We are dumping 110 million tons of manmade global warming pollution into the atmosphere every 24 hours.

Data: Intergovernmental Panel on Climate Change
## Planning for HI’s Climate Change Adaptation

### 2017
- **We Are Still In**, Paris Climate Agreement
- Act 32 (2017), State Climate Change Mitigation and Adaptation Commission
- Chicago Climate Charter
- Clean Transportation Commitment
- State Sea Level Rise Vulnerability and Adaptation Report and Data Viewer

### 2018
- City Climate Change Commission Brief and Guidance
- Directive 18-2, Climate Change and Sea Level Rise
- Act 15 (2018), State Carbon Neutrality Law (plus 100% Renewable in the Electricity Sector)
- Res 18-221, 100% Renewable, Carbon Neutral Economy, Implement 2018 Global Climate Action Summit Goals

### 2019
- City GHG Inventory
- Climate Resilience added as Mayor priority
- Resilience Strategy released
- Res 19-233, Resilience Strategy as City guiding policy
- Res 19-283, Fossil Fuel Litigation
- Multiple bills and ordinances

### 2020
- Multiple bills and ordinances
- Directive 20-14, Community Heat and Community Forestry
- Hawai‘i 2050 Sustainability Plan update
- Act 16 (2020), Relating to Coastal Zone Management
Office of Climate Change, Sustainability and Resiliency

Planning for HI’s Climate Change Adaptation

2.1 - Planning and Implementation Structure

- Hawaii State Plan
  - State Land Use Districts
    - State Land Use Commission Public Hearings
  - Hawaii Community Development Authority Plans and Rules
    (Koko'olau, Kailua, & Heeia Districts)
  - HCDA Public Hearings
  - City & County General Plan
    - Special Area Plans
      - Neighborhood Transit Oriented Development Plans
    - Development Plans / Sustainable Communities Plans
      - Implementing Ordinances & Regulations
        - Zone Changes
        - Land Use Ordinance
        - Subdivision Ordinance
        - Sign Regulations
        - Special Use Permits
      - Capital Improvement Projects
  - Permits

- Implementation Structure

The general structure goes from broad policies to detailed regulations and permits. Refer to Sections 2.6 and 3.2 for more public hearing info. Plan reviews also include hearings.

honoluludpp.org/Planning/DevelopmentSustainableCommunitiesPlans

Figure 1 – Basic Components of Planning in Oahu

Neighborhood Board Information Handbook

honoluludpp.org/Portals/0/pdfs/planning/NB_Guide_Sep_2015.pdf
CLIMATE CHANGE BRIEF
Summary of measured and expected impacts to O‘ahu

SEA LEVEL RISE GUIDANCE
3.2 feet rise by 2100 (80 years)
Periodic flooding by mid-century (30 years)
6.0 feet as planning benchmark for critical facilities

resilientoahu.org/climate-change-commission
July 16, 2018
Climate Change and Sea Level Rise
Mayor Caldwell issued an executive order in response to guidance issued by the City’s Climate Change Commission.

resilientoahu.org/s/MayorsDirective18-02.pdf
Land Use & Zoning Recommendations
Use of Data
Community Engagement – 16 Pop-ups

Sea Level Rise & Climate Change
Final White Paper – December 2018

Sea Level Rise Strategies Survey
In late 2017 the State issued the Hawai‘i Sea Level Rise Vulnerability and Adaptation Report which defined areas of exposure (SLR-XA) to the combined factors of sea level rise, wave action, and coastal erosion. Subsequently, Honolulu’s Climate Change Commission issued Sea Level Rise Guidance that recommends a planning benchmark of 3.2’ of sea level rise projected by the end of the century (however high tide flooding can appear decades earlier), and planning for up to 6’ of sea level rise for long-life projects and critical infrastructure.

An important new component of the PUC DP is the incorporation of Sea Level Rise and Climate Change planning concepts and recommendations. Please take time to complete our online survey below, which includes an overview of some of the recognized approaches to sea level rise adaptation and asks participants to indicate which ones are favored as a potential response to this challenge. We value this input as a way to inform the ongoing planning process.

Take the Sea Level Rise Survey!

What Sea Level Rise Impacts Can We See?

www.pucdp.com, puc_hnl (IG) & @HonoluluPUCDP (FB)
Low elevation/coastal bridge crossings

Shared utility corridors highlight a need for collaborative facilities and community planning

boardofwatersupply.com/water-resources/climate-change
Environmental Services WW Facilities Planning

Waianae Fac Plan Climate Change Evaluation - Work Process and Flow Diagram

Preliminary Impact Results for the Proposed Scenarios

<table>
<thead>
<tr>
<th>Asset</th>
<th>Passive Flooding</th>
<th>Annual High Wave Flooding</th>
<th>Coastal Erosion</th>
<th>Passive Flooding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waianae WWTP</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Lualualei WWPS</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Nanakuli WWPS</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>X</td>
</tr>
<tr>
<td>Pipelines</td>
<td>15,000 LF</td>
<td>47,000 LF</td>
<td>16,000 LF</td>
<td>41,000 LF</td>
</tr>
<tr>
<td></td>
<td>3%</td>
<td>11%</td>
<td>4%</td>
<td>9%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14%</td>
</tr>
</tbody>
</table>

- The table provides the assets identified during preliminary analysis as potentially impacted by the listed SLR scenarios and associated hazards.
- The WWTP and WWPSs are identified as either potentially impacted ("X") or not impacted ("-").
- For pipelines, the total linear footage (LF) and percentage that is potentially impacted is provided.

Brown and Company
Resilience Strategy Action 29:
Protect Beaches and Public Safety
With Revised Shoreline Management Rules
E komo mai and mahalo for charting a course toward a Climate Ready O‘ahu

What is the climate adaptation strategy?

Resilience Strategy Action 28:
Chart a Climate Resilient Future
By Creating and Implementing A Climate Adaptation Strategy
### Timeline toward a Climate Ready O‘ahu

<table>
<thead>
<tr>
<th>Phase and Topics</th>
<th>Timeframe and Key Questions</th>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Understand Climate Hazards</strong></td>
<td>SEPT – NOV</td>
<td>- Climate Risk Assessment</td>
</tr>
<tr>
<td>- Guiding principles</td>
<td></td>
<td>- Identify risks and understand exposure</td>
</tr>
<tr>
<td>- Risk assessments</td>
<td></td>
<td>- Analyze and evaluate risks</td>
</tr>
<tr>
<td>- Economic analyses</td>
<td></td>
<td>- Economic analysis</td>
</tr>
<tr>
<td>- Exposure maps</td>
<td></td>
<td>- DP/SCP Climate Change Impacts Briefs (8)</td>
</tr>
<tr>
<td>- Adaptation action areas</td>
<td></td>
<td>- Adaptation Action Areas (5)</td>
</tr>
<tr>
<td>- Cross-cutting</td>
<td></td>
<td>- Sector-specific adaptation strategies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Cross-cutting adaptation strategies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Recommendations for Decision-Making Alignment</td>
</tr>
<tr>
<td><strong>Develop Adaptation Actions</strong></td>
<td>DEC – FEB</td>
<td>- Climate Resilience and Hazard Mitigation Plan</td>
</tr>
<tr>
<td>- Adaptation action areas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Sector specific</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Cross-cutting</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Draft Adaptation Road Map</strong></td>
<td>MAR – APRIL</td>
<td></td>
</tr>
<tr>
<td>- Input analysis and synthesis</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Review Adaptation Road Map</strong></td>
<td>MAY – JUNE</td>
<td></td>
</tr>
<tr>
<td>- Community check and feedback</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Finalize Road Map and Support Decision-Making</strong></td>
<td>JULY – SEPT</td>
<td></td>
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<tr>
<td>- City budgeting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Hazard mitigation plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Community plans</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Towards a **Climate Resilience and Hazard Mitigation Plan**

[climatereadyoahu.org]
Climate Ready O‘ahu Web Explorer

Current Layers
- SMA
- TMKs
- Community Plan Areas
- Historical and Future Shoreline Change Rates
- State 3.2’ SLR-XA, component hazards, and flooded highways
- O‘ahu DFIRM
- NOAA 6’ SLR
- Heat Index Afternoon
- Tree Canopy – Land Cover (2010)

Additional Potential Layers
- Beach/dune geology
- “Future V Zone”
- Tsunami Zones
- Tree Inventory/Citizen Forester Data

bit.ly/climatereadyoahumap
resilientoahu.org/s/MayorsDirective18-02.pdf
Mayor’s Directive 20-14 | Temps and Trees

bit.ly/oahuheatmap
Implementing New Equity & Climate Practices

Community and a Changing Climate

Defining Equity:
PLACE- AND PEOPLE- BASED SOLUTIONS

PROCEDURAL EQUITY
Accessibility and inclusivity of decision making processes by those most impacted.

DISTRIBUTIONAL EQUITY
Benefits are distributed to prioritize those most in need.

STRUCTURAL EQUITY
Transparency and accountability are institutionalized, acted upon and regulated.

INTERGENERATIONAL EQUITY
Decisions prioritize the health and wellbeing of future generations.

CULTURAL EQUITY
The acknowledgement and undoing of racism with the concurrent construction of equitable multicultural norms.

resilientoahu.org/equity
Implementing New Equity & Climate Practices

Office of Climate Change, Sustainability and Resiliency

- Functional Plans
- Stormwater Utility
- Integrated Infrastructure Planning & One Water
- Infrastructure Resilience Design Review
- Longer-term Capital and Financial Plans
- Hazard Mitigation Plan and CIP Alignment

Normalize
Organize
Operationalize

Implementing Resilience for O‘ahu

Producing a strategy is not the end of thinking about resilience—it’s the beginning.

The Key Components for Action:

- New Policies
- Budget Alignment
- Resilient Projects
- City-Community Partnerships
City sues fossil fuel businesses over climate change costs

Resolution 19–283
Adopted Nov. 12, 2019

Authorize the Department of the Corporation Counsel to initiate legal action against fossil fuel companies to recover climate crisis-related costs
Climate Change and Financial Risk Guidance

The purpose of this guidance document is to provide considerations of the emerging financial risks affiliated with climate change, particularly climate shocks and stressors relevant to the City & County of Honolulu. This prompts the need to critically examine the nature of hazards, current insurance information and mechanisms used by the City, as well as general practices of public finance. This guidance document highlights potential alternative risk transfer options to address climate change shocks as well as discusses City public finance in the context of climate change stressors.
Mahalo

Office of Climate Change, Sustainability and Resiliency

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