawai'i. If droughts persist, irrigated areas can become vulnerable as well.[18] Additionally, higher temperatures and drought degrade native forests through increasing tree mortality and accelerating grass invasion. Together, these factors can reduce the cover of high-quality forest and heighten vulnerability to fire impacts. Future drying with climate change will shift speak fire risk to higher elevations, endangering native forests mauka.

Freshwater ecosystems are especially vulnerable to drought. Stream wildlife is adversely impacted by reductions in stream flow through the limited availability of freshwater habitat, loss of hydrological connectivity, and impaired water quality. Reduced surface water and groundwater inputs into nearshore environments may also have negative impacts on organisms in brackish and marine environments. Groundwater-dependent ecosystems, including fish ponds, anchialine pools, and coastal springs, are culturally and ecologically significant systems that are affected by drought and exacerbated by unsustainable water use. Longer and more frequent droughts increase the demand for potable and non-potable water for municipal and agricultural uses. Water supply from County, private, and individual systems will be impacted by drought conditions and increased water use to support residents, agriculture, ranching, and tourism. Improving water infrastructure and conservation by increasing water storage capacity, reducing leakages from water systems, providing backup water systems, using stormwater to recharge groundwater aquifers, integrating groundwater-dependent ecosystem needs in sustainable water yield analysis, and conducting education and outreach activities are some of the key pre-drought management actions needed in a changing climate. The **Collaborative Biocultural Stewardship** section of the General Plan promotes balanced and resilient approach to managing land and resources.

### *Critical Infrastructure*

Severe rainfall events, compounded by flooding and landslides, jeopardize critical infrastructure, communities, and coastal ecosystems. Runoff and flooding are some of the most disastrous impacts

[16] State of Hawai'i, Ocean Acidification Action Plan 2021 – 2031 (2021) https://dlnr.hawaii.gov/dar/files/2021/09/State_of_Hawaii_OA_Action_Plan.pdf

[17] COH, Multi-Hazard Mitigation Plan (2020) https://www.hawaiicounty.gov/departments/civil-defense/multi-hazard-mitigation-plan-2020

[18] Frazier, A.G.; Giardina, C.P.; Giambelluca, T.W.; Brewington, L.; Chen, Y.-L.; Chu, P.-S.; Berio Fortini, L.; Hall, D.; Helweg, D.A.; Keener, V.W.; et al., (2022). A Century of Drought in Hawai'i: Geospatial Analysis and Synthesis across Hydrological, Ecological, and Socioeconomic Scales. Sustainability 2022, 14, 12023. https://doi.org/10.3390/su141912023

of severe rainfall events. As stream flows and velocities change, erosion patterns also change, altering channel shapes and depths, potentially increasing sedimentation behind dams and affecting habitat and water quality. Changes in watershed vegetation and soil moisture conditions also change runoff and recharge patterns. Additionally, deforestation adds to the impact of extreme rainfall events. When forests are removed from a watershed, stream flows can easily double. Increased sediment prevents streambeds from carrying the increased discharge, causing floodplains and floodplain elevations to increase.

Numerous County roads, bridges, and structures are exposed to severe rainfall events and compounding hazards. Sea level rise affects critical infrastructure including hazard materials and waste storage facilities, wastewater treatment facilities, and transportation, communication, energy, safety, and security systems. Structures along the coastline in South Hilo, North Kona, and South Kohala have the greatest sea level rise exposure. Disruptions to emergency services can occur due to the impacts on roads, utility lines, and other critical infrastructure. More severe flood events will increase the number of brown water advisories that carry land-based sediment and contaminants, including sewage, dead animals, and pesticides, to the shoreline, beaches, and coastal waters, posing risks to public safety and coastal ecosystem health. The General Plan further expands on strategies to increase resilience in the **Transportation Access and Mobility**, **Public Utilities**, and **Public Facilities and Services** sections.

### *Energy Resilience*

Increased air temperature places greater demand on energy consumption. A greater dependency on air conditioners will be necessary for organizations including hospitals and schools. Moreover, technology such as data servers require immense amounts of cooling, which will increase energy demand as temperatures and technology use rise. Disasters from climate change can also increase energy demand as power sources go out and need to be replaced with fossil fuel. Greater energy demand further increases GHG emissions, especially without renewable and reliable energy sources. The General Plan expands on renewable energy in the **Public Utilities** section.

## Table 12: Climate Mitigation Challenges

Climate mitigation in Hawai‘i County faces a range of challenges due to its unique geographic, socio-economic, and environmental contexts. Mitigation focuses on the root cause of climate change: heat-trapping greenhouse gases that are added to the atmosphere at a faster rate than the planet can absorb them. Addressing these challenges requires a multifaceted approach involving collaboration between government agencies, the private sector, community groups, and other stakeholders. Investment in research, innovation, and education, as well as robust policy frameworks and financial mechanisms, are essential components of effective climate mitigation strategies.

| | |
|---|---|
| **Geographic Isolation & Dependence on Imports** | • Hawai‘i depends heavily on imported fossil fuels for energy generation and transportation, making the transition to renewable energy sources both crucial and challenging.<br>• Geographic isolation leads to supply chain vulnerability, resulting in higher costs and logistical difficulties in obtaining renewable energy technologies and infrastructure materials. |
| **High Energy Costs** | • The cost of energy in Hawai‘i is among the highest in the country, which can be a barrier to implementing and sustaining renewable energy projects.<br>• Increased temperatures associated with climate change places greater demand on energy systems. |
| **Tourism-Driven Economy** | • The visitor industry is a significant contributor to the local economy, but also a substantial source of carbon emissions, making balancing economic growth with sustainable practices difficult. |
| **Infrastructure Limitations** | • Material-making and building methods require a lot of energy, increasing the carbon footprint of infrastructure construction.<br>• Aging energy infrastructure is inadequate and the need for upgrades to support renewable energy sources (e.g., solar, wind, and geothermal) requires substantial investment.<br>• The grid's capacity to integrate intermittent renewable energy sources without compromising reliability is a technical challenge. |
| **Natural Disasters & Climate Vulnerability** | • Susceptibility to natural disasters such as hurricanes, tsunamis, wildfires, and volcanic activity can disrupt energy infrastructure and impede mitigation efforts.<br>• Rising sea levels and increased frequency of extreme weather events pose risks to water resources, infrastructure, and communities. |
| **Biodiversity & Ecosystem Considerations** | • Efforts to expand renewable energy must consider the preservation of unique and diverse ecosystems, avoiding negative impacts on wildlife and natural habitats.<br>• Deforestation and degradation of native ecosystems and open spaces reduce carbon sinks. |
| **Economic & Social Equity** | • Ensuring that climate mitigation efforts are equitable and do not disproportionately affect vulnerable communities is essential. Programs must be designed to include these populations in both the benefits and decision-making processes.<br>• Engaging the public about the importance of climate mitigation and encouraging behavioral changes is crucial. Public resistance or apathy can slow down the adoption of necessary measures. |
| **Regulatory & Policy Frameworks** | • Developing and enforcing effective policies that promote renewable energy, energy efficiency, and sustainability practices while navigating political and bureaucratic hurdles can be challenging.<br>• Coordinating between state and local governments, communities, and the private sector, is necessary for coherent and effective climate action. |
| **Financial Constraints** | • Securing funding for large-scale renewable energy projects and other mitigation initiatives can be difficult, especially in a small, isolated economy.<br>• Balancing the need for affordable housing with the implementation of sustainable development practices requires innovative solutions that address the high costs of construction, land, and utilities while reducing carbon emissions and promoting resilience. |

## Table 13: Climate Adaptation Challenges

Complementary to mitigation, climate adaptation is intended to be proactive. These efforts focus on building systems to withstand not only current but future climate change impacts. Approaches to adaptation include a wide range of solutions. Some examples may include building or retrofitting infrastructure to better manage increased flooding or natural solutions such as habitat restoration. Adaptation may also be associated with behavior and policy changes, such as public awareness campaigns and updating regulatory codes.

| | |
|---|---|
| **Sea Level Rise & Coastal Erosion** | • Rising sea levels threaten coastal infrastructure, including roads, homes, and businesses. Erosion and flooding can lead to significant damage and displacement.<br>• Coastal ecosystems, such as wetlands and reefs, are at risk, impacting biodiversity and the natural protection these systems provide against storms. |
| **Increased Frequency & Intensity of Severe Weather Events** | • Rising global air and sea surface temperatures are changing rainfall patterns which may impact the frequency and intensity of future drought and extreme rainfall events.<br>• More frequent and intense storms can cause extensive damage to buildings, infrastructure, and agricultural lands. Severe rainfall events, compounded by flooding and landslides, increase risks to critical infrastructure and communities and disrupt emergency services.<br>• Tropical cyclones are becoming more powerful and possibly more frequent due to climate change, which compounds risks from other hazards. Tropical cyclones and storm surges pose risks to infrastructure and jeopardize public safety.<br>• Enhancing emergency response and preparedness capabilities to manage more frequent extreme weather events is a significant challenge. |
| **Temperature Changes** | • Temperature changes can affect crop yields and livestock health, impacting the island's agricultural sector, which is a key part of the local economy and food security.<br>• Native plant and animal species may face stress due to altered temperatures, potentially leading to shifts in ecosystems and loss of biodiversity.<br>• Higher temperatures and prolonged dry periods increase the risk of wildfires, which can devastate large areas, threaten communities, and degrade air quality. |
| **Water Resources Management** | • Altered rainfall patterns and increased evaporation rates can lead to droughts, affecting water supply for residential, agricultural, and industrial use. Drought has cascading effects on agriculture, native ecosystems, social systems, and the economy.<br>• Ensuring the sustainable recharge of aquifers, which are critical for freshwater supply, becomes more challenging with changing precipitation patterns. |
| **Impact on Tourism** | • The visitor industry, a major economic driver, can be severely affected by the loss of beaches, reefs, cultural and historic sites, which are major attractions.<br>• Tourists' perceptions of climate risk may influence their decision to visit, impacting local businesses. |
| **Cultural & Social Challenges** | • Rising sea levels and extreme weather events may displace communities, particularly those located in vulnerable coastal areas.<br>• Coastal ecosystems as well as many cultural and historical sites are at risk from coastal flooding and storm surge. |
| **Governance & Policy Implementation** | • Effective climate adaptation requires coordinated efforts across various levels of government and adequate funding, which can be challenging to secure and manage.<br>• Ensuring community involvement in planning and decision-making processes is essential for successful adaptation strategies. |

## Table 14: Climate Mitigation Opportunities

By focusing on the following areas, Hawai‘i County can make significant strides in reducing its greenhouse gas emissions and mitigating the impacts of climate change.

| | |
|---|---|
| **Transportation** | • Promoting the use of electric vehicles through expanding charging infrastructure.<br>• Enhancing public transportation options to reduce reliance on personal vehicles.<br>• Developing greater opportunities for active transportation.<br>• Support the production of alternative fuels, such as hydrogen and biofuels, for transportation needs. |
| **Renewable Energy** | • Generating energy locally can create more well-paying jobs in the energy field.<br>• Increasing the use of green technology will increase the energy independence of individuals and businesses on the island.<br>• Supporting renewable energy technologies, such as solar, wind, ocean thermal energy conversion (OTEC), and geothermal. |
| **Land Use & the Built Environment** | • Well-planned development can increase individual agency and access to multimodal transportation.<br>• Implementing smart growth strategies can reduce urban sprawl and create more walkable communities.<br>• Developing a County building code that balances health and safety, affordability, and carbon footprint.<br>• Encouraging the construction of energy-efficient buildings and retrofitting existing buildings.<br>• Promoting regenerative agriculture practices that reduce emissions and enhance carbon sequestration.<br>• Greening urban areas increases the availability of cool areas for residents to live and recreate.<br>• Integrating energy savings and waste management provides an opportunity to mitigate greenhouse gas emissions in new development. |
| **Waste Management** | • Pursuing innovative solutions, such as OTEC and waste-to-energy technology, to help achieve waste management goals.<br>• Reducing waste decreases toxic runoff and water table pollution, supporting healthy watersheds and soil.<br>• Improving wastewater treatment technologies can protect reefs and therefore the industries and species that rely on them.<br>• Increasing the repurposing of waste can create local jobs and support businesses.<br>• Expanding recycling programs to reduce landfill waste and promote the circular economy.<br>• Increasing composting of organic waste to reduce methane emissions from landfills. |
| **Conservation** | • Protecting reefs and marine ecosystems that act as carbon sinks.<br>• Implementing a One Water strategy and other water-saving technologies and practices can reduce the energy required for water treatment and distribution.<br>• Conserving natural habitats to preserve biodiversity and enhance ecosystem resilience to climate change.<br>• Conservation of forest canopy and reforestation increases the recharge of aquifers.<br>• Efforts to expand renewable energy can consider the preservation of unique and diverse ecosystems, avoiding negative impacts on wildlife and natural habitats. |
| **Economic Resilience** | • Diversified economic activities can improve resiliency for the visitor and agriculture industries.<br>• Climate mitigation strategies can develop new industries and increase economic opportunities. |
| **Additional Measures** | • Improving public engagement about climate change and encouraging sustainable practices.<br>• Implementing policies and regulations that support climate mitigation efforts.<br>• Supporting research into new technologies and approaches for reducing emissions and enhancing resilience. |

## Table 15: Climate Adaptation Opportunities

By leveraging the following opportunities, Hawai'i County can build resilience against the impacts of climate change, protect its natural resources, and ensure the well-being of its residents.

| | |
|---|---|
| **Water Resources Management** | • Protecting and restoring watersheds will improve water quality and availability.<br>• Promoting a One Water strategy can create cross-agency collaboration to identify and address overlapping challenges in adapting to sea level rise and building more resiliency into infrastructure across water, wastewater and stormwater sectors. |
| **Agriculture & Food Security** | • Encouraging the cultivation of climate-resilient and diversified crops to enhance food security.<br>• Promoting agroforestry practices in agricultural areas can improve soil health and crop resilience.<br>• Regenerative agriculture practices can reduce dependency on external inputs and improve soil health. |
| **Infrastructure & Urban Planning** | • Retrofitting or relocating bridges and roads provides an opportunity to reduce GHG emissions by reducing miles traveled.<br>• Retrofitting can be accomplished within existing maintenance schedules of County facilities for increased resilience.<br>• Reducing the risks of flooding, landslides, and fire reduces the cost and GHG emissions associated with the reconstruction of infrastructure and need for alternative routes, which increase emissions during road and bridge outages.<br>• Increasing access to multimodal transportation options can help reduce VMT.<br>• Proactive maintenance of parks and recreational areas can continue to provide equitable access to resources in the face of changing landscapes.<br>• Limiting new development in fire-prone areas would reduce economic loss to landowners and businesses.<br>• Fire risk reduction around communities potentially limits fire spreading into upland areas, reducing fire-driven forest loss.<br>• Build and upgrade infrastructure to withstand increased flooding and sea level rise.<br>• Incorporate green infrastructure solutions such as permeable pavements and urban green spaces to manage stormwater and reduce the urban heat island effect.<br>• Implement zoning and land use planning policies that consider climate risks and promote sustainable development. |
| **Social Equity** | • Engage communities in planning and decision-making processes to ensure that adaptation measures are socially inclusive and culturally appropriate.<br>• Increasing equitable resilience to climate hazards will benefit historically marginalized and frontline communities and those that are vulnerable to climate change impacts. |
| **Energy & Transportation** | • Invest in renewable energy sources to reduce GHG emissions and increase energy resilience.<br>• Promote energy efficiency in buildings and transportation to reduce overall energy consumption.<br>• Enhance public transit systems and infrastructure for active transportation to reduce reliance on fossil fuels and improve air quality. |
| **Biodiversity & Ecosystems** | • Managed retreat strategies and new shoreline setback regulations would expand open space along the shoreline to support coastal ecosystems such as anchialine pools.<br>• Supporting conservation programs can help protect native species and habitats from climate change impacts.<br>• Strengthening measures to control and eradicate invasive species can help protect local ecosystems.<br>• Enhance habitat connectivity to allow species to migrate in response to changing environmental conditions. |
| **Education & Capacity Building** | • Build capacity for local government agencies by providing training and resources that improve their ability to plan and implement climate adaptation initiatives.<br>• Collaborate and coordinate with the County's Office of Sustainability, Climate, Equity, and Resilience (OSCER).<br>• Support research and monitoring efforts to better understand climate impacts and the effectiveness of adaptation measures.<br>• Develop and implement educational programs to raise awareness about climate change and adaptation strategies. |

# 3.2 Climate Change Goal, Objectives, Policies, and Actions

Goal: Ensure a just transition to a climate resilient island by addressing the causes and impacts of climate change through incorporating equitable climate mitigation and adaptation priorities into policies, programs, infrastructure, and decision-making.

## Objective 6

***Ensure that climate actions are equitable and uplift marginalized and disadvantaged communities.***

### Policies

6.1 Prioritize and support community-based organizations, businesses, and programs through County purchasing and procurement policies.

6.2 Prioritize and support Low- and Moderate-Income (LMI) communities through tax incentives, grants, and financial support provided to community members, organizations, and other related groups.

6.3 Prioritize projects in communities that experience disproportionate impacts of climate change.

6.4 Consider financial and time barriers, geographic constraints, and language accessibility when conducting community outreach.

6.5 Improve the communication of climate risks and opportunities for adaptation efforts.

6.6 Support communities to become fire-adapted as they prepare for climate change.

6.7 Expand urban forestry benefits to disadvantaged communities.

6.8 Support social science research and applications to help address environmental justice and intergenerational equity.

6.9 Integrate Native Hawaiian traditional knowledge and practices in planning for the impacts of climate change.

### Actions

6.a Increase transparency of government actions by creating a climate change dashboard and portal to track the implementation of climate action.

6.b Engage communities by incorporating place-based knowledge and qualitative data to guide implementation priorities and decision-making.

6.c Promote funding opportunities for LMI communities to implement climate action, including interactive videos and workshops that meet communities where they are.

## Objective 7

***Reduce the County government's carbon footprint to net zero emissions by 2045.***

- ***Achieve a 100 percent renewable-powered County fleet by 2035.***
- ***Support the statewide effort to achieve 100 percent renewable ground transportation and 100 percent renewable energy by 2045.***

### Policies

7.1 Incentivize efficiencies that integrate affordable housing and carbon neutrality.

7.2 Require energy-efficient designs in all new County facilities and upgrade existing facilities with energy-efficient systems.

7.3 Support building code updates that incentivize energy-efficient designs and climate-neutral building methods and materials.

7.4 Encourage and incentivize the use of technologies, techniques, and materials in building design, construction, and removal that minimize the ecological footprint over the life cycle of the structure.

7.5 Encourage and incentivize large developments to meet energy sustainability certification standards.

7.6 Strive for energy sustainability certification for new County buildings or when renovating existing buildings for County use.

7.7 Prioritize energy-efficient designs, energy-efficient systems, and waste reduction and/or reuse at County facilities.

7.8 Evaluate Capital Improvement Projects for energy efficiency and carbon reduction, including the cost savings related to improved design.

7.9 Partner with government, private and nonprofit agencies, communities, and other stakeholders to develop comprehensive and coordinated strategies promoting energy and water conservation to strive for climate resilience.

7.10 When evaluating public investments, including acquisition, siting, and design, consider the potential of natural areas for carbon sequestration and provide climate adaptation and mitigation opportunities.

7.11 Integrate and incentivize urban forestry into all scales of planning where feasible and compatible with infrastructure.

7.12 Develop carbon-emission standards and an incentive program aimed at achieving County carbon emission goals.

7.13 All County facilities shall report energy usage annually.

7.14 Program the upgrading of the County vehicle fleet and equipment to net zero emissions.

7.15 The Mass Transit Agency shall operate a net zero emissions fleet by 2035.

7.16 Prioritize the installation of electric vehicle chargers at community facilities, for both County vehicles and public parking.

7.17 All new County vehicle purchases, including average mpg, emissions equivalent per gallon of fuel (or kWh), and estimated annual operation and maintenance costs shall be reported annually.

7.18 Prioritize the accommodation of active transportation options as part of the planning and design of all roadway improvements to encourage non-motorized forms of transit.

### Actions

7.a Develop and provide incentives for new development/redevelopment to pursue certification for "green" site planning, construction, and post-construction practices.

7.b Adopt policies and strategies across all County departments to reduce GHGs and become more resilient to the impacts of climate change.

7.c Develop a County purchasing policy to prioritize products with low emissions over their lifecycle and resiliency to the impacts of climate change.

7.d Develop and implement incentives for energy-efficient or green design standards.

7.e Prioritize urban tree inventories for primary urban areas such as Downtown Hilo, Waimea, and Kailua-Kona.

7.f Develop procedures to include street trees as part of public capital improvement projects.

7.g Develop energy benchmarking standards for County buildings.

7.h Develop and implement an electric vehicle charging plan with a station network map that identifies regional gaps in service.

7.i Create a fleet transformation plan for each County department.

7.j Partner with government, private and nonprofit agencies, communities, and other stakeholders to increase community-wide awareness and accessibility regarding reducing transportation costs and emissions (e.g., the impact of keeping tires inflated on the efficiency of cars) through education awareness programs.

7.k Develop and implement a streamlined framework to report annual energy use of all County facilities and all new County vehicle purchases.

## Objective 8

***Improve the identification of climate change threats, assessment of potential consequences, and evaluation of adaptation options.***

### Policies

#### Climate change threats

8.1 Use accurate and up-to-date, peer-reviewed scientific predictions and observations related to climate change impacts to guide adaptation policy and land use decisions.

8.2 Support local and regional climate change modeling and monitoring programs.

8.3 Collaborate with government, private and nonprofit agencies, communities, and other stakeholders to monitor impacts that may be specific to Hawai'i County due to its unique exposure to climate change and sea level rise impacts.

8.4 Improve assessments of climate change threats and potential consequences to determine specific geographic areas impacted and projected financial cost.

### Assessment of consequences

8.5 Climate change adaptation strategies shall be considered in County budgetary, land use, water stewardship, fire mitigation, and other decision-making processes.

8.6 Implement sea level rise planning and policies for public infrastructure projects and other projects with a low tolerance for risk.

8.7 Prioritize the preservation and restoration of natural landscape features, such as reefs, beaches and dunes, forests, rangelands, streams, floodplains, wetlands, and aquifer recharge areas that have the inherent capacity to prevent, minimize, or mitigate the impacts of climate change.

### Evaluation of adaptation

8.8 Develop adaptation strategies (e.g., protection, accommodation, managed retreat, and preservation) for capital improvements to ensure that the project's useful life and service expectations can be met in the face of projected climate change impacts.

8.9 Design and maintain infrastructure, including roads, buildings, and stream crossings, to accommodate increases in flooding and geologic hazards such as landslides.

8.10 Partner with communities to develop adaptation strategies (e.g., protection, accommodation, managed retreat, and preservation) for vulnerable areas including conducting vulnerability assessments and assessing land use and land availability.

8.11 Partner with government (e.g., State Office of Planning and Sustainable Development [OPSD]), private and nonprofit agencies, communities, and other stakeholders to analyze conservation buffers to accommodate shifting native habitats impacted by climate change, particularly wetlands and high-elevation forests.

8.12 County departments should integrate economic development, equity, and sustainability outcomes into their annual goals and reports to the Mayor.

## Actions

8.a Conduct detailed vulnerability mapping of existing and planned infrastructure.

8.b Support and partner with government, private and nonprofit agencies, communities, and other stakeholders on research for adaptive policies and technology that increase resilience.

8.c Incorporate appropriate green building or climate-resilient specifications into competitive bids.

8.d Adopt a land acquisition program with potential leaseback options for the purchase of hazard-prone locations or those with beneficial attributes for climate adaptation and mitigation.

8.e Collaborate with government, private and nonprofit agencies, communities, and other stakeholders to implement environmentally beneficial upgrades for wastewater, irrigation, and/or landscaping, including sea level rise, storm, and other climate change considerations.

# 4. SUSTAINABLE DEVELOPMENT AND RESILIENT COMMUNITIES

**Organization**

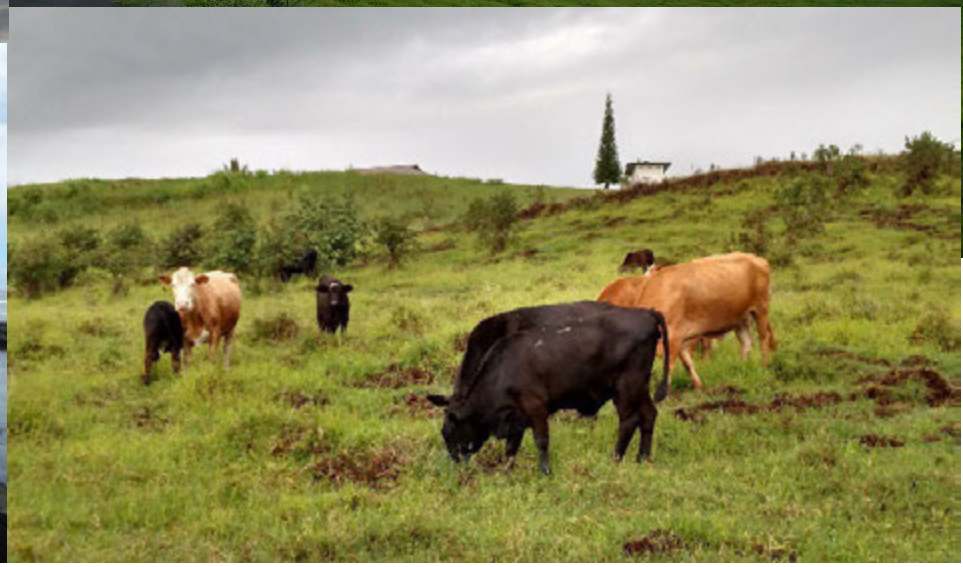

4.1 Land Use
4.2 Transportation Access and Mobility
4.3 Public Utilities
4.4 Public Facilities and Services
4.5 Housing for All
4.6 Integrated Systems









# 4.1 LAND USE


4.1 Land Use
4.1.1 Introduction
4.1.2 Goal, Objectives, Policies, and Actions
4.1.3 Overview of Land Use Designations and Maps
4.1.4 Urban Growth Areas
4.1.5 Rural
4.1.6 Agriculture










## 4.1.1 Introduction

On Hawai‘i Island, land use planning plays a vital role in balancing the needs of the environment, community, and economy. The island’s unique natural beauty and delicate ecosystems, including its diverse forests, coastal areas, and volcanic landscapes, require careful consideration and responsible stewardship to ensure their preservation for future generations. Land use refers to the allocation, management, and development of land resources in a particular area. This involves determining how land is utilized for various purposes, such as residential, commercial, agricultural, industrial, or conservation. Land use planning, on the other hand, is the process of guiding and regulating land use decisions to achieve sustainable development and create healthy and resilient communities.

Sustainable development is a key objective of land use planning for the County. By strategically designating areas for different land uses, such as promoting agriculture in fertile regions, developing commercial areas in appropriate locations, and preserving native ecosystems, land use planning helps to create a balance that supports economic growth while protecting our natural and cultural resources. Land use planning is essential for cultivating healthy and resilient communities on Hawai‘i Island. This process involves considering factors such as access to healthcare, transportation infrastructure, recreational spaces, public services, and affordable housing. By promoting mixed-use developments and compact urban planning, land use planning aims to create Live-Work-Play communities, or livable neighborhoods that minimize commuting, encourage physical activity, and enhance social interactions.

Additionally, land use planning is critical to disaster resilience. Given our vulnerability to natural hazards and the impacts of climate change, responsible land use decisions can help reduce the risk and impact of such events. Land use regulations, such as County zoning and General Plan designations, among others, can promote the preservation of natural buffers and contain development where sensible, ensuring that communities are better prepared for and protected against potential disasters.

The land use element of the General Plan is intended to be used as a policy guide for coordinated growth and sustainable development across our island. As required by the State Planning Act, this section contains goals, policies, standards, and implementation priority actions to define patterns of future growth and guide the location and density of land uses within the County. The land use section seeks to establish the most desirable use of land for residential, recreational, agricultural, commercial, industrial, and other purposes which shall be consistent with the proper conservation of natural resources and the preservation of our natural beauty and historical sites.

The land use section is a land-based synthesis of the values, goals, and objectives of the other sections comprising this Plan. This component guides where and how land uses, infrastructure, and services should be directed to promote and protect the values of the people of Hawai‘i Island and to best achieve the goals and objectives outlined in the various elements of the Plan.

Figure 6 Layers of Land Use Planning




Figure 4 illustrates the interconnected layers of land use planning, emphasizing their interdependence and overlap to achieve the General Plan's comprehensive goals.

- **Natural and Cultural Resource Planning** forms the foundation, integrating conservation and hazard considerations.
- **Infrastructure Planning** builds on this foundation, focusing on essential components such as water, wastewater, stormwater, transportation, and other public utilities that complement natural resource planning and pave the way for economic opportunities.
- **Economic Opportunity Planning** is the next layer, which leverages natural assets and infrastructure to drive key industries such as agriculture, housing, education and other growth sectors.
- **Community Placemaking** sits at the top, demonstrating how these layers collectively enhance the quality of life in the community.

Each layer depends on and supports the others, much like the weave of sustainability, highlighting their crucial interrelationship.

## Table 16: Land Use Key Trends[1]

| | |
|---|---|
| **Population Centers & Density** | • Population centers are both rural and urban. Low population density exists in both rural and urban areas throughout the island. There is an average of 1,488 people living in every square mile of urban areas and an average of 18 persons per square mile in rural areas.<br>• The 2020 Census identified 3 urban areas based on population: Hilo, Kailua-Kona, and Waikoloa.<br>• The majority (approximately 60%) of the County's population lives in rural areas – no change is expected through 2045. In contrast, nationwide, 20% of the population lives in rural areas. |
| **Changing & Aging Population** | • Over the next 25 years, the population growth rate is expected to decline from an average of 2.3% per annum to about 0.9% per annum. In 2045, the resident population is forecast to be approximately 273,232, which is a 35% increase since 2018.<br>• During the last two decades, there has been an average of 2,338 births and 1,458 deaths per year in the County, resulting in a net increase of almost 880 people annually.<br>• About 90% of the growth on average is through in-migration.<br>• In 2018, 67,293 Hawai'i State residents moved to the mainland; they were partially replaced by 54,074 mainlanders who moved to the State for a net out-migration from Hawai'i of 13,219.[2]<br>• The population over age 65 is expected to grow by 44% by the year 2045. In 2020, the largest cohort of the population was between the ages of 60 to 69. |
| **Housing Affordability & Choice** | • In 2010, 42% of owner-households with a mortgage and 45% of all renter-households were paying more than 30% of their income for housing. By 2020, this had decreased slightly to 39% and 43%, respectively. A majority of those could be considered severely shelter-burdened.<br>• Nationally, 30% of households paid more than 30% of their income on housing in 2020. The State of Hawai'i continuously ranks in the top 3 highest shares of shelter-burdened, nationally.<br>• Approximately 43% of the housing units were deemed unaffordable in 2020.<br>• Hawai'i has one of the highest overcrowding rates in the country, at 7.7%. The level of overcrowding varies across the island with Ka'ū, Waimea, South Kona, and Upper Puna experiencing overcrowding rates in the double digits. However, on average, Hawai'i County's overcrowding rate is still the lowest among all Hawai'i's counties.<br>• Relative to the countywide average, the rural communities have the largest percentages of housing that are affordable. In contrast, the North Hilo-Hāmākua Coast Villages and North Kohala have the lowest percentages of affordable housing. Most of the County's total stock of affordable housing is in Puna (24.2%), Hilo (21.7%), and North Kona (23.3%). However, these numbers do not address the needed capacity of affordable housing based on demand. |
| **Shifting Visitor Accommodation Types** | • Most visitor units are in South Kohala and North Kona.<br>• With the upward trend in visitor arrivals expected to increase through 2045, increasing demand for visitor units is expected. With this growth comes the challenge of planning for their impact on the local economy, especially regarding visitor accommodation rentals.<br>• The number of transient accommodation rental units is beginning to trend higher than hotel units that once dominated the visitor accommodation industry.<br>• There is also a shift in the type of visitors away from the major resort areas, which may put stress on the environment and infrastructure of other areas. |
| **Job Availability & Growth** | • The average annual growth rate for jobs averaged 1.4% since 2005, mirroring population trends, and it is expected to mirror population trends experiencing a slight decrease in the growth rate for the next several decades.<br>• The three primary economic sectors of the County's economy are the services producing sector, the goods producing sector, and agriculture. The services producing sector (e.g., government, education, health, accommodation, entertainment, food, etc.) is by far the largest, representing over 85% of employment. Roughly 9% of employees work in goods-producing jobs (construction and manufacturing). The agriculture sector represents about 6.5% of employment.<br>• More than two-thirds of workers are employed in one of five key industries: educational service, healthcare, and social assistance (about 18%); arts, entertainment, recreation, accommodation, and food services (about 15%); retail trade (about 10%); professional, scientific, management, administrative, and waste management (about 9%); and construction (about 7%).<br>• In 2020, 14% of the County's population was below the poverty line. State and national statistics were nearly 9.3% and 11.4%, respectively. |

[1] SMS Hawai'i, COH General Plan Comprehensive Review (2022) and the corresponding Key Findings Trends and Forecasts Report.

[2] University of Hawai'i Economic Research Organization (UHERO), Aloha 'Oe: Population Migration Between Hawai'i and the U.S. Mainland (2020)

## Table 17: Land Use Challenges

| | |
|---|---|
| **Infrastructure** | • A lack of existing infrastructure with low capacity, limited service areas, and aging facilities, in addition to the high costs of developing new systems, presents significant challenges.<br>• State land use designations and related requirements within or adjacent to Urban Growth Areas (UGA) limit the ability to increase densities.<br>• Existing single-family dwellings and lot sizes fail to achieve the desired density.<br>• Landowners and developers may incur the costs of constructing and operating private systems or upgrades due to the insufficiency and lack of wastewater systems in many areas. The shortage of licensed operators also increases operating costs and makes it more difficult to establish new private systems.<br>• County roadway standards are not modernized or flexible and remain a major cost to development.<br>• Pervasive strip mall infrastructure and minimal transit-oriented developments paired with disconnected routes create congestion issues for commercial areas. |
| **Regulations** | • Building code requirements affect construction costs and the ability to create multi-use buildings.<br>• Multiple layers of land use control and review require coordination between government agencies at the state and county levels.<br>• There are varying layers of code that are conflicting or inconsistent. Code requirements are also limited in integrating climate mitigation goals around reduced building materials and non-car-centric design.<br>• The State Land Use Commission must preside over boundary amendments that exceed 15 acres, which limits the efficiency of ensuring consistency in the land use pattern.<br>• Zoning must be updated in certain areas to reflect shifting trends and land use preferences.<br>• There is no Transfer of Development Rights (TDR) program to preserve open space and achieve density to remain consistent with the desired land use pattern.<br>• The State's historic review process has been cumbersome, inefficient, and delays projects unnecessarily. |
| **Funding & Financing** | • There is a need for gap financing that exceeds what a single lender or incentive program can fill.<br>• Additional capacity in development financing and specific community development financing is needed to increase the production of projects in the County.<br>• There is high demand for a limited pool of incentives and financing subsidies for affordable housing.<br>• Affordable housing projects in the County face higher financing gaps than projects elsewhere in the State.<br>• There are inconsistencies between development costs and prices the market can support. |
| **Market Conditions** | • Greenfield development in areas such as Puna is significantly cheaper than infill development in existing urban areas.<br>• Lower household incomes result in lower purchasing power, which makes underserved subdivisions the primary market for many homebuyers.<br>• Challenging site characteristics such as soil conditions and topography increase development costs.<br>• Market cycles and permitting requirements often do not coincide resulting in uncertainty and increases in processing times and costs. These challenges are exacerbated by performance conditions based on time versus appropriate mitigation conditions. |
| **Land Use Compatibility** | • Legacy zoning, such as industrial lands from the sugar plantation era, is not always consistent with the community's vision.<br>• Productive agricultural land use designations often do not coincide with productive agricultural activities.<br>• There is a common perception that all development is contrary to protecting natural and cultural resources. |
| **Public Engagement** | • NIMBYism can present barriers to collaborative processes.<br>• General misunderstanding and misinformation about land use policies can delay and disrupt strategic land use patterns.<br>• Public hearing processes can become political rather than regulatory processes. |

Performance conditions are essentially requirements or obligations that an applicant must complete before certain rights or obligations can take effect.

Not In My Backyard (NIMBY) is a characterization of opposition by residents to proposed developments in their local area, often due to concerns about potential negative impacts on the environment, property values, and quality of life. NIMBY protests have evolved over time, impacting the gentrification of neighborhoods and housing affordability.

## Table 18: Land Use Opportunities

| | |
|---|---|
| **Infrastructure** | • County departments are encouraged to develop a collaborative infrastructure capacity plan with prioritization of projects in their respective functional plans and based on desired growth areas and preferred density as identified by the General Plan.<br>• Coordinate with the Department of Health (DOH) to address unique land use situations on the island related to individual wastewater systems (IWS) and prioritization of resources.<br>• Increase housing density by utilizing additional dwelling units (ADU) in existing residential districts served by adequate utilities.<br>• Facilitate innovative public and private partnerships in infrastructure investment for targeted growth areas.<br>• County departments can provide greater flexibility in privately owned and maintained infrastructure concurrency requirements. |
| **Regulations** | • Remove barriers to residential development in the appropriate districts to reduce development timelines, increase housing stock availability, and increase affordability.<br>• Review and update the Building and Zoning Codes to allow for more flexibility.<br>• Collaborate across State and County agencies to facilitate efficient and effective land use processes.<br>• Advocate allowing for County-initiated State Land Use Commission District Boundary Amendments to meet the preferred land use patterns consistent with the General Plan Land Use Maps.<br>• Program the initiation of rezoning in targeted growth areas.<br>• Support and streamline the process of infill development.<br>• The most direct role the County plays in economic development is through land use regulation (e.g., permitting efficiency, transparency, predictability, and certainty) and property tax policy.<br>• Invest in the provision of strategic infrastructure including roads, water, and/or wastewater improvements to encourage higher density development in UGAs.<br>• Work with the State Historic Preservation Division (SHPD) to determine when there is a need to review a project related to the identification of cultural sites and practices.<br>• Work with SHPD to create standards related to the assessment of a project's effects on cultural sites and practices.<br>• Establish a framework for cultural impact assessments including recognizing findings and recommendations of prior cultural impact assessments within the same ahupua'a for new projects. |
| **Funding & Financing** | • Partner with the State and other counties to create a capacity-building plan for County departments, local developers, and community stakeholders.<br>• Leverage different financing mechanisms to support development and redevelopment, including Business/Community Improvement Districts, Tax Increment Financing, Community Facilities Districts, and Opportunity Zones.<br>• Seek and pursue additional mix of funding opportunities and tax incentives for (re)development. |
| **Market Conditions** | • Diversify economic drivers by exploring and growing the county's range of sectors and markets.<br>• Utilize creative solutions and partnerships to encourage, support, and prioritize infill development before expanding to greenfield areas.<br>• Make vacant and underutilized government-owned lands available for affordable housing or other (re)development, especially in or adjacent to urbanized areas with adequate or expandable infrastructure.<br>• Seek to acquire land for affordable housing developments and other redevelopment opportunities. |
| **Land Use Compatibility** | • Eliminate unpermitted non-conforming uses and develop proper land use patterns to ensure urban areas are used accordingly.<br>• Strategically use zoning to ensure proximate compatible and complementary uses that improve the vitality of urban areas.<br>• Regularly evaluate supply and demand to prioritize needed land use challenges.<br>• Demonstrate smart growth development. |
| **Public Engagement** | • Encourage affordable housing projects to meet the needs of neighborhoods (YIMBY).<br>• Apply strategies to engage community and stakeholders that go beyond legal notice requirements.<br>• Reinforce the alignment between community values and the General Plan and Community Development Plans. |



Yes, In My Backyard (YIMBY) proponents are generally concerned with creating density and growth in their communities, often with an emphasis on affordable housing. The YIMBY movement is a progressive effort toward the goal of achieving affordable, sustainable, and inclusive housing for all residents.

## 4.1.2 Land Use Goal, Objectives, Policies, and Actions

Goal: We strategically apply progressive land use strategies incorporating indigenous and contemporary knowledge and place-based practices to direct and manage growth for the health, safety, and emergency response and preparedness services for our communities.

### Objective 9

***Maintain community character and land use compatibility.***

#### Policies

9.1 The development of commercial facilities should be designed to reflect the character of the community while providing desired services and mitigating impacts on the surrounding environment.

9.2 In those cases where provisions of the zoning and subdivision code are inconsistent with the character of surrounding neighborhoods, variances, or Planned Unit Developments (PUD) that maintain consistent village/town character should be encouraged.

9.3 Zoning, subdivision, and other applicable ordinances shall provide for and protect open space areas.

9.4 Support mechanisms, such as PUD and Cluster Plan Development (CPD), that group parcel density to preserve open space, recreational areas, scenic viewsheds, or cultural or historic sites.

9.5 Discretionary permit applications for uses that may impact view planes to and along the coastline, and areas of natural beauty should take into consideration visual impact assessments and propose conditions to mitigate scenic impacts where appropriate.

9.6 In the review of discretionary permits, consider land use compatibility to ensure proximate compatible and complementary uses and appropriate mitigation measures.

9.7 Encourage developers of new urban areas to place utilities underground.

9.8 Route selection for high-voltage transmission lines should include consideration for setbacks from major thoroughfares and residential areas. Where feasible, delineate energy corridors for such high-voltage transmission lines.

#### Actions

9.a Develop a process for County-initiated State land use boundary reclassification to best align State Land Use with County long-range plans.

9.b Create village plans for unique urban areas that include considerations for urban design, aesthetic quality, and the protection of amenities in adjacent areas through landscaping, open space, and buffer areas.

9.c Develop subdivision standards that make a distinction between agricultural, rural, and urban land uses.

9.d Define the types of open space that are sought to be protected and establish standards to be applied to ensure its protection.

9.e Conduct a review and re-evaluation of the real property tax structure to simplify and assure compatibility with land use goals and policies.

9.f Study the feasibility, issues, and opportunities related to the development of a TDR program to strategically preserve open space and achieve density to remain consistent with the land use pattern in accordance with the General Plan Land Use Maps.

## Objective 10

***Increase the integration of natural systems planning including the Native Hawaiian ahupuaʻa framework.***

### Policies

10.1 Protect and enhance Hawaiʻi's beaches, shoreline, open spaces, and scenic resources.

10.2 During discretionary permit applications, the Planning Director may require a pedestrian, equestrian, and/or bicycle path when it is possible and safe to connect to existing or future open space, drainage, or active living corridors.

10.3 Proposed discretionary permits for large development projects (200+ units) in the North Kohala, South Kohala, North Kona, South Kona, and Kaʻū Districts should be designed to be as water neutral as reasonably possible through water conservation, recharge, and reuse measures to reduce the water footprint.

10.4 Identify outstanding natural or cultural features, such as water courses, fine groves of trees, heiau, and historical sites and structures on subdivision preliminary plat maps.

### Actions

10.a Amend the Zoning Code to create a category for lands that should mostly be kept in a natural state, but that may not be in the Conservation District, such as certain important view planes, buffer areas, and very steep slopes. The zoning category should include reasonable land uses.

10.b Amend the Zoning Code and Subdivision Code to allow CPDs to be applied to all zoning districts with appropriate building site standards.

10.c Collaborate with the State Office of Planning and Sustainable Development (OPSD) to create criteria to help identify and protect Native Hawaiian customary and traditional practices.

## Objective 11

***Increase equitable planning and decision-making processes.***

### Policies

11.1 Ensure there is necessary and adequate on-site infrastructure for development projects may include but not limited to water, wastewater, and multimodal infrastructure.

11.2 Ensure affordable housing requirements that meet the demand created by the development.

11.3 The County may impose incremental and conditional zoning based on performance conditions that focus on addressing the impacts of the proposed development.

11.4 Concurrency reviews should incorporate reduction in vehicle miles traveled to mitigate traffic impacts and achieve sustainability and demand management goals.

11.5 County agencies recognize that land use decisions on DHHL lands are determined by the Hawaiian Homes Commission (HHC) and should coordinate accordingly.

11.6 DHHL Plans (DHHL General Plan, DHHL Hawai'i Island Plan, DHHL Regional Plans) will be the authority on land use that will guide County policy regarding land uses and projects surrounding DHHL lands to prevent land uses that may negatively impact homestead communities.

### Actions

11.a Collaborate with the SHPD to create clear guidance to be used when reviewing a project related to the identification of cultural sites and practices.

11.b Implement efficiencies to make development decisions predictable, fair, and cost-effective.

11.c Evaluate concurrency requirements that would impose reasonable and fair infrastructure concurrency requirements on all developments.

11.d Amend the Zoning Code to allow for PUD to become administrative permits and subject to the approval of the Planning Director.

11.e Provide flexibility within the Zoning Code to accommodate emerging new industries through Use Permits or allow new uses that do not conflict with the purpose and intent of the existing zoned district.

11.f Update traffic impact analysis requirements to include alternative evaluations to the level of service outcomes, such as vehicle miles traveled and alternative transportation metrics.

## Objective 12

***Reduce the threat to life and property from natural hazards and disasters.***

### Policies

12.1 Enact additional land use and building structure regulations in areas vulnerable to severe damage due to the impact of waves or inundation.

12.2 Review land use policy as it relates to floodplains, high surf, and tsunami hazard areas.

12.3 Consider natural hazards in all land use planning and permitting.

12.4 Discourage intensive residential development in areas of high volcanic hazard.

12.5 Discourage public investment/infrastructure that supports increases in density in high-risk hazard areas , while allowing such investment to support existing residents and facilities.

12.6 Reduce development intensity in identified high-risk hazard areas.

12.7 Incorporate hazard mitigation strategies into policies and planning decisions using the most conservative models in delineating hazard areas.

12.8 Encourage the development and implementation of Community Wildfire Protection Plans, Firewise Community Certification, and public education programs for communities with high wildfire risk.

12.9 Encourage the use of natural features such as sand dunes, xeriscape, or native plants to provide buffers from hazards.

12.10 Traditional ecological knowledge and methodologies should be considered to mitigate, adapt, and restore areas prone to natural hazards and disasters.

12.11 Utilize multimodal trails for firebreaks and possibly emergency evacuation routes where feasible.

12.12 Power distribution should be placed underground when and where practical.

## Actions

12.a Update the Building Code to maintain cost-effective standards to resist hazards and reduce carbon footprint.

12.b Adopt natural hazard overlay zones and set appropriate conditions for land use, siting, and design within high-risk hazard zones.

12.c Amend the Zoning Code to establish building setbacks for coastal and inland cliffs.

12.d Collaborate with the Federal Emergency Management Agency (FEMA) to regularly update flood studies and refine flood zone designations.

12.e Review and amend land use policies to reduce risk from hazards including but not limited to floodplains, high surf, tsunami, landslides, erosion, wildfires, and high-risk volcanic hazard areas.

12.f Study the feasibility, issues, and opportunities of a TDR program to incentivize development away from high-risk hazard areas.

12.g Amend the Zoning Code to include a science-based shoreline setback to address climate change and sea level rise.

# 4.1.3 Overview of Land Use Designations and Maps

## Purpose and Authority of the General Plan Land Use Map

The designated land uses are delineated on the General Plan Land Use Map. The broad-brush boundaries indicated are graphic expressions of the General Plan policies, particularly those relating to land use. They are forward-looking, long-range guides to the general location and will be subject to a) existing zoning; and b) the State Land Use District. While some future actions must be consistent with the Plan, it is not retroactive and does not change existing subdivisions or zoning. Similarly, the acreages allocated represent alternatives for the various levels of economic activity and supporting functions, such as resort, residential, commercial, and industrial activities. The land use pattern is a broad, flexible design intended to guide the direction and quality of future developments in a coordinated and rational manner. The General Plan Land Use Map indicates the general location of various land uses in relation to each other.

## Interpretation

Interpretation of the General Plan Land Use Map should be reviewed against the following criteria: parcel boundaries, census block groups, place types, County zoning designations, State land use designations, and Community Development Plan (CDP) guidance. Because of the scale of the land use maps, the location of designated Natural lands should be verified by more detailed mapping when considering specific land use decisions. In the event of questions related to the General Plan land use designation of a parcel or area, the Planning Director will utilize the above criteria and any other relevant research and information available at the time to provide a clear interpretation of the General Plan Land Use Maps.

## Standard Guidelines

In each section of the land use designations outlined in this chapter, standard guidelines give examples and additional details regarding the intent of each land use designation. They are meant to be a design framework and used as general guidance and best practices.

# Table 19: General Plan Land Use Designations and Maps

## Urban Land Use

| GP DESIGNATION | DESCRIPTION |
|---|---|
| **High-Density Urban (HDU)** | General commercial, industrial-commercial mixed, multiple-family residential, and related services including Transit Oriented Developments (TOD). Confined to Urban Growth Areas (UGA). Compatible Zoning may include CG, MCX, PD, RM, CDH. |
| **Medium-Density Urban (MDU)** | Village and neighborhood commercial, light service industrial, and single-family and multiple-family residential and related functions including TODs or Traditional Neighborhood Development (TND). Confined to UGAs. Compatible Zoning may include CV, CN, PD, RM, RD, RS. |
| **Low-Density Urban (LDU)** | Residential, with ancillary community and public uses, and convenience-type commercial uses, including TND. Compatible Zoning may include RS, RCX, RA. |
| **Urban Expansion (UE)** | Allows for a mix of high-density, medium-density, low-density, industrial-commercial mix, and/or natural designations in areas where growth may be desirable, but where specific settlement and infrastructure have not yet been determined. Compatible Zoning may include RS, RD, RM, RCX, CN, CG, CV, MCX, PD, CDH, OPEN. |
| **Light/Service Industrial (LI)** | Uses include but are not limited to business parks, research and development centers, product assembly, distribution centers, laboratories, cottage industries, and light service industrial uses. Compatible Zoning may include ML, MCX. |
| **Heavy Industrial (HI)** | Uses include but are not limited to landfills, quarries, chemical plants, heavy equipment base yards, towing yards, and other uses with the potential to create public nuisance conditions (e.g., noise, environmental impacts). Compatible Zoning may include MG, ML, MCX. |
| **University (UNI)** | Public university, including ancillary public uses, residential, and support commercial uses. Compatible Zoning may include UNV. |
| **Resort (RES)** | Uses include a mix of visitor-related uses such as hotels, condominium hotels (condominiums developed and/or operated as hotels), single-family and multiple-family residential units, golf courses and other typical resort recreational facilities, resort commercial complexes, and other support services. Compatible Zoning may include V. |

## Rural Land Use

| GP DESIGNATION | DESCRIPTION |
|---|---|
| **Rural (RU)** | Situated outside of UGAs. Except where noted, these areas should retain their rural character with low-density residential development, supporting small-scale commercial development, and agricultural land uses. Rural areas should not be targeted with the development of major public infrastructure or the extension of public sewer service except where a documented health, safety, and/or welfare condition warrants such an expansion. Compatible Zoning may include RA, FA, A, OPEN. |

## Agriculture and Natural Land Use

| GP DESIGNATION | DESCRIPTION |
|---|---|
| **Productive Agriculture (PA)** | Lands with better potential for sustained high agricultural yields because of soil type, climate, topography, or other factors. (5-acre minimum lot size) Productive agricultural lands were determined by including the following lands:<br>• Lands outside of UGAs identified as "Important Agricultural Lands" on the 2005 General Plan Land Use Pattern Allocation Guide maps.<br>• Lands outside of UGAs identified in the Agricultural Lands of Importance to the State of Hawai'i (ALISH) classification system as "Prime" or "Unique".<br>• Lands outside of UGAs classified by the Land Study Bureau's Soil Survey Report as Class B "Good" soils. (There are no Class A lands on the Island of Hawai'i) Lands classified as at least "fair" for two or more crops, on an irrigated basis, by the USDA Natural Resource Conservation Service's study of suitability for various crops.<br>• In North and South Kona, the "coffee belt", is a continuous band defined by elevation, according to input from area farmers and the 2020 Update to the Hawai'i Statewide Agricultural Land Use Baseline Report.<br>• State agricultural parks.<br>Compatible Zoning may include FA, A. |
| **Extensive Agriculture (EA)** | Lands that are not capable of producing sustained, high agricultural yields without the intensive application of modern farming methods and technologies due to certain physical constraints such as soil composition, slope, tillable by machine, and climate. These lands are better suited for other less intensive agricultural uses such as grazing and pasture and can support additional residential densities when situated near UGAs.<br>Compatible Zoning may include RA, FA, A. |
| **Natural (NAT)** | Lands to be kept in a largely natural state with minimal facilities consistent with open space uses along with agricultural land uses. Includes areas vulnerable to natural hazards, steep slopes, lava fields, and areas set aside for cultural and/or natural resource preservation purposes that are not necessarily under active management. Compatible Zoning may include RA, FA, A, OPEN. |

## Open Space Land Use

| GP DESIGNATION | DESCRIPTION |
|---|---|
| **Recreation (REC)** | Parks, open space, and other recreational areas, such as golf courses, and shoreline setback areas not already in SLU Conservation. Compatible Zoning may include OPEN and adjoining Zonings. |
| **Conservation (CON)** | Forest and water reserves, natural and scientific preserves, areas in active management for conservation purposes, areas to be kept in a largely natural state with minimal facilities consistent with open space uses, such as picnic pavilions and comfort stations, and lands within the SLU Conservation District. Compatible Zoning may include OPEN. |

*Note: The General Plan Land Use Maps can be found at the end of this document.*

## 4.1.4 Urban Growth Areas

The Urban Growth Areas (UGA) include high-density Transit Oriented Development (TOD), medium-density Traditional Neighborhood Development (TND), and low-density Urban Neighborhood Centers. These centers provide physical, social, governmental, and economic concentrations and easier access to services, recreation, and employment activities.

To integrate land use planning and infrastructure planning, the urban centers have been designated based on Smart Growth principles[3]. This ensures that land use patterns and infrastructure availability help us achieve our intentional sustainable development goals. More specifically, urban centers have been designed to create compact, walkable, mixed-use spaces with a purposeful density that helps reduce the need for driving.

Infrastructure costs less when new residential areas are located near existing roadways, water and sewer lines, and employment centers. The location of urban uses should continue to be evaluated from the standpoint of how each use serves existing and future population growth of the surrounding area. It is also worth noting that shopping patterns have changed, resulting in fewer brick-and-mortar types of structures. This should continue to be evaluated to consider flexibility and mixed uses with performance standards to protect residential areas from potentially noxious uses.

The value of establishing UGAs lies in the ability to manage growth effectively, preserve natural and cultural resources, plan infrastructure efficiently, stimulate economic development, and foster strong, cohesive communities. UGAs present a strategic approach to urban planning that balances the needs of a growing population with the preservation of Hawai‘i Island’s unique character and heritage.



The urban land use objectives are directed toward making UGAs more efficient, livable, and safe. Growth should be encouraged in terms of renewing older areas or developing new urban areas consistent with the land use map. The General Plan Land Use Map designates areas reserved for urban expansion.



[3] Smart Growth America https://smartgrowthamerica.org/what-is-smart-growth/

## Objective 13

***Increase the use of Smart Growth principles to focus development within designated urban centers.***

### Policies

13.1 Encourage flexibility in the design of residential sites, buildings, and related facilities to achieve a diversity of socio-economic housing mix and innovative means of meeting the market requirements.

13.2 Prioritize increase in density, rehabilitation, and redevelopment within existing zoned urban areas already served by basic infrastructure, or close to such areas.

13.3 Incentivize rehabilitation and adaptive reuse of existing buildings rather than demolition in urban areas characterized by vacant, abandoned, and underutilized older buildings.

13.4 Encourage the rehabilitation and/or utilization of maximum density in multi-family residential areas.

13.5 Rezonings that promote infill are encouraged and should be conditioned to ensure connectivity to the surrounding developments and, where applicable, to provide mixed-use opportunities to make the area more pedestrian-oriented.

13.6 The establishment of urban types of zoning may include additional acreages to account for acreages utilized for public benefits, such as historic sites, public access, parks, and open space.

13.7 Within the "high- and medium-density" area, commercial development shall be focused on major streets, while interior blocks should be zoned primarily for small lot single-family and multi-family residential use.

13.8 Focus on medium- and high-density residential and commercial uses in communities that can sustain a higher intensity of uses and where consistent with General Plan Land Use Map and existing town character.

13.9 Support the rezoning of land to multiple residential near places of employment, retail, utilities, and educational, recreational, cultural, and public facilities.

13.10 Development of TODs and TNDs are encouraged within locations of the urban centers shown on the General Plan Land Use Map. These locations are approximate and become fixed during rezoning.

13.11 Plan for and identify appropriate areas for business incubation/innovation districts and industrial/business parks.

13.12 Urban renewal, rehabilitation, and/or redevelopment programs should be undertaken in cooperation with communities, businesses, and governmental agencies.

13.13 Support master planning by public and private institutions and landowners which emphasize TOD, affordable housing, and mixed-use development.

13.14 Low- to medium-density residential development and/or low-impact office uses within urban areas should serve as transitional densities between lower-density neighborhoods and more intensive commercial and residential uses.

13.15 Encourage the use of more innovative types of housing development with respect to geologic and topographic conditions, such as zones of mix and cluster and planned unit developments.

13.16 Lots within proposed single-family residential subdivisions should not have direct vehicular access from major collector streets or higher based on Federal Highway Administration classifications.

13.17 Large, oversized blocks in new subdivisions should be avoided in favor of smaller blocks and enhanced pedestrian networks. The determination of block size should be based on land use and the urban or rural character of the area.

## Commercial

13.18 Support the redevelopment of aging and high vacancy shopping centers and strip-type developments into mixed-use developments with housing and public recreation facilities.

13.19 Encourage the concentration of commercial uses within and surrounding a central core area adequately served by transportation, utilities, and other essential infrastructure.

13.20 Infrastructure and design elements shall be incorporated into the review of commercial developments.

13.21 Encourage a mix of uses near affordable housing and access to commercial and recreational opportunities.

13.22 Industrial and commercial mixed-use districts may be provided in urban centers.

13.23 Distribution of commercial areas shall meet the demands of neighborhood, community, and regional needs in accordance with Smart Growth principles.

13.24 Discourage strip or spot commercial development on the highway outside of the UGAs.

13.25 Discretionary permit applications for regional retail uses, including big box and regional shopping centers located adjacent to areas designated for low-density residential and rural uses, should be buffered to mitigate impacts.

13.26 Encourage small-scale manufacturing and processing within retail establishments that enhance and are consistent with the surrounding community.

13.27 Support the flexible design of commercial spaces to allow for transitional uses that serve the evolving needs of its users.

13.28 Discretionary permit applications for new commercial developments adjacent to or within existing industrial designated lands shall be reviewed for the criteria of conversion from industrial lands.

## Industrial

13.29 Industrial development shall be in areas adequately served by transportation, utilities, and other essential infrastructure or adjacent to unique resources and/or projects.

13.30 Support the creation of industrial uses in appropriate locations as part of mixed-use districts and developments.

13.31 Support Industrial Project District zoning and flexibility of uses and lot sizes, depending on the needs of the industries and the communities.

13.32 Encourage Industrial Project Districts and Innovation Centers within the UGAs.

13.33 Industrial-commercial mixed-use districts should serve as transitional areas in accordance with the General Plan Land Use Map and Community Development Plan.

13.34 Support land uses that locate regional-scaled industrial and warehouse sites near major transportation corridors, airports, and harbors.

13.35 Support the development of recycling operations near transfer stations and County landfills.

13.36 Industrial uses may be permitted outside UGAs through Special Permits only when there is a clear community benefit or consistent with County, State, and Federal sustainability objectives.

13.37 Encourage the rehabilitation of existing service-oriented industrial areas.

13.38 Mitigate impacts of industrial development on surrounding uses by requiring landscaping, trees, open spaces, buffer zones, and other appropriate conditions.

13.39 Future land uses in the vicinity of industrial areas, including airports, should have an adequate open space buffer and/or be compatible with the anticipated aircraft noise exposure levels for that vicinity.

13.40 Heavy Industrial and residential uses should be separated by other transitional uses or sufficient open space.

### Resort

13.41 Resorts, hotels, visitor attractions, and related development shall be in areas adequately served by transportation, utilities, and other essential infrastructure.

13.42 Promote and prioritize the rehabilitation and the optimum utilization of resort areas that are presently serviced by basic facilities and utilities before allowing new resorts.

13.43 Coastal resort developments shall provide public access to and public parking for beach and shoreline areas.

13.44 The development or designation of new resort areas should complement the character of the area; protect the environment and natural beauty; respect existing lifestyles, cultural practices, and cultural resources; and provide shoreline public access.

13.45 Do not allow new Resort (V) zoning development along the ocean side of Aliʻi Drive.

13.46 Resort development should be in balance with the social and physical goals as well as the economic desires of the residents of the area.

13.47 Encourage new developments to be water neutral by balancing water supply and demand.

13.48 Retreat Resort uses may be permitted outside UGAs through Special Permits only when there is a clear community benefit or consistent with County, State, and Federal sustainability objectives. .

13.49 On-site affordable housing and workforce units shall be excluded from the total permitted visitor unit counts for existing and new resort developments.

13.50 Encourage the addition of workforce housing opportunities within existing and proposed resort areas.

13.51 Incorporate open and natural spaces within existing and future resort areas.

## Actions

13.a Incorporate innovations such as “mixed-use zones” into the Zoning Code.

13.b Incorporate flexibility in codes and ordinances to achieve a diversity of socio-economic housing mix and to permit an aesthetic balance between residential structures and open spaces.

13.c Amend the Subdivision Code to ensure block sizes are based on land use and the character of the area.

13.d Initiate rezonings that promote infill to ensure connectivity and provide mixed-use opportunities to make the area more pedestrian-oriented.

13.e Amend Zoning Code to:

i. Establish a TOD overlay zone project district with a minimum size of 15 acres.

ii. Create a TND overlay zone for existing zoned lands within identified residential and commercial zoning districts.

iii. Allow for residential uses in ML and MCX zoning districts.

iv. Support innovative uses of alternative energy, agriculture, aquaculture, and others, in MCX zoning districts.

v. Clearly distinguish between general industrial and service industrial types.

vi. Establish urban open space standards.

vii. Create Industrial Project Districts and Innovation Centers.

## Urban Standard Guidelines

### Table 20: Transit-Oriented Development (TOD) Standard Guidelines

| | |
|---|---|
| **Service Area Population** | 20,000 – 50,000 residents (approx. radius of ¼ to ½ mile) |
| **Approximate Commercial Land Area** | 15 acres |
| **Example Locations** | Downtown Hilo, Kailua Village, Waimea, Waikoloa |
| **GP Land Use** | Medium or High-Density Urban |
| **Number of Commercial Establishments** | 40+ |
| **Typical Uses** | Mixed uses and higher density residential, multi-family residential, retail, commercial, light industrial uses, regional shopping centers with full-size department stores and a full range of merchandise and services; theater; outdoor events area. |
| **Compatible Zoning** | RM, CG, MCX, PD, CDH |
| **Access** | Access to one or more paved roads; commercial or public uses without direct driveway access to highway; complete streets, multimodal transport, active living corridors; transit hub; walkable |
| **Range of Possible Services** | District park, regional park; schools (all grades); community hall elderly or other special needs housing; medical facility with emergency room; police and fire station |
| **Character** | • Vernacular architecture that respects the historic context and scale of the community, usually subject to design criteria<br>• Urban Grid Street Network<br>• Limited driveway access<br>• On-street parking<br>• Public off-street parking<br>• Landscaping (including street trees) commensurate with environment/water availability.<br>• Sidewalks and/or walking or bike paths. |

## Table 21: Traditional Neighborhood Development (TND) Standard Guidelines

| | |
|---|---|
| **Service Area Population** | 10,000 – 20,000 residents |
| **Example Locations** | Volcano Village, Laupāhoehoe, Hāwī, Captain Cook, Pahala |
| **Approximate Commercial Land Area** | 10 – 15 acres |
| **GP Land Use** | Medium Density Urban |
| **Number of Commercial Establishments** | 20-40 |
| **Typical Uses** | Neighborhood-oriented retail uses and mixed uses; variety or junior department stores; convenience goods, "soft line" items (e.g., clothing), "hard line" items (e.g., hardware and small appliances); outdoor events area; bed-and-breakfast homes and small inns. |
| **Compatible Zoning** | RS, RD, RM, CN, CV, PD |
| **Access** | Access to one or more paved roads; commercial or public uses without direct driveway access to a highway where feasible; walking and bicycling paths; transit stop |
| **Range of Possible Services** | District park, community park, elementary or middle school, child and adult care facilities, community center, elderly or other special needs housing, medical clinic |
| **Character** | • Informal, vernacular architecture that utilizes natural exterior material and earth-toned colors<br>• Limited driveway access<br>• On-street parking<br>• Public off-street parking<br>• Landscaping (including street trees) commensurate with environment/water availability<br>• Sidewalks and/or walking or bike paths |

## Table 22: Urban Neighborhood Center Standard Guidelines

| | |
|---|---|
| **Service Area Population** | 3,000 – 10,000 residents |
| **Approximate Commercial Land Area** | Up to 10 acres |
| **Example Locations** | Kaumana, Wainaku, Keauhou, Hawaiian Ocean View Estates, Hawaiian Paradise Park |
| **GP Land Use** | Low or Medium Density Urban |
| **Optimal Residential Density** | 3 – 12 DU/Acre |
| **Number of Commercial Establishments** | 5 – 20 |
| **Typical Uses** | Neighborhood and convenience-type retail and personal services |
| **Possible Compatible Zoning** | RS, RD, RCX, CN, CV, RA |
| **Access** | Access to one or more paved roads; commercial or public uses without direct driveway access to a highway where feasible; connections to walking and bicycling paths; transit (or paratransit) stops |
| **Range of Possible Services** | Community park, neighborhood park, elementary school, multi-purpose meeting room or (minimum) place to congregate or post community notices, outdoor events area (e.g., barbeques and farmer's markets) |
| **Character** | • Informal, vernacular architecture that is small in scale and reflects a residence ambiance, utilizes natural exterior material and earth-toned colors<br>• Limited driveway access<br>• On-street parking<br>• Landscaping (including street trees) commensurate with environment/water availability<br>• Sidewalks and/or walking or bike paths |

## Table 23: Industrial Center Standard Guidelines

| | GENERAL INDUSTRIAL AND INNOVATION | SERVICE AND INNOVATION |
|---|---|---|
| **Existing Locations** | Shipman Industrial Park, Kanoelehua Industrial Area, Hilo Airport, Haina, Kawaihae and Hilo Harbors, Keahole Airport, West Hawaiʻi Business Park | Pahoa, Hilo Iron Works, Waiakea House Lots, Laupāhoehoe/Papaʻaloa, Hāwī, Waimea, Waikoloa, Kainaliu-Honalo, Kona Industrial Center, Honokōhau, Natural Energy Lab, Kealakekua-Captain Cook, Naʻalehu, Kaloko Industrial Area. |
| **GP Land Use** | Heavy Industrial | Light Industrial |
| **Typical Uses** | Landfills, quarries, chemical plants, heavy equipment base yards, towing yards, etc. | Business parks, research and development centers, product assembly, distribution centers, laboratories, cottage industries, small-scale distilleries/breweries, etc. |
| **Compatible Zoning** | MG | ML, MCX |
| **Access** | Convenient automobile access to one or more paved roads, on-site parking | Access to one or more paved roads, on-street parking, street trees and sidewalks, walking and bicycle paths, transit (or paratransit) stop |
| **Character** | • Located close to raw materials or key resources, generally considered to be offensive and noxious.<br>• Noxious, heavy industrial uses should be separated from residential and other incompatible uses with buffer zones.<br>• Topography of industrial land shall be reasonably level.<br>• Direction of wind patterns and the absence of trade winds shall be considered in the siting. | • Located close to population centers, for business and industrial uses (not considered noxious or heavy industrial) that are generally in support of, but not necessarily compatible with activities and uses in other commercial districts.<br>• Topography of industrial land shall be reasonably level.<br>• Direction of wind patterns and the absence of trade winds shall be considered in the siting |

## Table 24: Criteria for Industrial Land Conversion to Commercial/Mixed-Use

| | EXISTING INDUSTRIAL CONDITIONS | CONDITIONS APPROPRIATE FOR CONVERSION |
|---|---|---|
| **Transportation** | • Proximity to freight and/or port facilities<br>• Low Vehicle Miles Travelled for workers on industrial land | • Proximity to transit<br>• High Vehicle Miles Travelled for workers on industrial land |
| **Economy** | • Production or related employment<br>• Proximity to business clusters/suppliers/markets<br>• Critical supplier to local businesses<br>• Industry stable or growing | • High-density non-production employment<br>• Proximity to markets/customers<br>• Limited linkages to local economy<br>• Industry in decline |
| **Equity** | • Offers middle-wage jobs for less-skilled workers | • Potential for affordable housing |
| **Land Use/Zoning Compatibility** | • Surrounded by medium/heavy industrial zoning | • Adjacent to existing residential and/or commercial areas. |
| **Environment** | • Brownfield site, remediation infeasible | • Environmental health hazards from industries starting to impact surrounding communities (especially if historically disadvantaged)<br>• Can be remediated |
| **Adequacy of Supply** | • In areas with a projected deficit of industrial land<br>• Low vacancy rates for industrial buildings | • In areas with a projected surplus of industrial land<br>• High vacancy rates for industrial buildings |

## Table 25: Resort Area Standard Guidelines

| | MAJOR RESORT AREA | INTERMEDIATE RESORT AREA | MINOR RESORT AREA | RETREAT RESORT AREA |
|---|---|---|---|---|
| **Example Locations** | Waikoloa, Keauhou, Kaupulehu-Kukio, Mauna Kea Beach Hotel, Mauna Lani. | Waiakea Peninsula, Punaluu | Keaukaha, Wainaku | Kalani Honua, etc. |
| **Typical Visitor Units** | 3,000 units | 1,500 units | 500 units | 40 units, without individual kitchens. |
| **Approximate Land Area** | Resort Acreage: 90 acres minimum | Resort Acreage: 45 acres minimum | Resort Acreage: ~25 acres | Resort Acreage: ~15 acres |
| **GP Land Use** | Resort | Resort | Resort | Various |
| **Active and Passive Recreation** | 50 acres minimum | 25 acres minimum | Provide active and passive recreation areas commensurate with the scale of development. | Provide active and passive recreation areas commensurate with the scale of development. |
| **Typical Uses** | Self-contained resort destination area that provides basic and support facilities for the needs of the entire development. | Self-contained resort destination area that provides basic and support facilities for the needs of the entire development on a smaller scale than a major resort area | Small resort destination area that relies on the nearby community for amenities and support facilities. | Area that provides the user with rest, quiet, and isolation for an environmental experience. |
| **Compatible Zoning** | V | V | V | V, or by Special Permit |
| **Access** | Access to one or more public roads; commercial or public uses without direct driveway access to highway<br>Walkable<br>Walking and bicycling paths<br>Transit Hub<br>Public access to and parking for beach and shoreline areas | Access to one or more public roads; commercial or public uses without direct driveway access to highway<br>Walkable<br>Walking and bicycling paths<br>Transit Hub<br>Public access to and parking for beach and shoreline areas | Access to one or more public roads; commercial or public uses without direct driveway access to highway<br>Walkable<br>Walking and bicycling paths<br>Transit Hub<br>Public access to and parking for beach and shoreline areas | Access to one or more paved roads; Shall not be accessed through substandard roads or roads-in-limbo unless meeting fire safety and not impacting traffic within the existing neighborhood;<br>Transit (or paratransit) stops;<br>Public access to and parking for beach and shoreline areas |
| **Workforce Housing** | Meet affordable housing requirements of the Hawai'i County Housing Code | Meet affordable housing requirements of the Hawai'i County Housing Code | Meet affordable housing requirements of the Hawai'i County Housing Code | Meet affordable housing requirements of the Hawai'i County Housing Code |
| **Character** | Consistent with the surrounding area's quality, ambiance, and character | Consistent with the surrounding area's quality, ambiance, and character | Consistent with the surrounding area's quality, ambiance, and character | Consistent with the surrounding area's quality, ambiance, and character |

## 4.1.5 Rural

Hawai‘i Island is widely considered rural, yet the State Land Use Rural District comprises just 807 acres or less than one percent of the island’s total land area. The Rural District was defined after the original district boundaries were established upon the request of small landowners. In the establishment of the original district boundaries in 1963 to 1964, plantation towns and rural centers were designated Urban, although urban land use and development standards are inappropriate for use in the context of rural settlements and rural infrastructure. All working and open lands not designated as Conservation were designated Agricultural, even if they had little agricultural resource value. Consequently, many of our rural areas are still designated State Land Use Agricultural with Agricultural County Zoning.

Rural areas are situated outside of the UGAs, where a city-like concentration of people, structures, streets, and urban level of services are limited, and where small farms are intermixed with low-density residential development. These areas should retain their rural character with low-density residential development, supporting small-scale commercial development, and agricultural land uses. It is worth noting that Rural and Agricultural land uses are not interchangeable and have distinct outcomes.

Residents value the natural spaces, open areas, and small-scale agricultural activities that rural living provides. The history and character of the island’s rural communities are irreplaceable. Well-defined rural areas that are distinct from agricultural areas can address the demand for rural lifestyles on marginal agricultural land while reducing the pressures to develop important agricultural land for non-agricultural purposes.

Minimizing sprawl and greenfield development can be challenging when rural residences have been among the most affordable homeownership options on Hawai‘i Island for decades. Rural subdivisions, such as Hawaiian Paradise Park and Hawaiian Oceanview Estates, have been two of the fastest-growing residential areas on the island because lots have been the most affordable. Many rural subdivisions have also been the most underserved areas, in terms of infrastructure and services. These communities may lack essential infrastructure and services such as healthcare facilities, schools, and transportation options. The distance from urban centers and the dispersed nature of rural settlements makes it challenging to provide adequate services to these areas.



Despite these challenges, rural communities often exhibit strong social cohesion and self-sufficiency. Preserving rural character and lifestyle allows residents to maintain a sense of community and fosters resilience in times of adversity, such as natural disasters or disruptions to external supply chains. Rural areas often retain strong ties to the island’s cultural heritage, which helps maintain traditional practices and values that are important to communities. By maximizing rural lands, there are opportunities to support small-scale farming and promote agricultural self-sufficiency. The General Plan recognizes the value of utilizing Rural as a land use designation to clearly define and characterize its role on our island.

## Objective 14

***Maximize the use of Rural designated lands to preserve rural character and lifestyle.***

### Policies

14.1 Support the State Land Use reclassification to Rural in alignment with the General Plan Rural designation.

14.2 Support reclassification/rezoning of appropriate General Plan Rural designated areas where an intermediate land use and a well-defined buffer between Urban and Productive Agricultural areas are consistent with the surrounding uses and rural character.

14.3 Support General Plan amendments and rezoning applications for the development of new Rural Neighborhood Centers with adequate infrastructure, as necessary, in or near presently underserved subdivisions, beginning with those experiencing higher rates of population growth.

14.4 Rural-style residential-agricultural developments, such as new small-scale rural communities or extensions of existing rural communities, should be incentivized to cluster in appropriate locations.

14.5 Support the development of small-scale visitor accommodations with heritage, agriculture, wellness, or similar themes in rural areas and near points of interest.

14.6 Provide flexibility in discretionary permit applications to maintain health and safety for rural small-scale visitor accommodations not serviced by public infrastructure.

### Actions

14.a Amend the Zoning Code definition and requirements for Lodges and reconcile similarities and inconsistencies with the special permit provisions for Retreats. Clearly articulate in the Code the zoning districts appropriate for Lodges.

14.b Amend the zoning districts currently listed as Family Agricultural District (FA) and the Residential and Agricultural Districts (RA) to be consistent with the Rural designation and to allow for home occupations that do not negatively impact rural character.

14.c Amend the Zoning Code to allow telecommuting and home-based businesses that rely on the internet as permitted accessory uses to residential uses when operated in compliance with cottage industry performance standards.

14.d Amend the Zoning Code and Subdivision Code to establish Clustered Rural Subdivision PUD.

## Table 26: Rural Neighborhood Standard Guidelines

| | |
|---|---|
| **Service Area Population** | Up to 3,000 residents |
| **Approximate Land Area** | 1 – 5 acres |
| **GP Land Use** | Low-Density Urban, Rural |
| **Example Locations** | Kurtistown, Holualoa, Hokulia, Hawaiian Ocean View Estates, Volcano Village, Hawaiian Paradise Park, Kaumana City |
| **Number of Commercial Establishments** | 1 – 5 |
| **Typical Uses** | Primarily low-density residential. Limited neighborhood-serving businesses may be allowed to provide goods and services for daily needs and community gathering spots. Civic uses (e.g., fire stations, schools, churches, etc.) and additional dwelling units may also be allowed provided such uses are oriented toward serving the needs of rural, low-density neighborhoods. |
| **Compatible Zoning** | RS, RCX, RA |
| **Access** | Access to one or more paved roads; commercial or public uses without direct driveway access to a highway where feasible; connections to walking and bicycling paths; transit (or paratransit) stops. |
| **Range of Possible Services** | Typical services may include retail and personal services, neighborhood park, elementary school, multi-purpose meeting room or (minimum) place to congregate or post community notices, and outdoor events area (e.g., barbeques and farmer's markets). |
| **Character** | • Informal, vernacular architecture that is small in scale and reflects a residence ambiance, utilizes natural exterior material and earth-toned colors<br>• Limited driveway access, on-street parking, public off-street parking<br>• Landscaping (including street trees) commensurate with environment/water availability<br>• Sidewalks and/or walking or bike paths |

## 4.1.6 Agriculture

Agriculture, including but not limited to farming, ranching, forestry, nursery, and aquaculture operations, holds a crucial role in Hawai‘i for its significance in the economy, food security, environmental sustainability, and cultural heritage. Land use planning policies directly impact agricultural land and activity, shaping the future of farming practices, food production, and the overall agricultural landscape on Hawai‘i Island.



The State Land Use Agricultural District encompasses 1,184,599 acres or 46 percent of the island's total land area. However, during the original designation of lands, all working and open lands not designated as Conservation were designated Agricultural, even if they had little agricultural resource value. Since then, there have been efforts to better define lands well-suited for productive agricultural uses based on soil data, rainfall, and other factors. Ensuring appropriate agricultural land uses is a priority of the State and County of Hawai‘i. The General Plan further works to define and protect productive agricultural land through establishing policies and guidelines that support and enhance agricultural activities while promoting responsible land use practices.

One of the primary challenges to the maximization of agricultural production is access to affordable land. Productive agricultural land values have risen beyond their value for agricultural purposes due to increases in non-agricultural residential uses. Other impediments to agricultural production include labor cost, labor availability, and limited market access. The agricultural industry is constantly evolving and has shifted away from larger-scale production and now includes value-added processing and agricultural tourism. This shift has resulted in the need to manage large tracts of otherwise unmanaged agricultural lands. Unmanaged lands are often full of fire-prone grasses and shrubs which create dangerous conditions for wildfires. The land use regulatory system should encourage the management of all agriculural lands and must be flexible to adapt and allow the agricultural industry to make changes that help it to succeed.



The General Plan provides planning tools to incentivize the highest and best use of productive agricultural lands. The Plan's policies and actions are aimed at maintaining the viability of the agricultural sector by preserving productive agricultural land, promoting local food production, supporting sustainable farming and ranching practices, mitigating urban encroachment, strengthening the local economy, and contributing to the conservation of the island's biodiversity.

## Objective 15

***Support the active use of Productive Agricultural lands.***

### Policies

15.1 Development in Productive Agriculture and Extensive Agriculture areas should include agricultural uses, related economic infrastructure and cottage industries, compatible renewable energy, open area recreational uses, community facilities, and compatible agriculture worker housing.

15.2 Special permit applications within Productive Agriculture designated land should support primary agriculture use.

15.3 Encourage buffer zones or compatible uses between Productive Agriculture and adjacent other uses of land to mitigate unintended agriculture externalities such as machine/animal noise, odors, fertilizer/pesticide drift, and related impacts.

15.4 Preserve agricultural character, including the open space preserved by agricultural land.

15.5 Support the development of small-scale visitor accommodations that directly promote the agriculture industry, health and wellness industry directly related to agriculture, or are near points of interest that support agriculture.

15.6 Any subdivision or agriculture worker housing complex developed on Productive Agricultural Lands should be clustered to minimize impact.

15.7 Encourage and aid the agricultural industry in continuing to provide agriculture worker housing.

15.8 Encourage the use of agriculture, ranch, and forestry land preservation programs.

15.9 Promote the preservation and restoration of indigenous agricultural systems.

15.10 Provide flexibility to allow adjacent compatible uses for agriculture with industrial components, such as carbon sequestration, timber, or food processing.

15.11 Encourage agroforestry as a viable industry, which can utilize less productive agricultural lands and contribute to carbon sequestration.

### Actions

15.a Amend the Zoning Code to develop standards for permitting certified incubators or commercial kitchens in Rural or Agricultural districts.

15.b Conduct a study to review a maximum developable area consideration for properties designated as Productive Agricultural lands.

15.c Create and adopt a County Agricultural Tourism program.

15.d Amend the County Code to allow agriculture worker housing to be permitted where the employee's primary occupation is working on a specific farm but where the housing and the farm are not on the same parcel.

15.e Update the Real Property Tax Code for agricultural land uses that result in actual production or other public benefits, such as native forestry and the ecosystem services that result from well-managed rangelands.

15.f Amend the Zoning Code to require Plan Approval for commercial open area recreational uses in the Agricultural District.

15.g Evaluate the Zoning Code relating to livestock production such as piggeries, apiaries, and pen feeding based on modern practices and potential impacts on adjacent uses.

15.h Develop standards and guidelines for buffer areas located adjacent to agricultural lands.

15.i Develop a program and incentives, including proposed resources (e.g., grants, loans, technical assistance, education) that support small-scale farmers, the lease of public lands, and learn opportunities to become effective stewards of the land.

15.j Collaborate with USDA and the State to enable farmers to bring local meat to local markets.

# 4.2 TRANSPORTATION ACCESS AND MOBILITY




**4.2 Transportation Access and Mobility**

4.2.1 Introduction
4.2.2 Goal, Objectives, Policies, and Actions
4.2.3 Active Living Corridors
4.2.4 Mass Transit
4.2.5 Roadways
4.2.6 Transportation Terminals: Airports and Harbors











## 4.2.1 Introduction

Transportation access and mobility are vital elements of any thriving community. These concepts encompass how individuals, goods, and services move within and beyond Hawai'i Island. This element of the General Plan examines various modes of transportation, including roadways, public transit, biking and walking paths, and air and sea transport. These networks enable people to commute to work, access essential services, connect with natural and cultural attractions, and facilitate the movement of goods and services that sustain our local economy. The County recognizes the significance of transportation infrastructure in advancing economic growth, enhancing the quality of life, and preserving our unique natural and cultural assets.

As the largest and most ecologically diverse island in the State, the County faces various challenges and opportunities in ensuring efficient, sustainable, and equitable transportation systems. The Plan aims to improve connectivity, reduce carbon emissions, alleviate traffic congestion, and enhance energy efficiency. This approach not only minimizes the environmental impact of transportation but also promotes a healthier and more livable community for all residents. This section sets the stage for comprehensive and forward-thinking policies that will help guide transportation infrastructure development, promote alternative modes of transportation, and address the evolving needs of residents, visitors, and businesses across the island.

Resilience, on the other hand, is the capacity of a community to adapt, withstand, and recover from shocks and stressors such as natural disasters and economic fluctuations. Accessible and resilient transportation infrastructure is vital during emergencies, enabling efficient evacuation, emergency response, and the restoration of critical services. By investing in resilient transportation systems, the County strengthens its ability to confront and recover from adversities, ensuring the well-being and safety of its residents in times of crisis.

Transportation planning focuses on providing safe, efficient, and affordable modes of mobility for people and goods that achieve our sustainability goals and establish resilient responses to climatic and economic challenges. The traditional traffic perspective evaluates transportation system performance according to vehicle speeds, delays, level of service, and operating costs. Contemporary perspectives broaden evaluation to mobility costs and transit times of a variety of transportation modes and accessibility for people and businesses to reach desired services and goods. This broadened view of active transportation considers the movement of people through human-powered means, such as walking or cycling, small-scale motorized and traditional vehicular solutions, such as electric scooters, and communal offerings such as ridesharing or mass transit.

The Plan is focused on improving connectivity within and between communities, enhancing multimodal transportation options, prioritizing health and safety, reducing congestion, and minimizing the environmental impact of transportation systems. This section leverages emerging technologies, incorporates sustainable practices, and considers the County's long-term goals for resilience and adaptation to climate change.



## Table 27: Transportation Key Trends

| | |
|---|---|
| **Job and Population Centers Mismatch**[1] | • Generally, about 42% of jobs in Hawai'i County are in Hilo, nearly 25% in North Kona, approximately 7% in the Waikoloa and Waimea areas, and about 1 to 7% in each of the other population centers.<br>• The Census measure of "mean travel time to work" has increased from 24.5 minutes in 2000 to 26.8 in 2020, reflecting an increase in population centers outside of job centers. |
| **Investment in Electric Vehicles**[2] | • As of 2024, the statewide percentage of registered vehicles that are electric is 2.9%.<br>• There is a total of 32,187registered electric vehicles in the state.<br>• There are 385 charging stations statewide. |
| **Growing Interest in Active Transportation** | • Between 2016 and 2020, 10.1% of workers were commuting by active transportation in the state.<br>• The County of Hawai'i Mode Share as of 2017 included:<br>o Pedestrian 2.3%<br>o Bicycle 0.44%<br>o Transit 1.2%<br>• Generally, an increase in active transportation can be achieved with improvements in connectivity to a defined Active Transportation Network.<br>• At its peak in 2012, Hele-On provided service to 1.2 million passengers and by 2018, ridership dropped by a third, and the primary cause is believed to be decreased reliability of service. |









[1] SMS, COH General Plan Comprehensive Review (2022) and the corresponding Key Findings Trends and Forecasts Report.

[2] Hawai'i EV Association. https://hawaiiev.org/#:~:text=EV%20Adoption%20in%20Hawaii%20%2D%20Now,About%20public%20charging%20in%20Hawaii%E2%80%A6

## Table 28: Transportation Challenges

| | |
|---|---|
| **Continuing, Comprehensive, & Cooperative Planning** | • Transportation requirements identified in County plans require interdepartmental collaboration on projects from ideation to implementation to be fully realized.<br>• Active transportation planning requires gathering data and analyzing demand for all modes of transportation to support the desired movement of people and goods sustainably and equitably.<br>• Increasing roadway capacity to relieve congestion induces more congestion in the long run when not countered with traffic demand management.<br>• Emerging technologies increase the demand for new and evolving transportation needs. |
| **Financing** | • Increased fuel-efficient and electric vehicles challenge the stability of gas tax contributions to highway funding.<br>• Current operating budget funding and asset condition information are not adequate to maintain existing transportation assets.<br>• Current Capital Improvements Program (CIP) demands for new transportation facilities and services far exceed the County's ability to fund these activities on an annual basis. |
| **Public Access** | • County codes and procedures do not adequately address criteria, planning, implementation, dedication standards, and authority requirements for public access elements.<br>• Public access requires collaboration and can be complicated when working with public and private landowners, community members, and local, state, and federal agencies.<br>• Environmental hazards and the uncertainty of climate change impacts pose risks to the quality and safety of public access. |
| **Mass Transit** | • Declines in ridership have reduced funding for operation and maintenance as well as expansion of services.<br>• Fleet conditions, and onboard services need to be updated or upgraded to improve rider perceptions of comfort, safety, and place-making.<br>• Route schedules and status are not readily available in real-time while riders are in transit. |
| **Roadways** | • Multimodal roadway planning is complex, requires relevant data, and is difficult to secure across essential interdepartmental processes.<br>• Forms of transportation that utilize roadways are changing in technology (e.g., electric vehicles, autonomous vehicles) and scale (e.g., micro-mobility, mobility as service). Design standards must be responsive to these changes.<br>• The location of urban areas along the island's perimeter increases transportation demands to meet employment and livability requirements.<br>• Aging roadway systems, structurally deficient bridges, and roads-in-limbo increase maintenance requirements and decrease service levels.<br>• Roadway fatalities remain high in comparison to other counties in Hawai'i.<br>• The lack of transportation and mobility options in certain areas creates long daily commutes for residents while contributing to a high vehicle count on many roads.<br>• Parking requirements can be an impediment to (re)development and infill due to high vehicle reliance. |
| **Terminals: Airports & Harbors** | • Pre-COVID-19, tourism accounted for approximately 15% of vehicle miles traveled (VMT), with rental cars as the primary means of transportation for tourists.<br>• Major airports and harbors are owned and operated by the State Department of Transportation.<br>• The location of some major airports and harbors makes it difficult to use active or alternative transportation. |

## Table 29: Transportation Opportunities

| | |
|---|---|
| **Continuing, Comprehensive, & Cooperative Planning** | • Establish metrics for evaluating transportation solutions and implement data capture (including emerging technology) and analysis procedures that should inform changes in planning strategies and policies.<br>• Improve interagency collaboration to define processes for project creation, scoping, design, and construction.<br>• Collaborate with the State Department of Transportation (DOT) to establish a transportation planning organization using State Research and Planning grants to initially fund planning activities including data management.<br>• Promote transportation polices found in the existing plans that can expand access to jobs, health care, and other services and can create more equitable and safe choices of transportation.<br>• Allow market conditions to determine actual usage and future infrastructure to determine the best means of transportation needs and related issues. |
| **Financing** | • Prepare projects that are qualified for funding under the Bi-Partisan Infrastructure Act.<br>• Evaluate alternative financing strategies that consider property tax, fees, and cost-sharing solutions with new development.<br>• Establish an Asset Management Program to define the appropriate maintenance strategy and funding required secure level of service and asset availability. |
| **Public Access** | • Standardize interagency agreements for standards, maintenance mapping, and enforcement.<br>• Amend ordinances, laws, and codes to be inclusive of and address public access concerns.<br>• Apply designated Special Management Area(s) (SMA) to support the public's access to and along the shoreline.<br>• Hawai'i County Public Access, Open Space, and Natural Resource Preservation Commission (PONC) can further support public access. |
| **Mass Transit** | • Partner with alternative fuel providers to determine fleet vehicles to be purchased to replenish the bus fleet and to optimize purchase and operation costs.<br>• Provide a variety of transit options and amenities on mass transit that broaden the appeal to potential riders.<br>• Re-evaluate mass transit routes to meet ridership demands, connect to active transportation solutions for the first and last mile, and be co-located with other services of interest. |
| **Roadways** | • Collect and analyze data required to propose multimodal solutions to accommodate cross-island and localized transportation demands.<br>• Define collaborative procedures for cross-department identification of multimodal projects with integration into the CIP planning process.<br>• Improve the integration of transportation and land use planning to optimize the use, efficiency, and accessibility of existing and proposed transit systems.<br>• Coordinate other infrastructure elements (e.g., water, sewer, power, broadband, public transit) where possible to connect follow-on services and funding.<br>• Reduce traffic-related injuries and fatalities through roadway design and community awareness.<br>• Promote the visioning of public right-of-way (ROW) as a public space and used for place-making.<br>• Optimize repaving projects to retrofit multimodal design in existing ROW. |
| **Terminals: Airports & Harbors** | • The integration of mass transit, ridesharing, ride-hailing, and other shared-use mobility options at airports and harbors can help reduce reliance on rental cars.<br>• Applying Destination Management Plan actions can help bridge the alternative transportation gap.<br>• There are Transit-Oriented Development (TOD) opportunities around airports and harbors. |

## 4.2.2 Transportation Goal, Objective, Policies, and Actions

Goal: Each community is connected by a multimodal and modernized transportation network that provides a system for safe, efficient, and comfortable movement of people and goods.

### Objective 16

***Achieve a transportation system that is consistent with and will accommodate planned growth.***

#### Policies

16.1 Encourage transportation systems that serve to accommodate the present and future development needs of communities.

16.2 Encourage safe and convenient use of low-cost, energy-efficient, non-polluting means of transportation.

16.3 Encourage the diversification of transportation modes and infrastructure to promote alternate fuels and energy efficiency.

16.4 Transportation and land use planning shall be integrated to optimize the use, efficiency, and accessibility of existing mass transportation systems and future demand.

16.5 Establish a framework of transportation facilities that will influence desired land use and promote multimodal options.

16.6 Provide for present traffic and future demands, including the development of mass transit programs for high-growth areas by both the private and public sectors.

16.7 Implement procedures for County departments to collaborate on defining short- and long-term transportation CIP projects in terms of scope, timing, proposed funding, and project performance measures required to optimally achieve transportation ambitions stated in County plans, standards, and laws.

16.8 Prioritize CIP investments consistent with General Plan goals and objectives with consideration for multimodal transportation demands, walking and cycling infrastructure, and safety features for our most vulnerable roadway users, for all roadway repaving, rehabilitation, and reconstruction.

16.9 Support the design of all transportation facilities, including airports, harbors, and mass transit stations, to reflect local and/or Hawaiian architecture.

16.10 Identify and evaluate transportation strategies to address energy and climate issues.

16.11 Prioritize public and private transportation investments to expand the multimodal transportation system.

16.12 Require new developments to contribute their pro rata share of local and regional infrastructure costs.

16.13 There shall be coordinated planning of transportation systems for the funding of projects in areas of anticipated growth and to meet program goals of other elements such as historic, recreational, environmental quality, and land use.

## Actions

16.a Develop a comprehensive, island-wide multimodal transportation plan that identifies the location and operation of automobile, mass transit, bicycle, and pedestrian systems, in coordination with appropriate federal and state agencies.

16.b Develop a planning and financing strategy to fund timely and routine maintenance of County transportation assets that secures availability and reliability, independent of CIP activities.

16.c Amend the County Code, Chapters 22, 23, and 24, to increase active transportation and accommodate emerging micro-mobility solutions.

16.d Establish interdepartmental teams to review significant development projects to evaluate integrated infrastructure requirements, multimodal options, and private-public collaboration to ensure implementation.

## 4.2.3 Active Living Corridors and Public Access

Access to coastal and mountain areas was traditionally and is currently an essential element of island life that provides for gathering resources and transportation, as well as engaging in activities of cultural significance, recreation, and ancestral legacy. In 1995, the Public Access Shoreline Hawai'i (PASH) decision by the Supreme Court of Hawai'i validated customary rights of certain types of access to conduct cultural traditions and practices on lands where those activities had been conducted in the past.

Today, historic trails can serve as a foundational pattern upon which modern-day public access should be planned, designed, and built in relation to the natural and sociocultural landscape. With intentions to preserve and protect historic trails and their networks, and in the context of establishing active living corridors, land use planning can identify modern connections in an open space network that includes County roadways and public transit services as an extension of traditional mobility that preserves and honors historic trails and the cultural landscape as part of transportation.



**Active Living Corridors**

**Historic**

- Trails mauka to makai, along the shoreline, and throughout the mauka regions.
- Enables the community to access areas that have significant natural or scenic value, and to continue traditional practices for gathering, hunting, and recreation.
- E.g., Ala Kahakai

**Modern**

- Pedestrian, equestrian, and biking trails; modern facilities for parking and comfort.
- Provides access to shoreline and other natural resources, boat harbor, parks, sport fields, camping sites, and outdoor gyms.
- Can be found in both rural and urban areas E.g., Maka'eo walking path



Establishing these active living corridors in an open space network requires a combination of identifying and mapping historical and potential trails and connections, ensuring that continuity mauka to makai and laterally around the island is not interrupted by development activities, planning for extended bike and pedestrian trails, and connecting roadway and public services.

## Objective 17

***Increase transportation connectivity.***

### Policies

17.1 Ensure Native Hawaiian access rights are clearly expressed in County code, policies, and procedures, while also protecting sacred sites and burials in accordance with applicable state laws and state historic preservation laws.

17.2 Programmatically support the open space network concept with a methodology that includes criteria for establishing County department and other agency responsibilities, mapping requirements, financing strategies for implementation and maintenance, and standards for facilities that enhance the community experience.

17.3 Prior to disposing of, leasing, or transferring public lands through County Property Management procedures, the County shall assess, document, and protect access to existing active living corridors that are located on County-owned parcels.

17.4 Land use applications shall identify as early as possible any existing or potential active living corridors that should be incorporated into the County's open space network.

17.5 Ensure that existing active living corridors that are publicly owned or available by easement are properly identified and that their access elements are secured and documented.

a) Primary examples include but are not limited to historic trails and roads, roads-in-limbo, 'paper roads', former sugar cane roads, train infrastructure remnants (Rails to Trails), and pedestrian and bicycling paths.

b) "Acceptance" by the County of the responsibilities detailed in the grant of easements should require County Council action and a dedicated funding source.

17.6 Provide public pedestrian access opportunities to scenic places and vistas.

17.7 Establish public access to historic and modern active living corridors and facilities that provide an island-wide route and connect to major destinations.

### Actions

17.a Develop and adopt a program to establish public access to historic and modern active living corridors and facilities that provide an island-wide route and connect to major destinations.

17.b Explore the potential of multimodal trails to serve as evacuation routes during emergencies.

17.c Develop standards for active living corridors to assist when reviewing discretionary permits.

17.d Establish a public-private partnership, including financing strategies, for maintaining public access trails.

## Table 30: Public Access Spacing Standards

| RESOURCE TYPE | GP LAND USE DESIGNATION | DESIRED SPACING |
|---|---|---|
| **Shoreline** | For lands in the RS, RD, RM, V, CG, CN, and CV districts | 800 to 1,000 feet apart |
| | For lands within a destination resort community or a major, intermediate, or minor resort area as defined in the general plan and determined by the director, regardless of the zone district designation(s) | 1,000 to 2,000 feet apart, provided that the planning commission may extend the spacing to a maximum of 2,500 feet where deemed warranted by site conditions |
| | For lands within the A districts | 1,000 to 2,500 feet apart for A-1a,<br>1,500 to 2,500 feet apart for all other zoned districts |
| | For lands in the O and U districts | 2,000 to 2,500 feet apart |
| **High Cliff** | | 2,000 to 2,500 feet apart unless a resource needs additional access |
| **Mountain** | For all zone districts | As determined by the director to provide reasonable means to access public trail sections and public facilities |



## 4.2.4 Mass Transit

Hawai‘i County is committed to providing residents with a public transportation system that is safe, affordable, accessible, efficient, and reliable. Mass transit systems aim to reduce congestion, promote sustainable mobility, and provide equitable access to transportation options. Implementing and expanding mass transit on Hawai‘i Island can have significant impacts on building resilient communities.

Mass transit systems may offer an efficient alternative to private vehicles, reducing congestion on roadways. With reliable mass transit, residents, including those without cars or with limited mobility, have an alternative means of transportation to access employment opportunities, education, essential services, commercial centers, recreation, and other activities. Improved mobility through public transit can enhance community connectivity and social cohesion while promoting pedestrian activities and active lifestyles.

The Hawai‘i County Transit and Multimodal Transportation Master Plan was adopted in August 2018. The Master Plan provides a deeper review of the County’s transportation system and identifies policies and standards for the delivery of service. The General Plan recognizes the need to reflect the island’s shared vision for high quality multimodal transportation and strives to uplift the goals and strategies for achieving this vision.

Mass transit can play a key role in reducing greenhouse gas emissions and combating climate change. By encouraging a shift from individual car usage to shared transportation, mass transit helps decrease overall vehicle miles traveled (VMT), resulting in lower carbon emissions and improved air quality. This promotes a healthier environment and protects the natural beauty and resources of our island.

A well-planned mass transit system can stimulate economic growth and resilience. It creates employment opportunities during the construction and operation phases, fostering local job creation. Mass transit can also attract businesses and investments to areas with reliable transportation infrastructure, supporting economic development and revitalization of communities along transit corridors. Considering our vulnerability to natural disasters such as hurricanes, earthquakes, wildfires, and volcanic activity, mass transit can contribute to disaster resilience by providing evacuation routes and transportation options during emergencies. Having a resilient mass transit system in place ensures that residents have reliable means of transportation to evacuate affected areas efficiently and reach safe zones or emergency shelters.

Mass transit enhances social equity by improving access to transportation for all residents, regardless of income, age, or physical abilities. These systems help bridge transportation gaps and reduce transportation-related barriers, ensuring that underserved communities have affordable and convenient mobility options. Mass transit can enhance equity by providing reliable transportation to essential services like healthcare facilities, educational institutions, and job centers.



## Objective 18

***Increase mass transit ridership by 50 percent by 2045.***

### Policies

18.1 Ensure transit routes connect with other modes of active transportation consistent with the County Street Design Manual.

18.2 Provide more equitable mobility for youth, low-income, elderly, and people with disabilities.

18.3 Maximize regular and paratransit service to the following:

a) Town centers, commercial districts, and employment centers.

b) Airports and cruise ship terminals.

c) University and adult education centers.

d) Accommodate school schedules such as after-school activities and sports.

18.4 Bus maintenance facilities should be developed at or near appropriate transit hubs.

18.5 Adopt hub and spoke system including alternative first and last mile or door-to-door services.

18.6 Transit infrastructure (e.g., bus stops, bus pullouts, waiting benches and shelters, and signs) shall be adequate and upgraded along existing and future transit routes.

18.7 Data shall be collected and analyzed to optimize mass transit planning, operation, and overall performance.

18.8 Improve and expand public transportation in communities with the highest socioeconomic needs.

18.9 The County's public transit system assets shall be available to assist in transportation in emergency situations.

### Actions

18.a Develop marketing and public awareness campaign of various services in collaboration with the airports, cruise ship terminals, and educational facilities.

18.b Identify, preserve, and/or acquire corridors for future transit use, for high traffic areas such as the Pahoa-Keaʻau-Hilo route, including but not limited to multimodal corridors and require new development to provide rights-of-way (ROWs) to accommodate transit services.

### Table 31: Mass Transit Level of Service Standards

| | |
|---|---|
| **Level of Service for Route Intervals** | • Urban Centers: Every 30 minutes<br>• Connecting Urban Areas: Every 60 minutes<br>• Rural Areas: Based on peak demand |
| **Service Coverage** | Type of transit services based on frequency fixed route vs rural services |
| **Bus Stop Spacing** | • Urban: ¼ mile walking distance of a stop<br>• Rural: 1/2 – 2 miles |

## 4.2.5 Roadways

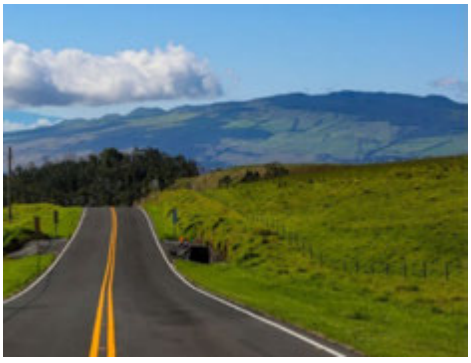
Vehicle transportation remains the primary mode of mobility in Hawai‘i County, with total vehicle miles traveled (VMT) continuing to increase. As of 2020, VMT in the State grew by about 15% since 2009 in response to general economic growth and increased tourism.[3] Much of the VMT occurred in single occupancy vehicles, which increases fuel consumption and carbon emissions. In addition, pedestrian and vehicular fatalities and injuries increase as more vehicles are added to roadways and total VMT grows. In response, transportation planning policy has evolved to prioritize active transportation, encourage demand management solutions, and establish street design standards and safety strategies to eliminate traffic fatalities and severe injuries.

Active transportation places priority on pedestrian, public transit, and bicycle modes of mobility over the automobile. To effectively implement this priority, changes in land use zoning, street design standards, and defining and prioritizing infrastructure capital investments are required. Moreover, implementing active transportation requires coordinated planning and prioritizing of capital investments across planning, public works, parks and recreation, and public transit departments to achieve short- and long-term design goals.

In November 2020, the County of Hawai‘i adopted by resolution a Street Design Manual to set standards for how County streets should support all modes of traffic. For each street type found in the County, this manual illustrates how the right-of-way should allocate space for multimodal activities following active transportation priorities. These design standards are essential for new development and infrastructure rejuvenation projects to achieve active transportation solutions in each step of modernizing the County’s transportation system properly and adequately.

As of December 31, 2021, the State of Hawai‘i’s traffic fatalities continue to rise and the County of Hawai‘i’s figures per capita remain the highest in the state.[4] The County’s Vision Zero Action Plan, adopted in September 2020, provides a deeper understanding of the varying impact on Hawai‘i Island communities regarding drivers versus cyclists and pedestrians, roadway conditions (e.g., visibility, peak traffic hours), and behavioral factors (e.g., speeding, impairment) that contribute to the persistent presence of traffic fatalities and injuries on our island. The General Plan acknowledges the recommendations of the Vision Zero Action Plan to establish strategies that increase safety, health, and equitable mobility for all.

In combination, active transportation and demand management strategies, street standards, data-driven planning, and a focus on Vision Zero safety goals create a modern approach to transportation planning that aims to secure equitable and affordable mobility opportunities for the island’s communities to connect to work, family, education, and recreational opportunities. This approach to planning roadways is essential to ensure safe experiences for all residents and to promote healthy and resilient communities.



[3] State of Hawai‘i Climate Change Portal, Buses and Bikes and Things That Go: A Proposed Action Framework for Encouraging Active Transportation-Transit in Hawai‘i (2020) https://climate.hawaii.gov/hi-news/hi-blog/activetransportation/

[4] DOT, Preliminary Year-End State of Hawai‘i Traffic Fatality Data for 2021 (2022) https://hidot.hawaii.gov/highways/preliminary-year-end-state-of-hawaii-traffic-fatality-data-for-2021/

## Objective 19

***Reduce vehicle miles traveled (VMT).***

### Policies

19.1 Encourage collaboration between the Planning Department, the Department of Public Works, the Department of Parks and Recreation, and the Mass Transit Agency to define the scope and priority of capital investment projects that achieve active transportation objectives and goals.

19.2 Increase arterial capacity through prioritization of alternative means of transportation, such as mass transit, bicycle, and pedestrian systems.

19.3 Incorporate bicycle routes, lanes, and paths within road rights-of-way.

19.4 Increase mobility for minors, non-licensed adults, low-income, elderly, and people with mobility limitations through prioritization of alternative means of transportation.

19.5 Roadway designs and improvements made by the Department of Public Works shall accommodate pedestrian-friendly, multimodal design, and on-street parking evaluations, to the fullest extent possible .

19.6 Use traffic demand management to aid in reducing traffic congestion by targeting an increase of active transportation mode share to 10 percent (bicycling, walking, micro-mobility).

19.7 Concurrency reviews should incorporate reduction in vehicle miles traveled to mitigate traffic impacts (e.g. the level of service) and achieve sustainability and demand management goals.

### Actions

19.a Continue to adopt the County Street design manual as the County's complete street design program/policy.

19.b Amend the County Code to incorporate complete street design.

19.c Develop an active transportation plan to guide where complete street improvements should be focused and replace previous pedestrian and bikeway plans.

19.d Identify all roles for interdepartmental collaboration in delivering a truly multimodal transportation system.

19.e Update traffic impact analysis requirements to include alternative evaluations to the level of service outcomes, such as vehicle miles traveled and alternative transportation metrics.

19.f Increase community engagement and education around active transportation and alternative transportation options.

Read about climate mitigation efforts focused on the transportation sector in Section 3, Addressing Climate Change for Island-Wide Health.

## Objective 20

***Achieve a transportation system that employs all modes of transportation at a community scale.***

### Policies

20.1 Encourage the application of the County of Hawai'i Street Design Manual when necessary to preserve the character of an area while maintaining a pedestrian and bicycle friendly design and desired landscaping solutions.

20.2 In planning, designing, and constructing new roadways or modernizing improvements, transportation agencies should balance the conservation of the area's natural, historic, and scenic qualities with transportation safety objectives for traffic speed, safety, and traffic calming.

20.3 Support and provide technical assistance to assist in the development of road improvement districts to finance road improvements.

20.4 Preserve the unique character of an area by allowing flexibility in existing roadway improvements and maintenance while seeking a pedestrian-friendly design and desired landscaping solutions.

20.5 Incentivize subdivision roadway connectivity.

20.6 A corridor planning/management program shall be maintained to help prioritize various active transportation projects.

### Actions

20.a Create and adopt a performance measure program/policy.

20.b Amend the County Code to promote connectivity and discourage neighborhoods with only one inlet or outlet.

20.c Establish a corridor planning/management program that is data-driven and uses performance-based targets and outcomes.

20.d Designate new connectivity points for local traffic roads and create redundant routes for existing highways, utilizing existing routes where possible, that can also serve as emergency and evacuation routes.

20.e Adopt a Complete Streets ordinance.

20.f Explore options to incentivize roadway connectivity.

## Objective 21

***Incorporate green infrastructure to reduce stormwater runoff.***

### Policies

21.1 Incorporate low-impact development (LID), green infrastructure strategies, and pollution prevention procedures to address drainage in roadway design and update operation and maintenance methods to retain integrity of these solutions.

21.2 Prioritize roadway drainage improvements in flood-prone areas.

21.3 Use native vegetation when viable and maintainable to achieve the County Street Design Manual standards.

21.4 Maintain an Adopt-a-Street program to encourage civic participation where moderate landscaping and roadside cleaning can be done by community groups.

21.5 At a minimum, the County shall plan, site, and develop roads, bridges, and highways to:

a) Protect areas that provide important water quality benefits or are particularly susceptible to erosion or sediment loss;

b) Limit land disturbance such as clearing, grading, and cut and fill to reduce erosion and sediment loss; and

c) Limit disturbance of natural drainage features and vegetation, including mitigating impacts of stream crossings.

### Actions

21.a Develop green infrastructure standards including right-of-way (ROW) landscaping, low-impact development (LID), and drainage.

21.b Develop an Adopt-a-Street program.

21.c Pursue funding, County capacity, and responsibility to maintain green infrastructure and native landscaping in the County Rights-of-Ways.

## Objective 22

***Increase transportation safety for transportation's most vulnerable users and reduce traffic fatalities.***

### Policies

22.1 Human life and public health are prioritized within all aspects of the transportation system.

22.2 Safety solutions should be prioritized in areas with the most vulnerable populations.

22.3 Engage communities in defining issues and developing solutions for their community, with a particular focus on prioritizing disadvantaged and vulnerable populations.

22.4 Prioritize interdepartmental coordination and accountability of traffic safety through education, enforcement, engineering, encouragement, and evaluation. Focus on policies, practices, staffing, and programs to improve road and pedestrian safety.

22.5 Incorporate traffic-calming features into arterial road and street designs to include vertical deflections, horizontal shifts, roadway narrowing, and closures to reduce speeding and increase safety. These may include techniques such as roundabouts, median barriers, speed humps, raised intersections, and other transportation industry practices.

22.6 Commit to an equitable approach and outcomes, including prioritizing engagement and investments in traditionally under-served communities and adopting equitable traffic enforcement practices.

22.7 Develop roadway standards to accommodate emerging technology for connected and automated vehicles.

22.8 Maintain dedicated roadway standards that are appropriate to roadway type and achieve active transportation and safety goals.

22.9 Engage and collaborate with the owners of private roads and local community groups to help identify and develop road management agreements that mitigate road closures to provide emergency evacuation routes.

### Actions

22.a Amend the County Code to incorporate Vision Zero safety principles and Complete Street design principles.

22.b Develop educational programs promoting traffic safety.

## Objective 23

***Adequately maintain public transportation systems.***

### Policies

23.1 Maintain an Asset Management Program aimed at utilizing maintenance plans for pavement, bridges, and other road infrastructure to prolong the life of our transportation system as well as reduce its whole-life cost.

23.2 Maintain the unique features of historic bridges, while balancing safety needs and preserving historic and scenic character.

23.3 Prioritize the replacement of deficient and inadequate bridges and maintain pedestrian/bicycle access across bridges.

23.4 Design new bridges and bridge improvements to accommodate and not negatively impede identified scenic resources.

23.5 Evaluate freight routes identified in the State Freight Master Plan for required improvements to meet roadway standards.

23.6 Encourage the adoption of innovative materials and methods that improve roadway sustainability and resilience.

### Actions

23.a Create an asset management program.

23.b Continue the bridge inspection program and expand rehab or replacement to include active transportation accommodations.

## Roadway Standards

The County adheres to several federal and industry standards for roadway design. These include the AASHTO Green Book and Roadside Design Guide, the MUTCD, the NACTO, and the Highway Capacity Manual.[5] Examples of topics addressed by these guidelines include road geometry (e.g., curves, sight distance), safety within ROWs adjacent to travel ways, design speeds, level of service, signs/striping/signaling, and urban transit. In addition to these sources, the County adheres to the following locally defined standards.

## Street Standards

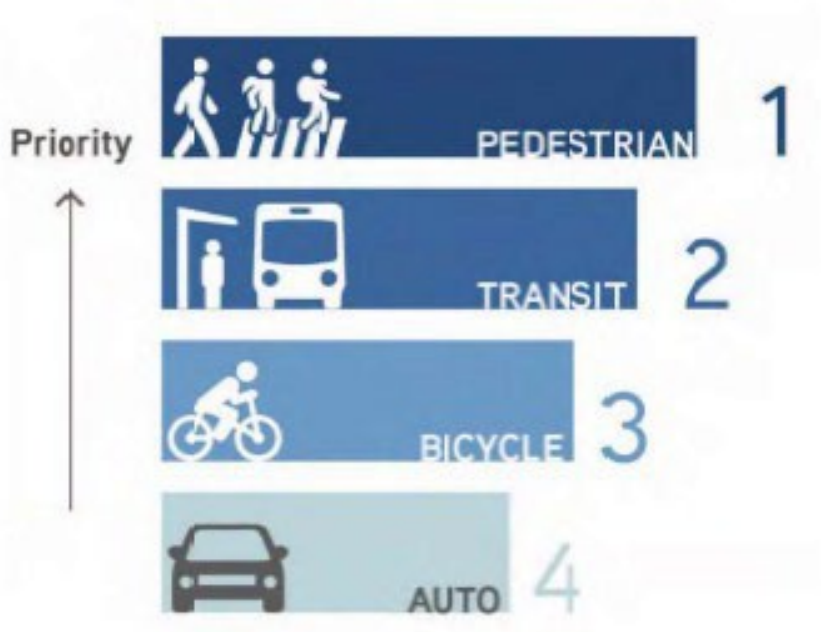
Highways shall not be wider than four through travel lanes that accommodate single occupancy vehicles and should be limited to the most populated areas typically connecting residential areas with employment centers.

Integrate transportation networks to prioritize the most vulnerable roadways users and the greenest modes of travel through a Multimodal Hierarchy (Figure 7) that prioritizes investments in the following order:

1. Pedestrian
2. Public Transit
3. Bicycle
4. Auto

The minimum roadway width standards to accommodate the County Roadway Classifications were adopted in Resolution 779-20. The following provides an overview of this standard with reference to the Federal Highway Administration (FHWA) Functional Classification system.

Figure 7 Multimodal Hierarchy




[5] AASHTO – American Association of Highway and Transportation Officials. MUTCD – Manual on Uniform Control Devices. NACTO – National Association of City Transportation Officials.

## Table 32: County Street Typology Definitions

| Street Type | Designation/Function | Examples | Characteristics | Optimal ROW | Modal Hierarchy | FHWA FC |
|---|---|---|---|---|---|---|
| **Parkway** | Connects regions and towns; includes dividing island or median strip | Volcano Highway (Route 11), Queen Kaʻahumanu Highway (Route 19) | Lanes 2-5<br>Traffic Volume: High | 300 ft. | *See note below | Principal Arterial |
| **Primary Arterial** | Connects regions and towns | Māmalahoa Highway (Route 11),<br>Hawaiʻi Belt Road (Route 19) | Lanes 2-5<br>Traffic Volume: High | 120 ft. | *See note below | |
| **Secondary Arterial** | Serves local and visitor traffic with fewer access points than Collector Streets. May carry heavy truck traffic. | Henry Street, Waikoloa Road | Lanes: 2-5<br>Traffic Volume: High | 86-90 ft. | Ped<br>Transit<br>Bike<br>Auto | Minor Arterial or Major Collector |
| **Connector Street** | Serves mostly local traffic; serves mixed-use destinations; more access points than Arterial Streets. | Kīlauea Avenue, Kinoʻole Street, Wainaku Street | Lanes: 2-4<br>Traffic Volume: Medium | 64-78 ft. | Ped<br>Transit<br>Bike<br>Auto | Major or Minor Collector |
| **Business Street** | Serves through and local functions, typically found in town cores and village centers with a higher pedestrian volume | Keawe Street, Aliʻi Drive, Pāhoa Village Road | Lanes: 2-3<br>Traffic Volume: Medium | 66-70 ft. | Ped<br>Bike<br>Auto<br>Transit | |
| **Industrial Street** | Serves industrial and heavy commercial areas; serves larger vehicles | Halekauila Street, Melekahiwa Street | Lanes: 2-3<br>Traffic Volume: Low to High | 64-66 ft. | Ped<br>Transit/Freight<br>Bike<br>Auto | Minor Collector or Industrial Street |
| **Minor Street** | Serves residential, low-density development, and agriculture | Alu Street, ʻIwalani Street | Lanes: 2<br>Traffic Volume: Low | 50-52 ft. | | |
| **Local Rural Road (non-dedicated)** | Serves very low-volume, low-speed, local travel needs, maintains aesthetic preferences | | Lanes: 2<br>Traffic Volume: Very Low | 40-52 ft. | | |
| **Cul-de-Sac & Dead-End Streets** | Serves very low-volume, low-speed, and local travel needs | | Lanes: 1-2<br>Traffic Volume: Very Low | 50 ft min | | |
| **Green Alleyway**[6] | Serves residential, or commercial development, as shared streets with the potential to be pedestrian/bike only | | Lanes: 1<br>Traffic Volume: Very Low | 20-28 ft. | | |

**Modal Hierarchy not applicable to Parkway and Primary Arterial as they are primarily under DOT jurisdiction.*

[6] NACTO, Urban Street Design Guide https://nacto.org/publication/urban-street-design-guide/streets/green-alley/

## 4.2.6 Transportation Terminals: Airports and Harbors

As a major hub for tourism, commerce, and connectivity, Hawai‘i County recognizes the importance of effective planning and management of its airports and harbors. These key infrastructure components serve as lifelines that facilitate economic growth, enhance regional connectivity, and provide essential services for residents and visitors. Airports and harbors connect the County to the rest of the world, allowing for the efficient movement of goods, people, and ideas. They are essential nodes within the transportation network, acting as important economic drivers for the region. Efficient airports and harbors directly contribute to the success of various industries, including tourism, agriculture, trade, and logistics. Moreover, they are instrumental in supporting emergency response efforts, disaster management, and ensuring the overall resilience of the region’s transportation system.

The principal concerns of planning for transportation terminals involve a comprehensive approach that addresses various aspects, including location, zoning of adjacent land, infrastructure development, capacity management, safety and security measures, environmental sustainability, integration with other modes of transportation, and financing and programming of improvements and services through capital improvement projects. While the State of Hawai‘i Department of Transportation (DOT) is responsible for the actual design, construction, and operation of terminals and supporting facilities, the General Plan addresses the location of these facilities in relation to the pattern of overall land uses. There are two deep draft harbors on the island, one in Hilo and another in Kawaihae.

While improvements continue to be made, both harbor terminals lack adequate docking and support facilities. Cargo volume at Kawaihae Harbor has increased significantly as the population and development in West Hawai‘i continue to grow. In 2011, the Hawai‘i Commercial Harbors 2035 Master Plan was developed by the State to accommodate the future needs of facilities.

**By the Numbers:**

- Hilo and Kawaihae Harbors saw 4.168 million short tons of cargo combined in 2016 (2017 DBEDT data book).
- Kona Airport had 847,937 passenger departures and 859,265 passenger arrivals in 2017.
- Hilo Airport had 36,048 passenger departures and 33,964 passenger arrivals in 2017.

Air terminals that service inter-island transportation are in Hilo, Waimea, ‘Upolu, and Kona. The terminals at Hilo and Kona are overseas facilities. Oversea flights at the Kona International Airport at Keahole will continue to increase with the growth of resort areas in Kona and Kohala. Overseas flights through Hilo International Airport have been important for agriculture in East Hawai‘i. Since 2011, the DOT has embarked on a $2.3 billion Hawai‘i Airports Modernization Program to improve the safety, capacity, and efficiency of our major passenger and cargo airports.

As the population becomes more mobile and as resident and visitor populations increase, there will be a greater demand for new and expanded transportation facilities that are adjacent to compatible land uses and include alternative and active transportation connections to decrease the demand for cars and reliance on fossil fuels.



## Objective 24

***Improve accessibility to airports, harbor systems, and support facilities.***

### Policies

24.1 Encourage the programmed improvement of existing terminals, including adequate provisions for control of pollution and appropriate and adequate covered storage facilities for agricultural products.

24.2 The State Department of Transportation should continue to implement its plans for transportation terminals and related facilities to promote and follow desired land use policies.

24.3 Transportation terminals should be developed in conjunction with the different elements of the overall transportation system.

24.4 Encourage maximum use of the island's airport and harbor facilities.

24.5 Encourage the development, maintenance, and enhancement of Hilo and Kawaihae Harbors as detailed within the State's Hawai'i Commercial Harbors 2035 Master Plan.

24.6 Support the State's objectives to acquire rights within the runway clear-zones, limit heights within approach zones, and restrict noise-sensitive uses within designated noise contours determined by the State.

24.7 Future land uses in the vicinity of airports and harbors should have an adequate open space buffer and/or be compatible with the anticipated noise exposure and industrial nature in the vicinity.

24.8 Encourage pedestrian-oriented connectivity around harbors and small boat harbors.

24.9 Encourage master planning of small boat harbors to accommodate commercial and recreational fishing, tour boats, as well as business and recreational ocean activities, that balance economic vitality and environmental sensitivity.

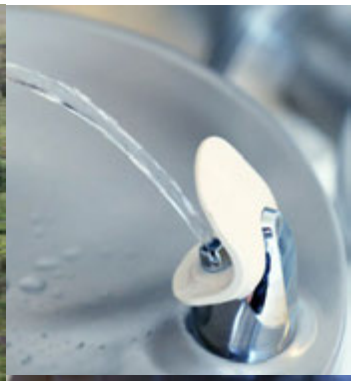
### Actions

24.a Create a strategic improvement plan, including mapping, for County owned and/or managed boat harbors and develop an island-wide needs assessment to better serve regional gaps in ocean accesses.

24.b Ensure collaboration with State agencies to offer a variety of transportation options at airports and harbors.

# 4.3 PUBLIC UTILITIES





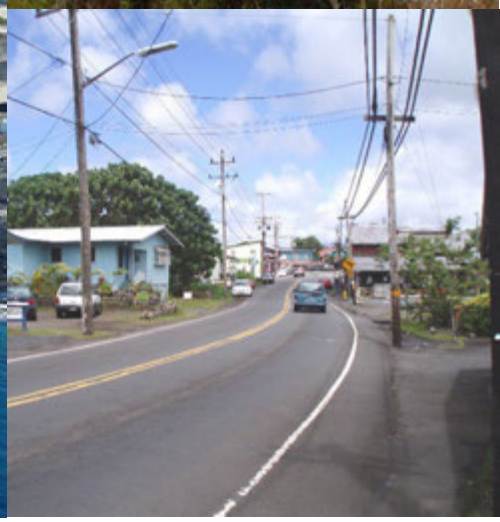



**4.3 Public Utilities**

4.3.1 Introduction
4.3.2 Goal, Objectives, Policies, and Actions
4.3.3 Drinking Water Conservation
4.3.4 Wastewater Treatment and Reuse
4.3.5 Stormwater Infiltration and Green Infrastructure
4.3.6 Electricity and Renewable Energy
4.3.7 Telecommunications and Broadband Connectivity





# 4.3.1 Introduction

In Hawai'i County's pursuit of a prosperous and resilient future, public utilities stand as pillars of essential infrastructure. These are services regulated by the government and provided in response to existing and prospective patterns of development. Changes in land use, population density, and development usually generate changes in the demand and supply of utilities. As the backbone of modern society, public utilities encompass a wide range of vital services that support the health, safety, and sustainability of our communities. This critical infrastructure allows us to function in many ways, including the ability to maintain healthy living conditions, proper sanitation, and access reliable energy to power our homes and businesses.

Public utilities play a key role in forming the foundation upon which social, economic, and environmental progress is built. Such essential services enhance the quality of life for residents, visitors, and businesses while safeguarding the natural resources and cultural heritage of our island. The significance of public utilities can be understood through their contributions in the areas of environmental sustainability, economic prosperity, and social well-being.

Public utilities drive environmental stewardship by promoting clean energy generation, efficient water management, waste reduction, and recycling initiatives. Through the application of sustainable practices and technologies, public utilities protect our fragile ecosystems, mitigate climate change impacts, and preserve the beauty of our island for future generations. Additionally, robust and reliable infrastructure attracts investment, supports economic growth, and fosters job creation. From powering local industries to enabling efficient transportation networks, public utilities are catalysts for economic development, making our communities more resilient in the face of challenges.

Access to safe and affordable utilities is a fundamental right of every individual. Public utilities ensure equitable distribution of resources, allowing residents of all socioeconomic backgrounds to enjoy necessities such as clean water, affordable energy, and accessible internet-based services. These services enhance public health, education, and overall quality of life, fostering thriving and inclusive communities.

Given the unique challenges posed by our geography and vulnerable ecosystem, the General Plan aims to effectively guide the development, maintenance, and improvement of these critical services. This section of the Plan is primarily concerned with the planning aspects of our, water, wastewater, stormwater, electricity, and telecommunications systems. Planning for the location of utility facilities such as reservoirs, pumping stations, and sewage treatment plants is an important aspect of the land planning process, as it makes way for development opportunities.

Unintegrated utilities can burden developments with lower levels of service and may limit or even prevent development. The integration and availability of public utilities in priority growth areas are imperative. Changes in the intensity of land use greatly influence the quantitative design of utilities and services, particularly their design capacity. There may be distinctions in the type of services offered for each utility as land use intensities vary. These distinctions also depend on local codes and ordinances, health and sanitary considerations, and practices followed by utility companies.

## Table 33: Public Utilities Challenges

| | |
|---|---|
| **General** | • Funding and financing the development, conversion, repair, operations, and maintenance of public utilities are central challenges for communities, developers, and county government.<br>• Any large infrastructure expansions are paid for by developers and the costs are not to scale for financing.<br>• Geographical variability and obstacles require creative solutions for utility buildout.<br>• Aging public utility infrastructure must become more resilient to natural hazards, extreme weather events, and climate change impacts.<br>• Absent, aging, or dilapidated infrastructure limits new development where it is needed, consistent with strategic land use patterns and inhibits existing development.<br>• Outdated utility systems and practices can pose environmental and health concerns and are expensive to change. |
| **Drinking Water** | • Disputes over water source capacity can prevent development where it is needed and consistent with desired development patterns.<br>• Water commitments have been assigned to parcels that are not being developed or lack development potential.<br>• Guidelines for assigning water units per system need to be updated.<br>• Modeling of water demand and potential demand needs to be closely aligned to land use.<br>• The water systems serving, North Kohala, South Kohala, North Kona, and Puna will require additional water source development.<br>• On-site wastewater disposal can adversely impact groundwater resources. |
| **Wastewater** | • Wastewater planning and policy primarily focus on maintaining and servicing existing systems and do not proactively plan for developing new systems to accommodate growth or to extend existing lines to align with urban zoning.<br>• County policy has largely relied on private developers to develop commercial and private wastewater systems for new development, which ultimately leaves significant municipal service gaps in urban areas.<br>• Many County wastewater systems may not be able to accommodate unserved, existing zoned capacity and projected growth.<br>• Landowners and developers may incur the costs of constructing private systems or upgrades due to the insufficiency and lack of wastewater systems in many areas.<br>• Wastewater requirements hinder the redevelopment or rehabilitation of existing structures and are often seen as an affordable housing issue.<br>• Treated wastewater is typically discharged into ocean waters or injected into the ground and is not generally reused.<br>• Wastewater infrastructure improvement and development costs are not fiscally planned for, either in the County budget or through County wastewater fee valuation.<br>• Individual wastewater systems (IWS) are associated with limitations and regulations. Currently, the Department of Health's rules do not allow single-family dwellings and additional dwelling units (ADU) on a single IWS system.<br>• Reliance on IWS is an impediment to compact development due to minimum lot size requirements for IWS, thereby contributing to sprawl.<br>• Coastal residential neighborhoods without centralized wastewater are contaminating near-shore waters with pollution from IWS. |

| | |
|---|---|
| | • The looming deadline to convert cesspools to sewer or other IWS may create lack of local expertise to meet demand if not properly planned. |
| **Stormwater** | • The future impacts of climate change on future rainfall volumes are uncertain.<br>• Outdated codes limit the effectiveness of stormwater infrastructure and stormwater-related practices.<br>• Water quality changes caused by non-point source pollution, human activities, erosion, and sediment transport can negatively impact environmental systems and processes.<br>• A lack of incentives and flexibility exists in the permitting process for stormwater and green infrastructure.<br>• There is a lack of a dedicated funding source for public systems. |
| **Electricity & Energy** | • There is a heavy reliance on imported fossil fuels for power generation.<br>• The State of Hawai'i has the highest electricity rates in the United States.<br>• Building codes, design perspectives, and construction practices can increase electrical demand.<br>• There is a constant need to update and renovate electrical systems and infrastructure.<br>• The adoption of renewable energy practices may offload environmental costs to other distant communities, which can offset positive climate action.<br>• Renewable energy developments can be controversial, such as geothermal and wind turbines. |
| **Telecommunications & Broadband** | • Inadequate access disrupts efficiency and productivity and is a barrier to accessing public services and information.<br>• Last mile infrastructure is often the most costly and difficult segment to deploy, especially for rural areas where distances from a central distribution point are greater and population density doesn't economically promote the deployment.<br>• Consistent and accurate service data is needed to provide a constantly improving network for the island.<br>• Providers seeking to deploy broadband infrastructure face multiple layers of permitting and approvals at both the State and County level, in addition to community opposition regarding the installation of telecommunications towers.<br>• Limited competition in broadband service providers and transpacific backhaul providers means high consumer rates due to a lack of competition within the market. |

## Table 34: Public Utilities Opportunities

| | |
|---|---|
| **General** | • Pursue creative funding and financing tools such as Community Facilities Districts (CFD) and Improvement Districts, for utility development, conversion, repair, operations, and maintenance.<br>• Ensure that utility development matches desirable development priorities.<br>• Streamline the process of utility infrastructure development to achieve the highest possible level of service for our communities.<br>• Lead the charge in resource conservation and assess creative solutions to incentivize resource conservation for the public.<br>• Prioritize the conversion and modernization of outdated utility systems and practices.<br>• Use an integrated approach to value all water as a resource (e.g., drinking water, wastewater, stormwater).<br>• Collaborate with asset management (e.g., road resurfacing and utility upgrades).<br>• Explore public-private partnership opportunities to create circular systems.<br>• Increase partnerships and enhance collaboration with government, private and nonprofit agencies, and other stakeholders. |
| **Drinking Water** | • Explore innovative ways to fund water infrastructure improvements to attract development that is consistent with desired density and the land use pattern.<br>• Seek creative funding for significant expansion of water systems to reach new customers in non-service areas.<br>• Promote and practice water conservation practices to maximize efficient water use.<br>• Adopt One Water recommendations to standardize interagency collaboration in planning for and managing water resources.<br>• Rainfall collection can provide additional water capacity even where we have Department of Water Supply (DWS) systems.<br>• Align the Water Use Development Plan, Master Plan, General Plan, DWS Capital Improvements Program (CIP), DWS guidelines, DWS water commitments, and private improvements to the DWS system.<br>• Exercise some controls over the permitted uses within the defined zone of influence for downstream deep well sources.<br>• Encourage groundwater recharge from regional scale master planning to on-site best management practices such as low-impact development (LID). |
| **Wastewater** | • Increase opportunities for recycled water.<br>• Prioritize sewer for sensitive urban areas.<br>• Proactively seek grant funding to assist with wastewater development.<br>• Advocate for expanding cesspool conversion tax credit to all cesspool conversions.<br>• Explore opportunities for public-private partnerships as well as those for technology upgrades and innovation.<br>• Promote the expanded use of greywater for landscape irrigation and groundwater recharge via rules for new construction and retrofits<br>• Advocate to the Department of Health (DOH) to adopt appropriately scaled requirements and standards and develop flexible guidelines for designing and permitting wastewater systems that meet environmental objectives.<br>• Low-pressure systems should be prioritized for retrofitting instead of gravity flow.<br>• Higher-density development can contribute more to a centralized system. |

| | |
|---|---|
| | • Increase availability and access to information about private wastewater treatment plant capacities or expansion opportunities. |
| **Stormwater** | • Prioritize resiliency measures that support climate change impact scenarios.<br>• Regularly amend County codes to be as current and innovative as possible.<br>• Be a leader in prioritizing green infrastructure over gray infrastructure.<br>• Ensure that stormwater infrastructure decisions align with related plans and the CIP budget.<br>• Green infrastructure practices may provide opportunities for creating or expanding industry.<br>• Prioritize the use of native plants in landscaping. |
| **Electricity & Energy** | • Promote and support the development of alternative energy production facilities.<br>• Be a net power producer with hydrogen and waste management.<br>• Hawai‘i Island has the highest renewable energy percentage in the State and can continue to support renewable energy projects to decarbonize our energy system and stabilize electricity costs. |
| **Telecommunications & Broadband** | • Support the County’s Broadband Initiative and coordination with the State to facilitate digital equity efforts (e.g., establishing broadband as a public utility, infrastructure deployment, providing training support, and coordinating funding strategies for broadband and telecommunication services).<br>• Compact development and higher population densities where appropriate are favorable for commercial service providers as they contribute to more economically viable market conditions.<br>• Providing consistent and accurate digital literacy data will promote a desirable level of service for all residents.<br>• Increasing digital inclusion efforts, which focus on ensuring both access to and ability to use a range of technologies, will contribute to better outcomes for health, public safety, economic opportunity, and civic participation.<br>• Streamlining permitting and approval processes will improve the efficiency of broadband and telecommunication development and delivery.<br>• Pursue partnerships to develop public spaces with broadband access. |

## 4.3.2 Public Utilities Goal, Objective, Policies, and Actions

Goal: Our communities are adequately served by sustainable and efficient public infrastructure, utilities, and services based on existing and future growth needs, sound design principles, and effective maintenance practices.

### Objective 25

***Improve the efficiency, reliability, and sustainability of essential infrastructure systems.***

#### Policies

25.1 Public utility facilities shall be designed at a scale that meets the needs of future development.

25.2 Provide utilities and service facilities that minimize total cost to the public and effectively serve the needs of the community.

25.3 Utility facilities shall be designed to complement adjacent land uses and minimize pollution or disturbance of the natural environment and natural resources.

25.4 Improvement of existing utility services shall be encouraged to meet the needs of users.

25.5 Encourage the clustering of developments to reduce the cost of providing utilities.

25.6 Develop short- and long-range capital improvements programs and plans for public utilities within its jurisdiction that are consistent with the General Plan.

25.7 Maintain an Asset Management Program aimed at utilizing maintenance plans to prolong the life of our utilities as well as reduce whole-life costs.

#### Actions

25.a Develop and adopt an Impact Fees Ordinance to aide in the expansion of public utilities.

## 4.3.3 Drinking Water Conservation

The Hawai‘i State Constitution provides that all public natural resources, including water, are held in trust by the State for the benefit of the people. The State Constitution further maintains that “the State has an obligation to protect, control, and regulate the use of Hawai‘i’s water resources for the benefit of its people.” Water availability is crucial to any type of development, whether urban, rural, or agricultural. Water availability is based on the sustainable yields of the groundwater hydrologic units established through the State Water Code.[1]

Land use allocation must be closely related to water availability, including the quantity and quality of the water, and the adequacy of the transmission and distribution system. The General Plan requires an understanding of water availability and capacity, current demands, and future demands based on planned and anticipated future growth and land uses.

The County’s Department of Water Supply (DWS) is the primary agency that manages, controls, and operates the water supplies of the County and its properties. There are 23 individual water systems distributed throughout the island. Water demand is directly related to population and industry usage and is expressed as gallons per day (gpd) or million gallons per day (mgd). Demand does not represent domestic consumption alone, but also includes all agricultural, industrial, and commercial uses, fire protection, and other uses. In some areas, however, non-domestic users are likely to create the major demand, and careful attention must therefore be given in any study of probable future water needs.

In Hawai‘i, there are a multitude of public agencies that are either actively tasked with regulating water resources or whose policies affect water use. There are also a number of private entities that use and manage water resources. Over the decades, water management has become segregated in a way that has created disjointed, mechanical approaches to a naturally continuous resource. The disconnection has included narrow perspectives that fail to see the larger picture. Hawai‘i County aspires to achieve water resource management that is free from the limitations and issues of siloed practices, processes, agencies, and government bodies. Achieving a One Water approach in Hawai‘i County includes actionable steps that can be adapted and adjusted to localize the One Water strategies.



**One Water**

One Water is a strategy that integrates the management of stormwater, wastewater, groundwater, sea water, freshwater, graywater, and recycled water to create resource and financial efficiencies. One Water will help the County of Hawai‘i address climate change impacts by creating cross-agency coordination and advancing the capacity within agencies.

[1] HRS, Chapter 174C https://www.capitol.hawaii.gov/hrscurrent/Vol03_Ch0121-0200D/HRS0174C/HRS_0174C-.htm

## Objective 26

***Increase the protection of existing and potential sources of drinking water.***

### Policies

26.1 All public water systems shall be designed and built to the DWS dedication standards. All other systems shall meet all relevant health and safety regulations and be designed and constructed by a licensed engineer.

26.2 Water sources shall be protected to prevent depletion and contamination from natural and man-made occurrences or events.

26.3 An effort by County, State, and private interests shall be coordinated to identify sources of additional water supply to be implemented and ensure the development of sufficient quantities of water for existing and future needs of high-growth areas and agricultural production.

26.4 Installation or rehabilitation of water distributions shall be sized to adequately meet fire protection.

26.5 Ensure the highest quality of water is reserved for the most valuable end-use.

26.6 Encourage the design of large development projects (200+ units) in the North Kohala, South Kohala, North Kona, South Kona, and Kaʻū Districts to be as water neutral as reasonably possible through water conservation, recharge, and reuse measures to reduce the water footprint.

26.7 Promote best practices in sustainable water collection and use for private water systems.

26.8 Water system improvements, including exploratory wells, shall correlate with the County's desired land use development pattern.

26.9 The DWS shall prioritize infill development and focus source development to serve designated Urban Growth Areas.

26.10 Water demand projections shall include all consumptive and non-consumptive demands.

26.11 The DWS and the Planning Department shall coordinate priorities before the adoption of any new water development or County land use plans.

26.12 All County potable water systems should have backup standby sources.

### One Water

26.13 Treat all water as a valuable resource in community design, and integrate designs for drinking water, stormwater, and recreational water needs.

26.14 Manage water, stormwater, and wastewater as the same natural resource in collaboration with the DWS, DEM, DPW, and DOH.

26.15 New developments should be designed to reduce water demand, retain runoff, decrease flooding, and recharge groundwater.

26.16 Support localized, small-scale solutions to water reuse and on-site systems.

### Actions

26.a In collaboration with the National Oceanic and Atmospheric Administration (NOAA), conduct further research on localized rainfall modeling to accurately assess future precipitation trends.

26.b Expand water conservation programs, primarily aimed at reducing demand, such as leak detection, and rebates for low flow.

26.c Evaluate and amend the fee schedule for water use to take into account high water use and aquifer recharge projections. Use the funds generated to pay for conservation measures and infrastructure.

26.d Improve County water conservation practices to lead by example.

26.e Maintain the water master plan to consider water yield, present and future demand, alternative sources of water, guidelines, and policies for the issuing of water commitments.

26.f Promote the use of groundwater sources to meet DOH water quality standards.

26.g Seek state and federal funds to assist in financing projects to bring the County into compliance with the Safe Drinking Water Act.

26.h Explore the feasibility of incentive methods such as property tax deductions, conservation easements, or transfer of development rights to protect the defined zone of influence of existing or proposed public and private wells.

26.i Investigate alternative financing options for expanding water systems to support infill growth consistent with the County's desired land use development pattern.

26.j Collaborate with government, private and nonprofit agencies, communities, and other stakeholders to develop, improve, and expand agricultural water systems in appropriate areas on the island.

26.k Continue to participate in the United States Geological Survey (USGS) exploratory well drilling program.

26.l Expand programs to provide agricultural irrigation water.

### One Water

26.m Develop water conservation and stormwater management guidelines for commercial, industrial, and residential properties.

26.n Codify the administrative structure needed to develop a water resource program and interdepartmental collaboration framework.

26.o Collaborate with government, private and nonprofit agencies, communities, and other stakeholders to develop and facilitate community partnerships between upstream and downstream communities.

26.p Develop public-private partnerships to leverage funding sources.

## Table 35: Water System Standards Domestic Consumption Guidelines

| Zoning Designation | Average Daily Demand |
|---|---|
| **Residential:** | |
| **Single-Family or Duplex** | 400 gals/unit |
| **Multi-Family** | 400 gals/unit |
| **Commercial** | 3000 gals/acre |
| **Resort** | 400 gals/unit or 17,000 gal/acre |
| **Light Industry** | 4000 gals/acre |
| **Schools and Parks** | 4000 gals/acre or 60 gals/student |
| **Agriculture** | 3400 gals/acre |

- A unit, or, more precisely, one Equivalent Unit (EU) of water allows for an average daily usage of up to 400 gallons per day and a maximum daily usage of up to 600 gallons on any day but the average is still not allowed to exceed 400 gallons per day.
- One EU is typically served through a 5/8-inch meter and is considered adequate for a single-family home or dwelling and allows for some landscape or gardening usage.

## 4.3.4 Wastewater Treatment and Reuse

The General Plan recognizes the significance of wastewater treatment and reuse as essential components of the County's comprehensive water management strategy. Adequate sewer systems are vital to maintain public health and protect the environment. As communities generate wastewater through various sources such as residential, commercial, and industrial activities, effective treatment is necessary to remove harmful pollutants and contaminants before the water is discharged back into the environment. Improperly treated wastewater can have detrimental effects on marine ecosystems, coastal waters, and freshwater resources, jeopardizing both human and ecological health.



An adequate system minimizes contamination of both the groundwater supply and coastal waters, beaches, and waterborne recreational areas and is not a visual and odor nuisance. Land development plans for resort-residential complexes located in shoreline areas pose a potential water quality problem for adjacent near-shore waters. Adequate treatment facilities are essential prerequisites for development.

Wastewater reuse, also known as water recycling or reclaimed water, involves treating wastewater to a level suitable for non-potable uses. Reusing treated wastewater provides an opportunity to conserve precious freshwater resources and reduce the strain on existing water supplies. For Hawai'i Island, where freshwater resources are limited and vulnerable to climate change impacts, the implementation of wastewater reuse projects becomes vital for ensuring water sustainability. By implementing appropriate treatment processes, treated wastewater can be used for a range of purposes, including irrigation of agricultural lands, landscape irrigation, industrial processes, and groundwater recharge. This practice helps meet non-drinking water needs, reducing the reliance on freshwater sources for non-potable purposes and leaving more available for essential uses like drinking water.

The County operates municipal sewerage in Hilo, Pāpa'ikou, Kapehu, Pepe'ekeo, Honoka'a, Kealakehe, and Kaloko. The remaining communities are served by private wastewater treatment facilities or individual facilities, such as cesspools or septic tanks. In 2017, the Hawai'i State Legislature passed Act 125, mandating that all Hawai'i's cesspools be replaced by 2050. Cesspools are substandard sewage disposal systems as they do not treat wastewater. According to the latest report on the Hawai'i Cesspool Hazard Assessment and Prioritization Tool, Hawai'i Island contains an estimated 48,596 cesspools. Sewerage disposal system designs must be examined with the particular region in mind. Of critical importance in an examination of sewerage disposal for a community is the cost of the system, including construction and operation costs. These costs vary with the characteristics of each area.

The Safe Drinking Water Act of 1974 legislated the protection of all aquifers or portions of aquifers currently serving as drinking water sources and any other aquifer capable of yielding consumable water. This mandate was based on a national concern for the quality of the groundwater and the increasing evidence of contamination of this valuable resource.

In 1976, the State Legislature enacted Act 84, relating to safe drinking water, which requires the State Department of Health (DOH) to establish an underground injection control program to protect the quality of the State's underground sources of drinking water. Because of the importance of

groundwater as a source of municipal water supplies, the underground injection control program is considered a beneficial approach in the identification of aquifers that should be protected from subsurface disposal of wastewater through injection wells.

The protection of these aquifers is established by designating areas currently being used or will be used in the future for drinking water supply. The Underground Sources of Drinking Water (USDW) will be protected from pollution by prohibiting the construction of new injection wells that may pollute the USDW. Injection wells are allowed in exempted areas. The boundary lines between the USDW and the exempted areas have been developed. Under Chapter 62, Wastewater Systems, the DOH adopted a 1,000-foot setback of wastewater systems from all public drinking water wells and springs.

In compliance with the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500), the DOH and the County jointly prepared the Water Quality Management Plan for Hawai‘i County in 1978 and subsequently updated the plan in 1980. In 1979, the County Council adopted the plan through a resolution to serve as the planning guide for the development of regional waste treatment systems and the control of non-point sources of pollution. To implement the management plan, the County has prepared facility plans for various areas on the island. Facility plans are developed by the County to satisfy a requirement for the application of loans from the State to develop wastewater treatment facilities. The facility plans identify problems, potential solutions, and costs.

In 1985, the State Legislature enacted Act 282, Relating to Environmental Quality, which reassigns the County, effective July 1, 1987, or upon receipt of State funds, to assume complete administration and implementation for the regulation of sewerage and wastewater treatment system programs.



Source: Hawai‘i News Now (2022).

## Objective 27

***Planned and developed municipal sewer capacity is expanded to serve our Urban Growth Areas and reduce sewage-related impacts on water quality.***

### Policies

27.1 A Sewerage Study for All Urban Areas, including appropriate water quality management strategies, shall be completed and used as guides for the general planning of sewerage disposal systems.

27.2 Private treatment systems shall be installed by land developers for major resorts and other developments along shorelines and sensitive higher inland areas, except where connection to nearby treatment facilities is feasible and compatible with the County's long-range plans, and in conformance with State and County requirements.

27.3 Immediate steps shall be taken to designate treatment plant sites, sewerage pump station sites, and sewer easements according to the facility plans to facilitate their acquisition.

27.4 The County shall obtain State and Federal funds to finance the construction of proposed sewer systems and improve existing systems.

27.5 Plans for wastewater reclamation and reuse for irrigation and biosolids composting (remaining solids from the treatment of wastewater are processed into a reusable organic material) shall be utilized where topographically feasible and needed for landscaping, agricultural purposes, or fire protection.

### Wastewater and Environmental Quality Prioritization

27.6 Pollution shall be prevented, abated, and controlled at levels that will protect and preserve public health and well-being through the enforcement of appropriate Federal, State, and County standards.

27.7 Ensure municipal wastewater systems serve designated Urban Growth Areas (UGA) with the capacity to accommodate projected population growth.

27.8 The Department of Environmental Management and the Planning Department shall coordinate priorities before the adoption of any new wastewater development or land use plans.

27.9 Prioritize developing a multipronged approach to wastewater infrastructure funding, including proactively seeking grant funding for wastewater system expansion, improvements, and new development.

27.10 Ensure wastewater fees reflect actual costs for service, maintenance, and future improvements.

27.11 Ensure that wastewater systems and improvements are designed and functioning to maximize system efficiencies, prevent accidental leaks or spills, and provide sanitary, reliable wastewater treatment that is not negatively impacting natural resources.

### One Water-Recycled Water Expansion

27.12 Strive for an integrated approach to stormwater and wastewater, and water resource management that is comprehensive and as efficient as possible.

27.13 Encourage on-site water reuse solutions for large developments.

27.14 Encourage and incentivize the collection of rainfall for potable and non-potable use.

27.15 Prioritize the use of gray water in areas connected to County water and not connected to County wastewater.

## Actions

### Wastewater and Environmental Quality Prioritization

27.a Prioritize areas where on-site wastewater treatment should be converted to sewer and establish financial tools such as improvement districts to aid in implementation.

27.b Prioritize areas where wastewater treatment facilities are necessary to facilitate future growth and utilize financing tools such as community facilities district (CFD) or tax increment financing (TIF) to aid in implementation.

27.c Review, assess, and amend Codes relating to sewer connection requirements to ensure wastewater issues and requirements are addressed in a consistent, sustainable, and socially equitable way.

27.d Develop a wastewater master plan with a clear prioritization method for wastewater system expansions and improvements based on criteria involving land use, projected growth, social equity, and environmental factors.

27.e Develop plans to improve, connect, or develop new wastewater systems in unsewered urban coastal communities.

27.f Perform a study to assess individual wastewater systems (IWS) in unsewered urban growth areas to assess the rate of failures/negative impacts, determine rates of large capacity cesspools still in use, and develop plans to improve, connect, or develop new wastewater systems for unsewered urban communities.

27.g Proactively seek opportunities for public-private partnerships for wastewater collection and treatment development.

27.h Facilitate the use of infrastructure improvement districts and other types of localized funding mechanisms to fund improvements.

27.i Streamline the sewer connection loan program.

27.j Develop wastewater cost valuation in service fees (similar to the water model fee structure).

27.k Develop a criteria-based infrastructure prioritization tool to develop new or expand existing municipal wastewater systems. Base these priority areas on designated urban growth boundaries, urban zoning and density, population trends and anticipated growth, health/safety, and environmental factors.

27.l Implement innovative wastewater systems at a cost-effective scale for small communities.

27.m Amend the County Code, Section 21-26-1(a) requiring “all sewer extensions shall be approved by resolution of the County council” to read, “all sewer extensions outside of Urban Growth Areas shall be approved by resolution of the County council.”

27.n In collaboration with the DOH Wastewater Branch, reevaluate and clarify the requirements set forth in Hawai'i Administrative Rules (HAR), Section 11-62-31.1(a) (1) (B) and amend County sewer requirements accordingly to accommodate needed housing units.

27.o Collaborate with the DOH to advance progressive wastewater technology and regulations.

### One Water-Recycled Water Expansion

27.p In collaboration with the Department of Agriculture, develop a water resource strategy for efficient agricultural water use and reuse.

27.q Install non-potable systems, such as reclaimed wastewater, brackish groundwater, and untreated surface water in proximity to priority UGAs for non-potable water uses.

27.r Conduct supply and demand studies to determine a level of service for non-potable water needs.

27.s Facilitate greywater reuse systems through code amendments and through partnering with DOH for regulatory changes and incentives.

## 4.3.5 Stormwater Infiltration and Green Infrastructure

Stormwater management and the implementation of green infrastructure are critical elements of the General Plan for their vital role in sustainability on Hawai‘i Island. As an island ecosystem with limited freshwater resources and vulnerable coastal areas, managing stormwater effectively and integrating green infrastructure practices are essential for preserving our water resources and ensuring environmental sustainability.

Stormwater refers to the runoff from precipitation that flows over land surfaces, eventually entering water bodies such as streams, rivers, and oceans. Stormwater is a crucial element of the island's overall water landscape. While precipitation may be an obvious contributor to stormwater, all the phases of the hydrologic cycle are related to stormwater and are influenced by public utility decisions made in the built environment. Precipitation and surface runoff are often the phases of the hydrologic cycle that people recognize as stormwater, whereas evaporation, transpiration, and condensation are not as easily observed processes.

Uncontrolled stormwater runoff can lead to various detrimental effects on water resources and ecosystems. Polluted runoff, also known as nonpoint source pollution, from agriculture, urban development, forestry, recreational boating, marinas, and hydromodification activities is the leading cause of water pollution in waters across the country and in Hawai‘i. Uncontrolled stormwater runoff can also lead to localized flooding, causing damage to infrastructure, property, and even loss of life. Implementing stormwater management strategies helps to control the flow of stormwater, reducing the risk of flooding and associated hazards. Moreover, excessive stormwater runoff can cause soil erosion, leading to the loss of fertile topsoil, sedimentation in water bodies, and degradation of natural habitats. Proper stormwater management practices, including erosion control measures, help minimize erosion and preserve the island's natural resources.

Stormwater is a prime example of the unavoidable connections that exist between the built environment and the natural environment. Increasing the opportunities for infiltration and transpiration can reduce the amount of evaporation that surface runoff requires. The social, environmental, and economic impacts of stormwater infrastructure have meaningful implications for our overall island sustainability as water is one of the most precious resources.

### Point and Nonpoint Source Pollution

Engineering efficiency in conveying stormwater runoff using impervious surfaces (e.g., paved swales, channelized streams) must be balanced against environmental considerations. If the drainage is directed to streams, excessive freshwater volumes and sediment loads may impact coastal water resources (e.g., degrade water quality and smother coral reefs). If the drainage is directed to injection wells, more studies are needed to determine the impact of storm runoff on groundwater quality. Sediment basins, wetlands, or less impervious methods of conveyance (e.g., grass swales) should be considered where feasible to reduce nonpoint source pollution of the coastal waters from stormwater runoff and filter infiltrating water.

Green infrastructure refers to the network of natural or engineered features that manage stormwater while providing additional benefits to the environment and community. Such features may include rain gardens, permeable pavement, bioswales, and vegetated buffers. Green infrastructure is crucial for stormwater management, as it captures and absorbs runoff, reducing the volume and rate of runoff. By mimicking natural hydrological processes like sediment filtration and bioremediation, it helps to recharge groundwater, replenish streams, and

reduce stress on our water resources during periods of heavy rainfall.

By retaining and infiltrating stormwater, green infrastructure reduces the reliance on freshwater sources for irrigation, thus conserving water resources. This is particularly important for our island communities where freshwater availability is limited. Green infrastructure features may also provide habitats for native plants and wildlife. They contribute to biodiversity conservation and help restore and enhance Hawai‘i Island’s natural ecosystems. Green infrastructure plays a key part in mitigating the impacts of climate change by reducing the urban heat island effect, moderating temperatures, and increasing resilience to extreme weather events. These measures align with the County’s sustainability goals and efforts to adapt to climate change.



## Objective 28

***Increase green infrastructure practices.***

### Policies

28.1 Design to collect stormwater from streets, sidewalks, and other hard surfaces before it can enter the sewer system or cause local flooding; reduce the amount of stormwater that flows into the Sewer System.

28.2 Control stormwater by using it as a resource rather than a waste.

28.3 The "Drainage Master Plan for the County of Hawai'i" should be updated every 20 years for urban centers to incorporate new studies and reflect newly identified priorities.

28.4 Encourage vegetated shoulder and swale roadside design where climate and grade are conducive.

28.5 Where applicable, natural drainage patterns shall be improved/restored to increase their capacity with special consideration for the practices of proper soil conservation, and grassland and forestry management.

28.6 Implement nature-based solutions that manage stormwater on-site to reduce the burden on the storm sewer system and reduce flooding.

28.7 Prioritize drainage and flood studies for high-risk urban areas within the Urban Growth Area.

28.8 Drainage standards shall incorporate cumulative upslope development patterns.

### Storm Water Management

28.9 Develop an island-wide stormwater management program compatible with the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Phase II program.

28.10 The County shall ensure sites are planned, designed, and developed to:

a) Protect, restore, or mimic the natural water cycle within built environments by retaining, detaining, and/or treating stormwater runoff.

b) Mitigate direct impacts of the land development process through the use of green infrastructure or low-impact site planning techniques.

c) Protect areas that provide important water quality benefits and/or are particularly susceptible to erosion and sediment loss.

d) Optimize the integration of the existing landscape into green infrastructure solutions.

e) Manage post-construction stormwater runoff rates, through the use of green infrastructure or low-impact development stormwater management practices.

28.11 The County shall ensure that golf course developments develop and implement grading and site preparation plans to:

a) Develop nutrient management guidelines appropriate to Hawai'i for qualified superintendents to implement so that nutrients are applied at rates necessary to establish and maintain vegetation without causing leaching into ground and surface waters.

b) Develop and implement an integrated pest management plan. Follow EPA guidelines for the proper storage and disposal of pesticides.

c) Develop and implement irrigation management practices to match the water needs of the turf.

28.12 The County shall minimize impervious areas on County property, development sites, and parking areas and promote the use of permeable surfaces and landscaped areas in project designs including:

a) Porous materials

b) Natural drainage

c) Filtration pits

d) Infiltration basins, vegetated bioswales, permeable/porous paving

> Green infrastructure generally includes practices such as rain gardens, infiltration basins, green or blue roofs, porous pavements, subsurface stormwater storage systems, and stormwater reuse systems.

## Actions

28.a Adopt LID practices to address small-scale stormwater management.

28.b Conduct a feasibility study to create a County Stormwater Utility before the County reaches MS4 requirements.

28.c Update the DPW Storm Drainage Standards to reflect current data and to incorporate strategies and standards of green infrastructure and low-impact development.

28.d Develop drainage master plans from a watershed perspective that considers non-structural alternatives, minimizes channelization, protects wetlands that serve drainage functions, coordinates the regulation of construction and agricultural operation, and encourages the establishment of floodplains as public greenways.

28.e Explore new methods of funding for the provision of adequate drainage systems and reduce potential flood inundation areas.

28.f Create a green infrastructure dedication standard.

28.g Create a pilot study for a watershed-based drainage study.

28.h Develop a monitoring and evaluation program for impervious surface coverage.

28.i Promote and provide incentives for participation in the Soil and Water Conservation Districts' conservation programs for developments on agricultural and conservation lands.

28.j Establish guidelines for Adopt-a-Corridor Program for flood corridors.

28.k Evaluate ownership and/or maintenance responsibility for flood corridors that serve multiple regional benefits.

28.l Identify County parks and recreation, rights-of-way, and other County owned sites for green infrastructure demonstration projects.

## 4.3.6 Electricity and Renewable Energy

Hawai‘i Island’s communities and economy rely on the constant availability of energy. The fossil fuels consumed in Hawai‘i are predominantly used for transportation or used to produce electricity. However, our energy needs today are being met with an increasingly cleaner combination of energy sources. Hawai‘i possesses an abundance of natural resources, including wind, solar, flowing water, wave, bioenergy, and geothermal, that can be used to produce energy. Harnessing these resources while reducing the use of non-renewable sources, such as petroleum, coal, and fossil-based natural gas is key to achieving our State’s clean energy goals. Hawai‘i County is focused on electricity transformation to renewable energy. This transition supports greater resiliency for our island, independent of imports when a natural disaster or shortage occurs.



The existing electric distribution system consists of several different voltage levels: 2.4kV, 4.16kV, 7.2kV, 12.47kV, and 13.8kV. The distribution system consists of both underground systems and overhead pole lines, yet overhead pole lines are more common because of Hawai‘i Island’s topography. The use of underground systems has mostly been in West Hawai‘i’s newer subdivisions and developments. The Hawai‘i Electric Light Company, Inc. (HELCO) supplies electricity for Hawai‘i Island and operates major switching stations (used to transfer the flow of power between different transmission circuits) at critical locations around the island. These transmission switching stations provide greater system flexibility and increase system reliability in supplying power to the various distribution substations and eventually, to customers. Distribution substations, which transform voltages to distribution voltages, are also located island-wide in proximity to communities and other developments.

In June 2015, the State of Hawai‘i became the first state in the country to commit to 100 percent clean energy. Governor Ige signed into law House Bill 623 which calls for the State of Hawai‘i to produce 100 percent of its electricity from renewable sources by the year 2045. As a result, renewable energy production has been prioritized. Today, approximately 32 percent of the State’s total energy generation comes from renewables. Renewable energy comes from a range of local sources using various technologies and each island has a unique composition of clean energy generation. The renewable portfolio standard (RPS) represents the renewable energy used by customers as a percentage of total utility sales. In 2022, Hawai‘i Island had a mix of renewable sources including customer-sited solar (15.8 percent), geothermal (15.7 percent), wind (10.6 percent), biofuel (3.5 percent), hydro-energy (2.1 percent), and grid-scale solar (0.3 percent).[2]

Overall, the County leads the State in renewable energy generation, at 48 percent. While Hawai‘i is in the process of building its renewable energy, it remains the most energy-insecure state in the nation and most dependent on fossil fuels.

Electricity sales have been trending down over the past decade, mainly due to the decrease in commercial customers and commercial sales. Electricity consumption by streetlights has also been declining. In 2022, HELCO’s power

[2] Hawaiian Electric, Integrated Grid Plan (2023)

generation system had a total firm capacity of 280.5 megawatts (MW). The approximate non-firm capacity was about 168.6 MW.

The island's electric grid is only 40 percent dependent on foreign oil when all its renewable power plants are running. However, the grid does not account for propane use, meaning Hawai'i Island is more dependent on foreign fuel than reflected by the grid. Therefore, operation costs are higher for businesses in Hawai'i even when using less energy than comparable businesses on the continent. In the face of international oil shortages or economic disruptions, the dependence on foreign oil will continue to increase the costs of living and operating businesses on the island. Hawai'i residents have already experienced increased costs of electricity as a result of the 2023 Ukraine-Russia war.

## Objective 29

***Strive towards energy self-sufficiency.***

### Policies

29.1 Increase partnerships and interagency collaboration to ensure that energy facility production and distribution is adequate, efficient, and dependably available to each community to support present and future demands.

29.2 Promote and encourage the creation of a modern grid to support the use of distributed generation such as private photovoltaic systems connected to the grid.

29.3 The County shall remove barriers to energy systems that improve independence and resiliency, such as microgrids, combined heat and power (CHP), backup generation and storage, and other decentralized electricity systems.

29.4 Maintain tax incentives for renewable energy improvements and continue to revise incentives as energy technologies progress.

29.5 Continue to participate at the State level to provide feedback on all energy-related initiatives and proposed revisions to comprehensive Integrated Resource Plans.

29.6 Advocate to the Public Utility Commission (PUC) in support of the following types of strategies and initiatives:

a) Programs and fee structures that promote renewable energy

b) Consumer incentives to utilize renewable alternatives

c) Social Equity analysis of proposed energy projects to ensure residents are protected as energy consumers regarding rates, grid planning, utility compensation, and energy project siting

29.7 Encourage and incentivize alternative energy sources including off grid or distributed power sources to increase resiliency.

### Actions

29.a Partner with government, private and nonprofit agencies, communities, and other stakeholders for the research and development of alternative/renewable energy resources.

29.b Develop standards and principles for reviewing PUC applications.

29.c Support Net-Metering (NEM), Feed-in-Tariff (FIT), and other programs designed to lower costs and diversify power sources.

29.d Conduct a feasibility report for using renewable sources to generate power for public utility infrastructure.

## 4.3.7 Telecommunications and Broadband Connectivity

Hawai‘i Island has seen an acceleration in the development of telecommunication technology and a transformation of the telecommunications industry. Technological advancements and industry competition have made wireless communication more affordable and accessible to the public.

As of August 7, 1998, the entire island of Hawai‘i had 100 percent digital switching. Digital switching is significant because it enables the existing telephone infrastructure to accommodate high-speed data transfers and access to many of the latest telecommunication services and features. In 1998, the last rural areas restricted to party line service were upgraded with additional telephone cables allowing single line services island wide. Advances in fiber optic technology provide the backbone for the island’s high-capacity broadband requirements and the necessary services for specialized users such as the telescopes atop Mauna Kea.

Advances in telecommunications are not without cost or concerns. One such concern is the construction and location of telecommunication towers. Telecommunication towers are the physical structures to which antennas are attached to facilitate wireless communication. Because of the need for a clear line-of-site, telecommunication towers are usually located in areas with minimum obstructions between the tower and its area of service. Line-of-site refers to the imaginary line between a mobile phone antenna and a telecommunication tower. If there are impediments between the mobile phone antenna and the telecommunication tower, there may be signal degradation or signal loss. For example, the loss of line-of-sight occurs when a person uses a mobile phone while driving through a tunnel. Most often, communication is lost or unclear. The line-of-sight requirement often necessitates the conspicuous location of many telecommunication towers. The State Public Utilities Commission (PUC) regulates telephone service statewide.

Broadband service and its critical infrastructure are increasingly becoming part of the class of essential utilities as many aspects of life and work are online. The goals of the County’s Broadband Initiative are to identify gaps in internet service, provide open access files for broadband mapping, and support digital equity and inclusion across Hawai‘i Island communities by providing connections to resources such as digital literacy, education, training, telehealth, funding opportunities, and a space for community partners to collaborate.

Hawai‘i requires an expansive range of infrastructure and technology to ensure broadband connectivity throughout the islands and with the rest of the world. Broadband networks rely on physical infrastructure such as cables, wires, servers, routers, and wireless towers, to provide users with high-speed internet access. The construction, connection, and maintenance of this infrastructure entail a complex process of acquiring necessary permits and easements, siting the facilities, and labor-intensive activities to ensure the adequate functioning of equipment across infrastructure components. Internet access requires a fixed or mobile wireless connection which may be achieved through a range of technologies.

According to the 2022 American Community Survey (ACS) data released by the U.S. Census Bureau, roughly 17 percent of Hawai‘i residents live within covered households[3], with percentages varying across the counties. The statewide total has grown over the past several years, with the 2015 to 2019 5-year ACS data indicating that 14 percent of Hawai‘i residents live within covered households. In both data sets, Hawai‘i County shows the highest

[3] Covered households are defined by the National Telecommunications and Information Administration (NTIA) as individuals who live in households with income below 150% of the poverty threshold.

incidence, with over one-fifth (22 percent) of the population living within covered households.

In May 2023, Hawai'i County launched the Hawai'i Digital Equity Coalition (HIDEC)[4] bringing together Hawai'i Island partners committed to bridging the digital divide within the community. A user-friendly StoryMap[5] published by Hawai'i County captures the landscape of digital equity and Internet services on the island. The counties of O'ahu, Kaua'i, and Maui have since followed suit, each creating their own Digital Equity Coalitions modeled after HIDEC. Hawai'i Island is estimated to have more than 11,000 households without or limited to internet access. The effects are disproportionately felt by students, adults, kūpuna, people living with disabilities, farmers, small businesses, and remote workers living in rural areas. Efforts are being made by HIDEC to reduce this gap by increasing services.



Broadband community outreach session.

The County completed a fiber ring in 2022, which serves as a backbone to connect County departments with telecommunication services. From January 2022 to October 2022, there were approximately 5,300 subscribers and 440 internet-connected devices through the Affordable Connectivity Program (ACP), which is a federal program that assists low-income households with the costs of broadband service and internet-connected devices. As of February 2023, there are 5 County locations with public Wi-Fi Internet locations provided at no cost to the community.[6]



Broadband information session led by County R&D representatives.

Broadband is foundational to economic development, job creation, global competition, and the ability to engage in society. Similar to the way electricity revolutionized life around the world, broadband is fueling entire new industries and generating innovative solutions for accessing, organizing, and sharing information. Broadband as a public utility plays a vital role in accessing and providing education and health services, managing energy, preserving public safety, and engaging with the government.




Connect Kākou is the statewide broadband initiative, spearheaded by Governor Josh Green's office, to ensure that communities across Hawai'i have access to reliable and affordable high-speed Internet.[7] Featured in this photo are two Hawai'i Island broadband leaders. Source: Office of The Lieutenant Governor

[4] COH, Broadband Initiative https://www.rd.hawaiicounty.gov/economic-development/broadband
[5] COH, Exploring the Landscape of Broadband Equity and Inclusion https://gis.hawaiicounty.gov/arcgisportal/apps/storymaps/stories/8d085a980d034517849990a13bed1b48
[6] COH, Broadband Initiative
[7] Connect Kākou https://www.connectkakou.org/

### Striving for Digital Equity

The Hawai'i Island Digital Equity Coalition (HIDEC) is a collaborative effort focused on bridging the digital divide within our communities.

The digital divide is the gap between those who have affordable access, skills, and support to effectively engage online and those who do not. Digital equity is the goal, in which all individuals and communities have the information technology capacity needed for full participation in society, democracy, and economy.

Digital inclusion is how we achieve digital equity. Key elements of this work include affordable, robust broadband internet service; internet-enabled devices; access to digital literacy training; quality technical support; and applications and online content designed to enable self-sufficiency, participation, and collaboration.

## Objective 30

***Advance policies, programs, and initiatives for public and/or private investment in broadband and telecommunications infrastructure.***

### Policies

30.1 Treat broadband access as a basic utility that is available to all communities.

30.2 Develop and support a program of free, public-use broadband services at appropriate County-owned facilities, mass transit facilities, and other community anchor institutions.

30.3 Collaborate with utility companies to incentivize the underground siting of electrical and telecommunications facilities within public rights-of-way.

30.4 Continuously improve the use of broadband communications and digital technology to educate and provide public services with a focus on digital access.

30.5 Siting of new communications facilities shall comply with performance standards and site co-location as stated in the Code.

30.6 Support projects that address service gaps in Hawai'i's broadband infrastructure.

30.7 Advocate for connectivity to businesses to protect the viability of businesses and the livelihoods of residents.

30.8 Promote and incentivize the landing of transpacific submarine fiber optic cables.

30.9 Alleviate barriers and assist broadband projects with navigating through the regulatory permitting process.

30.10 Encourage and support maintenance and improvement of cyber security and informational security of telecommunication facilities.

30.11 Advocate for service diversity, redundant network capacity, and provide improved communications to outlying rural areas and other underserved or unserved communities.

30.12 Plan for broadband infrastructure to support smart grid development.

## Actions

30.a Support refurbishment, upcycling, recycling, and reuse of computers and other devices.

30.b Develop standards for the siting and construction of wireless telecommunication facilities.

30.c Collaborate with government, private and nonprofit agencies, communities, and other stakeholders to create and maintain an inventory and mapping of communications infrastructure, including but not limited to wireline, wireless, cell tower locations, and known proposed facilities.

30.d Collaborate with government, private and nonprofit agencies, communities, and other stakeholders to seek funding, identify and remove regulatory barriers to complete and improve the island's fiber optic loop in an environmentally and economically appropriate manner.

30.e Advocate for provider and consumer incentives to address last-mile installation and/or service plans.

30.f Collaborate with government, private and nonprofit agencies, communities, and other stakeholders to progressively improve broadband speeds to keep pace with technological advances.

30.g Collaborate with broadband service providers to ensure all users have efficient service.

30.h Collaborate with the telecommunications industry to increase the availability of emergency telephones throughout the island.

30.i Pursue partnerships and funding for broadband initiatives and deployments.

30.j Support the coordination of infrastructure projects between the public and private sectors to create areas for the deployment of broadband zones.

30.k Seek federal and other opportunities for the funding of broadband infrastructure.

30.l Support the State to develop a broadband dashboard to track progress and gaps that will inform decision-making in economic development on Hawaiʻi Island.

30.m Foster public-private partnerships to support the development and expansion of broadband infrastructure, including community networks.

# 4.4 PUBLIC FACILITIES AND SERVICES


**4 Public Facilities and Services**

4.4.1 Introduction
4.4.2 Goal, Objectives, Policies, and Actions
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## 4.4.1 Introduction

Public facilities and services are both essential components of public infrastructure, however, it is important to recognize the distinction in their nature and purpose. Public facilities refer to physical structures or spaces that are provided, staffed, and maintained by the government to serve the needs of Hawaiʻi Island residents. These facilities are usually open to everyone and offer access to various resources and amenities. The primary function of public facilities is to provide physical infrastructure and spaces that cater to the basic needs, welfare, and quality of life of the community. Public services encompass a wide range of intangible activities and functions provided by the government to meet the needs of the public. These services focus on delivering essential support, assistance, and governance to residents, addressing their diverse needs, and aimed at promoting health, safety, and social well-being.



Public facilities are often ideally located in larger towns or centrally situated areas that are near the commercial, industrial, and cultural activities of established communities. Public facilities are funded through the Capital Improvements Program (CIP). Capital improvement projects have the potential to influence where growth occurs, to distribute County services more equitably, and to promote important objectives such as affordable housing.

Most public facilities that service the residents of this County are managed by the State and County. For example, the State operates the public school system, libraries, and public hospitals. The County provides police and fire protection and solid waste management. Staffing and service programs provided within these facilities are funded by the County operating budget using real property taxes. Additionally, both the State and County maintain administrative offices on the island to serve the residents' needs.

It is necessary to carefully coordinate the provision of public facilities to use them most effectively and to maximize the effect of the public dollar. It is equally necessary to realize that the type, quality, capacity and location of facilities and services have a significant impact on the community, the people, and the total environment. This section of the General Plan comprises public facilities and services within law enforcement and public safety, sanitation, education, parks and recreation, and community health and wellness.

## Table 36: Public Facilities and Services Challenges

| | |
|---|---|
| **General** | • Funding and financing the development, repair, and maintenance of public facilities is often complicated and can burden communities, developers, and the County.<br>• Deferred maintenance often requires capital improvement interventions.<br>• The island's geography paired with sprawled population creates challenges and inefficiencies in service coverage and maintenance.<br>• Climate change impacts pose threats to all public facilities and services. |
| **Public Safety** | • Protective services are often under-funded and over-burdened.<br>• The development, repair, and maintenance of these facilities are largely dependent on other departments priorities, schedules, and resources.<br>• Barriers to access (e.g., gated communities, substandard road infrastructure, etc.) can limit emergency routes and access to services. |
| **Solid Waste** | • Illegal dumping of solid waste is a continuous issue that poses human and environmental health hazards.<br>• Recoverable materials are lost to the landfill because there is no facility or program for recoverable materials.<br>• Local recycled materials markets are underdeveloped, and access to out-of-state markets is expensive due to Hawai'i's isolated geography.<br>• Source reduction is challenging due to the current economic model and heavy reliance on imports. |
| **Education** | • Access to affordable housing options within proximity to educational facilities is limited.<br>• Access to educational facilities is generally vehicle-dependent and long commute distances contribute to traffic congestion.<br>• Educational facilities are often located along major highways, which makes multimodal safe routes to school difficult to implement.<br>• Planning for school facilities by the State Department of Education is disconnected from County long-range plans and overall growth demand, and short-term solutions can compound mobility issues.<br>• State Land Use Boundary amendments receive conditions for school mitigation but are done on a case-by-case basis which is not continuous or comprehensive in meeting future needs.<br>• Siting for educational facilities can become complicated when the community is not engaged and faces unwanted changes.<br>• Charter schools have a difficult time meeting regulations in rural communities. |
| **Recreation** | • Access to recreational facilities is generally vehicle-dependent, which is a barrier for the non-driving population.<br>• In some rural areas, the lack of convenient public transportation makes it difficult to take advantage of recreational facilities and programs.<br>• Existing parks have failing infrastructure.<br>• Trending population growth areas and the location of established recreational sites are not always in alignment.<br>• The lack of community needs assessments contributes to the gap between community needs and the services provided.<br>• Sewage, industrial waste, and other pollutants have infiltrated some swimming, surfing, fishing, and boating areas, reducing the availability and/or quality of these areas for recreation. |
| **Health** | • The rural nature of the island's communities exacerbates healthcare challenges, leading to greater healthcare inequity.<br>• Aging health facilities pose a challenge to providers in providing robust healthcare services.<br>• The lack of affordable housing is one of the biggest barriers to recruiting and retaining healthcare professionals.<br>• There is a severe shortage of physicians, nurses, certified nursing assistants, and community health workers.<br>• The rising cost of living and access to healthy lifestyle options are obstacles to health for communities. |

## Table 37: Public Facilities and Services Opportunities

| | |
|---|---|
| **General** | • Improve collaboration and coordination across agencies, as well as explore opportunities for public-private partnerships for supplementing resources, funding, and expertise.<br>• Enhance community engagement through programs and initiatives to foster stronger partnerships between County agencies and the community.<br>• Conduct comprehensive risk assessments to identify potential vulnerabilities and areas of improvement.<br>• Leverage multiple sources of funding.<br>• Create special assessment districts for new facilities and services.<br>• Consolidate services for joint-use facilities. |
| **Public Safety** | • Ensure protective services facilities are maintained to optimize health and resilience.<br>• Upgrade communication systems and infrastructure to ensure seamless and reliable communication among agencies, as well as with the public during emergencies.<br>• Explore opportunities to leverage technology for improved public safety services. |
| **Solid Waste** | • Adopt ordinances to maximize waste diversion.<br>• County procurement policies can help reduce waste.<br>• Investigate and implement innovative waste management technologies and practices, which may include exploring advancements in waste sorting and processing, waste-to-energy conversion, or the use of renewable materials. |
| **Education** | • Support a mix of zoning to support the concept of live-work-play near educational facilities.<br>• Effectuate equitable transportation routes to and from educational facilities that serve to connect people with facilities, while reducing traffic.<br>• Educational facilities can serve as digital literacy and equity hubs that enhance community well-being.<br>• Seek to acquire public lands to support consistent land uses surrounding educational facilities.<br>• Ensure consistency between long-range plans and overall growth demands. |
| **Recreation** | • Adoption of green infrastructure best practices can aid in protecting park assets and developing new park assets.<br>• Community volunteer opportunities (e.g., Friends of the Park Program) can support the maintenance of parks and recreation areas.<br>• Implement interpretive signage through collaboration with community groups.<br>• A preventative and deferred maintenance schedule can be adopted as a proactive approach to park and recreation maintenance.<br>• Needs assessments and other methodologies can help to determine park typologies for communities, which may reduce the demand for maintenance. |
| **Health** | • Increase care providers in or transportation options to rural areas for residents to have access to preventative care.<br>• Invest in housing first and permanent supportive housing/social housing<br>• Increase active transportation opportunities for greater accessibility and promote physical activity.<br>• Increase effective education on low-cost and free health services.<br>• Investment in public health isn't limited to healthcare facilities but includes investment in the healthy built environment |

## 4.4.2 Public Facilities and Services Goal, Objectives, Policies, and Actions

Goals:

Our communities are safe and protected, and have access to integrative health, education, and social services to support a high quality of life for all residents.

Our communities are adequately served by sustainable and efficient public infrastructure, utilities, and services based on existing and future growth needs, sound design principles, and effective maintenance practices.

### Objective 31

***Adequately maintain public facilities.***

#### Policies

31.1 Maintain an Asset Management Program aimed at utilizing maintenance plans to prolong the life of our facilities as well as reduce whole-life costs.

31.2 Maintain the unique features of historic structures, while balancing maintenance and safety needs.

31.3 Prioritize the replacement of deficient and inadequate facilities.

31.4 Encourage the adoption of innovative materials and methods that improve facility resilience.

31.5 The development of County facilities should be designed to fit into the locale with minimal intrusion while providing the desired services. Implement protocols for receiving community input during capital improvement project siting and design.

31.6 Explore and encourage adaptive reuse of former facilities such as airports (e.g., Makaʻeo Park) and fire stations (e.g., Kawailani Fire Station).

#### Actions

31.a Create an asset management program.

31.b Continue a facility inspection program.

31.c Develop and adopt an Impact Fees Ordinance to aide in the expansion of County services and facilities.

## 4.4.3 Protective Services

A comprehensive system of protective services is necessary to ensure safety, well-being, and emergency response for residents and visitors of Hawai‘i Island. Protective services within the County consist of the Police Department, Fire Department, Emergency Medical Services, Disaster Management, and Detention and Correction agencies. The General Plan recognizes infrastructure concerns and related impacts on the County's protective services, as access and connectivity enable emergency responders to perform their duties at a standard level of service. Supporting our protective services through land use policy is imperative for public health and safety and efficiency of these services.

As the County's law enforcement agency, the Hawai‘i Police Department, plays a crucial role in maintaining public safety. They enforce laws, prevent crime, respond to emergencies, and work towards fostering a secure environment for all residents. The County adheres to the State's guidance for crime and criminal justice.[1] Hawai‘i Island is divided into east and west operations bureaus that include investigative and patrol operations. Each of the districts is served by a main police station headed by a Captain. There are five substations (Kea‘au, Laupāhoehoe, Hawaiian Ocean View Estates, Mauna Lani, and Captain Cook). Based on population, the islandwide average is about 2.5 officers per 1,000 residents. Police response is primarily mobilized through their vehicles.

Fire and Emergency Medical Services are another essential component of the island's protective services. The Hawai‘i Fire Department provides 24-hour firefighting services in cooperation with the Department of Forestry and Wildlife, the National Park Service, the State Airports Division, and Pōhakuloa Training Area Fire. In addition to fire suppression, the Fire Department provides rescue services, 911 emergency medical response, hazardous materials response, and ocean safety response services. The Fire Department works diligently to prevent and mitigate fires, respond to medical services, conduct search and rescue operations, and provide educational programs to promote fire safety within the community.

Given our geographical location and exposure to natural hazards, disaster management is of utmost importance on Hawai‘i Island. The Civil Defense Agency identifies hazards (human-caused, natural, and technological) that pose a threat to the island and prepares the County to respond to and quickly recover from the impact of those hazards should they materialize. The Agency's three primary functions are to prepare the County government, businesses, and residents for disasters, to provide public information and warning, and to coordinate disaster response and recovery. Hawai‘i County Civil Defense works closely with other agencies to follow the guidance of federal and state laws, standards, and frameworks.

The State Department of Public Safety operates correctional facilities for the confinement of pretrial inmates and convicted offenders, and intake service centers for the supervision of offenders. An array of rehabilitative programs is available through the correctional facilities and intake service centers. The Hawai‘i Intake Service Center, the Hawai‘i Community Correctional Center, and its annex are located in Hilo. A minimum-security facility (Kulani Correctional Facility) is located at the end of Kulani Stainback Highway on the lower slopes of Mauna Loa. Police facilities in Hilo and Kealakehe also have holding cells for overnight detention.

[1] HRS, Section 226-105 https://www.capitol.hawaii.gov/hrscurrent/Vol04_Ch0201-0257/HRS0226/HRS_0226-0105.HTM

## Objective 32

***Protect the health and well-being of residents and visitors.***

### Policies

#### Planning/Siting Protective Services Facilities

32.1 Police and fire stations should be co-located whenever feasible.

32.2 The establishment of a police/fire facility shall consider site size and locations that permit quick and efficient vehicular access.

32.3 Strategically plan and locate volunteer fire facilities, which may include co-existing with full-time Fire/EMS stations.

32.4 Police headquarters shall be near the geographic center of the service area and near concentrations of commercial and industrial use.

32.5 Hardened shelters shall be located within reasonable proximity to population centers.

32.6 Lifeguard stations should be located at all County and State beach parks.

#### Level of Service

32.7 Adequately support, fund, and expand volunteer fire facilities and capacity.

32.8 Maintain a level of service for response time that is consistent with National Fire Protection Association (NFPA) standards.

32.9 Ensure Hazardous Material service for both the windward and leeward sides of the island.

32.10 All fire stations should provide Emergency Medical Services (EMS).

32.11 Stations in rural areas should be based on the population to be served and response time rather than on geographic districts.

#### Preventative Approaches

32.12 Accommodate flexibility in design and provisions for alternate water sources for fire protection when adequate public water is not available.

32.13 Incentivize the development of large, dedicated catchment tanks for firefighting access.

32.14 The Fire Department shall participate with other related governmental agencies and the involved landowners in the preparation of fire protection and prevention plans.

32.15 Crime Prevention through Environmental Design (CPTED) should be incorporated into planning and design.

32.16 Business Improvement Districts or other organizational tools, such as partnerships with local businesses, should be used to enhance security and orderliness in downtown areas.

32.17 Support bicycle patrol programs in urban areas.

**Crime Prevention Through Environmental Design (CPTED)**

Also known as Designing Out Crime and defensible space, these strategies aim to reduce victimization, deter offender decisions that precede criminal acts, and build a sense of community among inhabitants so they can gain territorial control of areas, reduce crime, and minimize fear of crime.

32.18 Encourage the further development and expansion of community policing programs, school resource officers, and neighborhood/farm watch programs.

32.19 Ensure adequate training and capacity building for emergency response.

32.20 Prioritize to establish, map, and maintain alternative and emergency evacuation routes in each high-risk hazard area.

32.21 Prioritize to develop and/or improve secondary access roads for those communities with only one means of ingress/egress.

32.22 Continue to participate in the National Flood Insurance Program (NFIP) Community Rating System (CRS) to the maximum extent possible and shall seek to improve its current CRS Class rating (to the maximum extent feasible to reduce insurance costs).

### Emergency Facilities and Communication Systems

32.23 Ensure emergency warning sirens and communications coverage is adequate for each community.

32.24 All emergency response critical facilities and communication systems shall be designed and maintained to be resilient and remain operational during hazard events.

32.25 All new emergency facilities shall be designed to minimize and prevent loss.

32.26 In collaboration with State agencies, maintain shelter capacity and condition records to ensure that evacuation shelters are adequate for each community.

### Public Education Program

32.27 Increase public education related to hazard zones, including evacuation routes and procedures for visitor accommodations.

32.28 Develop the capacity for hazard preparedness of non-governmental organizations, businesses, and neighborhood groups, such as Community Emergency Response Team (CERT) and Medical Reserve Corps (MRC).

32.29 Partner with government, private and nonprofit agencies, communities, and other stakeholders to assess and plan for alternative routes and possible relocation of coastal roads.

## Actions

32.a Support the development of private common access-distribution systems of private catchment water for firefighting purposes in rural catchment communities.

32.b Prioritize budgets for technology improvements for emergency services; including hazardous material service, 4x4 vehicles, and other equipment or software to improve emergency response times.

32.c Review county lighting and landscaping ordinances to implement CPTED.

32.d Develop a public safety audit checklist and conduct urban neighborhood and downtown safety walks to identify potential crime spots or unsafe areas.

32.e Educate the public regarding disaster preparedness and response, especially proper responses for sudden-impact hazards.

32.f Partner with government, private and nonprofit agencies, and the involved landowners to support wildfire control and reclamation.

32.g Define and map critical facilities necessary for community disaster response and recovery that are too important to fail.

32.h Monitor and address known hazards along transportation routes.

32.i Partner with Hawai‘i Emergency Management Agency to regularly review and address warning siren coverage.

32.j Install emergency phones along roadways in isolated areas of lower cellular connectivity.

32.k Support the use of the Best Available Refuge Areas within existing buildings.

32.l Provide technical assistance to communities developing emergency response and evacuation plans.

32.m Maintain and update the public education and communications program regarding disaster preparedness and response, especially proper responses for sudden impact hazards. (e.g., CERT, resilience hubs, and first aid training)

32.n Develop and maintain a Post-Disaster Redevelopment Plan which specifies the following:

i. Roles and responsibilities
ii. Procedures for implementing programs for immediate clean-up, repair, design, and replacement
iii. Long-term rebuilding and redevelopment
iv. Procedures for the identification of damaged infrastructure and consideration of alternatives to its repair or replacement
v. Evaluation of climate impacts

32.o Seek funding and support continued scientific research relating to hazards (e.g., research on erosion rates, slumping rates, slope stability studies, sea level rise rates, tsunami inundation mapping, coastal stream flood mapping, fire and wildfire, etc.).

32.p Prepare and implement wildfire protection and prevention plans.

32.q Develop community-specific hazard mitigation plans.

32.r Develop a standard for requiring an emergency response plan.

32.s Amend the County Code, Chapter 25 to require emergency and hazard information to be prominently displayed in all transient accommodations. This information should include information regarding the monthly Civil Defense siren tests, evacuation routes, and directives to reach appropriate services and agencies.

32.t Adopt incentives, such as tax deductions, to encourage retrofitting of existing structures for resilience against earthquakes, hurricanes, tsunamis, floods, and fire and wildfire.

## Table 38: Protective Services Level of Service Standards

| | |
|---|---|
| **Police** | • 2.5 police officers per 1,000 resident population in Urban areas |
| **Fire** | • 1.8 firefighters per 1,000 resident population |
| **Emergency Medical Services** | • 3.6 paramedics per ambulance<br>• 3.6 EMTs per ambulance |
| **Lifeguards** | • 4.2 lifeguards per lifeguard tower with 1 supervisory or support position per 5 lifeguards |










## 4.4.4 Solid Waste Management

Solid waste management has significant effects on environmental and public health, aesthetic qualities and land valuation, and the general land use characteristics of a community. Managing waste properly is essential for creating sustainable and livable communities. The handling of solid waste on Hawaiʻi Island has undergone significant changes in the past few decades, and to maintain the environmental health of our island community, it is important to shift from a focus on waste management to a focus on resource management. In 2021, the County updated the Zero Waste Plan[2] and since then has implemented various programs aimed at more efficient resource management, including reducing waste, waste diversion, and product reuse. Further technical innovations, optimization of efficiencies in directing the waste stream, and effective waste programs focused on increasing rates of reducing, reusing, and recycling products will advance the County toward meeting its Zero Waste goals.

The County of Hawaiʻi currently manages the West Hawaiʻi Sanitary Landfill (WHSL) located southwest of Waikoloa at Puʻuanahulu in the North Kona District. The WHSL is operated by Waste Management of Hawaiʻi under a contract with the County. The County Department of Environmental Management (DEM), The WHSL has an estimated lifespan of 20 to 25 years with current recycling rates, as determined by the County in 2023. Higher rates of waste reduction, reuse, and recycling in the community may extend life expectancy beyond 25 years.

The County currently operates a network of recycling and transfer stations that accept household refuse. The County does not provide curbside recycling or garbage pickup. Residents take their solid waste to any one of the transfer stations around the island and in some areas, residents pay private haulers to pick up their refuse from their residences for disposal at the landfill. The County is presently expanding recycling activities at the recycling and transfer stations by creating recycling and reuse centers (RRCs).

Since 2009, the County has expanded its green waste program. The County manages two green waste facilities: the West Hawaiʻi Organics Facility in Puʻuanahulu (WHOF) and the East Hawaiʻi Organics Facility in Hilo (EHOF). The two green waste facilities accept yard trimmings and untreated wood pallets but do not accept food waste. In April 2017, EHOF began processing and distributing enhanced mulch that has been processed through a 60-day “curing” period to kill invasive species. Green waste bins have been added to various recycling and transfer stations.

Scrap metal is often the largest and heaviest material collected at the County’s recycling and transfer facilities. Recycling scrap metal will not only conserve limited landfill space but also preserves natural resources by replacing the need for raw materials with recycled scrap metal to produce new metal goods.



[2] Recycle Hawaiʻi, Hawaiʻi County Zero Waste Plan (2021)

## Objective 33

***Achieve Zero Waste in Hawai‘i County by 2045.***

### Policies

33.1 Appropriately designed and cost-effective solid waste transfer station sites shall be located in areas of convenience and easy access to the public.

33.2 Implement waste stream technology, such as recycling and upcycling and waste-to-energy to reduce the flow of refuse deposited in landfills.

33.3 Proactively pursue funding that will ensure continued progression toward zero-waste goals.

33.4 Optimize recoverable material diversion from landfill disposal by increasing percentage rates for diversion through waste reduction, recycling, and reuse.

33.5 Encourage and support composting at farms and at distribution sites around the island for public use.

33.6 Encourage salvage and reuse of building materials and elements when demolition is necessary or appropriate.

33.7 Continue to develop and implement a green waste recycling program.

33.8 Incentivize opportunities for a circular economy, primarily upcycling and waste reuse by developing Resource Recovery Parks.

33.9 Ensure that redesign plans for landfill and transfer stations provide adequate space for Resource Recovery (RR) Stations.

33.10 Ensure waste and resource recovery facilities and equipment do not harbor, spread, or introduce harmful or invasive species.

33.11 Site new solid waste/resource recovery facilities in appropriate areas that serve the needs of population centers and minimize and mitigate negative impacts on the environment or surrounding neighborhood.

33.12 Reduce illegal dumping and littering.

33.13 Minimize the amount of waste generated by County facilities.

### Actions

33.a Evaluate and amend the County Code to integrate strategies to maximize landfill diversion and handle materials:

i. Develop a Source Separation Ordinance

ii. Prohibit organic material (green waste) disposal in the landfill

iii. Construction & Demolition (C & D) Recycling Ordinance

iv. Consider Take-back Ordinances (for items that are difficult to recycle or compost)

v. Require recycling at all County offices, facilities, and base yards.

vi. Continue the transition to eliminate the sale or use of polystyrene foam (Styrofoam) and single-use plastic food containers and other single-use plastics

33.b Develop programs to require advance disposal fees for specific products such as new electronics and new vehicles purchased in or shipped to Hawai‘i. The fees from this should be used to fund resource management and disposal costs.

33.c Conduct pilot studies to facilitate waste recovery and increase diversion rates. Recommended pilot programs include curbside waste, recycling, and resource pick-up in priority urban areas.

33.d Partner and coordinate to facilitate the private use of large recycling roll-off bins in rural areas.

33.e Reevaluate and initiate code changes to the fee structure for solid waste for residential and commercial uses.

33.f Facilitate University of Hawai‘i and/or Forest Service to complete necessary studies on local materials for use in construction.

33.g Implement an education and social marketing program to educate the public and business community about landfill diversion initiatives, preventing and reporting litter and illegal dumping, and other responsible waste management opportunities.

33.h Develop a County clean-up program for special waste areas, such as junkyards, to ensure the proactive removal of materials that pose environmental and public health hazards.

33.i Develop and promote take-back programs for appliances and other difficult to dispose of materials.

33.j Support expansions to the organic material (green waste) recycling program to include drop-off and pick-up locations at all rural transfer stations.

33.k Adopt the EPA’s Comprehensive Procurement Guideline program as a model for purchasing products that use materials recovered through recycling.

## 4.4.5 Education

Access to educational facilities and services plays a pivotal role in fostering community development and ensuring a bright future for the residents of Hawai‘i Island. Education provides opportunities for individuals to acquire vital skills and knowledge that are essential for personal growth and economic prosperity. Quality education empowers residents to explore their potential, pursue their passions, and develop the skills necessary for a wide range of careers.

Access to education facilities and services is particularly crucial in rural and remote areas of the island. The island's geography presents challenges for transportation and connectivity, making it difficult for some communities to access educational resources. The availability of schools, community centers, libraries, and other facilities in these areas can help alleviate geographical barriers to accessing quality education. The increasing potential for remote learning (also called distance learning or e-learning) opportunities has also enhanced access to education. This opens doors to new opportunities, helps bridge socioeconomic gaps, and ensures a more equitable distribution of resources across the island.

One significant component of education on Hawai‘i Island is the emphasis on preserving and promoting indigenous knowledge and traditions. Native Hawaiian cultural practices and values are deeply rooted in the land. Education facilities and services provide a key pathway that allows ancestral wisdom, language, and customs to be passed down to younger generations, ensuring the continuity of Native Hawaiian heritage.

Education facilities also serve as community hubs, fostering social interaction, and promoting unity among the diverse populations of Hawai‘i Island. Schools often host cultural events, extracurricular activities, and community gatherings, creating spaces where people can come together, share experiences, and build relationships. These connections strengthen the fabric of the community, creating a sense of belonging and promoting social cohesion. Education facilities and services contribute to the overall well-being of the island's communities. They not only focus on academic learning but also address various aspects of personal development, including physical health, mental wellness, and social skills. Access to comprehensive educational resources helps individuals develop resilience, critical thinking abilities, and a sense of civic responsibility, enabling them to navigate challenges and actively participate in the betterment of their communities.

Although educational facilities in Hawai‘i County are generally under the jurisdiction of either the State or private entities, the County has a responsibility toward ensuring the optimal performance of educational facilities as they relate to the overall well-being of our communities. Education services consist of Hawai‘i Island's schools, public libraries, and post-secondary facilities (community college and University of Hawai‘i facilities). Hawai‘i County adheres to the State guidance[3] for quality education. Ensuring the optimal performance of educational facilities means that the County can strategically plan for the interrelationships between people, the physical and digital environments, facilities, and infrastructure.

In 1999, the State Legislature of Hawai‘i passed Act 62, or "The New Century Charter Schools" law. Charter schools receive public funds but are excluded from many State laws and department rules and regulations, which affords them more autonomy and greater flexibility in decision-making. Charter schools must still meet all applicable federal, state, and county requirements and are not exempt from collective bargaining, discriminatory practice laws, health

[3] HRS, Section 226-107 https://www.capitol.hawaii.gov/hrscurrent/Vol04_Ch0201-0257/HRS0226/HRS_0226-0107.htm

and safety laws and standards, and the implementation of the Hawaiʻi content and performance standards.

As of August 2022, Hawaiʻi Island has 14 Public Charter Schools (PCS) with a total enrollment of 4,310 students. The charter schools range in size from 46 students at Ke Ana Laʻahana PCS to 711 students at Hawaiʻi Academy of Arts and Science PCS. Each charter school is responsible for selecting its sites. If a public school has space available, a charter school may seek to enter an arrangement with the Department of Education for the use of a portion of the school's facilities. School complexes with limited enrollment have not always been able to maximize educational opportunities in comparison with the ability of larger facilities to provide a wider scope of educational opportunities. Some older schools lack adequate parking facilities and sufficient area for expansion, and some have infrastructure and traffic problems.

The State Department of Education enrollment records for the 2022 to 2023 school year included 41 public schools on Hawaiʻi Island with a total enrollment of 22,945 students from kindergarten through 12th grade. The previous school year had a total enrollment of 23,113 students. There are 14 licensed private regular education schools, and the 2020-2021 Hawaiʻi Association of Independent Schools Private School Enrollment Report includes a total of 3,287 students from early childhood education through the 12th grade.

Regarding post-secondary facilities on island, the University of Hawaiʻi at Hilo (UHH) provides higher educational opportunities within the University of Hawaiʻi (UH) system through its variety of high-quality certificate, baccalaureate, master's, and doctoral degree programs. UHH is designed through a "spine" concept that organizes all campus structures along a main pedestrian accessway and assures that future development would continue in relation to the various existing structures. UHH continues to lack sufficient student and faculty housing options.

Hawaiʻi Community College provides access to higher education, and workforce training through on-site programs and distance education technologies. Hawaiʻi Community College offers an extensive program of certificate and associate degree programs in technical fields as well as the first two years of a baccalaureate degree. The college also offers extensive options for short-term training programs throughout Hawaiʻi Island.

Pālamanui is the West Hawaiʻi campus of Hawaiʻi Community College and opened for students in August 2015. Pālamanui offers associate degree and certificate programs, while also serving as a University of Hawaiʻi Center that delivers more than 60 certificates, bachelor's degrees, and graduate degrees from campuses across the UH system. Located in North Kona, Pālamanui is about five miles from the Natural Energy Laboratory of Hawaiʻi Authority (NELHA), which may accommodate synergistic and innovative opportunities as both UH and NELHA are under the State's authority. Overall, Pālamanui's presence in West Hawaiʻi increases educational opportunities for Hawaiʻi Island's residents. A recent serendipitous increase in the number of technology professionals and executives along the Kona-Kohala coast presents opportunities for innovative pursuits by our residents.

The Hawaiʻi Library District is comprised of 12 libraries. Library size is described by the collection size or number of volumes (books, periodicals, etc.) and ranges from 206,770 volumes in Hilo to 9,627 volumes at Naʻalehu. Library facilities will require continual improvements.

The General Plan's educational policies relate to the provision of facilities rather than programs, which are the province of the State. Nonetheless, it is recognized that the facilities and programs are indispensable tools to advance total educational service.

## Objective 34

***Each community has access to a wide range of educational opportunities.***

### Policies

#### Planning and siting facilities

34.1 Ensure educational facilities meet the needs of Hawaiʻi County.

34.2 In proposed communities, sufficient acreage, as determined by the Board of Education enrollment guidelines, shall be reserved for school facilities.

34.3 Education sites shall be free from flooding and drainage problems, and excessive slope and shall incorporate appropriate street and driveway design and location to minimize traffic interference, pedestrian hazard, and enable safe and easy access for vehicles, bicycles, and pedestrians.

34.4 Continuous joint pre-planning of educational facilities shall be coordinated with the County, Department of Education, and the UH to ensure compatibility with public services, supporting infrastructure, and equitable mobility access so that facilities are community-centered, designed for multiple uses, and serve as anchor institutions in the community.

34.5 School facilities, such as playgrounds and gyms, should be combined with County parks to allow for afterschool use by the community for recreational, cultural, and other compatible uses.

34.6 The Hawaiʻi State Library System should co-locate public library facilities in public school libraries where a separate public library may not be feasible, promoting intentional proximity to other community facilities and assets that contribute to a high quality of life.

34.7 School buildings should be designed, or at times retrofitted, to serve as emergency shelters.

34.8 The County should facilitate the use of libraries to disseminate public information and engage civic participation.

34.9 Advocate to the State and private agencies to use educational facilities to offer place-based and distance education opportunities to adults.

34.10 Educational programs should be developed to provide opportunities in diversified industries and develop practices in sustainability and resiliency.

34.11 Encourage the State to provide student, faculty, and staff housing around UH sites.

34.12 Support the continued expansion of the UHH, Hawaiʻi Community College, and Pālamanui campuses, as well as encourage continuing education programs throughout the community.

34.13 Support and encourage the strengthening of the UHH through the transfer of appropriate colleges and departments from the University of Hawaiʻi at Mānoa to the UHH.

34.14 Encourage and support the active implementation of State and UH plans for post-secondary educational facilities, including the "Research and Technology Park," on Hawaiʻi Island.

34.15 Encourage the expansion of digital access and equity through the resilient buildout of broadband infrastructure and facilities.

### Safe Routes to School

34.16 Prioritize active transportation through the development of sidewalks, pedestrian walkways, and bike paths to and from educational facilities to increase walkability and pedestrian safety.

34.17 Require new developments in the vicinity of schools to provide safe pedestrian facilities and additional school zone signage.

## Actions

34.a Implement a Safe Routes to School (SR2S) program for all schools.

34.b Ensure County makes necessary improvements to co-located facilities, such as gymnasiums, parks, and playgrounds.

## 4.4.6 Recreation

Parks and recreation areas hold significant value within the General Plan. These areas serve as essential assets to our island, as they not only beautify communities but play a central role in overall well-being and quality of life. Access to these spaces for recreational and cultural purposes is vital to Hawai‘i Island residents. Education and stewardship are integral to maintaining safe access to parks and recreation areas. The General Plan aims to provide the proper planning and policy direction to help ensure the sustainable development and maintenance of the County’s parks and recreation sites, as well as safe and equitable access to these areas.



Well-sited and planned recreational sites are often communal spaces where people can come together for events, festivals, and social gatherings. They foster a sense of community by providing a venue for residents to connect, contributing to the social fabric of our island’s communities and enhancing community cohesion. Parks and recreation also support the natural, historic, and cultural character of our unique communities. Hawai‘i Island’s parks and recreation areas often encompass diverse ecosystems, natural landmarks, and culturally significant sites. Proper planning helps protect and preserve these natural and cultural resources for generations to come. With the implementation of sustainable management practices, conservation efforts, and educational programs, these areas can serve as living classrooms that promote environmental stewardship and cultural appreciation.

Parks and recreation areas play a key role in climate resiliency, hazard mitigation, and overall environmental sustainability. They may provide green spaces that help mitigate the urban heat island effect in our urban growth areas, improve air quality, and support biodiversity by providing habitats for native plant and animal species. Responsible planning can incorporate sustainable design features, such as energy-efficient infrastructure, water conservation measures, and the use of native plants, to minimize the ecological footprint of these areas. It is worth noting that well-designed parks and recreation areas may have positive economic impacts on the surrounding communities. They often attract visitors, stimulate local businesses, and generate revenue through various mechanisms. Strategic planning of parks and recreation areas can help ensure that economic potential is balanced with the community’s needs and environmental stewardship.



Community engagement is critical to the planning of parks and recreation sites to effectively serve community needs and priorities. These areas and facilities should be accessible to all accommodating groups with disabilities or other special needs. Recreation sites should be complementary to surrounding land uses, such as schools and senior centers, to support an ecosystem of services that maximize the area’s potential to promote interactivity between community members of all ages. Additional considerations should be made for the hardening

of recreational facilities to shelter people during emergency events. The General Plan aims to address disparities and promote equal opportunities for all residents to enjoy the benefits of these spaces.

To uphold the public interest, convenience, health, welfare, and safety, the County Code, Section 8-6(a) calls for a minimum of five acres of land for park purposes for each one thousand persons in every district. Housing developers should not bear a disproportionate burden, or be forced to contribute more than their fair share, as inequitable requirements could deter needed housing development.

Park dedication and development must also be met with the appropriate departmental capacity to maintain and improve recreational sites to not overburden the County and underserve our communities. It is necessary to integrate park dedication with maintenance and improvements and consider the maintenance demand and typology of parks being dedicated.

**Parks and Recreational Areas in Hawai‘i County**

| | |
|---|---|
| **National Parks** | 5 |
| **State Parks** | 14 |
| **County Parks** | 146 |
| **Public Cemeteries** | 13 |



## Objective 35

***Park facilities are located within a 10-minute walk in urban areas and a 10-minute drive in rural communities.***

### Policies

#### Parks and Recreation Funding

35.1 Diversify funding sources for recreational facilities.

35.2 State and County CIPs should continue to be coordinated to reflect recreational priorities.

35.3 Equitably allocate park dedications and in-lieu fees among the districts relative to the population.

#### Interagency Collaboration and Public Engagement

35.4 Continue to improve parks and recreation outreach efforts to ensure program and facility information is adequately available, promoted online through accessible websites and other mediums, and kept up to date to facilitate maximum community participation.

#### Recreation Facilities Siting and Planning

35.5 Recreational facilities shall reflect the natural, historic, and cultural character of the area.

35.6 Equitably allocate facility-based parks among the districts relative to population, with public input to determine the locations and types of facilities.

35.7 Existing and new parks should be designed with features that accommodate and encourage meaningful levels of physical activity according to the level of service criteria.

35.8 Recreational facilities shall be assessed for dual use as emergency shelters and hardened as needed.

35.9 Establish, in cooperation with the State Department of Education, joint use of schoolyards, County parks, and other public facilities for community use for recreational, cultural, and other compatible uses.

35.10 Recreational facilities should be planned and located where they will best facilitate and support active-living communities.

35.11 Recreational sites should be planned and located within a 10-minute walk from residences in population centers, and serve with a minimum of five acres of land for park purposes per 1,000 resident population in non-population centers of Hawai‘i Island.

35.12 Facilitate and prioritize the co-location of schools, parks, and senior centers to promote interactivity between community members of all ages.

## Recreational Facilities Maintenance and Improvement

35.13 Public lands with unique recreational and natural resources shall be maintained for public use.

35.14 Maintain and/or improve park facilities and programs based on community needs assessments to ensure County services are meeting the social, recreational, and activity needs of our communities.

35.15 Implement a proactive maintenance program to ensure that park facilities and trails are safely maintained for optimum usage.

35.16 Prioritize maintenance and necessary improvements at existing park facilities over developing new park facilities within each district (this does not preclude accepting lands for future park development or acquiring properties for the intent of preserving open space, scenic areas, natural hazard areas, or cultural/historic areas from development).

35.17 Combine recreation facility improvement projects with other needed facility improvements (e.g., ADA improvements with facility hardening, etc.)

## Recreational Services

35.18 Provide facilities and a broad recreational program for all age groups, with special considerations for the handicapped, the elderly, and young children.

35.19 Prioritize park acquisition and improvements that involve under-represented open recreation and healthy living activities (outside the scope of organized sports), such as:

a) Walking and biking trails

b) Skate/roller blade parks

c) Dog-friendly parks

d) Parks that offer camping opportunities

e) Botanical and community garden parks, pocket and art parks

f) Equestrian/rodeo arenas

g) Archery and shooting ranges

h) ATV and motorized recreation areas

i) Other types of active and passive recreation that enhance the quality of life for residents and visitors.

35.20 Support and enhance recreational facilities by developing additional recreational offerings in underutilized areas of County properties, such as the Panaʻewa Recreation Complex.

35.21 Private and public cemeteries shall be compatible with surrounding land uses and provided with adequate access and drainage systems.

## Actions

### Parks and Recreation Funding

35.a Provide funding for planning and acquisition, if necessary, of key corridor segments after corridor-zone plans are adopted.

35.b Revise the park dedication code requiring subdivisions to provide land area for park and recreational use or contribute to a maintenance fund in lieu of an impact fee ordinance.

### Interagency Collaboration and Public Engagement

35.c Partner with government, private and nonprofit agencies, and other stakeholders to increase funding sources for park, recreation, and trail development and maintenance.

35.d Partner with government, private and nonprofit agencies, and other stakeholders to initiate joint agreements for funding, management, and maintenance for recreation, shared use spaces, hardened shelters, and public access priorities.

35.e Support the U.S. Department of Interior, National Park Service's expansion plans for the Hawaiʻi Volcanoes, Puʻukoholā National Historic Park, Puʻuhonua O Hōnaunau National Historic Parks, Ala Kahakai National Historic Trail, and Kaloko-Honokōhau National Historic Park.

35.f Update the County of Hawaiʻi Recreation Plan to reflect newly identified recreational priorities.

35.g Encourage the adoption of State programs for State lands consistent with the General Plan.

35.h Develop a recreation information dissemination system for the public's use.

35.i Develop best management practices for the development and maintenance of golf courses in collaboration with government, private and nonprofit agencies, and other stakeholders.

35.j Develop local citizen leadership and participation in recreation planning, maintenance, and programming.

35.k Maintain an on-going program of identification, designation, and acquisition of areas with existing or potential recreational resources, such as land with sandy beaches and other prime areas for shoreline recreation in collaboration with government, private and nonprofit agencies, and other stakeholders.

35.l Perform a review and audit of the inventory resulting from the subdivision requirements within Code, (reservation for parks, playgrounds, and public building sites).

35.m Amend Code to ensure that land area is not only set aside for recreational or public use but that there are funds or a funding mechanism to develop the land for its intended purpose.

35.n Enter into partnership agreements with the State and private groups (e.g., Friends of the Park) to make improvements and assist in the maintenance of essential but inadequately maintained parks.

35.o Expand and map Friends of the Park programs to manage and improve County parks and facilities.

35.p Support hunting and fishing activities where authorized on public and private property.

## Recreational Facilities Siting and Planning

35.q Identify shoreline areas suitable for coastal access points, including boat launches and small boat harbors.

35.r Develop and implement a cemeteries master plan for the siting of future cemeteries.

35.s Analyze under-represented open recreation and healthy living activities to be included in Park Standards.

35.t Create new or enhance sports facilities to encourage and attract regional tournaments to our island.

## Recreational Facilities Maintenance and Improvement

35.u Implement interpretive signage through collaboration with community groups at appropriate locations.

35.v Conduct Park facilities condition assessments and keep the County of Hawai‘i Recreation Plan updated to reflect newly identified recreational priorities. The updated Recreation Plan should develop a strategic management plan for upgrading facilities and establish a level of service standards for parks.

35.w Plan, manage, and maintain parks to ensure that the quality of recreation areas does not diminish with heavy usage.

35.x Develop facilities and safe pathway systems for walking, jogging, and biking activities.

35.y Amend the Code to better address park and recreation issues in the following ways:

i. Amend Subdivision Code to be consistent with Dedication of Land Code in providing land area for park and recreational use or pay a fee in lieu thereof.

ii. Develop and adopt an Impact Fees Ordinance

iii. Amend Dedication of Land code to include “net useable acreage.”

## Recreational Services

35.z Develop a center/complex for major cultural, educational, and recreational activities in underserved population centers, such as Kona.

35.aa Develop facilities and safe pathway systems for multimodal use such as walking, jogging, and biking activities.

35.bb Develop walking paths around existing ballparks and other park grounds, as feasible. These walking paths should be level footpaths that meet accessibility requirements whenever possible.

35.cc Expand active open recreational opportunities at the Panaʻewa Rainforest Zoo and Equestrian Center properties such as bike/walking trails, horse trails, dog-friendly trails, and other outdoor recreation that would complement the Panaʻewa complex.

## Table 39: Park Standards

### Regional Parks

**Park Description** Major recreation area serving several districts and providing indoor and outdoor activities. A major center for spectator sports and cultural activities. May include features of historic, geological, and horticultural interests.

| | |
|---|---|
| **Approximate Size** | 50 acres |
| **Service Area Population** | Vicinity of major populated areas. 5 acres/1,000 persons per HCC, Chapter 8 |
| **Facilities Include** | Multi-purpose building, auditorium, gymnasium, swimming pool, adequate parking areas, and facilities for spectator sports: football, baseball, softball, track field, tennis, basketball, and volleyball. |

### District Parks

| | |
|---|---|
| **Park Description** | Offer diversified types of recreational activities to an entire district that include indoor and outdoor sports. |
| **Approximate Size** | 10 to 30 acres |
| **Service Area Population** | Within a district consisting of several populated communities. |
| **Facilities Include** | Gymnasium with office, storage, restrooms, and showers; a center for community and recreational programs; swimming pool (if justifiable); play area and equipment for young children; courts for basketball, tennis, and volleyball; ball fields for soccer, baseball, softball, and football; night lights; and an adequate parking area. |

### Community Parks

| | |
|---|---|
| **Park Description** | Community recreation area serving surrounding urban areas, and entire community in rural areas. Provides active and passive activities. |
| **Approximate Size** | 4 to 8 acres |
| **Service Area Population** | Within the center of the community or several neighborhoods |
| **Facilities Include** | Multi-purpose building; gymnasium (where not serviceable from a district park); courts for basketball, volleyball, and tennis; ballfields for softball/baseball, soccer, and football; play area and equipment for young children; walking and jogging paths; picnic and passive area; night lights and an adequate parking area. |

## Neighborhood Parks

| | |
|---|---|
| **Park Description** | Provide open space in urbanizing areas for the general aesthetic enjoyment of the outdoors, play areas for young children, and a social gathering place for the neighborhood. |
| **Approximate Size** | Up to 4 acres |
| **Service Area Population** | Within the center of the neighborhood and preferably adjacent to a school. |
| **Facilities Include** | Restrooms; drinking water; walking and jogging paths (bike and skating paths); courts for basketball, volleyball, and tennis; ballfields for tetherball, baseball/softball, and soccer; play area and equipment for young children; and an adequate parking area. |

## Community Centers

| | |
|---|---|
| **Park Description** | Major center for spectator sports, and cultural and social activities. |
| **Approximate Size** | Size depends on the facilities proposed and accessory uses. |
| **Service Area Population** | Varies |
| **Facilities Include** | Multi-purpose building; auditorium; gymnasium; facilities for spectator sports; swimming facility; and an adequate parking area. |

## Resource-Based Parks

| | |
|---|---|
| **Park Description** | Centered around a major natural asset, such as a sandy beach, a prime forest, or a volcanic feature, and includes historic sites whenever feasible. |
| **Approximate Size** | Varies. Every section of the island should be adequately served. |
| **Service Area Population** | Designed to accommodate users from throughout the County. |
| **Facilities Include** | Beach parks should include restrooms with showers; picnic facilities; a defined tent camping area when allowed; drinking water; adequate parking; pavilions of various sizes; and lifeguard facilities. Trails and unimproved roads; designated hunting and fishing areas; designated conservation areas for nature study and other passive activities; and wilderness campsites. |

## 4.4.7 Community Health and Wellness

The interconnectedness of community health and well-being and the environment has become increasingly apparent. The vision for Hawai'i Island prioritizes the health and resilience of communities through enhancing the natural, built, and social environments while adapting to the impacts of climate change. Recognizing the vital role of public health in shaping the future of our island, the General Plan aims to integrate policies and actions that promote health and well-being in its various elements.

There are a host of conditions that influence the ability to lead a healthy life. Communities thrive when they have reliable access to essential resources such as quality and affordable housing, healthy foods, recreational areas, spaces for religious and cultural practices, medical care, living-wage jobs, safe neighborhoods, and educational opportunities. The land use policies established in the General Plan play a crucial role in shaping public health. Policies that prioritize mixed-use development, encourage the creation of parks and open spaces, and support the availability of affordable and attainable housing contribute to healthier communities. By promoting walkability, accessibility to services, and a sense of community, land use policies can enhance physical and mental wellness.



Land use policies can also impact access to healthy food options. Encouraging the establishment of farmers' markets, community gardens, and a range of agricultural activities can promote local food production and improve access to fresh and nutritious food. Additionally, in underserved areas of the island, policies that promote the development of grocery stores and food co-ops can help address the challenge of food deserts and support community health.

Infrastructure planning is critical for promoting active transportation options, such as walking, cycling, and public transit. Designing communities with pedestrian-oriented sidewalks, bike lanes, and trails encourages physical activity while reducing reliance on automobiles. Accessible and well-connected transportation networks contribute to improved community health by facilitating regular physical activity and reducing traffic congestion and air pollution. The provision of parks, green spaces, and recreational facilities are also critical infrastructure for community health and wellness. These spaces provide opportunities for physical activity, social interaction, and relaxation, contributing to overall health outcomes for residents of all ages.

Affordable and safe housing is another fundamental aspect of community health. The General Plan addresses housing affordability and availability by promoting diverse housing options and mixed-income neighborhoods. The Plan also incorporates environmental sustainability measures that promote community health. By advocating for renewable energy generation, green building practices, and climate resilience strategies, the General Plan can guide the mitigation of environmental risk and improve overall environmental quality. This further enhances public health outcomes and reduces vulnerability to climate-related hazards.

Although the planning of most health programs and facilities is the direct administrative responsibility of the State, the County is responsible for the general welfare of the island's communities and must continue to make every effort to support their ability to live healthily. The General Plan recognizes that advancing health

equity across the island requires a concerted effort across sectors and agency accountability. The Plan supports the provision of accessible healthcare services and facilities. Planning for healthcare infrastructure, including hospitals, clinics, and community health centers, ensures that residents have adequate access to medical care and preventative services. Coordinating with healthcare providers and organizations can help integrate health considerations into land use decisions and strengthen overall community health.

## Objective 36

***Each community has access to healthcare facilities, programs, or community-based care.***

### Policies

36.1 Ensure regular health service assessments identify and address the unique needs of the medically underserved population, especially in rural areas.

36.2 Partner with government, private and nonprofit agencies, and other stakeholders to ensure equitable access to healthcare services.

36.3 Ensure healthy communities through aligned land use and infrastructure policies.

36.4 Active living considerations should be integrated into the design of communities.

36.5 Advocate to the State to continue the operation of the rural hospitals.

36.6 Support the establishment of centrally located, 24-hour, full-service medical facilities, with trauma care, to service rural areas.

36.7 Hospitals should be on sites capable of handling moderate expansion of facilities. Quiet surroundings, convenient and adequate access, and compatibility with adjoining uses shall be required.

36.8 Hospitals shall be served by a public sewerage system or have self-contained sewerage systems.

36.9 Ensure that hospitals are sufficiently hardened to remain in effective use through natural disasters.

36.10 Establish a comprehensive network of health and wellness services.

36.11 Integrate community health concerns in community planning.

36.12 Advocate for programs serving the elderly, disabled, and homeless persons.

36.13 Improve coordination and integration of services.

36.14 Support the establishment of home and community-based services (HCBS) that operate consistent with community character.

36.15 Increase opportunities and support for home-based care for aging in place.

### Actions

36.a Establish an Aging and Disability Resource Center in Kailua-Kona.

36.b Develop a medical center TOD master plan and rezone it as a Regional Center TOD.

36.c Develop public showers and restroom facilities in strategic locations to serve the homeless and meet public sanitation needs.

36.d Collaborate with government, private and nonprofit agencies, communities, and other stakeholders to establish a One-Stop Community Resource Center to serve as a point of community access for information and referral for health, education, and social services.

36.e Expand the use of mobile health centers and services (e.g., screening, vision, and dental) to rotate through the rural communities regularly.

36.f Partner with government, private and nonprofit agencies, communities, and other stakeholders to develop a consolidated services facility plan for the victim and offender treatment, counseling, and other rehabilitation services (and other social services) in major urban centers (Hilo, Kailua-Kona, Waimea).

36.g Support the distribution of telehealth support services, particularly to unserved and underserved communities.

36.h Amend County zoning and building codes as necessary to accommodate home and community-based care, elderly care, and care for those with disabilities.

36.i Amend the County Code to include land uses for substance abuse, mental health, and medical rehabilitative facilities and determine appropriate criteria for siting in communities.

36.j Amend the County Code to designate a lead agency for coordinating and responding to outbreaks of life-threatening, highly communicable diseases pursuant to the DOH direction.

# 4.5 HOUSING FOR ALL









**Missing Middle Housing**

The housing market offers little variety of housing types. These include a range of house-scale buildings with multiple units, compatible in scale and form with detached single-family homes, located in a walkable neighborhood. These may offer a more affordable option for many residents. Some types include:

- Duplex
- Townhouse
- Courtyard building
- Live-work building

The American Planning Association suggests the following practical zoning shifts to support adding missing middle housing:

- Reduce minimum lot size.
- Allow more housing types and reduce minimum structure size.
- Reduce parking minimums.
- Allow missing middle housing everywhere (if possible).

# 4.5.1 Introduction

Population and housing are inseparable in planning for both the growth and renewal of our towns and villages in the years ahead. Transportation systems, allowing vehicular connections between housing and multiple urban areas, are also inextricably linked. All housing requires transportation access, albeit in more flexible, subjective, and individual ways among households.

The geography of our housing is expansive: 90,500 housing units for just over 200,000 residents, spread throughout a vast, 200-mile length of a low-density population settlement band that nearly encircles Hawai'i Island. The planning and guiding of both the densities and directions of expected population and housing growth are especially important due to the exposure to multiple natural hazards, their unique types and probabilities within the state, and the requirement for local government to deliver a physical span of diverse emergency and protective services that is unequaled within this state.



## Diversity and Expansion of Housing Availability

The supply and mix of types of additional, modified, and replaced housing units needed in the planning period is a function of population growth, where that growth occurs, and the characteristics of the persons who make up that growth. A growth pattern of disparate suburban and rural neighborhoods will result in a different type and size range of dwellings and accessory structures than would result from a pattern of centralized, higher-density urban infill, supported by nearby, accessible public and private services and facilities.

### *Amount*

With an estimated population increase from 202,263 (2018) to approximately 273,232 (2045), a 35 percent increase, there will be a demand for an additional 17,000 resident housing units over the next 25 years.

### *Demographic trends*

Planning for the design, sizing, and locations of the future housing supply should consider demographic trends, in that 44 percent of the population will be over age 65 by 2045. There is an increased need to accommodate seniors with mobility limitations where support services are reasonably convenient without the necessity of a household automobile. Further, statistics reveal that almost one out of every ten households is crowded, and many are multi-generational, which indicates a need for small dwelling units for young adults or ohana units for retired parents and/or grandparents.

## Managing Existing Housing Inventory

Housing in Hawai'i County has predominantly been characterized by single-family residential units, noting 18,449 acres are used for single-family residential, compared to only 3,403 acres for multi-family residential. Housing demand has outpaced housing development on Hawai'i Island for decades, which could be addressed, in part, through the intentional use of single-family residential developments. In reality, the County's single-family residential dwellings are often occupied by multiple generations at one time, which is a natural response to the low housing supply and high demand. Rehabilitation, renewal, or redevelopment will be required in many of the older single-family residential neighborhoods.

### *Production Shortfall*

Census Bureau statistics and recent housing studies conducted for State and County housing agencies show that the number of housing units constructed annually in Hawai‘i County has not kept pace with the growth of the resident population, and therefore with its housing needs. As of 2020, there was a shortfall of approximately 5,534 housing units for those who were doubled up, hidden homeless, and other forms of pent-up demand. Recent forecasts estimate we need an average of 900 new housing units per year to accommodate past and future growth through 2045.

## Preserving and Creating Affordable Housing

One of the most significant concerns regarding housing within the County is the lack of affordability and the resulting homelessness that can occur. Our existing affordable housing stock includes public housing that is managed by the Hawai‘i Public Housing Authority and consists of 84 projects containing 5,997 housing units. Also included are the subsidized or income-restricted housing programs managed by the County, averaging 2,055 households. Further, affordable housing includes those affordable at market rate.

The US Department of Housing and Urban Development (HUD) housing guidelines suggest that households should devote no more than 30 percent of their income to pay monthly housing expenses; otherwise, a household is considered “shelter burdened” and may have difficulty affording necessities such as food, clothing, transportation, and medical care. Households spending more than 50 percent of their income on housing are considered severely shelter burdened. In 2020, 39 percent of owner households with a mortgage and 43 percent of all renter households were paying more than 30 percent of their income for housing, compared with a national average of 30 percent. The State of Hawai‘i is continuously ranked in the top three highest of shelter burdened, nationally.

A more accurate gauge of affordability also looks at transportation costs. The Center for Neighborhood Technology provides a housing and transportation affordability index (H+T), which sets a benchmark of no more than 45 percent of household income. Hawai‘i County housing costs an average of 41 percent of a household budget while transportation costs at 28 percent for a total H+T of 69 percent.

The 2019 Hawai‘i Housing Study shows that median sales and rental prices of housing in the County have substantially exceeded levels affordable to families earning median incomes, according to affordability ratios established by HUD. As a result, a large percentage of residents earning median or below-median incomes are unable to either obtain the amount of mortgage financing necessary to purchase a housing unit or afford the rental payments for newly constructed rental housing.

Public discussions at the State and County levels, regarding the high cost of housing, commonly assert unnecessary time and expense to obtain land use and permit approvals as driving up housing costs. High land costs are also cited as a major cost component responsible for the failure of private developers or public agencies to deliver new affordable housing units.

### *Investing in Homelessness Response*

In 2022, the County Council approved Ordinance 2022-026, which allocates no less than 75 percent of the property tax collected each year from Tier 2 residential properties. These properties are second luxury homes with a value of $2 million or more. The ordinance, as approved, took effect on July 1, 2022, and will be in place until June 30, 2027. It is estimated the program will generate about $9 million in the first fiscal year. Each year of the program, these funds are to be used exclusively for county-sponsored programs to address housing and homelessness.

# Housing Challenges

- Low infrastructure and services capacity in urban growth areas deters new development and limits rehabilitation or expansion of existing development due to high cost.
- Local communities rarely support new housing and homeless solutions in their immediate and nearby neighborhoods.
- Land and material costs, land use, building code, and permit requirements do not encourage the private housing market to invest adequately in low- and middle-income housing options.
- Building code changes are not evaluated for their impact on housing cost and availability, and the embodied carbon impact of required materials.
- Homeownership solely for investment purposes that are kept vacant or used for transient accommodation rentals reduces available stock for long-term local resident ownership and rental opportunities.
- Due to a lack of proximate and affordable housing options, many residents who are employed within large resort and employment areas endure long commutes, which contributes to increased greenhouse gas emissions, vehicle counts, roadway congestion, and a lack of healthy work-life balance.
- The locations where local residents can typically afford a single-family home are often away from mixed-use commercial centers that provide employment and daily goods and services for families.

# Housing Opportunities

- Create subsidies like Low-Income Housing Tax Credit (LIHTC) for the missing middle of affordable housing (80%-140% AMI).
- Collaborate with private and non-profit organizations to increase affordable housing including workforce and elderly housing.
- Affordable housing developments can better address the housing needs and affordability for ALICE households.
- Embrace universal design principles and Americans with Disabilities Act (ADA) accessibility for new construction and rehabilitation projects.
- Explore creative financing solutions to meet housing and infrastructure demands.
- Encourage the adaptive reuse of underutilized commercial spaces.
- Encourage resort communities and large employers to include on-site workforce housing options.



## 4.5.2 Housing Goal, Objectives, Policies, and Actions

Goal: Residents have access to adequate and affordable housing to meet the needs of the population and provide equitable opportunities for household flexibility and mobility.

### Objective 37 (Diversify and Expand Housing)

***Increase the number and variety of newly constructed housing units for rent and sale that addresses a range of Area Median Income (AMI).***

#### Policies

37.1 County departments shall collaborate to identify and prioritize infrastructure needs such as roads, water, and wastewater and public-private partnerships that support the desired density of housing types near mixed-use centers and transit hubs in urban growth areas.

37.2 Incentivize a mix of diverse housing types, including missing middle housing, smaller house designs, and mixed-income communities.

37.3 Prioritize new housing including the missing middle in or near mixed-use developments, urban growth areas with infrastructure, and near existing and proposed transit centers.

37.4 Support experimental housing, energy efficiency, and compact housing communities in accordance with HRS, Section 46-15.

37.5 Incentivize the use of universal design principles and ADA accessibility in new construction to create physically accessible housing for children, the aging, and those with mobility limitations.

37.6 Vacant lands in the urban growth boundary (UGB) should be prioritized for residential and supportive uses before additional agricultural lands outside the UGB are converted into urban uses.

#### Actions

37.a Establish interdepartmental procedures to collaboratively identify, prioritize, and build infrastructure that supports housing in or near mixed-use areas and transit centers in urban areas.

37.b Review the State housing inventory every 5 years and conduct scenario modeling to identify existing housing types, housing needs, and land use and building code updates that will provide for diversified housing, a mix of development types, and efficient and alternative construction methods in urban areas.

37.c Assess and amend the land use and building regulations and explore fiscal opportunities to support universal design principles and ADA accessibility for more physically accessible housing.

37.d Advocate for the State to provide student, faculty, and staff housing around State education facilities and established urban centers with transit.

37.e Advocate for the State to provide staff housing around State health care facilities and established urban centers with transit.

37.f Initiate collaboration and learning opportunities among communities, nonprofits, and housing developers as it relates to housing and community development projects.

37.g Amend the zoning and building regulations to allow affordability of various housing types, particularly the missing middle in urban areas.

37.h Develop and implement various incentives to facilitate smaller house designs or multi-family housing options such as expedited permitting, fee waivers, and tax incentives.

## Objective 38 (Manage Existing Housing)

***Monitor, conserve, and improve the existing housing stock.***

### Policies

38.1 Enable data-driven research to support and maintain a housing inventory program that monitors existing housing.

38.2 Incentivize the use of universal design principles and ADA improvements for the rehabilitation of existing housing and to create physical accessibility for those with mobility limitations.

38.3 Encourage the adaptive reuse of non-residential spaces for residential purposes in urban growth areas where supporting infrastructure exists.

38.4 Identify and support federal, state, and local housing assistance programs to rehabilitate existing housing for very low- to moderate-income residents.

### Actions

38.a Perform existing housing inventory data analysis to identify structural conditions and needs for rehabilitation or demolition.

38.b Review and amend the zoning and building regulations to support the adaptive reuse of non-residential spaces for residential housing units.

38.c Amend building regulations to allow for as-built permits and new renovation permits for less than 50 percent of an existing structure to conform with the building code of the year the main structure was permitted, excluding electrical and other critical life safety codes.

38.d Create, aid, and encourage programs to maintain and rehabilitate the existing housing inventory, including consideration for self-help programs.

38.e Perform ongoing analysis of available housing assistance programs for public and private stakeholders.

38.f Develop and maintain an outreach program to disseminate information and educate stakeholders about housing assistance programs.

38.g Amend the Real Property Tax Code to incentivize long term occupied housing.

## Objective 39 (Create Housing Affordability)

***Prioritize providing quality affordable housing for Hawai'i's residents.***

### Policies

39.1 Support affordable housing developments for all users including but not limited to the following groups: middle-income workforce, elderly, minimum wage workers, agriculture workers, individuals with special needs, individuals with disabilities, homeless, and retired individuals.

39.2 Support innovative and experimental housing types that address homelessness located near services, job centers, and transit hubs, while providing support services such as rent assistance.

39.3 All affordable housing projects that receive development benefits from the County, such as land use/zoning approvals, special approvals (including HRS, Section 201-H), conditional uses, and density bonuses, shall be required to maintain the affordable rental units for not less than 20 years pursuant to deed restrictions or other mechanisms specified in the HCC.

39.4 Reduce the cost and time of processing land use and construction applications, particularly for affordable housing projects.

39.5 Allow for and apply property tax and land use regulations to incentivize private property owners to provide affordable housing units in mixed-use and urban areas and to disincentivize the land banking of unimproved properties.

39.6 Encourage public agencies and private organizations to participate in federal, state, and private programs to provide new and rehabilitated housing and rental opportunities for low- and moderate-income households.

39.7 Enable housing programs that implement a land trust strategy for publicly owned parcels.

39.8 Encourage the development of workforce housing within or near urban growth areas and employment centers and require large new developments that create a demand for housing to provide affordable workforce housing.

39.9 Enable and encourage the development of affordable retirement communities and aging-in-place opportunities that are located near services and activities for seniors.

39.10 Affordable housing projects should have sufficient open space and recreational amenities or be located near public facilities.

### Actions

39.a Review and amend zoning and building codes to allow for innovative housing solutions for the homeless such as permanent supportive housing, transitional housing/camps, micro-housing communities, emergency, and temporary shelters.

39.b Amend the housing code to require and maintain the long-term affordability of affordable housing developments.

39.c Amend land use and building regulations to reduce costs and streamline the processing of affordable housing applications and facilitate concurrent applications when possible.

39.d Revise financial mechanisms and property tax provisions to allow for creative finance solutions to incentivize new construction and rehabilitation of affordable housing.

39.e Form an Affordable Housing Advisory Committee to complete an island-wide Affordable Housing Strategic Plan and that prioritizes home ownership for local families to build equity.

39.f Establish an internal County housing working group to include OHCD, Planning, DPW, DWS, DEM, Finance, and DPR at a minimum to coordinate planning and infrastructure that supports affordable housing.

39.g Adopt a County affordable housing program, similar to HRS, Section 201H, that encourages development, reduces cost, and simplifies permitting.

39.h Coordinate with the State and Federal agencies to provide housing programs for low- to moderate-income households, educate families about the opportunities, and ensure equitable access.

39.i Partner with government and private housing entities and housing trusts to fund and support community-based non-profit organizations to provide adequate and equitable affordable housing.

39.j Amend land use and development regulations to incentivize new workforce and retirement communities and to require large new developments to provide affordable housing suitable for employees in or near the development.

## Table 40: Affordable Housing Standard Guidelines

Affordable housing developments should provide a minimum of the following:

| | |
|---|---|
| **Health & Safety** | Viable, safe, and sanitary housing communities with quality living environments. |
| **Equity** | Opportunities for families of various socio-economic levels. |
| **Household Types** | A mix of housing types when possible, such as multifamily, duplex, townhomes, etc. |
| **Additional Infrastructure** | Provide adequate broadband. |
| **Recreational Amenities** | • Open space and outdoor recreational amenities, such as playgrounds, courts, pavilion, etc.<br>• Indoor community spaces, such as community kitchens, gathering areas, etc. |
| **Location** | • Ideally located in proximity to and integrated into existing and proposed urban and rural centers, to ensure easy access to necessary goods and services, employment centers, recreation, and other quality of life amenities. |

# 4.6 INTEGRATED SYSTEMS












# 4.6.1 Introduction

The General Plan highlights the need for effective collaboration and integrated systems across our county government to promote efficiency, achieve shared goals, and ensure optimal service delivery to the community. Integrated government systems refer to a network of interconnected systems and databases that allow different government departments and agencies to share information and work collaboratively. The need for integrated government systems arises from the fact that our County has numerous departments, agencies, and functions that require coordination and information sharing to ensure efficient and effective service delivery. Integrated systems are key to achieving consistency across administrations.

By fostering collaboration among different departments, such as planning, public works, parks and recreation, and finance, the County can leverage the collective expertise and resources of these departments. Integrated systems play a vital role in facilitating efficient and coordinated governance. When different departments and agencies are connected through integrated systems, it enables the seamless exchange of information, enhances communication, and improves decision-making processes. For example, an integrated system can enable the sharing of data between planning and public works departments, ensuring that infrastructure development aligns with land use plans and regulations.

The following benefits demonstrate why integrated government systems are needed in Hawaiʻi County:

## Improved Service Delivery and Public Engagement

Integrated government systems help to improve service delivery by enabling different government agencies to share information, which helps to reduce duplication of effort and increase the speed of service delivery. For example, an integrated system for health and social services can help ensure that individuals receive coordinated and comprehensive care.

## Cost Savings

Integrated government systems can help to save costs by reducing duplication of effort and by providing a more streamlined approach to service delivery. When different government departments are working together, they can pool resources and avoid the need for redundant systems.

## Enhanced Efficiency

Integrated government systems help to enhance efficiency by reducing the time and resources needed to access information. This can help to reduce bureaucracy and speed up decision-making.

## Improved Data Management

Integrated government systems can help to improve data management by providing a centralized repository of information that can be accessed by different government departments. This can help to ensure that data is accurate, up-to-date, and easily accessible.

## Better Policy Development

Integrated government systems can help to facilitate better policy development by providing policymakers with access to comprehensive and accurate data. This can help to ensure that policies are evidence-based and effective.

Overall, integrated systems are essential for Hawaiʻi County to provide efficient, effective, and coordinated services to our citizens.

## 4.6.2 Integrated Systems Goal, Objectives, Policies, and Actions

Goal: We employ integrated systems that are efficient, equitable, and organized to facilitate coordination and collaboration.

### Objective 40

***Increase collaboration and cooperation for efficiency, effectiveness, and responsiveness.***

**Policies**

40.1 Maintain and adequately fund County government services at the level necessary to be effective.

40.2 Ensure that government attitudes, actions, and services are sensitive to community needs and concerns.

40.3 Sufficiently fund, and facilitate the timely preparation, maintenance, and update of public policies and plans to guide County programs and regulatory responsibilities.

40.4 Expand the adoption of technology across all County agencies to achieve greater efficiency, accessibility, and accountability to the general public throughout government operations.

40.5 Continue to seek ways of improving public service through the coordination of service and maximizing the use of personnel and facilities.

40.6 Promote alignment and consolidation of State and County functions whenever more efficient and effective delivery of government programs and services may be achieved.

40.7 Collaborate with appropriate State agencies for the provision of public facilities to serve the needs of the community.

40.8 Require all County departments to collaborate with the County Office of Sustainability, Climate, Equity, and Resilience (OSCER) as the lead agency to ensure the integration of the County's goals of sustainability, climate resilience, and equity into all county operations and planning initiatives.

### Objective 41

***Maintain fiscal integrity, responsibility, and efficiency.***

**Policies**

41.1 Provide for a balanced budget.

41.2 Allocate fiscal resources to efficiently implement the objectives of the General Plan in addition to essential government operations.

41.3 Ensure accountability in government operations.

41.4 Calculate the cost of the different County services provided.

41.5 Continue regular review of the County fee and fine schedules.

41.6 Maintain a debt financing plan to schedule bond authorization.

41.7 Leverage multiple sources of funding as part of the Capital Improvements Program (CIP).

41.8 Encourage financing tools like Community Facilities Districts (CFD) to help fund off-site infrastructure improvements.

41.9 Develop short and long-range capital improvements program and operating budgets for public facilities and services.

41.10 Capital projects shall be analyzed for overlapping scopes.

41.11 Projects involving more than one Department's assets shall be coordinated to define scoping, design, and construction needs.

41.12 Improve the effectiveness of the Capital Improvements Program to maintain transparency of the status of all County CIP projects.

**Actions**

41.a Develop a working group to plan for large infrastructure investment needs such as the Metropolitan Planning Organization and the Municipal Separate Storm Sewer System (MS4).

41.b Create a fiscal impact statement for the interdepartmental project FIS.

41.c Develop a countywide facility condition inventory and maintenance schedule.

41.d Conduct cost-benefit analysis for new facilities and replacements.

41.e Establish memorandums of agreement to partner with community groups for facility improvements and ongoing maintenance opportunities.

## Objective 42

***Achieve equitable outcomes for County programs, policies, and allocation of resources.***

**Policies**

42.1 Promote policies that actively address and reduce disparate outcomes for historically underserved communities.

42.2 Seek equitable distribution of County investments towards promoting employment opportunities, infrastructure, and other community benefits.

42.3 Provide resources for County employees to understand and actively advance equity solutions within all agencies of County government.

42.4 Consider financial and time barriers, geographic constraints, and language accessibility when conducting community outreach.

42.5 Research and develop an ʻĀina Kupuna program that would exempt 100% of real property taxes of qualifying kuleana landowners as referenced by the Kuleana Act of 1850.

**Actions**

42.a Provide technical assistance for financing options for infrastructure in underserved areas.

42.b Provide technical assistance for financing districts for new facilities and services in areas designated as urban growth areas.

42.c Develop and adopt an impact fees ordinance that considers district specific needs and excludes urban core areas where infill is encouraged.

42.d Develop a framework for a transition plan for changes in administrative leadership to ensure a smooth transition and continuity of operations.

42.e Develop a community engagement framework to be used across county departments and agencies to provide direction and ensure effective civic participation.

# 5. THRIVING, DIVERSE, AND REGENERATIVE ECONOMY

**Organization**

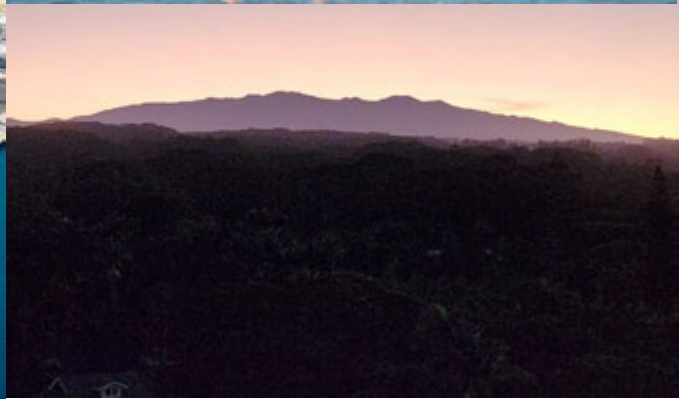

5.1 Introduction
5.2 Goal, Objectives, Policies, and Actions
5.3 Agriculture and Food Systems
5.4 Visitor Industry









# 5.1 Introduction

Hawai‘i Island is a unique and vibrant place, known for its natural beauty, cultural heritage, and diverse ecosystems. Considering the natural abundance and limited resources that exist, economic development must be balanced with preserving the island’s unique character and assets as we navigate the future. The General Plan aims to guide the creation of an economy that not only generates prosperity but nurtures the well-being of our communities and respects the delicate ecological balance of the island. The planning process is geared towards the achievement of a high quality of life for the residents of the County. Working towards the goals, objectives, policies, and actions of the economic element is only one aspect of accomplishing this desired end.

Though sustainability is a key guiding principle for this Plan, we emphasize the importance of regenerative practices in our economic pursuits. This means going beyond sustainability to actively restore and enhance our natural resources and ecosystems. The Plan prioritizes initiatives that promote renewable energy, regenerative agriculture and tourism, and the conservation of natural resources. Embracing regenerative practices in economic development can help to ensure the long-term health our environment and communities while realizing the economic benefits.

Diversification is an essential aspect of the Plan’s economic strategy. Hawai‘i’s history demonstrates the risks and detriment that an over-reliance on a single industry has on our island’s communities and natural resources. The Plan strives to foster a diverse range of sectors that can support a resilient and robust economy. By investing in and nurturing key growth sectors, Hawai‘i County can create a more stable economic foundation and reduce vulnerability to external shocks.

Sound economic development policy supports household stability as a key factor for determining the quality of life for all Hawai‘i Island residents. The term “economic development” means that we take a community-centered approach. The key is to ensure that economic policy creates opportunities for our residents while protecting our resources for future generations. The well-being of our island’s residents relies on the availability of meaningful and well-paying jobs, attainable and affordable housing, viable transportation systems, and a healthy environment for generations to come.

Economic development policy is intrinsically tied to and influenced by other aspects of the General Plan. The establishment and growth of urban job centers are influenced by a multitude of factors. They are often created through a type of economic ecology where surrounding industry clusters can create reciprocal relationships between similar business types. These job centers are typically sustained through infrastructure and utility development, such as access to water, transportation, and wastewater treatment. Job centers may also be proximate to nearby natural features or resources, often those that attract visitors. A common example is roadside stands and food trucks located in areas where there are a lot of visitors and foot traffic. Consequently, land use and economic policies both respond to and influence the location, density, and sustainability of future economic growth.

## Table 41: Economic Key Trends[1]

| | |
|---|---|
| **Poverty Persists** | • The median household income in Hawai'i County trended up in 2020 to $65,401.<br>• The poverty rate in the County has fluctuated from a low of 13.1% in 2007 to a record high of 19.5% in 2015. In 2020, the percentage of poverty was 14%. In contrast, the poverty rate nationwide was 11.4%, and statewide it was nearly 9.3%.<br>• The cost of living in Hawai'i continues to be among the highest in the nation, compounding impacts on those that are already struggling to meet basic needs. |
| **Self-Sufficiency is Out of Reach for Many** | • In 2020, the County had the lowest overall self-sufficiency income requirements in the state ($74,030 for a family of four, including one preschooler and one school-aged child), but that income is well above the poverty line. A family of four needed to earn a combined hourly wage of $35.05 (or $17.53 each on average) to be economically self-sufficient. That was 76.2% above the state minimum wage level and 145.7% above the federal poverty threshold for Hawai'i.[2]<br>• Almost one-quarter (23%) of employed survey respondents in Hawai'i work more than one job. Approximately 30% of part-time workers have multiple jobs, and one-fifth (20%) of full-time workers are working second and third jobs.[3] |
| **Brain Drain** | • From 2017 to 2019, the population in Hawai'i decreased, in large part due to a high rate of net domestic outmigration. Of primary concern for economic growth, these outmigrants are more likely to be young, college-educated workers, a phenomenon often referred to as "brain drain".[4]<br>• Domestic outmigrants (as defined by migration status over the past 12 months) were disproportionately younger adults (aged 18-34) and educated (have bachelor's degree or higher).[5] |
| **Job Growth Mirrors Population Growth** | • The average annual growth rate for jobs averaged 1.4% since 2005, mirroring population trends, and it is expected to mirror population trends experiencing a slight decrease in the growth rate for the next several decades. |
| **Job Market Characteristics** | • The three primary economic sectors of the Hawai'i Island economy are the services producing sector (education, health, accommodation, entertainment, food, professional, financial, real estate, public, etc.), goods producing sector (construction and manufacturing), and agriculture.<br>• In 2020, 85.4% of employment was in one of the industries classified as within the services producing sector. The agriculture sector represents about 6.5% of employment.<br>• Tourism drives the arts, entertainment, recreation, accommodation, and food services industries and much of the retail trade, representing a large portion of employment.<br>• Employment in the construction industry continues to be the most volatile among the top industries, with notable spikes and dips in employment that generally correspond to fluctuations in the housing market. |
| **Top Growth Sectors** | • The top five growth sectors in the DBEDT 2045 forecast are educational services, business services, health services, eating and drinking, and professional services. |
| **Job & Population Centers Mismatch,** | • In general, about 42% of jobs are in Hilo, another quarter are in North Kona, 7% are in the Waikoloa and Waimea areas, and about 1 to 7% in each of the other population centers. |

[1] SMS Hawai'i, COH General Plan Comprehensive Review (2022) and the corresponding Key Findings Trends and Forecasts Report.
[2] DBEDT, Self-Sufficiency Income Standard: Estimates for Hawai'i 2020 (2021)
[3] Financial Health Network, Hawai'i Financial Health Pulse: 2019 Survey Results
[4] DBEDT, Brain Drain: Characteristics of Hawai'i-Born Adults on the US Mainland (2021)
[5] DBEDT, Hawai'i Migration Flows: 2013-2017 (2019)

| | |
|---|---|
| **Resulting in Longer Commutes** | • There are notable mismatches between locations of high population density and job centers. For example, Hilo has a surplus of jobs relative to the population, reflecting the fact that residents commute there from other communities. In contrast, the Hawaiian Paradise Park-Orchidland area has a working population that far exceeds the number of nearby jobs.<br>• These mismatches are reflected in the Census Bureau's measure of mean travel time to work from 24.5 minutes in 2000 to 26.8 in 2020. |
| **Local Competitive Advantages Vary** | • The greatest number of jobs are in government (18.6%); retail (12.5%); business, professional, and other services (12.7%); health and social assistance (10.7%); dining (9.8%); and hotels (8.6%).<br>• Job data are geographically linked to the place of employment and can be used to identify characteristics of job centers.<br>• There is a greater concentration of agricultural jobs relative to the state as a whole.<br>• The information sector in the County is underrepresented as compared to the rest of the state, and employment in the finance and insurance industry has also been relatively low in the County compared to the State. |

## Table 42: Economic Challenges

| | |
|---|---|
| **General** | • Economic activities are challenged by regulatory barriers, shipping costs, and energy costs.<br>• Large disparities between wages and cost of living reduce the quality of life and the ability to attract and retain labor.<br>• A greater diversity of training programs and educational opportunities is needed to retain and develop the workforce pipeline.<br>• Financial instability makes it challenging for people to take risks such as starting a new job or business.<br>• Climate change impacts continue to threaten infrastructure and the viability of coastal and inland properties (residential, commercial, and civic).<br>• Rural job centers lack the infrastructure to support economic development.<br>• There is a lack of affordable and attainable workforce housing near employment centers. |
| **Agriculture & Food Systems** | • Limited availability of land, water, transportation, housing, and labor, along with costly operations and maintenance contribute to high agricultural costs.<br>• Minimal and expensive farmworker housing, along with narrow profit margins and high entry costs, negatively impacts the agricultural industry's ability to attract and retain labor.<br>• Inadequate infrastructure availability for agriculture operations can limit production. For example, there is a lack of facilities and resources to process value-added products.<br>• There is a lack of capacity and access to training, skillsets, and network building to scale up small agricultural businesses to handle their administrative needs.<br>• Limited access to financing and capital.<br>• Some regulations can limit opportunities for agriculture and the local food system.<br>• It is increasingly difficult for farmers to support themselves in agricultural activities alone. |
| **Visitor Industry** | • Career advancement opportunities within the visitor industry can be limited.<br>• It is often difficult to keep tourism dollars circulating on the island.<br>• There is a lack of understanding that our island is more than just a tourist destination.<br>• Measuring visitor impacts and tracking data, including natural resources.<br>• Transportation is difficult given the size of the island and the lack of options.<br>• There is a need to increase resident satisfaction with the visitor industry.<br>• Greater funding is needed for parks as well as better planning and management of public spaces.<br>• There are mixed viewpoints about the appropriate location of visitor accommodations. |

## Table 43: Economic Opportunities

| | |
|---|---|
| **General** | • Support the expansion into industries such as astronomy, renewable energy, diversified agriculture, and aquaculture.<br>• Promote technology and innovation to address economic challenges, such as opportunities for waste-to-energy and agriculture advancements.<br>• Improve land use regulations, development regulations, and property tax policy to support economic development.<br>• Pursue opportunities to underwrite risks through a variety of mechanisms, such as industrial development bonds, tax abatement, and low-interest loan programs.<br>• Create small business incubators or innovation centers to reduce barriers.<br>• Invest in and provide the infrastructure that increases the competitiveness and performance of local businesses.<br>• Increase broadband infrastructure to provide opportunities for participation in the digital economy.<br>• The gig economy and virtual work provide flexibility and highlight the potential for outside capital to enter the local economy.<br>• Collaborate with the business community and the University system to identify industry needs and solutions to further diversification and growth.<br>• Interagency coordination is essential for economic development problem-solving. |
| **Agriculture & Food Systems** | • Explore market niches to expand agricultural opportunities. The increasing demand for crops, such as cacao, spirulina, kava, and noni, can help diversify the market while uplifting local products.<br>• Support sustainable food production and regenerative agriculture to help address climate change and restore soil and ecosystem health.<br>• Collaborate with the agriculture and food system industry to develop methods to utilize agricultural by-products.<br>• Pursue property tax incentives to lease land for agricultural uses.<br>• Promote education around appropriate crop suitability and available programs.<br>• Maximize the potential of agriculture through the cooperation of large corporations, entrepreneurs, small independent farmers, and government agencies.<br>• Establish clear guidelines, requirements, and programs that encourage and support participation in agricultural tourism. |
| **Visitor Industry** | • Diversify the visitor services offered and continue to pursue authentic experiences on the island.<br>• Increasing natural and cultural resource management training and programs can help to educate visitors about the necessity and significance of respecting, maintaining, and sustaining resources.<br>• Support educational tourism opportunities to promote culture, history, and social or language learning. |

# 5.2 Economic Goal, Objectives, Policies, and Actions

Goal: Our economy is diverse, regenerative, and innovative, improving and maintaining the financial well-being of our residents with a focus on increasing local economic opportunities.

## Objective 43

***Improve access at all levels for education and training.***

### Policies

43.1 Support all levels and forms of education.

43.2 Support programs and infrastructure that enable employees to telecommute or work in satellite locations.

43.3 Support apprenticeships and workforce training to strengthen leadership and entrepreneurial skillsets and networks.

43.4 Support County apprenticeships, fellowships, and internships to strengthen skillsets, networks, and innovation.

### Actions

43.a Continue to support a centralized County demographic and socioeconomic data resource base.

43.b Continue to provide or expand County services and/or programs for workforce development and technical assistance.

43.c Expand offerings for mentorship and networking.

43.d Develop an apprenticeship program for the County.

43.e Provide business planning assistance, career planning, entrepreneurial training, incubation, and assistance with permitting, licensing, and regulatory issues.

43.f Develop and maintain partnerships with the higher education system and other organizations to support education and workforce development opportunities.

43.g Coordinate educational and workforce development programs with local high schools, community college campuses, trade unions, and other groups.

## Objective 44

***Increase the growth and health of small businesses.***

### Policies

44.1 Establish Hawai‘i Island as a business-friendly place.

44.2 Streamline regulatory processes associated with starting and operating a business.

44.3 Shared workspaces, including certified kitchens and industrial co-work buildings, shall be supported.

44.4 Initiate and/or support programs to revitalize town centers and increase the patronage of local businesses.

44.5 Maintain strong partnerships and effective communication with the business community to identify barriers and actions to improve the business climate.

44.6 Support the creation of shared facilities and resources that can be utilized by multiple opportunity clusters, such as creative industries and technical services.

44.7 Promote creative industries through collaboration with local artists on the design and creation of public, livable spaces.

44.8 Support programs and initiatives that encourage manufacturing and support Hawai‘i Island’s small-scale independent manufacturers.

44.9 Support business development programs by reducing underwriting risks for the private sector such as industrial development bonds, tax abatement, and low-interest loan programs.

44.10 Support access to capital for small businesses and start-ups.

44.11 Promote the use of the incentives offered by federal and state programs such as opportunity zones and enterprise zones partnership programs to attract businesses.

44.12 Encourage the development of the Technology, Creative, Agribusiness, Health and Wellness, and Education targeted sectors.

### Actions

44.a Promote liaison services with the private sector with respect to the County’s requirements for establishing businesses on the island.

44.b Utilize County facilities and funds to support shared affordable workspaces, maker spaces, and equipment for small businesses to utilize.

44.c Complete a feasibility analysis for the County to provide access to tools such as industrial development bonds, tax abatement, and low-interest loan programs.

44.d Develop business improvement districts and Main Street programs to fund revitalization efforts.

44.e Educate businesses on financial planning and funding sources for hazard preparedness and recovery, including insurance options for business interruption, natural disasters, and other unexpected occurrences.

44.f Partner with business associations, realtors, and the chamber of commerce to recruit small-scale manufacturers to establish retail locations in village and town centers to support reinvestment and match potential tenants with local landowners.

44.g Partner with government, private and nonprofit agencies, communities, and other stakeholders (e.g., University of Hawai'i, business associations, etc.) to convene business development events island-wide.

## Objective 45

***Incorporate resiliency, diversity, and innovation in County programs, plans, and research to support healthy economic development and revitalization.***

### Policies

45.1 Increase County resources and actions devoted to strategic planning, interagency coordination, training and expertise, and capital improvements.

45.2 The Capital Improvements Program (CIP) shall improve and increase the capacity of existing and future commercial and industrial areas.

45.3 Maintain a program for updating the zoning code to accommodate emerging industries and technologies consistent with other goals, objectives, and policies of the General Plan.

45.4 Support lease terms and extensions on State and Department of Hawaiian Home Lands (DHHL) lands that provide opportunities to improve or rehabilitate existing commercial and industrial zoned areas.

45.5 Encourage land uses that allow for small-scale manufacturers in retail establishments that enhance and are balanced with the County's natural, cultural, and social environments.

45.6 Maintain plans and programs to foster sustainable business development opportunities focusing on regenerative agriculture, green technologies and building, innovation and technology, creative industries, and regenerative tourism.

45.7 Improve opportunities for multimodal transit that improve the quality of access to existing job centers.

45.8 Provide technological infrastructure that increases the competitiveness of businesses and allows them to thrive in all parts of the island.

45.9 Expand opportunities for innovation and tech-based businesses.

45.10 Promote a distinctive brand for the island of Hawai'i including distinctive, regional identities as an entity unique within the State of Hawai'i.

45.11 Encourage the development of economic opportunities through the utilization of by-products from various industries.

45.12 Continue to encourage the research, development, and implementation of advanced technologies and processes.

45.13 Promote Hawai'i Island as a center for natural scientific research.

45.14 County departments should integrate economic development, equity, and sustainability outcomes into their annual goals and reports to the Mayor.

## Actions

45.a Collaborate with emerging industry leaders to identify needed infrastructure and services to support economic diversification.

45.b Monitor trends and identify business needs, strengthen existing industries, and diversify the economy by attracting emerging industries.

45.c Collaborate with the private sector to identify business needs, strengthen existing industries, and diversify the economy by attracting new endeavors.

45.d Remove regulatory barriers that restrict entrepreneurial endeavors, such as zoning restrictions for home-based businesses that do not negatively impact the infrastructure network or the character of the neighborhood.

45.e Build capacity for implementation and economic development in the target industry clusters identified by the Comprehensive Economic Development Strategy (CEDS).

45.f Promote cross-sector linkages between Hawai‘i Island’s anchor and opportunity industries to grow the market for local products and services.

45.g Expand the research and development for energy and technology industries.

45.h Assist in the expansion of emerging industries through the development of marketing plans and programs.

45.i Develop a market strategy that includes housing, a skilled workforce, quality of life, and a healthy regulatory environment to attract emerging industries.

45.j Assist in the development of a film and creative industries program to market Hawai‘i Island sites and coordinate activities.

45.k Partner with government (e.g., DOT, DBEDT, etc.), private and nonprofit agencies, communities, and other stakeholders to monitor export capacity for Hawai‘i Island.

45.l Partner with government, private and nonprofit agencies (e.g., business associations, realtors, chambers of commerce, etc.), communities, and other stakeholders to streamline regulatory processes and create incentives for urban renewal, rehabilitation, and/or redevelopment programs in collaboration with communities, businesses, and government agencies.

45.m Program regular collaboration with the University of Hawai‘i at Hilo, Hawai‘i Community College, the Natural Energy Laboratory at Hawai‘i Authority (NELHA), and other agencies to expand the research and development industry for sustainable and equitable economic development.

45.n Increase grant writing capacity and management and pursue grant funding to supplement County critical needs.

# 5.3 Agriculture and Food Systems

As the General Plan envisions a prosperous future for Hawai‘i Island, the economic section sheds light on the pivotal role of agriculture and our local food system. Agriculture holds a special place in Hawai‘i’s history and continues to represent a vital economic sector of Hawai‘i Island. The agriculture sector encompasses the growing of crops, raising livestock, aquaculture, and forestry. These businesses and organizations are all dependent upon good management of the natural resources on which they depend, not only for their benefit as agricultural enterprises but more importantly for the long-term health and future productivity of these resources for the benefit of both the broader community and future generations who continue to be the boots on the ground stewarding these precious resources.

A sustainable local food system is fueled by strong investments in the agricultural sector and ongoing partnerships among farmers, ranchers, processors, retailers, communities, government, and non-government organizations. This section is centered on supporting the regenerative agricultural sector to sustain local food systems that enhance the environmental, economic, and social health of the island.



Over the years, several key trends have emerged in our agricultural landscape, reflecting the evolving needs of the local economy. First, there is a growing emphasis on sustainable and regenerative practices. Farmers, ranchers, and food producers recognize the importance and necessity of preserving the island’s delicate ecosystems while maintaining productivity. Furthermore, Hawai‘i Island has witnessed a resurgence of small-scale farming and diversified agricultural enterprises. As consumers increasingly prioritize local, organic, and culturally significant food options, a network of farmers’ markets, farm-to-table initiatives, and community-supported agriculture programs have flourished. This trend promotes food sovereignty, strengthens local supply chains, and fosters a connection between producers and consumers.

In recent years, the island’s food systems have also experienced a renaissance driven by agricultural tourism and the burgeoning farm-to-fork movement. Visitors and residents alike seek immersive experiences that celebrate the island’s rich agricultural and paniolo heritage. From farm and ranch tours and agritourism ventures to farm-to-table restaurants and food festivals, Hawai‘i Island’s food systems have attracted those seeking authentic and sustainable experiences.

As the General Plan charts the economic course for the future, it recognizes the immense potential of agriculture and food systems on Hawai‘i Island. The Plan seeks to bolster and diversify agricultural businesses, encourage innovation and technology adoption, support value-added processing, and promote market access for local producers. By fostering collaboration among stakeholders, investing in infrastructure, and embracing regenerative practices, the Plan envisions a vibrant agricultural sector that sustains livelihoods, strengthens the

local economy, enhances the flow of ecosystem services from our working lands, and preserves the unique heritage of the island.

## Local Production and Consumption

Since 2015, agriculture on the island has faced numerous challenges, including a volcanic eruption in the Puna district, flooding and damage from Hurricane Lane in 2018, and the discovery of coffee leaf rust in October 2020. These incidents, along with ongoing issues impacting pastures and cropland, such as invasive pests, all contribute to the hardships experienced by ranchers and farmers. Despite such trials, Hawai'i Island continues to be the State's primary producer for a variety of important crops, including coffee, flowers, foliage, landscape, cattle, macadamia nuts, papaya, and tropical fruit. These commodities and others have growth potential. There are new high-value crops that have the potential to be successfully cultivated. One such high-value crop is Kava (Awa), a medicinal plant that has the potential to be a viable cash crop. Locally, small growers as well as a few large growers are producing Kava. Vanilla beans, cacao, nutraceuticals, hardwood forestry products, and medicinal plants are other types of high-value crops that hold much promise for growth. Hawai'i Island holds most of the State's acreage in commercial forestry (20,921 acres) and pasture (552,091).

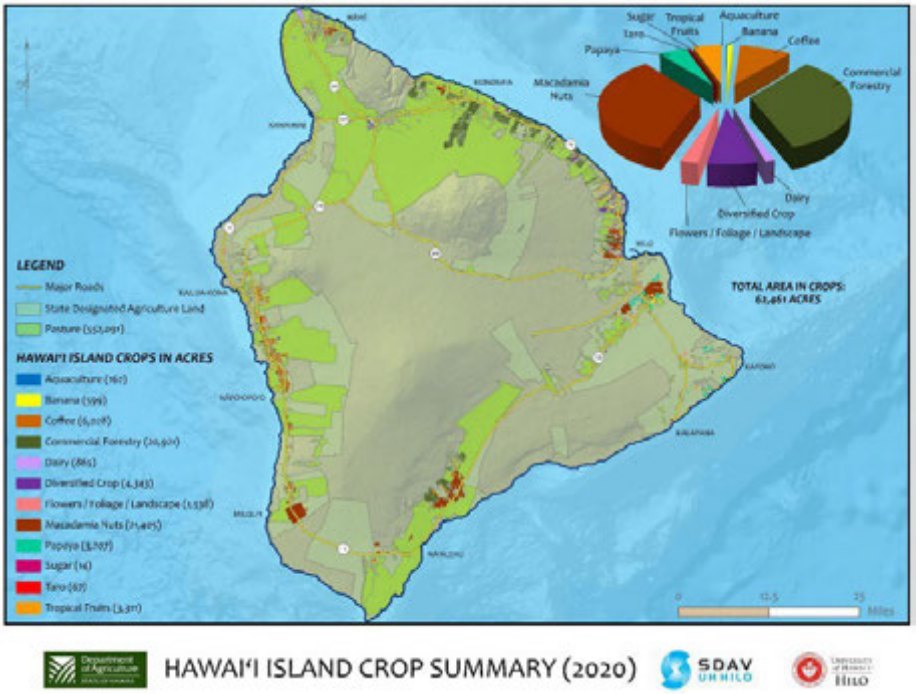


Figure 8 Summary of Hawai'i Island Agricultural Footprint and Changes Between 2015 and 2020[6]

| | Acreage | | Change (2015 to 2020) | |
|---|---|---|---|---|
| **Crop Type** | **2015** | **2020** | **Acres** | **%** |
| Aquaculture | 165 | 162 | -3 | -2 |
| Banana | 536 | 599 | 63 | 12 |
| Coffee | 5,525 | 6,028 | 503 | 9 |
| Commercial Forestry | 21,061 | 20,921 | -140 | -1 |
| Dairy | 1,855 | 865 | -990 | -53 |
| Diversified Crop | 3,266 | 4,343 | 1077 | 33 |
| Flowers / Foliage / Landscape | 1,612 | 1,538 | -74 | -5 |
| Macadamia Nuts | 21,359 | 21,405 | 46 | 0 |
| Papaya | 2,566 | 3,207 | 641 | 25 |
| Sugarcane | - | 14 | 14 | N/A |
| Taro | 61 | 67 | 6 | 10 |
| Tropical Fruits | 3,144 | 3,311 | 167 | 5 |
| **Crop Total** | **61,150** | **62,460** | **1310** | **2** |
| Pasture | 554,324 | 552,091 | -2,233 | 0 |
| **Total** | **615,474** | **614,551** | **-923** | **0** |

[6] 2020 Update to the Hawai'i Statewide Agricultural Land Use Baseline, UHH https://hdoa.hawaii.gov/salubreports/

Figure 9 Hawai‘i Island Agricultural Footprint




## Important Agricultural Lands

On Hawai‘i Island, there are 56,772 acres designated as Important Agricultural Lands (IAL) by the State Land Use Commission. Of these, about 96% (54,555 acres) were in active agriculture in 2020. Pasture comprises over 90% of these lands (49,812 acres) and commercial forestry (4,743 acres) the remainder. Within the IAL designation zone, there are no cropped fields of any type.

To distinguish Hawai‘i Island’s important agricultural lands from the State IAL designation, the General Plan Land Use Map’s Agriculture land use designations include Productive Agriculture and Extensive Agriculture.

## Agricultural Parks

On Hawai‘i Island, there are four active agricultural parks (Hāmākua, Keāhole, Pāhoa, and Pana‘ewa) equaling 1,571 leased acres as of 2020. Of these leased acres of land, more than half (887 acres) were mapped as being in active cultivation in 2020. Of these, 44 percent (390 acres) were in flowers/foliage/landscape, 40 percent (355 acres) in pasture, and the remainder dispersed across other crop types.[7]

## Food Insecurity

In general, food insecure households are uncertain about having, or unable to acquire enough food to meet household needs, largely due to not having enough money for food. Food insecurity is complex and multifaceted and often exists on a spectrum, varying in severity from anxiety about having adequate food in a household to disrupted eating patterns and reduced intake of food. In 2018, approximately one in five people living in Hawai‘i reported that the food they bought did not last and they lacked the money to buy more. According to a 2020 study conducted by the University of Hawai‘i Office of Public Health Studies, Hawai‘i County had the highest food insecurity in the State at 31 percent. The overall State food insecurity was estimated to be 22 percent.

[7] UHH, 2020 Update to the Hawai‘i Statewide Agricultural Land Use Baseline

Food security is critical to the General Plan and economic development in the County for many reasons. Ensuring food security improves overall public health, reducing healthcare costs and increasing the well-being and productivity of residents. A stable and secure food supply supports local agriculture, creating jobs, stimulating local economies, and reducing dependency on imported food. A secure food system makes the County more resilient to natural disasters and economic disruptions by ensuring a reliable food supply. Promoting food security aligns with the Plan's sustainable development goals by encouraging local food production and reducing the environmental impact associated with importing food. Importantly, addressing food security promotes social equity by ensuring all residents have access to nutritious food, which is vital for a fair and just society.





## 5.3.1 Agriculture and Food Systems Goal, Objectives, Policies, and Actions

Goal: Agriculture is a robust, diversified sector that addresses food security and includes a broad range of agricultural-based businesses that highlight value.

### Objective 46

***Increase access to land for active food production.***

#### Policies

46.1 Support urban agriculture uses including on-site home occupation sales.

46.2 Support innovative agriculture demonstration projects.

46.3 Assist in the expansion of the agricultural industry through the efficient use of productive agricultural lands, capital improvements, and continued cooperation with appropriate state and federal agencies.

46.4 Assist in the promotion of Hawaiʻi Island branding and labeling for local produce, meat and fish, dairy, and other agricultural products.

46.5 Collaborate across County departments to engage in food systems planning, including the elimination of food deserts.

46.6 Assist in cooperative marketing and distribution endeavors to expand opportunities for local agricultural products for the local market as well as for exports.

46.7 Explore opportunities and methods to utilize local materials and by-products from agriculture, forestry, agroforestry, silviculture, and aquaculture.

46.8 Support the research and development of the agriculture technology industry in collaboration with agriculture applications to optimize production.

46.9 Support and invest in regenerative agricultural practices and restoration involving traditional ecological knowledge systems and practices through revitalization of the Ahupuaʻa system, restoration of ancient Loʻi , Loko Iʻa, traditional agricultural field and water systems, with decision-making through leadership of culturally informed land stewards, agriculturalists, scientists, etc., to advance and perpetuate cultural practices and food security.

46.10 Support the development of private, county, and state agricultural parks to make land available and distributed equitably and proximate to infrastructure and housing.

46.11 Partner with government, private and nonprofit agencies, communities, and other stakeholders for programs, training, and building community capacity in the promotion of the agricultural industry.

46.12 Increase public-private partnerships to develop and support community-based food systems.

46.13 Support the development of agricultural worker housing.

## Actions

46.a Advocate for the State legislature to amend the Hawai‘i Revised Statutes to include green waste, composting, and fertilizer yards for commercial use as permitted uses on agriculturally zoned land.

46.b Advocate for the State DOH to streamline the composting permitting process.

46.c Support the use of USDA Natural Resources Conservation Service assistance.

46.d Advocate for the State to incentivize local food production through expanded tax credits.

46.e Support training and capacity building related to the requirements of the Food Safety Modernization Act.

46.f Invest in a crop suitability tool, including existing and projected water demand.

46.g Develop a food self-sufficiency strategy, including community-based food system assessments and monitoring local food production and consumption.

46.h Develop and implement an emergency food plan that could be deployed in the event of a natural or economic disaster.

46.i Partner with government, private and nonprofit agencies, communities, and other stakeholders for carrying capacity studies of fisheries and the establishment of State community-based subsistence fishing areas.

46.j Coordinate with the University of Hawai‘i at Mānoa College of Tropical Agriculture and Human Resources to expand the farm food safety education program.

46.k Support the State Department of Agriculture programs for the prevention, early detection, rapid response, and control of harmful invasive species from becoming established and impacting commercial agriculture.

46.l Support State Department of Education Farm to School programs and other programs designed to provide locally produced food to schools.

46.m Adopt procedures to allow for the development of community gardens and edible landscaping on public lands (e.g., through Friends of the Park agreements).

46.n Provide services and frameworks to support the formation of new commodity groups and other organizations, such as farmer cooperatives.

46.o Amend the Code to expand the designated list of parks authorized to allow farmers’ market permits to include parks in rural areas that lack appropriate commercial-zoned lands for farmers’ markets.

46.p Support and advocate for streamlined long-term leases for agricultural parks.

46.q Continue to evaluate and update the County’s tax reduction programs to ensure that tax incentives for agricultural land use result in actual public benefits and promote local agricultural production where possible.

46.r Create a real property tax exemption for farmers entitled to federal crop loss insurance.

46.s Support and invest in all cultural food programs, including food preservation.

## Objective 47

***Increase interagency coordination, programs, and policy initiatives that improve local agriculture infrastructure.***

### Policies

47.1 Support the creation of water cooperatives supported with financial sources, such as community facilities districts (CFD). Cooperative users should be responsible for the development, maintenance, and repair of agricultural non-potable water systems.

47.2 Where the County has replaced surface water sources with groundwater sources to meet Safe Drinking Water standards, the County should consider repurposing the surface water sources for agricultural use where the allocation is supportive of the ecosystem.

47.3 Advocate for more flexible and innovative wastewater systems to serve agriculture facilities.

47.4 Support the adaptive reuse or rehabilitation of existing infrastructure or buildings for agricultural processing, including but not limited to the development of commercial kitchens, processing, storage, or distribution facilities.

47.5 Promote the development of a locally grown building material industry through streamlined permitting or building code flexibility.

47.6 Support research and development that promotes local produce while removing interstate marketing restrictions.

47.7 Encourage the use and optimization of the export capacity of airports and harbors for local goods.

47.8 Support research and development of viable biofuel projects that will supply renewable transportation fuels or power for Hawai‘i Island in ways that are community-supported, sustainable, ecologically sound, and complementary to food production.

47.9 Support the continued operation of the USDA Daniel K. Inouye U.S. Pacific Basin Agricultural Research Center facility.

47.10 Support the development of processing and manufacturing facilities.

### Actions

47.a Map existing and proposed agricultural infrastructure and facilities.

47.b Expand programs and options to allow for agricultural irrigation water.

47.c Develop criteria to determine appropriate places for agricultural parks, including the availability of potable water.

47.d Account for verified agricultural water usage in the County Water Use Development Plan.

47.e Support the expansion of State agricultural water systems in productive agricultural areas

47.f Investigate the restoration of ditch systems to meet future agricultural needs.

47.g Amend bulk regulations including building materials for agricultural facilities and infrastructure.

47.h Partner with government, private and nonprofit agencies, communities, and other stakeholders to study the feasibility of building code amendments and structural integrity testing for locally produced building materials, prioritizing non-native plant species.

47.i Evaluate grubbing and grading ordinances as they pertain to agriculture including the creation of exemption categories for water storage and aquaculture.

47.j Seek State legislation or rulemaking to allow local agricultural producers to make direct sales to consumers at County-designated farmers' markets at a lower general excise tax rate.

47.k Evaluate the Code and statutory amendments to allow farmworker housing to be developed without requiring the housing be sited on the same parcel (i.e., TMK) of the working subject farm.

47.l Amend the Code to remove barriers to allow for off-site directional signage to promote local farms engaged in direct sales and other permitted visitor-related businesses while minimizing scenic impacts.

47.m Amend the Code to include provisions for suitable agricultural infrastructure projects financed by County bonds and liens on real property of participating agricultural stakeholders, whether such assessments on TMKs involve contiguous parcels of lands encumbered under an Agricultural Improvement District.

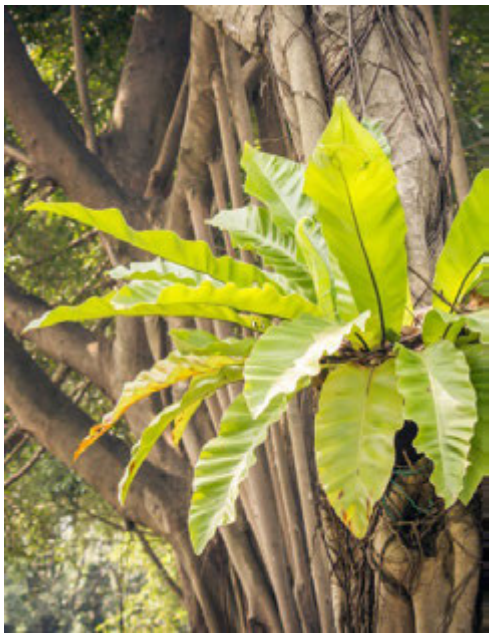
47.n Incentivize and streamline the process to develop agricultural worker housing on- and off-site.

# 5.4 Visitor Industry

The visitor industry has played a pivotal role in economic development on Hawai‘i Island, providing employment opportunities, generating revenue, and supporting local businesses. The growth and evolution of the industry have presented significant challenges and opportunities, necessitating a shift towards regenerative tourism as part of the community's vision. To uplift this vision, the General Plan's outlook on the visitor industry emphasizes a collective future that puts the health of Hawai‘i Island and its people first. As the comprehensive economic element of this Plan, the policies and actions contained within this section are primarily concerned with minimizing the visitor industry footprint and sustaining the shared positive benefits of tourism. This section supports other elements of the Plan, which provide further policy direction regarding land use, infrastructure, and biocultural resource stewardship as related to visitor industry impacts.



A regenerative visitor industry seeks to balance the economics of tourism with the well-being of our communities, natural resources, and culture. The intention of this approach is to attract and inform positive-impact travelers who are mindful of how they interact with residents, of how their actions impact the environment, and of how they value and respect the Hawaiian culture and other cultures of Hawai‘i. The commitment to regenerative tourism requires collaboration with responsible agencies, communities, and other stakeholders to advocate for solutions to the negative effects of tourism, such as overcrowded sites, overtaxed infrastructure, cultural misrepresentation, and other related issues.



The Hawai‘i Tourism Authority (HTA) has established four interacting pillars to strategically manage tourism in a sustainable manner consistent with economic goals, cultural values, preservation of natural resources, community desires, and visitor industry needs. The General Plan recognizes the value of supporting an integrated destination management system to guide a balanced relationship between ‘āina, communities, and visitors.

Figure 10 Integrated Destination Management System Pillars[8]




## Wahi Pana

The HTA's Hawai'i Island Destination Management Action Plan (DMAP) 2021-2023 highlighted several places that attract visitor activity. Wahi pana are celebrated and storied places in the cultural traditions of Hawai'i, including heiau, royal birthing sites, legendary sites, and places of significance for the people who live there. These sacred places have mana, or spiritual power, and are treated with honor and reverence. Many of these wahi pana are popular due to their unique natural features that exemplify what makes Hawai'i Island special. These qualities and the attention they receive also call for increased maintenance and protection. The following places were carried forward from the Hawai'i Island Tourism Strategic Plan as well as community engagement efforts by the HTA.

| |
|---|
| Waipi'o Valley |
| Ka'ū – Papakolea/Green Sands Beach |
| South Kona – Ho'okena, Miloli'i |
| Kahalu'u |
| Kumukahi |
| Keaukaha |
| Maunakea |
| Punalu'u |
| Ali'i Drive |
| Pololū Valley |
| Māhukona |
| Kalae (South Point) |

[8] HTA, Strategic Plan 2020-2025 https://www.hawaiitourismauthority.org/who-we-are/our-strategic-plan/

| |
|---|
| Kailua Pier |
| Kealakekua Bay State Historical Park |
| Hoʻokena Beach |
| Laʻaloa Beach (Magic Sands Beach) |
| ʻAkaka Falls State Park |
| Keauhou Bay |
| Banyan Drive |
| Hawaiʻi Volcanoes National Park |
| Hōnaunau Bay, Captain Cook Monument |
| Wailuku River State Park |
| Hāpuna Beach State Recreation Area |
| Kiholo State Park Reserve |

## Trends in Visitor Unit Inventory and Visitor Arrivals

Historically, hotel rooms accounted for the majority of the visitor accommodation units in the County of Hawaiʻi (59 percent), followed by visitor rental units (16 percent), and timeshare units (15 percent). When the annual Visitor Plant Inventory (VPI) report began publishing a supplemental analysis of visitor units in 2016, a more comprehensive representation of individual vacation rental units arose, indicating that visitor rental units outnumbered hotel rooms. The Visitor Plant Inventory (2023) reported the overall visitor unit count on Hawaiʻi Island totaled 11,119 units, an increase of 5.4 percent compared to the previous year. The total number of units in the state for 2023 was 81,881 visitor units, a 1 percent increase compared to 2022. Of the state total, 13.6 percent were located on Hawaiʻi Island.

The forecast for visitor arrivals mirrors the DBEDT 2045 forecast in which the number of arrivals increases steadily to approximately 2.6 million in 2045. This projection reflects the known trends for visitor arrivals from all ten of Hawaiʻi's Major Market Areas as well as the expected impact of Hawaiʻi's visitor industry development strategy, which includes shifting visitor arrivals from Oʻahu to other islands.

In 2023, over 1.7 million people visited Hawaiʻi Island, with an average daily census of approximately 38,207 visitors.[9] Research shows that many visitors are drawn to the island's famous landmarks and natural beauty.[10]



[9] HTA, Visitor Statistics 2023 – Hawaiʻi County Overview https://www.hawaiitourismauthority.org/media/12261/hawaii-island-fact-sheet-with-dec-2023-data.pdf

[10] DBEDT Visitor Satisfaction Study Quarter 4 (2023)

## 5.4.1 Visitor Industry Goal, Objectives, Policies, and Actions

Goal: A high quality of life for residents is maintained when a regenerative visitor industry balances the preservation of natural and cultural resources with responsible visitation.

### Objective 48

***Support the visitor industry investment in its connection with communities, the ʻāina, and our historic and multicultural heritage.***

#### Policies

48.1 Continue to monitor and adopt trends and standards for regenerative tourism.

48.2 Identify partnerships and resources with the visitor industry to ensure balance with the social, physical, and economic goals of the County.

48.3 Prioritize the maintenance of County properties and establish appropriate protocols for the protection of wahi pana.

48.4 Ensure and expand equitable access to interpretive information about wahi pana.

48.5 Support the coordination, collaboration, and improvement of public transportation services as well as eco-friendly options.

48.6 Support the coordination, collaboration, and improvement of public access to natural and cultural resources with State agencies and landowners while balancing the need for protection of these areas.

48.7 Support partnerships to evaluate visitor industry impacts, develop mitigation strategies, and incorporate educational programs on Native Hawaiian and community-based pono practices.

#### Actions

48.a Identify and invest in opportunities to partner with and influence the visitor industry to encourage malama ʻāina activities.

48.b Identify and recommend opportunities for installing or improving informational signage to educate about and protect significant sites.

48.c Update and maintain the Hawaiʻi Island Tourism Strategic Plan through collaboration between community and industry leaders, inclusive of the Hawaiʻi Tourism Authority.

48.d Develop a community-based stewardship program to identify wahi pana status and implement interpretive programs.

## Objective 49

***Increase authentic Hawai'i Island visitor experiences by developing community engagement strategies that are informed by community subject matter experts.***

### Policies

49.1 Integrate ʻāina- place-based values into Hawaiʻi Island's identity.

49.2 Strengthen the accessibility of creative industries and Hawaiʻi Island-made products such as fashion, food, and the arts to the visitor industry.

49.3 Sustain a visitor industry that promotes small business development.

49.4 Encourage agricultural, educational, and ecological tourism as regional opportunities.

49.5 Strategically guide regenerative tourism efforts that promote a high quality of life for residents.

49.6 Collaboratively create initiatives and improve existing efforts to provide social benefits through transportation, community assets, and housing.

49.7 Support the promotion and development of community-based programs, festivals, and events that celebrate our communities.

49.8 Support and facilitate dialogue among community groups, visitor and tour operators, and industry leaders to ensure ʻāina- and place-based values are respected and maintained.

### Actions

49.a Streamline processes for community-based programs, festivals, and events.

49.b Support efforts to revise HRS, Section 226-8 "Hawaiʻi State Planning Act Objectives and Policies for the Economy – Visitor Industry" to incorporate a regenerative tourism framework.

49.c Maintain monitoring of resident sentiment towards the visitor industry.

49.d Continue to seek funds from the State Capital Improvements Program to support facilities, including restrooms, parking, and road improvements.

49.e Provide technical support for local businesses to promote or further develop their products, services, and activities in the visitor industry.

49.f Identify and reduce barriers that hinder visitor industry companies from buying local Hawaiʻi Island products.

49.g Explore the feasibility of creating a multi-use facility to accommodate athletic-exhibition-conference activities.

49.h Partner with government, private and nonprofit agencies, communities, and other stakeholders to develop and support place-based educational programs and workforce training within the visitor industry.

49.i Support programs that conduct outreach to students in the fields of Science, Technology, Engineering, Arts, and Mathematics (STEAM) and Indigenous Data Science and connect them to living-wage careers in the visitor industry.

49.j Develop a toolkit and incentives for businesses to promote regenerative tourism and the Island of Hawaiʻi Pono Pledge.

# 6. IMPLEMENTATION AND MONITORING

**Organization**


6.1 Introduction
6.2 County Planning System
6.3 Capital Improvements Program
6.4 Monitoring and Evaluation












# 6.1 Introduction

The General Plan sets forth broad goals, objectives, and policies. Implementation requires translating these broad statements to specific actions, systematically evaluating progress, and effective community engagement. Follow-up planning efforts will involve the interconnected components of the County planning system, including the Community Development Plans (CDP), Capital Improvements Program (CIP), and ongoing monitoring and evaluation.

Additionally, implementation of the General Plan will require systemic understanding, decisive leadership, and unprecedented collaboration. The General Plan elevates key challenges to be addressed with strategic and coordinated action, presenting a path for the future of Hawai‘i Island. Implementation will also require follow-up legislative actions such as ordinances and budget decisions.

The purpose of the County planning system is to serve as a guide for the long-range development, and economic, environmental, and socio-cultural well-being of the County in keeping with the values and priorities significant to the people. The intent of this framework includes:

1. ***Local Engagement***
   Foster grassroots participation and balancing of interests by providing opportunities for active civic engagement, where citizens have the means to collaborate with the County and are empowered to effect positive change consistent with plans developed under this chapter.

2. ***Long-Term and Holistic Approach***
   Address a broad scope of issues and long-term trends that affect the land and communities, including environmental and cultural-historic protections, natural resources, built environments, infrastructure development, social issues, and the economy.

3. ***Consistent Policies and Implementation***
   Ensure consistency among the General Plan and respective regional plans, as well as consistency among the General Plan’s policies and implementation measures such as regulations in the Hawai‘i County Code, land acquisition priorities, and capital improvements.

4. ***Interagency Collaboration***
   Facilitate collaboration among County agencies in fulfilling the objectives, policies, and actions set forth in the General Plan’s developed under this chapter. Facilitate collaboration with state and federal agencies through clarity, consistency and prioritization of common goals and objectives.

5. ***Implementation System***
   Establish an implementation system that is based on county-wide, regional, and agency levels of responsibility and accountability to carry out the plan(s), such as the identification and prioritization of actions, timeframes, responsible agents and stakeholders, funding requirements, funding sources, and allocations.

## Key Areas for Collaborative Focus

The General Plan outlines policy guidance for directing the County’s growth and development. While the Plan is comprehensive and can provide a holistic and integrated approach, it is limited in terms of scope and enforceability. This General Plan is grounded in the understanding that many of the County’s greatest challenges cannot be solved with policy, regulation, or independent action. It greatly impacts the daily lives of Hawai‘i Island residents by shaping community development, infrastructure, and resource management. The General Plan guides decisions on housing, transportation, and public services, ensuring that they align with the island’s unique cultural, environmental, and economic needs.

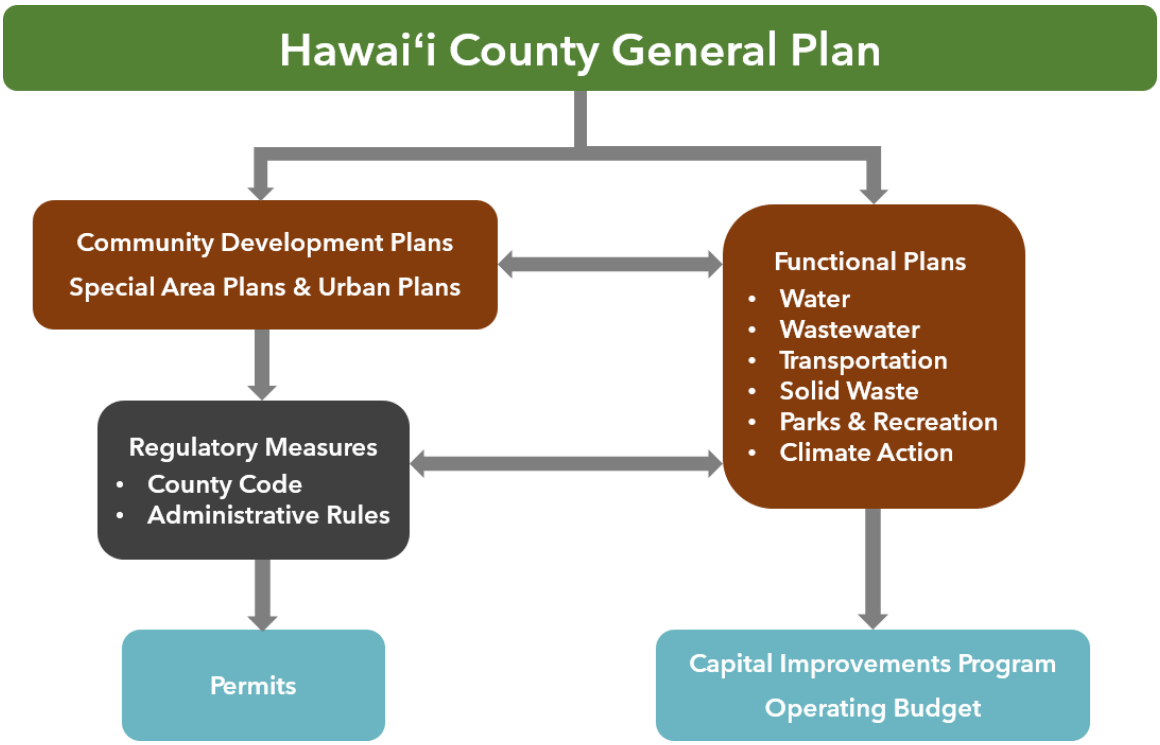
Through strategic planning, the General Plan aims to enhance residents' quality of life by promoting sustainable growth, protecting natural and cultural resources, and fostering a vibrant, resilient community.

Successful implementation requires robust collaboration among various stakeholders, including government agencies, community organizations, private and non-profit groups, and the general public. Key areas of focus include fostering public-private partnerships, ensuring community engagement and input, securing funding, and coordinating priorities. Regular and continuous monitoring is essential to respond to changing conditions and emerging challenges. The emphasis on a collaborative approach in the implementation of the General Plan is intended to ensure shared responsibility and collective action as we work toward achieving our vision. The **Integrated Systems** section provides the policy direction for strengthening collaboration and coordination across the County.

# 6.2 County Planning System

The planning system is designed to ensure that all its components fit together and serve their intended purpose. This section further defines each of these components and the relationships between them. The diagram above displays a feedback process in which the different aspects of the planning system inform one another and the lines between them represent opportunities for community participation throughout the process. Chapter 16 of the Hawai'i County Code details the legal framework for the planning system, with an explanation of these components, the legal requirements, and this framework.

Figure 11 County Planning System



# 6.2.1 Community Development Plans (CDP)

The Community Development Plans translate broad General Plan statements to specific actions, as they apply to specific geographical areas. They serve to provide a forum for community input to reflect the character of each community. These plans create a vision for future growth, and direct physical development and public improvements within a specific area. If there is a direct conflict between the CDP and the General Plan, the General Plan shall be controlling. The Planning Director or County Council may initiate a CDP.

The goal of planning is to maximize the health, safety, and economic well-being of all people living in our communities, as well as the land itself. Community planning is the process where community members come together to take intentional collective action and generate solutions to common problems to improve social, economic, physical, and environmental well-being while preserving valuable aspects of the culture of and vision for a particular geographic area.

## Community Development Plan Framework

During the General Plan Comprehensive Review process, existing community plans were used to guide the CDP framework. From the adoption of the Kona, Puna, North and South Kohala CDPs in 2008, Kaʻū CDP in 2017, and Hāmākua CDP in 2018, there has been much to learn and grow from as we look to the future. The General Plan also benefited from years of collective participation in CDP implementation efforts through regional committees that implement their respective CDP.

To build on these lessons learned, future CDPs shall be drafted to follow the basic layout of the Hawaiʻi County General Plan. This creates consistency across all districts of the County to ensure that the language, goals, objectives, policies, and actions under various subject matters can be easily identified by government agencies, community members, and other stakeholders.

The purpose of a CDP is threefold:

1. Translate the General Plan's broad statements and community development guidelines to actions specific to the planning area to address regional issues and opportunities.
2. Improve and advance communities and community resilience through the acknowledgment and development of community capacity and in support of Native Hawaiian ahupuaʻa frameworks.
3. Provide a process for citizens to engage in civic dialogue and contribute to the identification of community priorities.

The CDP process should identify:

1. ***Recommended Governmental Improvements***
   Community Development Plans may recommend amendments to various requirements and incentives built into codes, plans, or processes. Such amendments should be consistent with the General Plan, otherwise, amendments to the General Plan should be recommended.

2. ***Advocacy Strategies***
   Advocacy strategies are effective means to advance community priorities through coordinated efforts by County and non-County agencies and organizations. This requires that the community, County agencies, and elected officials work in collaboration with other organizations to advance the CDP's advocacy program.

3. ***Acquisition Priorities***
   Community Development Plans may identify priority acquisition properties for consideration in the County Public Access, Open Space, and Natural Resources Preservation Program. Candidate parcels for this program include those that feature historic and culturally significant sites and natural resources in need of protection.

4. ***Capital Projects***

The County Charter stipulates that Capital Improvements shall be prioritized based on criteria aligned with the General Plan and Community Development Plans. Providing a clear direction on where various community Capital Improvement priorities are needed creates a reference for them to be easily incorporated into the County budget process and Functional Plans for government agencies. The General Plan should focus on major, multi-district level infrastructure projects such as wastewater, water, and roads. Whereas Community Development Plans should focus on capital improvement projects as they relate directly to the character and community amenities in their respective district – examples of this include parks, transit hubs, and community centers. If additional capital improvement projects are identified in the review process for a Community Development Plan revision, the General Plan may be amended to include them.

5. ***Programs and Community Actions***

Community Development Plans shall be prioritized, adequately resourced, and shall identify desired programs and the community's role in planning and implementing the programs. They should focus on proactive, community-based, collaborative actions. Community planning is a collective effort that benefits from proactive leadership and actions that enrich the community. Examples of this include after-school youth programs, neighborhood watch, environmental advocacy groups, and collaborative small business events (such as farmers markets or co-ops).

6. ***Social Capital and Community Network Mapping***

During the process of reviewing a Community Development Plan, instances where community needs are not met may be identified. Examples of this may include a need for community gathering spaces such as parks or recreation hubs. Community Development Plans may identify such needs and outline a plan of action for community members and other stakeholders to coordinate efforts, combine and collect resources, and connect public and private sector agents to advocate for such enhancements to their community.

## 6.2.2 Urban Development Plans

Urban Development Plans are a means of implementing the policies and objectives of the General Plan and/or Community Development Plans within towns, villages, and other areas of existing urban development or within areas specifically intended for new or more intensified urban development. They comprise a minor portion of a larger, regional community planning area. They shall be consistent with and implement the visions, objectives, and policies of the General Plan and applicable community development plans. If there is a direct conflict between the Urban Development Plan and the General Plan, the General Plan shall be controlling. An Urban Development Plan is initiated by or through the Planning Director or County Council. The Urban Development Plan process should identify:

1. ***An analysis of problems, needs, and opportunities***

2. ***Appropriate planning standards***

- Public services and transportation
- Housing unit densities, urban design
- Streetscaping and landscaping design
- A statement of proposed considerations for historic or archaeological features in the proximity of the plan's area, which may

consider restoration, access, buffers, and other measures as appropriate.

3. ***Sequencing and phasing of development or redevelopment, public facilities, infrastructure***
   Examples include roads, water, wastewater, parks, educational sites, and public safety facilities.

4. ***Implementation program***
   CIP, financial considerations, and schedule.

## 6.2.3 Special Area Plans

Special area plans provide the basis for regionally scaled programs for the protection, restoration, or recreational and educational use of specific, natural, and/or cultural and historic resources and features identified in the General Plan or an encompassing Community Development Plan as highly valued community natural assets. A Special Area Plan is initiated by or through the Planning Director or County Council.

The Special Area Plan process should identify:

1. ***An analysis of the needs and opportunities***
   Concerning the purposes and objectives of the special area plan area.

2. ***A statement of planning standards and principles***
   - Land uses
   - Environmental protocols, principles, objectives, and standards
   - Proposed considerations for historic and/or archaeological features, which may consider restoration, access, buffers, and other measures as appropriate.

3. ***Sequencing and phasing of development or redevelopment, public facilities, infrastructure***

4. ***Implementation program***
   CIP, financial considerations, and schedule.

## 6.2.4 Public Agency Functional Plans and Programs

Functional Plans set forth the policies, statewide guidelines, and priorities within a specific field of activity, when such activity or program is proposed, administered, or funded by any agency of the State. Functional plans are developed by the agency primarily responsible for a given functional area and must identify priority issues and specific needs of the agency responsible for implementation. They may, but are not required to, be adopted by ordinance or resolution.

The Functional Plan should contain objectives, policies, and implementing actions consistent with the visions, goals, and objectives of the General Plan and Community Development Plans to address the priority issues and needs identified to help inform the Capital Improvements and Operating Program. Each department and agency of the County that prepares a Functional Plan should present the construction and operation of infrastructure, facilities, and programs. Actions may include organizational or management initiatives, facility or physical infrastructure development initiatives, initiatives for programs and services, or legislative proposals.

# 6.3 Capital Improvements Program (CIP)

Capital Improvement projects are an important vehicle for ensuring community needs can be implemented. The County Charter sets forth the procedure for the submittal and adoption of the CIP budget.

## 6.3.1 Prioritization of Capital Improvements Projects

### Achieving What We Appropriate

The CIP is a 6-year schedule of improvements – it sets forth the greatest infrastructure needs of the County, anticipated funding, and timing of the projects. However, in practice, the County is only able to fund about 30 percent of the projects that are appropriated into the CIP budget. Several factors influence the urgency and sequencing of CIP projects. According to the County Charter, Section 10-6(a)(2), "Capital improvements shall be prioritized based on criteria aligned with the General Plan, Community Development Plans, emergency expenditures and other pertinent functional plans". This speaks to the need to coordinate infrastructure priorities through our Planning System, creating avenues for interagency collaboration, and providing clear criteria to guide the prioritization of projects.

For the CIP to comprehensively prioritize and allocate the financial resources available to the County within the context of the General Plan, the CIP will be prepared as follows:

- The CIP will be based on clear priority criteria;
- The CIP will integrate several sources of funding improvements, including the fuel tax;
- The CIP will coordinate County projects with State CIP projects and available Federal funding;
- The total County costs for the projects selected for the CIP will not exceed an amount that could be prudently financed taking into consideration the debt service capacity of the County;
- Where additional studies are needed to prioritize projects from an island-wide or regional perspective, functional plans may be funded through the CIP; and
- A system will be established to monitor the status of projects.

To prioritize the lists of proposed capital improvements contemplated by County agencies as required by the Charter, the Planning Director shall consider:

1. ***Funding Source***
   The capacity of a funding source available for a proposed improvement may be a factor in determining priority. Potential funding sources include general obligation bonds, general revenues, special funds, land-secured financing, State revolving fund, block grants, federal sources, or other reliable sources. The capital budget shall not exceed prudent debt service limits for general obligation and other sources that affect the borrowing capacity of the County.

2. ***Health and Safety***
   The budget should be proportional to adequately address health and safety needs.

3. ***Long-Range Project Delivery***
   All phases of a project, including planning, land acquisition, design, construction, equipment, and furnishing, shall be addressed in the multi-year Capital Improvements Program. Priority shall be considered to complete projects that are ready to be constructed while planning phases are needed for future priority projects.

4. ***Nonrecurring Rehabilitation (extreme deferred maintenance)***
   Deferred maintenance of existing facilities, as determined by the responsible agency, should be considered a high priority for those facilities intended by the responsible agency to remain in active, long-term service. Regular maintenance needs to be included in the operating budget.

5. ***Cost-Benefit Analysis***
   Cost-benefit analyses are used to weigh the benefits of the project against the costs. Costs can address issues such as increased maintenance costs, liability, improper prioritization (other important projects not being funded), and equity concerns. Whereas benefits can address community priorities, environmental improvements, reduced maintenance costs, and reduced legal compliance costs.

6. ***Level of Service***
   The General Plan's Level of Service standards should be considered to address equity and realize the delivery of services among the planning areas.

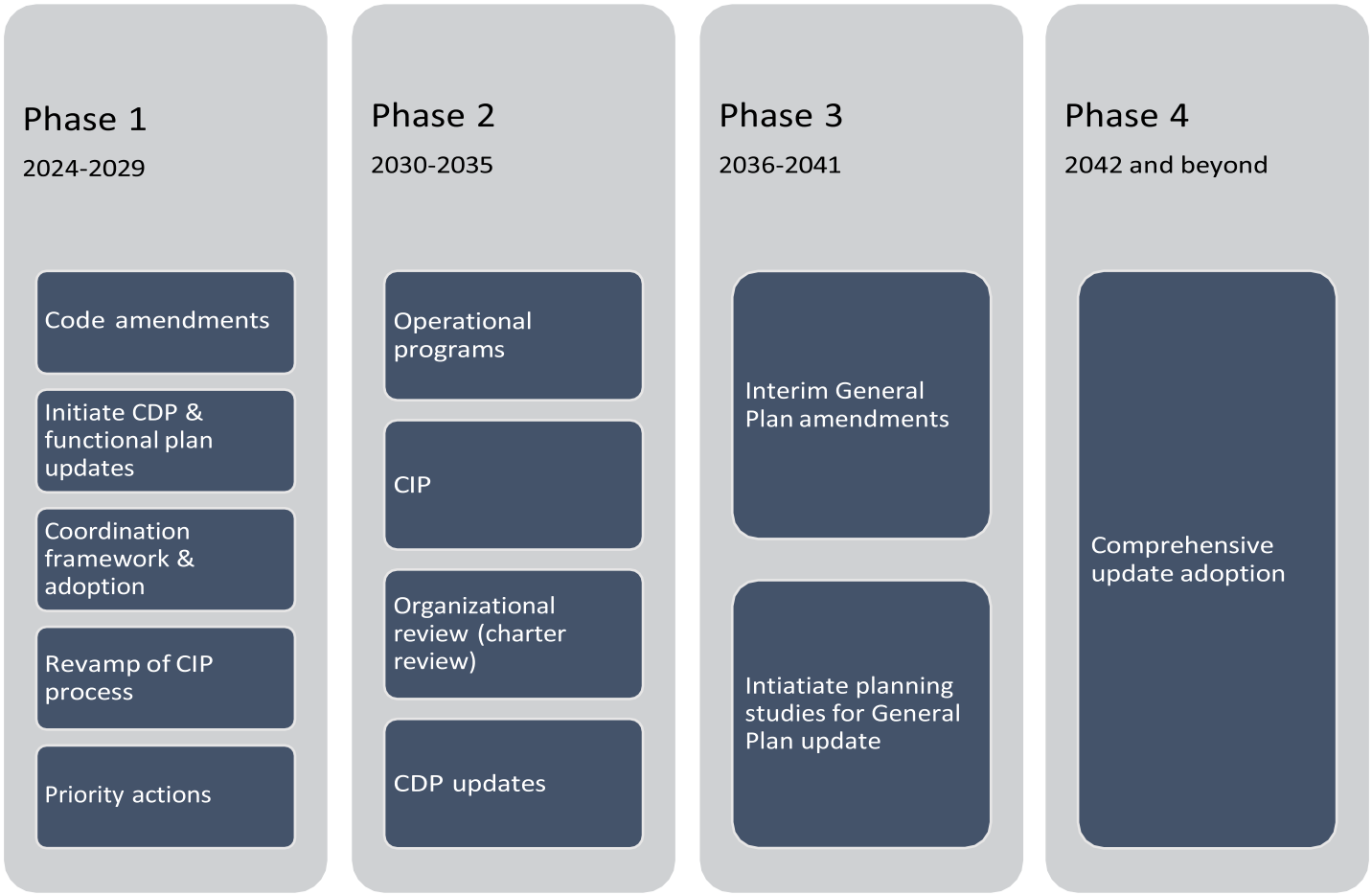
7. ***Land Use Policies***
   Higher priority may be given to improvements that influence growth patterns consistent with the General Plan or Community Development Plans.

# 6.4 Monitoring and Evaluation

## 6.4.1 Implementation Priorities and Phases

As shown in the figure below, implementation will occur over several phases that build upon the work completed in the previous phases. The first phase is the consistency phase and will require a hard look at our policy and planning framework to ensure consistency with this General Plan. It includes implementation actions such as auditing codes to determine needed updates and updating our Community Development Plans and other relevant plans. The second phase will require code updates, capital improvement planning, and funding, a review of the County's organizational structure to support the mandated Charter review, and possible interim amendments to the General Plan to address any strategic or procedural gaps identified in the first phase. The third phase is where implementation continues to occur mainly through land use and infrastructure decisions. The comprehensive update to the General Plan will also be initiated during this phase. Finally, the fourth phase is where the General Plan comprehensive update will be completed, and it is anticipated that another cycle of similar implementation phases will begin. Priority implementation actions (e.g., programs, projects, and interagency coordination) generally fall into the first phase. However, other factors could drive implementation priorities such as available funding. A complete list of all the implementation actions can be found in the implementation table.

Figure 12 Phases of Implementation








# 6.4.2 Monitoring and Evaluation Plan

## Purpose

Provide regular and predictable ways of measuring progress and preparing for updates.

## Monitoring Mechanisms

Measurable indicators, or performance measures, will be used to monitor progress toward the objectives. Examples of indicators that can be used to monitor the progress of implementation have been provided in the table below. However, it is important to note that indicators may vary over time as progress is made and each department is responsible for reporting on the indicators that are relevant.

## Progress Reports

### *Mayor's Annual Report*

As part of the Mayor's Annual Report, the County Departments will prepare an implementation status report annually serving to monitor progress towards achieving the goals and objectives identified within the General Plan. To the extent possible, the report should contain measurable indicators related to the goals and objectives of the plans that make up the County Planning System.

### *5-year Implementation Status Report*

The Planning Director will include a 5-year status report as part of the Mayor's Annual Report. This status report shall include the status of any urban development plans, functional plans, special area plans, master plans, community development plans, and related priority implementation actions. The director may also provide information regarding the implementation of private development master plans in the 5-year implementation status report.

### *Comprehensive Review and Update Schedule*

The Planning Director shall initiate a comprehensive review of the General Plan and prepare a set of recommended amendments for independent review by the Windward and Leeward Planning Commissions and then adoption by the County Council. The comprehensive review shall be initiated not more than fifteen (15) years after the date of adoption of the previous amendments resulting from a comprehensive review and submitted to the Planning Commission to start the adoption process not more than twenty (20) years after the date of adoption of the previous amendments resulting from a comprehensive review. This allows for regular updates and adequate implementation time between updates.

## 6.4.3 Implementation Indicators

The General Plan is a comprehensive framework designed to guide sustainable development patterns, direct future opportunities, and determine public investments. The Plan establishes a set of goals and objectives aimed at preserving and protecting the island's unique environment, enhancing the quality of life for residents, and promoting a vibrant and resilient economy. To support monitoring and evaluation efforts, the General Plan includes the following tables (organized by section of the Plan), which present a range of example indictors associated with each goal and its corresponding objectives.

Indicators are quantitative or qualitative measures used to assess progress towards each objective. Indicators provide concrete evidence of change, help track trends over time, identify areas needing improvement, and may be used to guide policy decisions. From these indicators, more detailed metrics may be developed to offer precise data points that can be regularly monitored and reported. To ensure the goals and objectives of the General Plan are effectively monitored and achieved, these indicators serve as a vital tool for assessing the effectiveness of policies, programs, and initiatives outlined in the Plan. By regularly tracking these measures, the County can make data-driven decisions, adjust strategies as needed, and transparently report progress to the community.

The tables are intended to provide a clear and concise reference for agencies, policymakers, communities, and other stakeholders. A systematic and transparent process is key to the implementation of the General Plan and to fostering accountability and continuous improvement.

### Table 44: Collaborative Biocultural Stewardship Indicators

| | |
|---|---|
| Goal | Natural and cultural resources are thriving and sustainably managed, preserved, and restored to maintain our unique and diverse environment. |
| Objectives | 1. Increase the biodiversity and resilience of native habitats.<br>2. Apply the Native Hawaiian ahupuaʻa framework to preserve and enhance the health and function of watersheds to promote water recharge, improve water quality and reduce runoff.<br>3. Increase direct community restoration and collaborative efforts to conserve and nourish the island's biocultural resources.<br>4. The historical integrity, character, scenic assets, and open spaces of our communities are protected, restored, and treated as unique assets with significant social and economic value and managed in perpetuity.<br>5. Protect, restore, and enhance our communities' unique scenic character. |
| Example Indicators | • Increase in native habitat coverage<br>• Population trends of native species<br>• Area of coastal habitats protected<br>• Incidents of coastal erosion<br>• Number of water bodies meeting clean water standards<br>• Frequency and severity of water contamination incidents<br>• Groundwater levels and quality<br>• Number of historic sites and structures preserved or restored<br>• Participation rates in cultural activities and events |

| | |
|---|---|
| | • Increase in percentage of County of budget for restoration<br>• Funding allocated for cultural and natural resource management programs<br>• Number of community groups involved in stewardship<br>• Number of enforcement actions related to resource protection regulations |

## Table 45: Addressing Climate Change for Island-Wide Health Indicators

| | |
|---|---|
| Goal | Ensure a just transition to a climate resilient island by addressing the causes and impacts of climate change through incorporating equitable climate mitigation and adaptation priorities into policies, programs, infrastructure, and decision-making. |
| Objectives | 6. Ensure that climate actions are equitable and uplift marginalized and disadvantaged communities.<br>7. Reduce the County government's carbon footprint to net zero emissions by 2045.<br>• Achieve a 100 percent renewable-powered County fleet by 2035.<br>• Support the statewide effort to achieve 100 percent renewable ground transportation and 100 percent renewable energy by 2045.<br>8. Improve the identification of climate change threats, assessment of potential consequences, and evaluation of adaptation options. |
| Example Indicators | • Routine measurement of GHG emissions from various sectors<br>• Reduction in County GHG emissions<br>• Percentage or total energy consumption from renewable sources<br>• Number of projects aimed at reducing emissions (e.g., renewable energy installations, energy efficiency upgrades)<br>• Percentage of buildings complying with energy efficiency standards<br>• Increase in public transit ridership<br>• Length of bike lanes and pedestrian pathways constructed annually<br>• Percentage of waste diverted from landfills<br>• Number of green infrastructure projects implemented<br>• Annual changes in groundwater levels and surface water availability<br>• Number of public awareness campaigns on climate adaptation strategies<br>• Number of climate adaptation research and development projects supported |

## Table 46: Land Use Indicators

| | |
|---|---|
| Goal | We strategically apply progressive land use strategies incorporating indigenous and contemporary knowledge and place-based practices to direct and manage growth for the health, safety, and emergency response and preparedness services for our communities. |
| Objectives | 9. Maintain community character and land use compatibility.<br>10. Increase the integration of natural systems planning including the Native Hawaiian ahupuaʻa framework.<br>11. Increase equitable planning and decision-making processes.<br>12. Reduce the threat to life and property from natural hazards and disasters.<br>13. Increase the use of Smart Growth principles to focus development within designated urban centers.<br>14. Maximize the use of Rural designated lands to preserve rural character and lifestyle.<br>15. Support the active use of Productive Agricultural lands. |

| | |
|---|---|
| Example Indicators | • Number of developments that follow Standard Guidelines<br>• Increase in residential and commercial densities within urban areas<br>• Increase of SLU Rural<br>• Acres of Agriculture property tax class<br>• Percentage of land area covered by tree canopy in urban areas<br>• Number of new developments within a specified distance from major transit hubs<br>• Percentage of new development occurring on infill sites<br>• Acreage of protected open space and green areas<br>• Number of mixed-use developments |

## Table 47: Transportation Access and Mobility Indicators

| | |
|---|---|
| Goal | Each community is connected by a multimodal and modernized transportation network that provides a system for safe, efficient, and comfortable movement of people and goods. |
| Objectives | 16. Achieve a transportation system that is consistent with and will accommodate planned growth.<br>17. Increase transportation connectivity.<br>18. Increase mass transit ridership by 50 percent by 2045.<br>19. Reduce vehicle miles traveled (VMT).<br>20. Achieve a transportation system that employs all modes of transportation at a community scale.<br>21. Incorporate green infrastructure to reduce stormwater runoff.<br>22. Increase transportation safety for transportation's most vulnerable users and reduce traffic fatalities.<br>23. Adequately maintain public transportation systems.<br>24. Improve accessibility to airports, harbor systems, and support facilities. |
| Example Indicators | • Reduction in VMT<br>• Increase in mass transit ridership<br>• Length of bike lanes and public access<br>• Increase of bike lanes and public access<br>• Number of traffic related accidents and fatalities per year<br>• Percentage of transit hubs with integrated connections to other modes of transportation<br>• Average distance to the nearest transit stops for residents and businesses<br>• Total mileage of interconnected multimodal transportation networks<br>• Percentage of key destinations (e.g., schools, hospitals, retail centers) accessible via multimodal transportation<br>• Number of bike parking facilities and bike-share stations installed<br>• Number of pedestrian crossings and safety enhancements implemented<br>• Percentage of sidewalks and bike paths meeting ADA accessibility standards<br>• Average wait time for transit services<br>• Annual budget and expenditure on road maintenance and improvements<br>• Average travel time during peak hours on major roads<br>• Percentage of road projects incorporating green infrastructure (e.g., permeable pavements, stormwater management) |

## Table 48: Public Utilities Indicators

| | |
|---|---|
| Goal | Our communities are adequately served by sustainable and efficient public infrastructure, utilities, and services based on existing and future growth needs, sound design principles, and effective maintenance practices. |
| Objectives | 25. Improve the efficiency, reliability, and sustainability of essential infrastructure systems.<br>26. Increase the protection of existing and potential sources of drinking water.<br>27. Planned and developed municipal sewer capacity is expanded to serve our Urban Growth Areas and reduce sewage-related impacts on water quality.<br>28. Increase green infrastructure practices.<br>29. Strive towards energy self-sufficiency.<br>30. Advance policies, programs, and initiatives for public and/or private investment in broadband and telecommunications infrastructure. |
| Example Indicators | • Frequency and severity of water contamination incidents<br>• Percentage reduction in water usage through conservation measures<br>• Average downtime for water service disruptions<br>• Annual funding allocated for green infrastructure initiatives<br>• Percentage of new development projects including green infrastructure elements<br>• Percentage of impervious surfaces replaced with permeable materials<br>• Percentage reduction in energy consumption through efficiency measures<br>• Number of power outages and average duration per year<br>• Investment in grid modernization and resilience projects<br>• Percentage of households with access to high-speed broadband<br>• Number of public Wi-Fi hotspots installed and utilized<br>• Annual investment in broadband infrastructure expansion and upgrades<br>• Number of partnerships with private sector and community organizations to enhance connectivity |

## Table 49: Public Facilities and Services Indicators

| | |
|---|---|
| Goal | Our communities are safe and protected, and have access to quality, integrative health, education, and social services to support a high quality of life for all residents.<br>Our communities are adequately served by sustainable and efficient public infrastructure, utilities, and services based on existing and future growth needs, sound design principles, and effective maintenance practices. |
| Objectives | 31. Adequately maintain public facilities<br>32. Protect the health and well-being of residents and visitors.<br>33. Achieve Zero Waste in Hawai‘i County by 2045.<br>34. Each community has access to a wide range of educational opportunities.<br>35. Park facilities are located within a 10-minute walk in urban areas and a 10-minute drive in rural communities.<br>36. Each community has access to healthcare facilities, programs, or community-based care. |
| Example Indicators | • Percentage change in crime rates year-over-year<br>• Average response time to emergency calls<br>• Number of community policing initiatives and programs<br>• Number of neighborhood watch programs and participation rates |

| | |
|---|---|
| | • Number of fire prevention programs and public education activities held<br>• Percentage of waste diverted from landfills<br>• Volume of recyclables and compostables collected annually<br>• Public participation rates in recycling and composting programs<br>• Average distance to the nearest waste collection facility or drop-off point<br>• Average waste generation per capita<br>• Number of public education campaigns on waste reduction and recycling<br>• Public participation rates in recycling and composting programs<br>• Graduation rates for high schools<br>• Student-to-teacher ratios in classrooms<br>• Average distance to the nearest school for students<br>• Percentage of schools with up-to-date technology and infrastructure<br>• Teacher retention rates<br>• Prevalence of chronic diseases (e.g., diabetes, heart disease)<br>• Healthcare provider retention rates<br>• Number of public health campaigns and programs<br>• Participation rates in preventive health screenings and vaccinations |

## Table 50: Housing for All Indicators

| | |
|---|---|
| Goal | Residents have access to adequate and affordable housing to meet the needs of the population and provide equitable opportunities for household flexibility and mobility. |
| Objectives | 37. Increase the number and variety of newly constructed housing units for rent and sale that addresses a range of Area Median Income (AMI).<br>38. Monitor, conserve, and improve the existing housing stock.<br>39. Prioritize providing quality affordable housing for Hawai‘i’s residents. |
| Example Indicators | • Number and variety of newly constructed housing units for rent and sale<br>• Availability of different housing types<br>• Percentage increase in total housing stock year-over-year<br>• Percentage of new developments incorporating mixed-use housing<br>• Number of vacant and abandoned properties<br>• Average time properties remain on the market before being sold or rented<br>• Annual investment in housing rehabilitation programs<br>• Median home sale price<br>• Median monthly rent<br>• Percentage of households spending more than 30% of their income on housing (cost-burdened households)<br>• Number of new affordable housing units built annually<br>• Percentage of total housing stock that is affordable to low- and moderate-income households<br>• Number of households receiving housing assistance (e.g., Section 8 vouchers, public housing)<br>• Amount of funding allocated to affordable housing programs |

## Table 51: Integrated Systems Indicators

| | |
|---|---|
| Goal | We employ integrated systems that are efficient, equitable, and organized to facilitate coordination and collaboration. |
| Objectives | 40. Increase collaboration and cooperation for efficiency, effectiveness, and responsiveness.<br>41. Maintain fiscal integrity, responsibility, and efficiency.<br>42. Achieve equitable outcomes for County programs, policies, and allocation of resources. |
| Example Indicators | • Number of joint initiatives or projects between different government departments<br>• Percentage of projects completed through interdepartmental collaboration<br>• Number of partnerships with state and federal agencies<br>• Number of community-based projects funded or supported through partnerships<br>• Number of community feedback and input sessions incorporated into policy and project planning<br>• Annual reduction in operational costs through efficiency measures<br>• Percentage of budget saved through cost-saving initiatives<br>• Cost savings from shared services or joint procurement processes<br>• Savings achieved through energy efficiency and sustainability projects<br>• Annual increase in revenue from non-tax sources (e.g., grants, public-private partnerships)<br>• Number of new revenue sources identified and implemented<br>• Annual growth rate of revenue streams<br>• Public accessibility of financial statements and budget reports<br>• Investment in technology upgrades and innovations<br>• Number of government services available online<br>• Average response time for service requests and complaints<br>• Employee satisfaction and retention rates<br>• Number of training and professional development programs offered<br>• Average time to process permits, licenses, and applications<br>• Public satisfaction with government services (survey results)<br>• Percentage of residents with access to essential services within a specified distance<br>• Availability and utilization rates of translation and interpretation services |

## Table 52: Thriving, Diverse, and Regenerative Economy Indicators

| | |
|---|---|
| Overarching Goal | Our economy is diverse, regenerative, and innovative, improving and maintaining the financial well-being of our residents with a focus on increasing local economic opportunities. |
| Objectives | 43. Improve access at all levels for education and training.<br>44. Increase the growth and health of small businesses.<br>45. Incorporate resiliency, diversity, and innovation in County programs, plans, and research to support healthy economic development and revitalization. |
| Example Indicators | • High school graduation rates<br>• Enrollment rates in higher education institutions and vocational training programs<br>• Percentage of residents with high school diplomas, associate degrees, bachelor's degrees, and advanced degrees<br>• Number of workforce training and development programs offered annually<br>• Participation rates in workforce training programs |

| | |
|---|---|
| | • Availability of online learning platforms and courses<br>• Number of technical and vocational education programs offered<br>• Industry partnerships with educational institutions for internships and apprenticeships<br>• Number of new small businesses registered annually<br>• Small business survival rate (percentage of small businesses operating after three and five years)<br>• Number of business incubators and accelerators supporting startups<br>• Amount of funding and loans provided to small businesses<br>• Number of small businesses receiving grants or financial assistance<br>• Number of workshops, training sessions, and networking events for small business owners<br>• Business satisfaction with the regulatory environment (survey results)<br>• Number of regulatory reforms implemented to support small business growth<br>• Percentage of the economy represented by different sectors<br>• Number of research and development (R&D) initiatives and projects funded<br>• Investment in technology infrastructure and innovation hubs<br>• Investment in infrastructure improvements to enhance economic resiliency |
| **Agriculture and Food Systems** | |
| Goal | Agriculture is a robust, diversified sector that addresses food security and includes a broad range of agricultural-based businesses that highlight value. |
| Objectives | 46. Increase access to land for active food production.<br>47. Increase interagency coordination, programs, and policy initiatives that improve local agriculture infrastructure. |
| Example Indicators | • Percentage of public lands allocated for agricultural use<br>• Percentage of land zoned for agricultural purposes<br>• Number of new farmers accessing land through land trusts, cooperatives, or government programs<br>• Investment in agricultural infrastructure (e.g., irrigation systems, storage facilities, processing plants)<br>• Number of new policies or regulations enacted to support local agriculture<br>• Number of government programs supporting local agriculture (e.g., grants, loans, technical assistance)<br>• Number of new or upgraded agricultural infrastructure projects completed annually<br>• Number of farmers' markets, community-supported agriculture (CSA) programs, and farm-to-school initiatives<br>• Volume and value of local food sales<br>• Percentage of food consumed locally that is produced within the county<br>• Volume and variety of crops produced locally<br>• Investment in research and development for local agriculture<br>• Availability of extension services and technical assistance programs<br>• Number of programs aimed at improving the resilience of the local food system (e.g., disaster preparedness, climate adaptation)<br>• Investment in resilience-building infrastructure and initiatives<br>• Number of educational programs and workshops on sustainable farming and food production<br>• Participation rates in agricultural education and outreach programs |

| **Visitor Industry** | |
|---|---|
| Goal | A high quality of life for residents is maintained when a regenerative visitor industry balances the preservation of natural and cultural resources with responsible visitation. |
| Objectives | 48. Support the visitor industry investment in the connection with communities, the ʻāina, and our historic and multicultural heritage.<br>49. Increase authentic Hawaiʻi Island visitor experiences by developing community engagement strategies that are informed by community subject matter experts. |
| Example Indicators | • Increase in interpretive programs<br>• Number of community-based tourism initiatives and partnerships<br>• Investment in cultural heritage sites and programs by the visitor industry<br>• Number of tourism businesses adopting sustainable and regenerative practices<br>• Number of educational programs and tours focused on local culture, history, and environment<br>• Visitor feedback on educational components of their tourism experience (survey results)<br>• Percentage of tourism businesses offering authentic local experiences<br>• Visitor spending on local products and services<br>• Number of guided tours and activities focusing on local culture and heritage<br>• Percentage of visitors participating in cultural and heritage tours<br>• Availability of multilingual and culturally sensitive educational resources |

# 6.4.4 Implementation Table

## Table 53: Collaborative Biocultural Stewardship

| Action | | Agency | Type |
|---|---|---|---|
| 1.a | Develop buffer policies to protect native forests, wildlife, rivers, streams, coastal waters, and other native habitats. | PD, DLNR | Project |
| 1.b | Seek partnership opportunities to support wetland identification and assessments. | PD, DLNR | Project |
| 1.c | Review tree survey requirements and amend the Code to incorporate as part of site planning. | PD | Code Amendment |
| 1.d | Consider the establishment of clearing limits within the Code and increase tree removal mitigation requirements, limiting the clearing of native vegetation during development. | PD, DPW | Code Amendment |
| 1.e | Revise floodplain management requirements to require consideration of nature-based solutions as alternatives for all projects that have the potential to affect floodplains or wetlands. | DPW | Project |
| 1.f | Develop a regulatory list of invasive species for Hawai‘i County. | PD, DLNR | Project |
| 1.g | Develop priorities for the management of fire-prone invasive species. | DPW, PD, DLNR | Project |
| 1.h | Amend the Code to include an appropriate list of invasive species to be removed during development activities, to the extent feasible. | PD, DPW | Code Amendment |
| 1.i | Support programs designed to prevent the introduction and establishment of invasive species and the control and eradication of invasive species; particularly those that serve as disease vectors. | PD, DPW, DLNR | Program |
| 1.j | Create incentives for landowners to retain and re-establish forest cover in upland watershed areas with an emphasis on native forest species. | PD, DPW, RPT | Program |
| 1.k | Identify partners and support a public awareness and education campaign to elevate recognition of the value of urban trees as essential infrastructure. | PD, DPR, DPW | Project |
| 1.l | Amend the landscape standards in Rule or Code to require the use of native plants for screening or landscaping. | PD, DPW | Project |
| 1.m | Amend the Code to incentivize the establishment of threatened and endangered endemic plant species within their habitable ranges during development approvals. | PD, DPW | Code Amendment |
| 1.n | Review the Code and consider amendments to encourage site clustering of development in order to avoid critical environmental areas and assets. | PD | Project |

| | | | |
|---|---|---|---|
| 1.o | Develop and establish Open Space Network Overlay for natural landscape features, such as beaches and dunes, forests, streams, floodplains, wetlands, estuaries, or recharge areas that have the inherent capacity to avoid, minimize, or mitigate the impacts of climate change. | PD | Project |
| 1.p | Study, develop and establish Biosphere Reserve Buffer Zones, either separately or as an overlay district, to guide development within native forests through regulatory measures and economic incentives. | PD, DPW | Project |
| 1.q | Maintain a program for acquiring and/or restoring wetlands, estuaries, and anchialine pools. | PD, DPW, DLNR | Program |
| 1.r | Develop comprehensive programs and policies and provide resources for enhancing urban forestry canopy cover. | PD, DPW | Program |
| 1.s | Improve urban and community forest management, maintenance, and arboricultural practices. | PD, DPW, DRD | Program |
| 1.t | Increase funding and grants for urban and community forestry. | PD, DF, DRD | Program |
| 1.u | Support programs to prevent harmful invasive species from becoming established. | PD, DPW, DLNR | Program |
| 1.v | Partner with government, private and nonprofit agencies, communities, and other stakeholders to develop a program for the identification and protection of plant species of special status, including plants significant for cultural practitioners. | PD, DPW | Program |
| 1.w | Support seedbanks of native and endemic plant species, especially species that are threatened or endangered. | PD, DPW, DRD | Project |
| 1.x | Partner with community groups to apply for funding to restore native habitats including marine, wetland, shoreline, and native upland systems on County-owned or managed lands. | PD, DRD | Project |
| 1.y | Prioritize removal of invasive species during maintenance of County-owned or maintained properties. | PD, DPR, DPW | Project |
| 1.z | Assess and prioritize County-owned areas for restoration in collaboration with government, private and nonprofit agencies, communities, and other stakeholders. | DF, PD, DPW | Project |
| 1.aa | Review and update the exceptional tree code and inventory to support the protection of native species and habitats. | DPR, PD | Code Amendment |
| 2.a | Review and update the County grading and grubbing ordinances to ensure that they adequately address potential erosion and runoff problems. | DPW | Code Amendment |
| 2.b | Adopt appropriate measures and provide incentives to control point and non-point sources of pollution. | DPW | Project |
| 2.c | Identify and establish appropriate riparian buffer protection areas around streams, ponds, perennial flowing natural springs, and all springs and reservoirs serving as water supplies. | PD, DPW | Project |
| 2.d | Support research to identify and refine priority watershed areas meant to enhance groundwater recharge and improve surface water quantity and flows. | PD, DPW, DWS | Project |

| | | | |
|---|---|---|---|
| 2.e | Identify and establish appropriate wetland protection areas and regulations to mitigate impacts of development. | PD | Project |
| 2.f | Partner with and support land managers to improve infrastructure and grazing management practices for cattle and other livestock to promote soil and groundwater retention and mitigate fire risk. | PD, DRD | Interagency Coordination |
| 2.g | Amend the Special Management Area (SMA) to include wetlands, riparian areas, and adjacent buffer areas. | PD | Project |
| 2.h | Build community capacity and agency support for Community Conservation Areas (CCAs) as part of stewardship-based efforts. | PD, DRD | Program |
| 3.a | Contribute on a regular basis to State or Federal Geographic Information System (GIS) data stores and other programs for the collection and dissemination of basic data concerning natural, historic, or cultural resources. | PD, DIT, RDR | Program |
| 3.b | Create special (business) improvement districts to engage in environmental research, restoration and maintenance, natural resource management, climate change or sea level rise adaptation or other purposes to improve environmental conditions and provide community benefit. | PD, RDR, OSCER | Project |
| 4.a | Seek private-public partnerships to maintain and steward the preservation of sites, buildings, objects, and landscapes of significant cultural and historical importance. | PD, SHPD | Project |
| 4.b | Maintain Certified Local Government status and maximize funding opportunities. | PD, SHPD | Program |
| 4.c | Support the identification of Heritage Landscapes, Corridors, Areas, and Centers. | PD, SHPD | Project |
| 4.d | Support the development of multi-cultural centers. | PD, SHPD | Project |
| 4.e | Support historic district surveys for our urban centers. | PD, SHPD | Project |
| 4.f | Work with SHPD to establish a framework and database for Cultural Impact Assessments. | PD, SHPD | Interagency Coordination |
| 4.g | Continue the dialogue between State and County agencies to identify guidance to protect Native Hawaiian customary and traditional practices. | Various | Interagency Coordination |
| 4.h | Partner with government, private and nonprofit agencies, communities, and other stakeholders to develop design guidelines for designated communities containing significant historic buildings, sites, or landscapes. | PD, DPW, SHPD | Interagency Coordination |
| 4.i | Assess and prioritize County-owned lands for historic site restoration in collaboration with government, private and nonprofit agencies, communities, and other stakeholders. | PD, DPW, SHPD | Project |
| 4.j | Create and maintain a GIS overlay of historic districts. | PD, SHPD | Project |
| 4.k | Educate and encourage property owners, historical societies, preservation organizations, lineal descendants, and others with close connections to nominate structures and sites to the State and National Register of Historic Places. Encourage collaboration among interested entities. | PD, SHPD | Program |
| 4.l | Support property owners with the preservation of historic structures that are on the State and National Register of Historic Places. | PD, DPW, SHPD | Program |

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| 4.m | Provide real property tax incentives for historic properties, including commercial properties. | DF | Program |
| 4.n | Support the development of a multi-sector public education program regarding historic and cultural sites that target key partners such as the visitor industry, real estate agents, site developers, consultants, schools, youth groups, and civic organizations. | PD, SHPD | Program |
| 5.a | Prioritize maintaining the views at scenic overlooks with a frequently maintained vegetation management program which includes eradication of invasive species. Coordinate this work with a regular roadway vegetation management maintenance program. | PD, DPW | Program |
| 5.b | Develop and establish view plane criteria, rankings, and regulations to preserve and enhance views of scenic or prominent landscapes and/or corridors from specific locations and coastal aesthetics. | PD, DPW | Project |
| 5.c | Develop a process for reviewing and revising guidelines for designating Natural Beauty Sites. | PD, PONC, DPR | Project |
| 5.d | Establish a Scenic Resources Protection Program to identify, inventory, and protect areas of significant beauty. The program could include recommendations from the Scenic Resources Inventory and Mapping Project (2016). | PD, DPW | Program |
| 5.e | Utilize the Scenic Corridor Program for Ali'i Drive (Mamalahoa Bypass Highway) between Keauhou and Captain Cook, with limited access and without commercial development. | PD | Program |
| 5.f | Utilize the Scenic Corridor Program for Akoni Pule Highway between Kawaihae and Puakea, with limited access and without commercial development. | PD | Program |

## Table 54: Climate Change

| Action | | Agency | Type |
|---|---|---|---|
| 6.a | Increase transparency of government actions by creating a climate change dashboard and portal to track the implementation of climate action. | OSCER | Project |
| 6.b | Engage communities by incorporating place-based knowledge and qualitative data to guide implementation priorities and decision-making. | PD, OSCER | Program |
| 6.c | Promote funding opportunities for LMI communities to implement climate action, including interactive videos and workshops that meet communities where they are. | OSCER, DF | Project |
| 7.a | Develop and provide incentives for new development/redevelopment to pursue certification for "green" site planning, construction, and post-construction practices. | DPW, PD, OSCER | Project |
| 7.b | Adopt policies and strategies across all County departments to reduce GHGs and become more resilient to the impacts of climate change. | OSCER, DRD | Project |
| 7.c | Develop a County purchasing policy to prioritize products with low emissions over their lifecycle and resiliency to the impacts of climate change. | DF | Project |
| 7.d | Develop and implement incentives for energy-efficient or green design standards. | DPW | Project |

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| 7.e | Prioritize urban tree inventories for primary urban areas such as Downtown Hilo, Waimea, and Kailua-Kona. | DPR, PD | Project |
| 7.f | Develop procedures to include street trees as part of public capital improvement projects. | DPW | Project |
| 7.g | Develop energy benchmarking standards for County buildings. | DPW, DF | Project |
| 7.h | Develop and implement an electric vehicle charging plan with a station network map that identifies regional gaps in service. | DRD | Project |
| 7.i | Create a fleet transformation plan for each County department. | OSCER, DF | Project |
| 7.j | Partner with government, private and nonprofit agencies, communities, and other stakeholders to increase community-wide awareness and accessibility regarding reducing transportation costs and emissions (e.g., the impact of keeping tires inflated on the efficiency of cars) through education awareness programs. | OSCER, DPW | Interagency Coordination |
| 7.k | Develop and implement a streamlined framework to report annual energy use of all County facilities and all new County vehicle purchases. | DPW, DF | Project |
| 8.a | Conduct detailed vulnerability mapping of existing and planned infrastructure. | Various | Project |
| 8.b | Support and partner with government, private and nonprofit agencies, communities, and other stakeholders on research for adaptive policies and technology that increase resilience. | OSCER | Interagency Coordination |
| 8.c | Incorporate appropriate green building or climate-resilient specifications into competitive bids. | DF, DPW | Program |
| 8.d | Adopt a land acquisition program with potential leaseback options for the purchase of hazard-prone locations or those with beneficial attributes for climate adaptation and mitigation. | DF | Program |
| 8.e | Collaborate with government, private and nonprofit agencies, and other stakeholders to implement environmentally beneficial upgrades for wastewater, irrigation, and/or landscaping, including sea level rise, storm, and other climate change considerations. | DEM, DPW, DPR | Interagency Coordination |

## Table 55: Land Use

| Action | | Agency | Type |
|---|---|---|---|
| 9.a | Develop a process for County-initiated State land use boundary reclassification to best align State Land Use with County long-range plans. | PD, OPSD | Project |
| 9.b | Create village plans for unique urban areas that include considerations for urban design, aesthetic quality, and the protection of amenities in adjacent areas through landscaping, open space, and buffer areas. | PD | Project |
| 9.c | Develop subdivision standards that make a distinction between agricultural, rural, and urban land uses. | PD | Project |
| 9.d | Define the types of open space that are sought to be protected and establish standards to be applied to ensure its protection. | PD, DPR | Project |
| 9.e | Conduct a review and re-evaluation of the real property tax structure to simplify and assure compatibility with land use goals and policies. | PD, DF | Project |

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| 9.f | Study the feasibility, issues, and opportunities related to the development of a TDR program to strategically preserve open space and achieve density to remain consistent with the land use pattern in accordance with the General Plan Land Use Maps. | PD, DPW, DF | Project |
| 10.a | Amend the Zoning Code to create a category for lands that should mostly be kept in a natural state, but that may not be in the Conservation District, such as certain important view planes, buffer areas, and very steep slopes. The zoning category should include reasonable land uses. | PD | Code Amendment |
| 10.b | Amend the Zoning Code and Subdivision Code to allow CPD's to be applied to all zoning districts with appropriate building site standards. | PD | Code Amendment |
| 10.c | Collaborate with the State Office of Planning and Sustainable Development (OPSD) to create criteria to help identify and protect Native Hawaiian customary and traditional practices. | PD, OPSD | Interagency Coordination |
| 11.a | Collaborate with the SHPD to create clear guidance to be used when reviewing a project related to the identification of cultural sites and practices. | PD, SHPD | Interagency Coordination |
| 11.b | Implement efficiencies to make development decisions predictable, fair, and cost-effective. | PD | Program |
| 11.c | Evaluate concurrency requirements that would impose reasonable and fair infrastructure concurrency requirements on all developments. | PD | Program |
| 11.d | Amend the Zoning Code to allow for PUD to become administrative permits and subject to the approval of the Planning Director. | PD | Code Amendment |
| 11.e | Provide flexibility within the Zoning Code to accommodate emerging new industries through Use Permits or allow new uses that do not conflict with the purpose and intent of the existing zoned district. | PD | Code Amendment |
| 11.f | Update traffic impact analysis requirements to include alternative evaluations to the level of service outcomes, such as vehicle miles traveled and alternative transportation metrics. | PD, DPW | Project |
| 12.a | Update the Building Code to maintain cost-effective standards to resist hazards and reduce carbon footprint. | DPW | Code Amendment |
| 12.b | Adopt natural hazard overlay zones and set appropriate conditions for land use, siting, and design within high-risk hazard zones. | PD | Project |
| 12.c | Amend the Zoning Code to establish building setbacks for coastal and inland cliffs. | PD | Code Amendment |
| 12.d | Collaborate with the Federal Emergency Management Agency (FEMA) to regularly update flood studies and refine flood zone designations. | PD, DPW, CD | Interagency Coordination |
| 12.e | Review and amend land use policies to reduce risk from hazards including but not limited to floodplains, high surf, tsunami, landslides, erosion, wildfires, and high-risk volcanic hazard areas. | PD, DPW | Code Amendment |
| 12.f | Study the feasibility, issues, and opportunities of a TDR program to incentivize development away from high-risk hazard areas. | PD, DPW | Project |
| 12.g | Amend the Zoning Code to include a science-based shoreline setback to address climate change and sea level rise. | PD | Code Amendment |
| 13.a | Incorporate innovations such as "mixed-use zones" into the Zoning Code. | PD | Code Amendment |

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| 13.b | Incorporate flexibility in codes and ordinances to achieve a diversity of socio-economic housing mix and to permit an aesthetic balance between residential structures and open spaces. | PD, OHCD | Code Amendment |
| 13.c | Amend the Subdivision Code to ensure block sizes are based on land use and the character of the area. | PD | Code Amendment |
| 13.d | Initiate rezonings that promote infill to ensure connectivity and provide mixed-use opportunities to make the area more pedestrian-oriented. | PD | Project |
| 13.e | Amend Zoning Code to:<br>i. Establish a TOD overlay zone project district with a minimum size of 15 acres.<br>ii. Create a TND overlay zone for existing zoned lands within identified residential and commercial zoning districts.<br>iii. Allow for residential uses in ML and MCX zoning districts.<br>iv. Support innovative uses of alternative energy, agriculture, aquaculture, and others, in MCX zoning districts.<br>v. Clearly distinguish between general industrial and service industrial types.<br>vi. Establish urban open space standards.<br>Create Industrial Project Districts and Innovation Centers. | PD | Code Amendment |
| 14.a | Amend the Zoning Code definition and requirements for Lodges and reconcile similarities and inconsistencies with the special permit provisions for Retreats. Clearly articulate in the Code the zoning districts appropriate for Lodges. | PD | Code Amendment |
| 14.b | Amend the zoning districts currently listed as Family Agricultural District (FA) and the Residential and Agricultural Districts (RA) to be consistent with the Rural designation and to allow for home occupations that do not negatively impact rural character. | PD | Code Amendment |
| 14.c | Amend the Zoning Code to allow telecommuting and home-based businesses that rely on the internet as permitted accessory uses to residential uses when operated in compliance with cottage industry performance standards. | PD | Code Amendment |
| 14.d | Amend the Zoning Code and Subdivision Code to establish Clustered Rural Subdivision PUD. | PD | Code Amendment |
| 15.a | Amend the Zoning Code to develop standards for permitting certified incubators or commercial kitchens in Rural or Agricultural districts. | PD | Code Amendment |
| 15.b | Conduct a study to review a maximum developable area consideration for properties designated as Productive Agricultural lands. | PD | Project |
| 15.c | Create and adopt a County Agricultural Tourism program. | DRD | Program |
| 15.d | Amend the County Code to allow agriculture worker housing to be permitted where the employee's primary occupation is working on a specific farm but where the housing and the farm are not on the same parcel. | PD | Code Amendment |
| 15.e | Update the Real Property Tax Code for agricultural land uses that result in actual production or other public benefits, such as native forestry and the ecosystem services that result from well-managed rangelands. | PD, DF | Code Amendment |
| 15.f | Amend the Zoning Code to require Plan Approval for commercial open area recreational uses in the Agricultural District. | PD | Code Amendment |

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| 15.g | Evaluate the Zoning Code relating to livestock production such as piggeries, apiaries, and pen feeding based on modern practices and potential impacts on adjacent uses. | PD | Code Amendment |
| 15.h | Develop standards and guidelines for buffer areas located adjacent to agricultural lands. | PD | Project |
| 15.i | Develop a program and incentives, including proposed resources (e.g., grants, loans, technical assistance, education) that support small-scale farmers, the lease of public lands, and learn opportunities to become effective stewards of the land. | PD, DRD, DF | Program |
| 15.j | Collaborate with USDA and the State to enable farmers to bring local meat to local markets. | PD | Interagency Collaboration |

## Table 56: Transportation Access and Mobility

| Action | | Agency | Type |
|---|---|---|---|
| 16.a | Develop a comprehensive, island-wide multimodal transportation plan that identifies the location and operation of automobile, mass transit, bicycle, and pedestrian systems, in coordination with appropriate federal and state agencies. | PD, DPW | Project |
| 16.b | Develop a planning and financing strategy to fund timely and routine maintenance of County transportation assets that secures availability and reliability, independent of CIP activities. | DPW, DF | Program |
| 16.c | Amend the County Code, Chapters 22, 23, and 24 to increase active transportation and accommodate emerging micro-mobility solutions. | PD, DPW | Code Amendment |
| 16.d | Establish inter-departmental teams to review significant development projects to evaluate integrated infrastructure requirements, multimodal options, and private-public collaboration to ensure implementation. | Various | Interagency Coordination |
| 17.a | Develop and adopt a program to establish public access to historic and modern active living corridors and facilities that provide an island-wide route and connect to major destinations. | PD, DPW | Program |
| 17.b | Explore the potential of multimodal trails to serve as evacuation routes during emergencies. | PD, DPW, CD | Project |
| 17.c | Develop standards for active living corridors to assist when reviewing discretionary permits. | PD | Program |
| 17.d | Establish a public-private partnership, including financing strategies, for maintaining public access trails. | PD, FD | Program |
| 18.a | Develop marketing and public awareness campaign of various services in collaboration with the airports, cruise ship terminals, and educational facilities. | PD, DPW | Program |
| 18.b | Identify, preserve, and/or acquire corridors for future transit use, for high traffic areas such as the Pahoa-Kea‘au-Hilo route, including but not limited to multimodal corridors and require new development to provide rights-of-way (ROWs) to accommodate transit services. | PD, MTA | Project |
| 19.a | Continue to adopt the County Street design manual as the County’s complete street design program/policy. | DPW | Program |

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| 19.b | Amend the County Code to incorporate complete street design. | PD, DPW | Code Amendment |
| 19.c | Develop an active transportation plan to guide where complete street improvements should be focused and replace previous pedestrian and bikeway plans. | PD, DPW | Project |
| 19.d | Identify all roles for interdepartmental collaboration in delivering a truly multimodal transportation system. | Various | Interagency Coordination |
| 19.e | Update traffic impact analysis requirements to include alternative evaluations to the level of service outcomes, such as vehicle miles traveled and alternative transportation metrics. | PD, DPW | Project |
| 19.f | Increase community engagement and education around active transportation and alternative transportation options | PD, DPW | Program |
| 20.a | Create and adopt a performance measure program/policy. | DPW | Program |
| 20.b | Amend the County Code to promote connectivity and discourage neighborhoods with only one inlet or outlet. | PD, DPW | Code Amendment |
| 20.c | Establish a corridor planning/management program that is data- driven and uses performance-based targets and outcomes. | PD, DPW, DWS, DEM | Program |
| 20.d | Designate new connectivity points for local traffic roads and create redundant routes for existing highways, utilizing existing routes where possible, that can also serve as emergency and evacuation routes. | PD, DPW | Project |
| 20.e | Adopt a Complete Streets ordinance. | DPW | Code Amendment |
| 20.f | Explore options to incentivize roadway connectivity. | PD, DPW | Program |
| 21.a | Develop green infrastructure standards including right-of-way (ROW) landscaping, low-impact development (LID), and drainage. | DPW | Project |
| 21.b | Develop an Adopt-a-Street program. | DPW | Program |
| 21.c | Pursue funding, County capacity, and responsibility to maintain green infrastructure and native landscaping in the County Rights-of-Ways. | DPW, DF | Program |
| 22.a | Amend the County Code to incorporate Vision Zero safety principles and Complete Street design principles. | DPW, PD | Code Amendment |
| 22.b | Develop educational programs promoting traffic safety. | DPW, PD | Program |
| 23.a | Create an asset management program. | FD | Program |
| 23.b | Continue the bridge inspection program and expand rehab or replacement to include active transportation accommodations. | DPW | Program |
| 24.a | Create a strategic improvement plan, including mapping, for County owned and/or managed boat harbors and develop an island-wide needs assessment to better serve regional gaps in ocean accesses. | DPW, DPR | Project |
| 24.b | Ensure collaboration with State agencies to offer a variety of transportation options at airports and harbors. | DPW | Interagency Coordination |

## Table 57: Public Utilities

| Action | | Agency | Type |
|---|---|---|---|
| 25.a | Develop and adopt an Impact Fees Ordinance to aide in the expansion of public utilities. | DF | Program |
| 26.a | In collaboration with the National Oceanic and Atmospheric Administration (NOAA), conduct further research on localized rainfall modeling to accurately assess future precipitation trends. | DWS | Project |
| 26.b | Expand water conservation programs, primarily aimed at reducing demand, such as leak detection and rebates for low flow. | DWS | Project |
| 26.c | Evaluate and amend the fee schedule for water use to take into account high water use and aquifer recharge projections. Use the funds generated to pay for conservation measures and infrastructure. | DWS | Project |
| 26.d | Improve county water conservation practices to lead by example. | DWS | Program |
| 26.e | Maintain the water master plan to consider water yield, present and future demand, alternative sources of water, guidelines, and policies for the issuing of water commitments. | DWS | Program |
| 26.f | Promote the use of groundwater sources to meet DOH water quality standards. | DWS | Project |
| 26.g | Seek state and federal funds to assist in financing projects to bring the County into compliance with the Safe Drinking Water Act. | DWS | Project |
| 26.h | Explore the feasibility of incentive methods such as property tax deductions, conservation easements, or transfer of development rights to protect the defined zone of influence of existing or proposed public and private wells. | DWS, DF | Project |
| 26.i | Investigate alternative financing options for expanding water systems to support infill growth consistent with the County's desired land use development pattern. | DWS | Project |
| 26.j | Collaborate with government, private and nonprofit agencies, communities, and other stakeholders to develop, improve, and expand agricultural water systems in appropriate areas on the island. | DWS | Interagency Coordination |
| 26.k | Continue to participate in the United States Geological Survey (USGS) exploratory well drilling program. | DWS | Program |
| 26.l | Expand programs to provide agricultural irrigation water. | DRD, DWS | Program |
| 26.m | Develop water conservation and stormwater management guidelines for commercial, industrial, and residential properties. | DPW | Project |
| 26.n | Codify the administrative structure needed to develop a water resource program and interdepartmental collaboration framework. | DWS | Project |
| 26.o | Collaborate with government, private and nonprofit agencies, communities, and other stakeholders to develop and facilitate community partnerships between upstream and downstream communities. | DWS | Interagency Coordination |
| 26.p | Develop public-private partnerships to leverage funding sources. | DWS | Program |
| 27.a | Prioritize areas where on-site wastewater treatment should be converted to sewer and establish financial tools such as improvement districts to aid in implementation. | DEM | Program |

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| 27.b | Prioritize areas where wastewater treatment facilities are necessary to facilitate future growth and utilize financing tools such as community facilities district (CFD) or tax increment financing (TIF) to aid in implementation. | DEM, DF | Program |
| 27.c | Review, assess, and amend codes relating to sewer connection requirements to ensure wastewater issues and requirements are addressed in a consistent, sustainable, and socially equitable way. | DEM | Code Amendment |
| 27.d | Develop a wastewater master plan with a clear prioritization method for wastewater system expansions and improvements based on criteria involving land use, projected growth, social equity, and environmental factors. | DEM | Project |
| 27.e | Develop plans to improve, connect, or develop new wastewater systems in unsewered urban coastal communities. | DEM | Project |
| 27.f | Perform a study to assess individual wastewater systems (IWS) in unsewered urban growth areas to assess the rate of failures/negative impacts, determine rates of large capacity cesspools still in use, and develop plans to improve, connect, or develop new wastewater systems for unsewered urban communities. | DEM | Project |
| 27.g | Proactively seek opportunities for public-private partnerships for wastewater collection and treatment development. | DEM | Project |
| 27.h | Facilitate the use of infrastructure improvement districts and other types of localized funding mechanisms to fund improvements. | DEM, DF | Project |
| 27.i | Streamline the sewer connection loan program. | DEM, DF | Project |
| 27.j | Develop wastewater cost valuation in service fees (similar to the water model fee structure). | DEM | Project |
| 27.k | Develop a criteria-based infrastructure prioritization tool to develop new or expand existing municipal wastewater systems. Base these priority areas on designated urban growth boundaries, urban zoning and density, population trends and anticipated growth, health/safety, and environmental factors. | DEM | Project |
| 27.l | Implement innovative wastewater systems at a cost-effective scale for small communities. | DEM | Project |
| 27.m | Amend the County Code, Section 21-26-1(a) requiring “all sewer extensions shall be approved by resolution of the County council” to read, “all sewer extensions outside of Urban Growth Areas shall be approved by resolution of the County council.” | DEM | Code Amendment |
| 27.n | In collaboration with the DOH Wastewater Branch, reevaluate and clarify the requirements set forth in section HAR 11-62-31.1(a) (1) (B) and amend County sewer requirements accordingly to accommodate needed housing units. | DEM, DOH | Interagency Coordination / Code Amendment |
| 27.o | Collaborate with the DOH to advance progressive wastewater technology and regulations. | DEM, DOH | Interagency Coordination |
| 27.p | In collaboration with the Department of Agriculture, develop a water resource strategy for efficient agricultural water use and reuse. | DEM, DOA | Project |

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| 27.q | Install non-potable systems, such as reclaimed wastewater, brackish groundwater, and untreated surface water in proximity to priority UGAs for non-potable water uses. | DEM, DWS, DPW | Project |
| 27.r | Conduct supply and demand studies to determine a level of service for non-potable water needs. | DEM, DWS | Project |
| 27.s | Facilitate greywater reuse systems through code amendments and through partnering with DOH for regulatory changes and incentives. | DEM, DOH | Code Amendment |
| 28.a | Adopt LID practices to address small-scale stormwater management. | DPW | Project |
| 28.b | Conduct a feasibility study to create a County Stormwater Utility before the county reaches MS4 requirements. | DPW | Project |
| 28.c | Update the DPW Storm Drainage Standards to reflect current data and to incorporate strategies and standards of green infrastructure and low-impact development. | DPW | Project |
| 28.d | Develop drainage master plans from a watershed perspective that considers nonstructural alternatives, minimizes channelization, protects wetlands that serve drainage functions, coordinates the regulation of construction and agricultural operation, and encourages the establishment of floodplains as public greenways. | DPW | Project |
| 28.e | Explore new methods of funding for the provision of adequate drainage systems and reduce potential flood inundation areas. | DPW, DF | Project |
| 28.f | Create a green infrastructure dedication standard. | DPW | Project |
| 28.g | Create a pilot study for a watershed-based drainage study. | DPW | Project |
| 28.h | Develop a monitoring and evaluation program for impervious surface coverage. | PD, DPW | Program |
| 28.i | Promote and provide incentives for participation in the Soil and Water Conservation Districts' conservation programs for developments on agricultural and conservation lands. | PD, DPW | Program |
| 28.j | Establish guidelines for Adopt-a-Corridor Program for flood corridors. | DPW | Project |
| 28.k | Evaluate ownership and/or maintenance responsibility for flood corridors that serve multiple regional benefits. | DPW | Project |
| 28.l | Identify County parks and recreation, rights-of-way, and other County owned sites for green infrastructure demonstration projects. | DPW, DPR | Project |
| 29.a | Partner with government, private and nonprofit agencies, communities, and other stakeholders for the research and development of alternative/renewable energy resources. | DRD | Interagency Coordination |
| 29.b | Develop standards and principles for reviewing PUC applications. | DRD | Project |
| 29.c | Support Net-Metering (NEM), Feed-in-Tariff (FIT), and other programs designed to lower costs and diversify power sources. | DRD | Program |
| 29.d | Conduct a feasibility report for using renewable sources to generate power for public utility infrastructure. | DRD | Project |
| 30.a | Support refurbishment, upcycling, recycling, and reuse of computers and other devices. | DRD, DEM | Program |

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| 30.b | Develop standards for the siting and construction of wireless telecommunication facilities. | PD | Project |
| 30.c | Collaborate with government, private and nonprofit agencies, communities, and other stakeholders to create and maintain an inventory and mapping of communications infrastructure, including but not limited to wireline, wireless, cell tower locations, and known proposed facilities. | DRD | Interagency Coordination |
| 30.d | Collaborate with government, private and nonprofit agencies, communities and other stakeholders to seek funding , identify and remove regulatory barriers to complete and improve the island's fiber optic loop in an environmentally and economically appropriate manner. | DRD | Interagency Coordination |
| 30.e | Advocate for provider and consumer incentives to address last-mile installation and/or service plans. | DRD | Program |
| 30.f | Collaborate with government, private and nonprofit agencies, communities, and other stakeholders to progressively improve broadband speeds to keep pace with technological advances. | DRD | Interagency Coordination |
| 30.g | Collaborate with broadband service providers to ensure all users have efficient service. | DRD | Program |
| 30.h | Collaborate with the telecommunications industry to increase the availability of emergency telephones throughout the island. | DRD | Program |
| 30.i | Pursue partnerships and funding for broadband initiatives and deployments. | DRD | Program |
| 30.j | Support the coordination of infrastructure projects between the public and private sectors to create areas for the deployment of broadband zones. | DRD | Interagency Coordination |
| 30.k | Seek federal and other opportunities for the funding of broadband infrastructure. | DRD | Program |
| 30.l | Support the State to develop a broadband dashboard to track progress and gaps that will inform decision-making in economic development on Hawai'i Island. | DRD | Project |
| 30.m | Foster public-private partnerships to support the development and expansion of broadband infrastructure, including community networks. | DRD | Project |

## Table 58: Public Facilities and Services

| **Action** | | **Agency** | **Type** |
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| 31.a | Create an asset management program. | DF | Project |
| 31.b | Continue a facility inspection program. | Various | Program |
| 31.c | Develop and adopt an Impact Fees Ordinance to aide in the expansion of County services and facilities. | DF, PD, DPW | Code Amendment |
| 32.a | Support the development of private common access-distribution systems of private catchment water for firefighting purposes in rural catchment communities. | HFD | Program |
| 32.b | Prioritize budgets for technology improvements for emergency services; including hazardous material service, 4x4 vehicles, and other equipment or software to improve emergency response times. | HFD, HPD, DF | Program |

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| 32.c | Review county lighting and landscaping ordinances to implement CPTED. | HPD | Code Amendment |
| 32.d | Develop a public safety audit checklist and conduct urban neighborhood and downtown safety walks to identify potential crime spots or unsafe areas. | HPD | Program |
| 32.e | Educate the public regarding disaster preparedness and response, especially proper responses for sudden-impact hazards. | CD | Program |
| 32.f | Partner with government, private and nonprofit agencies, and the involved landowners to support wildfire control and reclamation. | HFD | Program |
| 32.g | Define and map critical facilities, necessary for community disaster response and recovery that are too important to fail. | CD | Project |
| 32.h | Monitor and address known hazards along transportation routes. | CD, DPW | Project |
| 32.i | Partner with the Hawai'i Emergency Management Agency to regularly review and address warning siren coverage. | CD | Interagency Coordination |
| 32.j | Install emergency phones along roadways in isolated areas of lower cellular connectivity. | DPW, CD | Project |
| 32.k | Support the use of the Best Available Refuge Areas within existing buildings. | CD, DPW | Program |
| 32.l | Provide technical assistance to communities developing emergency response and evacuation plans. | CD | Program |
| 32.m | Maintain and update the public education and communications program regarding disaster preparedness and response, especially proper responses for sudden impact hazards (e.g., CERT, resilience hubs, and first aid training). | CD | Program |
| 32.n | Develop and maintain a Post-Disaster Redevelopment Plan which specifies the following:<br>i. Roles and responsibilities<br>ii. Procedures for implementing programs for immediate clean-up, repair, design, and replacement<br>iii. Long-term rebuilding and redevelopment<br>iv. Procedures for the identification of damaged infrastructure and consideration of alternatives to its repair or replacement<br>v. Evaluation of climate impacts | DPW, PD, CD | Program |
| 32.o | Seek funding and support continued scientific research relating to hazards (e.g., research on erosion rates, slumping rates, slope stability studies, sea level rise rates, tsunami inundation mapping, coastal stream flood mapping, fire and wildfire, etc.). | CD, PD, OSCER | Project |
| 32.p | Prepare and implement wildfire protection and prevention plans. | HFD | Program |
| 32.q | Develop community-specific hazard mitigation plans. | CD | Program |
| 32.r | Develop a standard for requiring an emergency response plan. | CD | Program |
| 32.s | Amend the County Code, Chapter 25 to require emergency and hazard information to be prominently displayed in all transient accommodations. This information should include information regarding the monthly Civil Defense siren tests, evacuation routes, and directives to reach appropriate services and agencies. | PD, CD | Code Amendment |

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| 32.t | Adopt incentives, such as tax deductions, to encourage retrofitting of existing structures for resilience against earthquakes, hurricanes, tsunamis, floods, and fire and wildfire. | HFD, CD, DPW, DF | Program |
| 33.a | Evaluate and amend the County Code to integrate strategies to maximize landfill diversion and handle materials:<br>i. Develop a Source Separation Ordinance<br>ii. Prohibit organic material (green waste) disposal in the landfill<br>iii. Construction & Demolition (C & D) Recycling Ordinance<br>iv. Consider Take-back Ordinances (for items that are difficult to recycle or compost)<br>v. Require recycling at all County offices, facilities, and base yards.<br>vi. Continue the transition to eliminate the sale or use of polystyrene foam (Styrofoam) and single-use plastic food containers and other single-use plastics. | DEM, DPW | Program |
| 33.b | Develop programs to require advance disposal fees for specific products such as new electronics and new vehicles purchased in or shipped to Hawai‘i. The fees from this should be used to fund resource management and disposal costs. | DEM | Programs |
| 33.c | Conduct pilot studies to facilitate waste recovery and increase diversion rates. Recommended pilot programs include curbside waste, recycling, and resource pick-up in priority urban areas | DEM | Programs |
| 33.d | Partner and coordinate to facilitate the private use of large recycling roll-off bins in rural areas. | DEM | Program |
| 33.e | Reevaluate and initiate code changes to the fee structure for solid waste for residential and commercial uses. | DEM | Code Amendment |
| 33.f | Facilitate University of Hawai‘i and/or Forest Service to complete necessary studies on local materials for use in construction. | DRD, DPW | Program |
| 33.g | Implement an education and social marketing program to educate the public and business community about landfill diversion initiatives, preventing and reporting litter and illegal dumping, and other responsible waste management opportunities. | DEM | Program |
| 33.h | Develop a county clean-up program for special waste areas, such as junkyards, to ensure the proactive removal of materials that pose environmental and public health hazards. | DEM | Program |
| 33.i | Develop and promote take-back programs for appliances and other difficult to dispose of materials. | DEM | Program |
| 33.j | Support expansions to the organic material (green waste) recycling program to include drop-off and pick-up locations at all rural transfer stations. | DEM | Program |
| 33.k | Adopt EPA’s Comprehensive Procurement Guideline program as a model for purchasing products that use materials recovered through recycling. | DEM | Program |
| 34.a | Implement a Safe Routes to School (SR2S) program for all schools. | DPW | Program |
| 34.b | Ensure County makes necessary improvements to co-located facilities, such as gymnasiums, parks, and playgrounds. | P&R | Program |

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| 35.a | Provide funding for planning and acquisition, if necessary, of key corridor segments after corridor-zone plans are adopted. | DF, PD, DPW, DEM, DWS | Program |
| 35.b | Revise the park dedication code requiring subdivisions to provide land area for park and recreational use or contribute to a maintenance fund in lieu of an impact fees ordinance. | DPR, PD | Code Amendment |
| 35.c | Partner with government, private and nonprofit agencies, and other stakeholders to increase funding sources for park, recreation, and trail development and maintenance. | DPR, PD, DPW | Program |
| 35.d | Partner with government, private and nonprofit agencies, and other stakeholders to initiate joint agreements for funding, management, and maintenance for recreation, shared use spaces, hardened shelters, and public access priorities. | DPR, PD, DPW | Program |
| 35.e | Support the U.S. Department of Interior, National Park Service's expansion plans for the Hawai'i Volcanoes, Pu'ukoholā National Historic Park, Pu'uhonua O Hōnaunau National Historic Parks, Ala Kahakai National Historic Trail, and Kaloko-Honokōhau National Historic Park. | PD, DPR | Interagency Coordination |
| 35.f | Update the County of Hawai'i Recreation Plan to reflect newly identified recreational priorities. | DPR | Project |
| 35.g | Encourage the adoption of State programs for State lands consistent with the General Plan. | DLNR, DPR | Program |
| 35.h | Develop a recreation information dissemination system for the public's use. | DPR | Program |
| 35.i | Develop best management practices for the development and maintenance of golf courses in collaboration with government, private and nonprofit agencies, and other stakeholders. | DPR, PD | Program |
| 35.j | Develop local citizen leadership and participation in recreation planning, maintenance, and programming. | DPR | Program |
| 35.k | Maintain an on-going program of identification, designation, and acquisition of areas with existing or potential recreational resources, such as land with sandy beaches and other prime areas for shoreline recreation in collaboration with government, private and nonprofit agencies, and other stakeholders. | DPR, PONC, PD | Program |
| 35.l | Perform a review and audit of the inventory resulting from the subdivision requirements within Code,(reservation for parks, playgrounds, and public building sites). | PD, DPR | Code Amendment |
| 35.m | Amend Code to ensure that land area is not only set aside for recreational or public use but that there are funds or a funding mechanism to develop the land for its intended purpose. | PD, DPR, DF | Code Amendment |
| 35.n | Enter into partnership agreements with the State and private groups (e.g., Friends of the Park) to make improvements and assist in the maintenance of essential but inadequately maintained parks | DPR, DLNR | Program |
| 35.o | Expand and map Friends of the Park programs to manage and improve County parks and facilities. | DPR | Program |
| 35.p | Support hunting and fishing activities where authorized on public and private property. | DPR, PD | Program |

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| 35.q | Identify shoreline areas suitable for coastal access points, including boat launches and small boat harbors. | PD | Project |
| 35.r | Develop and implement a cemeteries master plan for the siting of future cemeteries. | DPR | Project |
| 35.s | Analyze under-represented open recreation and healthy living activities to be included in Park Standards. | DPR, PD | Program |
| 35.t | Create new or enhance sports facilities to encourage and attract regional tournaments to our island. | DPR | Project |
| 35.u | Implement interpretive signage through collaboration with community groups at appropriate locations. | DPR, PD | Program |
| 35.v | Conduct Park facilities condition assessments and keep the County of Hawai‘i Recreation Plan updated to reflect newly identified recreational priorities. The updated Recreation Plan should develop a strategic management plan for upgrading facilities and establish a level of service standards for parks. | DPR | Project |
| 35.w | Plan, manage, and maintain parks to ensure that the quality of recreation areas does not diminish with heavy usage. | DPR | Project |
| 35.x | Develop facilities and safe pathway systems for walking, jogging, and biking activities. | DPR, DPW, PD | Project |
| 35.y | Amend the Code to better address park and recreation issues in the following ways:<br>i. Amend subdivision code to be consistent with Dedication of Land code (Ch. 8) Code in providing land area for park and recreational use or pay a fee in lieu thereof.<br>ii. Develop and adopt an Impact Fees Ordinance<br>iii. Amend Dedication of Land code to include “net useable acreage.” | PD, DPR | Code Amendment |
| 35.z | Develop a center/complex for major cultural, educational, and recreational activities in underserved population centers, such as Kona. | DPR, PD | Program |
| 35.aa | Develop facilities and safe pathway systems for multimodal use such as walking, jogging, and biking activities. | DPR, DPW, PD | Project |
| 35.bb | Develop walking paths around existing ballparks and other park grounds, as feasible. These walking paths should be level footpaths that meet accessibility requirements whenever possible. | DPR | Project |
| 35.cc | Expand active open recreational opportunities at the Pana‘ewa Rainforest Zoo and Equestrian Center properties such as bike/walking trails, horse trails, dog-friendly trails, and other outdoor recreation that would complement the Pana‘ewa complex. | DPR | Project |
| 36.a | Establish an Aging and Disability Resource Center in Kailua-Kona. | OA | Project |
| 36.b | Develop a medical center TOD master plan and rezone it as a Regional Center TOD. | PD | Project |
| 36.c | Develop public showers and restroom facilities in strategic locations to serve the homeless and meet public sanitation needs. | OHCD, DPR, DPW | Project |
| 36.d | Collaborate with government, private and nonprofit agencies, communities, and other stakeholders to establish a One-Stop Community | OHCD, DRD | Interagency Coordination |

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| | Resource Center to serve as a point of community access for information and referral for health, education, and social services. | | |
| 36.e | Expand the use of mobile health centers and services (e.g., screening vision, and dental) to rotate through the rural communities regularly. | OHCD, DRD | Interagency Coordination |
| 36.f | Partner with government, private and nonprofit agencies, communities, and other stakeholders to develop a consolidated services facility plan for the victim and offender treatment, counseling, and other rehabilitation services (and other social services) in major urban centers (Hilo, Kailua-Kona, Waimea). | OPA, OHCD | Interagency Coordination |
| 36.g | Support the distribution of telehealth support services, particularly to unserved and underserved communities. | OA, DRD, OPA | Interagency Coordination |
| 36.h | Amend County zoning and building codes as necessary to accommodate home and community-based care elderly care, elderly care, and care for those with disabilities. | PD | Code Amendment |
| 36.i | Amend the County Code to include land uses for substance abuse, mental health, and medical rehabilitative facilities and determine appropriate criteria for siting in communities. | PD | Code Amendment |
| 36.j | Amend the County Code to designate a lead agency for coordinating and responding to outbreaks of life-threatening, highly communicable diseases pursuant to the DOH direction. | CD | Code Amendment |

## Table 59: Housing for All

| **Action** | | **Agency** | **Type** |
|---|---|---|---|
| 37.a | Establish interdepartmental procedures to collaboratively Identify, prioritize and build infrastructure that supports housing in or near mixed-use areas and transit centers in urban areas. | OHCD, DPW, PD, DWS, DEM, DPR | Interagency Coordination |
| 37.b | Review the State housing inventory every 5 years and conduct scenario modeling to identify existing housing types, housing needs, and land use and building code updates that will provide for diversified housing, a mix of development types, and efficient and alternative construction methods in urban areas. | OHCD | Project |
| 37.c | Assess and amend the land use and building regulations and explore fiscal opportunities to support universal design principles and ADA accessibility for more physically accessible housing. | DPW, PD | Code Amendment |
| 37.d | Advocate for the State to provide student, faculty, and staff housing around State education facilities and established urban centers with transit. | DOE, OHCD | Interagency Coordination |
| 37.e | Advocate for the State to provide staff housing around State health care facilities and established urban centers with transit. | DOH, OHCD | Interagency Coordination |
| 37.f | Initiate collaboration and learning opportunities among communities, nonprofits, and housing developers as it relates to housing and community development projects. | OHCD, PD, DRD | Program |
| 37.g | Amend the zoning and building regulations to allow affordability of various housing types, particularly the “missing middle” in urban areas. | DPW, PD | Code Amendments |

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| 37.h | Develop and implement various incentives to facilitate smaller house designs or multi-family housing options such as expedited permitting, fee waivers, and tax incentives. | DPW | Code Amendments |
| 38.a | Perform existing housing inventory data analysis to identify structural conditions and needs for rehabilitation or demolition. | OHCD | Program |
| 38.b | Review and amend the zoning and building regulations to support the adaptive reuse of non-residential spaces for residential housing units. | DPW, PD | Code Amendments |
| 38.c | Amend building regulations to allow for as-built permits and new renovation permits for less than 50 percent of an existing structure to conform with the building code of the year the main structure was permitted, excluding electrical and other critical life safety codes. | DPW | Code Amendments |
| 38.d | Create, aid, and encourage programs to maintain and rehabilitate the existing housing inventory, including consideration for self-help programs. | OHCD | Program |
| 38.e | Perform ongoing analysis of available housing assistance programs for public and private stakeholders. | OHCD | Program |
| 38.f | Develop and maintain an outreach program to disseminate information and educate stakeholders about housing assistance programs. | OHCD | Program |
| 38.g | Amend the Real Property Tax Code to incentivize long term occupied housing. | FD | Code Amendment |
| 39.a | Review and amend zoning and building codes to allow for innovative housing solutions for the homeless such as permanent supportive housing, transitional housing/camps, micro-housing communities, emergency, and temporary shelters. | DPW, PD | Code Amendment |
| 39.b | Amend the housing code to require and maintain the long-term affordability of affordable housing developments. | OHCD | Code Amendment |
| 39.c | Amend land use and building regulations to reduce costs and streamline the processing of affordable housing applications and facilitate concurrent applications when possible. | DPW, PD | Code Amendment |
| 39.d | Revise financial mechanisms and property tax provisions to allow for creative finance solutions to incentivize new construction and rehabilitation of affordable housing. | OHCD, DF | Program |
| 39.e | Form an Affordable Housing Advisory Committee to complete an island-wide Affordable Housing Strategic Plan and that prioritizes home ownership for local families to build equity | OHCD | Program |
| 39.f | Establish an internal County housing working group to include OHCD, Planning, DPW, DWS, DEM, Finance, and DPR at a minimum to coordinate planning and infrastructure that supports affordable housing. | OHCD | Interagency Coordination |
| 39.g | Adopt a County affordable housing program, similar to HRS §201H, that encourages development, reduces cost, and simplifies permitting | OHCD | Program |
| 39.h | Coordinate with the State and Federal agencies to provide housing programs for low- to moderate-income households, educate families about the opportunities, and ensure equitable access. | OHCD | Program |
| 39.i | Partner with government and private housing entities and housing trusts to fund and support community-based non-profit organizations to provide adequate and equitable affordable housing. | OHCD | Program |

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| 39.j | Amend land use and development regulations to incentivize new workforce and retirement communities and to require large new developments to provide affordable housing suitable for employees in or near the development. | DPW, PD | Code Amendment |

## Table 60: Integrated Systems

| Action | | Agency | Type |
|---|---|---|---|
| 41.a | Develop a working group to plan for large infrastructure investment needs such as the Metropolitan Planning Organization and the Municipal Separate Storm Sewer System (MS4). | PD, DPW, DPR, DEM, DWS | Program |
| 41.b | Create a fiscal impact statement for the interdepartmental project FIS. | PD, DF | Program |
| 41.c | Develop a countywide facility condition inventory and maintenance schedule. | DF | Program |
| 41.d | Conduct cost-benefit analysis for new facilities and replacements. | DF | Program |
| 41.e | Establish memorandums of agreement to partner with community groups for facility improvements and ongoing maintenance opportunities. | PD, DPW, DPR, DEM, DWS | Program |
| 42.a | Provide technical assistance for financing options for infrastructure in underserved areas. | PD, DPW, DPR, DEM, DWS, DRD | Program |
| 42.b | Provide technical assistance for financing districts for new facilities and services in areas designated as urban growth areas. | DF | Program |
| 42.c | Develop and adopt an impact fees ordinance that considers district specific needs and excludes urban core areas where infill is encouraged. | DF, PD, DPW, DPR, DEM, DWS | Program |
| 42.d | Develop a framework for a transition plan for changes in administrative leadership to ensure a smooth transition and continuity of operations. | Various | Program |
| 42.e | Develop a community engagement framework to be used across county departments and agencies to provide direction and ensure effective civic participation. | PD, DRD, OHCD, DPR, DPW | Program |

## Table 61: Thriving, Diverse, Regenerative Economy

| | Action | Agency | Type |
|---|---|---|---|
| 43.a | Continue to support a centralized County demographic and socioeconomic data resource base. | DRD | Program |
| 43.b | Continue to provide or expand County services and/or programs for workforce development and technical assistance. | DRD | Program |
| 43.c | Expand offerings for mentorship and networking | DRD | Program |
| 43.d | Develop an apprenticeship program for the County. | DHR | Program |
| 43.e | Provide business planning assistance, career planning, entrepreneurial training, incubation, and assistance with permitting, licensing, and regulatory issues. | DRD | Program |

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| 43.f | Develop and maintain partnerships with the higher education system and other organizations to support education and workforce development opportunities. | DRD | Program |
| 43.g | Coordinate educational and workforce development programs with local high schools, community college campuses, trade unions, and other groups. | DRD | Program |
| 44.a | Promote liaison services with the private sector with respect to the County's requirements for establishing businesses on the island. | DRD | Project |
| 44.b | Utilize County facilities and funds to support shared affordable workspaces, maker spaces, and equipment for small businesses to utilize. | DRD | Program |
| 44.c | Complete a feasibility analysis for the County to provide access to tools such as industrial development bonds, tax abatement, and low-interest loan programs. | DF | Project |
| 44.d | Develop business improvement districts and Main Street programs to fund revitalization efforts. | PD | Program |
| 44.e | Educate businesses on financial planning and funding sources for hazard preparedness and recovery, including insurance options for business interruption, natural disasters, and other unexpected occurrences. | DRD | Program |
| 44.f | Partner with business associations, realtors, and the chamber of commerce to recruit small-scale manufacturers to establish retail locations in village and town centers to support reinvestment and match potential tenants with local landowners. | DRD | Program |
| 44.g | Partner with government, private and nonprofit agencies, communities, and other stakeholders (e.g., University of Hawai'i, business associations, etc.) to convene business development events island-wide. | DRD | Program |
| 45.a | Collaborate with emerging industry leaders to identify needed infrastructure and services to support economic diversification. | DRD | Program |
| 45.b | Monitor trends and identify business needs, strengthen existing industries, and diversify the economy by attracting emerging industries. | DRD | Program |
| 45.c | Collaborate with the private sector to identify business needs, strengthen existing industries, and diversify the economy by attracting new endeavors. | DRD | Program |
| 45.d | Remove regulatory barriers that restrict entrepreneurial endeavors, such as zoning restrictions for home-based businesses that do not negatively impact the infrastructure network or the character of the neighborhood. | PD | Code Amendment |
| 45.e | Build capacity for implementation and economic development in the target industry clusters identified by the Comprehensive Economic Development Strategy (CEDS). | DRD | Program |
| 45.f | Promote cross-sector linkages between Hawai'i Island's anchor and opportunity industries to grow the market for local products and services. | DRD | Program |
| 45.g | Expand the research and development for energy and technology industries. | DRD | Program |
| 45.h | Assist in the expansion of emerging industries through the development of marketing plans and programs. | DRD | Program |
| 45.i | Develop a market strategy that includes housing, a skilled workforce, quality of life, and a healthy regulatory environment to attract emerging industries. | DRD | Project |

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| 45.j | Assist in the development of a film and creative industries program to market Hawai'i Island sites and coordinate activities. | DRD | Program |
| 45.k | Partner with government (e.g., DOT, DBEDT, etc.), private and nonprofit agencies, communities, and other stakeholders to monitor export capacity for Hawai'i Island. | DRD | Interagency Coordination |
| 45.l | Partner with government, private and nonprofit agencies (e.g., business associations, realtors, chambers of commerce, etc.), communities, and other stakeholders to streamline regulatory processes and create incentives for urban renewal, rehabilitation, and/or redevelopment programs in collaboration with communities, businesses, and government agencies. | DRD, PD | Program |
| 45.m | Program regular collaboration with the University of Hawai'i at Hilo, Hawai'i Community College, the Natural Energy Laboratory at Hawai'i Authority (NELHA), and other agencies to expand the research and development industry for sustainable and equitable economic development. | DRD | Interagency Coordination |
| 45.n | Increase grant writing capacity and management and pursue grant funding to supplement County critical needs. | DRD | Program |
| 46.a | Advocate for the State legislature to amend the Hawai'i Revised Statutes to include green waste, composting, and fertilizer yards for commercial use as permitted uses on agriculturally zoned land. | PD | Interagency Coordination |
| 46.b | Advocate for the State DOH to streamline the composting permitting process. | DEM, DPW, DOH | Interagency Coordination |
| 46.c | Support the use of USDA Natural Resources Conservation Service assistance. | DRD | Program |
| 46.d | Advocate for the State to incentivize local food production through expanded tax credits. | DRD | Interagency Coordination |
| 46.e | Support training and capacity building related to the requirements of the Food Safety Modernization Act. | DRD | Program |
| 46.f | Invest in a crop suitability tool, including existing and projected water demand. | DRD | Project |
| 46.g | Develop a food self-sufficiency strategy, including community-based food system assessments and monitoring local food production and consumption. | DRD | Project |
| 46.h | Develop and implement an emergency food plan that could be deployed in the event of a natural or economic disaster. | PD | Project |
| 46.i | Partner with government, private and nonprofit agencies, communities, and other stakeholders for carrying capacity studies of fisheries and the establishment of State community-based subsistence fishing areas. | DRD | Interagency Coordination |
| 46.j | Coordinate with the University of Hawai'i at Mānoa College of Tropical Agriculture and Human Resources to expand the farm food safety education program. | DRD | Interagency Coordination |
| 46.k | Support the State Department of Agriculture programs for the prevention, early detection, rapid response, and control of harmful invasive species from becoming established and impacting commercial agriculture. | DRD | Interagency Coordination |

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| 46.l | Support State Department of Education Farm to School programs and other programs designed to provide locally produced food to schools. | DRD | Interagency Coordination |
| 46.m | Adopt procedures to allow for the development of community gardens and edible landscaping on public lands (e.g., through Friends of the Park agreements). | DRD, PD | Project |
| 46.n | Provide services and frameworks to support the formation of new commodity groups and other organizations, such as farmer cooperatives. | DRD | Project |
| 46.o | Amend the Code to expand the designated list of parks authorized to allow farmers' market permits to include parks in rural areas that lack appropriate commercial-zoned lands for farmers' markets. | DRD, PD | Code Amendment |
| 46.p | Support and advocate for streamlined, long-term leases for agricultural parks. | PD, DF | Program |
| 46.q | Continue to evaluate and update the County's tax reduction programs to ensure that tax incentives for agricultural land use result in actual public benefits and promote local agricultural production where possible. | PD, DF, DRD | Code Amendment |
| 46.r | Create a real property tax exemption for farmers entitled to federal crop loss insurance. | DF | Code Amendment |
| 46.s | Support and invest in all cultural food programs, including food preservation. | | |
| 47.a | Map existing and proposed agricultural infrastructure and facilities. | DRD, PD | Project |
| 47.b | Expand programs and options to allow for agricultural irrigation water. | DWS | Program |
| 47.c | Develop criteria to determine appropriate places for agricultural parks, including the availability of potable water. | PD | Project |
| 47.d | Account for verified agricultural water usage in the County Water Use Development Plan. | DWS | Project |
| 47.e | Support the expansion of State agricultural water systems in productive agricultural areas. | PD | Interagency Coordination |
| 47.f | Investigate the restoration of ditch systems to meet future agricultural needs. | DRD | Project |
| 47.g | Amend bulk regulations, including building materials for agricultural facilities and infrastructure. | PD | Code Amendment |
| 47.h | Partner with government, private and nonprofit agencies, communities, and other stakeholders to study the feasibility of building code amendments and structural integrity testing for locally produced building materials, prioritizing non-native plant species. | DRD, DPW, UHH | Interagency Coordination |
| 47.i | Evaluate grubbing and grading ordinances as they pertain to agriculture, including the creation of exemption categories for water storage and aquaculture. | DPW | Code Amendment |
| 47.j | Seek State legislation or rulemaking to allow local agricultural producers to make direct sales to consumers at County-designated farmers' markets at a lower general excise tax rate. | DRD | Interagency Coordination |
| 47.k | Evaluate the Code and statutory amendments to allow farmworker housing to be developed without requiring the housing be sited on the same parcel (i.e., TMK) of the working subject farm. | PD | Code Amendment |

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| 47.l | Amend the Code to remove barriers to allow for off-site directional signage to promote local farms engaged in direct sales and other permitted visitor-related businesses while minimizing scenic impacts. | DPW | Code Amendment |
| 47.m | Amend the Code to include provisions for suitable agricultural infrastructure projects financed by County bonds and liens on real property of participating agricultural stakeholders, whether such assessments on TMKs involve contiguous parcels of lands encumbered under an "Agricultural Improvement District". | PD | Code Amendment |
| 47.n | Incentivize and streamline the process to develop agricultural worker housing on and off-site. | PD | Code Amendment |
| 48.a | Identify and invest in opportunities to partner with and influence the visitor industry to encourage malama ʻāina activities. | DRD, PD | Program |
| 48.b | Identify and recommend opportunities for installing or improving informational signage to educate about and protect significant sites. | DRD, PD | Program |
| 48.c | Update and maintain the Hawaiʻi Island Tourism Strategic Plan through collaboration between community and industry leaders, inclusive of the Hawaiʻi Tourism Authority. | DRD | Project |
| 48.d | Develop a community-based stewardship program to identify wahi pana status and implement interpretive programs. | PD | Program |
| 49.a | Streamline processes for community-based programs, festivals, and events. | PD, DPW | Project |
| 49.b | Support efforts to revise HRS, Section 226-8 "Hawaiʻi State Planning Act Objectives and Policies for the Economy – Visitor Industry" to incorporate a regenerative tourism framework. | PD | Project |
| 49.c | Maintain monitoring of resident sentiment towards the visitor industry. | DRD | Project |
| 49.d | Continue to seek funds from the State Capital Improvement Program to support facilities, including restrooms, parking, and road improvements. | DRD, PD | Interagency Coordination |
| 49.e | Provide technical support for local businesses to promote or further develop their products, services, and activities in the visitor industry. | DRD | Program |
| 49.f | Identify and reduce barriers that hinder visitor industry companies from buying local Hawaiʻi Island products. | R&D | Project |
| 49.g | Explore the feasibility of creating a multi-use facility to accommodate athletic-exhibition-conference activities. | Various agencies | Project |
| 49.h | Partner with government, private and nonprofit agencies, communities, and other stakeholders to develop and support place-based educational programs and workforce training within the visitor industry. | R&D | Program |
| 49.i | Support programs that conduct outreach to students in the fields of Science, Technology, Engineering, Arts, and Mathematics (STEAM) and Indigenous Data Science and connect them to living-wage careers in the visitor industry. | R&D | Program |
| 49.j | Develop a toolkit and incentives for businesses to promote regenerative tourism and the Island of Hawaiʻi Pono Pledge. | R&D | Program |

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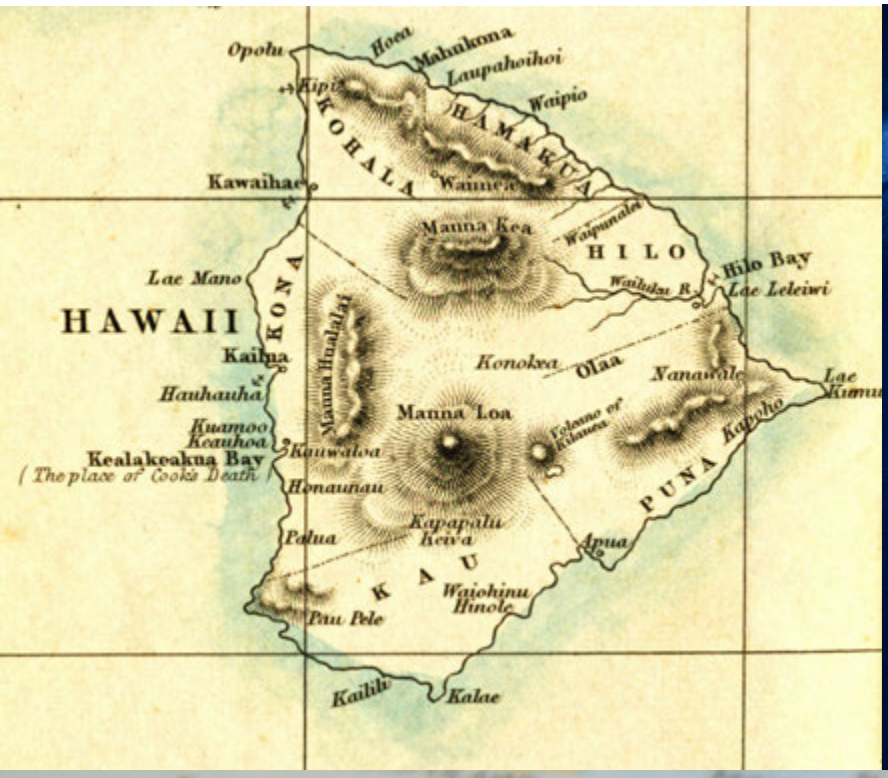
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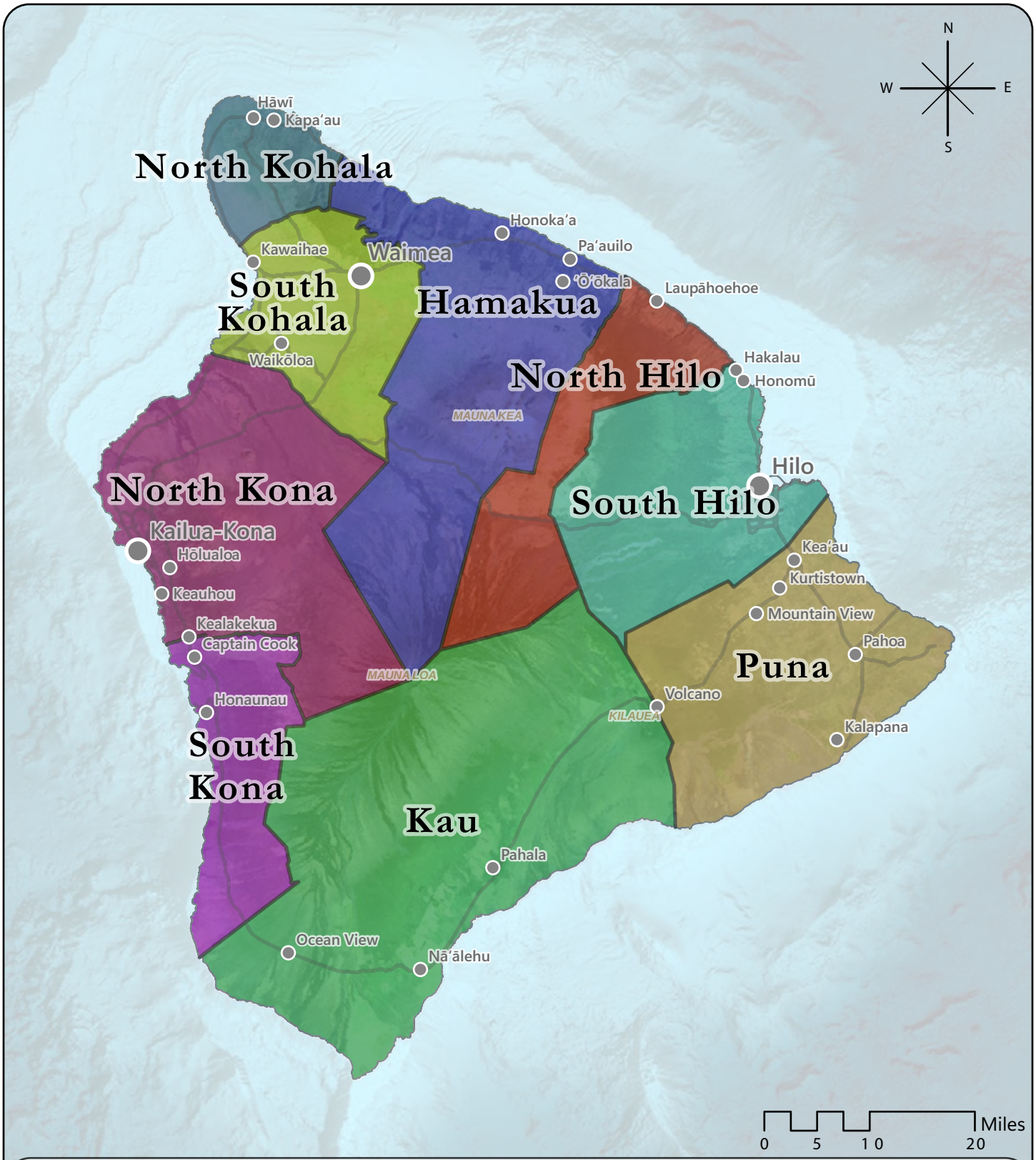
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# GENERAL PLAN POLICY MAPS





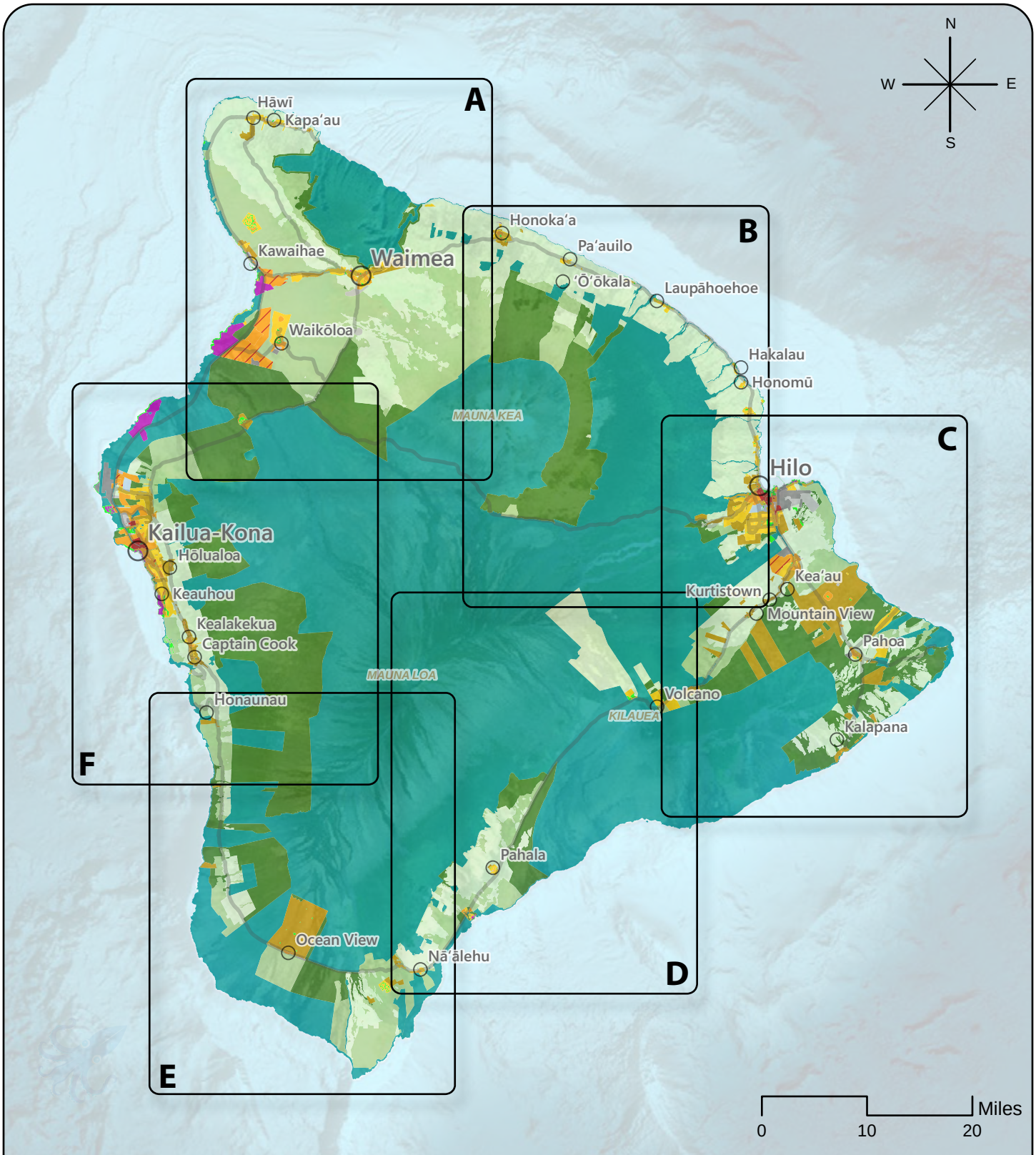



**Districts and Towns**

**Urban Areas / Towns**

- **Large**
- **Small**



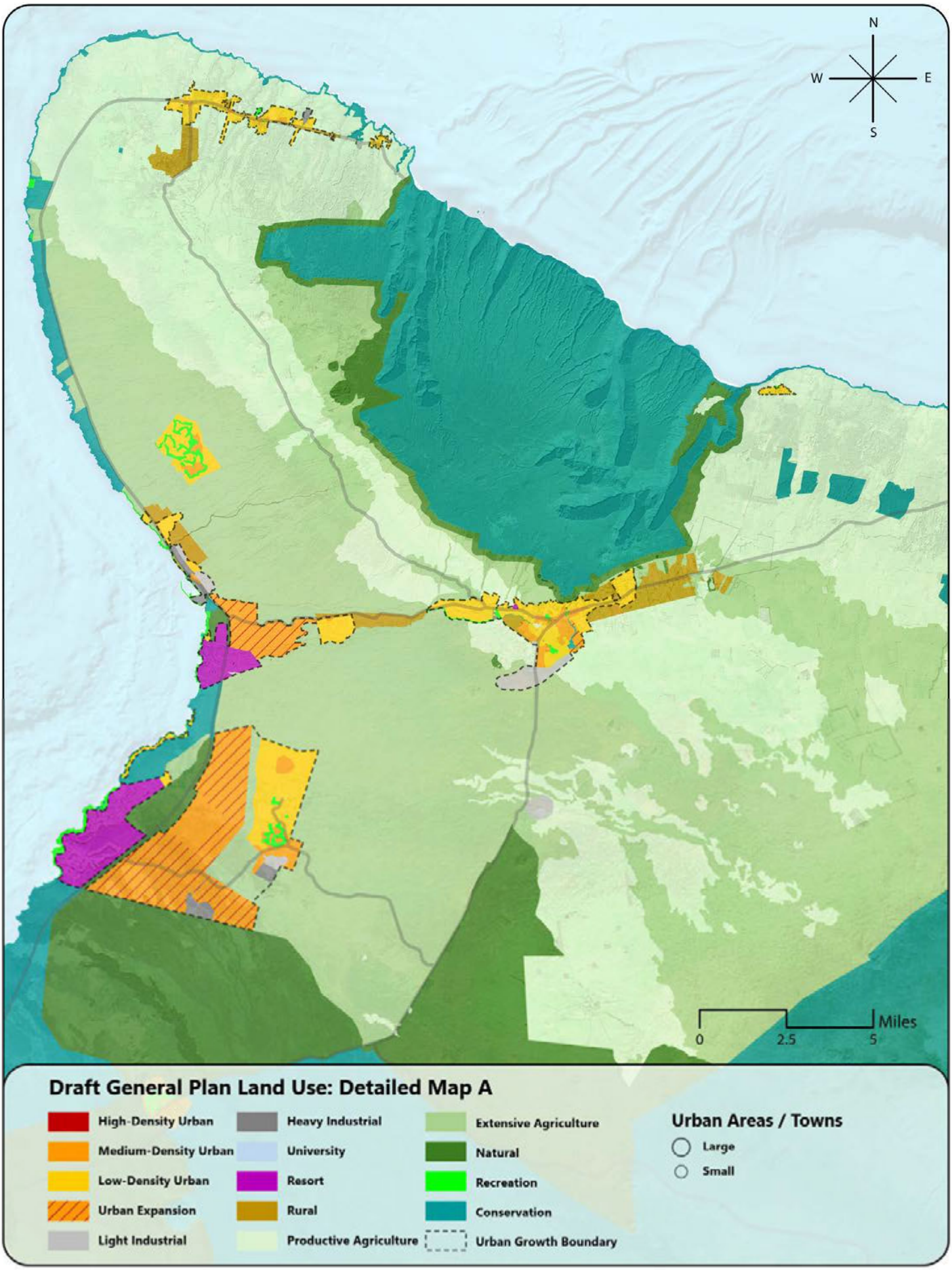

## Draft General Plan Land Use: Overview Map

- High-Density Urban
- Medium-Density Urban
- Low-Density Urban
- Urban Expansion
- Light Industrial
- Heavy Industrial
- University
- Resort
- Rural
- Productive Agriculture
- Extensive Agriculture
- Natural
- Recreation
- Conservation

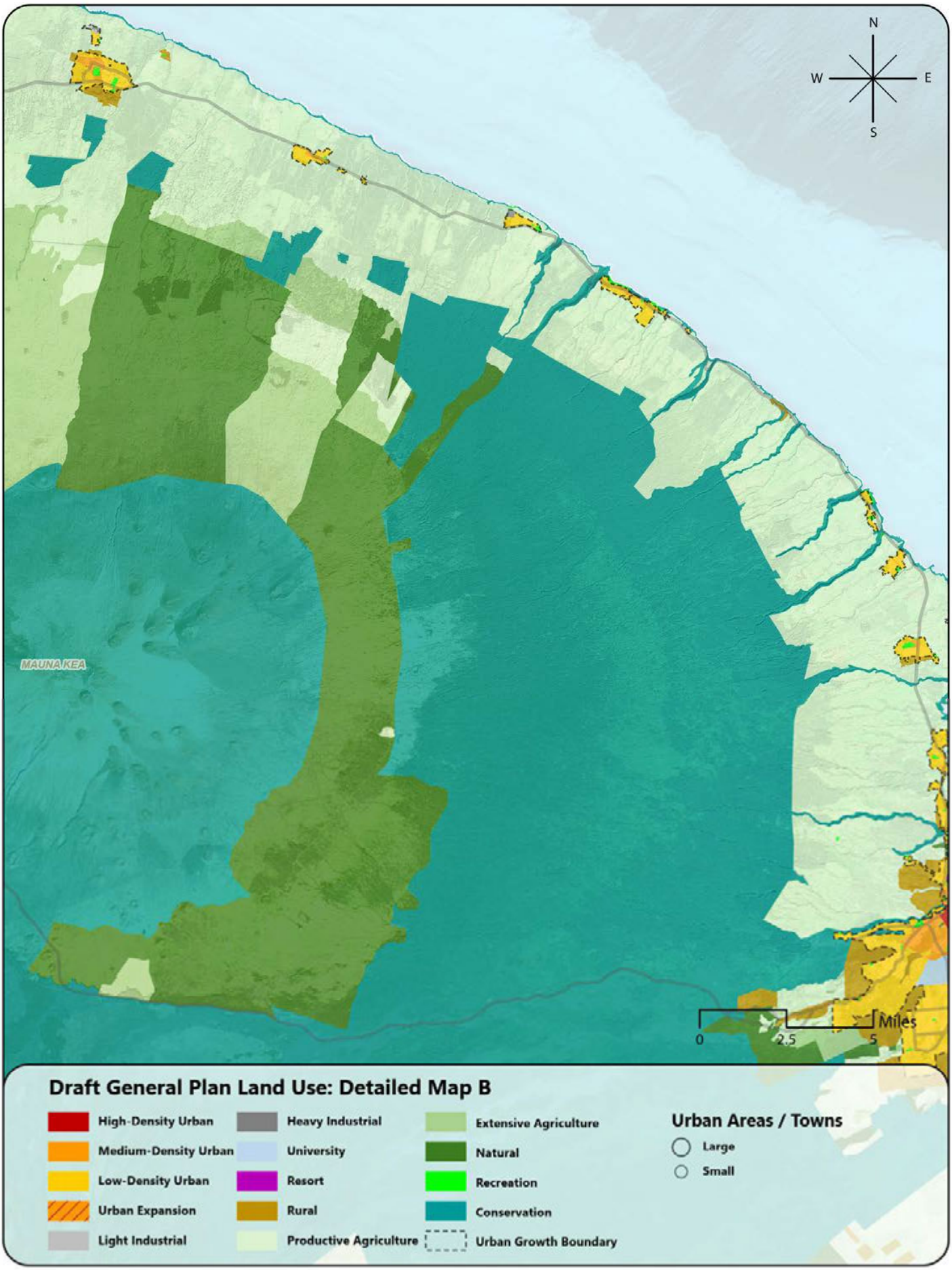
### Urban Areas / Towns

- Large
- Small

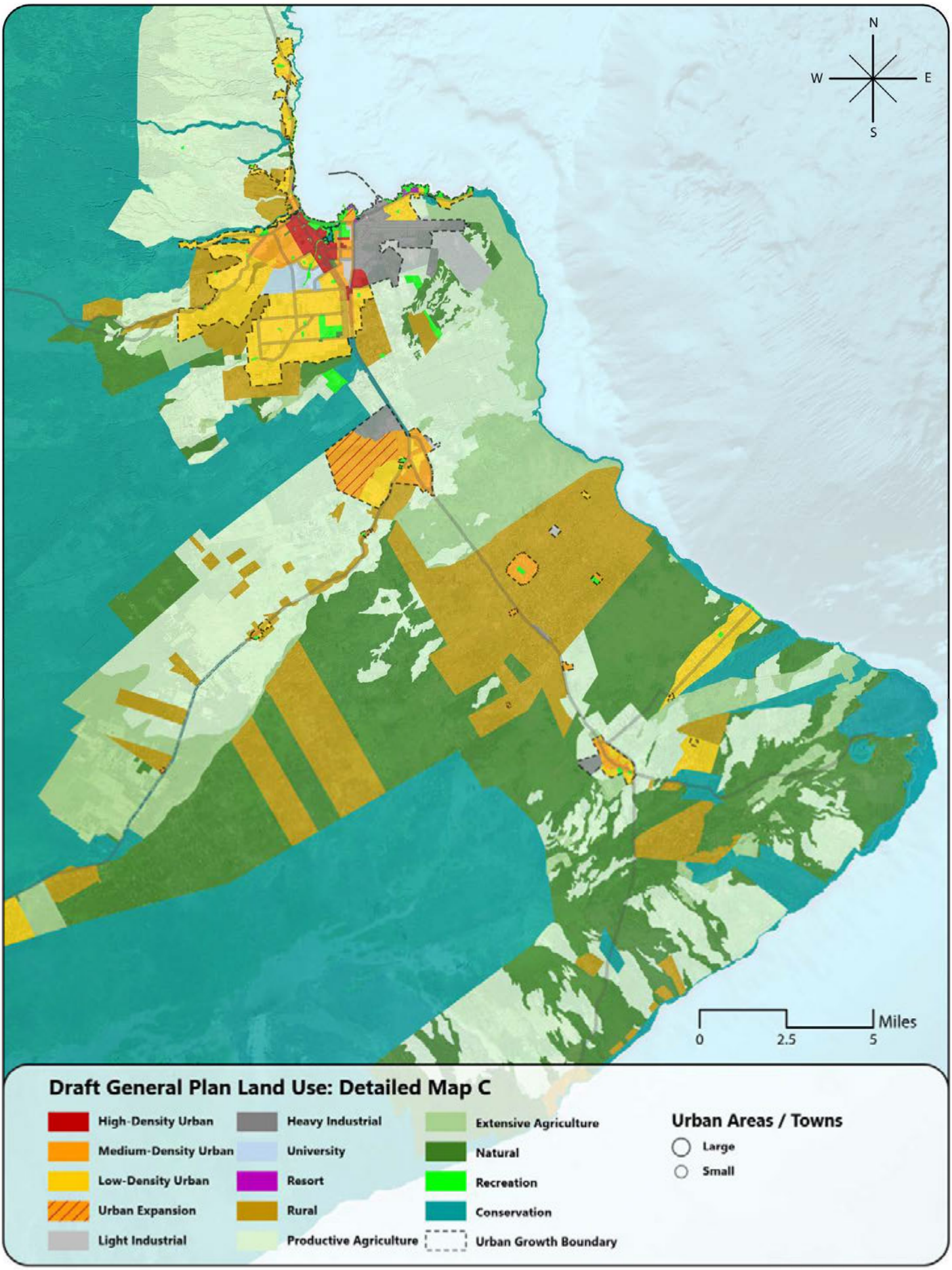
**Map 2**


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Draft General Plan Land Use: Detailed Map A
High-Density Urban
Medium-Density Urban
Low-Density Urban
Urban Expansion
Light Industrial
Heavy Industrial
University
Resort
Rural
Productive Agriculture
Extensive Agriculture
Natural
Recreation
Conservation
Urban Growth Boundary
Urban Areas / Towns
Large
Small

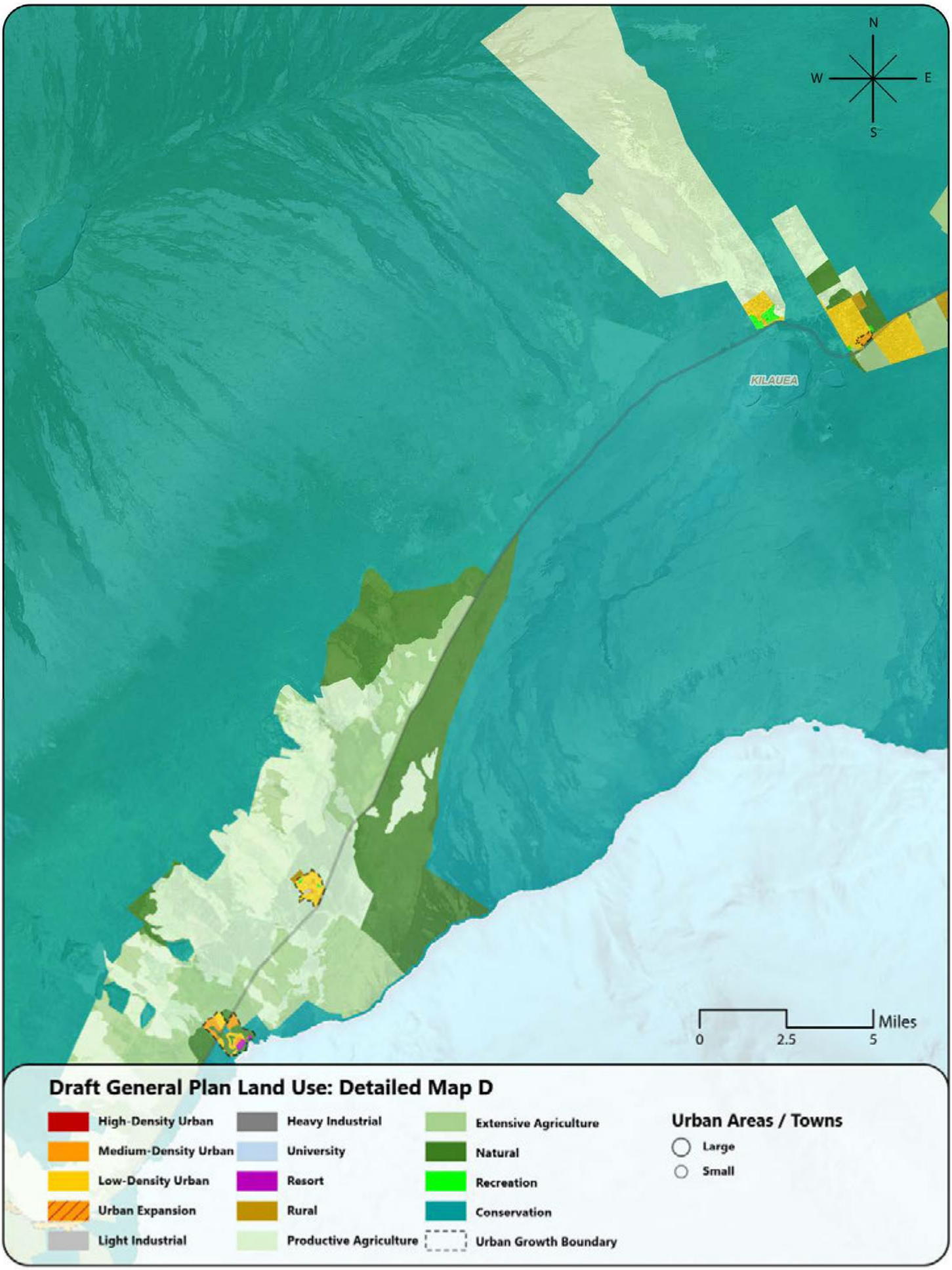
**Map 3**


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Draft General Plan Land Use: Detailed Map B
High-Density Urban
Medium-Density Urban
Low-Density Urban
Urban Expansion
Light Industrial
Heavy Industrial
University
Resort
Rural
Productive Agriculture
Extensive Agriculture
Natural
Recreation
Conservation
Urban Growth Boundary
Urban Areas / Towns
Large
Small

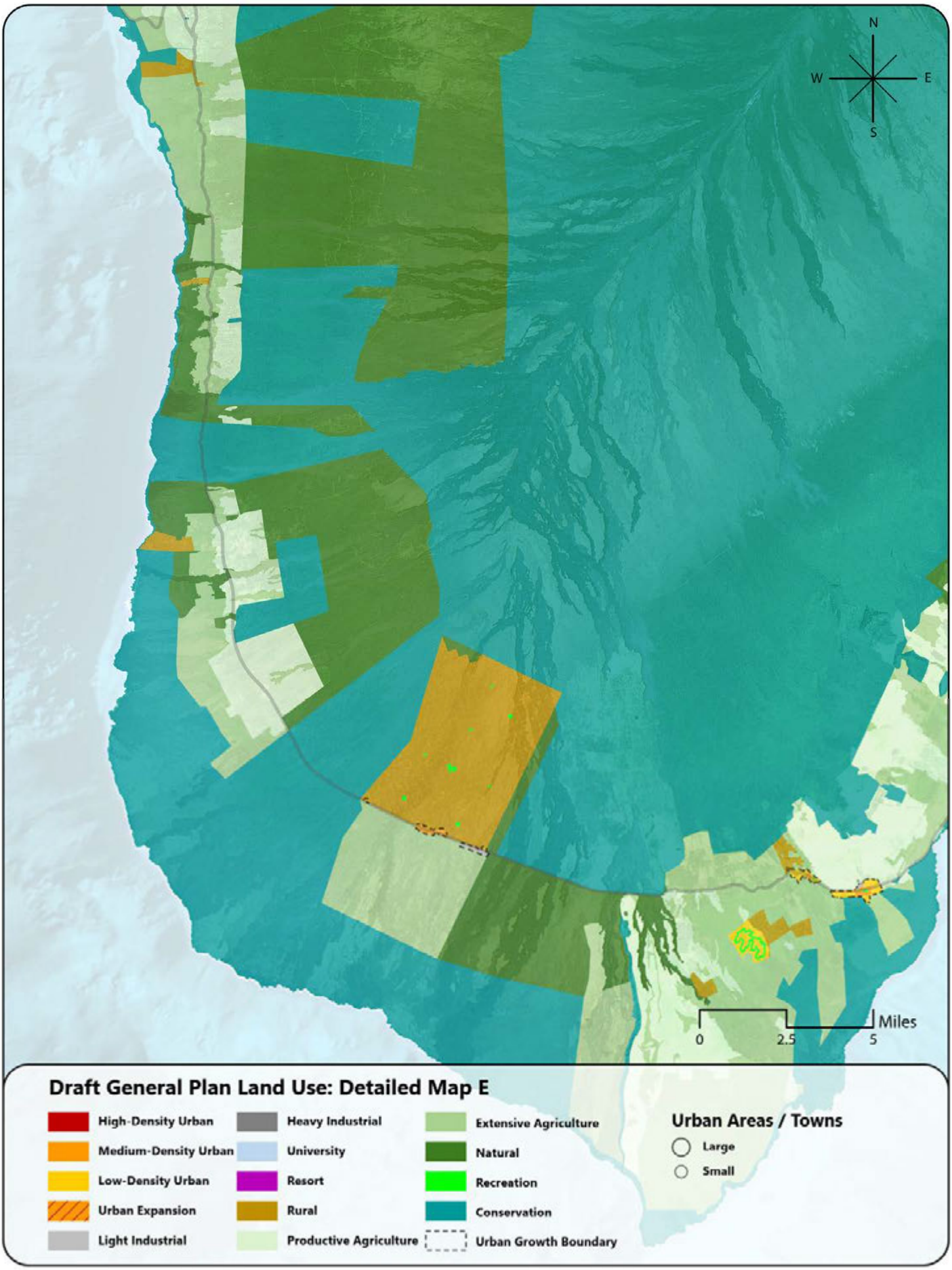
**Map 4**


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Draft General Plan Land Use: Detailed Map C
High-Density Urban
Medium-Density Urban
Low-Density Urban
Urban Expansion
Light Industrial
Heavy Industrial
University
Resort
Rural
Productive Agriculture
Extensive Agriculture
Natural
Recreation
Conservation
Urban Growth Boundary
Urban Areas / Towns
Large
Small

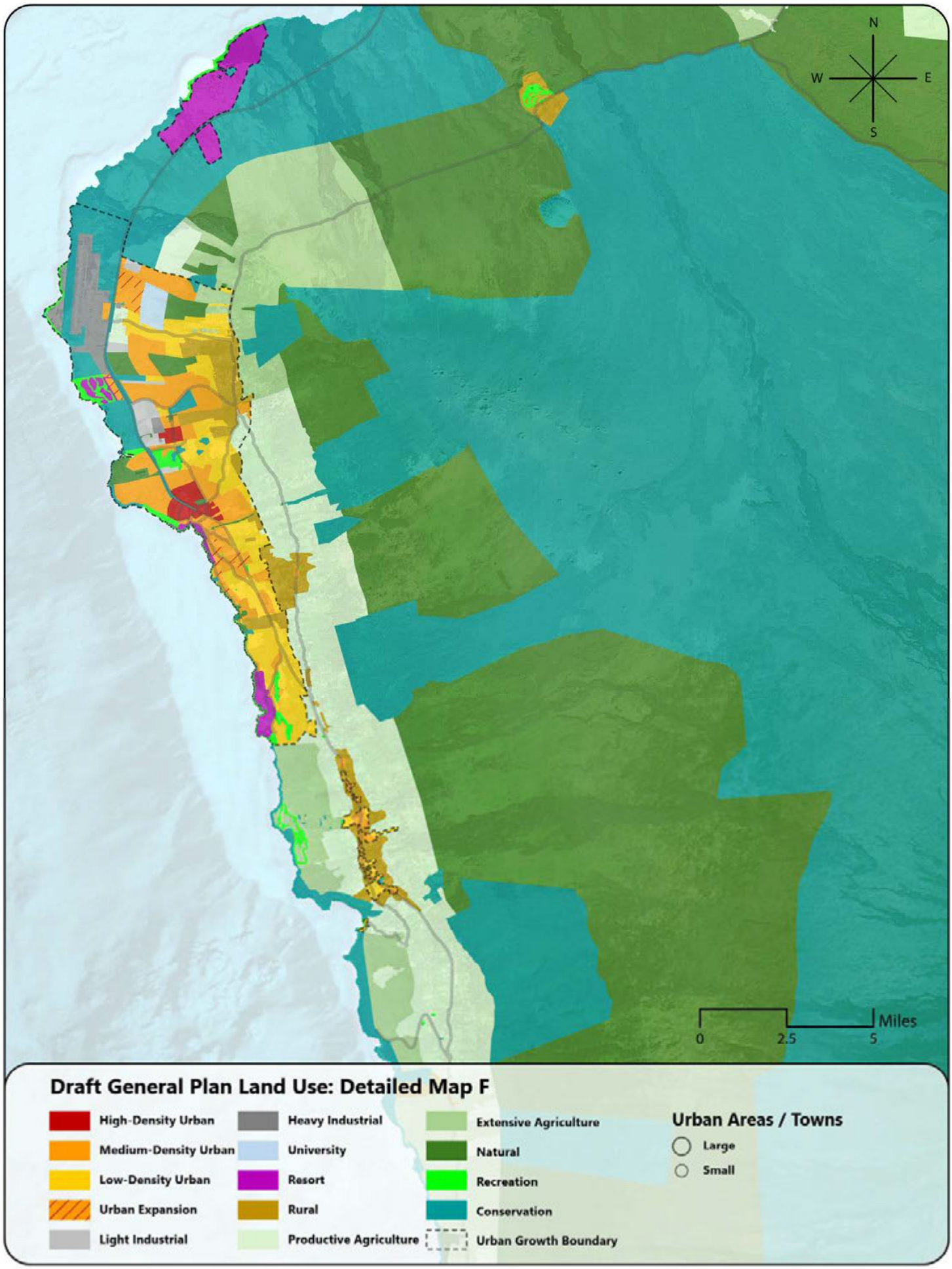
**Map 5**


N
W
E
S
KILAUEA
Miles
0
2.5
5
Draft General Plan Land Use: Detailed Map D
High-Density Urban
Medium-Density Urban
Low-Density Urban
Urban Expansion
Light Industrial
Heavy Industrial
University
Resort
Rural
Productive Agriculture
Extensive Agriculture
Natural
Recreation
Conservation
Urban Growth Boundary
Urban Areas / Towns
Large
Small

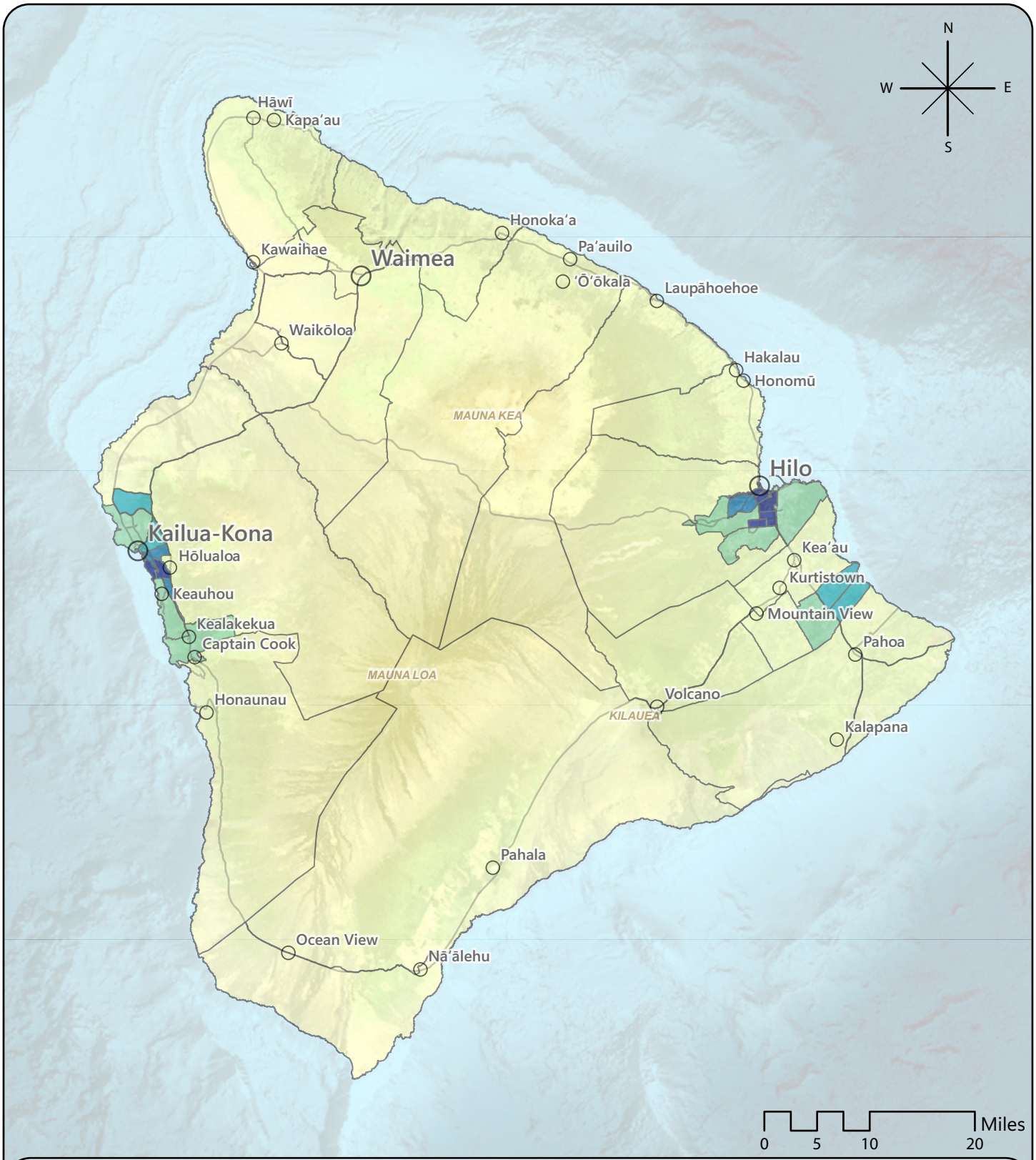
**Map 6**


N
W
E
S
0
2.5
5
Miles
Draft General Plan Land Use: Detailed Map E
High-Density Urban
Medium-Density Urban
Low-Density Urban
Urban Expansion
Light Industrial
Heavy Industrial
University
Resort
Rural
Productive Agriculture
Extensive Agriculture
Natural
Recreation
Conservation
Urban Growth Boundary
Urban Areas / Towns
Large
Small

**Map 7**


N
W
E
S
Miles
0
2.5
5
Draft General Plan Land Use: Detailed Map F
High-Density Urban
Medium-Density Urban
Low-Density Urban
Urban Expansion
Light Industrial
Heavy Industrial
University
Resort
Rural
Productive Agriculture
Extensive Agriculture
Natural
Recreation
Conservation
Urban Growth Boundary
Urban Areas / Towns
Large
Small

**Map 8**




## Density of Population per Sq. Mi. (2023)

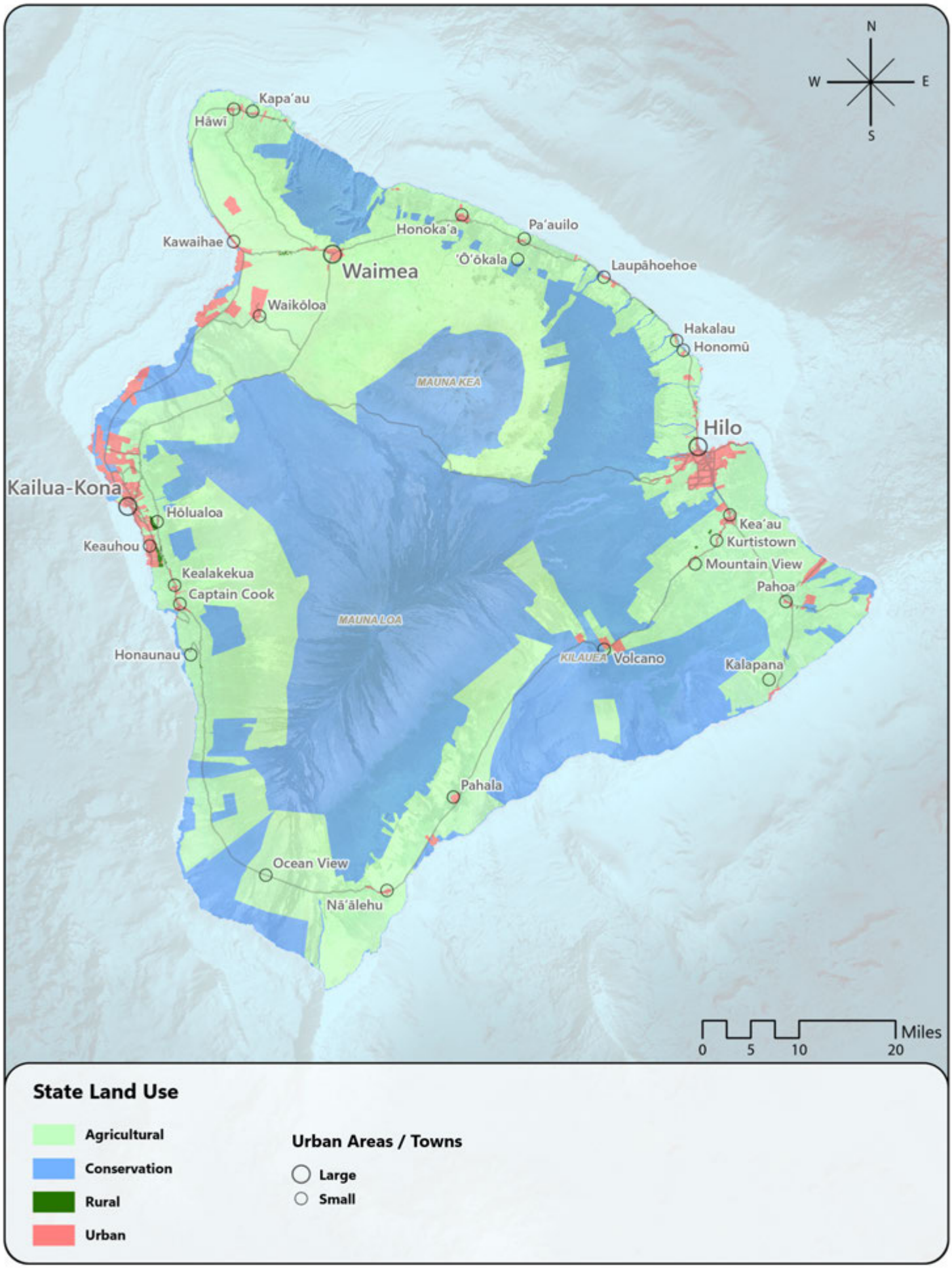
- 6 - 207
- 207 - 568
- 568 - 1,065
- 1,065 - 1,642
- 1,642 - 3,906

### Urban Areas / Towns

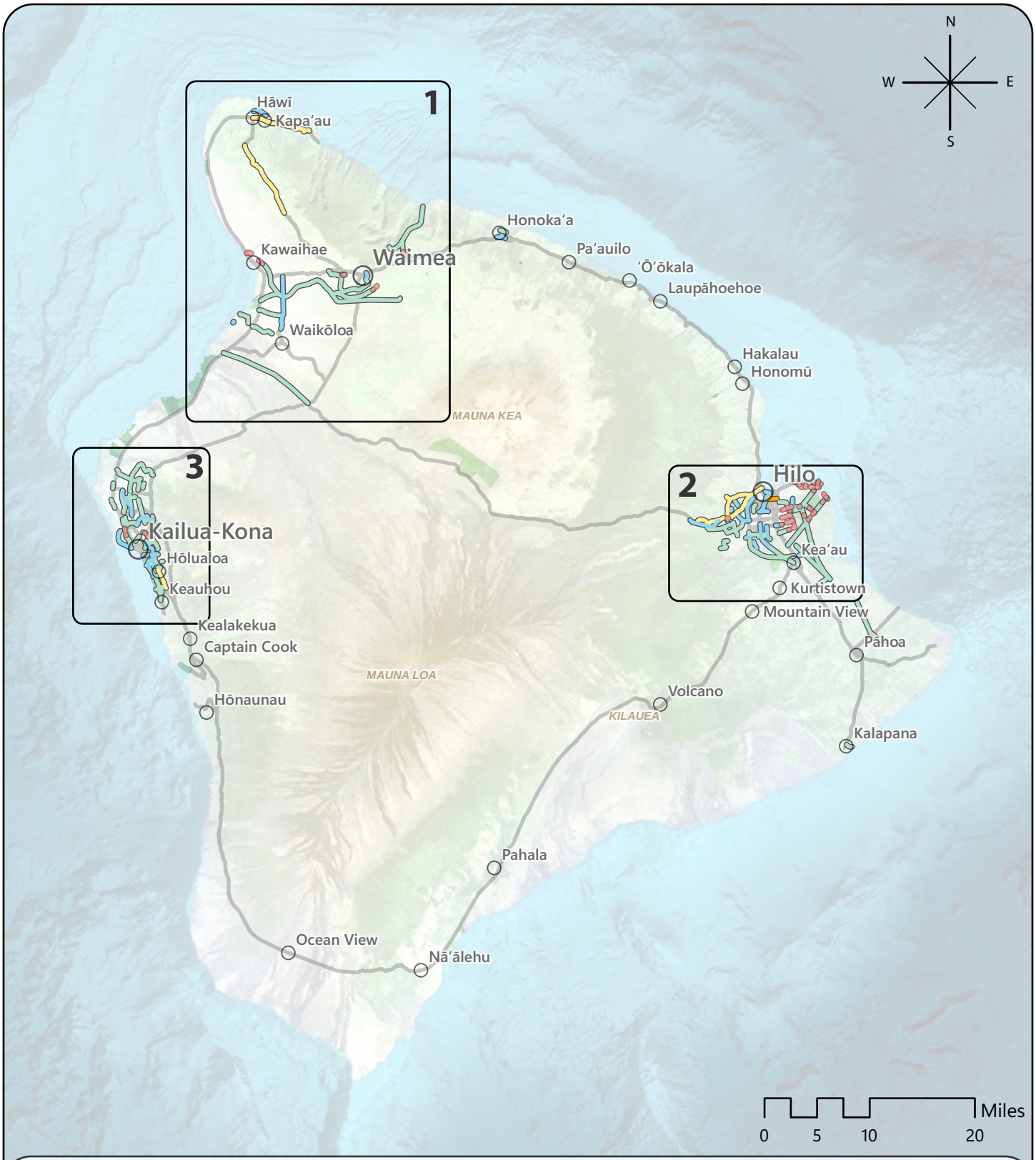
- Large
- Small

Source: US Census Bureau, ESRI 2023

**Map 9**


N
W
E
S
Kapa'au
Hāwī
Honoka'a
Pa'auilo
Kawaihae
Waimea
'Ō'ōkala
Laupāhoehoe
Waikōloa
Hakalau
Honomū
MAUNA KEA
Hilo
Kailua-Kona
Hōlualoa
Kea'au
Keauhou
Kurtistown
Mountain View
Kealakekua
Pahoa
Captain Cook
MAUNA LOA
Honaunau
KILAUEA
Volcano
Kalapana
Pahala
Ocean View
Nā'ālehu
Miles
0
5
10
20
State Land Use
Agricultural
Conservation
Rural
Urban
Urban Areas / Towns
Large
Small

**Map 10**




## General Plan Road Recommendations

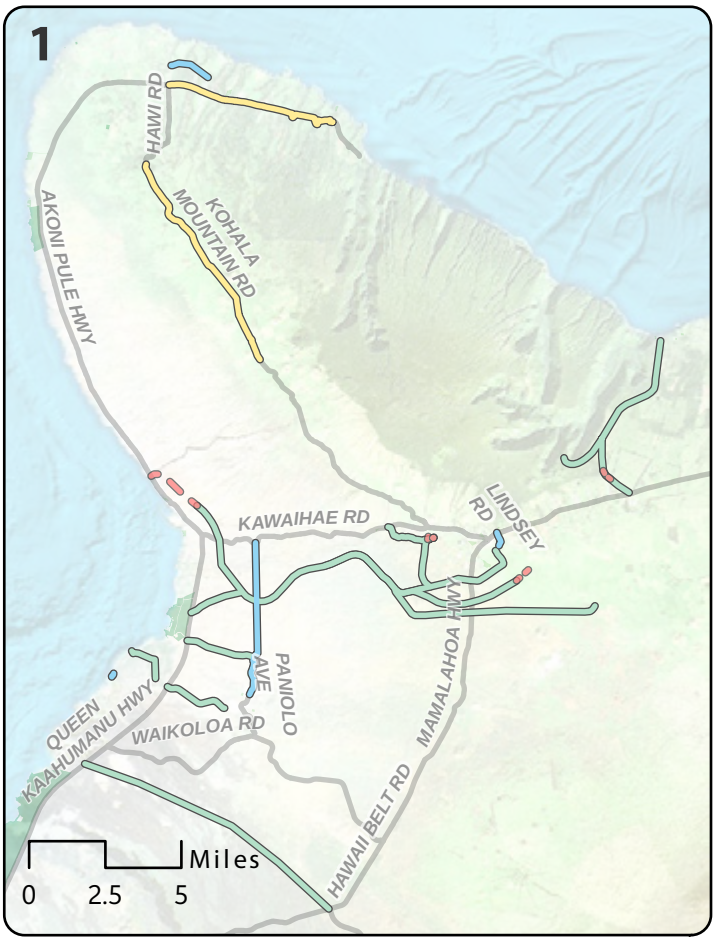
**Work Type**

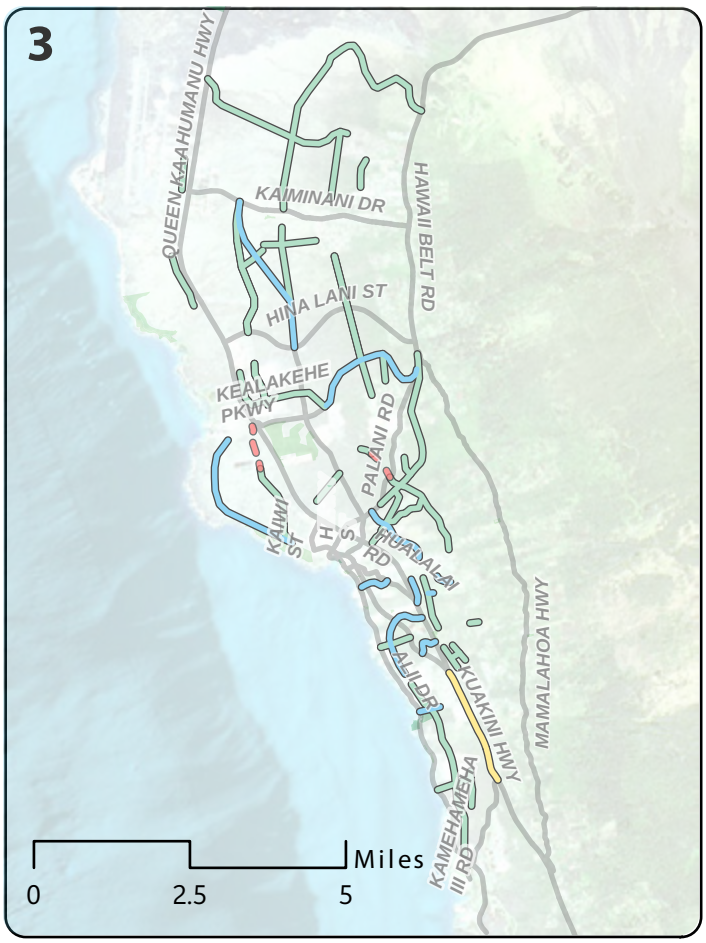
- Extension
- New
- Removed
- Improve
- Widen

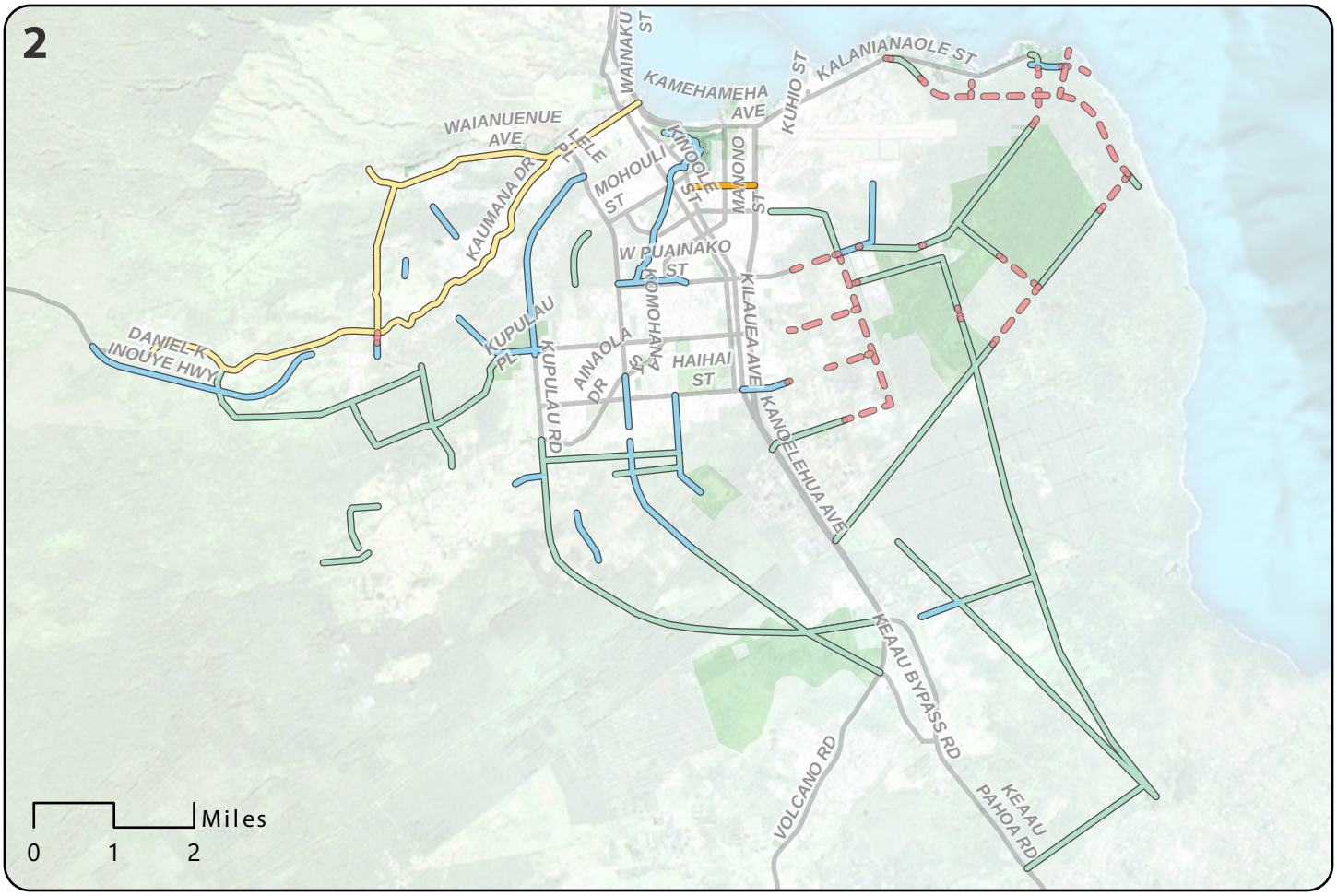
**Urban Areas / Towns**

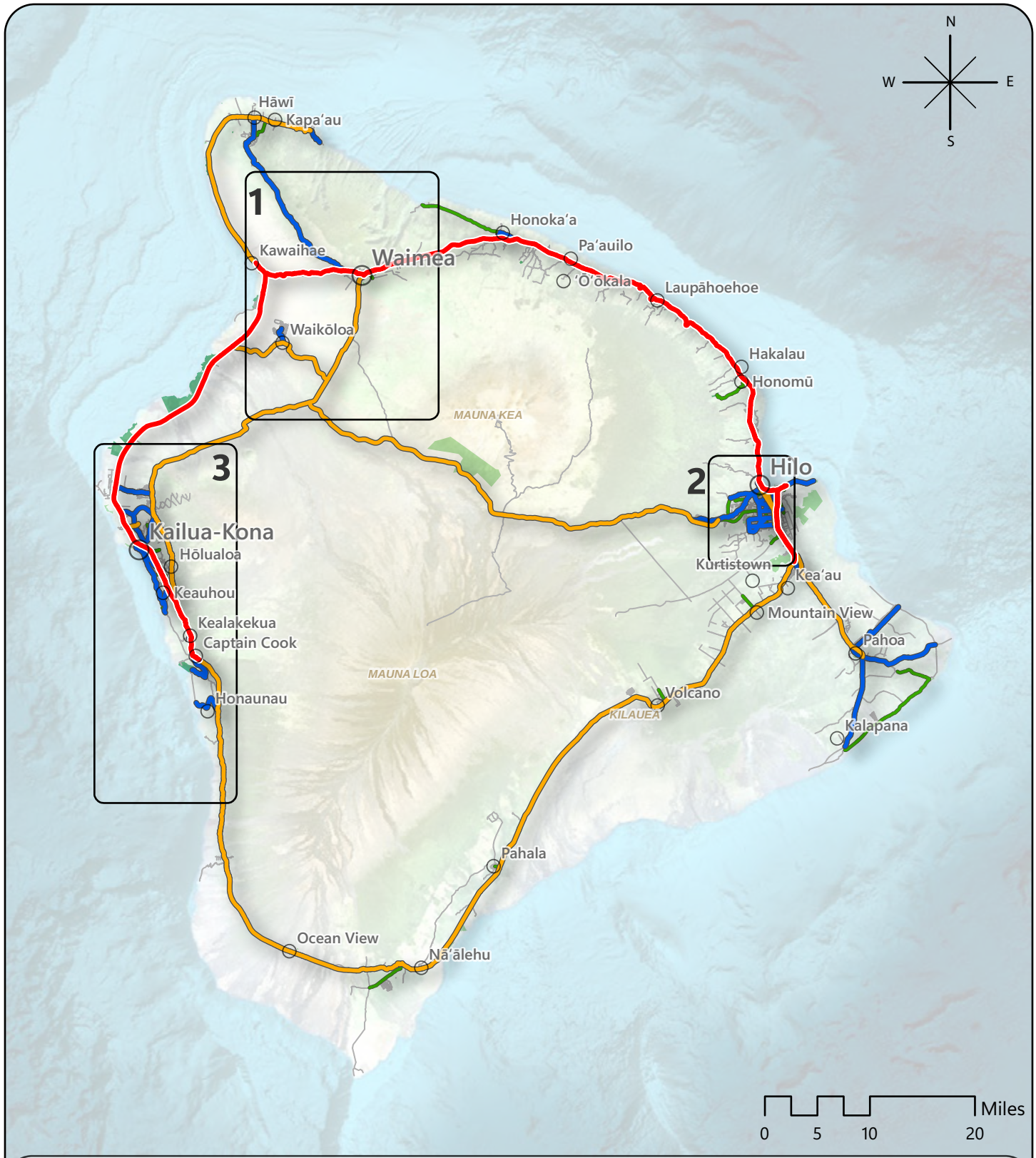
- Large
- Small

*Source: County of Hawai'i


1
HAWI RD
KOHALA MOUNTAIN RD
AKONI PULE HWY
KAWAIHAE RD
LINDSEY RD
PANIOLO AVE
QUEEN KAAHUMANU HWY
WAIKOLOA RD
MAMALAHOA HWY
HAWAII BELT RD
0 2.5 5 Miles


3
QUEEN KAAHUMANU HWY
KAIMINANI DR
HAWAII BELT RD
HINA LANI ST
KEALAKEHE PKWY
PALANI RD
KAWAIHAE RD
HUALALAI RD
ALII DR
KUAKINI HWY
MAMALAHOA HWY
KAMEHAMEHA III RD
0 2.5 5 Miles


2
WAINAKU ST
KAMEHAMEHA AVE
KUHIO ST
KALANIANAOLE ST
WAIANUENUE AVE
KAUMANA DR
PELE LN
MOHOULI ST
KINOOLE ST
ONOMEA ST
W PUAINAKO ST
KOMOHANA ST
KILAUEA AVE
DANIEL K INOUYE HWY
KUPULAU PL
KUPULAU RD
AINAOLA DR
HAIHAI ST
KANOELEHUA AVE
KEAAU BYPASS RD
VOLCANO RD
KEAAU PAHOA RD
0 1 2 Miles




## Federal-Aid Road Functional Classification*

- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local Street, N/A

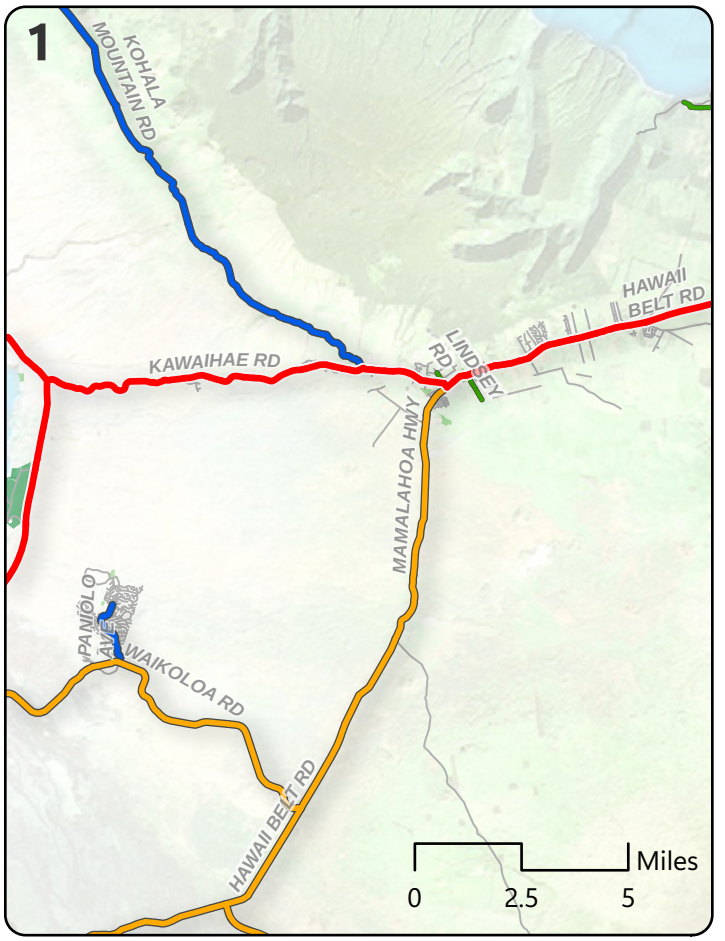
### Urban Areas / Towns

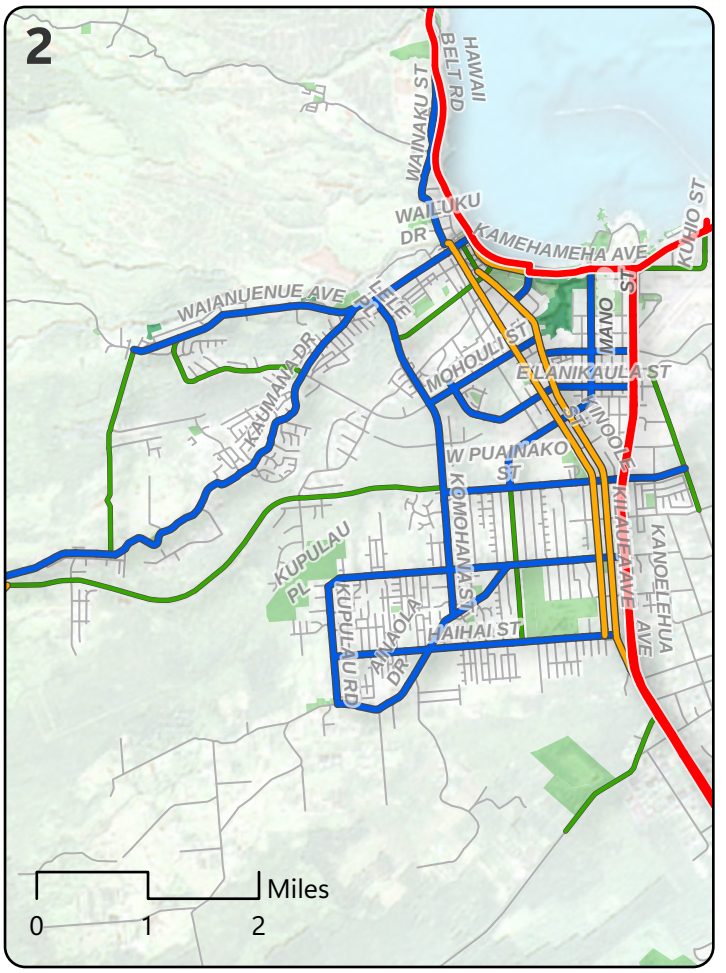
- Large
- Small

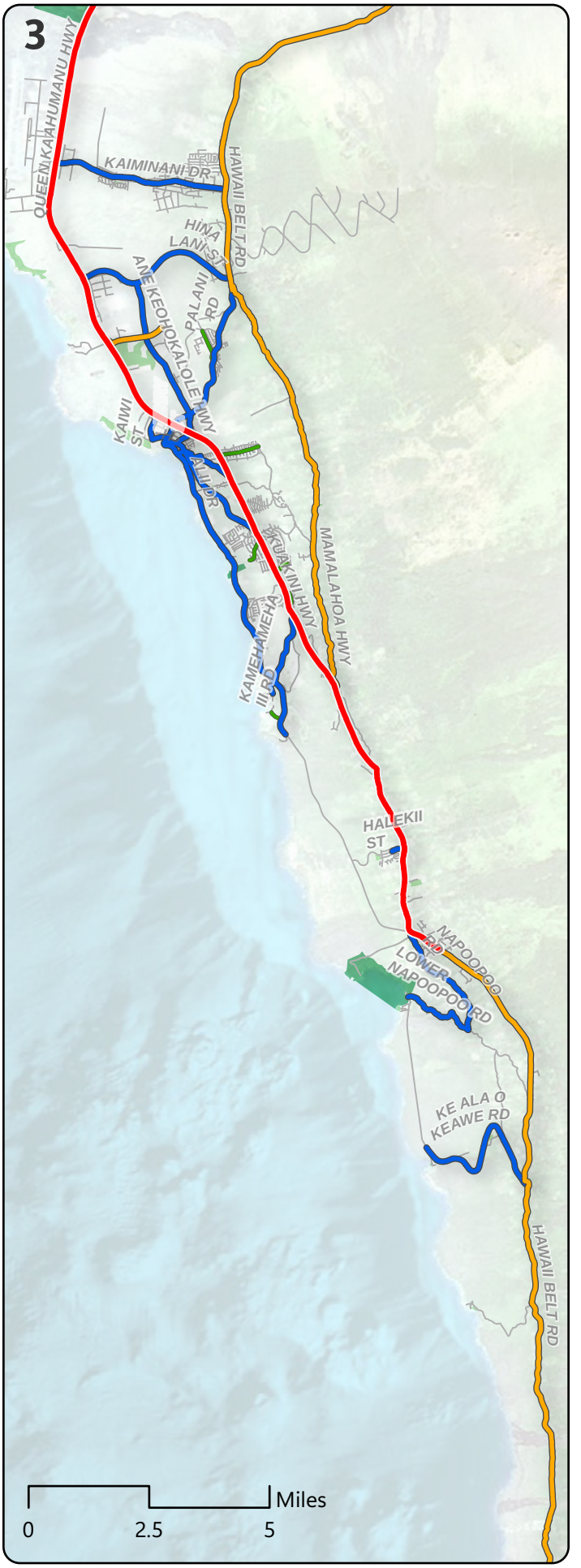
The U.S. DOT's Federal Highway Administration (FHWA) classifies our Nation's urban and rural roadways by road function. Each function class is based on the type of service the road provides to the motoring public, and the designation is used for data and planning purposes. Design standards are tied to function class. Each class has a range of allowable lane widths, shoulder widths, curve radii, etc. The following photos and information illustrate the four major road function classifications: Interstates, Other Arterials, Collectors, and Local roads. The amount of mobility and land access offered by these road types differs greatly.

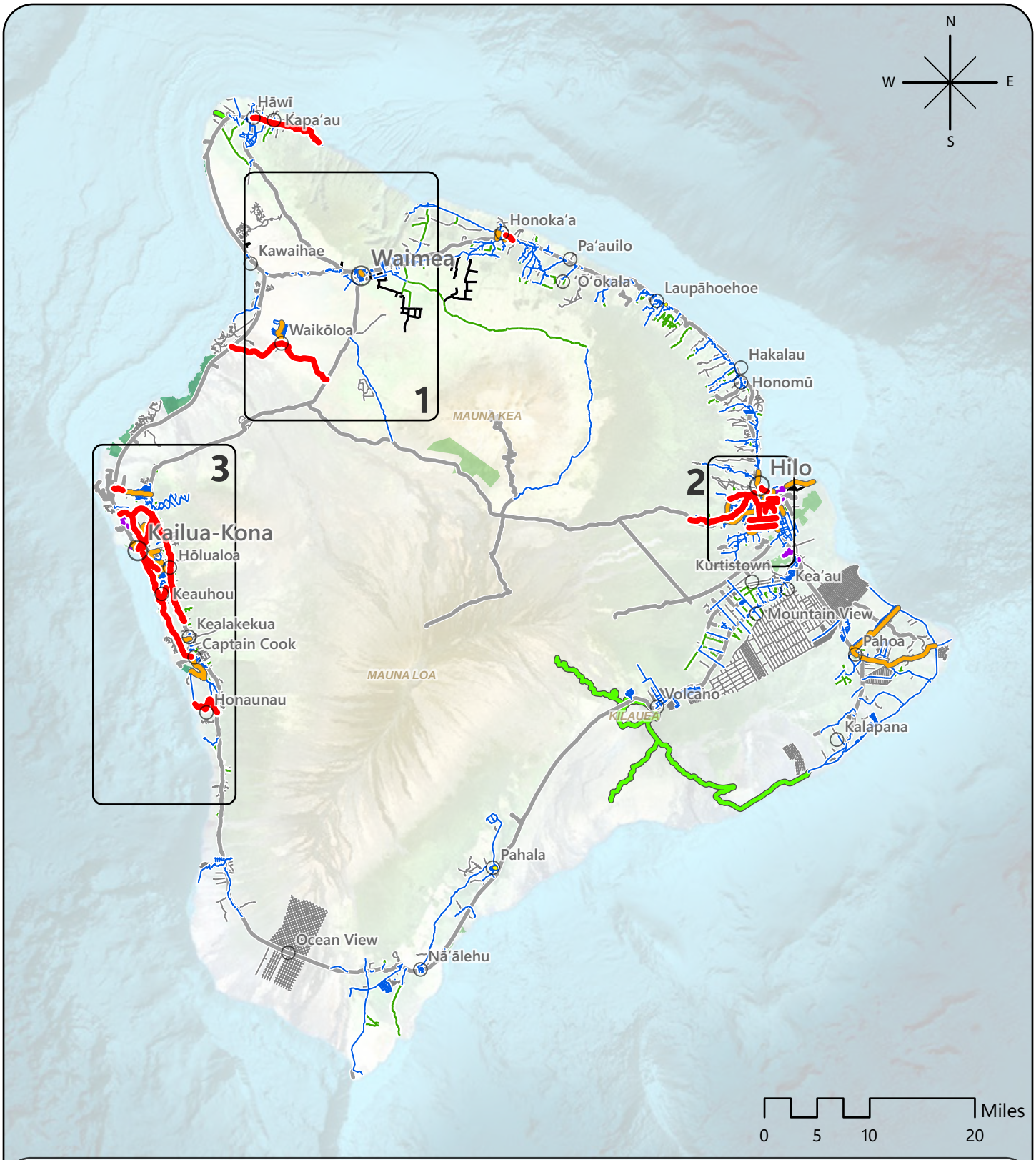
***Source: Federal Highway Administration**

**Map 13**


1
KOHALA MOUNTAIN RD
HAWAII BELT RD
KAWAIHAE RD
LINDSEY RD
MAMALAHOA HWY
PANIOLO
WAIKOLOA RD
HAWAII BELT RD
Miles
0
2.5
5


2
HAWAII BELT RD
WAINAKU ST
WAILUKU DR
KAMEHAMEHA AVE
KUHIO ST
WAIANUENUE AVE
KAUMANA DR
MOHOULI ST
MANO ST
ELANIKAULA ST
W PUAINAKO ST
KOMOHANA ST
KUPULAU PL
KUPULAU RD
KAOLA DR
HAIHAI ST
KILAUEA AVE
KANOELEHUA AVE
Miles
0
1
2


3
QUEEN KAAHUMANU HWY
KAIMINANI DR
HAWAII BELT RD
HINA LANI ST
ANE KEOHOKALOLE HWY
PALANI RD
KAIWI ST
KAILUA RD
MAMALAHOA HWY
KUAKINI HWY
KAMEHAMEHA III RD
HALEKII ST
NAPOOPOO RD
LOWER NAPOOPOO RD
KE ALA O KEAWE RD
HAWAII BELT RD
Miles
0
2.5
5




## County of Hawaii Street Typology

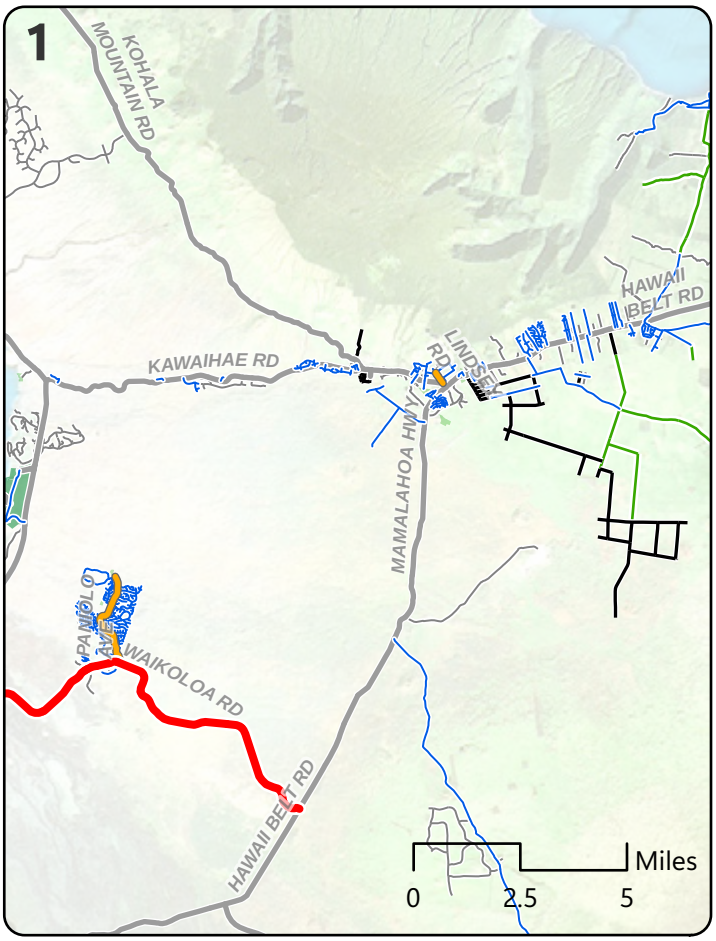
- Major Connector
- Minor Connector
- Business Street
- Industrial Street
- Minor Street
- n/a - State Road
- n/a - State DHHL
- n/a - Federal Road
- n/a - Road in Limbo
- n/a - Privately Owned/ Maintained

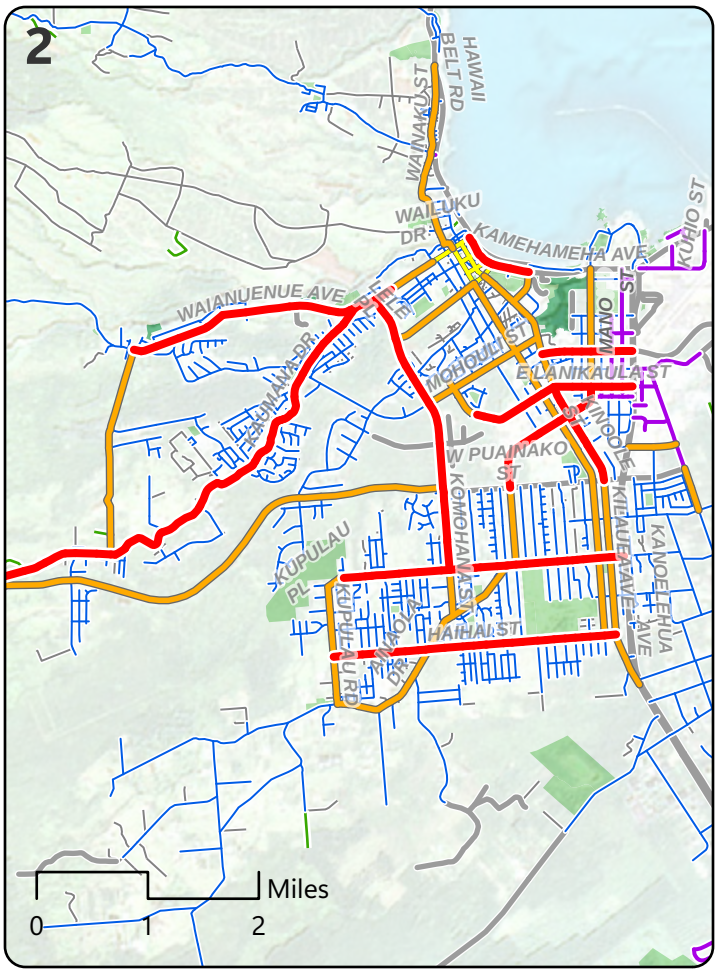
### Urban Areas / Towns

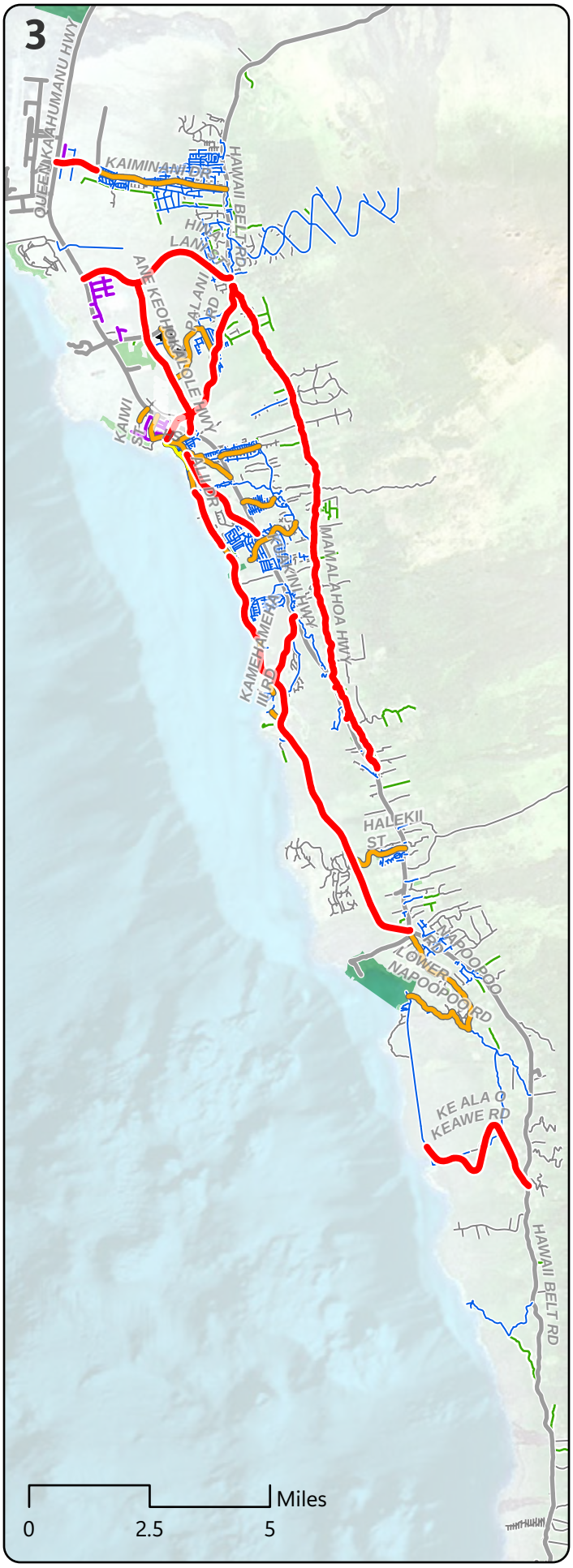
- Large
- Small

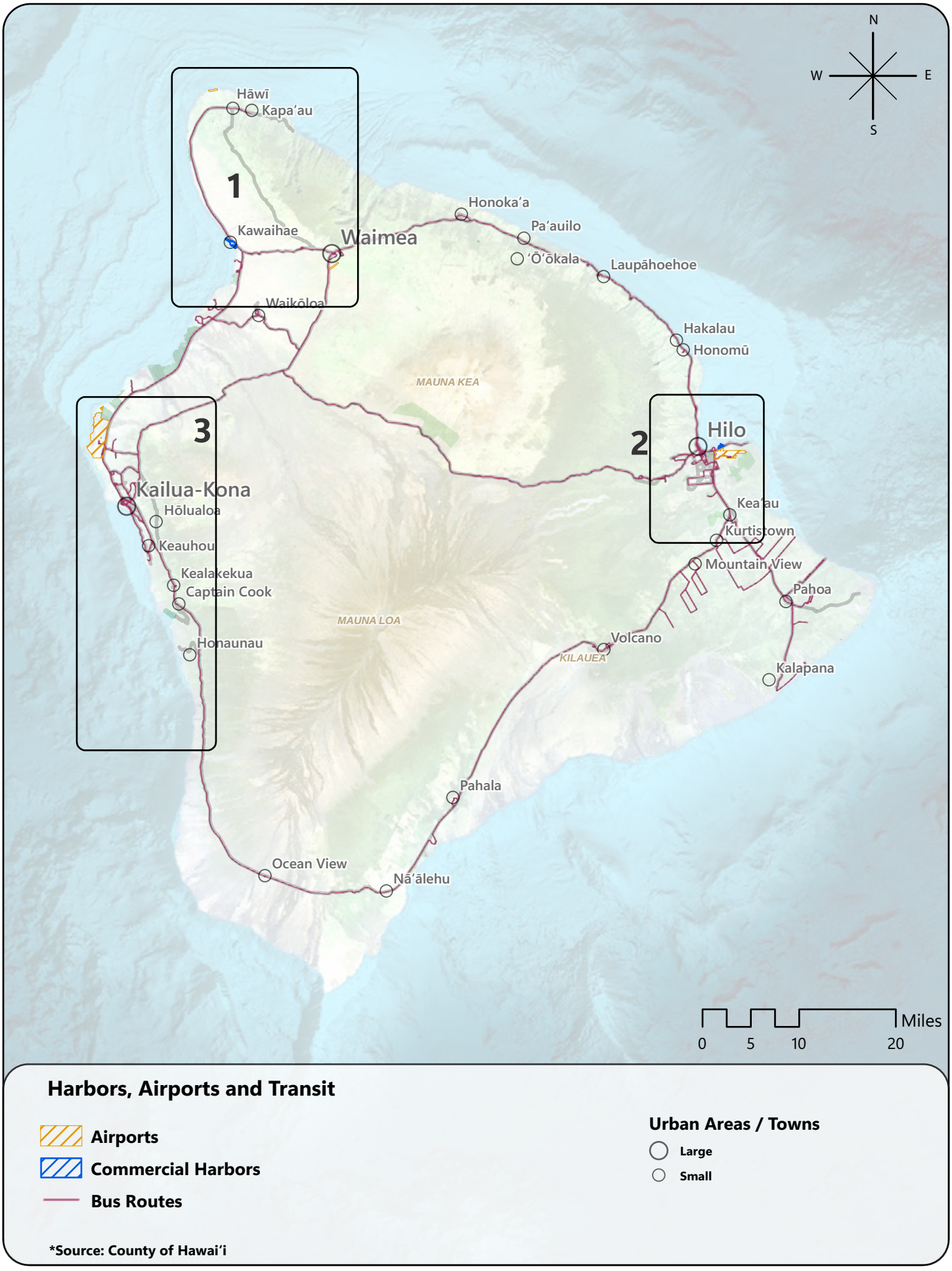
*Source: County of Hawai'i

**Map 15**

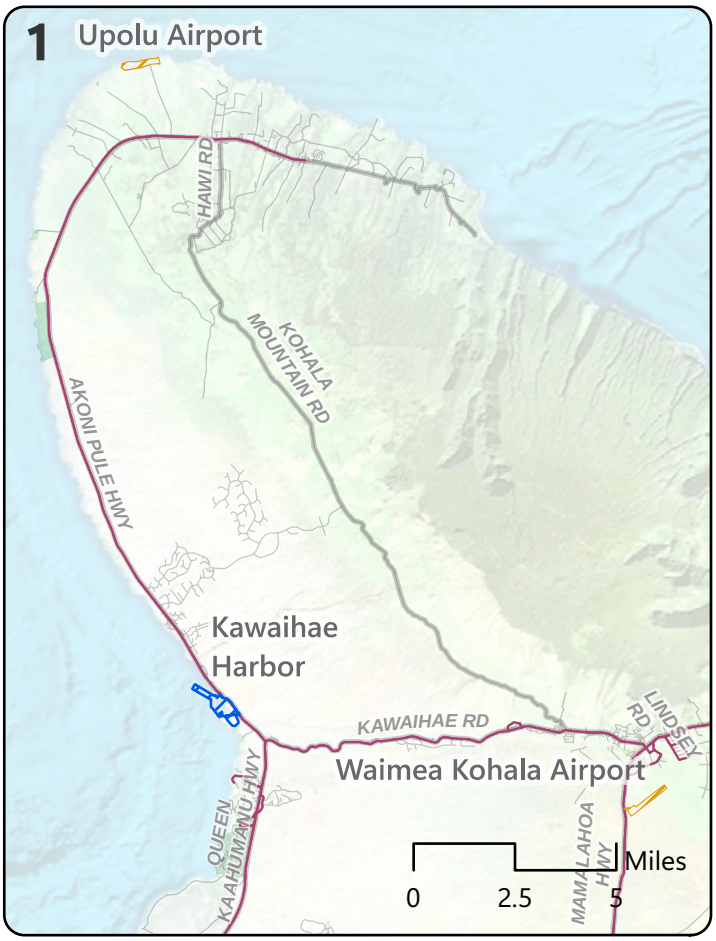

1
KOHALA MOUNTAIN RD
KAWAIHAE RD
HAWAII BELT RD
MAMALAHOA HWY
WAIKOLOA RD
HAWAII BELT RD
Miles
0
2.5
5


2
HAWAII BELT RD
WAIANUENUE AVE
KAMEHAMEHA AVE
KUHIO ST
MOHOULI ST
MAMO ST
ELANIKAULA ST
W PUAINAKO ST
KOMOHANA ST
HAIHAI ST
KUPULAU PL
KUPUHAU RD
KAMOELEHUA AVE
KILAUEA AVE
Miles
0
1
2

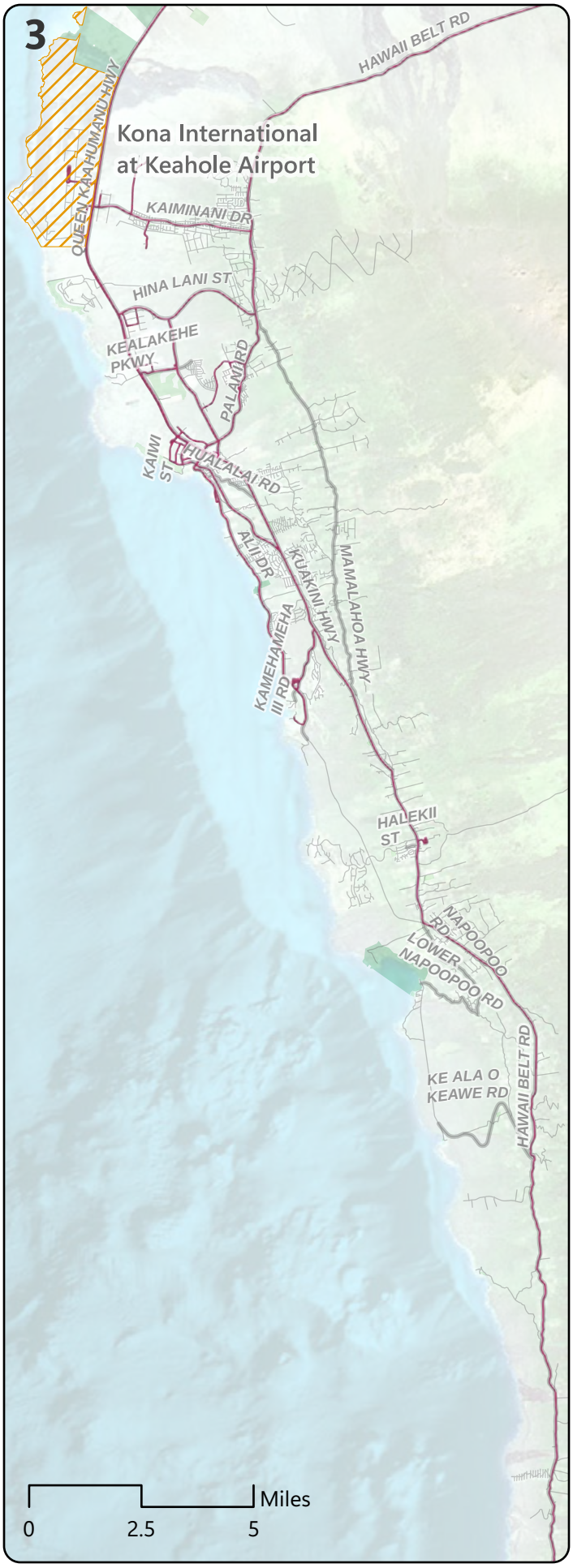

3
QUEEN KAAHUMANU HWY
KAIMINANI DR
HAWAII BELT RD
ANE KEOHOKALOLE HWY
KAIWI ST
MAMALAHOA HWY
KAMEHAMEHA III RD
HALEKII ST
LOWER NAPOOPOO RD
KE ALA O KEAWE RD
HAWAII BELT RD
Miles
0
2.5
5


N
W
E
S
1
2
3
Hāwī
Kapa'au
Kawaihae
Waimea
Honoka'a
Pa'auilo
'Ō'ōkala
Laupāhoehoe
Waikōloa
Hakalau
Honomū
MAUNA KEA
Hilo
Kailua-Kona
Hōlualoa
Keauhou
Kealakekua
Captain Cook
Honaunau
MAUNA LOA
Kea'au
Kurtistown
Mountain View
Pahoa
Volcano
KILAUEA
Kalapana
Pahala
Ocean View
Nā'ālehu
Miles
0
5
10
20
Harbors, Airports and Transit
Airports
Commercial Harbors
Bus Routes
Urban Areas / Towns
Large
Small
*Source: County of Hawai'i

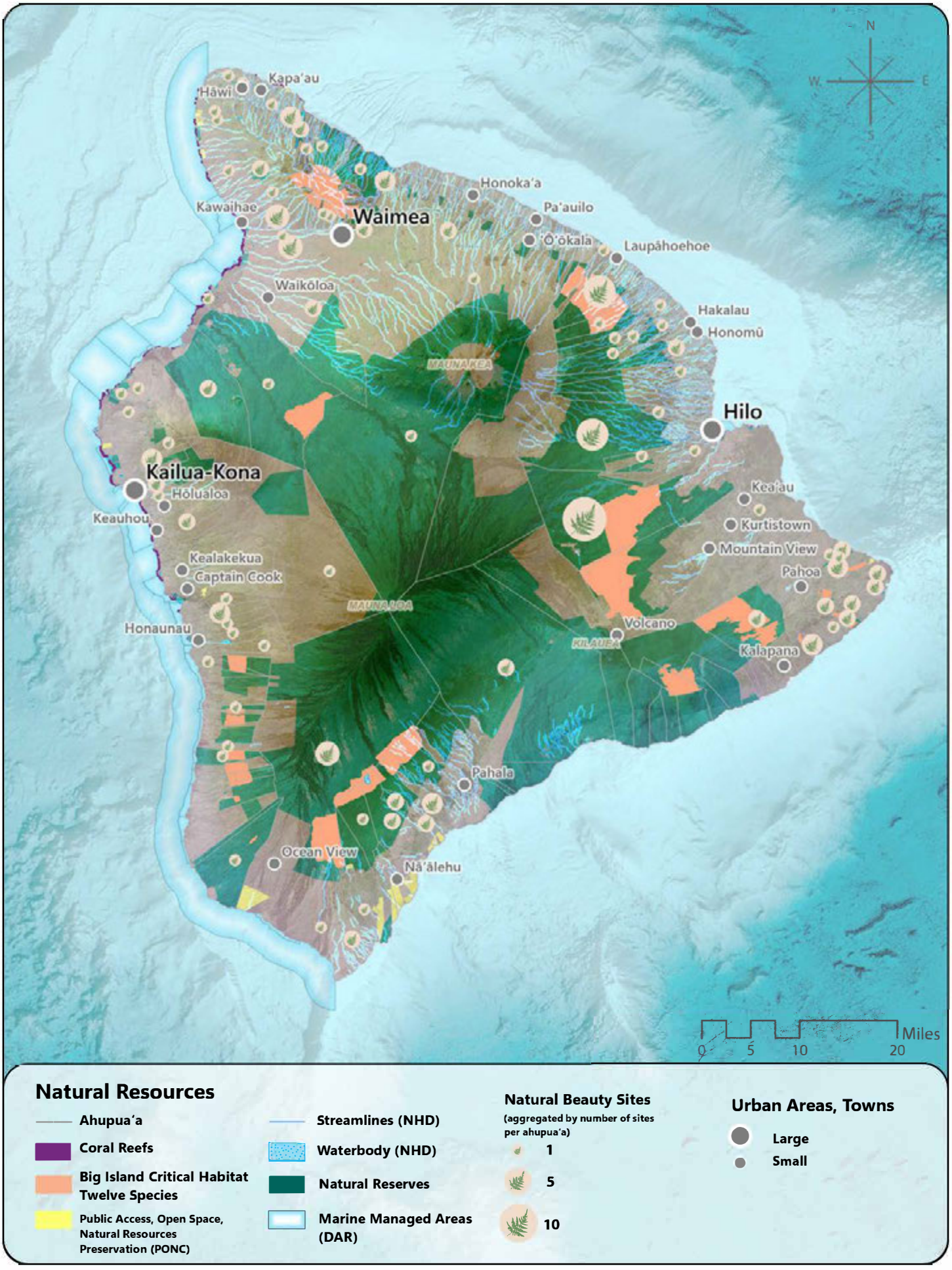
Map 17


1
Upolu Airport
HAWI RD
KOHALA MOUNTAIN RD
AKONI PULE HWY
Kawaihae Harbor
KAWAIHAE RD
LINDSEY RD
Waimea Kohala Airport
QUEEN KAAHUMANU HWY
MAMALAHOA HWY
0 2.5 5 Miles

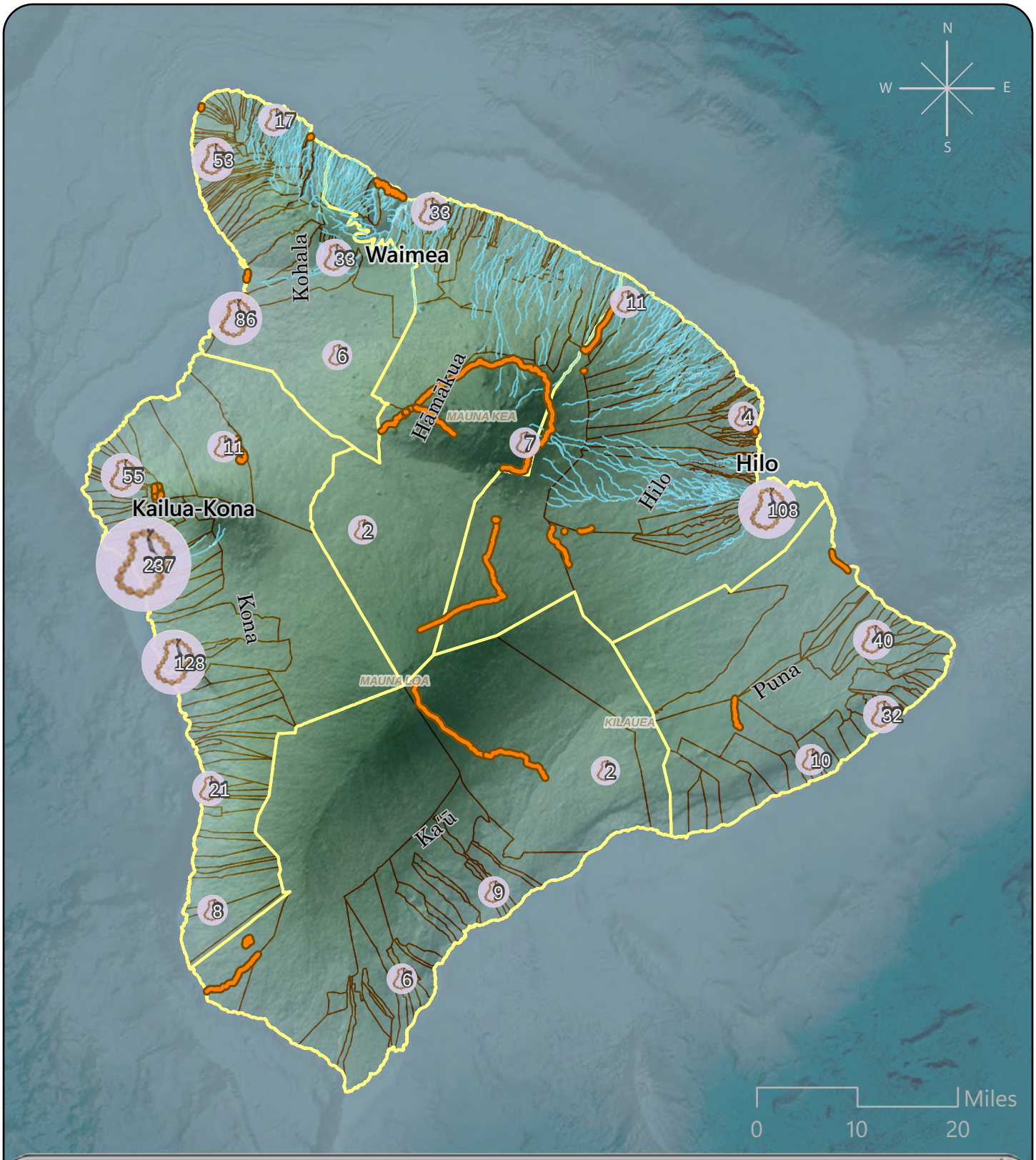

2
HAWAII BELT RD
WAINAKU ST
KALANIANAOLE ST
Hilo Harbor
KAMEHAMEHA AVE
WAIANUENUE AVE
LEIMOMI PL
KAUMANA DR
MOHOULI ST
KINOOLE ST
KILAUEA AVE
Hilo International Airport
KUPULAU PL
KOMOHANA ST
HAIHAI ST
AINAOLA DR
KANOELEHUA AVE
KEAAU BYPASS RD
VOLCANO RD
0 1 2 Miles


3
HAWAII BELT RD
QUEEN KAAHUMANU HWY
Kona International at Keahole Airport
KAIMINANI DR
HINA LANI ST
KEALAKEHE PKWY
PALANI RD
KAIMI ST
HUALALAI RD
ALII DR
KUAKINI HWY
MAMALAHOA HWY
KAMEHAMEHA III RD
HALEKII ST
NAPOOPOO RD
LOWER NAPOOPOO RD
KE ALA O KEAWE RD
HAWAII BELT RD
0 2.5 5 Miles

**Map 18**


N
W
E
S
Kapa'au
Hāwī
Honoka'a
Kawaihae
Waimea
Pa'auilo
'Ō'ōkala
Laupāhoehoe
Waikōloa
Hakalau
Honomū
MAUNA KEA
Hilo
Kailua-Kona
Hōlualoa
Kea'au
Keauhou
Kurtistown
Mountain View
Kealakekua
Captain Cook
Pahoa
MAUNA LOA
Honaunau
Volcano
KILAUEA
Kalapana
Pahala
Ocean View
Nā'ālehu
Miles
0
5
10
20
Natural Resources
Ahupua'a
Coral Reefs
Big Island Critical Habitat Twelve Species
Public Access, Open Space, Natural Resources Preservation (PONC)
Streamlines (NHD)
Waterbody (NHD)
Natural Reserves
Marine Managed Areas (DAR)
Natural Beauty Sites
(aggregated by number of sites per ahupua'a)
1
5
10
Urban Areas, Towns
Large
Small

**Map 19**



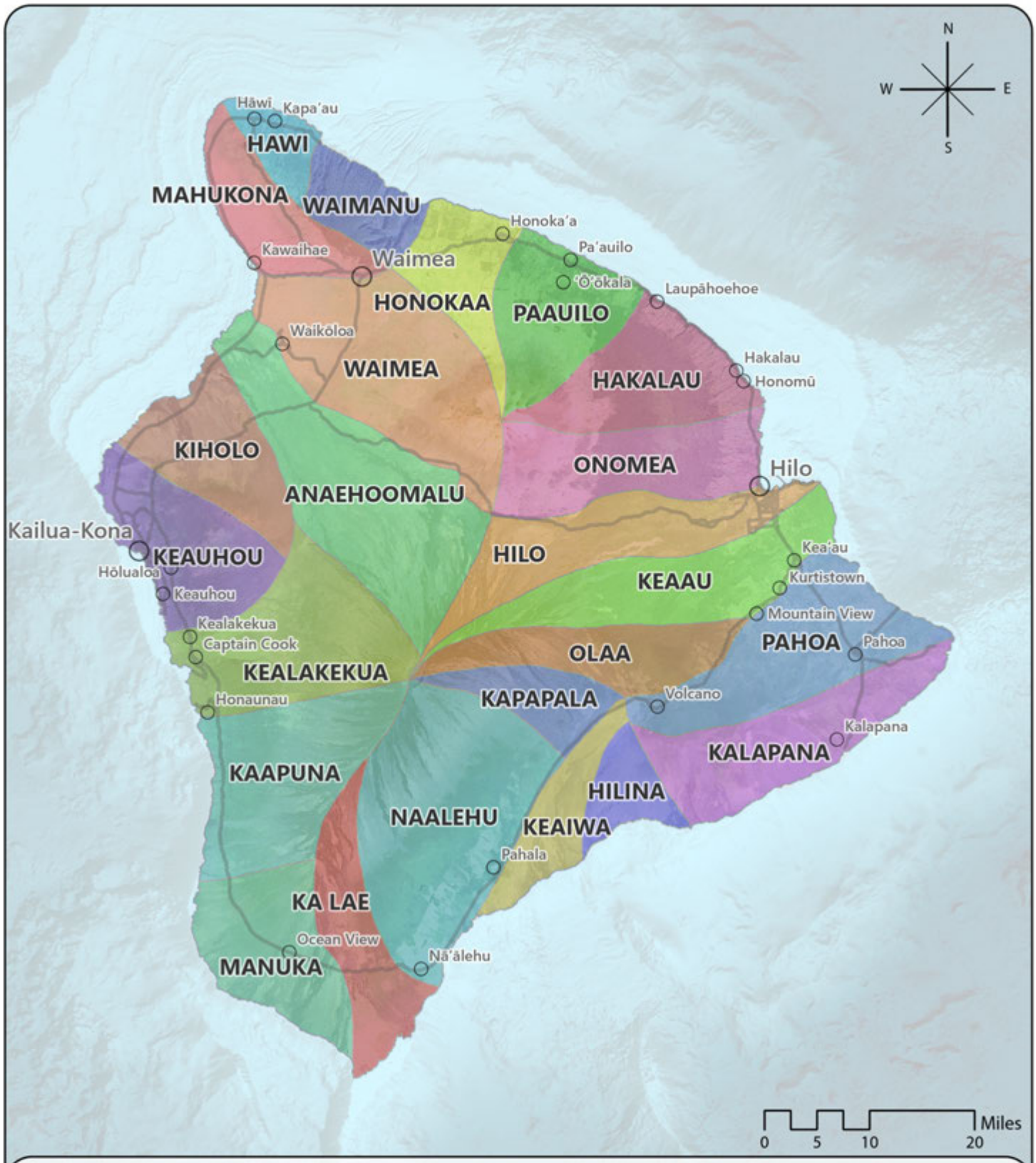

## Cultural Resources

- Streams with Cultural Resources (HSA)
- Na Ala Hele Trails
- Moku
- Ahupua'a
- State Historic Preservation Division (SHPD) Sites (aggregated by number of sites per ahupua'a)

Culturally significant resources, sites, and land divisions around the Island of Hawai'i.

Sources include Office of Hawaiian Affairs (OHA), State Historic Preservation Division (SHPD), Na Ala Hele Trail Specialists at the Department of Forestry and Wildlife (DOFAW), and Department of Land and Natural Resources (DLNR) Commission on Water Resource Management.

**Map** 20




**Aquifers***

**Aquifer System**

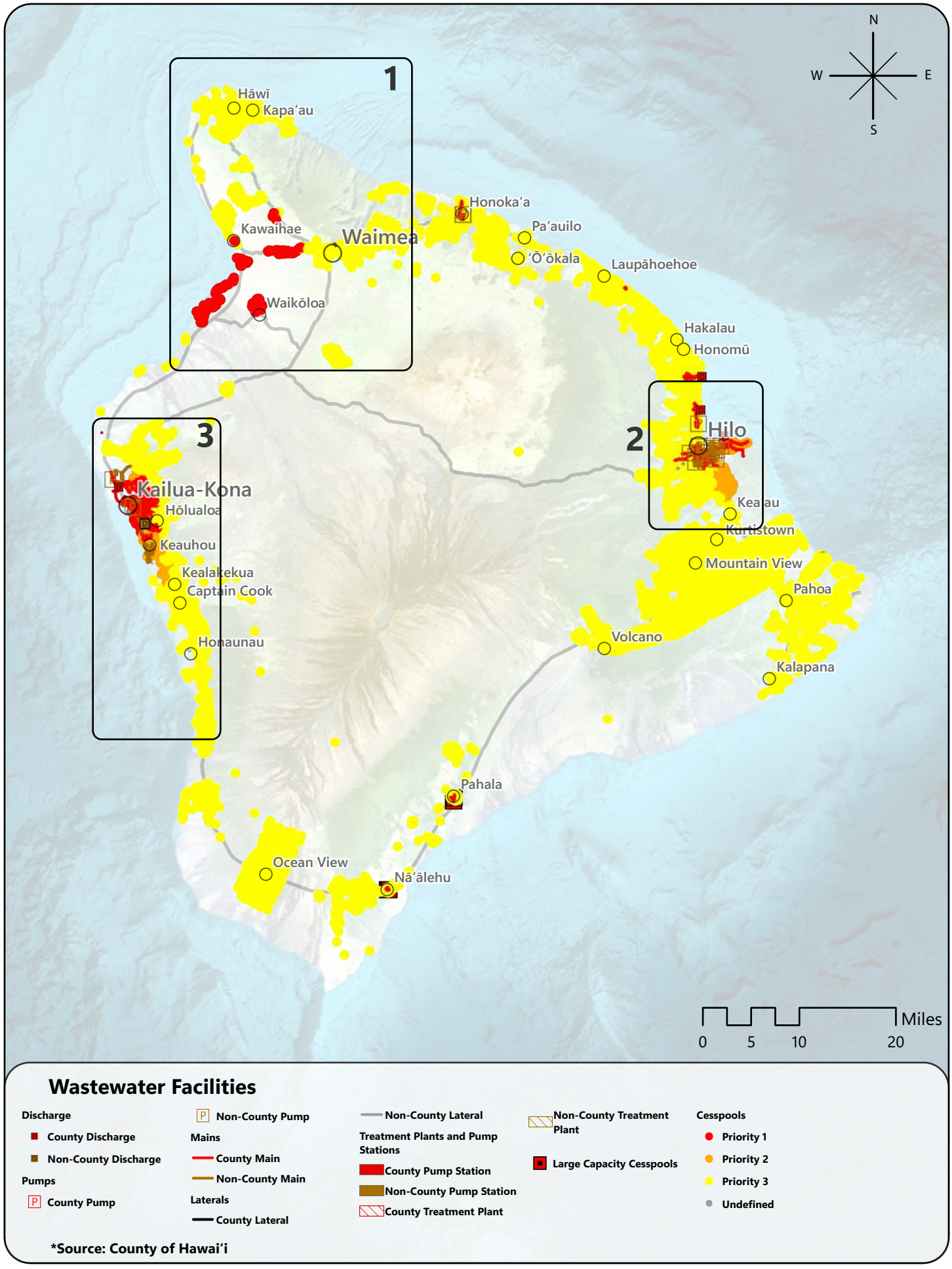
**Urban Areas / Towns**

- **Large**
- **Small**

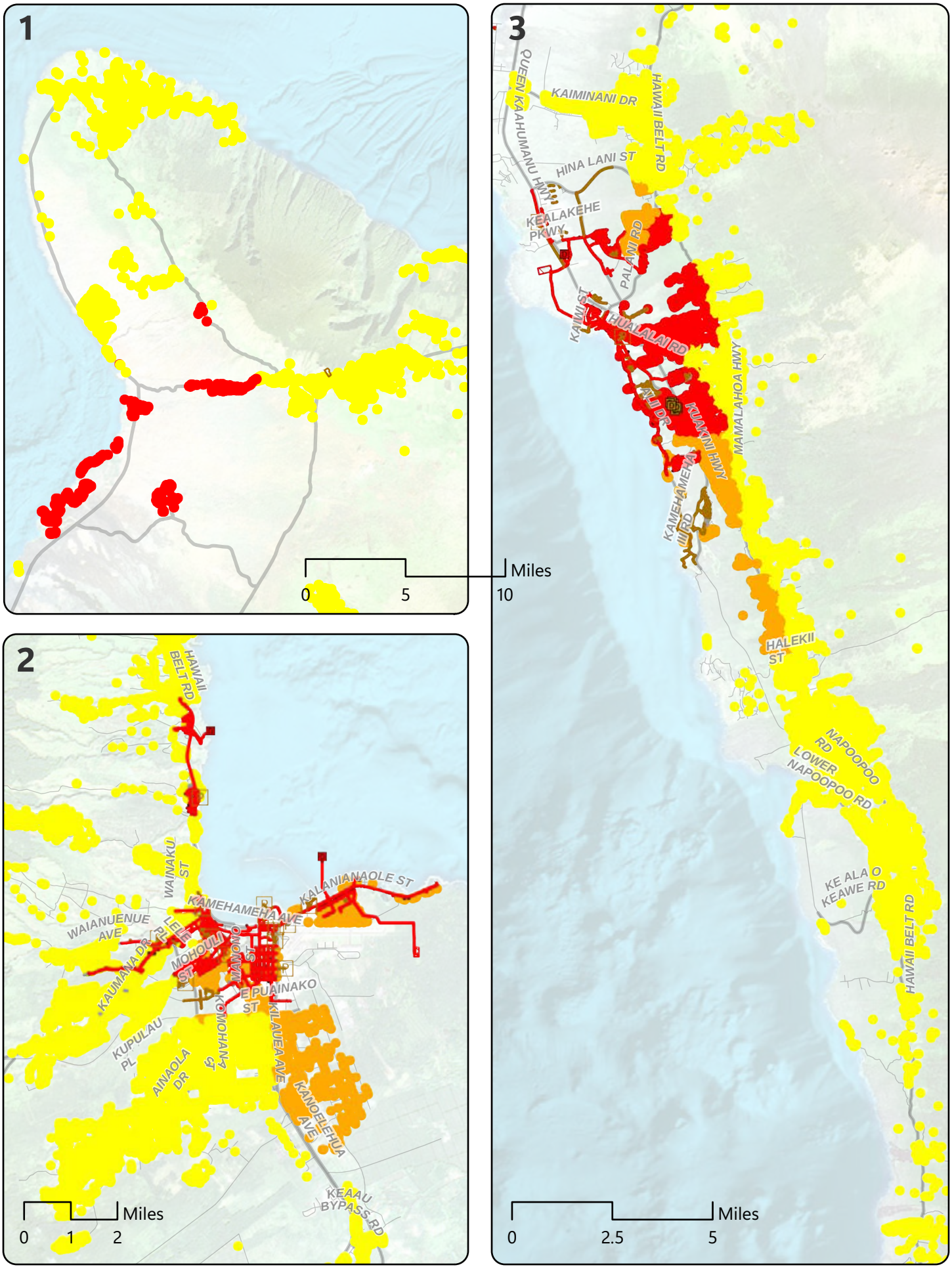
Aquifer Sector Area and (smaller, sub-region) Aquifer System Area boundaries, as determined/defined by the State Department of Land and Natural Resources, Commission on Water Resource Management to provide a consistent basis for managing ground water resources. Aquifer sector and system area boundaries were adopted to provide a consistent method by which to reference and describe ground water resources and to assist in various water planning efforts. These boundaries are not meant to be interpreted as absolute hydrologic boundaries. For more information on aquifer area boundaries, aquifer descriptions, and sustainable yields, please refer to the Hawaii Water Plan, Water Resource Protection Plan Update, 2019.

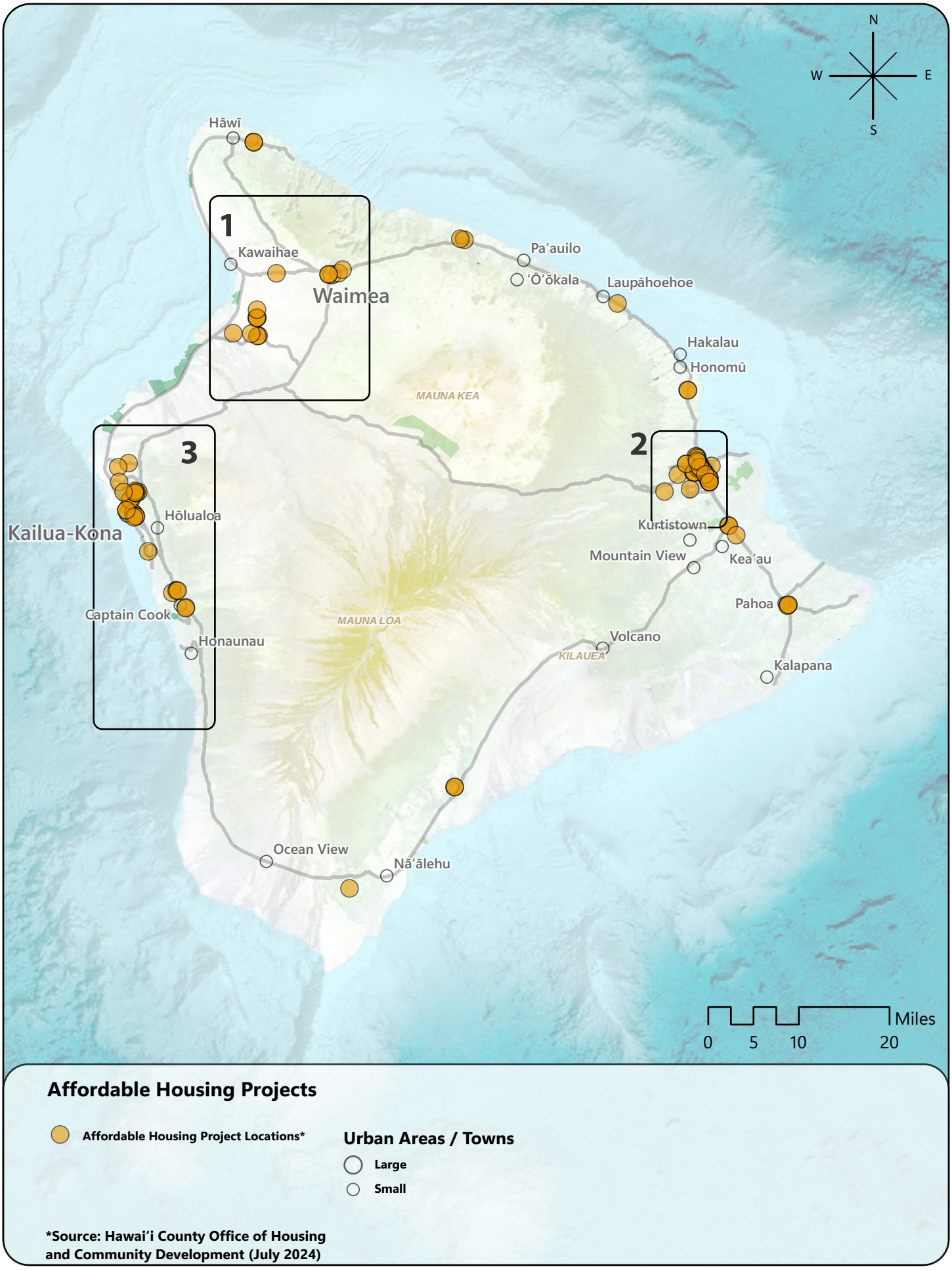
***Source: State of Hawaii Dept. of Land and Natural Resources, received updated layer, August 2022.**

**Map 21**


1
2
3
N
W
E
S
Hāwī
Kapa'au
Kawaihae
Waimea
Waikōloa
Honoka'a
Pa'auilo
'Ō'ōkala
Laupāhoehoe
Hakalau
Honomū
Hilo
Kea'au
Kurtistown
Mountain View
Pahoa
Volcano
Kalapana
Kailua-Kona
Hōlualoa
Keauhou
Kealakekua
Captain Cook
Honaunau
Pahala
Ocean View
Nā'ālehu
0
5
10
20
Miles
Wastewater Facilities
Discharge
County Discharge
Non-County Discharge
Pumps
County Pump
Non-County Pump
Mains
County Main
Non-County Main
Laterals
County Lateral
Non-County Lateral
Treatment Plants and Pump Stations
County Pump Station
Non-County Pump Station
County Treatment Plant
Non-County Treatment Plant
Large Capacity Cesspools
Cesspools
Priority 1
Priority 2
Priority 3
Undefined
*Source: County of Hawai'i

Map 22


1
0
5
Miles
10
2
HAWAII BELT RD
WAINAKU ST
KAMEHAMEHA AVE
KALANIANAOLE ST
WAIANUENUE AVE
KAUMANA DR
MOHOULI ST
ONOMEA ST
PUAINAKO ST
KUPULAU PL
AINAOLA DR
KOHOHANA ST
KILAUEA AVE
KANOELEHUA AVE
KEAAU BYPASS RD
0
1
2
Miles
3
QUEEN KAAHUMANU HWY
KAIMINANI DR
HAWAII BELT RD
HINA LANI ST
KEALAKEHE PKWY
PALANI RD
KAIWI ST
HUALALAI RD
ALII DR
KUAKINI HWY
MAMALAHOA HWY
KAMEHAMEHA III RD
HALEKII ST
NAPOOPOO RD
LOWER NAPOOPOO RD
KE ALA O KEAWE RD
HAWAII BELT RD
0
2.5
5
Miles




## Affordable Housing Projects

Affordable Housing Project Locations*

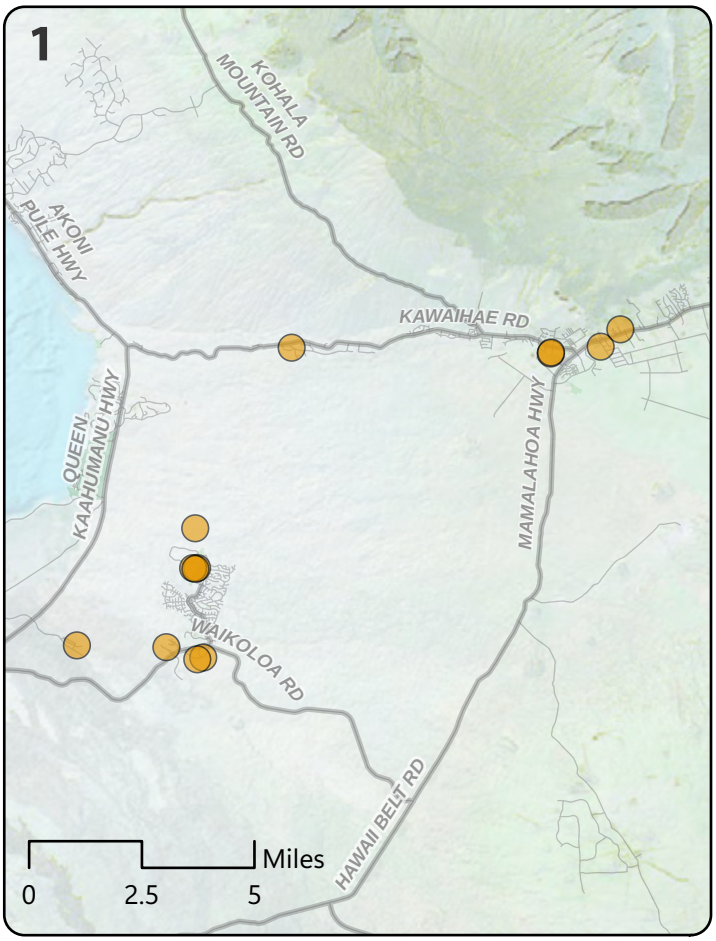
### Urban Areas / Towns

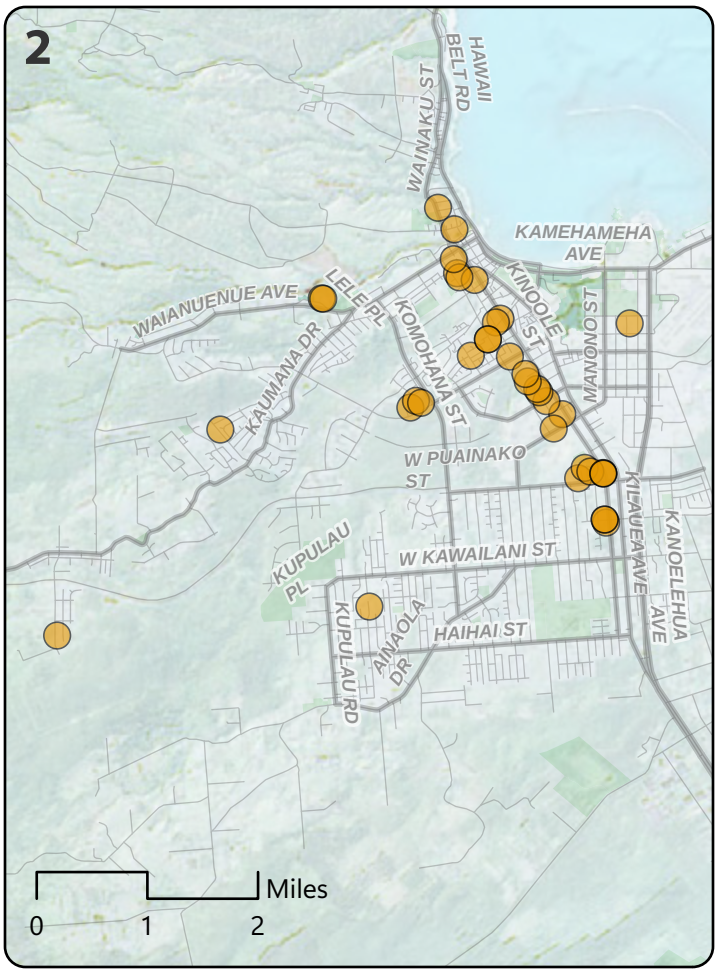
Large

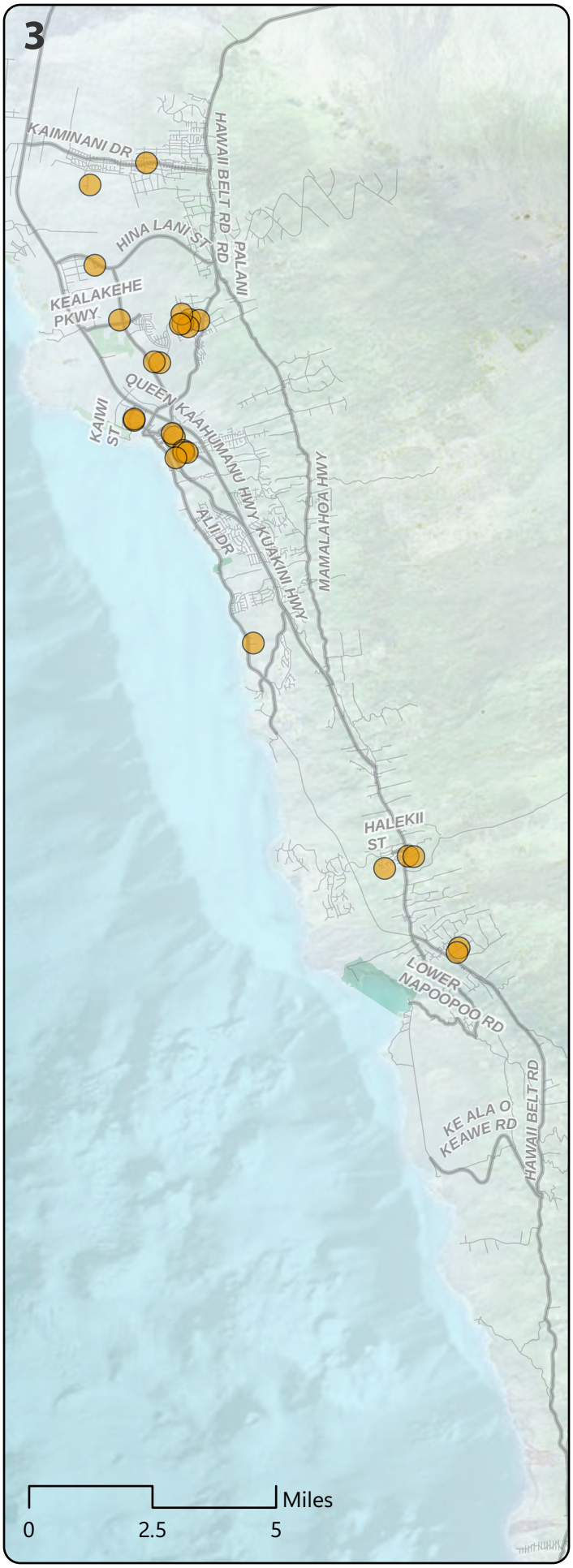
Small

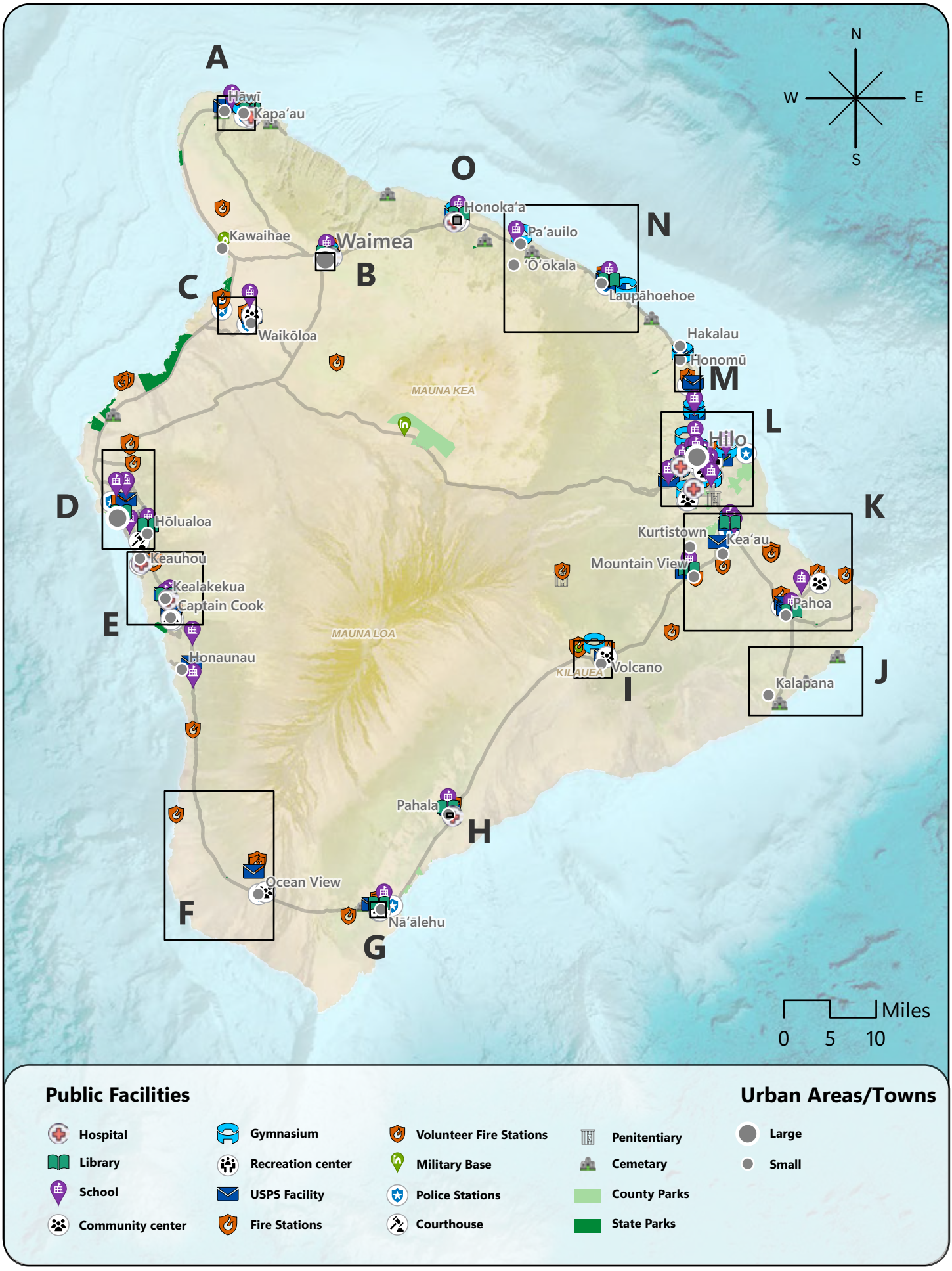
*Source: Hawai'i County Office of Housing and Community Development (July 2024)

**Map 24**

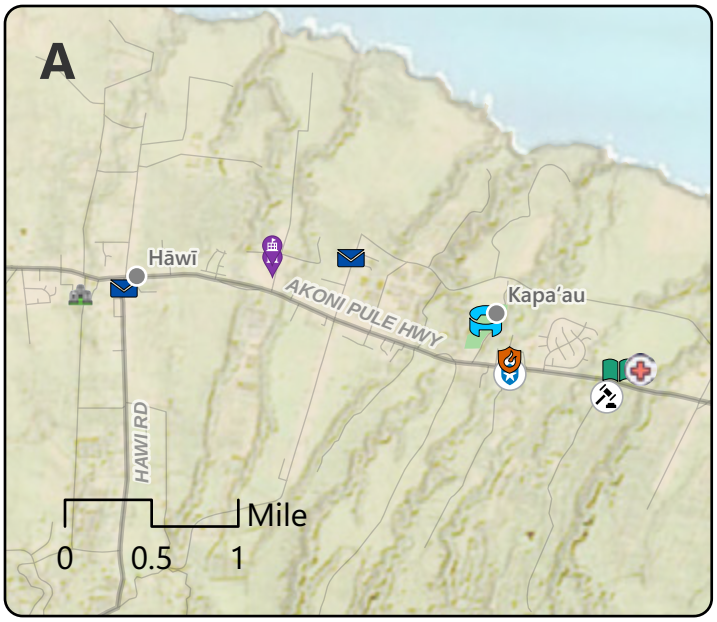

1
KOHALA MOUNTAIN RD
AKONI PULE HWY
KAWAIHAE RD
QUEEN KAAHUMANU HWY
MAMALAHOA HWY
WAIKOLOA RD
HAWAII BELT RD
Miles
0
2.5
5

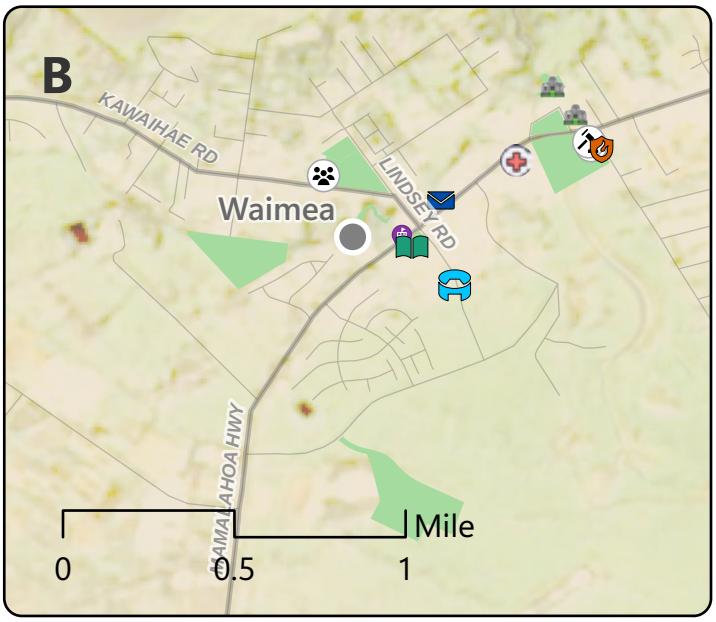

2
HAWAII BELT RD
WAINAKU ST
KAMEHAMEHA AVE
WAIANUENUE AVE
LELE PL
KINOOLE ST
KOMOHANA ST
KAUMANA DR
W PUAINAKO ST
KUPULAU PL
W KAWAILANI ST
KILAUEA AVE
KANOELEHUA AVE
KUPULAU RD
AINAOLA DR
HAIHAI ST
Miles
0
1
2

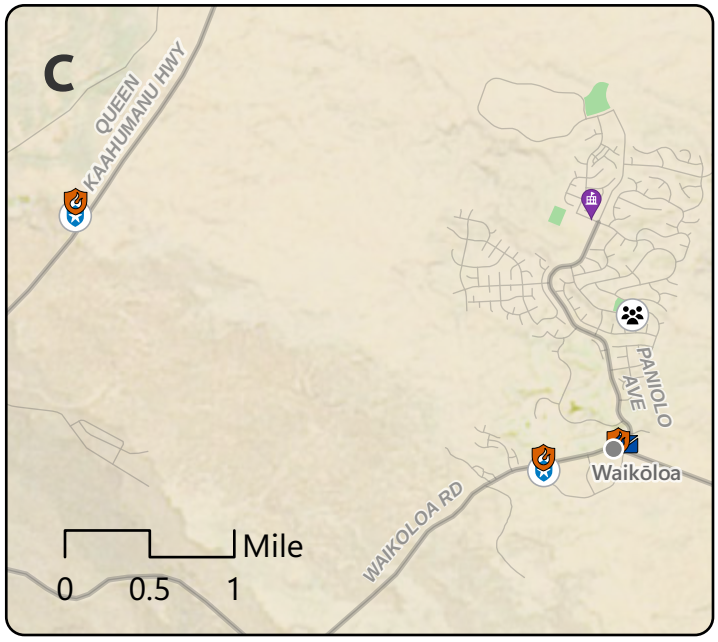

3
KAIMINANI DR
HAWAII BELT RD
PALANI RD
HINA LANI ST
KEALAKEHE PKWY
KAIWI ST
QUEEN KAAHUMANU HWY
ALII DR
KUAKINI HWY
MAMALAHOA HWY
HALEKII ST
LOWER NAPOOPOO RD
KE ALA O KEAWE RD
HAWAII BELT RD
Miles
0
2.5
5

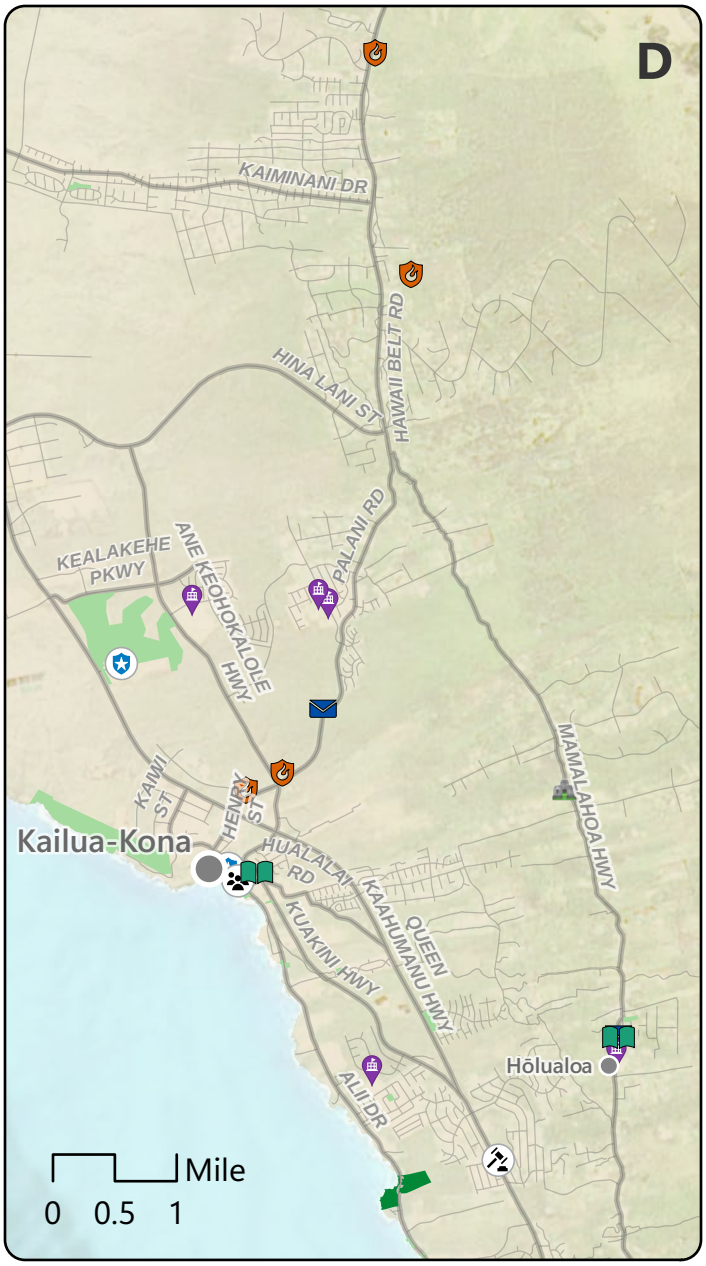

A
Hāwī
Kapa'au
O
Honoka'a
N
Pa'auilo
'O'ōkala
Laupāhoehoe
Kawaihae
Waimea
B
C
Waikōloa
Hakalau
Honomū
M
MAUNA KEA
L
Hilo
D
Hōlualoa
K
Kurtistown
Kea'au
Mountain View
Pahoa
Kealakekua
Captain Cook
E
MAUNA LOA
Honaunau
KILAUEA
Volcano
I
J
Kalapana
Pahala
H
Ocean View
F
Nā'ālehu
G
N
W
E
S
Miles
0 5 10
Public Facilities
Hospital
Library
School
Community center
Gymnasium
Recreation center
USPS Facility
Fire Stations
Volunteer Fire Stations
Military Base
Police Stations
Courthouse
Penitentiary
Cemetary
County Parks
State Parks
Urban Areas/Towns
Large
Small

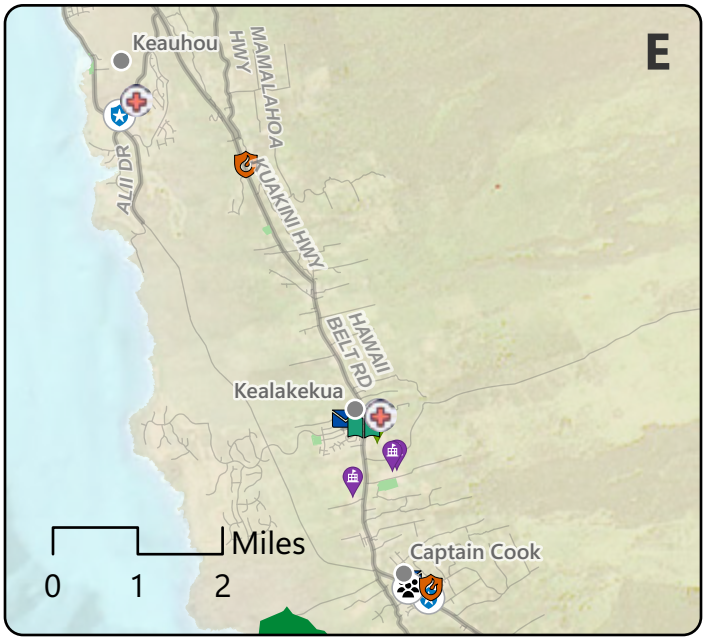
Map 26


A
Hāwī
AKONI PULE HWY
Kapa'au
HAWI RD
0 0.5 1 Mile

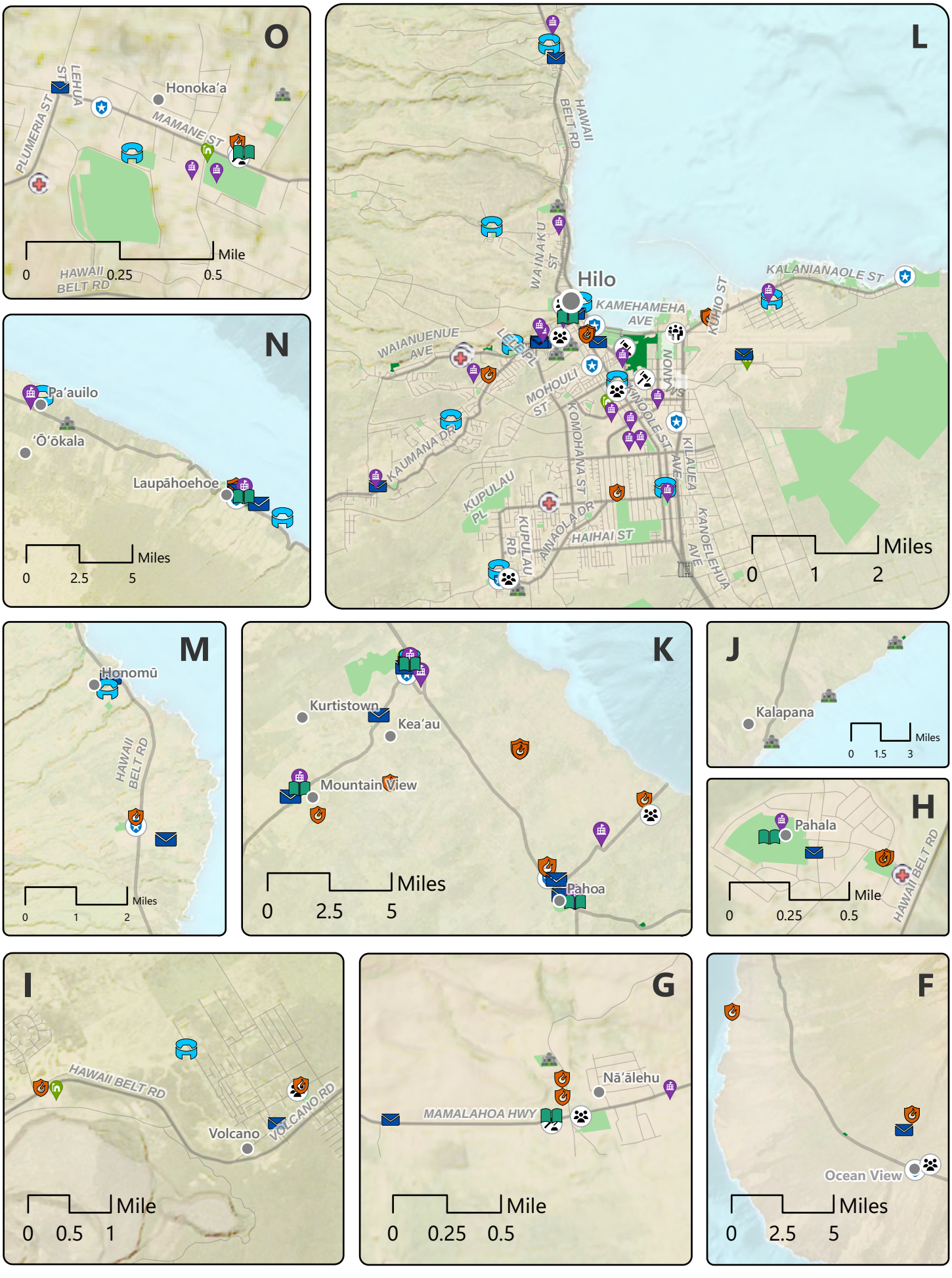

B
KAWAIHAE RD
Waimea
LINDSEY RD
MAMALAHOA HWY
0 0.5 1 Mile

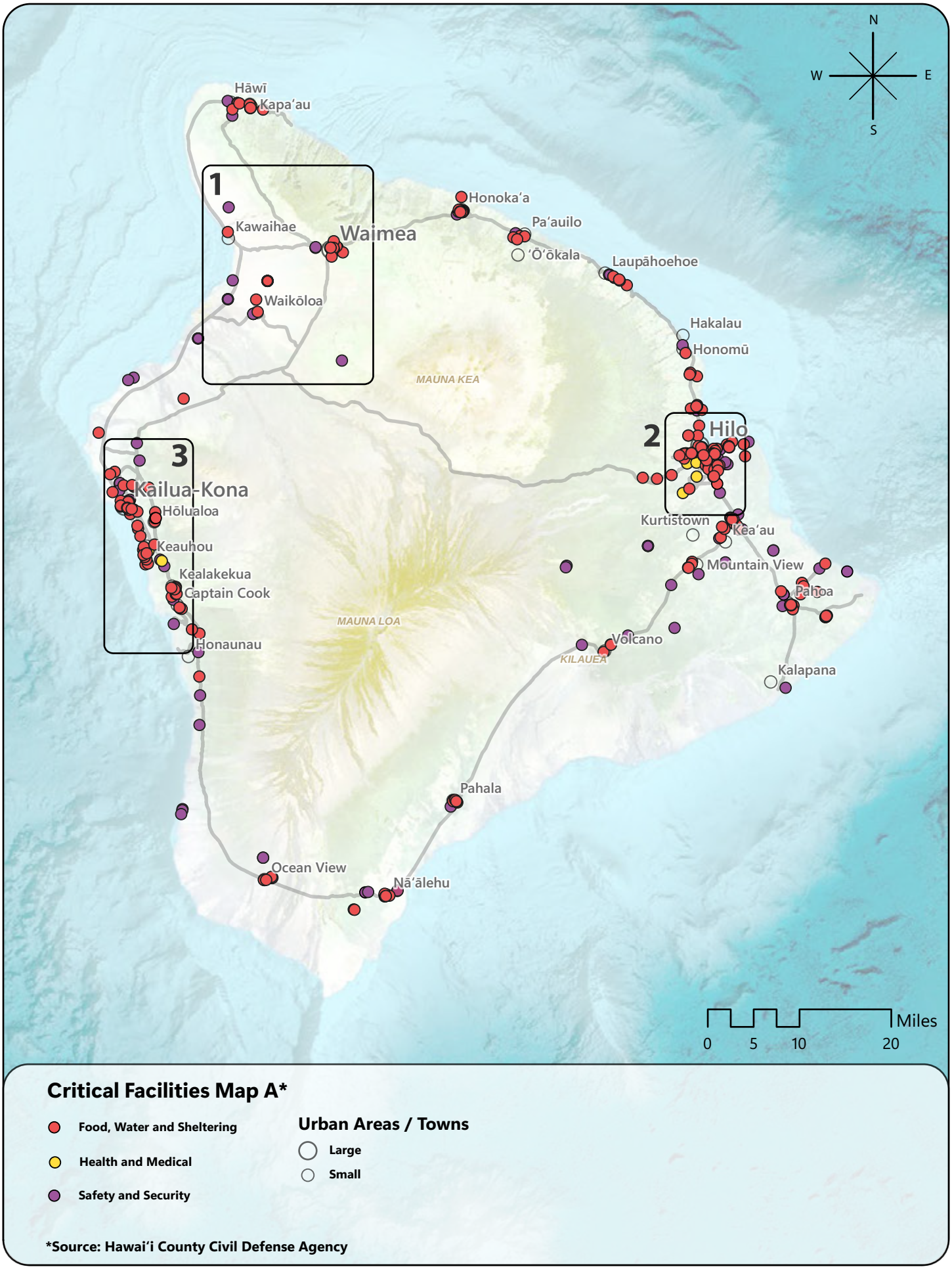

C
QUEEN KAAHUMANU HWY
PANIOLO AVE
Waikōloa
WAIKOLOA RD
0 0.5 1 Mile


D
KAIMINANI DR
HINA LANI ST
HAWAII BELT RD
KEALAKEHE PKWY
ANE KEOHOKALOLE HWY
PALANI RD
KAWI ST
HENRY ST
Kailua-Kona
HUALALAI RD
KUAKINI HWY
QUEEN KAAHUMANU HWY
MAMALAHOA HWY
ALII DR
Hōlualoa
0 0.5 1 Mile


E
Keauhou
MAMALAHOA HWY
ALII DR
KUAKINI HWY
HAWAII BELT RD
Kealakekua
Captain Cook
0 1 2 Miles

**Map** 27


O
Honoka'a
LEHUA ST
PLUMERIA ST
MAMANE ST
HAWAII BELT RD
0 0.25 0.5 Mile
L
Hilo
HAWAII BELT RD
WAINAKU ST
KAMEHAMEHA AVE
KALANIANAOLE ST
KOHIO ST
WAIANUENUE AVE
LEGHORN ST
MOHOULI ST
KOMOHANA ST
KAUMANA DR
KUPULAU PL
KUPULAU RD
AINAOLA DR
HAIHAI ST
KILAUEA AVE
KANOELEHUA AVE
0 1 2 Miles
N
Pa'auilo
'Ō'ōkala
Laupāhoehoe
0 2.5 5 Miles
M
Honomū
HAWAII BELT RD
0 1 2 Miles
K
Kurtistown
Kea'au
Mountain View
Pāhoa
0 2.5 5 Miles
J
Kalapana
0 1.5 3 Miles
H
Pahala
HAWAII BELT RD
0 0.25 0.5 Mile
I
HAWAII BELT RD
Volcano
VOLCANO RD
0 0.5 1 Mile
G
Nā'ālehu
MAMALAHOA HWY
0 0.25 0.5 Mile
F
Ocean View
0 2.5 5 Miles



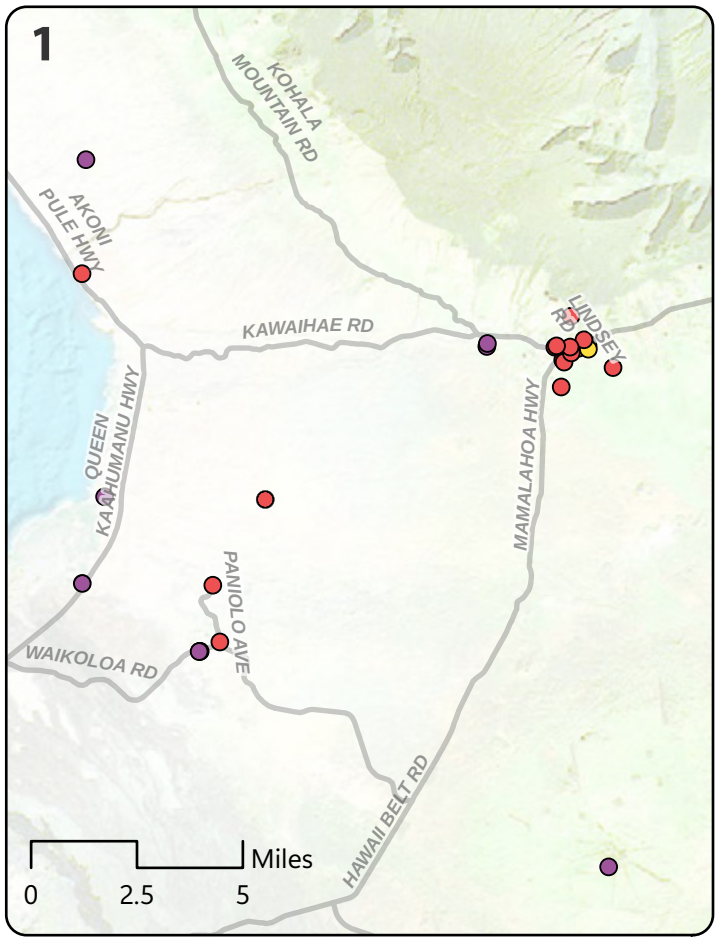

## Critical Facilities Map A*

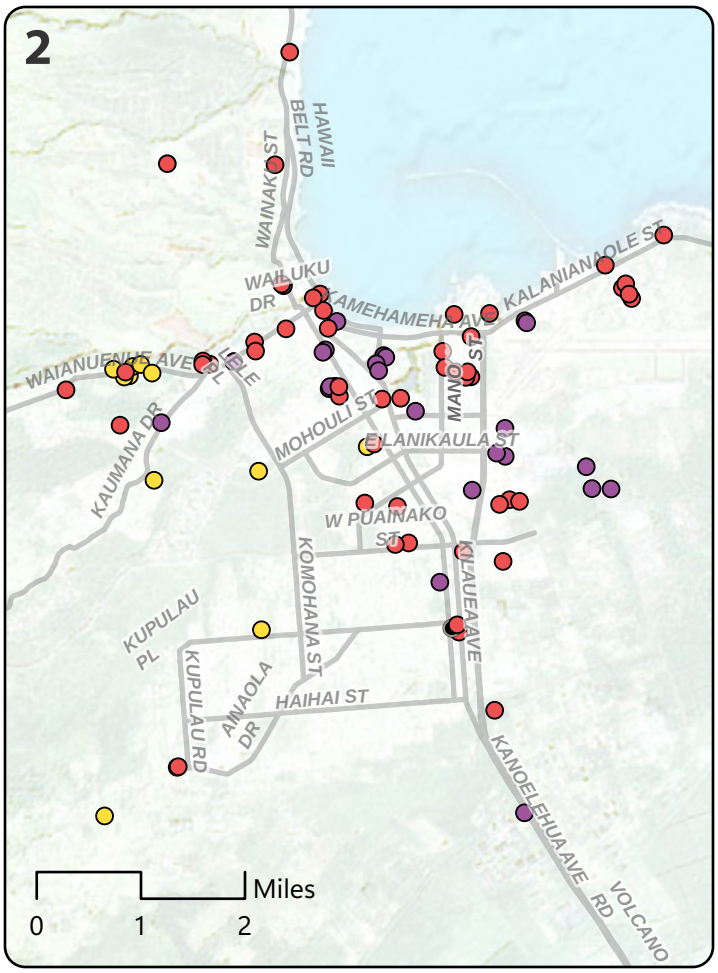
- Food, Water and Sheltering
- Health and Medical
- Safety and Security

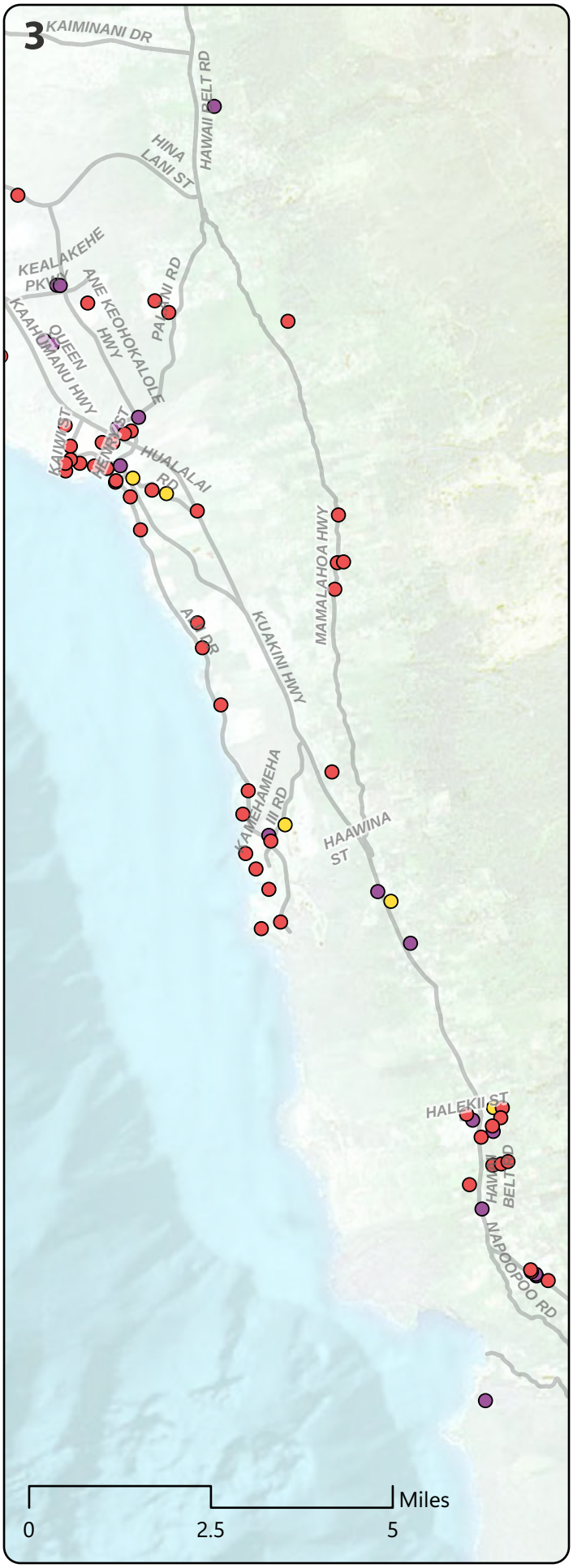
### Urban Areas / Towns

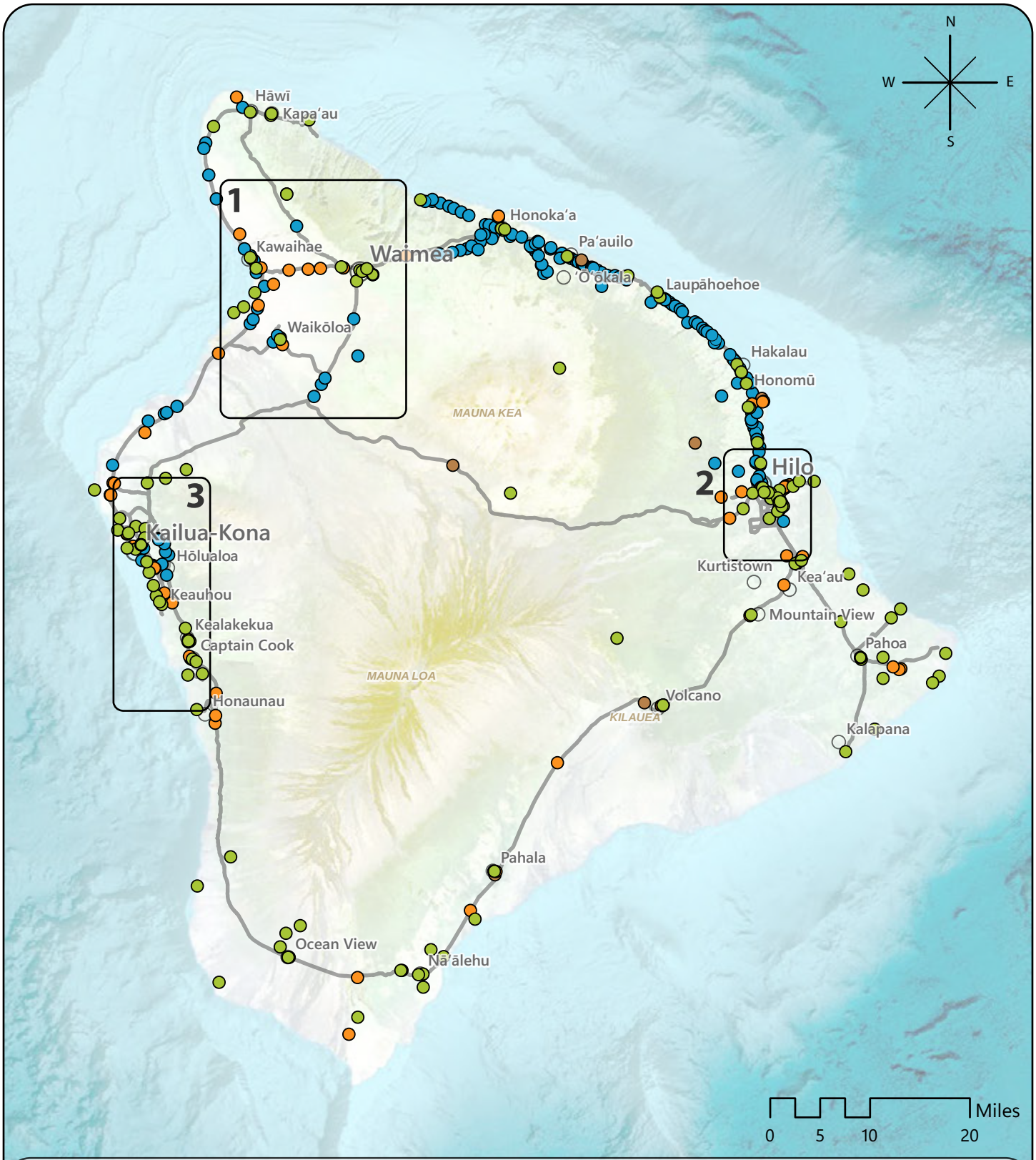
- Large
- Small

*Source: Hawai'i County Civil Defense Agency


1
KOHALA MOUNTAIN RD
AKONI PULE HWY
KAWAIHAE RD
LINDSEY RD
QUEEN KAAHUMANU HWY
MAMALAHOA HWY
PANIOLO AVE
WAIKOLOA RD
HAWAII BELT RD
Miles
0
2.5
5


2
HAWAII BELT RD
WAINAKU ST
WAILUKU DR
KAMEHAMEHA AVE
KALANIANAOLE ST
WAIANUENUE AVE
KAUMANA DR
MOHOULI ST
MANONO ST
ULANIKAULA ST
W PUAINAKO ST
KOMOHANA ST
KUPULAU PL
KUPULAU RD
AMAOLA DR
HAIHAI ST
KILAUEA AVE
KANOELEHUA AVE
VOLCANO RD
Miles
0
1
2


3
KAIMINANI DR
HAWAII BELT RD
HINA LANI ST
KEALAKEHE PKWY
ANE KEOHOKALOLE HWY
PAAKII RD
QUEEN KAAHUMANU HWY
KAWILI ST
HUALALAI RD
A DR
KUAKINI HWY
MAMALAHOA HWY
KAMEHAMEHA III RD
HAAWINA ST
HALEKII ST
HAWAII BELT RD
NAPOOPOO RD
Miles
0
2.5
5




## Critical Facilities Map B*

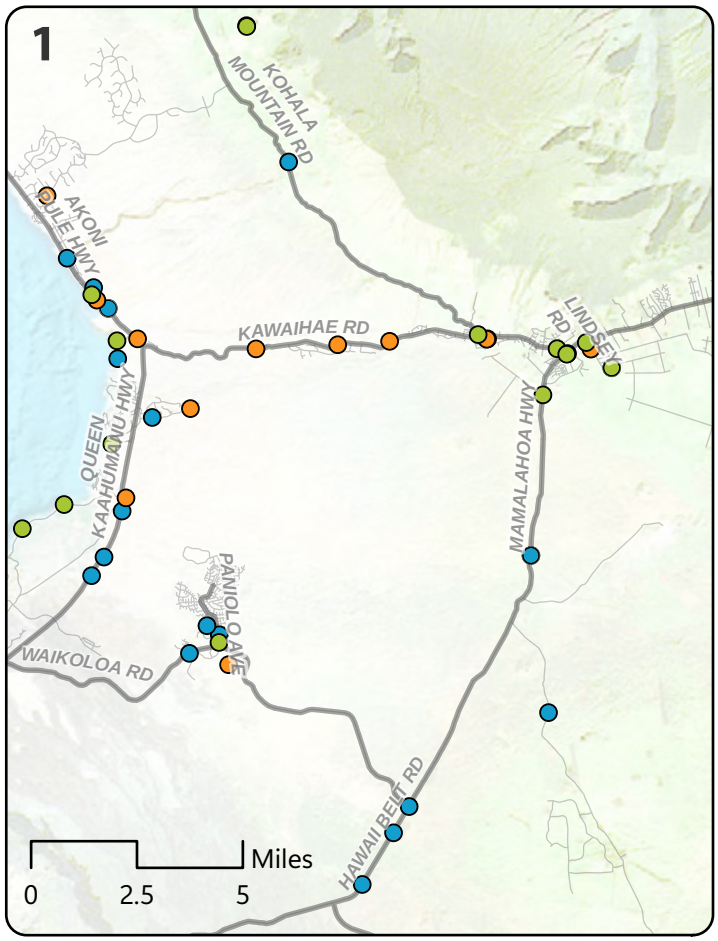
- Energy
- Hazardous Materials
- Bridges
- Communications

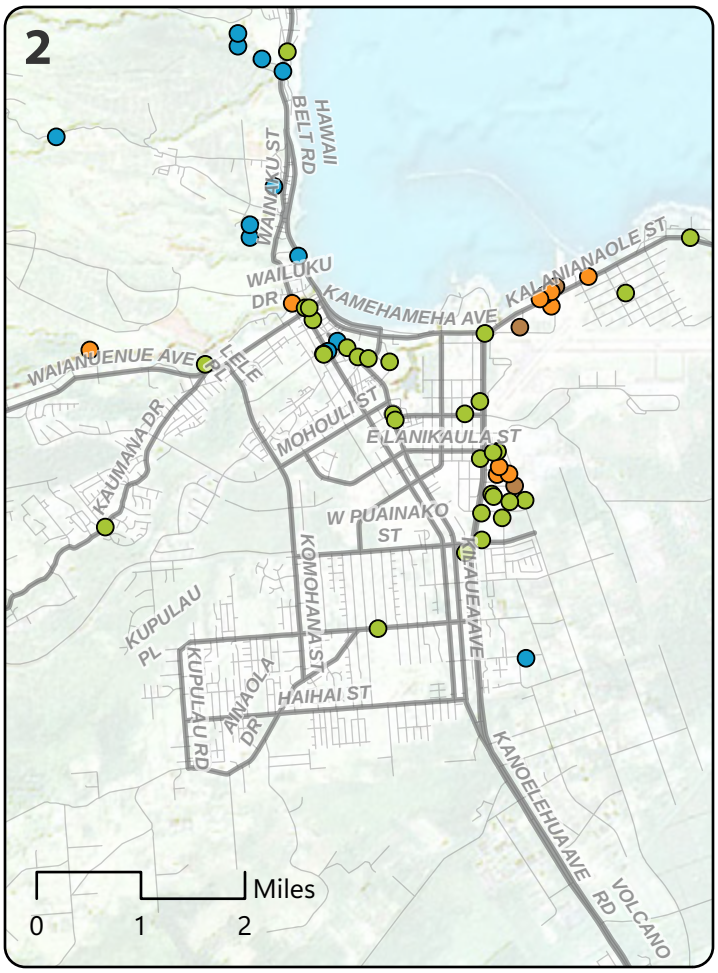
### Urban Areas / Towns

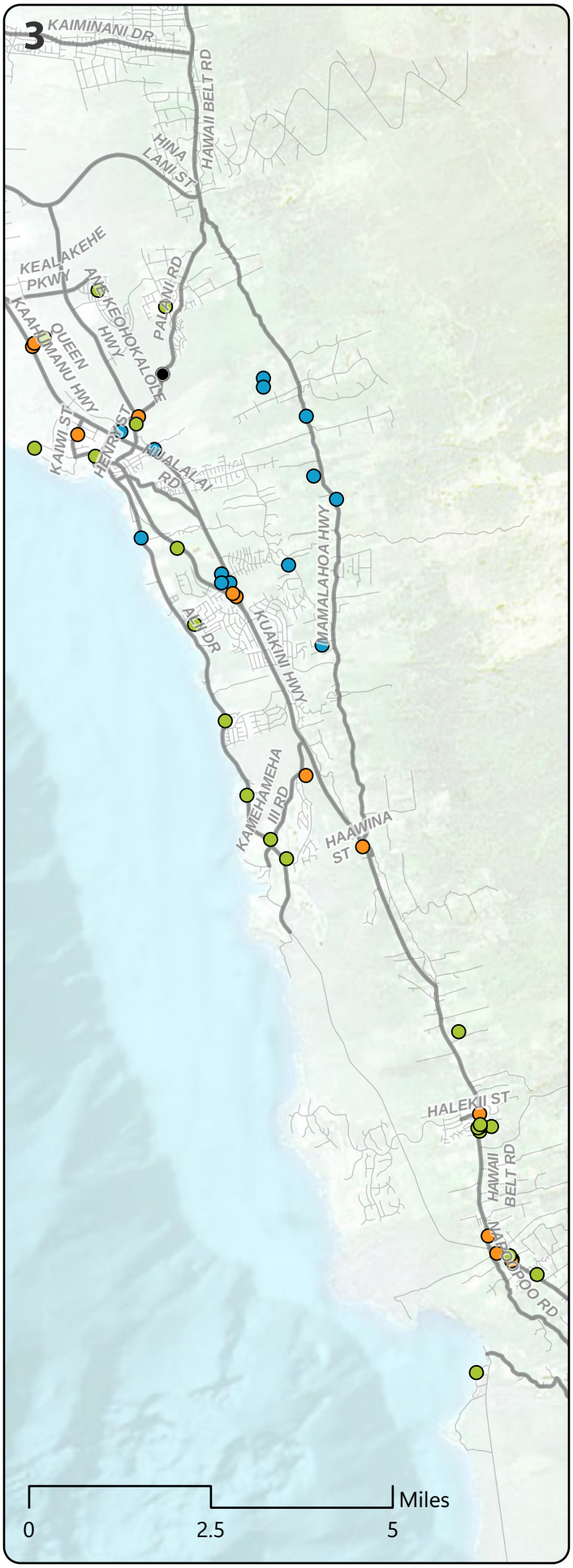
- Large
- Small

*Source: Hawai'i County Civil Defense Agency

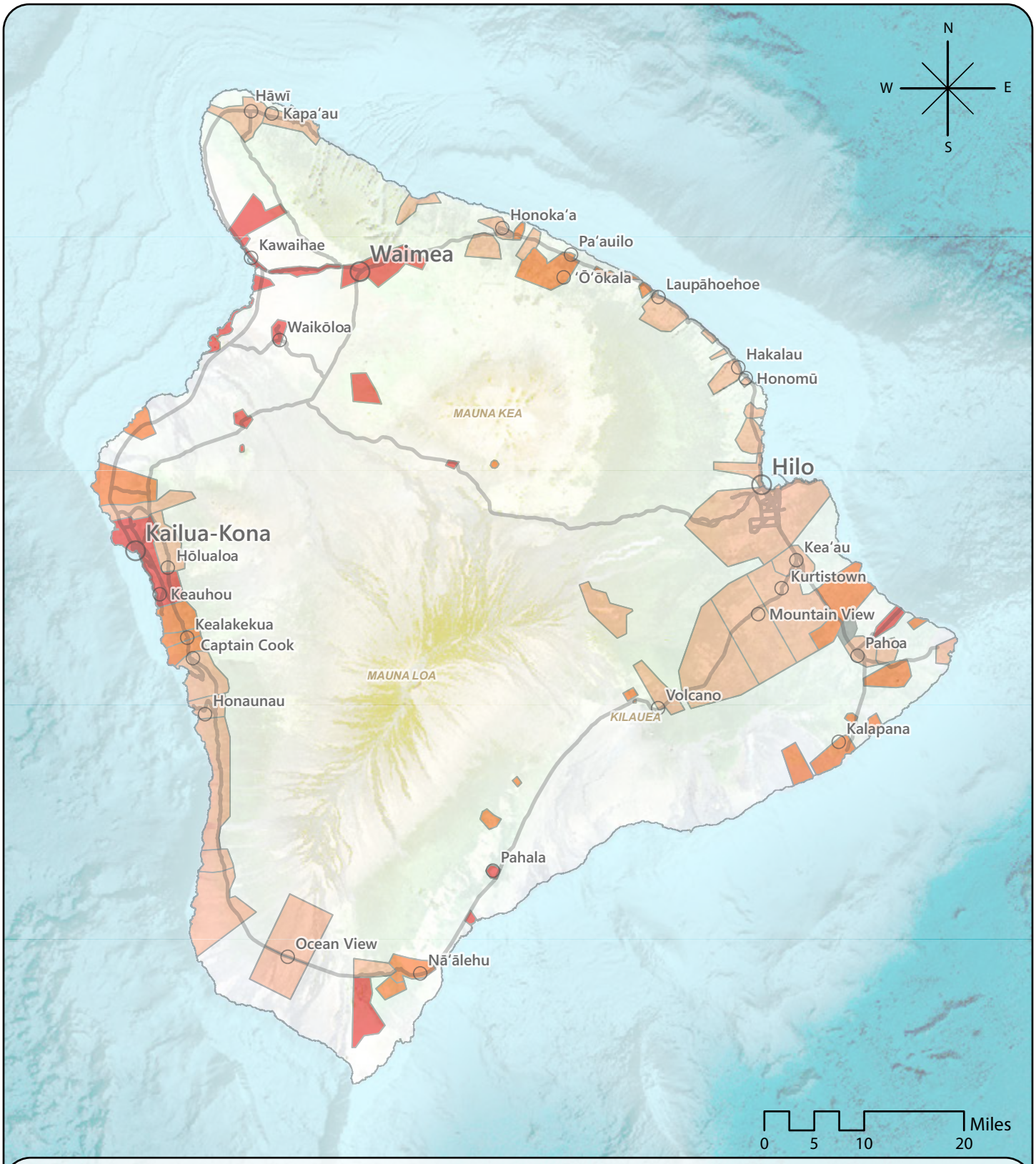
**Map 31**


1
KOHALA MOUNTAIN RD
AKONI PULE HWY
KAWAIHAE RD
LINDSEY RD
QUEEN KAAHUMANU HWY
MAMALAHOA HWY
PANIOLO AVE
WAIKOLOA RD
HAWAII BELT RD
Miles
0
2.5
5


2
HAWAII BELT RD
WAINAKU ST
WAILUKU DR
KAMEHAMEHA AVE
KALANIANAOLE ST
WAIANUENUE AVE
KAUMANA DR
MOHOULI ST
E LANIKAULA ST
W PUAINAKO ST
KOMOHANA ST
KUPULAU PL
KUPULAU RD
AINAOLA DR
HAIHAI ST
PUAUEA AVE
KANOELEHUA AVE
VOLCANO RD
Miles
0
1
2


3
KAIMINANI DR
HAWAII BELT RD
HINA LANI ST
KEALAKEHE PKWY
KEAHOLE HWY
PALANI RD
QUEEN KAAHUMANU HWY
KAIWI ST
HENRY ST
QUALALAI RD
MAMALAHOA HWY
ALII DR
KUAKINI HWY
KAMEHAMEHA III RD
HAAWINA ST
HALEKII ST
HAWAII BELT RD
PUUEO RD
Miles
0
2.5
5

**Map 32**




## Wildfire Risk Area*

### Risk Rating

- High
- Medium
- Low
- N/A

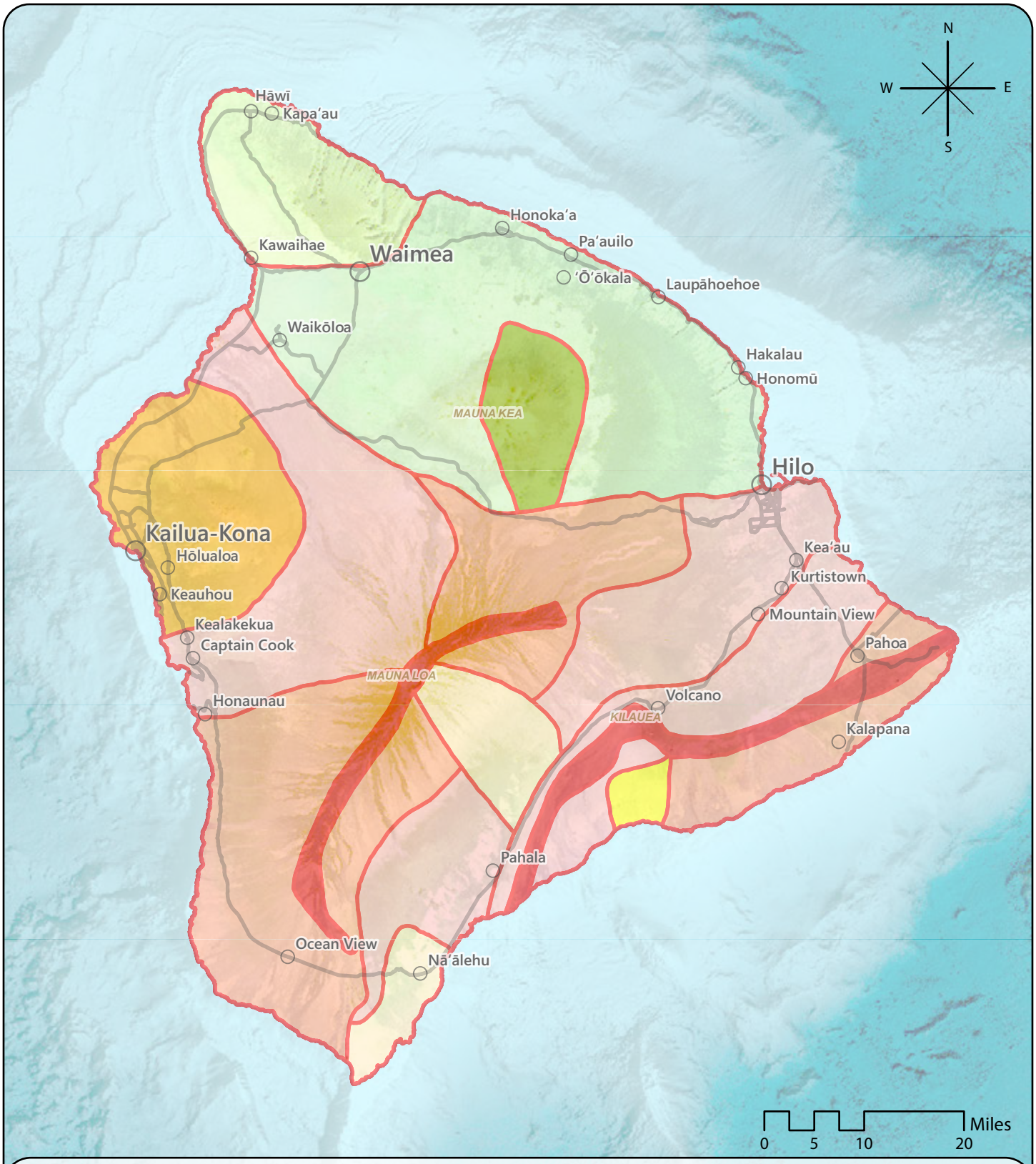
### Urban Areas / Towns

- Large
- Small

***Source: Department of Land and Natural Resources, Division of Forestry and Wildlife, Fire Management Program, 2007.**

Based on the guidelines developed by the National Association of State Foresters in June 2003, the Division of Forestry and Wildlife identified at-risk wildland-urban interface communities in the major Hawaiian islands and rated each community's risk from wild-land fires. Data were collected and completed during the years 2006 and 2007. This database will be used to develop Community Wildfire Protection Plans.
reference: https://geoportal.hawaii.gov/datasets/HiStateGIS::fire-risk-areas/about

**Map 33**




# Lava Flow Hazard Zones*

(Highest Risk) 1, 2, 3, 4, 5, 6, 7, 8, 9 (Lowest Risk)

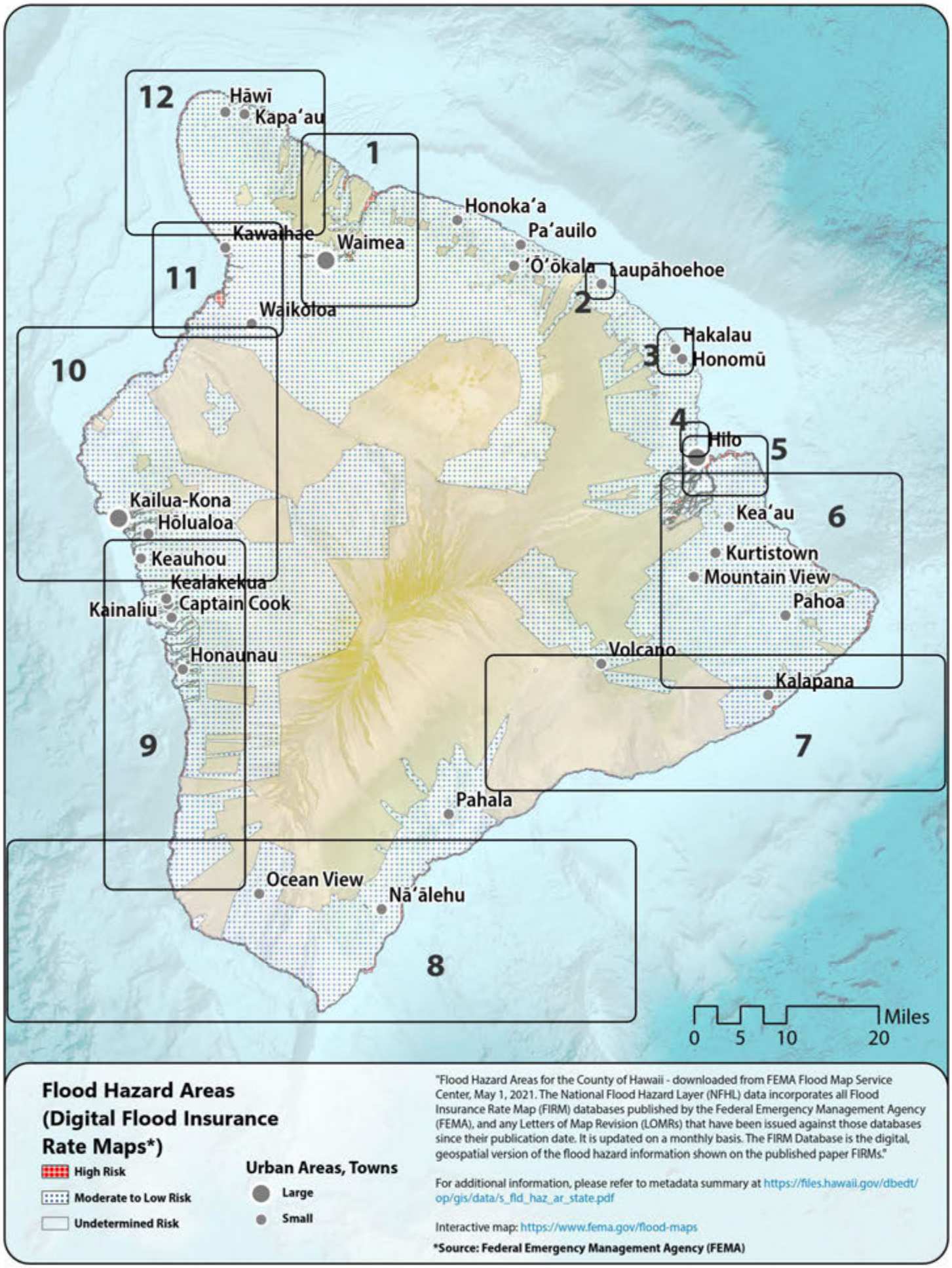
**Urban Areas / Towns**

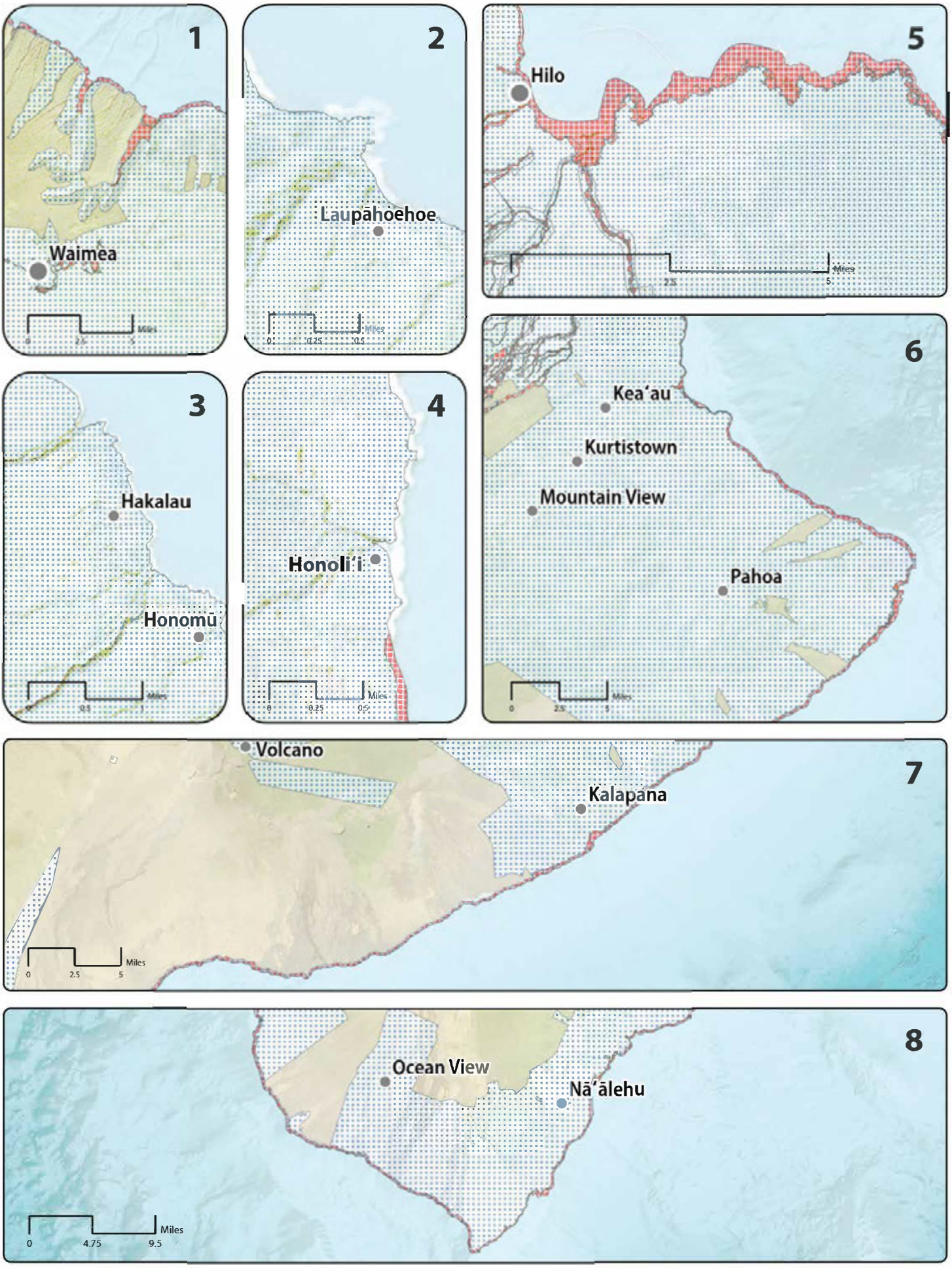
- Large
- Small

"Hazard zone boundaries are approximate and gradational. These boundaries are not specific enough to determine the absolute degree of danger at any particular site. Lava flow hazard maps are designed to show relative hazard across the Island of Hawaii and are meant to be used for general planning purposes only."

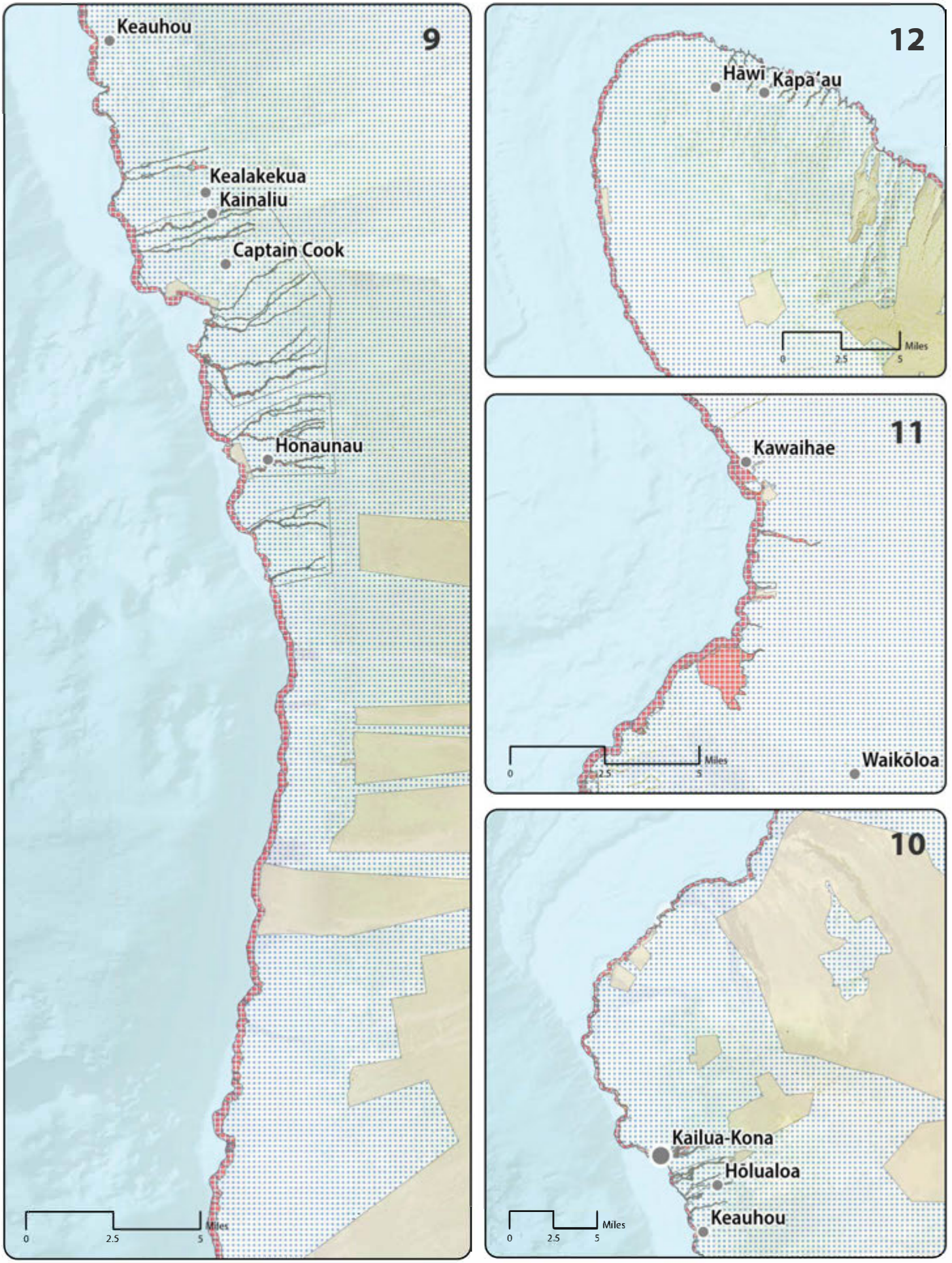
***Source: U.S. Department of the Interior / Geological Survey**

**Map 34**

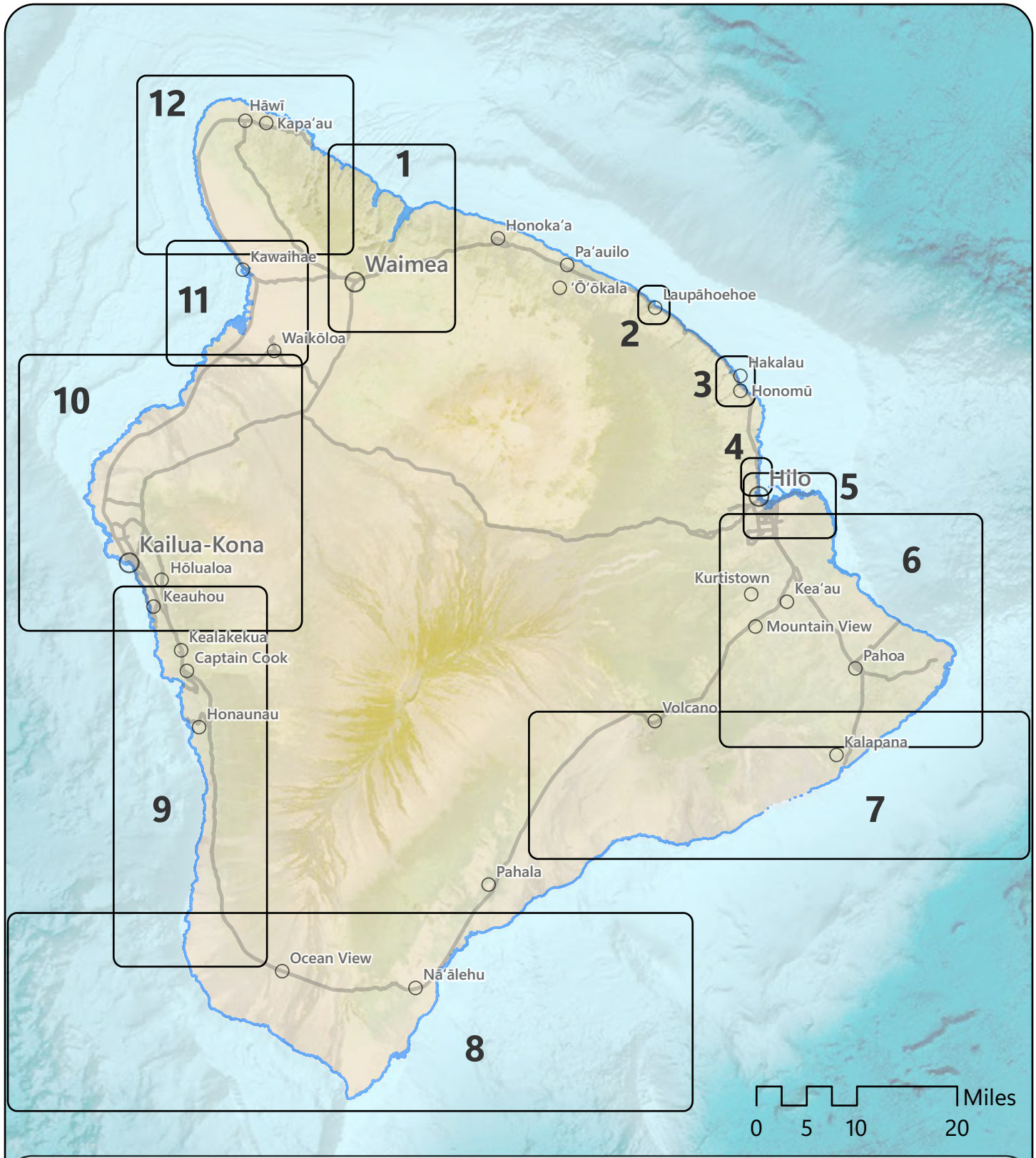

12
Hāwī
Kapa'au
1
Honoka'a
Pa'auilo
Kawaihae
Waimea
'O'ōkala
Laupāhoehoe
11
2
Waikōloa
Hakalau
3
Honomū
10
4
Hilo
5
Kailua-Kona
Hōlualoa
Kea'au
6
Keauhou
Kurtistown
Kealakekua
Mountain View
Kainaliu
Captain Cook
Pahoa
Honaunau
Volcano
Kalapana
9
7
Pahala
Ocean View
Nā'ālehu
8
Miles
0 5 10 20
Flood Hazard Areas
(Digital Flood Insurance
Rate Maps*)
High Risk
Moderate to Low Risk
Undetermined Risk
Urban Areas, Towns
Large
Small
"Flood Hazard Areas for the County of Hawaii - downloaded from FEMA Flood Map Service Center, May 1, 2021. The National Flood Hazard Layer (NFHL) data incorporates all Flood Insurance Rate Map (FIRM) databases published by the Federal Emergency Management Agency (FEMA), and any Letters of Map Revision (LOMRs) that have been issued against those databases since their publication date. It is updated on a monthly basis. The FIRM Database is the digital, geospatial version of the flood hazard information shown on the published paper FIRMs."
For additional information, please refer to metadata summary at https://files.hawaii.gov/dbedt/op/gis/data/s_fld_haz_ar_state.pdf
Interactive map: https://www.fema.gov/flood-maps
*Source: Federal Emergency Management Agency (FEMA)


1
Waimea
Miles
0
2.5
5
2
Laupāhoehoe
Miles
0
0.25
0.5
5
Hilo
Miles
2.5
5
3
Hakalau
Honomū
4
Honoli'i
Miles
0
0.25
0.5
6
Kea'au
Kurtistown
Mountain View
Pahoa
Miles
0
2.5
5
7
Volcano
Kalapana
Miles
0
2.5
5
8
Ocean View
Nā'ālehu
Miles
0
4.75
9.5

**Map 36**


9
Keauhou
Kealakekua
Kainaliu
Captain Cook
Honaunau
0
2.5
5
Miles
12
Hāwi
Kapa'au
0
2.5
5
Miles
11
Kawaihae
Waikōloa
0
2.5
5
Miles
10
Kailua-Kona
Hōlualoa
Keauhou
0
2.5
5
Miles

**Map 37**




## Sea Level Rise, Coastal Flood Zone*

1% Coastal Flood Zone with 3.2 ft Sea Level Rise

**Urban Areas, Towns**

- Large
- Small

*Source: Tetra Tech, Inc. for the State of Hawaii 2018 Hazard Mitigation Plan, Hawaii Emergency Management Agency.

The State of Hawai'i 2018 Hazard Mitigation Plan incorporated the results of modeling and an assessment of vulnerability to coastal flooding from storm-induced wave events with sea level rise (Tetra Tech Inc., 2018). The 1% annual-chance-coastal flood zone with sea level rise (1%CFZ) was modeled to estimate coastal flood extents and wave heights for wave-generating events with sea level rise.

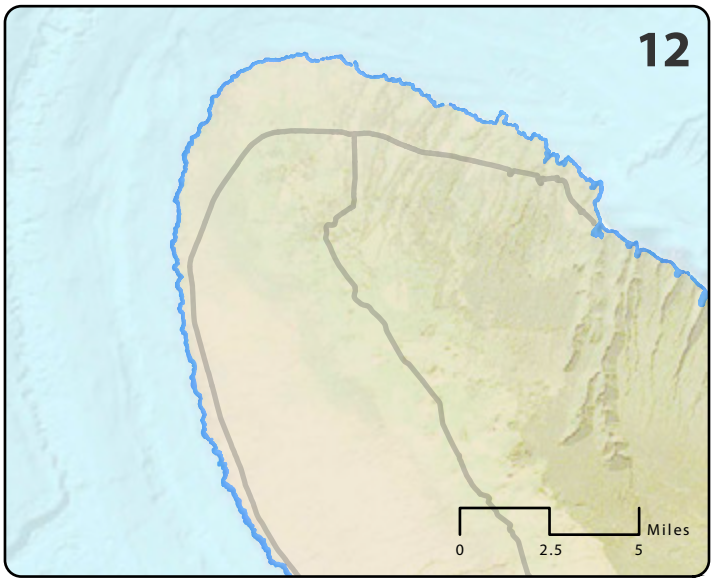
Modeling was conducted by Sobis Inc. under State of Hawai'i Department of Land and Natural Resources Contract No: 64064. The 1%CFZ with 3.2 feet of sea level rise was utilized to assess vulnerability to coastal event- based flooding in mid to - late century.

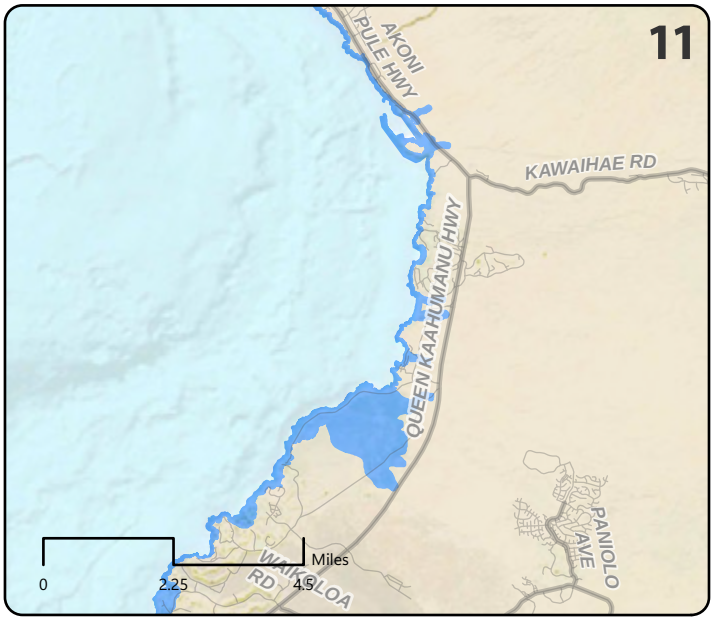
https://geoportal.hawaii.gov/datasets/HiStateGIS::1-coastal-flood-zone-with-3-2-ft-sea-level-rise-hawaii-island/about

**Map 38**


1
Miles
0
2.5
5
2
HAWAII BELT RD
Miles
0
0.25
0.5
5
WAINAKU ST
HAWAII BELT RD
KAMEHAMEHA AVE
KUHIO ST
KALANIANAOLE ST
MOHOULI ST
KINOOLE ST
KILAUEA AVE
KANOELEHUA AVE
KAWILI ST
KOMOHANA ST
Miles
0
2.5
5
3
HAWAII BELT RD
Miles
0
0.5
1
4
HAWAII BELT RD
WAINAKU ST
Miles
0
0.25
0.5
6
Miles
0
2.5
5
7
Miles
0
2.5
5
8
Miles
0
4.75
9.5

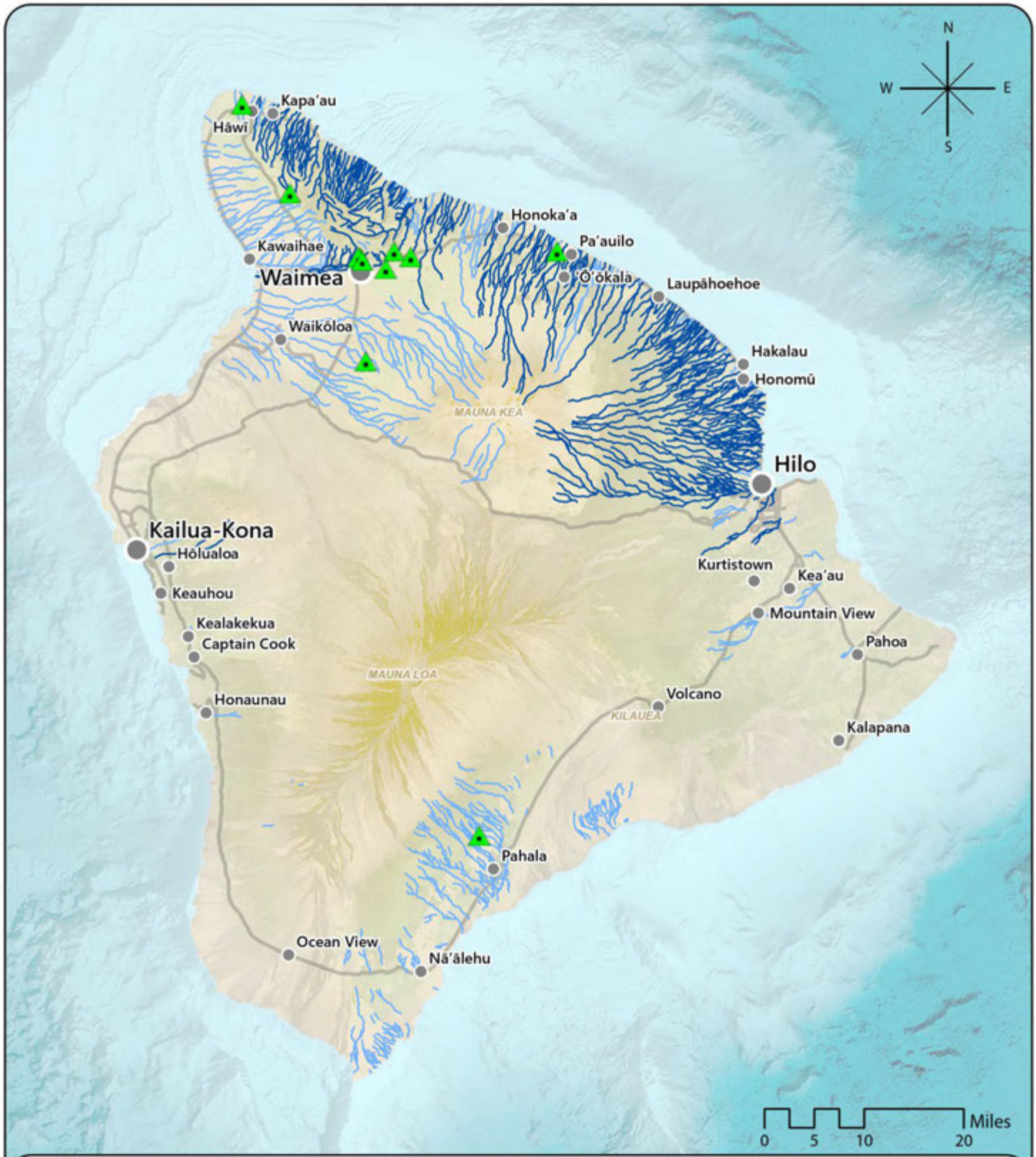

9
KAMEHAMEHA III RD
ALII DR
KUAKINI HWY
HALEKII ST
NAPOOPOO RD
LOWER NAPOOPOO RD
KE ALA O KEAWE RD
HAWAII BELT RD
MAMALAHOA HWY
0
2.5
5
Miles


12
0
2.5
5
Miles


11
AKONI PULE HWY
KAWAIHAE RD
QUEEN KAAHUMANU HWY
PANIOLO AVE
WAIMEA
0
2.25
4.5
Miles


10
Kailua-Kona
Hōlualoa
Keauhou
0
2.5
5
Miles

**Map 40**




## Dam Locations, Streams*

Perennial Streams

Non-Perennial Streams

Dams

**Urban Areas, Towns**

Large

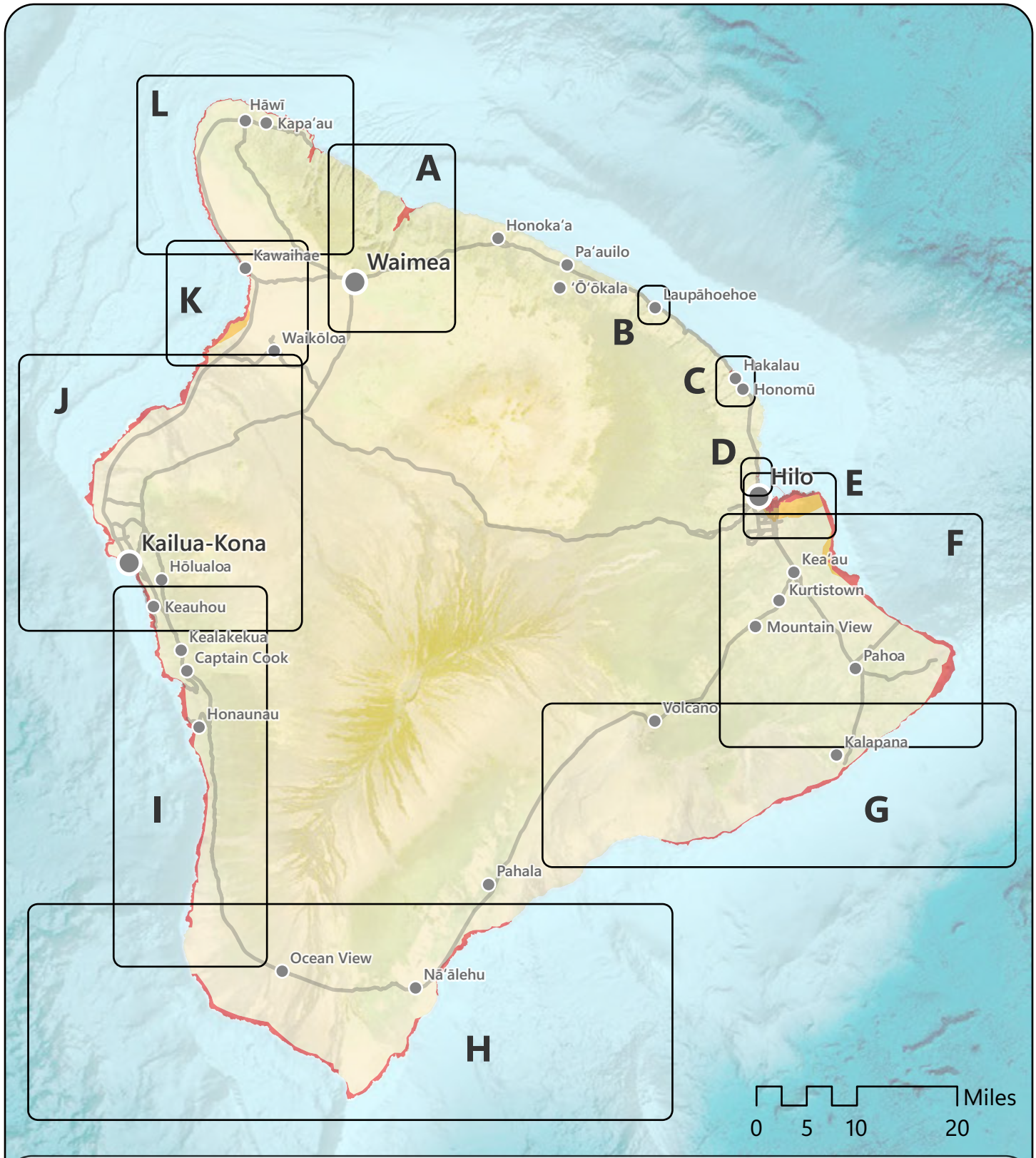
Small

*Source: Hawai'i State Dept. of Land Use and Natural Resources, Division of Aquatic Resources as of 2008

Streams (perennial and non-perennial) of the State of Hawaii as of 2008. Source: USGS Digital Line Graphs, 1983 version; CWRM Hawaii Stream Assessment database, 1993; DLNR Division of Aquatic Resources, 2004, 2008. For more information, please see http://files.hawaii.gov/dbedt/op/gis/data/streams_dar.pdf

Regulated dams in Hawaii as of November 2023. Provided by the State Department of Land and Natural Resources, Engineering Division, November 27, 2023. For attribute definitions, please see https://files.hawaii.gov/dbedt/op/gis/data/NID_Hawaii_DataDictionary_20231127.pdf

**Map 41**




## Tsunami Evacuation Zones*

- Extreme Tsunami Evacuation Zone
- Tsunami Evacuation Zone
- Tsunami Safe Zone

## Towns

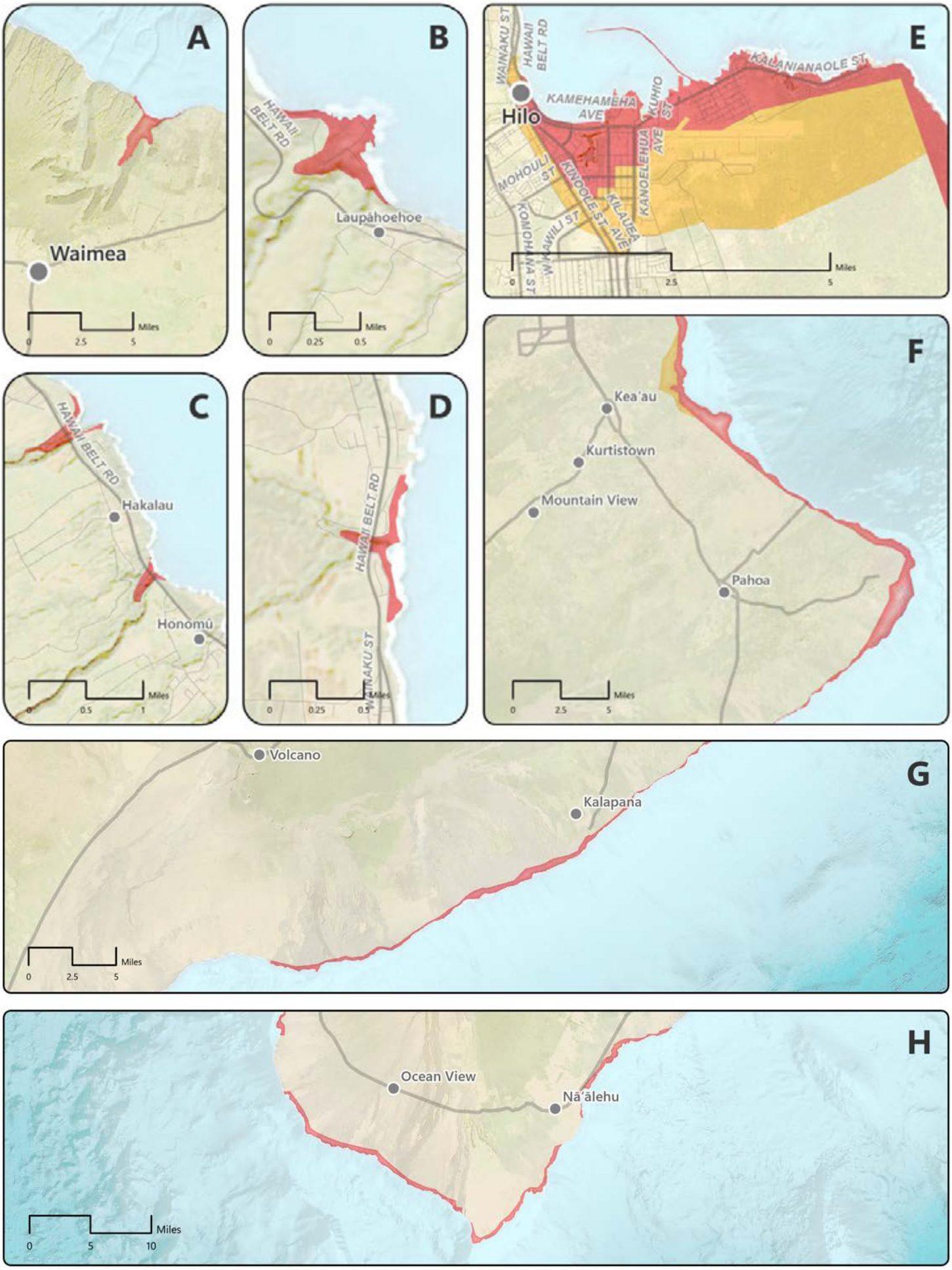
- Large
- Small

"Tsunami Evacuation Zone: is used for most tsunami warnings. This zone is based on historical tsunami impacts over the past 100 years. These areas are shown in RED on the map. For this evacuation, you are considered safe when you have reached the YELLOW or TAN zones.

Extreme Tsunami Evacuation Zone: If an earthquake happens in the Eastern Aleutian Islands with a magnitude 9.0 or greater, it will cause a rare, more extreme tsunami event that would result in much more extensive flooding. In this rare case, officials may advise evacuating further inland. These areas are shown in YELLOW on the map. For this evacuation, you are considered safe when you have reached the GREEN zone."

*Source: Hawai'i County Civil Defense/Pacific Disaster Center

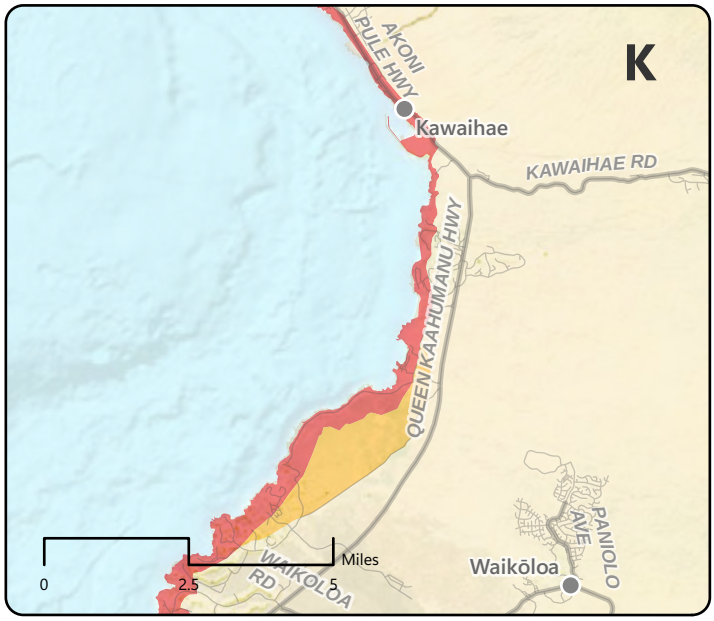
**Map 42**

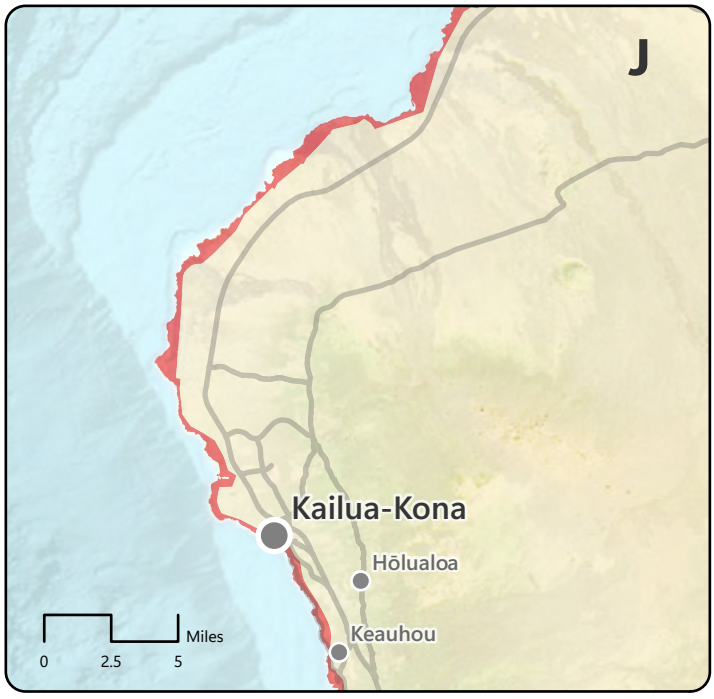

A
Waimea
Miles
0 2.5 5
B
HAWAII BELT RD
Laupāhoehoe
Miles
0 0.25 0.5
C
HAWAII BELT RD
Hakalau
Honomū
Miles
0 0.5 1
D
HAWAII BELT RD
WAINAKU ST
Miles
0 0.25 0.5
E
WAINAKU ST
HAWAII BELT RD
KAMEHAMEHA AVE
Hilo
KUHIO ST
KALANIANAOLE ST
MOHOULI ST
KINOOLE ST
KILAUEA AVE
KANOELEHUA AVE
W KAWILI ST
KOMOHANA ST
Miles
0 2.5 5
F
Kea'au
Kurtistown
Mountain View
Pahoa
Miles
0 2.5 5
G
Volcano
Kalapana
Miles
0 2.5 5
H
Ocean View
Nā'ālehu
Miles
0 5 10

**Map 43**

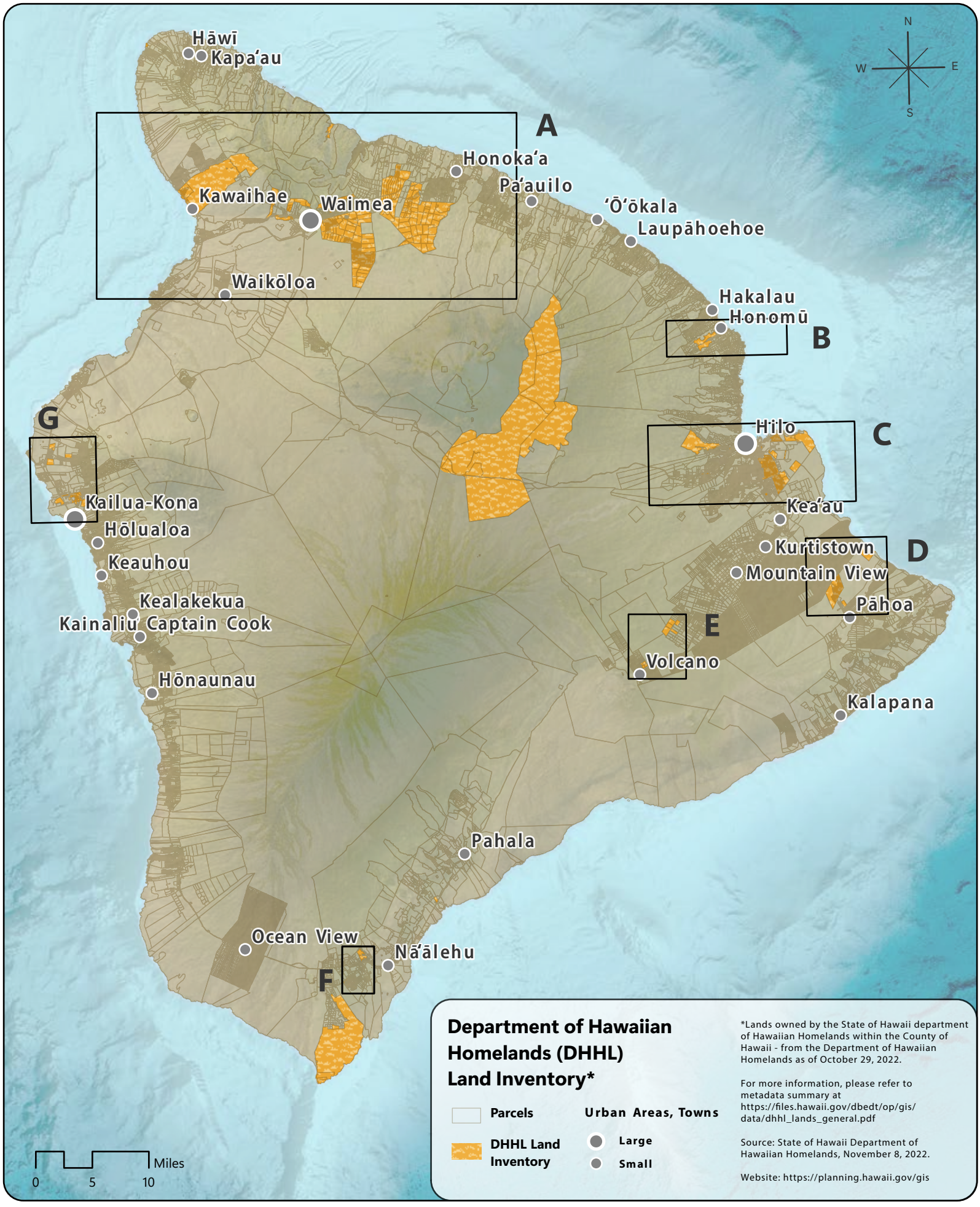

I
Keauhou
KAMEHAMEHA III RD
ALII DR
KUAKINI HWY
HALEKII ST
Kealakekua
Captain Cook
NAPOOPOO RD
KE ALA O KEAWE RD
Honaunau
HAWAII BELT RD
MAMALAHOA HWY
Miles
0
2.5
5


L
Hāwī
Kapa'au
Miles
0
2.5
5

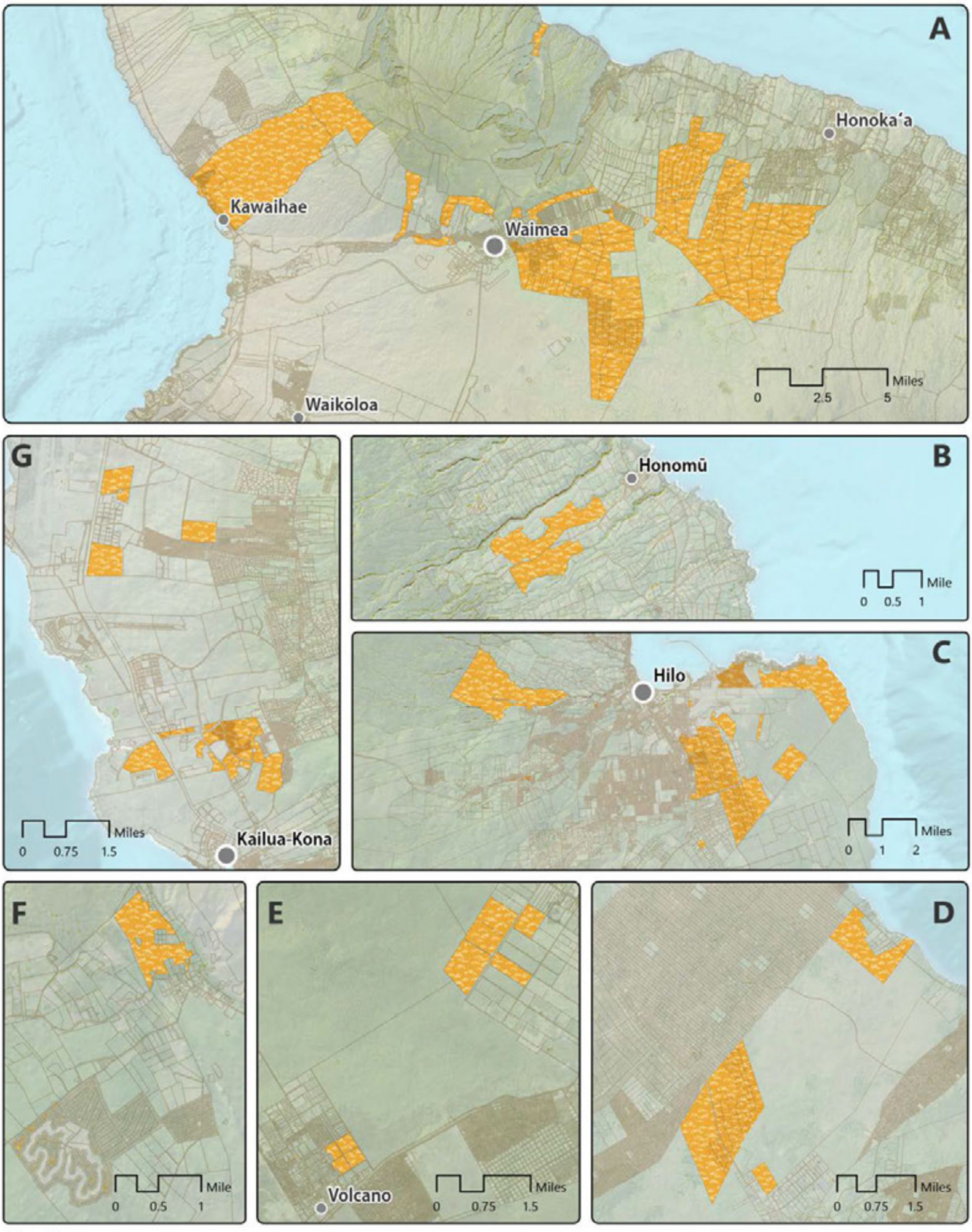

K
AKONI PULE HWY
Kawaihae
KAWAIHAE RD
QUEEN KAAHUMANU HWY
PANIOLO AVE
Waikōloa
WAIKOLOA RD
Miles
0
2.5
5


J
Kailua-Kona
Hōlualoa
Keauhou
Miles
0
2.5
5

**Map 44**


Hāwī
Kapa'au
A
Honoka'a
Pa'auilo
Kawaihae
Waimea
'Ō'ōkala
Laupāhoehoe
Waikōloa
Hakalau
Honomū
B
G
Hilo
C
Kailua-Kona
Hōlualoa
Kea'au
Keauhou
Kurtistown
D
Mountain View
Kealakekua
Pāhoa
Kainaliu
Captain Cook
E
Volcano
Hōnaunau
Kalapana
Pahala
Ocean View
Nā'ālehu
F
N
W
E
S
0
5
10
Miles
Department of Hawaiian Homelands (DHHL) Land Inventory*
Parcels
DHHL Land Inventory
Urban Areas, Towns
Large
Small
*Lands owned by the State of Hawaii department of Hawaiian Homelands within the County of Hawaii - from the Department of Hawaiian Homelands as of October 29, 2022.
For more information, please refer to metadata summary at https://files.hawaii.gov/dbedt/op/gis/data/dhhl_lands_general.pdf
Source: State of Hawaii Department of Hawaiian Homelands, November 8, 2022.
Website: https://planning.hawaii.gov/gis

**Map 45**


A
Honoka'a
Kawaihae
Waimea
Waikōloa
0 2.5 5 Miles
G
Kailua-Kona
0 0.75 1.5 Miles
B
Honomū
0 0.5 1 Mile
C
Hilo
0 1 2 Miles
F
0 0.5 1 Mile
E
Volcano
0 0.75 1.5 Miles
D
0 0.75 1.5 Miles

**Map 46**