



To: Mr. Benson Medina
Director of Research & Development
County of Hawai'i
25 Aupuni Street, Suite 1301
Hilo, Hawai'i 96720

From: Joey Williams
Program Manager
CAPA Strategies
107 SE Washington St.
Portland, OR 97214

Subject: CAPA Strategies' Statement of Qualifications, Professional Services for County of Hawai'i, Department of Research and Development: RD.1) Community Planning (Community and Economic Development, Community Engagement, Culture and Indigenous Data Science, Strategic Planning, Sustainability Systems)

Date: June 27th, 2025

Dear Mr. Benson Medina,

I am writing on behalf of CAPA Strategies, LLC to apply to serve the County of Hawai'i Department of Research and Development with professional services pertaining to Community Planning (RD.1). Within this letter are descriptions of CAPA's qualifications as requested according to the Notice to Providers of Professional Services (HRS 103D-304). If you require any further information, please do not hesitate to contact Joey Williams at his provided details below.

(1) The name of the firm or person, contact information including email address, the principal place of business, and location of all of its offices;

Firm: CAPA Strategies, LLC

Contact: Joey Williams (Program Manager)

Email: jw@capastrategies.com

Phone: 281-743-0543

Place of Business: 107 SE Washington St. Suite 410, Portland OR 97214

Additional Address: PO Box 42223 Portland, OR 97242

(2) The age of the firm and its average number of employees over the past five years;

CAPA has operated as a business since 2018 with an average of 6 employees per year over the past five years.

- (3) The education, training, and qualifications of the individual, or if a firm, its key employees in accordance with HRS 103D-304 and/or the professional and scientific occupation series contained in the United States Office of Personnel Management's Qualifications Standards Handbook.

CAPA is a team of social and environmental scientists who share an urban and regional planning perspective and are deeply committed to supporting more sustainable, equitable, and resilient places to live. Attached to this letter are the CVs for primary members of the CAPA team, along with brief descriptions of the team below.

Dr. Vivek Shandas, CEO & Advisor

Vivek Shandas is the founder of and advisor to CAPA Strategies. He brings over 25 years of interdisciplinary research, practice, and community engagement to this role, and has been supporting cities on heat management for over 10 years. Vivek's approach to urban heat management focuses on direct community involvement in the understanding and response to extreme heat, particularly in terms of building resilient systems and protocols for reducing negative impacts to human health and infrastructure. Vivek holds a PhD in Urban Design and Planning and Master's degrees in Environmental Policy, and Economics.

Dr. Dana Hellman, Resilience Program Manager

Dana leads the development and implementation of CAPA's Resilience Program. She is an experienced social scientist and has been working in the field of climate resilience for over seven years. At CAPA, Dana coordinates with clients on resilience projects, designs and administers instruments for community and stakeholder engagement (including surveys, interviews, and workshop and focus group protocols), designs tailored approaches to characterize vulnerability and risk, assesses policies and codes, and develops frameworks that support implementation. She specializes in the integration of social data with contextual information and best practices to guide clients toward resilience strategies that are locally resonant. She has worked on planning and intervention guidance for multiple clients including Longmont, CO; Multnomah County, Portland, and Gresham, OR; Clark County, WA; Sedona, AZ; Oklahoma City, OK; and Los Angeles, CA. Dana holds a PhD in Earth, Environment & Society (resilience focus) and a Master's degree in Community Planning, and is a trained practitioner and facilitator of the National Oceanic and Atmospheric Administration's Steps to Resilience Toolkit.

Mr. Joey Williams, Campaign Program Manager

Joey serves as Campaign Program Manager and directs operations of CAPA's heat mapping program, Heat Watch, and other heat and air quality monitoring services. He has supported over 125 heat mapping campaigns over the past seven years, and continues to advance the technical quality and impact of CAPA's heat data products using his knowledge of sensor technology and monitoring. He and the Campaign Team are adept at supporting client cities with spatial analysis of heat data and examining relationships with land use and land cover, sociodemographics, and health data. With his background in Urban Planning, Joey is able to work with client cities to leverage environmental data towards mitigation and adaptation solutions. Joey has worked on heat mapping projects in San Bernardino, Los Angeles,

and Calexico / Mexicali. Joey holds a Master's degree in Urban & Regional Planning (MURP) and Bachelor's of Science in Mechanical Engineering.

Dr. Bradley Wilson, Lead Analyst

Bradley is the lead analyst at CAPA strategies and oversees the technical execution and scientific development of CAPA products and services. He has broad experience in the climate services industry, with expertise in spatial modeling and statistics, satellite imagery analysis, and climate data processing. He has led the development of several extreme heat models at both local and national scales, and continues to oversee the CAPA Heat Watch modeling pipeline. Bradley is adept at integrating a wide range of environmental and social datasets into tailored analyses informing climate adaptation solutions. He holds a PhD in Geosciences and a Master's degree in Geography.

Ms. Eliza Amstutz, Program Associate

Eliza manages client relations, project planning, and logistics for CAPA's Heat Watch program. At CAPA, Eliza supports community based monitoring projects, primarily managing CAPA's Heat Watch mapping campaigns. She specializes in community engaged data collection and interpretation. She has worked with a number of communities to facilitate research and discussion on wildfire adaptation, drinking water quality, and extreme heat scenarios including Los Angeles, Paradise, and Santa Rosa through focus groups, interviews, and reporting. Eliza holds a Master's degree in Geography.

Mr. Zachary Boyce, Program Associate & Communications Lead

Zachary leads geospatial analysis, mapping, and data visualization across CAPA programs and projects. He specializes in complex analyses including quantitative social, environmental, and physical data, as well as the adaptation of analytical outputs into accessible graphics, presentations, and reports. Zachary holds a Bachelor's degree in Geography and is currently completing a Master's degree in emergency management and Community Resilience.

(4) A list of recent projects and the names of up to five clients who may be contacted, including at least two for whom services were rendered during the preceding year;

(A) **Project:** Longmont, Colorado: Heat Mapping, Community Engagement & Heat Action Planning, 2023-2024

Description: In Longmont, Colorado, CAPA conducted comprehensive heat assessments, culminating in the *Longmont Heat Action Plan*. CAPA initiated the project with a Heat Watch mapping campaign to gather hyperlocal temperature data and concurrently developed a community engagement framework. CAPA designed and administered a citywide "Longmont Summer Heat Survey" and, based on Heat Watch data and City staff input, developed materials and protocols for targeted engagement in three priority neighborhoods. CAPA designed and facilitated neighborhood workshops, yielding community-driven cooling solutions. Building on these outputs, CAPA created the *Longmont Heat Action Plan*, which involved deep assessment of existing datasets, thorough review of planning documents, and an assessment of the municipal code to identify heat adaptation levers, ultimately recommending diverse heat mitigation and adaptation strategies, policy suggestions, and success metrics.

Contacts:

-Zachary Lance, Sustainability Coordinator, City of Longmont, zachary.lance@longmontcolorado.gov;
-Lisa Knoblauch, Sustainability Manager, City of Longmont, Lisa.Knoblauch@longmontcolorado.gov;
Office Phone: 303-651-8403

(B) Project: Gresham Heat Strategy, 2024-2025

Description: In 2024 CAPA was contracted by the City of Gresham to examine current policy conditions and establish a foundation for a local Heat Strategy. CAPA reviewed existing planning documents and municipal code to identify heat-relevant themes as well as heat mitigation/adaptation levers that are supported by planning and code language. CAPA identified 56 heat-related action items in existing planning documents and reframed them into 15 summary heat strategies such as tree planting, workforce development, renewable energy systems, and multimodal transportation. These strategies were scored by implementation potential, cost, timeline, and impact to provide a prioritization structure for the City. This prioritization sheds light on what strategies may be the most feasible to implement given current conditions while recognizing that all the strategies are important for heat resilience. CAPA provided specific recommendations for code amendments and policy directions to best provide a comprehensive set of options for heat adaptation, mitigation, and emergency response. For 2025, CAPA is organizing a workshop focused on heat action planning; in 2021 and 2022 CAPA also provided heat mapping and GIS services for Gresham.

Contacts:

-Tina Núñez-Osterink, Natural Resources and Parks Planner, City of Gresham
Tina.Osterink@GreshamOregon.gov; 503-618-2392;
-Denise Lopez, Climate Action Analyst, City of Gresham, Denise.Lopez@GreshamOregon.gov,
503-618-3000.

(C) Project: Multnomah County, Oregon: Tri-County Heat Assessment & Jurisdictional Scan, 2023

Description: In 2023, CAPA conducted a Heat Watch mapping campaign for the Portland metropolitan tri-county area (Multnomah, Washington, and Clackamas Counties), gathering over 250,000 temperature and humidity measurements from 125+ volunteers to generate high-resolution heat maps and inform future land use planning and emergency response. Concurrently, CAPA performed a Jurisdictional Scan, reviewing existing documents and conducting interviews with 28 county staff and 11 CBO representatives to understand current heat preparedness roles, coordination, barriers, and potential strategies, revealing areas of alignment and gaps. This led to a workshop where county staff brainstormed "heat actions roadmaps" and discussed preferences for local versus regional planning, culminating in a report detailing existing operations, shared goals, limitations, and recommendations for a comprehensive regional heat strategy.

Contacts:

-Brendon Haggerty, Manager at Multnomah County Health Department, brendon.haggerty@multco.us;
-Jairaj Singh, Climate & Health Program Specialist Senior, Multnomah County, jairaj.singh@multco.us.

(D) Project: Los Angeles, California: Urban Forest Equity Collective (UFEC), 2024, 2021

Description: CAPA was the lead consultant for the two-phase Urban Forest Equity Collective (UFEC) project in Los Angeles, focusing on urban canopy expansion for multiple benefits including heat mitigation. CAPA's role encompassed systematic document and data review, stakeholder interviews, and the creation of reports like the *Urban Forest Equity Assessment Report* and the *Urban Forest Equity Streets Guidebook*. They also developed a neighborhood selection framework, led community engagement through surveys and workshops in priority neighborhoods (Central Alameda and Sylmar), and contributed to policy review, tree preservation, optimal planting guidance, and equity metric development.

(E) Project: Clark County, Washington Climate Resilience Planning, 2023-2025

Description: Since late 2023, CAPA has been the lead consultant for climate change planning in Clark County, Washington, tasked with incorporating greenhouse gas reduction and climate resilience into Comprehensive Plan updates as mandated by state legislation. This ongoing project includes exploring climate change projections and impacts, reviewing existing plans and policies for climate resilience, and assessing vulnerability and risk, particularly regarding extreme heat. CAPA staff actively engage with public advisory groups, assisting in the development and prioritization of resilience goals and policies for the County's Comprehensive Plan. Additionally, CAPA conducted a Heat Watch mapping campaign in summer 2024 and completed a *Heat Health Trends & Thresholds Assessment* to deepen understanding of heat-related vulnerabilities, with future plans to model anticipated hospitalizations and conduct a county-wide heat health survey.

Contact: Jenna Kay, Community Planner III, Clark County Washington jenna.kay@clark.wa.gov

(F) Project: Portland Bureau of Emergency Management, Indoor Heat Monitoring, 2022-2024

Description: In response to Portland's deadly 2021 heat dome, the City of Portland partnered with Home Forward to investigate indoor heat risks in public housing. CAPA Strategies was contracted to lead the Home Forward Indoor Temperature Assessment, designing and executing an 8-month study across three public housing properties in 2022. CAPA combined environmental monitoring—tracking indoor temperatures in 53 homes—with social science methods, including resident surveys and workshops, to explore lived experiences and adaptive behaviors. CAPA's participatory approach not only uncovered key insights—such as the limited effectiveness of portable AC units—but also empowered residents to help interpret findings and co-develop context-specific cooling strategies. The project produced actionable recommendations grounded in both data and community input, developed collaboratively with PBEM, Home Forward, and the Multnomah County Health Department. A second phase of the project was conducted and completed in 2023-2024.

Contact: Jonna Papaefthimiou, Resilience Office, State of Oregon, jonna.papaefthimiou@oregon.gov, 503-373-1558

(G) Any promotional or descriptive literature which the individual or firm desires to submit.

See attached.



Portland, Oregon USA
www.capastrategies.com

Thank you for considering CAPA's qualifications to serve the County of Hawai'i with professional services in community planning. Please do not hesitate to reach out for further information.

Sincerely,

A handwritten signature in black ink that reads "Joey Williams".

Joey Williams
Program Manager
jw@capastrategies.com
281-743-0543

June 27th, 2025

CAPA Strategies LLC

Dr. Vivek Shandas, Principal Investigator

i. Professional Preparation

- University of Washington, Seattle (WA), Ph.D., Urban Studies and Planning (2005)
- Rensselaer Polytechnic Institute, Troy (NY), MS, Environmental Management & Policy (1999)
- Rensselaer Polytechnic Institute, Troy (NY), MS, Economics (1999)
- University of California, Santa Cruz (CA) BS, Biology (1994)

ii. Appointments

- Principal Investigator, CAPA Strategies, 2018 – present
- Assistant, Associate, and Full Professor, Urban Studies and Planning, Portland State University, 2005 – present
- Research Associate, Center for Urban Studies, Portland State University, 2005 – present
- National Science Foundation, IGERT Fellow, University of Washington, 2001 – 2004
- Environmental Policy Analyst, New York State Governor's Office, Albany (NY) 1998 – 2000
- Science Teacher, Washington County Educational Service District, Portland (OR), 1995 – 1996

iii. Select Peer-Reviewed Publications

- Hoffman JS, **Shandas V.**, Pendleton N. The Effects of Historical Housing Policies on Resident Exposure to Intra-Urban Heat: A Study of 108 US Urban Areas. *Climate*. 2020; 8(1):12.
- **Shandas V.**, Voelkel J, Williams J, Hoffman J. Integrating Satellite and Ground Measurements for Predicting Locations of Extreme Urban Heat. *Climate*. 2019; 7(1):5.
- Voelkel J, Hellman D, Sakuma R, **Shandas, V.** Assessing Vulnerability to Urban Heat: A Study of Disproportionate Heat Exposure and Access to Refuge by Socio-Demographic Status in Portland, Oregon. *International Journal of Environmental Research and Public Health*. 2018; 15(4):640.
- Voelkel J, **Shandas V.** Towards Systematic Prediction of Urban Heat Islands: Grounding Measurements, Assessing Modeling Techniques. *Climate*. 2017; 5(2):41.
- Voelkel, J., **Shandas, V.**; Haggerty, B. Developing High-Resolution Descriptions of Urban Heat Islands: A Public Health Imperative. *Prev. Chronic Dis*. 2016.
- Makido Y, **Shandas, V.**, Ferwati S, Sailor D. Daytime Variation of Urban Heat Islands: The Case Study of Doha, Qatar. *Climate*. 2016; 4(2):32.
- Mills, A., T Francis, **Shandas, V.**, K Whittaker, and J Graybill, "Challenges in the Use of Best Available Science for the Protection of Critical Areas in Washington State", *Urban Ecosystems* (in press).
- **Shandas, V.**, and M Alberti, "Multi-Scalar Coupling of Vegetation Patterns and Functions: Empirical evidence from the Puget Sound lowland", *Environmental Management* (in press).
- **Shandas, V.**, 2007. "Motivations for and Interest in Urban Riparian Conservation: An empirical study of streamside landowners in the Puget Sound lowland", *Journal of the American Planning Association* 73(2).
- Graybill, J.K., S Dolling, **Shandas, V.**, J Withey, A Greve, G.L. Simon, 2006. "A Rough Guide to Interdisciplinarity: Graduate Student Perspectives", *BioScience* 56(9): 757-763.
- Francis, T., K Whittaker, **Shandas, V.**, A Mills, and J Graybill, 2004. "Using science in the environmental policy process: A case study from Washington State", *Ecology and Society* 10(1).
- O'Hara, S., **Shandas, V.**, and E Wright, 2000. "The Cost of Technology Intensive Education: A preliminary analysis of studio physics", *Journal of Computers in Mathematics and Science Teaching* 19(4): 379-396.
- O'Hara, S., **Shandas, V.**, and J Vazquez, 2000. "Communicating Sustainable Development Options - Who Evaluates the Trade-Offs?" in: I. Ring, B. Klauer, F. Waetzold, B. Mansson (eds.) *Regional Sustainability: Applied Ecological Economics Bridging the Gap between Natural and Social Sciences*. Physica Verlag. Heidelberg, Germany.

Dana Elyse Hellman

dh@capastrategies.com

Environmental social scientist, planner, and manager with a passion for applied research, community and stakeholder engagement, and climate change preparedness.

Education

- | | |
|--------------|--|
| June
2021 | PhD Earth, Environment & Society
Portland State University

Areas of expertise: Socio-ecological resilience studies, Environmental anthropology, Political ecology, Sense of place |
| May 2015 | Master of Community Planning
University of Cincinnati

Foci: Environmental planning; Geographic information systems (GIS) |
| Sept
2010 | Bachelor of Arts, Anthropology
University of Cincinnati |

Professional Experience

- | | |
|--------------------------------|---|
| 2021 – Present
Portland, OR | Resilience Manager
CAPA Strategies

Climate adaptation consulting and research with an emphasis on social-scientific methods, place-based solutions, and community engagement. |
| 2017 – 2021
Portland, OR | UREx Sustainability Research Network Fellow
National Science Foundation; Portland State University

Research on climate events and resilience strategies, as well as cross-sector collaboration in an international network of academics and practitioners. |
| 2017
Portland, OR | Consultant
Oregon Public Health Institute; Multnomah County Child Care Resource & Referral

Health-oriented programming and education for low-income, unlicensed child care providers. |
| 2016 – 2017
Portland, OR | Community Child Care Outreach Specialist
Multnomah County Health Department: Racial & Ethnic Approaches to Community Health (REACH) Program

Engagement with and culturally-appropriate resource development for low-income, unlicensed, African-American/Black child care providers. |
| 2014 – 2015
Cincinnati, OH | Environmental Planning Assistant
City of Cincinnati: Office of Environment & Sustainability

Research and programming for municipal environmental initiatives including heat exposure assessment, urban agriculture, and open space preservation. |

Additional Training

- 2024 Climate Service Provider, certified by American Society of Adaptation Professionals
- 2023 NOAA 'Steps to Resilience' Practitioner Training
- 2017 Human Subjects Researcher, certified by CITI Program

Select Publications

- [1] **Hellman, D.**, deGuzman, E. & O'Leary, R. (2024) Los Angeles Urban Forest Equity: Assessment, Tools, and Recommendations. UCLA Luskin Center for Innovation.
- [2] **Hellman, D.** & Shandas, V. (2024) Housing, Heat, and Health: Community-Informed Adaptations for Climate Safety. In Egger K. et al. (Eds.), What's Possible: Investing Now for Prosperous, Sustainable Neighborhoods (pp. 114-120). Federal Reserve Bank of New York.
- [3] Shandas, V. & **Hellman, D.** (Eds.) (2022) *Collaborating for climate equity: Researcher-practitioner partnerships in the Americas*. Routledge.
- [4] Haeffner, M., **Hellman, D.**, Cantor, A., Ajibade, I., Craver, V., Kelly, M., Schiffman, L., & Weasel, L. (2021) Representation justice as a research agenda for socio-hydrology and water governance. *Hydrological Sciences Journal*.
- [5] **Hellman, D.** & Shandas, V. (2021) Healthy environment: Toward environmental health for all. *Oregon 2050*. Portland State University College of Urban & Public Affairs.
- [6] **Hellman, D.**, & Haeffner, M. (2020) Book review: Blue infrastructures: Natural history, political ecology and urban development in Kolkata. *Frontiers in Water*, 2(599603).
- [7] Haeffner, M., & **Hellman, D.** (2020) Social geometry of collaborative flood risk management: A hydrosocial case study of Tillamook County, Oregon. *Natural Hazards*, 103.
- [8] Makido, Y., **Hellman, D.**, & Shandas, V. (2019) Nature based designs to mitigate urban heat: The efficacy of green infrastructure treatments in Portland, Oregon. *Atmosphere*, 10(5).
- [9] Voelkel, J., **Hellman, D.**, Sakuma, R., & Shandas, V. (2018) Assessing vulnerability to urban heat: A study of disproportionate heat exposure and access to refuge by socio-demographic status in Portland, Oregon. *International Journal of Environmental Research and Public Health*, 15(4).



Joey Williams, Program Manager

i. Professional Preparation

- Portland State University, MA, Urban and Regional Planning, Focus in Climate Adaptation (2019)
- University of Maryland, College Park, BS, Mechanical Engineering (2012)

ii. Appointments

- General Manager, CAPA Strategies LLC, 2019 – present
- Program Manager, CAPA Heat Watch, in partnership with NHHIS Urban Heat Island Mapping Campaign project, 2019 – present
- Graduate Research Assistant, Canopy Continuum: Urban heat island mapping, air quality monitoring, and human health across 5 US cities, Sustaining Urban Places Research Lab, Portland State University, 2018-19
- Community Service Aide II, Climate Action Plan Team, City of Portland, 2018

iii. Peer-Reviewed Publication(s)

- Shandas, V., Voelkel, J., **Williams, J.**, & Hoffman, J., (2019). Integrating Satellite and Ground Measurements for Predicting Locations of Extreme Urban Heat. *Climate*, 7(1), 5.

iv. Presentations

- “Community-Based Urban Heat Field Campaigns: Adaptation actions through collective action”, Special panel session, Northwest Climate Conference, 2021.
- “Urban Heat Analysis of Large-Scale Urban Development: Opportunities for improving thermal comfort through alternative building designs”, Northwest Climate Conference, 2018; Annual Sustainability Celebration, Portland State University, 2018.
- “Assessing Collaborative Tree Planting Efforts to Enhance Community Health Outcomes”, School of Public Health Annual Conference, Portland State University, 2019.

Bradley Wilson, Lead Analyst**i. Professional Preparation**

University of Arkansas, Fayetteville, AR

2019 **Ph.D.** Geosciences

2016 **M.S.** Geography

Colorado School of Mines, Golden, CO

2015 **B.S.** Geophysical Engineering

ii. Appointments

- *CAPA Strategies, Lead Analyst, (2024-present)*
- *First Street Foundation, Director of Research & Development (2022-2023), Senior Research Scientist (2021-2022)*
- *University of Central Florida, Department of Public Administration, Postdoctoral Scholar, (2020-2021)*
- *SESYNC Graduate Research Fellow, National Socio-Environmental Synthesis Center, Annapolis, MD (2020)*
- *U.S. Geological Survey Geologic Hazards Science Center, Research Intern (2019)*

iii. Select Peer-Reviewed Publications

(2022) **Wilson, B.** Pope, M., Porter, J., Kearns, E., Shu, E., Bauer, M., Freeman, N., Amodeo, M., Melecio-Vazquez, D., Hsieh, H., Tarasovitch, M. Characterizing changes in extreme ozone levels under 2050s climate conditions: An extreme-value analysis in California. *Atmospheric Environment X* 16

(2022) **Wilson, B.** Porter, J., Kearns, E., Hoffman, J., Shu, E., Lai, K., Bauer, M. High Resolution Estimation of Monthly Air Temperature from Joint Modeling of In Situ Measurements and Gridded Temperature Data. *Climate* 10(3), 47.

(2022) Benzeev, R., **Wilson, B.**, Butler, M., Massoca, P., Paudel, K., Redmore, L., Zarbá, L. What's governance got to do with it? Examining the relationship between governance and deforestation in the Brazilian Amazon. *PLOS ONE* 17(6).

(2021) **Wilson, B.** Tate, E., Emrich, C. Flood recovery outcomes and disaster assistance barriers for vulnerable populations. *Frontiers in Water* 3.

(2021) **Wilson, B.**, Allstadt, K., and Thompson, E. A Near-Real Time Model for Estimating Probability of Road Obstruction from Earthquake-Triggered Landslides. *Earthquake Spectra* 37(4).

(2020) **Wilson, B.** A Bayesian Modeling Approach for Estimating Earthquake Reconstruction Behavior. *Annals of The American Association of Geographers* 111(1): 283-299.

2019 **Wilson, B.** Overrun by Averages: An Empirical Analysis into the Consistency of Social Vulnerability Components Across Multiple Scales. *International Journal of Risk Reduction* 40.

2018 **Wilson, B.**, and Paradise, T.R. Assessing the Impact of Syrian Refugees on Earthquake fatality Estimation in Southeast Turkey. *National Hazards and Earth System Sciences* 18(1): 257-269.

Eliza S. Amstutz, Program Associate

i. Professional Preparation

- Oregon State University, MS, Geography, Graduate Certificate in Geospatial Information Science, Focus on Drinking Water Resilience in the Wildland Urban Interface (2023)
- University of California, Los Angeles, BA, International Development Studies, Minor in Geographic Information Systems & Technology (2020)

ii. Appointments

- Program Associate, CAPA Strategies LLC, 2024 – present
- Faculty Research Assistant, Sensor Technology for Improved Wildland Urban Interface Fire Resilience, Wildfire Resilience Social Media Study, Oregon State University, 2023 – 2024
- Graduate Research Assistant, Sensor Technology for Improved Wildland Urban Interface Fire Resilience, Oregon State University, 2022 – 2023
- Graduate Teaching Assistant, College of Earth, Ocean, and Atmospheric Science, Oregon State University, 2021 – 2023
- Undergraduate Research Assistant, UCLA Luskin Center for Innovation, 2019 – 2020
- GIS Intern, Nepal Fish Biodiversity Project & Biovac Nepal, CMDN, 2018 – 2019
- Social Engagement Intern, Ministry of the Environment and Sustainable Development, Dakar Senegal, 2018

iii. Peer-Reviewed Publications

- Pierce, G., González, S. R. & **E. Amstutz**. (2020). “Reducing Lead in Drinking Water in California’s Childcare Facilities: Implications for AB 2370 Program Development from Los Angeles County.” First 5-Los Angeles, UCLA Luskin Center for Innovation.
- Tilt, J. H., Gough, M., Schmidt, A., **Amstutz, E.**, & Ellsworth, L. M. (submitted). Using Fuzzy Logic to Visualize Vulnerability to Hazards. *International Journal of Disaster Risk Reduction*.

iv. Presentations

- **Amstutz, E.**, Tilt, J., Schmidt A., Gough, M. Identifying Community Adaptive Capacity Indicators in Santa Rosa and Paradise in the wake of the 2018 Camp Fire and 2017 Tubbs Fire. American Association for Geographers Annual Conference, Denver, CO. Oral Presentation.
- **Amstutz, E.**, Tilt, J. Building WUI Water Distribution Resilience; Social vulnerability, Response, and Recovery to the 2018 Camp Fire and 2017 Tubbs Fire February 2023. Wildfire Resilient Structures Conference and Tradeshow. Oral Presentation.
- **Amstutz, E.**, Building WUI Water Distribution Resilience; A Mixed Methods Approach to Assessing Social Vulnerability, Response, and Recovery to the 2018 Camp Fire. International Association of Society and Natural Resources Conference. June 2022. Poster.
- **Amstutz, E.**, Building WUI Water Distribution Resilience; A Mixed Methods Approach to Assessing Social Vulnerability, Response, and Recovery to the 2018 Camp Fire. Disaster Research Response Workshop, Seattle. August 2022. Poster.
- **Amstutz, E.**, Sustainability Education for Future Urban Leadership. United Nations Day of Cities. April 2019. Panelist & Oral Presentation.



Zachary Boyce, Graphic Design & Cartography

i. Professional Preparation

- Portland State University, B.S. Geography; Minors: GIS, Climate Change Adaptation, Water Resources (2018 – present)

ii. Appointments

- Graphic Designer, Cartographer, CAPA Strategies, 2020 – present
- Trainee, GIS & Reporting, Superfund and Emergency Management Division, U.S. Environmental Protection Agency, 2021
- Graphic Designer, Mitigation Planning Natural Hazards Analyst, Institute for Sustainable Solutions at Portland State University, 2021
- Community Service Aide II, Surface Water Management Team, Portland Bureau of Environmental Services, 2019 – present
- Natural Hazards Intern, Regional Disaster Preparedness Organization, U.S. Environmental Protection Agency, Federal Emergency Management Agency, 2020
- Researcher, Data Science for Public Good, Oregon State University, Oregon, 2020
- Researcher, Water for the River Portland State University, 2019

Heat Watch Add-Ons



Products & Services



Heat Watch Add-Ons | Overview

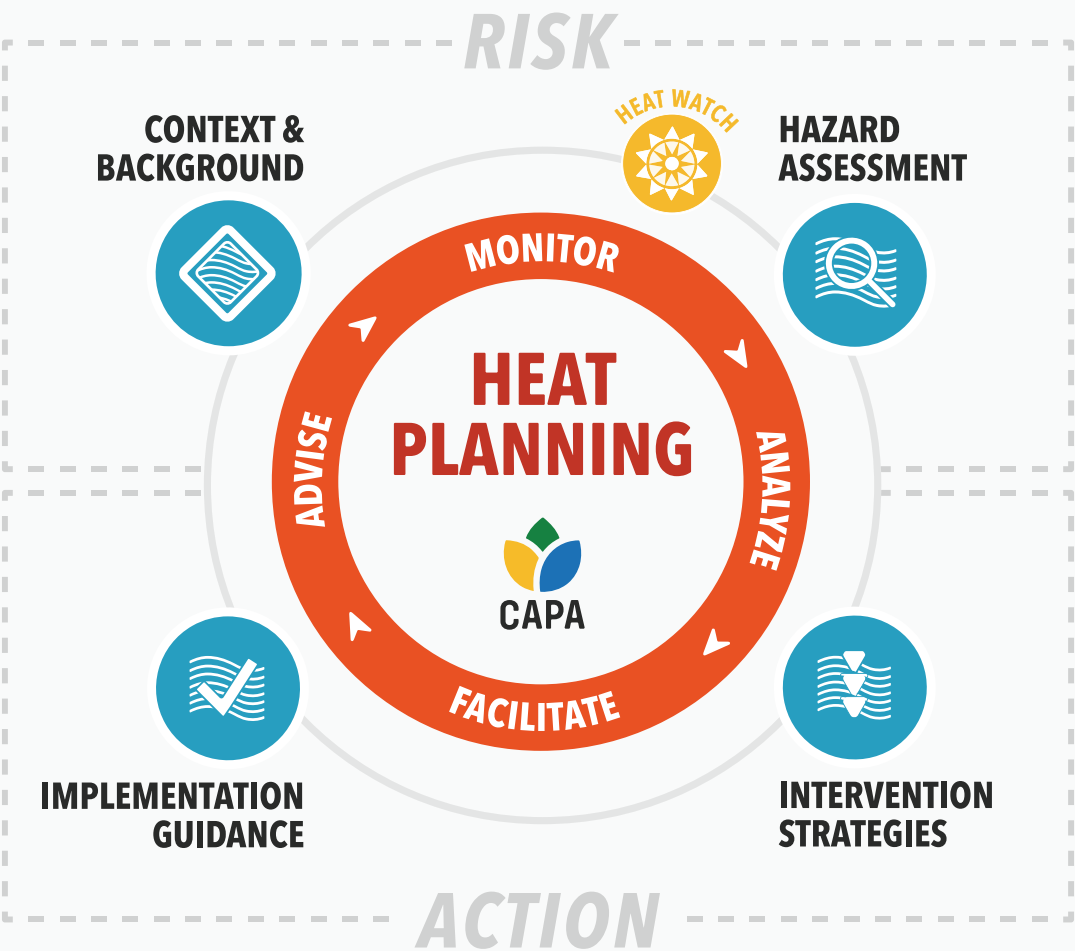
Heat Watch

Heat Watch provides a unique opportunity for stakeholders across governance levels to assess heat risk and advance collective action towards heat resilience. Through partnering with over 120 cities on Heat Watch, CAPA has identified specific activities ("Add-Ons") that leverage this opportunity and strengthen the impact of the Heat Watch program with additional monitoring and engagement components, analytical insights, and planning and policy strategies.

Heat Watch Add-Ons

Add-Ons span four categories: *Hazard Monitoring*, *Heat Insights*, *Resilience Planning*, and *Neighborhood Scale*. The following pages present relevant information about each product with estimated cost ranges.

If you are interested in any of these services, please contact Joey Williams at jw@capastrategies.com to learn more or request a quote.



Hazard Monitoring

- Heat Watch Sensor
- Heat Monitoring Plan
- Air Quality Monitoring

Heat Insights

- Climate Projections
- Land Cover & Canopy Assessment
- Health & Social Risk Assessment

Resilience Planning

- Intervention Guidebook
- Jurisdictional Scan
- Community Survey

Neighborhood Scale

- Community-Informed Cooling Solutions
- Neighborhood Thermal Comfort

Cost Key

- \$ ≤ \$10,000
- \$\$ ≤ \$20,000
- \$\$\$ ≤ \$30,000
- \$\$\$\$ > \$30,000



Hazard Monitoring

Heat Watch Add-Ons

Heat Watch Sensor



Description

Purchase your own set of Heat Watch sensors to conduct future mapping campaigns and heat monitoring research. The sensor mounts to any moving vehicle and measures air temperature, relative humidity, latitude and longitude, and velocity while responding quickly to the nearby environment.

Deliverable

Heat Watch sensor, user manual, data transmission app, and charging accessories

Project Example

[International](#)
As used in 120+ Heat Watch campaigns around the world.

Technical specifications:

[Link \(PDF\)](#)

Impacts

- Monitoring
- Engagement
- Capacity building

Cost

\$

Heat Monitoring Plan



Description

Develop a tailored strategy for comprehensive heat data collection. Connect heat data to key decision-makers. Assess existing heat data sources and applications by sector, identify gaps, and develop a targeted implementation plan.

Deliverable

A CAPA-led workshop identifies data needs, applications, and resources. CAPA develops a plan outlining best practices, tailored goals, and recommendations.

Topics

[Your city or region](#)

Goal Setting; In-Situ Stationary Networks, Remote Sensing, Low Cost & Community-Based Monitoring; Data Qa/Qc, Sensor Maintenance and Recommended Tools.

Impacts

- Long-term planning
- Track progress
- Reduce data gaps

Cost

\$\$\$

Air Quality Monitoring



Description

Measure particulate matter (PM) concentrations through mobile and stationary monitoring approaches in tandem with your Heat Watch campaign. Identify pollution hot-spots and areas facing prolonged exposure to poor air quality.

Deliverable

Mobile and stationary PM data and maps; summary report with data visualizations and findings

Project Example

[Bloomington, IN](#)

Deployed 10 low-cost air quality sensors to measure PM_{2.5} along mobile routes and select residential locations.

Report sample:

[Link \(PDF\)](#)

Impacts

- Assess exposure
- Build awareness
- Site selection

Cost

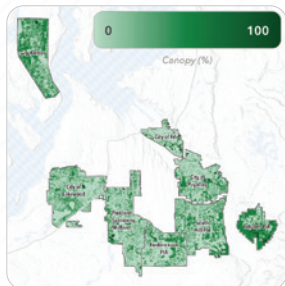
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Heat Insights

Heat Watch Add-Ons

Land Cover & Canopy Assessment



Description

Generate summaries of heat by land cover, tree canopy, or land use to examine trends and opportunities to influence land development and zoning policy. Understand how vegetation and surface materials influence heat trends in your area.

Deliverable

Report detailing relationship between land cover, tree canopy, and heat, spatial assets with metadata.

Project Example

📍 [Pierce County, WA](#)

Worked with high-resolution canopy and impervious surface data from Pierce County, WA to assess trends between heat and surface cover.

Report sample:

[Link \(PDF\)](#)

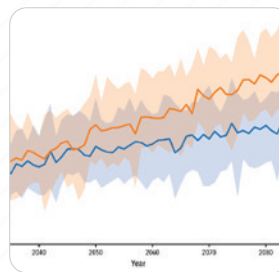
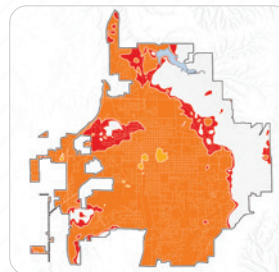
Impacts

- Evidence base
- Development targets
- Adaptation insights

Cost

\$\$

Climate Projections



Description

Visualize the impacts of a changing climate on extreme heat in your area through 2100 using the latest generation of Global Climate Models. Evaluate multiple climate scenarios for resilient extreme heat planning.

Deliverable

Report describing impact of climate change on extreme heat, raster assets for projected heat scenarios, tabular data files with bias-corrected heat statistics.

Project Example

📍 [Bloomington, IN](#)

Integrated Heat Watch data and CMIP6 projections to evaluate future heat risks in Bloomington.

Report sample:

[Link \(PDF\)](#)

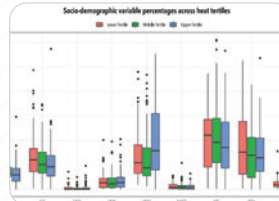
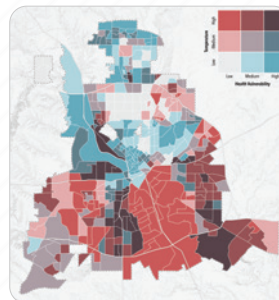
Impacts

- Climate knowledge
- Scenario planning
- Adaptation insights

Cost

\$

Health & Social Risk Assessment



Description

Characterize heat vulnerability through the lens of socio-demographic and health components. Understand the social composition of the areas most and least exposed to extreme heat to assist with prioritizing heat adaptation activities.

Deliverable

Report detailing relationship between socio-demographics, health risk factors, and heat, spatial assets with metadata.

Project Example

📍 [Dallas, TX](#)

Analyzed the relationship between two Heat Watch campaigns in Dallas Texas and CDC/Census heat vulnerability indicators.

Report sample:

[Link \(PDF\)](#)

Impacts

- Evidence base
- Vulnerability insights
- Response planning

Cost

\$\$



Resilience Planning

Heat Watch Add-Ons

Jurisdictional Scan



Recommendations

Based on results of the scan, existing recommendations for consideration by the

- 1 Commission a public health assessment of community needs, including in which may compound stress on vulnerable populations.
- 2 Consider targeted development connected to RO (Regional Open Space) green space across the city.

Description

Systematically review existing local plans, City/County code chapters, and policies. Identify heat adaptation levers that advance desired resilience strategies as well as barriers that limit action.

Deliverable

Spreadsheet including all details identified during the scan. Summary report explaining major themes, areas of alignment, and gaps; list of stakeholders; and specific recommendations to advance heat action based on results.

Project Example

📍 [Dallas, TX](#)

Reviewed 13 local plans, 1 research report, and 13 code chapters and developed 10 specific recommendations to advance heat action.

Report sample:

[Link \(PDF\)](#)

Impacts

- Planning guidance
- Code/policy guidance
- Action directions

Cost

\$\$

Intervention Guidebook



Description

Identify heat mitigation and adaptation best practices that are right for your region and climate. Learn what strategies are available, how they work, and how to implement them for maximum benefit.

Deliverable

Guidebook detailing intervention strategies including (1) relative timeline and environmental impact of each, (2) special considerations for implementation, and (3) case study examples.

Project Example

📍 [Sedona, AZ](#)

Combined best practices, case studies, and City staff input to identify heat interventions for an arid desert climate.

Report sample:

[Link \(PDF\)](#)

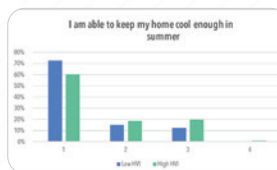
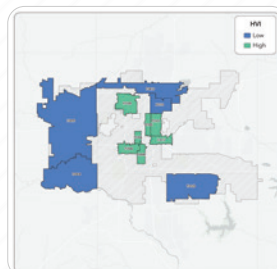
Impacts

- Planning guidance
- Action direction
- Foundation for engagement & funding

Cost

\$\$

Community Survey



Description

Gather key insights into how local communities are experiencing heat. Explore topics such as heat exposure, impacts, coping strategies, knowledge and risk perception, and desired solutions.

Deliverable

Survey data report detailing heat experiences at the citywide, ZIP code, or neighborhood scale, including recommended next steps based on results.

Project Example

📍 [Oklahoma City, OK](#)

Collected 2,000+ surveys and used a targeted analysis comparing the highest and lowest heat vulnerability ZIP codes.

Report sample:

[Link \(PDF\)](#)

Impacts

- Planning guidance
- Action direction
- Foundation for engagement & funding

Cost

\$\$



Neighborhood Level

Heat Watch Add-Ons

Community-Informed Cooling Solutions



Description

Engage high-risk communities to increase heat awareness, build knowledge of cooling solutions, and learn what strategies are right for specific locations (e.g., neighborhoods).

Deliverable

Educational materials, engagement protocols (workshops, surveys, etc.), and analysis report, including recommendations for place-based interventions.

Project Example

📍 [Longmont, CO](#)

Partners deployed a survey, event tabling, door-to-door visits, and workshops to receive input on heat strategies for three high-risk neighborhoods.

Report sample:

[Link \(PDF\)](#)

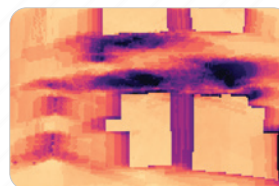
Impacts

- Planning guidance
- Action directions
- Community engagement

Cost

\$\$-\$\$\$

Neighborhood Thermal Comfort Assessment



Description

Go beyond air temperature with a mean-radiant temperature model that takes into account factors like urban geometry, shadows, and surface materials. Understand how potential heat solutions impact thermal comfort at a micro-scale.

Deliverable

Report characterizing baseline and/or modified mean-radiant temperature for your neighborhood. Spatial assets with metadata.

Technical Specs

📍 [Your neighborhood](#)

Using SOLWEIG model, models areas up to 12 square kilometers, 1-3 meter resolution, UTCI assessments at points of interest.

Impacts

- Human comfort insights
- Scenario planning
- Climate-resilient design

Cost

\$\$-\$\$\$



CAPA

If you are interested in any of these services,
please contact Joey Williams at jw@capastrategies.com
to learn more or request a quote.