

# RESILIENCE

*THE ABILITY OF A SYSTEM TO EXPERIENCE MILD TO SEVERE DISRUPTION & REMAIN WHOLLY ITSELF, SUSTAINING ITS CORE IDENTITY, RELATIONSHIPS, & FUNCTIONS*



## **REFLECTIONS ON THE 2016 OAHU GREEN INFRASTRUCTURE SUMMIT**

Pam Emerson, Green Infrastructure Policy & Planning Advisor, City of Seattle

## PROBLEM DEFINITION

- Staff and managers responsible for legacy drainage, wastewater, and drinking water systems on Oahu have **insufficient resources to proactively operate and renew these systems** to keep pace with the changing needs and conditions presented by major drivers such as:
  - climate disruption
  - development pressure
  - Federal regulation
  - economic drivers
  - evolving public consciousness and political imperatives around the health of the natural systems and social/racial equity
- Paramount water-system concern
  - future **drinking water security** in a context of decreased rainfall and aquifer recharge and increasing population pressure
- Other key concerns
  - increased **flooding** and associated property loss and/or infrastructure damage
  - new **NPDES permit** requirements
  - the threat of a wastewater-related **consent decree**
  - **nearshore water quality** vulnerability (bedrock of tourism and hospitality economy)
  - historic **social inequities** that would be exacerbated by climate-related crises
- **Appropriate city-scale precedents are difficult to find.** Mainland models of water-related utilities (drinking water, wastewater, stormwater/drainage) center on single-purpose systems, operated largely in parallel with one another and independently of related systems such as transportation. These large, centralized, stand-alone built and organizational systems are now *also* struggling to keep pace with: the ‘new normal’ presented by climate change (150 years of climate data are no longer predictive of future conditions); the scale of solutions are not commensurate with the scale of water pollution challenges caused by 150 years of unmitigated or under-mitigated land development: changing regulations; development pressure and associated affordability challenges, long-standing environmental injustice, etc.

## UNIQUE (and potentially catalytic) LOCAL ASSETS

- **Strong alliances and engagement** on this problem set already from academia, community foundations, local and national-scale non-profit organizations, local-state-Federal government officials, elected officials, local design professionals, and likely many other sectors
- **Deep culture of care for the land and water**, and deep sense of belonging and **pride of place**
- Equally strong current of **community self-sufficiency and DIY mentality**

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- An **emerging community-held vision around TOD** and a recognition that land use decisions are water decisions
- **Legislative authority** to create a rate-funded stormwater utility
- **Broad network** of people (visitors, part-time residents, tour companies, U.S. military...) outside Oahu/Hawaii who have a vested interest in a thriving and resilient Oahu into the future

## BIG PICTURE OPPORTUNITIES

- **Set community resiliency as a top tier goal** and hold green infrastructure (together with other multi-purpose, integrated water system solutions.... like district-scale graywater and wastewater reuse) as a robust toolset to build out a framework to get there.
- For example, use this inflection point, complex of issues, and suite of local assets to imagine and outline a draft consensus **vision for an integrated and secure water future for Oahu**. Ground visioning work in current best available climate predictions, readily available water resources data and state-of-the-current-infrastructure data, available and emerging water-resources technology, planning projections for regulation, population growth and land use changes, and inter-disciplinary + local knowledge of community priorities and community assets.
- **Query/engage key sectors and demographics** in the process -- public health/health care professionals and institutions, students and teachers, tourism industry leaders, unions/building trades, elected officials, planning and design professionals, Native Hawaiian leaders, land developers, engaged civil society organizations (environmental orgs, water recreation groups, climate change activists, social justice organizations...), locally-based corporate leaders, farmers... What are your water-related concerns and priorities? What does a “Water Secure Oahu” mean to you? What would it look like? What are the benchmarks?
- Build on the multiple definitions for/images of/needs for a ‘Water-Secure Oahu’ gleaned during visioning process to **develop a framework for an integrated Utility that could conceivably deliver that future** and be supported by disparate perspectives within the community, despite the known reality of associated fees/added cost.
- In the near-term, **use the community vision to fundraise around a key set of small-scale** (maybe district-scale... maybe TOD-oriented) **demonstration projects** that show the efficacy of the types of integrated/resilient next-generation water systems than *could/would* become commonplace in a water-secure future with an appropriately equipped Utility at the helm.
- Frame fundraising and demonstration projects as **options testing for next generation water security strategies** in Hawaii – with the explicit intent of assessing the strengths of a variety of approaches before building out at scale on Oahu and/or outer islands.
- Consider the role of **convener/leader of a broader community of practice** across/among other Pacific island communities and/or coastal regions facing similar community resilience (or ‘climate adaptation’) challenges.

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## FODDER + INSPIRATION

Like-minded foundations/funders

[www.davidsuzuki.org/about/declaration/](http://www.davidsuzuki.org/about/declaration/)

<http://piscisfoundation.org/our-focus/water-resources/>

[www.surdna.org/what-we-fund/funding-overview.html](http://www.surdna.org/what-we-fund/funding-overview.html)

[www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=501027](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501027)

[www.fundersnetwork.org/blog/investing-in-water-resilience-confluence-philanthropy...](http://www.fundersnetwork.org/blog/investing-in-water-resilience-confluence-philanthropy...)

Climate adaptation

[www.spur.org/sites/default/files/publications\\_pdfs/SPUR%27s\\_Agenda\\_for\\_Change\\_2016.pdf#page=14](http://www.spur.org/sites/default/files/publications_pdfs/SPUR%27s_Agenda_for_Change_2016.pdf#page=14)

<https://insideclimatenews.org/news/20130620/6-worlds-most-extensive-climate-adaptation-plans>

[www.seattle.gov/environment/climate-change/planning-for-climate-impacts](http://www.seattle.gov/environment/climate-change/planning-for-climate-impacts)

Urban renewal approaches (El Paso is pretty interesting! Voters passed a '\$400M+ quality of life' bond)

[www.socialworkdegreeguide.com/30-inspiring-urban-renewal-projects/](http://www.socialworkdegreeguide.com/30-inspiring-urban-renewal-projects/)

Integrated water system approaches + Eco-District concept

<http://sfwater.org/index.aspx?page=686>

<http://seradesign.com/2014/03/ecodistricts-developing-sustainable-systems-at-scales...>

[www.werf.org/i/c/Decentralizedproject/When\\_to\\_Consider\\_Dis.aspx](http://www.werf.org/i/c/Decentralizedproject/When_to_Consider_Dis.aspx)

<https://americanrivers.org/conservation-resources/integrated-water-management/>

Green Infrastructure/High Performance Landscapes Case Studies

<http://landscapeperformance.org/case-study-briefs>

Networking

<http://gsihub.thetactilegroup.com/>

(This is just starting!! I think it is in beta right now. A great new collaboration space.)

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