The Revision and Update of the Hawai‘i 2050 Sustainability Plan

Presentation to the
State Greenhouse Gas Sequestration Task Force
August 18, 2021

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Office of Planning
State of Hawai‘i

Hawai‘i 2050 Sustainability Plan

Overview

Office of Planning
State of Hawai‘i

Overview:

1. **History of Hawai‘i 2050 Sustainability Plan**

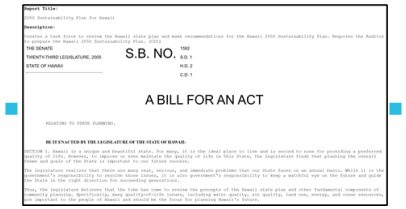
2. **The Process to Revise and Update of the Hawai‘i 2050 Sustainability Plan**

3. **Stakeholder Coordination & Public Outreach Findings**

4. **Summary of Hawai‘i 2050 Sustainability Plan Recommendations**
   in relation to greenhouse gas sequestration, promoting sustainable agriculture, improving soil health, and increasing urban tree canopy.

The History: Hawai‘i 2050 Sustainability Plan

2005

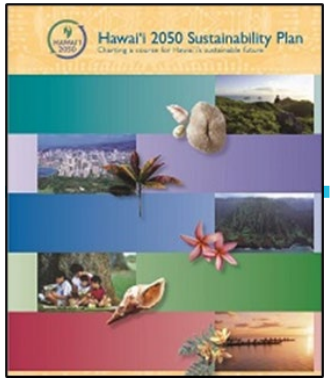

S.B. NO.

A BILL FOR AN ACT

Act 8, Special Session Laws of Hawai‘i 2005:

- Guide for the future long-term development of the State
- Required 10-Year update

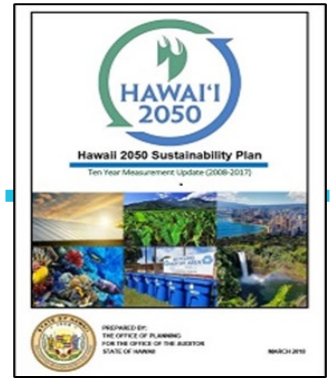
2008 - 2018



Published in 2008:

- By State Auditor
- Long-term plan for Hawai‘i’s sustainable future

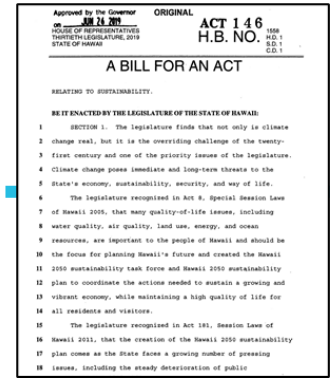
2018



Published in 2018:

- 10-Year Measurement of progress
- Published by State Auditor with assistance of Office of Planning

2019


ACT 146
H.B. NO.

A BILL FOR AN ACT

Act 146, Session Laws of Hawai‘i 2019:

- Revised law’s scope: “plan shall serve as *state’s climate and sustainability strategic action plan*”
- Codified as HRS §226-65

2020 - 2030

Update in Progress:

- State Office of Planning updated 10-Year Strategic Action Plan

The Process: Revision and Update

Review Hawai‘i’s laws & plans

Review sustainability mandates, state agency plans, and county plans.

150+ Laws, Plans, Policies, and Strategies Reviewed

Public Outreach

Host public informational sessions throughout Hawaiian Islands.

2 Public Surveys
9 Public Sessions
20 Advertisements
230 Participating organizations and agencies
800+ Public Participants

Coordinate with stakeholders

Coordinate with stakeholder groups to focus on and facilitate challenges.

2 Distributed Drafts
2 Week Review per Draft
5 Public Presentations
1,550+ Stakeholder Emails
65 State & County Reviewing Agencies

Determine future actions

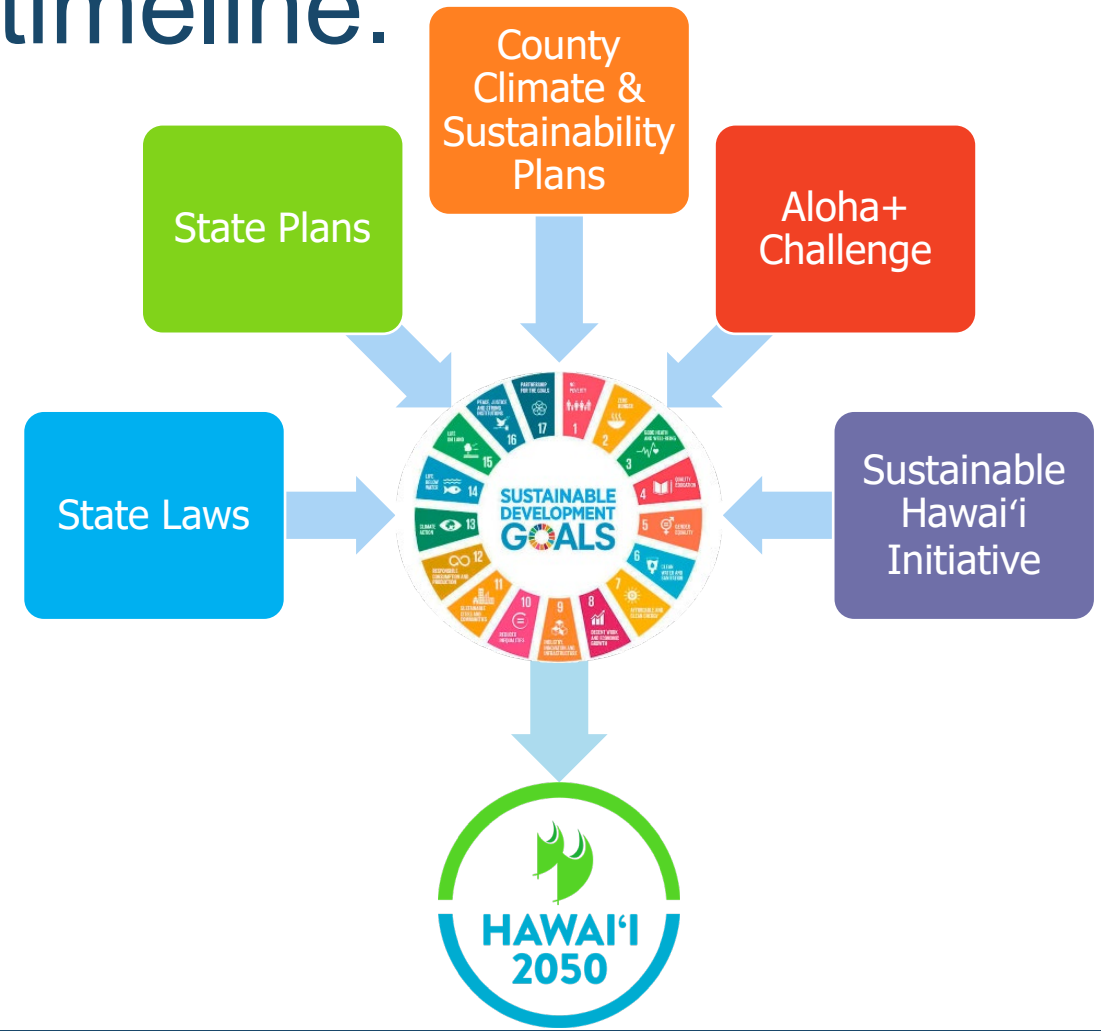
Identify gaps and recommend future actions to achieve by 2030.

8 Focus Areas
17 Case Studies
38 Strategies
250 Recommended Actions
117 Pages

The Goals: Planning for the 2020-2030 Decade of Action

- Office of Planning updated and revised the Hawai‘i 2050 Sustainability Plan for the 2020-2030 decade, and will continue to utilize and update this plan as a living document
- Hawai‘i State Planning Act goals and Hawai‘i Climate Mitigation and Adaptation Initiative goals to direct the plan
- Hawai‘i 2050 Sustainability Plan shall serve as the **State’s Climate and Sustainability Strategic Action Plan**
- 17 U.N. Sustainable Development Goals (SDGs) were adopted by **ALL** U.N. member states:
  - U.N. plan of action for people, planet, and prosperity
  - Framework to take bold and transformative steps urgently needed to shift the world onto a sustainable and resilient path

The Product: U.N. SDGs as a framework to match the 2020-2030 planning timeline.



Hawai‘i 2050 Sustainability Plan

Public Outreach

Office of Planning
State of Hawai‘i

Stakeholder Coordination:

Collaborative Public Outreach

- 350 Hawai‘i
- AECOM
- AES Hawai‘i
- AHL
- Aloha Harvest
- Aloha United Way
- Arizona State University
- Bank of Hawai‘i
- Blue Zones Project Hawai‘i
- Building Industry Association of Hawai‘i
- Building Owners and Managers Association of Hawai‘i
- Chamber of Commerce Hawai‘i
- Chaminade University of Honolulu
- Conservation Council for Hawai‘i
- Conservation International
- Earth Justice Mid-Pacific Regional Office
- East West Center
- Elemental Excelerator
- Environmental Caucus of Hawai‘i
- Faith Action Environmental Justice Task Force
- First Hawaiian Bank
- Hawai‘i Alliance for Community Based Economic Development
- Hawai‘i Alliance of Nonprofit Organizations
- Hawai‘i Bicycling League
- Hawai‘i Cattlemen’s Council
- Hawai‘i Children’s Action Network
- Hawai‘i Community Foundation
- Hawai‘i Conservation Alliance
- Hawai‘i Electric Vehicle Association
- Hawai‘i Energy
- Hawai‘i Farm Bureau
- Hawai‘i Food Industry Association
- Hawai‘i Gas
- Hawai‘i Green Growth
- Hawai‘i Institute for Human Rights
- Hawai‘i Medical Services Association
- Hawai‘i Pacific Health
- Hawai‘i Pacific University
- Hawai‘i Philanthropy Forum
- Hawai‘i Primary Care Association
- Hawai‘i Public Health Institute
- Hawai‘i Sea Grant
- Hawai‘i Youth Climate Coalition
- Hawai‘i Appleseed Center for Law and Economic Justice
- Hawaiian Airlines
- Hawaiian Electric Company
- Hawaiian Telcom, Inc.
- HHF
- Historic Hawai‘i Foundation
- ILWU Hawai‘i
- Integral Group
- Interstate Restoration
- Island Signal
- Kamehameha Schools
- Kanu Hawai‘i
- Kaua‘i Island Utility Cooperative
- Kawanui Farm
- Kohala Institute
- Kokua Hawai‘i Foundation
- Kualoa Ranch
- Kupu Hawai‘i
- LGBT Caucus of Hawai‘i
- Mari‘s Gardens
- Marriott International
- Maui Economic Opportunity, Inc.
- New York University
- Office of Hawaiian Affairs
- Ola Hawai‘i
- One World One Water
- Parents and Children Together
- PBR Hawai‘i
- Pūlama Lāna‘i
- Retail Merchants of Hawai‘i
- Roth Ecological Design
- Sierra Club of Hawai‘i
- SSFM Hawai‘i
- Surfrider Foundation-Hawai‘i Region
- Sustainable Coastlines of Hawai‘i
- Sustainable Moloka‘i
- Tetratech Hawai‘i
- The Healy Foundation
- The Nature Conservancy of Hawai‘i
- The Queen’s Health Systems
- Trust for Public Land Hawai‘i
- Affairs – Division of Sustainable Development
- U.S. Green Building Council – Hawai‘i Chapter
- U.S. Department of Agriculture – Hawai‘i and Pacific Basin State Office
- U.S. Environmental Protection Agency – Region 9
- U.S. Federal Aviation Administration – Western Pacific Region
- U.S. Federal Emergency Management Agency – Region 9
- U.S. Federal Highways Administration – Hawai‘i Division
- U.S. Fish and Wildlife Service – Pacific Region
- U.S. Geological Survey – Pacific Region
- Field Office
- U.S. Indo – Pacific Command
- U.S. National Oceanic and Atmospheric Association – Pacific Islands Region
- Ulupono Initiative
- University of Hawai‘i – Hilo
- University of Hawai‘i – Mānoa
- University of Hawai‘i – West O‘ahu Sustainable Community Food Systems
- University of Hawai‘i Economic Research Organization
- Urban Fabrick
- Vulcan
- Wastewater Alternatives and Innovations
- WATG
- William S. Richardson School of Law
- Zero Waste Oahu

…and many more communities and individuals!

Stakeholder Coordination:

Collaborative Work with 65 State & County Agencies

- State of Hawai‘i Office of the Governor
- Office of the Lieutenant Governor
- Members of the Hawai‘i State Legislature
- Department of Accounting and General Services
- State Procurement Office
- Department of Agriculture
- Agribusiness Development Corporation
- Department of Business, Economic Development and Tourism (DBEDT)
- DBEDT – Business Development and Support Division
- DBEDT – Creative Industries Division
- DBEDT – Hawai‘i Broadband Initiative
- DBEDT – Research and Economic Analysis Division
- Hawai‘i Community Development Authority
- Hawai‘i Housing Finance and Development Corporation
- Hawai‘i State Energy Office
- Hawai‘i Technology Development Corporation
- Hawai‘i Tourism Authority
- Land Use Commission
- Natural Energy Laboratory of Hawai‘i Authority
- State of Hawai‘i Office of Planning – Coastal Zone Management Program
- State of Hawai‘i Office of Planning – Land Use Division
- Public Utilities Commission
- Hawai‘i Emergency Management Agency
- State Disaster Recovery Coordinator
- State of Hawai‘i Office of Homeland Security
- Department of Education
- Department of Hawaiian Home Lands
- Department of Health (DOH)
- DOH – Chronic Disease Prevention and Health Promotion Division
- DOH – Clean Air Branch
- DOH – Clean Water Branch
- DOH – Hazard Evaluation and Emergency Response Office
- DOH – Primary Prevention Branch
- DOH – Safe Drinking Water Branch
- DOH – Solid and Hazardous Waste Branch
- DOH – Wastewater Branch
- Department of Human Services
- Hawai‘i Public Housing Authority
- State Homelessness Coordinator
- State Commission on the Status of Women
- Department of Labor and Industrial Relations
- Department of Land and Natural Resources (DLNR)
- Commission on Water Resource Management
- DLNR – Division of Aquatic Resources
- DLNR – Engineering Division
- DLNR – Division of Forestry and Wildlife
- DLNR – Land Division
- DLNR – Division of State Parks
- Hawai‘i Climate Change Mitigation and Adaptation Commission
- Hawai‘i Invasive Species Council
- Kaho‘olawe Island Reserve Commission
- DLNR – Office of Conservation and Coastal Lands
- Department of Transportation
- O‘ahu Metropolitan Planning Organization
- University of Hawai‘i
- UH – School of Ocean and Earth Science and Technology
- City and County of Honolulu Office of the Mayor
- Members of the Honolulu City Council
- City and County of Honolulu – Board of Water Supply
- City and County of Honolulu – Department of Environmental Services
- City and County of Honolulu – Department of Planning and Permitting
- City and County of Honolulu – Office of Climate Change, Sustainability, and Resilience
- City and County of Honolulu – Office of Economic Revitalization
- County of Hawai‘i Office of the Mayor
- Members of the Hawai‘i County Council
- County of Hawai‘i – Department of Planning
- County of Hawai‘i –Department of Research and Development
- County of Hawai‘i –Department of Environmental Management
- County of Kaua‘i Office of the Mayor
- Members of the Kaua‘i County Council
- County of Kaua‘i – Department of Planning
- County of Kaua‘i – Department of Public Works
- County of Kaua‘i – Kaua‘i Emergency Management Agency
- County of Kaua‘i – Office of Economic Development
- County of Maui Office of the Mayor
- Members of the Maui County Council
- County of Maui – Department of Environmental Management
- County of Maui – Department of Planning
- County of Maui – Department of Water Supply
- County of Maui – Office of Climate Action, Sustainability, and Resilience

Key Themes:

Vision for Sustainable Hawai‘i

- Look to the past (**cultural practices**) for lessons for the future
- Pursue goals that either **increase equity** or explicitly address equity issues in their implementation
- The pandemic offers a critical opportunity to reset and rethink the “new normal” to be **more sustainable and equitable** (e.g., investing in green space and affordable housing, boost support for women whose jobs and family roles may have been especially hurt by COVID-19)
- Rebuild the workforce by **empowering youth**, investing in **green and energy** workforce development, and upscaling the labor force to **compete in the global market**
- Pursue **innovative opportunities** in the **energy and agricultural sector** to enhance economic growth and food security
- Become **more self-sufficient**, rely less on imports and utilize existing resources, and build the economy to serve and be driven by **local populations** (for example, through local food production)

Public Outreach Findings

Vision for a Sustainable Economic Recovery

- Diversified economy that relies less on tourism
- Rebuild sustainably, not returning to business as usual
- Increased self-sufficiency and local food production for local consumption
- Green job opportunities
- Investment in communities, education, people
- Investment in local infrastructure
- Grounded in Hawaiian values and guided by traditional knowledge

Public Outreach Findings

Actions to Take

Government:

- Coordinate across state/county/federal entities to implement shared sustainability targets
- Develop plans to implement sustainability targets
- Fund sustainability initiatives and programs
- Incentivize innovation and sustainable practices in the private sector
- Incentivize renewable energy and public transportation
- Measure and report progress toward State's sustainability targets
- Focus on policies that improve self-sufficiency (e.g., local food production)
- Implement the long-term planning for State's sustainability targets

Private sector:

- Operate sustainably
- Partner with other entities
- Pay fair wages
- Be socially responsible, set an example

Non-profit organizations:

- Partner with other entities
- Conduct more outreach and education
- Advocate for communities

People:

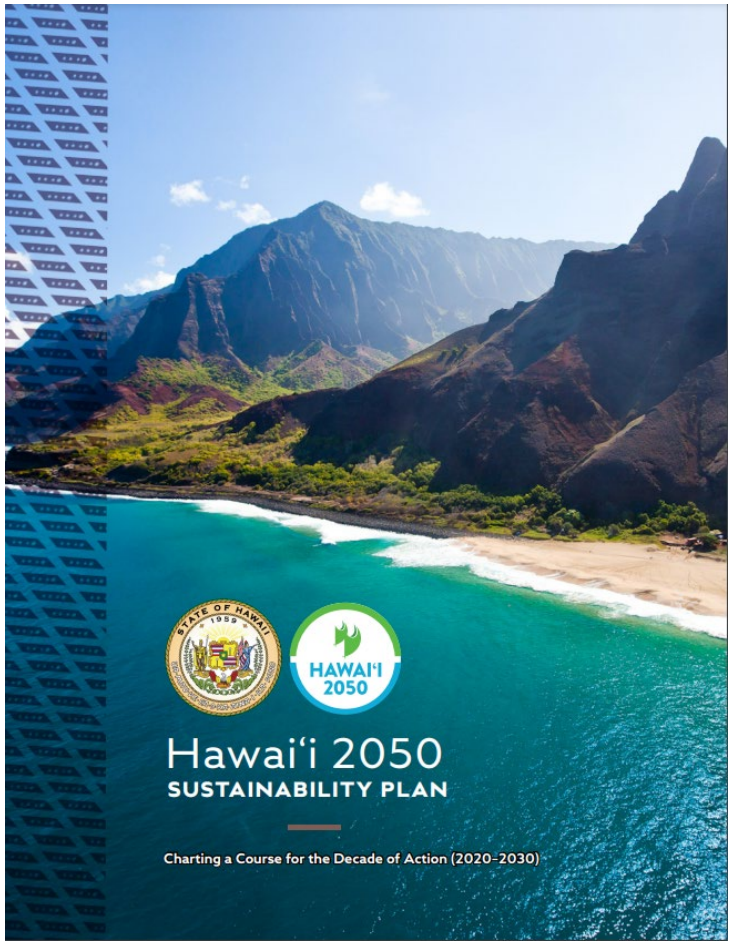
- Take on individual actions to live more sustainably
- Educate oneself, organize into community, and get involved

Hawai‘i 2050 Sustainability Plan

Recommendations

Office of Planning
State of Hawai‘i

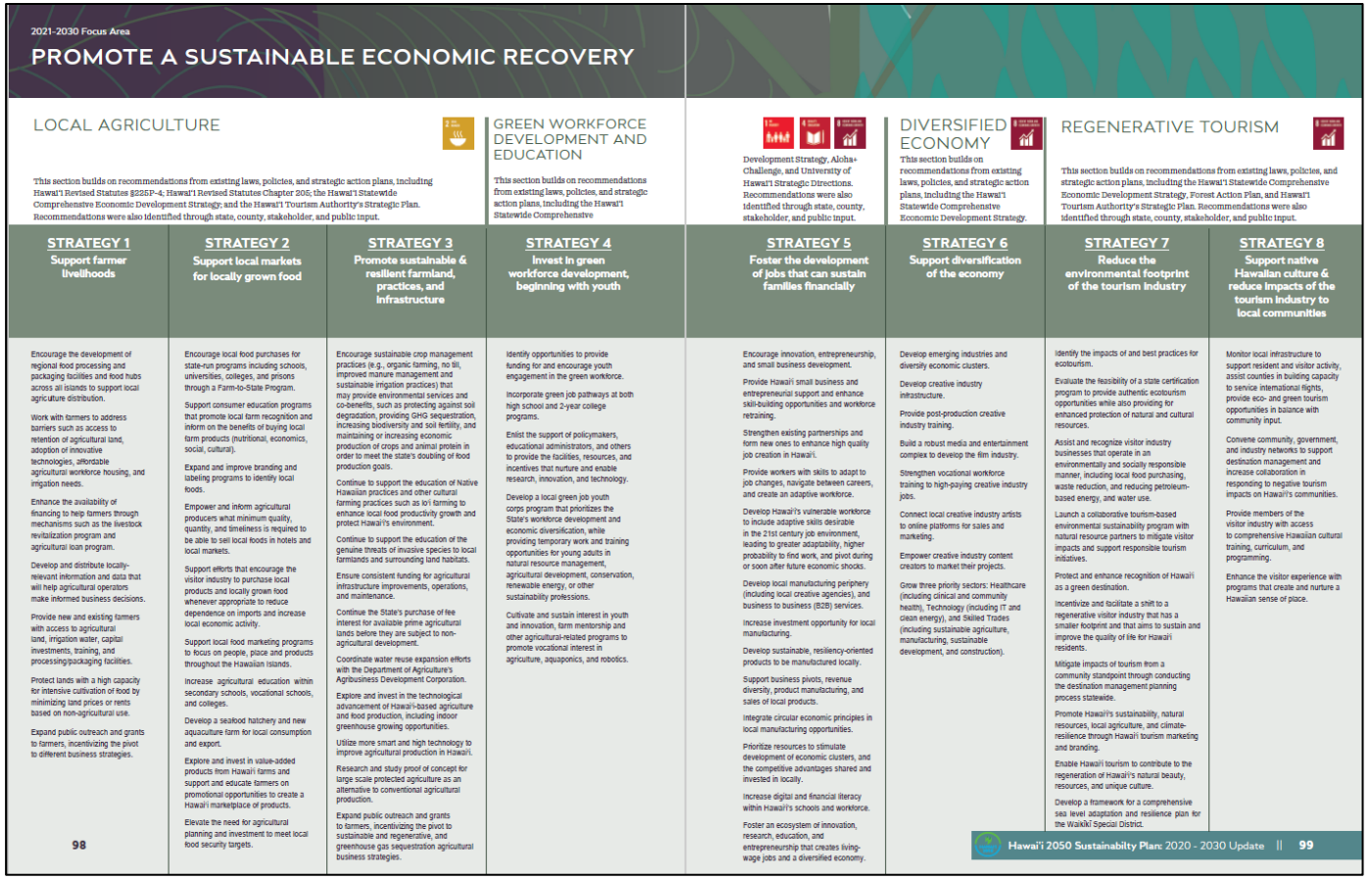
8 Focus Areas Recommended for 2020-2030:



1. **Promote a Sustainable Economic Recovery**
   Through strategies that support local agriculture, green workforce development and education, and regenerative and sustainable tourism.
2. **Reduce Greenhouse Gas Emissions**
   By continuing to monitor the state's emissions and reduce greenhouse gas emissions through strategies in the energy, transportation, and waste sectors.
3. **Improve Climate Resilience**
   By continuing to monitor and adapt to climate impacts and take actions to increase the resilience of the natural and built environments and their occupants.
4. **Advance Sustainable Communities**
   Through strategies that improve land use and access to green space, advance sustainable practices in schools, and encourage sustainable buildings and infrastructure.
5. **Advance Equity**
   By ensuring equitable access to resources, addressing affordable housing and homelessness crises, and improving gender equity.
6. **Institutionalize Sustainability Throughout Government**
   By increasing the government's capacity through institutionalized collaboration to address sustainability and greening government operations.
7. **Preserve the Natural Environment**
   By including a focus on clean water, marine resources and ecosystems, and natural resource protection.
8. **Perpetuate Traditional Ecological Knowledge and Values**
   Throughout Hawaii as the state tackles sustainability and climate challenges.

Focus Area: Promote a Sustainable Economic Recovery

- **Strategy 1:** Support farmer livelihoods
- **Strategy 2:** Support local markets for locally grown food
- **Strategy 3:** Promote sustainable & resilient farmland, practices, and infrastructure
- **Strategy 4:** Invest in green workforce development, beginning with youth
- **Strategy 6:** Support diversification of the economy
- **Strategy 7:** Reduce the environmental footprint of the tourism industry
- **Including 11 recommendations pertaining to greenhouse gas sequestration & reduction, improving soil health, and encouraging sustainable agriculture!**



2021-2030 Focus Area

PROMOTE A SUSTAINABLE ECONOMIC RECOVERY

LOCAL AGRICULTURE

This section builds on recommendations from existing laws, policies, and strategic action plans, including Hawai'i Revised Statutes §225P-4; Hawai'i Revised Statutes Chapter 205; the Hawai'i Statewide Comprehensive Economic Development Strategy; and the Hawai'i Tourism Authority's Strategic Plan. Recommendations were also identified through state, county, stakeholder, and public input.

GREEN WORKFORCE DEVELOPMENT AND EDUCATION

This section builds on recommendations from existing laws, policies, and strategic action plans, including the Hawai'i Statewide Comprehensive

Development Strategy, Aloha+ Challenge, and University of Hawai'i Strategic Directions. Recommendations were also identified through state, county, stakeholder, and public input.

DIVERSIFIED ECONOMY

This section builds on recommendations from existing laws, policies, and strategic action plans, including the Hawai'i Statewide Comprehensive Economic Development Strategy.

REGENERATIVE TOURISM

This section builds on recommendations from existing laws, policies, and strategic action plans, including the Hawai'i Statewide Comprehensive Economic Development Strategy, Forest Action Plan, and Hawai'i Tourism Authority's Strategic Plan. Recommendations were also identified through state, county, stakeholder, and public input.

STRATEGY 1 Support farmer livelihoods

Encourage the development of regional food processing and packaging facilities and food hubs across all islands to support local agriculture distribution.

Work with farmers to address barriers such as access to retention of agricultural land, adoption of innovative technologies, affordable agricultural workforce housing, and irrigation needs.

Enhance the availability of financing to help farmers through mechanisms such as the livestock revitalization program and agricultural loan program.

Develop and distribute locally-relevant information and data that will help agricultural operators make informed business decisions.

Provide new and existing farmers with access to agricultural land, irrigation water, capital investments, training, and processing/packaging facilities.

Protect lands with a high capacity for intensive cultivation of food by minimizing land prices or rents based on non-agricultural use.

Expand public outreach and grants to farmers, incentivizing the pivot to different business strategies.

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STRATEGY 2 Support local markets for locally grown food

Encourage local food purchases for state-run programs including schools, universities, colleges, and prisons through a Farm-to-State Program.

Support consumer education programs that promote local farm recognition and inform on the benefits of buying local farm products (nutritional, economics, social, cultural).

Expand and improve branding and labeling programs to identify local foods.

Empower and inform agricultural producers what minimum quality, quantity, and timeliness is required to be able to sell local foods in hotels and local markets.

Support efforts that encourage the visitor industry to purchase local products and locally grown food whenever appropriate to reduce dependence on imports and increase local economic activity.

Support local food marketing programs to focus on people, place and products throughout the Hawaiian Islands.

Increase agricultural education within secondary schools, vocational schools, and colleges.

Develop a seafood hatchery and new aquaculture farm for local consumption and export.

Explore and invest in value-added products from Hawai'i farms and support and educate farmers on promotional opportunities to create a Hawai'i marketplace of products.

Elevate the need for agricultural planning and investment to meet local food security targets.

STRATEGY 3 Promote sustainable & resilient farmland, practices, and infrastructure

Encourage sustainable crop management practices (e.g., organic farming, no till, improved manure management and sustainable irrigation practices) that may provide environmental services and co-benefits, such as protecting against soil degradation, providing GHG sequestration, increasing biodiversity and soil fertility, and maintaining or increasing economic production of crops and animal protein in order to meet the state's doubling of food production goals.

Continue to support the education of Native Hawaiian practices and other cultural farming practices such as loi farming to enhance local food productivity growth and protect Hawai'i's environment.

Continue to support the education of the genuine threats of invasive species to local farmlands and surrounding land habitats.

Ensure consistent funding for agricultural infrastructure improvements, operations, and maintenance.

Continue the State's purchase of fee interest for available prime agricultural lands before they are subject to non-agricultural development.

Coordinate water reuse expansion efforts with the Department of Agriculture's Agribusiness Development Corporation.

Explore and invest in the technological advancement of Hawai'i-based agriculture and food production, including indoor greenhouse growing opportunities.

Utilize more smart and high technology to improve agricultural production in Hawai'i.

Research and study proof of concept for large scale protected agriculture as an alternative to conventional agricultural production.

Expand public outreach and grants to farmers, incentivizing the pivot to sustainable and regenerative, and greenhouse gas sequestration agricultural business strategies.

STRATEGY 4 Invest in green workforce development, beginning with youth

Identify opportunities to provide funding for and encourage youth engagement in the green workforce.

Incorporate green job pathways at both high school and 2-year college programs.

Enlist the support of policymakers, educational administrators, and others to provide the facilities, resources, and incentives that nurture and enable research, innovation, and technology.

Develop a local green job youth corps program that prioritizes the State's workforce development and economic diversification, while providing temporary work and training opportunities for young adults in natural resource management, agricultural development, conservation, renewable energy, or other sustainability professions.

Cultivate and sustain interest in youth and innovation, farm mentorship and other agricultural-related programs to promote vocational interest in agriculture, aquaponics, and robotics.

STRATEGY 5 Foster the development of jobs that can sustain families financially

Encourage innovation, entrepreneurship, and small business development.

Provide Hawai'i small business and entrepreneurial support and enhance skill-building opportunities and workforce retraining.

Strengthen existing partnerships and form new ones to enhance high quality job creation in Hawai'i.

Provide workers with skills to adapt to job changes, navigate between careers, and create an adaptive workforce.

Develop Hawai'i's vulnerable workforce to include adaptive skills desirable in the 21st century job environment, leading to greater adaptability, higher probability to find work, and pivot during or soon after future economic shocks.

Develop local manufacturing periphery (including local creative agencies), and business to business (B2B) services.

Increase investment opportunity for local manufacturing.

Develop sustainable, resiliency-oriented products to be manufactured locally.

Support business pivots, revenue diversity, product manufacturing, and sales of local products.

Integrate circular economic principles in local manufacturing opportunities.

Prioritize resources to stimulate development of economic clusters, and the competitive advantages shared and invested in locally.

Increase digital and financial literacy within Hawai'i's schools and workforce.

Foster an ecosystem of innovation, research, education, and entrepreneurship that creates living-wage jobs and a diversified economy.

STRATEGY 6 Support diversification of the economy

Develop emerging industries and diversify economic clusters.

Develop creative industry infrastructure.

Provide post-production creative industry training.

Build a robust media and entertainment complex to develop the film industry.

Strengthen vocational workforce training to high-paying creative industry jobs.

Connect local creative industry artists to online platforms for sales and marketing.

Empower creative industry content creators to market their projects.

Grow three priority sectors: Healthcare (including clinical and community health), Technology (including IT and clean energy), and Skilled Trades (including sustainable agriculture, manufacturing, sustainable development, and construction).

STRATEGY 7 Reduce the environmental footprint of the tourism industry

Identify the impacts of and best practices for ecotourism.

Evaluate the feasibility of a state certification program to provide authentic ecotourism opportunities while also providing for enhanced protection of natural and cultural resources.

Assist and recognize visitor industry businesses that operate in an environmentally and socially responsible manner, including local food purchasing, waste reduction, and reducing petroleum-based energy, and water use.

Launch a collaborative tourism-based environmental sustainability program with natural resource partners to mitigate visitor impacts and support responsible tourism initiatives.

Protect and enhance recognition of Hawai'i as a green destination.

Incentivize and facilitate a shift to a regenerative visitor industry that has a smaller footprint and that aims to sustain and improve the quality of life for Hawai'i residents.

Mitigate impacts of tourism from a community standpoint through conducting the destination management planning process statewide.

Promote Hawai'i's sustainability, natural resources, local agriculture, and climate-resilience through Hawai'i tourism marketing and branding.

Enable Hawai'i tourism to contribute to the regeneration of Hawai'i's natural beauty, resources, and unique culture.

Develop a framework for a comprehensive sea level adaptation and resilience plan for the Waikīkī Special District.

STRATEGY 8 Support native Hawaiian culture & reduce impacts of the tourism industry to local communities

Monitor local infrastructure to support resident and visitor activity, assist counties in building capacity to service international flights, provide eco- and green tourism opportunities in balance with community input.

Convene community, government, and industry networks to support destination management and increase collaboration in responding to negative tourism impacts on Hawai'i's communities.

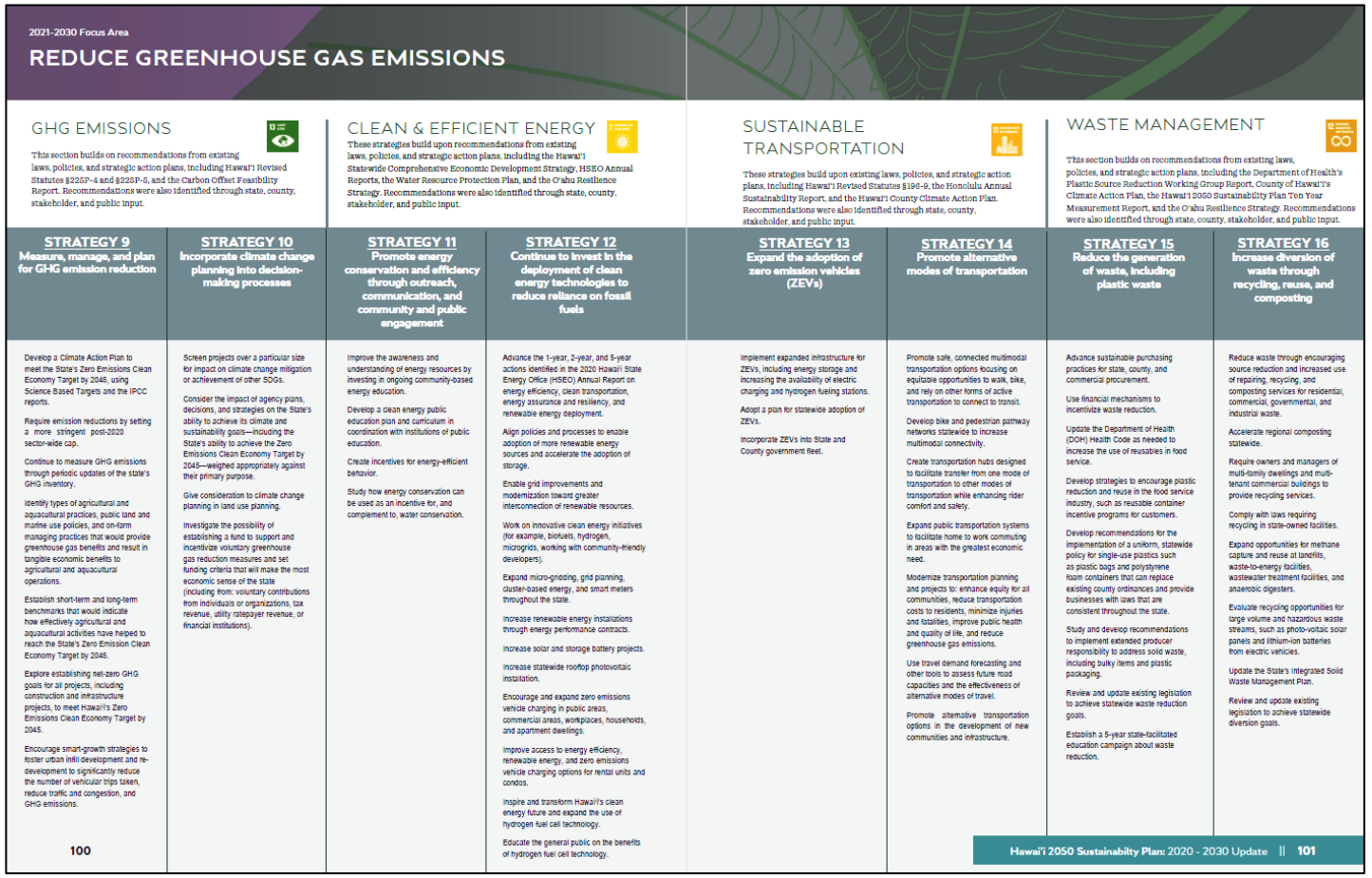
Provide members of the visitor industry with access to comprehensive Hawaiian cultural training, curriculum, and programming.

Enhance the visitor experience with programs that create and nurture a Hawaiian sense of place.

Hawai'i 2050 Sustainabilty Plan: 2020 - 2030 Update || 99

Focus Area: Reduce Greenhouse Gas Emissions

- **Strategy 9:** Measure, manage, and plan for GHG emission reduction
- **Strategy 10:** Incorporate climate change planning into decision-making processes
- **Strategy 11:** Promote energy conservation and efficiency through outreach, communication, and community and public engagement
- **Strategy 12:** Continue to invest in the deployment of clean energy technologies to reduce reliance on fossil fuels
- **Strategy 13:** Expand the adoption of Zero Emission Vehicles
- **Strategy 14:** Promote alternative modes of transportation
- **Strategy 15:** Reduce the generation of waste, including plastic waste
- **Strategy 16:** Increase diversion of waste through recycling, reuse, and composting
- **Including 53 recommended actions to reduce greenhouse gases!**



2021-2030 Focus Area

REDUCE GREENHOUSE GAS EMISSIONS

GHG EMISSIONS

This section builds on recommendations from existing laws, policies, and strategic action plans, including Hawai'i Revised Statutes §225P-4 and §225P-5, and the Carbon Offset Feasibility Report. Recommendations were also identified through state, county, stakeholder, and public input.

CLEAN & EFFICIENT ENERGY

These strategies build upon recommendations from existing laws, policies, and strategic action plans, including the Hawai'i Statewide Comprehensive Economic Development Strategy, HSEO Annual Reports, the Water Resource Protection Plan, and the O'ahu Resilience Strategy. Recommendations were also identified through state, county, stakeholder, and public input.

SUSTAINABLE TRANSPORTATION

These strategies build upon existing laws, policies, and strategic action plans, including Hawai'i Revised Statutes §196-6, the Honolulu Annual Sustainability Report, and the Hawai'i County Climate Action Plan. Recommendations were also identified through state, county, stakeholder, and public input.

WASTE MANAGEMENT

This section builds on recommendations from existing laws, policies, and strategic action plans, including the Department of Health's Plastic Source Reduction Working Group Report, County of Hawai'i's Climate Action Plan, the Hawai'i 2050 Sustainability Plan Ten Year Measurement Report, and the O'ahu Resilience Strategy. Recommendations were also identified through state, county, stakeholder, and public input.

STRATEGY 9
Measure, manage, and plan for GHG emission reduction

Develop a Climate Action Plan to meet the State's Zero Emissions Clean Economy Target by 2045, using Science Based Targets and the IPCC reports.

Require emission reductions by setting a more stringent post-2020 sector-wide cap.

Continue to measure GHG emissions through periodic updates of the state's GHG inventory.

Identify types of agricultural and aquacultural practices, public land and marine use policies, and on-farm managing practices that would provide greenhouse gas benefits and result in tangible economic benefits to agricultural and aquacultural operations.

Establish short-term and long-term benchmarks that would indicate how effectively agricultural and aquacultural activities have helped to reach the State's Zero Emission Clean Economy Target by 2045.

Explore establishing net-zero GHG goals for all projects, including construction and infrastructure projects, to meet Hawai'i's Zero Emissions Clean Economy Target by 2045.

Encourage smart-growth strategies to foster urban infill development and re-development to significantly reduce the number of vehicular trips taken, reduce traffic and congestion, and GHG emissions.

STRATEGY 10
Incorporate climate change planning into decision-making processes

Screen projects over a particular size for impact on climate change mitigation or achievement of other SDGs.

Consider the impact of agency plans, decisions, and strategies on the State's ability to achieve its climate and sustainability goals—including the State's ability to achieve the Zero Emissions Clean Economy Target by 2045—weighed appropriately against their primary purpose.

Give consideration to climate change planning in land use planning.

Investigate the possibility of establishing a fund to support and incentivize voluntary greenhouse gas reduction measures and set funding criteria that will make the most economic sense of the state (including from: voluntary contributions from individuals or organizations, tax revenue, utility ratepayer revenue, or financial institutions).

STRATEGY 11
Promote energy conservation and efficiency through outreach, communication, and community and public engagement

Improve the awareness and understanding of energy resources by investing in ongoing community-based energy education.

Develop a clean energy public education plan and curriculum in coordination with institutions of public education.

Create incentives for energy-efficient behavior.

Study how energy conservation can be used as an incentive for, and complement to, water conservation.

STRATEGY 12
Continue to invest in the deployment of clean energy technologies to reduce reliance on fossil fuels

Advance the 1-year, 2-year, and 5-year actions identified in the 2020 Hawai'i State Energy Office (HSEO) Annual Report on energy efficiency, clean transportation, energy assurance and resiliency, and renewable energy deployment.

Align policies and processes to enable adoption of more renewable energy sources and accelerate the adoption of storage.

Enable grid improvements and modernization toward greater interconnection of renewable resources.

Work on innovative clean energy initiatives (for example, biofuels, hydrogen, microgrids, working with community-friendly developers).

Expand micro-gridding, grid planning, cluster-based energy, and smart meters throughout the state.

Increase renewable energy installations through energy performance contracts.

Increase solar and storage battery projects.

Increase statewide rooftop photovoltaic installation.

Encourage and expand zero emissions vehicle charging in public areas, commercial areas, workplaces, households, and apartment dwellings.

Improve access to energy efficiency, renewable energy, and zero emissions vehicle charging options for rental units and condos.

Inspire and transform Hawai'i's clean energy future and expand the use of hydrogen fuel cell technology.

Educate the general public on the benefits of hydrogen fuel cell technology.

STRATEGY 13
Expand the adoption of zero emission vehicles (ZEVs)

Implement expanded infrastructure for ZEVs, including energy storage and increasing the availability of electric charging and hydrogen fueling stations.

Adopt a plan for statewide adoption of ZEVs.

Incorporate ZEVs into State and County government fleet.

STRATEGY 14
Promote alternative modes of transportation

Promote safe, connected multimodal transportation options focusing on equitable opportunities to walk, bike, and rely on other forms of active transportation to connect to transit.

Develop bike and pedestrian pathway networks statewide to increase multimodal connectivity.

Create transportation hubs designed to facilitate transfer from one mode of transportation to other modes of transportation while enhancing rider comfort and safety.

Expand public transportation systems to facilitate home to work commuting in areas with the greatest economic need.

Modernize transportation planning and projects to: enhance equity for all communities, reduce transportation costs to residents, minimize injuries and fatalities, improve public health and quality of life, and reduce greenhouse gas emissions.

Use travel demand forecasting and other tools to assess future road capacities and the effectiveness of alternative modes of travel.

Promote alternative transportation options in the development of new communities and infrastructure.

STRATEGY 15
Reduce the generation of waste, including plastic waste

Advance sustainable purchasing practices for state, county, and commercial procurement.

Use financial mechanisms to incentivize waste reduction.

Update the Department of Health (DOH) Health Code as needed to increase the use of reusables in food service.

Develop strategies to encourage plastic reduction and reuse in the food service industry, such as reusable container incentive programs for customers.

Develop recommendations for the implementation of a uniform, statewide policy for single-use plastics such as plastic bags and polystyrene foam containers that can replace existing county ordinances and provide businesses with laws that are consistent throughout the state.

Study and develop recommendations to implement extended producer responsibility to address solid waste, including bulky items and plastic packaging.

Review and update existing legislation to achieve statewide waste reduction goals.

Establish a 5-year state-facilitated education campaign about waste reduction.

STRATEGY 16
Increase diversion of waste through recycling, reuse, and composting

Reduce waste through encouraging source reduction and increased use of repairing, recycling, and composting services for residential, commercial, governmental, and industrial waste.

Accelerate regional composting statewide.

Require owners and managers of multi-family dwellings and multi-tenant commercial buildings to provide recycling services.

Comply with laws requiring recycling in state-owned facilities.

Expand opportunities for methane capture and reuse at landfills, waste-to-energy facilities, wastewater treatment facilities, and anaerobic digesters.

Evaluate recycling opportunities for large volume and hazardous waste streams, such as photo-voltaic solar panels and lithium-ion batteries from electric vehicles.

Update the State's Integrated Solid Waste Management Plan.

Review and update existing legislation to achieve statewide diversion goals.

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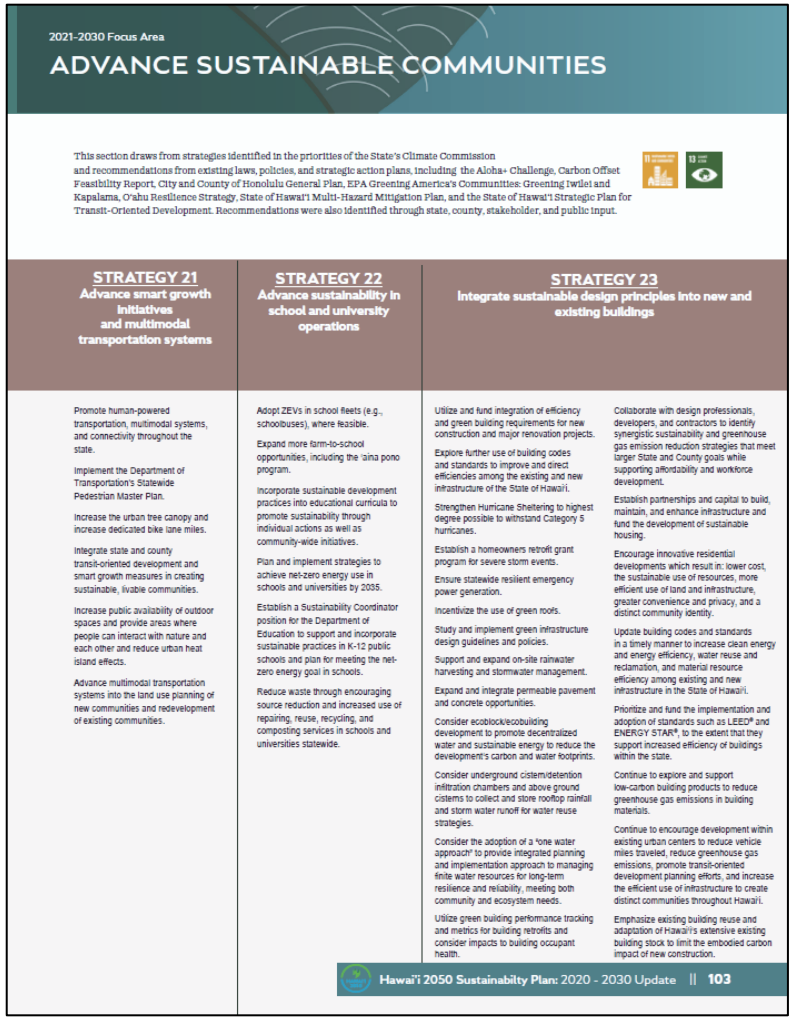
HAWAI'I 2050

Office of Planning
State of Hawai'i

Focus Area: Advance Sustainable Communities

- **Strategy 21:** Advance smart growth initiatives and multimodal transportation systems
- **Strategy 22:** Advance sustainability in school and university operations
- **Strategy 23:** Integrate sustainable design principles into new and existing buildings
- **<u>Including 7 recommended actions to:</u>**
  - **increase urban tree canopy,**
  - **reduce heat island effects,**
  - **increase composting, and**
  - **incorporate greenhouse gas emission reduction strategies in urban design, new construction, through eco blocks and building reuse.**



2021-2030 Focus Area

ADVANCE SUSTAINABLE COMMUNITIES

This section draws from strategies identified in the priorities of the State's Climate Commission and recommendations from existing laws, policies, and strategic action plans, including the Aloha+ Challenge, Carbon Offset Feasibility Report, City and County of Honolulu General Plan, EPA Greening America's Communities: Greening Twiley and Kapalama, O'ahu Resilience Strategy, State of Hawai'i Multi-Hazard Mitigation Plan, and the State of Hawai'i Strategic Plan for Transit-Oriented Development. Recommendations were also identified through state, county, stakeholder, and public input.

STRATEGY 21
Advance smart growth initiatives and multimodal transportation systems

Promote human-powered transportation, multimodal systems, and connectivity throughout the state.

Implement the Department of Transportation's Statewide Pedestrian Master Plan.

Increase the urban tree canopy and increase dedicated bike lane miles.

Integrate state and county transit-oriented development and smart growth measures in creating sustainable, livable communities.

Increase public availability of outdoor spaces and provide areas where people can interact with nature and each other and reduce urban heat island effects.

Advance multimodal transportation systems into the land use planning of new communities and redevelopment of existing communities.

STRATEGY 22
Advance sustainability in school and university operations

Adopt ZEVs in school fleets (e.g., schoolbuses), where feasible.

Expand more farm-to-school opportunities, including the 'aina pono program.

Incorporate sustainable development practices into educational curricula to promote sustainability through individual actions as well as community-wide initiatives.

Plan and implement strategies to achieve net-zero energy use in schools and universities by 2035.

Establish a Sustainability Coordinator position for the Department of Education to support and incorporate sustainable practices in K-12 public schools and plan for meeting the net-zero energy goal in schools.

Reduce waste through encouraging source reduction and increased use of repairing, reuse, recycling, and composting services in schools and universities statewide.

STRATEGY 23
Integrate sustainable design principles into new and existing buildings

Utilize and fund integration of efficiency and green building requirements for new construction and major renovation projects.

Explore further use of building codes and standards to improve and direct efficiencies among the existing and new infrastructure of the State of Hawai'i.

Strengthen Hurricane Sheltering to highest degree possible to withstand Category 5 hurricanes.

Establish a homeowners retrofit grant program for severe storm events.

Ensure statewide resilient emergency power generation.

Incentivize the use of green roofs.

Study and implement green infrastructure design guidelines and policies.

Support and expand on-site rainwater harvesting and stormwater management.

Expand and integrate permeable pavement and concrete opportunities.

Consider ecoblock/ecobuilding development to promote decentralized water and sustainable energy to reduce the development's carbon and water footprints.

Consider underground cistern/detention infiltration chambers and above ground cisterns to collect and store rooftop rainfall and storm water runoff for water reuse strategies.

Consider the adoption of a "one water approach" to provide integrated planning and implementation approach to managing finite water resources for long-term resilience and reliability, meeting both community and ecosystem needs.

Utilize green building performance tracking and metrics for building retrofits and consider impacts to building occupant health.

Collaborate with design professionals, developers, and contractors to identify synergistic sustainability and greenhouse gas emission reduction strategies that meet larger State and County goals while supporting affordability and workforce development.

Establish partnerships and capital to build, maintain, and enhance infrastructure and fund the development of sustainable housing.

Encourage innovative residential developments which result in: lower cost, the sustainable use of resources, more efficient use of land and infrastructure, greater convenience and privacy, and a distinct community identity.

Update building codes and standards in a timely manner to increase clean energy and energy efficiency, water reuse and reclamation, and material resource efficiency among existing and new infrastructure in the State of Hawai'i.

Prioritize and fund the implementation and adoption of standards such as LEED® and ENERGY STAR®, to the extent that they support increased efficiency of buildings within the state.

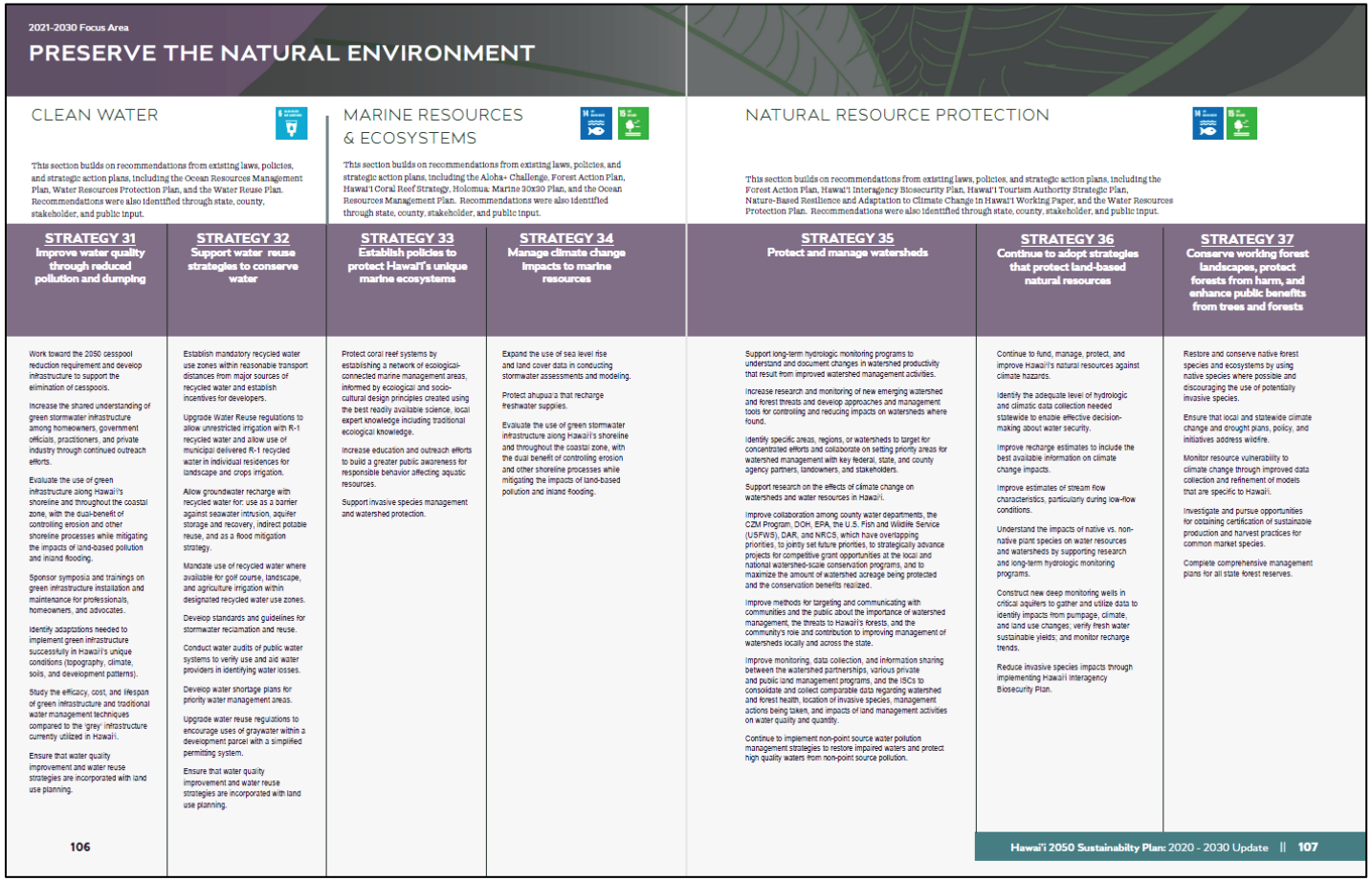
Continue to explore and support low-carbon building products to reduce greenhouse gas emissions in building materials.

Continue to encourage development within existing urban centers to reduce vehicle miles traveled, reduce greenhouse gas emissions, promote transit-oriented development planning efforts, and increase the efficient use of infrastructure to create distinct communities throughout Hawai'i.

Emphasize existing building reuse and adaptation of Hawai'i's extensive existing building stock to limit the embodied carbon impact of new construction.

Focus Area: Preserve the Natural Environment

- **Strategy 31:** Improve water quality through reduced pollution and dumping
- **Strategy 35:** Protect and manage watersheds
- **Strategy 36:** Continue to adopt strategies that protect land-based natural resources.
- **Strategy 37:** Conserve working forest landscapes, protect forests from harm, and enhance public benefits from trees and forests
- **<u>Including 24 recommended actions!</u>**



2021-2030 Focus Area

PRESERVE THE NATURAL ENVIRONMENT

CLEAN WATER

This section builds on recommendations from existing laws, policies, and strategic action plans, including the Ocean Resources Management Plan, Water Resources Protection Plan, and the Water Reuse Plan. Recommendations were also identified through state, county, stakeholder, and public input.

MARINE RESOURCES & ECOSYSTEMS

This section builds on recommendations from existing laws, policies, and strategic action plans, including the Aloha+ Challenge, Forest Action Plan, Hawai'i Coral Reef Strategy, Holomua: Marine 30x30 Plan, and the Ocean Resources Management Plan. Recommendations were also identified through state, county, stakeholder, and public input.

NATURAL RESOURCE PROTECTION

This section builds on recommendations from existing laws, policies, and strategic action plans, including the Forest Action Plan, Hawai'i Interagency Biosecurity Plan, Hawai'i Tourism Authority Strategic Plan, Nature-Based Resilience and Adaptation to Climate Change in Hawai'i Working Paper, and the Water Resources Protection Plan. Recommendations were also identified through state, county, stakeholder, and public input.

STRATEGY 31 Improve water quality through reduced pollution and dumping

Work toward the 2050 cesspool reduction requirement and develop infrastructure to support the elimination of cesspools.

Increase the shared understanding of green stormwater infrastructure among homeowners, government officials, practitioners, and private industry through continued outreach efforts.

Evaluate the use of green infrastructure along Hawai'i's shoreline and throughout the coastal zone, with the dual-benefit of controlling erosion and other shoreline processes while mitigating the impacts of land-based pollution and inland flooding.

Sponsor symposia and trainings on green infrastructure installation and maintenance for professionals, homeowners, and advocates.

Identify adaptations needed to implement green infrastructure successfully in Hawai'i's unique conditions (topography, climate, soils, and development patterns).

Study the efficacy, cost, and lifespan of green infrastructure and traditional water management techniques compared to the 'grey' infrastructure currently utilized in Hawai'i.

Ensure that water quality improvement and water reuse strategies are incorporated with land use planning.

STRATEGY 32 Support water reuse strategies to conserve water

Establish mandatory recycled water use zones within reasonable transport distances from major sources of recycled water and establish incentives for developers.

Upgrade Water Reuse regulations to allow unrestricted irrigation with R-1 recycled water and allow use of municipal delivered R-1 recycled water in individual residences for landscape and crops irrigation.

Allow groundwater recharge with recycled water for: use as a barrier against seawater intrusion, aquifer storage and recovery, indirect potable reuse, and as a flood mitigation strategy.

Mandate use of recycled water where available for golf course, landscape, and agriculture irrigation within designated recycled water use zones.

Develop standards and guidelines for stormwater reclamation and reuse.

Conduct water audits of public water systems to verify use and aid water providers in identifying water losses.

Develop water shortage plans for priority water management areas.

Upgrade water reuse regulations to encourage uses of graywater within a development parcel with a simplified permitting system.

Ensure that water quality improvement and water reuse strategies are incorporated with land use planning.

STRATEGY 33 Establish policies to protect Hawai'i's unique marine ecosystems

Protect coral reef systems by establishing a network of ecological-connected marine management areas, informed by ecological and socio-cultural design principles created using the best readily available science, local expert knowledge including traditional ecological knowledge.

Increase education and outreach efforts to build a greater public awareness for responsible behavior affecting aquatic resources.

Support invasive species management and watershed protection.

STRATEGY 34 Manage climate change impacts to marine resources

Expand the use of sea level rise and land cover data in conducting stormwater assessments and modeling.

Protect ahupua'a that recharge freshwater supplies.

Evaluate the use of green stormwater infrastructure along Hawai'i's shoreline and throughout the coastal zone, with the dual benefit of controlling erosion and other shoreline processes while mitigating the impacts of land-based pollution and inland flooding.

STRATEGY 35 Protect and manage watersheds

Support long-term hydrologic monitoring programs to understand and document changes in watershed productivity that result from improved watershed management activities.

Increase research and monitoring of new emerging watershed and forest threats and develop approaches and management tools for controlling and reducing impacts on watersheds where found.

Identify specific areas, regions, or watersheds to target for concentrated efforts and collaborate on setting priority areas for watershed management with key federal, state, and county agency partners, landowners, and stakeholders.

Support research on the effects of climate change on watersheds and water resources in Hawai'i.

Improve collaboration among county water departments, the CZM Program, DOH, EPA, the U.S. Fish and Wildlife Service (USFWS), DAR, and NRCS, which have overlapping priorities, to jointly set future priorities, to strategically advance projects for competitive grant opportunities at the local and national watershed-scale conservation programs, and to maximize the amount of watershed acreage being protected and the conservation benefits realized.

Improve methods for targeting and communicating with communities and the public about the importance of watershed management, the threats to Hawai'i's forests, and the community's role and contribution to improving management of watersheds locally and across the state.

Improve monitoring, data collection, and information sharing between the watershed partnerships, various private and public land management programs, and the ISCs to consolidate and collect comparable data regarding watershed and forest health, location of invasive species, management actions being taken, and impacts of land management activities on water quality and quantity.

Continue to implement non-point source water pollution management strategies to restore impaired waters and protect high quality waters from non-point source pollution.

STRATEGY 36 Continue to adopt strategies that protect land-based natural resources

Continue to fund, manage, protect, and improve Hawai'i's natural resources against climate hazards.

Identify the adequate level of hydrologic and climatic data collection needed statewide to enable effective decision-making about water security.

Improve recharge estimates to include the best available information on climate change impacts.

Improve estimates of stream flow characteristics, particularly during low-flow conditions.

Understand the impacts of native vs. non-native plant species on water resources and watersheds by supporting research and long-term hydrologic monitoring programs.

Construct new deep monitoring wells in critical aquifers to gather and utilize data to identify impacts from pumpage, climate, and land use changes; verify fresh water sustainable yields; and monitor recharge trends.

Reduce invasive species impacts through implementing Hawai'i Interagency Biosecurity Plan.

STRATEGY 37 Conserve working forest landscapes, protect forests from harm, and enhance public benefits from trees and forests

Restore and conserve native forest species and ecosystems by using native species where possible and discouraging the use of potentially invasive species.

Ensure that local and statewide climate change and drought plans, policy, and initiatives address wildfire.

Monitor resource vulnerability to climate change through improved data collection and refinement of models that are specific to Hawai'i.

Investigate and pursue opportunities for obtaining certification of sustainable production and harvest practices for common market species.

Complete comprehensive management plans for all state forest reserves.

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Summary of Recommendations

- Develop a Climate Action Plan to meet the State's Zero Emissions Clean Economy Target by 2045, using Science Based Targets and the IPCC reports.
- Require emission reductions by setting a more stringent post-2020 sector-wide cap.
- Identify types of agricultural and aquacultural practices, public land and marine use policies, and on-farm managing practices that would provide greenhouse gas benefits and result in tangible economic benefits to agricultural and aquacultural operations.
- Investigate the possibility of establishing a fund to support and incentivize voluntary greenhouse gas reduction measures and set funding criteria that will make the most economic sense for the state.
- Expand outreach and grants to farmers, incentivizing the pivot to sustainable and regenerative, and greenhouse gas sequestration agricultural business strategies. (Carbon Positive Incentive Program like the Greenhouse Gas Sequestration Task Force's Healthy Soils Hawai'i Pilot Project)
- Encourage sustainable crop management practices (e.g.: organic farming, no till, improved manure management, and sustainable irrigation practices) that may provide environmental services and co-benefits, such as protecting against soil degradation, providing GHG sequestration, increasing biodiversity and soil fertility, and maintaining or increasing economic production of crops and animal protein in order to meet the state's doubling of food production target.
- Increase urban tree canopy to reduce urban heat island effects.
- Increase the public availability of outdoor spaces and provide areas where people can interact with nature and each other and reduce urban heat island effects.
- Explore establishing net-zero GHG goals for all projects, including construction and infrastructure projects, to meet Hawai'i's Zero Emissions Clean Economy Target by 2045.
- Emphasize existing building reuse and adaptation of Hawai'i's extensive existing building stock to limit the embodied carbon impact of new construction.
- Expand opportunities for methane capture and reuse at landfills, waste-to-energy facilities, wastewater treatment facilities, and anaerobic digesters.
- Accelerate regional composting statewide.
- Reduce waste through encouraging source reduction and increased use of repairing, reuse, recycling, and composting services in schools and universities statewide.

Mahalo!

Office of Planning
State of Hawai'i