June 30
2025

STATEMENT OF QUALIFICATIONS

Procurement of Professional Services

COUNTY OF HAWAII

Research & Development

FY26 ANNUAL NOTICE OF PROFESSIONAL SERVICES

TETRA TECH

Tetra Tech, Inc.
737 Bishop St., Suite 2000 | Pacific Guardian Center, Mauka Tower Honolulu, HI 96813-3201
www.tetratech.com

TETRA TECH

June 30, 2025

Submitted via email only: chresdev@hawaiicounty.gov

Mr. Benson Medina
Director
County of Hawaii, Research & Development
25 Aupuni Street, Suite 1301
Hilo, Hawaii 96720

RE: Letter of Interest to Provide Professional Services for Fiscal Year 2025-2026
County of Hawaii, Planning Department

SUBMITTED BY: **Tetra Tech, Inc.**
737 Bishop Street, Suite 2000
Honolulu, HI 96813

CATEGORY OF INTEREST:

RD.1) Community Planning (Community and Economic Development, Community Engagement, Culture and Indigenous Data Science, Strategic Planning, Sustainability Systems)

Mr. Medina:

Tetra Tech, Inc. (Tetra Tech) is pleased to submit this letter of interest to provide professional consultant services for the County of Hawaii, Planning Department during the fiscal year 2025 – 2026

Please find enclosed our complete Statement of Qualifications (SOQ) document which describes Tetra Tech's company background, scope of services, our recent project history, and representative clients. Also included within our SOQ is our DPW Form 120 for your review and consideration.

The table on the page lists the names and phone numbers of clients who may be contacted, for whom services were rendered during the past year.

Client	Contact	Phone
Hawaii Department of Health (DOH) Hazard Evaluation and Emergency Response HEER) Office	Harold Lao	808-586-4253
Hawaii County Civil Defense Agency	Barry Periatt, Civil Defense Administrative Officer	808-935-0031
Maui County Emergency Management Agency	Amos Lonokailua-Hewett, Administrator	808-270-7281
City of Houston Office of Emergency Management	Vlad Ibarra, Division Manager	832-370-1490
VTA Office of System Safety and Security	Aston Greene, Chief of System Safety and Security	408-321-7042

Please feel free to contact me at eric.jensen@tetratech.com if you should have any questions, or require additional information for this specific request for qualifications or other future services of similar scope.

Sincerely,

Eric M. Jensen, CHMM
Vice President/Operations Manager

Attachments:

- Tetra Tech, Inc. Statement of Qualifications
- DPW Form 120

STATE OF HAWAII

DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES

QUESTIONNAIRE FOR ARCHITECTS, ENGINEERS AND OTHER PROFESSIONAL SERVICES

QUESTIONNAIRE FOR: (LIST DISCIPLINE)	OTHER QUESTIONNAIRES SUBMITTED : (LIST DISCIPLINES)	DATE
RD.1) Community Planning (Community and Economic Development, Community Engagement, Culture and Indigenous Data Science, Strategic Planning, Sustainability Systems)		06/30/2025

FIRM NAME	ESTABLISHED YEAR	TYPE OF ORGANIZATION (Underline)
Tetra Tech, Inc.	STATE 1966/DE	INDIVIDUAL PARTNERSHIP **CORPORATION** JOINT VENTURE OTHER

BUSINESS ADDRESS, TELEPHONE & FAX NO. OF HAWAII OFFICE	AGE OF FIRM	FEDERAL ID NO.	YEARS ESTABLISHED IN HAWAII
737 Bishop St., Suite 2000, Honolulu, Hawaii 96813 Phone: 808.441.4784; Fax: 808.536-3953	59 years	95-4148514	35

PRINCIPALS OF FIRM: (NAMES)	ASSOCIATE MEMBERS OF FIRM: (NAMES)
Eric M. Jensen, CHMM	Not applicable
PRESENT BRANCH OFFICE(s): (ADDRESS, TELEPHONE & FAX NO.)	**PERSON IN CHARGE: (NAMES)**
	Eric M. Jensen, CHMM, Vice President/Operations Manager

NUMBER OF PERSONNEL IN YOUR PRESENT ORGANIZATION

LOCATED AT	PRINCIPALS & KEY PERSONNEL			OTHER PERSONNEL											TOTAL
	Architect	Engineer	Scientists	Architect	Engineers				Draftsmen	Spec. Writer	Estimator	Inspector	Technician	Balance	
					Mech.	Electric	Civil	Others							
Tetra Tech Offices (World -wide)	207	7028	2495	207	660	495	754	4910	0	43	168	250	809	14131	20293
Honolulu Office		**2**	**16**					4							**22**
TOTAL	207	7030	2511	207	660	495	754	4914	0	34	135	200	855	14131	20315

TECHNICAL PERSONNEL:	NUMBER OF PERSONNEL WITH HAWAII LICENSES Honolulu Office	2	NUMBER OF PERSONNEL WITHOUT HAWAII LICENSES Honolulu Office	16

PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES WITHIN YOUR FIRM

NAME	RESIDENT OF	NAME	RESIDENT OF
Eric M. Jensen, CHMM	Hawaii		

TITLE	TITLE
Operations Manager	

YEARS OF EXPERIENCE	AS PRINCIPAL IN THIS FIRM	AS PRINCIPAL IN OTHER FIRMS	OTHER THAN PRINCIPAL	YEARS OF EXPERIENCE	AS PRINCIPAL IN THIS FIRM	AS PRINCIPAL IN OTHER FIRMS	OTHER THAN PRINCIPAL
36	15	0	21				

EDUCATION (COLLEGE, DEGREE, YEAR, SPECIALIZATION)	EDUCATION (COLLEGE, DEGREE, YEAR, SPECIALIZATION)
B.S. Geology, Ohio University, 1987	

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS	MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS
SAME, HAEP, IHMM, AHMP	

REGISTRATION (TYPE, YEAR, STATE)	REGISTRATION (TYPE, YEAR, STATE)
Certified Hazardous Materials Manager (CHMM) Master Level, Current, Certification #12655	

PERSONAL HISTORY STATEMENT OF KEY TECHNICAL PERSONNEL WITHIN YOUR FIRM

NAME	STATUS (Underline)
Jeremy Kaufman	**Full-Time**

TITLE OR POSITION	YEARS OF EXPERIENCE
Planner	27

WITH THIS FIRM	WITH LAST FIRM	WITH OTHER FIRMS
21	2	4

EDUCATION (COLLEGE, DEGREE, YEAR, SPECIALIZATION)

B.A. Political Science/Global Peace and Security, University of California, Santa Barbara, 2003

REGISTRATION (TYPE, YEAR, STATE)

Certified Hazardous Material Manager
Certified Emergency Manager

NAME	STATUS (Underline)
Chris Curatilo	**Part-Time**

TITLE OR POSITION	YEARS OF EXPERIENCE
Emergency Management/Port Security SME	34

WITH THIS FIRM	WITH LAST FIRM	WITH OTHER FIRMS
11	7	16

EDUCATION (COLLEGE, DEGREE, YEAR, SPECIALIZATION)

M.S. Safety, Security, and Emergency Management, E. Kentucky Univ., 2010
B.S. Business Management, University of Phoenix 2000
Masters Certificate in Safety 2010

REGISTRATION (TYPE, YEAR, STATE)

OPM Leadership fellow

NAME	STATUS (Underline)
Catherine Courtney	**Full-Time**

TITLE OR POSITION	YEARS OF EXPERIENCE
Marine Environmental/Coastal Resiliency Scientist	37

WITH THIS FIRM	WITH LAST FIRM	WITH OTHER FIRMS
35	2	N/A

EDUCATION (COLLEGE, DEGREE, YEAR, SPECIALIZATION)

Ph.D. Oceanography, University of Hawaii, 1985
M.A. Biology, San Jose State University, 1981
B.A. Biology, University of California, Santa Cruz, 1976

REGISTRATION (TYPE, YEAR, STATE)

American Association of Underwater Scientists

NAME	STATUS (Underline)
Lisa Kettley	**Full-Time**

TITLE OR POSITION	YEARS OF EXPERIENCE
Project Manager, Environmental Scientist	27

WITH THIS FIRM	WITH LAST FIRM	WITH OTHER FIRMS
7	17	3

EDUCATION (COLLEGE, DEGREE, YEAR, SPECIALIZATION)

M.S. Biological Sciences, Stanford University, 2000
B.S. Environmental Studies, University of Oregon, 1996

REGISTRATION (TYPE, YEAR, STATE)

PERSONAL HISTORY STATEMENT OF KEY TECHNICAL PERSONNEL WITHIN YOUR FIRM

NAME	STATUS (Underline)
Caitlin Kelly	**Full-Time**

TITLE OR POSITION	YEARS OF EXPERIENCE
Planner	18

WITH THIS FIRM	WITH LAST FIRM	WITH OTHER FIRMS
11		

EDUCATION (COLLEGE, DEGREE, YEAR, SPECIALIZATION)

B.S. Meteorology, Millersville University, 2007
M.S. Emergency Management Millersville University, 2010

REGISTRATION (TYPE, YEAR, STATE)

NAME	STATUS (Underline)
Michael Donoho	**Part-Time**

TITLE OR POSITION	YEARS OF EXPERIENCE
Community and Natural Resources Planner	25

WITH THIS FIRM	WITH LAST FIRM	WITH OTHER FIRMS
5	4	16

EDUCATION (COLLEGE, DEGREE, YEAR, SPECIALIZATION)

M.S. Urban and Regional Planning (MURP), UH Manoa, 2001
B.A. Anthropology; Environmental Science, UH Manoa, 1991

REGISTRATION (TYPE, YEAR, STATE)

AICP (025660)

NAME	STATUS (Underline)
Sara van der Capellen	**Full-Time**

TITLE OR POSITION	YEARS OF EXPERIENCE
Continuity and Public Health Manager	24

WITH THIS FIRM	WITH LAST FIRM	WITH OTHER FIRMS
10	6	8

EDUCATION (COLLEGE, DEGREE, YEAR, SPECIALIZATION)

M.S. Public Health, Microbial Disease Epidemiology, Yale University, 2003
B.S. Biology, and B.A., French Language & Literature, Elmhurst University, 2000

REGISTRATION (TYPE, YEAR, STATE)

DRI International Master Business Continuity Professional (MBCP)
FEMA Professional Continuity Practitioner (PCP)
FEMA Master Exercise Practitioner (MEP)

NAME	STATUS (Underline)
Donald Kunish	**Full-Time**

TITLE OR POSITION	YEARS OF EXPERIENCE
Deputy Director of Post Disaster Operation	27

WITH THIS FIRM	WITH LAST FIRM	WITH OTHER FIRMS
12	2	13

EDUCATION (COLLEGE, DEGREE, YEAR, SPECIALIZATION)

B.A. Sociology, University of Florida, 1997

REGISTRATION (TYPE, YEAR, STATE)

PERSONAL HISTORY STATEMENT OF KEY TECHNICAL PERSONNEL WITHIN YOUR FIRM

NAME	STATUS (Underline)
Cynthia Bianco	Full-Time

TITLE OR POSITION	YEARS OF EXPERIENCE
Program Manager	33

WITH THIS FIRM	WITH LAST FIRM	WITH OTHER FIRMS

EDUCATION (COLLEGE, DEGREE, YEAR, SPECIALIZATION)

B.S. Engineering, Cornell University

REGISTRATION (TYPE, YEAR, STATE)

American Institute of Certified Planners (AICP), Cert. No. 029198 NJ Licensed Professional Planner (PP), License No. 33LI00632700 ASFPM Certified Floodplain Manager, Certificate No.: US-07-02614, issued 4/12/07 LEED BD+C (Leadership in Environmental and Engineering Design Accredited Professional), 3/4/09

NAME	STATUS (Underline)
Gina Behnfeldt	Full-Time

TITLE OR POSITION	YEARS OF EXPERIENCE
Planner	31

WITH THIS FIRM	WITH LAST FIRM	WITH OTHER FIRMS
12	17	2

EDUCATION (COLLEGE, DEGREE, YEAR, SPECIALIZATION)

M.P.A. Advanced Quantitative Analysis, Columbia University, 1993
B.A. Colgate University, 1987

REGISTRATION (TYPE, YEAR, STATE)

NAME	STATUS (Underline)
Erik Genga	Full-Time

TITLE OR POSITION	YEARS OF EXPERIENCE
Community & Economic Development Planner	24

WITH THIS FIRM	WITH LAST FIRM	WITH OTHER FIRMS
11	3	10

EDUCATION (COLLEGE, DEGREE, YEAR, SPECIALIZATION)

B.S. University of Arizona, 1997

REGISTRATION (TYPE, YEAR, STATE)

American Planning Association

NAME	STATUS (Underline)
Tony Subbio	Full-Time

TITLE OR POSITION	YEARS OF EXPERIENCE
Operations and Program Manager	21

WITH THIS FIRM	WITH LAST FIRM	WITH OTHER FIRMS
14	3	4

EDUCATION (COLLEGE, DEGREE, YEAR, SPECIALIZATION)

M.S. Emergency Management, Millersville University, Millersville, PA, 2009
B.S. Business Administration - Management, Millersville University, Millersville, PA, 2003

REGISTRATION (TYPE, YEAR, STATE)

Certified Emergency Manager, 2007-2022
Certified Floodplain Manager, 2015-2021
Project Management Professional, 2012-2021

PERSONAL HISTORY STATEMENT OF KEY TECHNICAL PERSONNEL WITHIN YOUR FIRM

NAME	STATUS (Underline)	NAME	STATUS (Underline)
Jason Hellendrung	**Full-Time**	Julia Mates	**Full-Time**
TITLE OR POSITION	**YEARS OF EXPERIENCE**	**TITLE OR POSITION**	**YEARS OF EXPERIENCE**
Vice President	29	Architectural Historian	23
WITH THIS FIRM / **WITH LAST FIRM**	**WITH OTHER FIRMS**	**WITH LAST FIRM** / **WITH LAST FIRMS**	**WITH OTHER FIRMS**
7 / 16	6	18 / 5	
EDUCATION (COLLEGE, DEGREE, YEAR, SPECIALIZATION)		**EDUCATION (COLLEGE, DEGREE, YEAR, SPECIALIZATION)**	
B.L.A. Landscape Architecture, University of Rhode Island, 1996		B.A., History, University of California, Los Angeles M.A., Public History, California State University, Sacramento, 2001	
REGISTRATION (TYPE, YEAR, STATE)		**REGISTRATION (TYPE, YEAR, STATE)**	
Registered Landscape Architect: MA No 1629 (2011) Also licensed in MD (1999), NY, NJ, CT, NH, PA, OH, MI, IA, VA, TN, TX, OK			

NAME	STATUS (Underline)	NAME	STATUS (Underline)
John Bock	**Full-Time**	Jason Fussel	**Full-Time**
TITLE OR POSITION	**YEARS OF EXPERIENCE**	**TITLE OR POSITION**	**YEARS OF EXPERIENCE**
Senior Environmental Scientist	31	Vice President / Civil Engineer	22
WITH THIS FIRM / **WITH LAST FIRM**	**WITH OTHER FIRMS**	**WITH LAST FIRM** / **WITH LAST FIRM**	**WITH OTHER FIRMS**
31 / 0		22	
EDUCATION (COLLEGE, DEGREE, YEAR, SPECIALIZATION)		**EDUCATION (COLLEGE, DEGREE, YEAR, SPECIALIZATION)**	
B.S., Environmental Toxicology, University of California, Davis, 1993		B.S., Civil and Environmental Engineering, California Polytechnic San Luis Obispo, 2003	
REGISTRATION (TYPE, YEAR, STATE)		**REGISTRATION (TYPE, YEAR, STATE)**	
National Association of Environmental Professionals California Association of Environmental Professionals		Civil, 2013, Hawaii (C 15600) Civil, 2007, California (C 70879) Professional Land Surveyor, 2013, California (L 9006)	

PERSONAL HISTORY STATEMENT OF KEY TECHNICAL PERSONNEL WITHIN YOUR FIRM

NAME		STATUS (Underline)			
Stephen Fisher		**Full-Time**			
TITLE OR POSITION		**YEARS OF EXPERIENCE**			
Civil Engineer		34			
WITH THIS FIRM	**WITH LAST FIRM**	**WITH OTHER FIRMS**			
29	2	3			
EDUCATION (COLLEGE, DEGREE, YEAR, SPECIALIZATION)					
Ph.D., Civil Engineering (Sustainable Infrastructure) University of Colorado Denver, 2014 M.S., Civil Engineering, Stanford University, 1989					
REGISTRATION (TYPE, YEAR, STATE)					
California Professional Engineer C47281, 2 August 1991, and three other states					

OUTSIDE ASSOCIATES AND CONSULTANTS USUALLY EMPLOYED*

DISCIPLINE	NAME OF FIRM OR INDIVIDUAL		DISCIPLINE	NAME OF FIRM OR INDIVIDUAL
Community Planning	Focused Planning Solutions, LLC			

ERRORS AND OMISSIONS INSURANCE

DOES YOUR FIRM HAVE ERRORS & OMISSION (E&O) INSURANCE? (Underline)			AMOUNT OF COVERAGE PER CLAIM	AMOUNT OF DEDUCTIBLE
YES	**NO**	PROJECT INSURANCE	$1,000,000	$250,000 Retention Claim

Submit proof of insurance or insurability from your insurance carrier with this form.

SUMMARY OF YOUR FIRM'S COMPLETED AND PRESENT PROJECTS DURING THE LAST TEN YEARS AS A PRIME A/E CONSULTANT (Nationally)

TOTAL NUMBER OF COMPLETED PROJECTS	>1,000
TOTAL ESTIMATED CONSTRUCTION COST OF COMPLETED PROJECTS (based on estimated annual corporate revenue; not exclusively construction)	>$20B
TOTAL NUMBER OF PRESENT PROJECTS	>1,000
TOTAL ESTIMATED CONSTRUCTION COST OF PRESENT PROJECTS	>$100M

AS AN ASSOCIATE WITH OTHER A/E CONSULTANTS (Nationally)

TOTAL NUMBER OF COMPLETED PROJECTS	>1,000
TOTAL ESTIMATED CONSTRUCTION COST OF COMPLETED PROJECTS (ONLY THE PORTION OF WORK FOR WHICH YOUR FIRM WAS RESPONSIBLE)	>$100M
TOTAL NUMBER OF PRESENT PROJECTS	>1,000
TOTAL ESTIMATED CONSTRUCTION COST OF PRESENT PROJECTS (ONLY THE PORTION OF WORK FOR WHICH YOUR FIRM IS RESPONSIBLE)	>$100M

CLASS OF WORK AND PROJECT TYPE SPECIALIZATION (Nationally)

TYPE OF PROJECT	TOTAL NO. OF COMPLETED PROJECTS	TOTAL ESTIMATED CONSTRUCTION COST	TOTAL ESTIMATED PROJECT SIZE (G.S.F.)
Planning - Specialized Management Consulting and Planning Services, including Emergency Management, Community Resilience, Port Security, and Economic Recovery	>1,000	>$100M	N/A

Categorize your firm's class for work during the last ten years by project type. Examples of project types include Educational, Industrial, Commercial Residential, Health Care, Correctional and Judicial Facilities. Work may also be categorized as planning, civil sitework, renovation/alteration, architectural barrier removal, fire alarm system, etc.

PRESENT/COMPLETED PROJECTS IN WHICH YOUR FIRM IS/WAS DESIGNATED THE PRIME CONSULTANT (BY TYPE)

(LIST A MAXIMUM OF 10 PROJECTS FOR EACH DISCIPLINE/TYPE OF WORK BEING APPLIED FOR. LIST PROJECTS THAT REFLECT YOUR ABILITY TO PROVIDE QUALITY WORK FOR YOUR REQUESTED PROJECTS.)

TYPE: Planning

YEAR	NAME AND LOCATION OF THE PROJECT	NAME OF LEAD DESIGNER	NAME, ADDRESS, PHONE & FAX NO. OF THE OWNER	ESTIMATED CONST. COST ($)	DURATION FOR DESIGN (MONTHS)	% COMPLETED	
						DESIGN	CONST.
2022-2024	State of Hawai'i,Hazard Mitigation Plan	JaLeesa Tate	Kelsey Yamanaka, State Hazard Mitigation Officer (808) 983-2570 kelsey.a.yamanaka@hawaii.gov	$286,700	22 months	100%	
2020-2021	County of Hawai'i, HI, Hazard Mitigation Plan	JaLeesa Tate	Talmadge Magno Civil Defense Administrator Talmadge.Magno@hawaiicounty.gov	$146,524	7 months	100%	
2024-2025	Maui County, HI, Hazard Mitigation Plan	Sasha Jones	Amos Lonokailua-Hewett, Administrator Phone: (808) 270-7285; Fax: (808) 270-7275	$282,079	11 months	Ongoing	
2025	Maui County Community Rating System (CRS)	Melissa Mitchell	Rodrigo "Chico" R Rabara (808) 270-7745	$50,000 (current)	20 months	Ongoing	
2018	State of Hawaii Hazard Mitigation Plan	Andy Mazzeo (project contact)	Hawaii Emergency Management Agency David Kennard 808.733.4300	$220,000	12 months	100%	
2012	Hawaii RCPG FY09 Public Disaster Awareness Campaign Project	Eric Jensen	City & County of Honolulu, Dept. of Emergency Management (DEM), Nicole Maglinao 808.723.8960	$497,786	15 months	100%	
2012	Hawaii RCPT Catastrophic Hurricane Response and Logistics Frameworks	Jeremy Kaufman (project contact)	City & County of Honolulu, (DEM) Nicole Maglinao 808.723.8960	$1.25 Million	24 months	100%	
2014	Hawaii RCPT Regional Resource Database	Jeremy Kaufman (project contact)	City & County of Honolulu, (DEM) Nicole Maglinao 808.723.8960	$350,000	4 months	100%	
2014	Hawaii RCPT Population Redistribution Analysis Report	Jeremy Kaufman (project contact)	City & County of Honolulu, (DEM) Nicole Maglinao 808.723.8960	$40,000	4 months	100%	
2014	Hawaii RCPT Strategic Plan and Grant Closeout Deliverables	Andy Mazzeo	City & County of Honolulu, (DEM) Nicole Maglinao 808.723.8960	$200,000	4 months	100%	
2013	Massachusetts Statewide Evacuation Planning	Andy Mazzeo	Massachusetts Emergency Management Agency, Mike Philbin 508.820.2008	$300,000	24 months	100%	
2012	Massachusetts THIRA/ State HMP/ Capabilities Assessment	Andy Mazzeo	Massachusetts Emergency Management Agency, Scott MacLeod 508.820.1445	$442,000	14 months	100%	
2014	Regional Interoperable Communications Program	Jeremy Kaufman	The Finger Lake Region, Monroe County NY 1190 Scottsville Rd, Rochester, NY 14624 Fred Rion, 585.753.3816	$285,000	2014-Present	Ongoing	
2012	HazMat Response Capabilities and Planning Assessment	Kevin Scott	Jersey City/Newark Urban Area Security Initiative, Helene Dougan 732.316.7146	$199,000	12 months	100%	
2010	HazMat and BSL Planning Template Development	Dan Reilly	Massachusetts Emergency Management Agency, Jeff Trask 508.820.2053	$325,000	12 months	100%	

PRESENT/COMPLETED PROJECTS IN WHICH YOUR FIRM IS/WAS DESIGNATED THE PRIME CONSULTANT (BY TYPE)

(LIST A MAXIMUM OF 10 PROJECTS FOR EACH DISCIPLINE/TYPE OF WORK BEING APPLIED FOR. LIST PROJECTS THAT REFLECT YOUR ABILITY TO PROVIDE QUALITY WORK FOR YOUR REQUESTED PROJECTS.)

TYPE: Planning

YEAR	NAME AND LOCATION OF THE PROJECT	NAME OF LEAD DESIGNER	NAME, ADDRESS, PHONE & FAX NO. OF THE OWNER	ESTIMATED CONST. COST ($)	DURATION FOR DESIGN (MONTHS)	% COMPLETED	
						DESIGN	CONST.
2010	Comprehensive Emergency Management Plan (CEMP) & Hazard Mitigation Plan (HMP)	Andy Mazzeo (project contact)	Town of Greenburgh, NY Chief Dicarlo 914. 682.5340	$250,000	18 months	100%	
2009	Emergency Operations Plan (EOP) Revision	Andy Mazzeo (project contact)	Lucas County Office of Emergency Management, Joe Walter 419.213.6505	$65,100	12 months	100%	
2006	Hudson County Non-Natural Hazard Mitigation Study	Jon Raser	Hudson County, New Jersey, Office of Emergency Management Gerry Drasheff 201.319.3872	$425,000	24 months	100%	
2011	Allegheny County/Region 13 UASI Regional Risk, Capability, and Needs Assessment	Kevin Scott	PA Region 13 Task Force Christopher J. Moran 412.473.3762	$165,000	18 Months	100%	
2012	2012 Cape May County Communications Plan Assessment & Validation	Andy Mazzeo	Cape May County Emergency Management Communications Center Frank McCall 609.463.6570	$60,000	14 months	100%	
2011	Regional Evacuation Planning	Jeremy Kaufman	Indiana-Illinois-Wisconsin Combined Statistical Area, Earl Mashaw 312.743.1770	$1,510,000	24 Months	100%	
2009	Coastal Community Resilience Planning and Training	Catherine Courtney	University of Hawaii Headquarters Manoa Innovation Center Louise Kubo 808.988.5144	$250,000	19 months	100%	
2009	Strategic Planning and Capability Assessment	Andy Mazzeo (project contact)	Capitol Region Council of Governments Dan Scace 860.522.2217 ext 223	$650,000	36 months	100%	
2008	Hazard Analysis, Modeling and Mitigation Planning	Bart Spencer	City of Roseville, CA, Carl Walker 916.746.1349	$500,000	2008-Present	Ongoing	
2009	Los Angeles/Long Beach UASI Strategic Planning	Andy Mazzeo (project contact)	City of Los Angeles Mayor's Office on behalf of Los Angeles/Long Beach UASI and Los Angeles County Operational Area	$1,377,000	16 months	100%	

PRESENT/COMPLETED PROJECTS IN WHICH YOUR FIRM IS/WAS DESIGNATED THE PRIME CONSULTANT (BY TYPE)

(LIST A MAXIMUM OF 10 PROJECTS FOR EACH DISCIPLINE/TYPE OF WORK BEING APPLIED FOR. LIST PROJECTS THAT REFLECT YOUR ABILITY TO PROVIDE QUALITY WORK FOR YOUR REQUESTED PROJECTS.)

TYPE: Planning

YEAR	NAME AND LOCATION OF THE PROJECT	NAME OF LEAD DESIGNER	NAME, ADDRESS, PHONE & FAX NO. OF THE OWNER	ESTIMATED CONST. COST ($)	DURATION FOR DESIGN (MONTHS)	% COMPLETED	
						DESIGN	CONST.
2012	Environmental Review of 24 Sites with Potential Rockfall Hazards	Catherine Courtney	Hawaii Department of Land and Natural Resources (DLNR) and Federal Emergency Management Agency (FEMA) Roger Masuoka (DLNR) 808.587.0276	$67,525	6 months	100%	
2008	Waipahu Hazard Analysis	Catherine Courtney	City and County of Honolulu, Local Emergency Planning Committee (LEPC) Robert Harter 808.723.8958	$23,300	10 months	100%	
2011	Public Health Preparedness Program Baseline Assessment	Eric Jensen	Hawaii Department of Health (DOH), Bioterrorism Preparedness and Response Branch, Judy Kern 808.587.6597	$24,500	4 months	100%	
2007	Statewide Chemical- Biological-Radiological Emergency Response Tabletop Exercise	Dan Reilly	Hawaii Department of Health (DOH), Hazard Evaluation and Emergency Response (HEER) Office	$102,200	22 months	100%	
2009	Coastal Community Resilience Assessment, Hilo, Hawaii	Catherine Courtney	National Oceanic & Atmospheric Administration (NOAA), Pacific Services Center, Honolulu, Adam Stein 808.532.3962	$140,000	5 months	100%	
2014	Maui County Hazard Mitigation Plan	Caitlin Kelly	Maui County Civil Defense, Anna Faust, 808.270.7285	$72,000	9 months	100%	
2015	Hawaii Sea Level Rise Vulnerability and Adaptation Report, Statewide, Hawaii (Job No. J40AS99A)	Catherine Courtney	Hawaii Department of Land and Natural Resources (DLNR), Honolulu, HI Brandon J. Kim 808.587.0248	$352,775	36 months	30%	
2014	HMEP Grant Support. Local Emergency Planning Committee (LEPC) Planning Guide for the Four (4) State of Hawaii LEPCs: County of Maui, Kauai, Hawaii, and the City & County of Honolulu.	Andy Mazzeo (project contact)	Hawaii Department of Health (DOH) Hazard Evaluation and Emergency Response (HEER) Office, Harold Lao 808.586.4253	$40,000	9 months	100%	
2015	HMEP Grant Support. Kauai County HazMat Annex Development	Andy Mazzeo (project contact)	Hawaii Department of Health (DOH) Hazard Evaluation and Emergency Response (HEER) Office, Harold Lao 808.586.4253	$35,000	4 months	100%	

TYPE: Planning							
YEAR	NAME AND LOCATION OF THE PROJECT	NAME OF LEAD DESIGNER	NAME, ADDRESS, PHONE & FAX NO. OF THE OWNER	ESTIMATED CONST. COST ($)	DURATION FOR DESIGN (MONTHS)	% COMPLETED	
						DESIGN	CONST.
2015	Hawaii RCPT Regional Resource Database	Andy Mazzeo (project contact)	City & County of Honolulu, Dept. of Emergency Management (DEM)	$350,000	12 months	100%	
2016	HMEP Grant Support. Maui County HazMat Annex Development	Andy Mazzeo (project contact)	Hawaii Department of Health (DOH) Hazard Evaluation and Emergency Response (HEER) Office, Harold Lao 808.586.4253	$35,000	5 months	100%	
2018	Oahu Tsunami Evacuation Planning	Andy Mazzeo (project contact)	City & County of Honolulu, Dept. of Emergency Management (DEM) Crystal VanBeelen 808.723.8956	$500,000	18 Months	100%	
2018	Maui County Emergency Operations Plan Update and EOC SOPs	Andy Mazzeo (project contact)	Maui County Civil Defense Andrea Finkelstein, 808.270.7285	$100,000	12 Months	100%	
2019	Kilauea Eruption Community Relief, Relocation, and Recovery Planning	Catherine Courtney	County of Hawaii, Department of Planning 25 Aupuni Street, Hilo, Hawaii 96720 April J Surprenant, 808-961-8131	$1,891,489	Ongoing	95%	
2021	Maui Beach Parks Vulnerability and Adaptation Study	Catherine Courtney	County of Maui, Department of Parks and Recreation, 700 Halia Nakoa St. Unit 2, Wailuku, HI 96793, David Yamashita, 808.270.6508	$350,000	18 Months	75%	
2015	Corals and Climate Adaptation Planning and Design Tool	Catherine Courtney	US Environmental Protection Agency, Office of Research and Development, Ronald Reagan Building Office 71297, 1300 Penn Ave, NW, Washington, DC 20004, Jordan West, PhD, 202.564.1555	$75,000	24 months	100%	
2020	Dune Restoration Planning and Design for Kapukaulua (Baldwin Beach), Maui, Hawai'i	Catherine Courtney	Hawai'i Sea Grant College Program, 2525 Correa Rd HIG 236, Honolulu, HI 96822	$147,000	16 months	100%	
2021	Analysis of Shoreline and Riparian Setbacks	Catherine Courtney	County of Hawai'i Department of Planning, 101 Pauahi Street, Suite 3, Hilo, Hawai'i 96720, Bethany Morrison, 808.961.8138	$245,000	25 months	45%	
2021	County of Hawaii Climate Adaptation Plan	Catherine Courtney	Focused Planning Solutions for the County of Hawai'i Department of Planning, Amy DeBay, Focused Planning Solutions, Bethany Morrison, County of Hawai'i, 808.961-8138	$16,000 (Phase I)	24 months	40%	

Explain firm's individual project assignment, project management structure, project execution (workflow and responsibilities) and quality control process. In the event the spaces provided on this form are not sufficient for entries, or if you wish to furnish additional information, it may be inserted here or on separate sheets, with appropriate references.

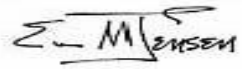
Tetra Tech, Inc. (Tetra Tech) is a leading provider of management consulting and technical services, design and engineering, and program and construction management services worldwide. including community and environmental planning and permitting, engineering, natural and cultural resource management, post-disaster economic recovery management, risk assessment, and emergency management and community resilience. The company was founded in 1966 and became a publicly traded company (NASDAQ-TTEK) in 1991. Tetra Tech is incorporated in the State of Delaware, and its Federal Employer Identification Number (FEIN) is 95-4148514. The firm has annual revenues of nearly $5.2 billion and employs 30,000 personnel in 550 offices worldwide.

Tetra Tech has maintained a continuous office presence in Hawaii since 1990 and has compiled an extensive portfolio of local project experience assisting key decision makers with complex project and programmatic needs. The firm has maintained a field office located in Hilo, Hawaii since 2019.

Tetra Tech's past performance record on contracts for federal and state agencies provides us with the experience to make efficient use of all resources to maintain the quality of work, control cost, and provide timely performance to meet schedules. Tetra Tech is proud of our record of repeat business from loyal clients who appreciate our work ethic, productive collaboration, and high-quality deliverables.

Our complete current active project list is too extensive to provide, as Tetra Tech is currently working on hundreds of diverse projects across the United States and internationally. Similarly, we have provided a sampling of key personnel illustrating our capability and capacity to accomplish any project scope. Our planning team is supported by an extremely 'deep bench' of professionals across the country who can provide appropriate support to the Hawaii office. Tetra Tech staffs each project based upon the specific scope and requirements and has the personnel to accomplish nearly any objectives our clients identify.

As of this date June 30, 2025, the foregoing is a true statement of facts.

NAME OF FIRM OR INDIVIDUAL SUBMITTING QUESTIONNAIRE	TYPE NAME AND TITLE OF PERSON SIGNING	SIGNATURE
Tetra Tech, Inc.	Eric M. Jensen, CHMM Vice President/Operations Manager	

NOTE: It is to a firm's advantage to maintain its experience record on a current basis. This may be accomplished by periodically forwarding current data to DAGS.

DPW FORM 120 SUPPLEMENT 1

PRINCIPALS ONLY - ADDITIONAL INFORMATION

NAME	TITLE AND POSITION	YEARS WITH FIRM
Eric M. Jensen, CHMM	Vice President/Operations Manager	15

MAJOR RESPONSIBILITIES WITH THIS FIRM

Honolulu Office Operations Manager in charge of senior technical review and oversight of projects in the Honolulu office. Mr. Jensen manages and coordinates fiscal, personnel, client management, business development, and operational aspects of the local profit center.

PRIOR EMPLOYMENT

(START WITH LATEST EMPLOYMENT PRIOR TO JOINING THIS FIRM AND PROVIDE SIMILAR INFORMATION FOR EACH SEPARATE EMPLOYMENT OR MAJOR CHANGES IN DUTIES WITH THE SAME EMPLOYER.)

FIRM:	DATE FROM:	DATE TO:	FIRM:	DATE FROM:	DATE TO:
EBI Consulting	2003	2010	Earth Tech, Inc.	1995	2004
ADDRESS:			**ADDRESS:**		
Burlington, Massachusetts			Hawaii, Massachusetts, Virginia		
JOB TITLE:			**JOB TITLE:**		
Program Manager			Senior Project Manager/Geologist		
SUPERVISOR'S NAME AND TITLE:			**SUPERVISOR'S NAME AND TITLE:**		
William Gibbons, Remediation Section Director			Bruce Tsutsui, Program Director (Hawaii); Barbara Lemos, Program Director (Virginia and Massachusetts)		
MAJOR DUTIES:			**MAJOR DUTIES:**		
Client Manager and Senior Technical Reviewer of Environmental Investigation and Due Diligence projects for Commercial and Municipal projects throughout the Northeast Region (Massachusetts, Maine, New Hampshire, Rhode Island, Connecticut).			Project Manager and Senior Scientist for large environmental projects, including commercial, Municipal, State, and Federal clients in all Hawaii, Massachusetts, and Virginia.		

1. Planning and Community Resilience Qualifications

Tetra Tech, Inc. (Tetra Tech) is a leading provider of specialized management consulting and planning services including emergency management, community resilience and economic recovery. Clients include a diverse base of public and private-sector organizations located throughout the United States and internationally, including a noted track record with the State of Hawai'i and all four Hawaiian counties.

Tetra Tech, Inc. (Tetra Tech) is a full-service emergency management, resilience, planning, engineering, and environmental science firm with more than 550 offices and approximately 30,000 employees worldwide, and a 5-year average of approximately 25,000 employees. Our integrated team of professionals provides technical experience based on decades of work supporting a diverse base of government agency and private industry clients across the State of Hawaii, continental U.S., and internationally. The company was founded in 1966, and became a publicly traded company (NASDAQ-TTEK) in 1991. Tetra Tech placed #5 among the top 500 engineering firms in the United States by the Engineering News-Record in their prestigious annual ranking, suggesting that our most strident critics – our industry peers and competitors – recognize our standards of excellence.

Our Hawaii operations are based in our Honolulu office, which has operated continuously since 1990. In 2019, we opened a project office in Hilo. With over 59 years of experience nationally, and more than 35 years in the Hawaiian Islands, we have compiled an extensive portfolio of project experience assisting key decision makers with complex project and programmatic needs related to emergency management and community resilience.

Tetra Tech staff provide clients with the level of excellence required in today's regulatory environment and have earned a reputation in the emergency management field that is unequaled by our competitors. Tetra Tech is pleased to address our qualifications and experience in Emergency Management/Planning and Community Resilience in the following relevant topics in the following pages:

A. Master Planning
B. Strategic Planning
C. Emergency Planning and Preparedness
D. Training and Exercises
E. Logistics Planning
F. Communications Planning
G. Planning Assessments
H. Operations Planning
I. Risk and Vulnerability Planning
J. Port and Harbor Security Planning
K. Socioeconomic Research & Analysis
L. Risk Assessment and Hazard Mitigation Planning
M. Policy Review and Recommendations
N. Short- & Long-Term Land Use Planning (village and regional scales)
O. Housing Relocation Solutions, particularly Affordable Housing
P. Infrastructure Planning & Design (roads, water, wastewater, electric, parks, etc.)
Q. Economic Development & Recovery (including agriculture)
R. Health & Social Services Recovery
S. Natural & Cultural Resources Recovery
T. Recovery Financial/Grant Management (FEMA, HUD/CDBG-DR, FHWA, etc.)
U. Community Engagement
V. Strategic Communications.
W. Resilience Services:
    - Climate Change Mitigation and Adaptation
    - Sea Level Rise Vulnerability Assessment
X. Other Services

Section 6 provides descriptions of selected projects within the following categories to better illustrate our services, experience, and expertise in the field of Community Planning.

A. Master Planning

Whether community, port, or facility based, Tetra Tech has the experience and technical expertise to accomplish Master Planning projects for all applications. Tetra Tech has extensive international development experience, in addition to providing related services for communities within the United States. This includes related activities and Master Planning drivers such as hazard mitigation, flood plain management, zoning and long-term economic and utility planning. Under a contract with the State of New York, Tetra Tech assisted multiple communities with Master Planning activities related to reconstruction and rebuilding in the aftermath of Super Storm Sandy.

B. Strategic Planning

Either as a formalized process or in the context of providing other services, Tetra Tech is frequently called upon to provide or assist jurisdictions, ports, and utilities with strategic planning. Tetra Tech has the capability of performing all stages of strategic planning, starting with threat and hazard assessments and continuing with a capability assessment to determine if appropriate resources and capabilities exist to address defined threats or hazards. Deficiencies are usually outlined in a Gap Analysis, and used to identify need-based strategic planning objectives. Ultimately the Strategic Plan outlines and prioritizes the allocation of future investments of time, staffing and funding. While strongly rooted in evidentiary analysis, Tetra Tech understands that strategic planning must also balance stakeholder input and often competing priorities. Tetra Tech utilizes a collaborative process that promotes stakeholder input in order to build consensus. This method has proven effective completing complex projects such as the Strategic Plan for the Los Angeles/Long Beach Urban Area Security Initiative (UASI) and development of the comprehensive strategic plan for the Hawaii region under the Regional Catastrophic Planning Grant Program in 2014. Recently, Tetra Tech has supported strategic planning for clients such as the City of Houston, with updating the City's Comprehensive Emergency Management Plan (CEMP) and 19 emergency support functions. Additionally, Tetra Tech supported the Valley Transportation Authority (VTA) with gap analysis findings and threat and vulnerability assessment pieces.

C. Emergency Preparedness and Planning

Tetra Tech enjoys a reputation as a leader in homeland security and emergency preparedness. We have successfully completed hundreds of emergency preparedness and response planning projects for local, state, and federal clients, including extensive support within Hawaii. This includes Hawaii specific hazards, such as tsunamis and catastrophic hurricanes, as well as their related elements such as evacuations, shelter operations, utility resumption, debris management, health and human services, and command and control. Our team is also recognized as a leader in multi-jurisdictional homeland security planning and members of our team have contributed to the development of the Emergency Management Accreditation Program (EMAP) Standard, the Core Capabilities List, and other foundational documents. Tetra Tech has completed emergency planning projects for all four Hawaiian counties and the State including revisions and rewrites to Emergency Operations Plans (EOP), Hazard Mitigation Plans (HMP), HazMat Plans, and other response annexes.

D. Training and Exercises

In addition to emergency preparedness planning, Tetra Tech is also a leader in providing associated training and exercises for validation purposes. Tetra Tech has extensive expertise in developing seminars, workshops, drills and exercises for a wide variety of topics and is established as a preeminent firm in the use and application of the Homeland Security Exercise and Evaluation Program (HSEEP), which is often required when utilizing federal grant funding. Tetra

Tech’s exercise staff includes numerous HSEEP instructors and many have been designated as Master Exercise Practitioners (MEP) by the Federal Emergency Management Agency (FEMA). Tetra Tech’s training cadre is equally knowledgeable and routinely delivers a multitude of specialized, custom or FEMA approved training courses. In the past Tetra Tech has delivered a wide variety of training and exercises in Hawaii, with topics including hazardous materials, pesticide releases, environmental response and catastrophic hurricane scenarios. In 2015, Tetra Tech developed and provided an Executive Leadership Seminar/Exercise to the mayors and executive staff on each of the four counties. Tetra Tech has broad capability to deliver basic, advanced, and specialized training courses whether using existing approved curriculum or designing training courses from the ground up.

E. Logistics Planning

As an island-based community, Hawaii faces unique logistical challenges. Drawing upon experience with numerous logistics planning projects undertaken across the globe, Tetra Tech has specific insight into Hawaii’s challenges based upon work done as part of the project developing Hurricane Response Frameworks. As part of this project, Tetra Tech conducted numerous stakeholder meetings and planning sessions to fully understand the intricacies and challenges associated with Hawaii’s hub-and-spoke logistics model. As part of this project, Tetra Tech oversaw the production of county-level logistics annexes for each county, as well as specific sections tied to state-level objectives. In addition, Tetra Tech has the ability to provide solutions to evolving logistics and resource management challenges. As part of a project for the Chicago Area Regional Catastrophic Planning Team (RCPT), an area comprising multiple counties as well as the states of Illinois, Wisconsin and Indiana, Tetra Tech developed a Resource Database and web interface designed to assist in pre-event logistics planning as well as responses to natural or manmade disasters.

F. Communications Planning

Having conducted multiple communications planning and validation projects, including Tactical Interoperable Communications Plans (TICP) at the State Level, Tetra Tech has the skillset and experience to provide this specialized planning to the State of Hawai‘i. Combining both technical understanding, as well as efficient data collection methodologies, Tetra Tech is able to quickly compile a picture of existing communications capabilities, identify gaps, and recommend further actions needed to meet objectives. Furthermore, Tetra Tech also understands the importance of redundancies, and has had great success in designing HSEEP compliant exercises in order to test and validate not just primary systems, but their backup components as well.

G. Planning Assessments

As a foundational element of most projects, especially those requiring a Gap Analysis, Tetra Tech frequently reviews and assesses existing plans for sufficiency. In some cases plans may be inconsistent with existing capabilities, or fail to meet legal and regulatory requirements. This has been especially evident in recent years as federal lawsuits have been filed in major metropolitan areas such as Los Angeles and New York City, alleging planning deficiencies in respect to certain laws such as the Americans with Disabilities Act (ADA) and the Rehabilitation Act of 1973. Tetra Tech is acutely aware of these issues and includes them in all planning assessments.

H. Operations Planning

With a strong cadre of professionals spanning all disciplines, most of Tetra Tech’s staff have previous experience in the public sector, and have strong operational backgrounds. This understanding of how plans translate into real-world applications is one of the reasons Tetra Tech’s clients have repeatedly reengaged us to support operational planning efforts. Rather than providing theory-based plans, Tetra Tech works with our clients to understand their needs and tailor plans based upon the realities of their operational environment in relation to their existing capabilities. Tetra

Tech's portfolio contains multiple projects at the State-level, supporting both steady state and emergency response operational plans.

I. Risk and Vulnerability Planning

Tetra Tech is a leader in developing innovative risk-modeling and planning tools, which continue to be instrumental in disaster planning and mitigation fields. Tetra Tech has experience in developing risk and vulnerability plans nationwide, including State-level Threat and Hazard Identification and Risk Assessment (THIRA) required by the Federal Emergency Management Agency (FEMA). Our experience includes working directly with FEMA on the development of hazard mitigation planning tools, such as Hazards U.S. Multi-Hazard (HAZUS-MH), which supports not only mitigation plans, but rather provides an all-hazards approach in planning efforts of varying types. As a subset to this field, Tetra Tech's expertise in the development of hazard mitigation plans is unrivaled. Not only do we provide support by way of our enhanced risk assessments, but we work with our clients in the development of actual implementable mitigation projects.

J. Port and Harbor Security Planning

As a special subset of planning support, Tetra Tech has supported ports and harbors nationally with security assessments, threat analysis, preparedness, and strategic planning. In addition to our cadre of planers and security experts, Tetra Tech employs a number of maritime experts, including former Coast Guard personnel such as the former Director of Planning for the Coast Guard, Captain John Weber, USCG, Ret., and the former Chief of Port Operations for Honolulu Harbor, Lt. Commander Chris Curatilo, USCG, Ret. Tetra Tech provides extensive support for the Port of Los Angeles and in 2014 completed a statewide exercise for all of the Ports in California focusing on Cyber Security. Tetra Tech is currently supporting the Port of San Francisco to validate existing plans by providing a training and exercise program as well as support for plan revisions.

K. Socioeconomic Research & Analysis

The Tetra Tech Team conducts in-depth research and analysis to establish baseline conditions and trends for most of our planning projects. Understanding the socioeconomic trends is a cornerstone to our planning so we can make recommendations that can be implemented. We routinely use available data and information, including the US Census Bureau Local Employment Dynamics, InfoUSA, Federal Bureau of Labor Statistics, ESRI Business Analysts, existing local plans and studies, news and print publications, and other information as appropriate.

After conducting our research and analysis, our team can develop a regional assessment that provides defensible estimates of current market conditions and opportunities for supportable future growth across various economic sectors. This assessment includes detailed market data and analysis to refine goals and objectives and identify specific economic development and redevelopment strategies.

Population – Our evaluation of population and socioeconomic characteristics and trends include a review of key data sources such as the United States Census, American Community Survey, and local reports and studies. Information will be collected and evaluated related to population growth or decline, race, age, educational attainment, income, and specific vulnerable populations such as the homeless, physically or mentally disabled, the elderly among others.

Our assessments help to identify opportunities for appropriate new growth and development and provides an overview of market indicators such as population and household trends, key economic drivers, spending potential and preferences, and the current balance of supply and demand. In particular, Tetra Tech team utilizes both quantitative (i.e., data collection and analysis) and qualitative (i.e., stakeholder interviews) analyses to validate and consider the depth of the market for a diversity of potential uses by analyzing current commercial supply (businesses, services,

sales, etc.) and demand (spending potential and preferences), as well as other factors such as workforce, demographic, land use, and economic characteristics.

The assessment will include a commercial gap analysis and leakage estimations, spending potential index (SPI), location quotient, and the identification of current and emerging local economic-base industries. Combined with qualitative information, this assessment will collectively present a detailed evaluation of the market. Using this series of location-specific market analysis methodologies, including ESRI Business Analyst GIS modeling techniques, Tetra Tech will seek to answer the following questions:

1. What is the current economic climate in the study area?
2. What business sectors show the greatest potential to drive new growth, development, or redevelopment within the study area based on identified market conditions?
3. What is the current state of the housing stock, and how does this relate to housing demand and buyer preferences?
4. What are the current characteristics (income, skills, education, spending preferences, etc.) of people living in the target market?
5. What is the existing supply and revenue capture of business operations across each commercial sector?
6. What amount of spending by people within the market area across each sector is not captured within the market area? If outside of the market area, where does this spending occur?
7. Based on the identified balance between supply and demand, how much new development could the current market support across commercial sectors?
8. What underutilized resources are present in the planning area that could support the targeted uses or provide opportunity for additional uses?

The results of the analysis will inform a final profile of a project area and will provide a foundation of information to: inform strategic decision making; establish benchmarks for measuring future progress; allow for comparison and trend evaluations; and, quantify market opportunities for future land uses and growth.

Housing Assessment – Our team uses data to evaluate current conditions and document existing housing stock including buyer/renter preferences, potential deficiencies, rental and owner-occupied trends, structural age, home values, presence and need for affordable housing among others. This can include determining housing affordability, oversaturation of the housing market for a particular type of housing, or underrepresentation of a type of housing.

Our team will also collect quantitative information to validate the quantifiable data we obtain from the data sources mentioned above. We will connect our public outreach and engagement efforts to obtain this quantitative data. Tetra Tech Team will utilize both quantitative (e.g., data collection and analysis) and qualitative (e.g., stakeholder interviews, public outreach) analyses to identify, define and validate existing conditions.

L. Risk Assessment and Hazard Mitigation Planning

Tetra Tech's founding principle is to lead with science. As such, our team uses state-of-the-art technology, practices, and concepts to identify natural and human-caused risks and threats that provide a realistic, comprehensive understanding of the potential impacts to their people, property, infrastructure, technology, supply chain, and the overall economy. Based upon the needs and objectives of each client, Tetra Tech develops scenarios and conducts asset-specific to enterprise-wide modeling and estimates potential losses for all hazards, specializing in floods, coastal inundation, tsunamis, earthquakes, hurricane winds, tornadoes, sea level rise, urban-wildland interface fires and atmospheric chemical releases.

Tetra Tech has extensive experience in use of FEMA's HAZUS risk assessment software and has served as a mission support contractor for FEMA's advancement of the HAZUS software tool for conducting risk assessments.

Tetra Tech is a FEMA-certified HAZUS Vendor, which means we can certify state and local governments as official HAZUS users and develop custom training programs. Our detailed analyses allow local, state and private organizations to efficiently address the most significant risks they face, while minimizing the burden to its resources. This concept, called "risk-informed planning", provides our clients with the ability to measure the risk reduction impacts of preparedness/mitigation and/or resilience activities in the future to provide cost effective mitigation solutions today.

Tetra Tech is a leading provider of hazard mitigation planning services, especially in FEMA Region IX. Tetra Tech has a 100% first pass track record of hazard mitigation plans (HMP), which are required under the Disaster Mitigation Act of 2000 (DMA2000). Tetra Tech works diligently with diverse groups of stakeholders to complete tailored plans that allow jurisdictions to apply for federally funded mitigation projects and post disaster reimbursement.

Tetra Tech completed the Hazard Mitigation Plan Update for Maui County in 2015 that was reviewed and swiftly approved by both the State of Hawai‘i and FEMA Region IX. Tetra Tech subsequently completed the State of Hawai‘i Hazard Mitigation Plan update for the Hawai‘i Emergency Management Agency (HIEMA) in 2018, the Hawai‘i County Multi-Hazard Mitigation Plan Update (to be finalized in June 2020), and recently commenced work on the Kauai County Multi-Hazard Mitigation and Resiliency Plan in April 2020.

With a nuanced understanding of local Hawaiian issues and working relationships with many of the key stakeholders, Tetra Tech's dedicated cadre of mitigation planners and specialists have been highly successful in leading diverse groups of stakeholders to develop comprehensive and tailored mitigation plans. Critical for counties such as Maui, that participate in the Community Rating System (CRS), Tetra Tech integrates certain requirements and activities into the planning process to maximize points under CRS. Because of these efforts, Maui County scored hundreds of additional points under CRS and was able to increase its CRS standing after Tetra Tech facilitated the 2015 mitigation plan update process. As a direct result, Maui County residents participating in the National Flood Insurance Program (NFIP) were eligible for a significant reduction in their insurance premiums.

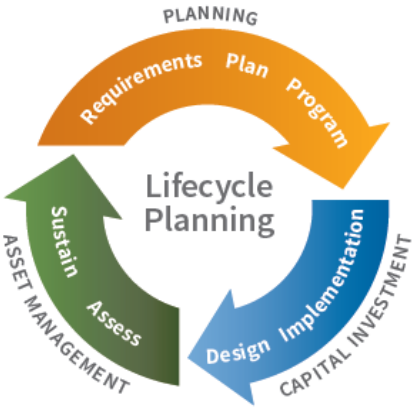
Tetra Tech completed the Hazard Mitigation Plan Update for Maui County in 2015 that was reviewed and swiftly approved by both the State of Hawai‘i and FEMA Region IX. Tetra Tech subsequently completed the State of Hawai‘i Hazard Mitigation Plan update for the Hawaii Emergency Management Agency (HIEMA) in 2018, the Hawai‘i County Multi-Hazard Mitigation Plan Update in 2020, the Kauai County Multi-Hazard Mitigation and Resiliency Plan in 2021 and was recently awarded the next State of Hawai‘i Hazard Mitigation Plan update for HIEMA (Spring 2022).

M. Policy Review and Recommendations

Tetra Tech works closely with our local, state and federal clients to increase resilience by reviewing current policies and governance structures and making recommendations to achieve community goals as well as the effectiveness of current programs in achieving community compliance with various state and federal programs. A key to the success in this arena is subject matter expertise in the programs that act as the impetus for policies and programs that are being reviewed. Tetra Tech is equipped with subject-matter expertise by personnel that are familiar with policies and programs because they used to implement them at local, state or federal levels. This process includes a thorough review of literature, plans, policies and legislation as well as extensive outreach and collaboration with stakeholders. A strong focus is placed on the outreach component to verify findings and provide further insight into potential improvements to support the preparation of final recommendations.

Though our analysis, we can identify weaknesses and gaps, and make recommendations to expand or develop new guidelines, ordinances and policies that balance regulatory control and recovery speed, protect sensitive environmental

and cultural resources, and incorporate mitigation and adaptation strategies throughout the process to increase resilience for future hazards. Our support has included: conducting state and county-level reconstruction and resilience workshops to inform the development of guidance and model resources; and, performing compliance assessments for states responding to Federal mandates and developing governance structures for complex programs at the state and municipal level. In addition, we develop guidelines, resources, model ordinances and procedural documents that set the stage for how recovery activities should occur and have developed innovative tools that assess the core capabilities of local governments to implement programs and policies.



Currently, through a NOAA Regional Resilience Grant to the University of Hawai'i Sea Grant College Program, Tetra Tech is developing planning and policy guidance for addressing coastal hazards and sea level rise in state and county planning frameworks and guidance and model resources for disaster recovery and reconstruction. This ongoing work is being conducted in close collaboration with all counties as well as HI-EMA, DLNR, and Office of Planning and builds on Tetra Tech's expertise and experiences in Hawaii and nationally.

N. Short- & Long-Term Land Use Planning (Village and Regional Scales)

Creating Targeted, Resilient, Smart Growth Strategic Plans

Our team has experience working on the full range of community and regional planning and economic development projects, including: comprehensive plans; strategic visioning; redevelopment strategies; economic development strategies; feasibility studies and concept plans; identifying and prioritizing community, housing and community needs assessments, and economic development projects; developing and implementing public funding strategies; public outreach and engagement; economic impact and market analysis; public and private partnerships; developer solicitation; and, architectural and engineering services. Our complete understanding of land use management, codes and ordinances, community and economic development, and all components of the real estate development process provides our clients with effective planning tools that identify and prioritize projects and provide detailed implementation strategies that align with local goals and values to guide sustainable and desirable growth.

Tetra Tech helps clients make informed decisions that support their unique short-, mid-, and long-range planning goals. Using our in-depth experience and comprehensive vision, we assist communities, developers, and military installations in creating and executing plans that are tailored to their specific needs, satisfy complex regulations, and include stakeholder input and public consensus. Tetra Tech's multidisciplinary team includes numerous accredited, charrette-certified, and award-winning planners who are versed in UFC-compliant planning. We leverage the vast knowledge of our top experts in policy, engineering, science, technology, mapping, and project management to enhance our planners' solutions and the success of our clients' projects.

Lifecycle Planning Services

Tetra Tech recognizes that land use planning today requires understanding of facility and infrastructure conditions, energy management, local and federal requirements, and community partnerships, as well as the data that contributes to an enterprise planning effort. We offer expertise in planning, real property, energy, environmental, utilities, and data integration to help our clients achieve a long-term, sustainable plan. Tetra Tech's planning services protect and improve quality of life through responsible resource management and sustainable development and infrastructure. We continuously adapt to our clients' changing needs and solve their most challenging issues by integrating technical, regulatory, and operational requirements with sound engineering, science, and planning principles.

Multi-sector Planning Expertise

- **Commercial:** We leverage relationships and use state-of-the-art tools to help commercial clients achieve their business goals for development, infill, and reuse.
- **Public Sector:** Our planners apply vast, interdisciplinary resources to partner with communities and state and local clients to develop comprehensive plans that are compelling, understandable, and reflect community goals for smart growth and resilience.
- **Federal and Military:** We provide integrated, comprehensive military base and facility planning services that incorporate current and future budgets, optimization, and mission needs.
- **International Development:** Tetra Tech offers global reach, resources, and experience combined with local understanding for sustainable planning approaches to growth and development.

Smart and Connected Communities

Tetra Tech is a leader in comprehensive Smart City planning services, and our Longmont, Colorado, office is home to the initiate leader. A holistic approach is required to adapt and prepare for advancing technology. Community leaders are tasked with determining how to incorporate smart technologies to foster the vitality of their communities, work and communicate more efficiently, and manage their assets more resiliently. Technology is not the driver of a Smart and Connected Community, residents and staff are. Tetra Tech embraces this approach and works with communities to determine and plan for an integrated future.

O. Housing Relocation Solutions, Particularly Affordable Housing

Tetra Tech staff have worked with all types of housing projects throughout the country, specifically at the county-level. Our staff have worked to implement the CDBG-DR case management and construction oversight as well CDBG-DR program management. Case managers worked directly with residents and non-governmental entities to compile the un-met needs for housing and their applications for the housing programs. These programs have included 1,000s of housing rehabilitation, relocation, buyout and demolition and elevation as they relate to disasters throughout the past 13 years.

Tetra Tech cost estimators/inspectors completed all Housing Program scope of repairs and cost estimates using Xactimate® software. Throughout the rehabilitation of the homes, cost estimators/inspectors provided construction supervision and all necessary inspections for both HUD and local building code compliance. We have also worked on 1,000s of housing buyout and relocation, rehabilitation and elevation because of disasters. We have also worked with clients on pre-disaster housing projects to reduce or eliminate the potential damage to housing from future disasters.

Our team's strength is also demonstrated by the depth of experience of our staff in the area of assessing impediments to fair house, developing affordable housing proejcts and preparing publci funding strategies for low-income housing projects. Tetra Tech staff have substantial experience and familiarity working on United States Department of Housing and Urban Development (HUD) related projects for a variety of clients including counties throughout the countryr. Our team includes members who have more than 21 years of experience working with HUD, the CDBG program and the fair housing assessment process. Some of our experience includes these clients included:

***Fayetteville, NC** – Tetra Tech assisted its client to prepare applications to the Hazard Mitigation Grant Program for the buyout and elevation of over 600 homes through the Hazard Mitigation Grant Program.*

- Dauphin County, PA
- Delaware County, PA
- Cumberland County, PA
- Lehigh County, PA
- City of Williamsport, PA
- Richland County, SC
- Dougherty County, GA
- Hayes County, TX
- Lexington County, SC
- Passaic County, NJ
- Camden County, NJ
- Atlantic County, NJ
- Atlantic City, NJ

P. Infrastructure Planning & Design

Tetra Tech has the capability to meet your agencies infrastructure needs, with our proven experience in engineering and architecture design, planning, program management, and operations and maintenance. We apply innovative techniques to minimize life cycle costs and maximize value for private and public clients—from high-performance buildings, to water treatment plants, ports and harbors, and roads and bridges. Tetra Tech's comprehensive program management and owner's representative services ensure that infrastructure projects of all sizes and delivery methods are implemented successfully. Tetra Tech's core capabilities in this related to infrastructure planning and design include:

- Airports and Aviation
- High Performance Buildings
- Communications
- Dams, Reservoirs, and Levees
- Ports, Harbors, and Waterfront
- Transportation
- Resource Management
- Energy, including sustainable energy sources
- International development

Q. Economic Development & Recovery (including agriculture)

Tetra Tech helps local, state, federal, and regional clients reduce their vulnerability to hazards with pre- and post-disaster planning services. Our team prepares Disaster Management Act of 2000 all-hazard mitigation plans and community reconstruction plans; conducts HAZUS-MH analysis, grant administration, and benefit-cost analysis. We also provide Community Rating System support and Housing and Urban Development Community Development Block

Grant-Disaster Recovery (CDBG-DR) support; integrates mitigation planning into community activities; identifies project funding; and, implements mitigation and recovery projects. Our planners assist clients with all aspects of planning to create focused strategic plans that include input from key stakeholders, current data and statistics, identified and prioritized projects, detailed steps for implementation, consideration of land use controls and codes, opportunities for incremental success, and definable and measurable goals.

Tetra Tech assists with developing a comprehensive public funding strategy, identifying the available sources of public funding for a project, and developing a customized funding strategy to leverage and maximize each source. Our team assists with preparing the required applications, documentation, and supporting material to favorably position a project for public funding.

R. Health & Social Services Recovery

Hazards do not care how much money you make or what your capabilities are to recover when they impact an area. The impacts are usually wide spread with no deference to socio-economic differences. These differences usually do not come in to play until a region is responding to and/or recovering from the impacts from a hazard event. Tetra Tech has made the concept of assessing "social equity" a cornerstone of its emergency management and community resilience practice because these socio-economic impacts are real and can be prepared for at a state and local level. From including socio-economic factors in the core capability assessments performed under our hazard mitigation planning efforts to including socio-economic demographic factors in our hazard risk assessments, Tetra Tech professionals are able refine the strategies and recommendations of these plans and programs with an increased resolution because these factors have been taken in to account. A key example of this practice in the City of Portland, Oregon's "Mitigation Action Plan", developed by Tetra tech in 2016. This was one if the first hazard mitigation plans in the Country developed with an overarching emphasis on social equity. This planning effort led to many of the standard practices that have been folded into Tetra Tech's hazard mitigation planning practice.

S. Natural & Cultural Resources Recovery

Tetra Tech specializes in the preparation of environmental and historic preservation reviews in support of disaster recovery and hazard mitigation programs. This work is conducted under the National Environmental Policy Act (NEPA) regulations of the US Department of Housing and Urban Development (HUD, 24 CFR Part 58) and the Federal Emergency Management Agency (FEMA, 44 CFR Part 10). This work includes both desktop assessments utilizing ESRI ArcGIS products and field reconnaissance; and in some cases where potential areas of environmental concerns are located, more detailed investigations. Tetra Tech's in-depth understanding of program requirements allows us to provide timely environmental review services in the wake of disasters.

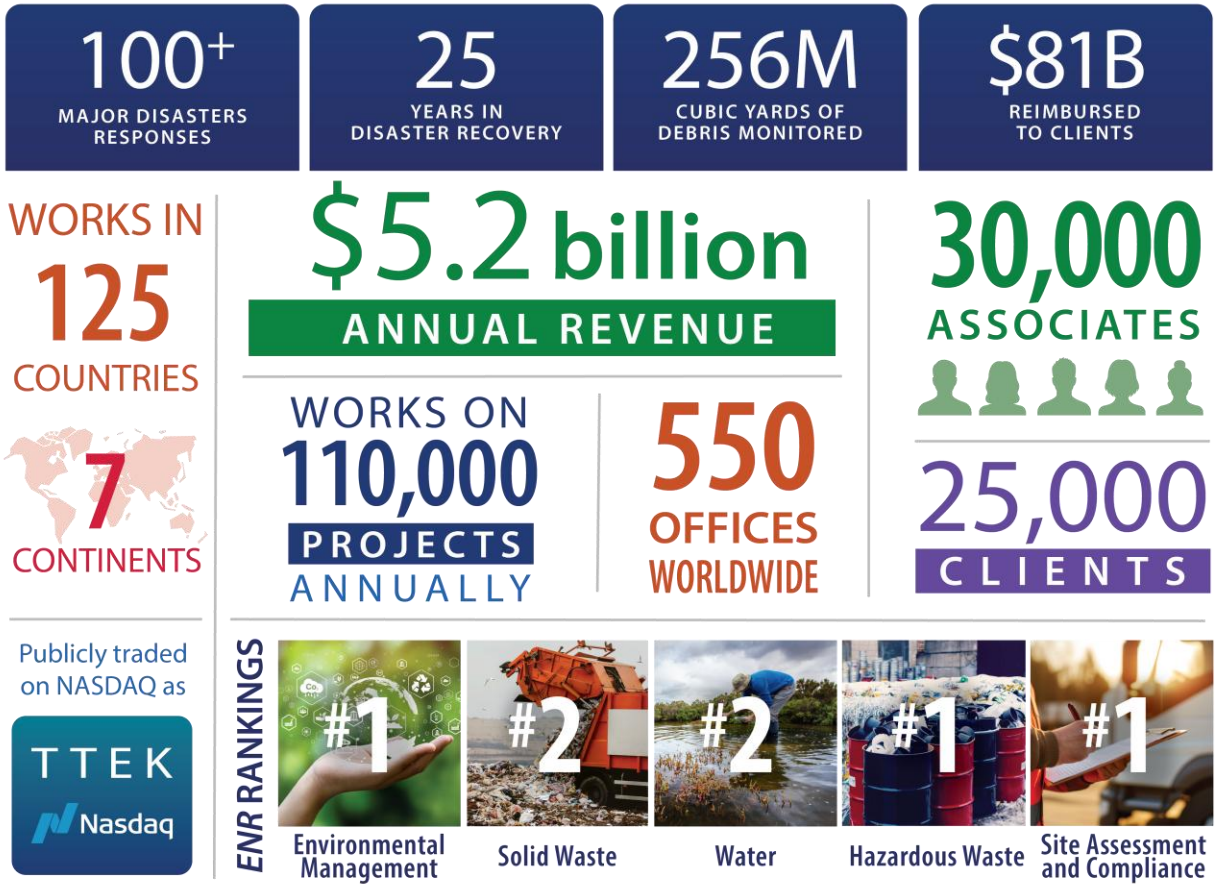
Tetra Tech is assisting the County of Hawai'i with a multiphase project to support recovery activities in the wake of the 2018 Kilauea Eruption. The outcome of this planning engagement is an Action Framework for Recovery and Resilience (Action Framework) that will provide the County with a blueprint for a variety of strategies and projects to facilitate meaningful recovery to the County residents and businesses that were displaced or impacted. The Action Framework will consider and incorporate outcomes from planning studies and will be used to inform future decisions on prioritizing expected federal and state grants available for long-term recovery as well as County general funds being used to support recovery efforts. This includes more than $400M in state and federal recovery funding including the Stafford Act, the Hazard mitigation Grant Program, and the Community Development Block Grant (CDBG) Programs. In addition, Tetra Tech is providing Strategic Communications support to the County.

We have supported the States of New Jersey and New York following Superstorm Sandy under U.S. HUD environmental regulations. Tetra Tech has prepared over 20,000 Tier 2 site-specific reviews for the Restore Louisiana program and supported FEMA after the California Valley Fire and Butte Fire disasters with environmental and historic preservation support services. We also prepared a FEMA categorical exclusion for an Oahu rockfall mitigation project and developed a cultural resources technical report, a report on the findings under Section 106 of the National Historic Preservation Act, and a similar report of the Section 7 findings under the Endangered Species Act.

T. Recovery Financial/Grant Management (FEMA, HUD/CDBG-DR, FHWA, etc.)

Tetra Tech is the nation's leading provider of post-disaster grant management and engineering services. We have assisted clients in response to every major disaster occurring in the United States in the last 10 years. Our team has

obtained over $81 billion in reimbursement funds for our clients from federal agencies.



Transition from Response to Recovery – Leveraging the Recovery Funding

Tetra Tech has led some of the most challenging recovery and resiliency plans across the country, covering community resiliency in the State of New York, recovery efforts in the City of Houston, estuary health in the Chesapeake Bay, recovery from devastating wildfires in California, flood protection and disaster recovery efforts in Louisiana, water supply in California, and recovery planning in South Carolina. Our multidisciplinary teams combine engineers, planners, architects, landscape architects, and economists to identify unmet needs and propose recovery projects that do not just address the recovery for housing, infrastructure and economic development, but also evaluate long term solutions to help communities become more resilient. We have developed methodologies that evaluate a variety of factors such as flood reduction, impacts to vulnerable populations, environmental justice, resiliency, and economic development impacts and prioritizing projects. By utilizing these methodologies, we develop dynamic resiliency plans that leverage federal and state funding sources and private partnerships to maximize the impact of the recovery.

Leverage Federal and State Funding Sources

We understand the various funding sources that will be made available during the recovery from the disaster and understand how to plan for and leverage each source to maximize the use of the available funding. Our team's understanding of the Federal Emergency Management Agency (FEMA), the Federal Highway Administration (FHWA) (including recent changes), and other reimbursement agencies' requirements for eligibility, documentation, and reimbursement helps clients receive the maximum reimbursement allowed.

Michelle Krezek, Commissioners' Deputy
Boulder County, Colorado, comments regarding the Tetra Tech team:

"Your team assisted us with FEMA PA Grant Program application and administration, FHWA ER technical assistance, FEMA HMGP grant application, and HUD CDBG-DR project identification, technical assistance, and application development representing a combined estimated $280 million in federal grants—the largest grant application in Boulder County's history.

Boulder County has been very pleased by the work of your team and would absolutely recommend them to any other state or local government agency in the aftermath of a disaster."

Our team has obtained over $70 billion in reimbursement funds for our clients from federal agencies such as FEMA, FHWA, and the Natural Resources Conservation Service (NRCS).

We are also assisting with some of the largest appropriations of US HUD's Community Development Block Grant – Disaster Recovery (CDBG-DR) funding and have received over $11 billion in funding. This unique funding is used to "fill the gaps" where the immediate recovery has not been able to meet the need of the damage to housing, infrastructure and economic development/business community.

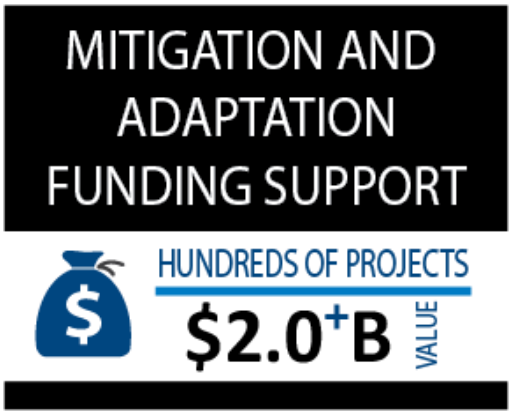
Hazard Mitigation Grant Programs and Benefits

To leverage actions identified in the HMP update, eligible projects can be submitted for FEMA Hazard Mitigation Assistance (HMA) grant and other sources of funding. Tetra Tech has in-depth knowledge of the FEMA HMA program and grant writing, and extensive experience in calculating BCA ratios—resulting in a high rate of grant funding for our County and municipal clients.

We have applied this expertise to our grant application submittals for the following programs to assist in implementing projects:

- Pre-Disaster Mitigation (PDM)
- Flood Mitigation Assistance (FMA)
- Hazard Mitigation Grant Program (HMGP)
- (former) Repetitive Flood Claim Program (RFC)
- (former) Severe Repetitive Grant Program (SRL)

An additional added value is Tetra Tech's vast experience using FEMA's BCA software to support hazard mitigation grants. Our insight into this process supports the development of actionable and fundable mitigation projects. Since 2003, Tetra Tech has provided technical support to prepare over 100 hazard mitigation grant program applications that included over 1,000 BCAs and secured over $50 million in grant funding. This support was for both FEMA 404 and 406 mitigation grant funding. Our success rate on these applications exceeds 80%. These analyses covered a variety of projects, including property acquisitions; retrofits; minor flood control; wildfire mitigation; seismic retrofits; and landslide mitigation projects.



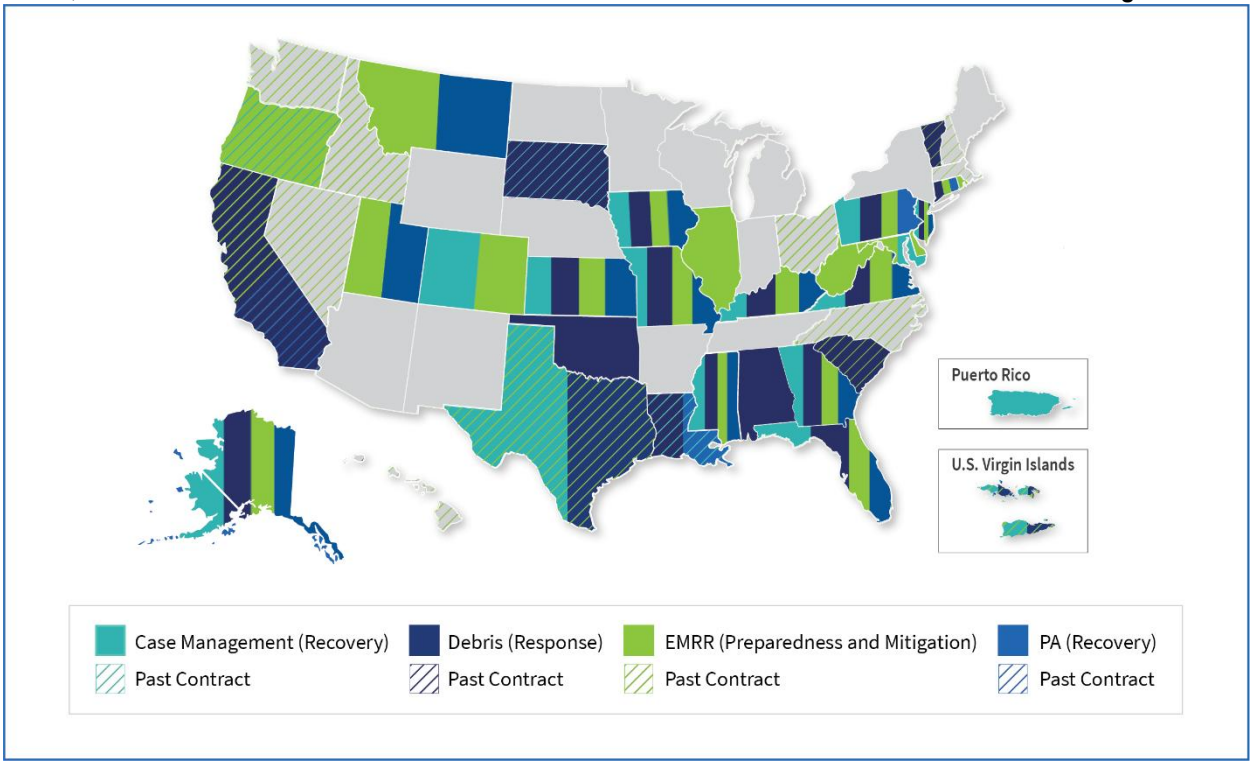
Each of these analyses was performed using FEMA approved software sanctioned at the time of the application development. FEMA has drawn on Tetra Tech's experience in BCAs by using us as a beta tester for the development of the agency's latest software deployment, Benefit Cost Analysis Re-engineering (BCAR). The development of BCAR represented a major overhaul of the philosophy behind the concepts and tools that drive BCAs. FEMA asked Tetra Tech to apply its expertise to provide comments on the new model with a primary focus on the flood modules of BCAR. Tetra Tech's input during this test phase resulted in several significant changes and enhancements to the BCAR model before it was officially released in 2009. Tetra Tech continues to provide input to the BCA helpline on issues identified in the field of measuring cost effectiveness.

Our team has performed hundreds of BCAs, and has secured millions of dollars to implement projects within the following categories:

- Structural Elevations and Acquisitions
- Stormwater Drainage Improvements, and Collection Systems and Pumping Stations
- Bulkheading/Tide Check Valve Projects, and Outfall Improvements
- Roadway Elevation
- Rock Revetment/Bank Stabilization, and Berm and Diking
- Wind Retrofit Projects (glazing, foundation ties, roof clips, storm shutters)
- Wet and Dry Floodproofing
- Landslide Mitigation and Seismic Retrofits
- Co-Generation Facilities

Our Tetra Tech team has experience assisting with the full list of services below:

1. **FEMA Public Assistance (PA) Reimbursement Support.**
2. **Preparation of Road Repair Procurement Packages.**
3. **Performance of Outstanding Needs Assessment.**
4. **Disaster Debris Monitoring.** Tetra Tech monitors disaster debris drop-off locations and debris collection vehicles removing debris from public rights of way to ensure that the municipality is properly charged for the debris removal services provided.
5. **FEMA, NRCS and State Meetings.**



Tetra Tech participates in meetings with FEMA and the State, including the Applicant Briefing, FEMA Kick-Off Meeting and FEMA Advanced Evaluation Team to identify the long-term recovery needs and funding sources available.

6. **Long-Term Recovery Funding and Strategy Development.**
7. **Long-Term Recovery Workshop Facilitation.** Tetra Tech works with the municipality to facilitate workshops to provide a brief on the status of the recovery effort and long-term recovery path forward.
8. **Consulting Services to Recovery Managers.** Tetra Tech has experience providing full-time staff members to act as the Assistant Local Disaster Recovery Manager. Our role in these instances is to advise and mentor the Recovery Manager, to help the region's VOADs establish a Long-Term Recovery Group, and to assist in coordinating all recovery efforts with other local and State jurisdictions and agencies.
9. **Community Development Block Grant – Disaster Recovery Services.** Tetra Tech assists the municipality in first winning a direct CDBG-DR allocation from HUD, and then facilitating the process to develop the implementation plan and action plan for their CDBG-DR program. Tetra Tech assists the municipality in submitting substantial and minor amendments to the action plan for their CDBG-DR program.

10. **Community Development Block Grant – Disaster Recovery Implementation.** Tetra Tech provides services to oversee and manage the implementation of the CDBG-DR action plan to include single-family home repairs, mobile home replacements, small rental rehabilitation, public infrastructure project support, and HMGP buyout local match for residential and non-residential buyouts.

    These services include extensive support to Housing, Infrastructure and Economic Development Programs. Tetra Tech staff members work full-time to implement the CDBG-DR case management and construction oversight as well CDBG-DR program management. Case managers work directly with residents to compile their applications for the housing programs. Tetra Tech cost estimators/inspectors complete all Housing Program scopes of repair and cost estimates using Xactimate® software. Throughout the rehabilitation of homes, cost estimators/inspectors provide construction supervision and all necessary inspections for both HUD and local building code compliance.

11. **FEMA HMGP Grant Application Services.** Tetra Tech provides services to develop the municipality's HMGP full applications to the State and to FEMA.

12. With all recovery funding, there will be numerous rules and regulations that must be followed. One consistent requirement will be preforming environmental reviews. Our team prepared over 27,000 HUD-required Tier 2 environmental reviews over the last four years, including more than 15,000 reviews in response to the 2016 Louisiana floods and 4,500 reviews in response to Hurricane Sandy in New York and New Jersey. Our staff has also unmatched experience performing over 6,000 HUD-required lead assessments and testing.

U. COMMUNITY ENGAGEMENT

Communication with key stakeholders and residents is a cornerstone of successful projects. Tetra Tech always begins a planning or disaster recovery project with defining a comprehensive strategic outreach and communication plan. Our first step is to work with our clients to define the vision and outcomes of a communication plan, by asking the following questions:

- What specifically would we like to accomplish?
- Are there certain types of data that we need to obtain?
- Do we want the stakeholders to provide opinions or rank concerns or issues?
- Do we want them to prioritize implementation activities?

We understand some disaster recovery funding sources require public outreach and it will be important to incorporate these requirements. Our experience with US HUD's CDBG-Disaster Recovery funding program has some requirements that we will need to include in our plan.

Once we have this clearly defined, our next step is to work with our clients to identify all key stakeholders that should be a part of one or more communication strategies, and then identify what methods would be best to engage them in the process. We customize our strategy for outreach and public engagement and usually use a combination of methods:

- ✓ Public meetings and facilitated discussions
- ✓ Design charrettes
- ✓ Public events and stakeholder meetings
- ✓ Social Media (Twitter, Facebook, etc.)
- ✓ One-on-one interviews
- ✓ Electronic and hard-copy surveys
- ✓ Direct Mailings, post cards, and marketing materials
- ✓ Media relations, editorials and interviews in local newspapers and trade journals

While working on a comprehensive recovery and resilience project in the Village of Margaretville, New York, our team developed a comprehensive outreach strategy that resulted in our client, the Village of Margaretville, winning the "*Rising to the Top*" competition for excellence in public outreach and $3 million for the implementation of projects identified in their plan.

Tetra Tech will use its multidisciplinary team, including numerous accredited and charrette-certified outreach specialists and planners to prepare the materials, conduct the public meetings and analyze and synthesize the input. Our experience working with key stakeholders throughout a project helps to identify any issues and concerns, and allows us to address and assist with prioritization, leading to project implementation.

Living through disasters, like those experienced in the County of Hawai‘i , is an extremely traumatic event, and Tetra Tech understands this sensitivity. Lives have been impacted and livelihoods can be impacted for generations. We can assist by organizing public meetings in neighborhoods throughout the community, translating our analysis and assessment to explain the disaster in an approachable way, and providing a venue for citizens to come together.

As communities begin to rebuild after disasters, we have proven ourselves to be adept at working with many diverse groups of stakeholders. We have experience facilitating meetings with private citizen advisory groups, private developers, non-profit advocacy organizations, city agencies, and officials across many independent jurisdictions. We understand the importance of obtaining feedback from a variety of perspectives to capture critical aspects that are often difficult to quantify.

Recovery means more than rebuilding infrastructure, it means strengthening the economy, maintaining the character of the community to encourage long term growth and vitality, acknowledging the stress and fear that accompanies a natural disaster, and listening to many different voices. This involves a rigorous process of weaving together communication professionals with technical engineers and scientists, resulting in an engaged community to support the long-term recovery process.

Program Impact

3,800+ disaster survivors engaged across the county

500+ individuals receiving Temporary Shelter Assistance (TSA) contacted directly through hotel outreach

40+ families housed during the December holidays, avoiding homelessness at a critical time

25+ TSA-participating hotels canvassed by outreach staff

781 residents requested housing assistance, making it the most cited need

V. Strategic Communications

After a major disaster strikes an area, strategic communication between the many local, state and federal agencies responding to that disaster is mission critical to assuring a smooth transition from responding to the event to recovering from it. The line between response and recovery is not always well defined, and if effective communication channels are not established, this line can become very hard to find. Strategic communication planning is a key component of a well-developed post-disaster action plan, which is not a typical capability at the local level. Tetra Tech understand this fact and supports communities in developing this core capability across all its emergency management and community resilience sub-practices. Whether it is identified as a gap in a community's core capability assessment in a hazard mitigation planning effort, or as an after action finding following a response requiring and EOC activation, Tetra Tech professionals understand the importance of a strategic communication plan that is structured to address multiple scenarios at the state and local level. Tetra Tech has a deep resume of project experience where strategic communication planning played an integral role in the success of the project. Tetra Tech's in-house experts provide and implement all components of strategic communications plans throughout all stages of emergency management. Our expertise includes multimedia, social media (Facebook, Twitter, LinkedIn), advertising, and public and media relations experience to address a community's crisis communications needs.

W. Resilience Services

Climate Change Mitigation and Adaptation

Tetra Tech realizes the importance of building resilience to the impacts of climate change, which requires technical assessments, awareness of potential impacts, and creative solutions. We have been at the leading edge of climate change analysis; our experts have developed first-generation climate change models, including the Global Carbon Cycling Model, and supported flagship climate change pilot projects for several U.S. agencies, multilateral institutions, and national and state governments. Our projects range from conducting scientific and policy assessments to performing the full suite of greenhouse gas emissions and climate risk modeling services to develop and implement effective adaptation and mitigation solutions. In 2013 and again in 2019, the Climate Change Business Journal honored Tetra Tech with the Climate Risk Management and Adaptation award for providing integrated solutions to climate change.

In 2023, Tetra Tech was contracted by the City and County of Honolulu Department of Planning and Permitting to develop the Waikiki Area Adaptation Plan. The focus of this plan is to recommend near-term (30 years) design guidelines and regulatory changes to the Waikiki Special Design District.

The Waikiki Area Adaptation Plan result in areawide design recommendations that will maintain Waikiki's "sense of place". The proposed guidelines and recommendations will reinforce Waikiki as a resort destination, pedestrian priority place, and livable urban neighborhood. The Plan area generally aligns with the Waikiki Special Design District, while includes consideration of adjacent parcels and areas that are relevant for adaptation planning purposes.

Sea Level Rise Vulnerability Assessment

The impact of sea level rise resulting from climate change presents an imminent threat to the economy, sustainability, security, and way of life in Hawaii, with the potential to cause loss of roads, utilities, and structures across the state. In 2014 the Hawai‘i State Legislature passed the Hawai‘i Climate Adaptation Initiative, mandating the first statewide sea level rise vulnerability assessment to provide a basis for recommendations on reducing exposure and increasing adaptability.

The Hawai‘i Department of Land and Natural Resources (DLNR), contracted Tetra Tech to prepare the Hawai‘i Sea Level Rise Vulnerability and Adaptation Report, which DLNR submitted to the State Legislature in December 2017. For this report, Tetra Tech conducted a statewide sea level rise vulnerability assessment that included Hawaii, Maui, Molokai, Lanai, Oahu, Kauai, and the Northwestern Hawaiian Islands and developed recommendations to reduce exposure and increase the capacity of the state to adapt to sea level rise. Tetra Tech collaborated with multiple entities—including the DLNR, Office of Conservation and Coastal Lands, University of Hawai‘i, state and county governments, and the Hawai‘i Climate Mitigation and Adaptation Commission—to produce the Report.

In addition, Tetra Tech was contracted by the Hawai‘i Sea Grant College Program to develop guidance for integrating sea level rise in county and community plans. Working with county planners, the guidance will help counties together with their communities and partners address sea level rise through their existing planning processes. Case studies will be used to improve understanding of opportunities and challenges to increase resilience to coastal hazards and sea level rise through planning and post disaster reconstruction.

In 2021, Tetra Tech completed a Maui County Beach Parks Vulnerability Assessment for the Maui County Department of Parks and Recreation. This project included a detailed analysis of the vulnerability of Maui County’s beach parks and developing recommendations to address short and long-term impacts of coastal hazards, climate change, and other environmental threats.

In 2021, Tetra Tech was contracted by the County of Hawai‘i to develop the technical foundation to revise the County’s shoreline setback rules to more effectively reduce risk to coastal hazards and climate change. Tetra Tech is developing a coastal hazards typology island-wide to support the analysis of policy-induced vulnerabilities and identification data gaps. In addition, a pilot study of using shoreline certification reports to determine shoreline changes rates has been completed. Tetra Tech will integrate the results of new data collection provided by UH-Hilo Spatial Data Analysis and Visualization Lab in defining shoreline typologies for the island that can be used to develop shoreline setback rules by typology.

In 2021, Tetra Tech was subcontracted by Focused Planning Solutions to prepare the County of Hawai‘i Climate Adaptation Plan. The first phase of this project, to develop a project work plan, was completed in November 2021. The second phase of the project will be to prepare the Climate Adaptation Plan. Key activities conducted to develop the Work Plan include: identification of climate threats; identification of County assets and systems at risk (parks & beaches, critical infrastructure, socio-economic, fiscal, etc.); and, identification of criteria that can be used to prioritize assets for adaptation projects.

X. Other Services

In addition to the extensive scope of services discussed above, Tetra Tech can offer as-needed general technical and programmatic support, including a broad range of embedded staffing and temporary staff subcontracting (professional and administrative positions).

2. Project Management

As the cornerstone of client satisfaction, project management is a foundational component of any project. As such, Tetra Tech has invested heavily in providing appropriate tools and training to all its project managers. In addition, Tetra Tech utilizes tested processes and procedures for ensuring quality of work, cost control, and timeliness of performance. Each of these elements is discussed below.

COST CONTROL

Cost control is a critical component of our continued success with clients, and we have consistently estimated and performed our tasks within our budgets. This is done by using a Work Breakdown Structure system to define, organize, and identify work activities to accomplish the required contractual deliverables.

Tetra Tech uses a weekly cost reporting system to monitor “pipeline” and incurred costs. In addition, our project managers use project management software to supplement cost and budget tracking, reporting, and control.

Key Features of Tetra Tech's Cost Control Program

- Constant communication with project management and the project team regarding initial level of effort and budget constraints, in addition to budget expended versus project progress;
- Timely corrective action, such as redirecting work effort or reassigning staff, when costs begin to exceed progress on specific elements of work;
- Staffing of projects based on the best match of experience and project requirements, resulting in a minimal learning curve;
- Assignment and delegation of work to the lowest professional level qualified for that work, practicable to minimize labor expenses.

QUALITY OF WORK

Tetra Tech has a comprehensive Corporate Quality Assurance/Quality Control (QA/QC) Plan that guides the preparation of all our projects and ensures that all are completed with consistent quality and in accordance with appropriate regulatory requirements, codes, standards, and criteria. The plan stresses continuous improvement: success stories and lessons learned on past projects are communicated and shared with our staff, so that future projects can benefit. Under our QA/QC procedures, all technical evaluations are planned, controlled, and documented in enough detail regarding purpose, method, assumptions, and units so that a technically qualified person may review, understand, and verify the analyses. Technical work is verified by peer review, alternative calculations, qualification testing, or senior review before final release. Documents are prepared following style guides that are modified to meet our customers’ specific requirements.

COMPLIANCE WITH PERFORMANCE SCHEDULES

Tetra Tech is well known for complying with time-sensitive project schedules and responding to clients work requests efficiently, accurately, and with the highest level of quality. Some of these projects, such as development of the Catastrophic Hurricane Response Frameworks for the Hawai‘i RCPT, had extremely demanding schedules. Despite these deadlines, Tetra Tech works with our clients to develop aggressive but achievable timelines to deliver high quality on-schedule documents.

Adherence to schedules is of utmost importance to Tetra Tech. Our Program Managers, Project Managers, and staff understand funding limitations, and that the easiest way to stress a project budget is to let the schedule slip. Furthermore, we understand the importance of supporting the regulatory and grant funding milestones of our clients. The project management team works with our client points of contact to develop and maintain a project plan using Microsoft Project and detailing project milestones.

3. Key Personnel

Brief biographies of the key staff members listed here appear on the follow pages. Resumes for each of the staff members below are available upon request.

Name	Years Experience	Socioeconomic Research & Analysis	Risk Assessment	Policy Review and Recommendations	Short- & Long-Term Land Use Planning (village and regional scales)	Housing Relocation Solutions, particularly affordable housing	Infrastructure Planning & Design (roads, water, wastewater, electric, parks, etc)	Economic Development & Recovery (including agriculture)	Health & Social Services Recovery	Natural & Cultural Resources Recovery	Recovery Financial/Grant Management (FEMA, HUD/CDBG-DR, FHWA, etc)	Community Engagement	Strategic Communications
Jeremy Kaufman	27		•	•					•		•		•
Catherine Courtney	37		•	•						•		•	
Caitlin Kelly	18		•	•					•		•		•
Sara van der Capellen	24	•		•		•			•			•	
Chris Curatilo	34		•						•			•	
Carol Baumann	32	•	•									•	•
Cynthia Bianco	33		•	•	•			•			•	•	•
Gina Behnfeldt	31										•		
Erik Genga	24	•		•	•	•		•	•		•	•	
Jason Hellendrung	30	•		•				•			•	•	
Tony Subbio	21		•	•	•	•		•			•	•	•
Donald Kunish	27					•					•		
Julia Mates	23				•					•	•		
John Bock	32				•					•	•		
Jason Fussel	22						•						
Stephen Fisher	34		•		•		•	•				•	

Jeremy Kaufman, a Planner with 27 years in the industry, has experience managing and preparing emergency operations plans (EOP) and standard operating guides (SOG). Most recently, he has managed projects for the Chicago and Hawai‘i Regional Catastrophic Planning Teams (RCPTs) to further develop their regional catastrophic plans, and for FEMA Region VII to develop a catastrophic earthquake plan. Previously, he managed a number of projects for the Missouri SEMA, including developing the SEOC SOG and Missouri/New Madrid Earthquake Exercise, revising the State Emergency Operations Plan (SEOP), Logistics Plan, and Hazard Analysis. Other recent projects include managing vulnerability assessments at more than 45 General Services Administration facilities across the Midwest and leading the development of EOPs and SOGs at Mount Rushmore National Monument, Port of San Diego, and 207 Kansas public water supply systems. Mr. Kaufman has continued to refine Tetra Tech's emergency management methodologies regarding the 37 DHS target capabilities, working with subject matter experts in all emergency response disciplines. He is HSEEP trained and previously managed exercise support tasks of DHS under a National Exercise Program. He is well versed in the requirements of the National Response Framework and has operated within the NIMS ICS. Under Tetra Tech's contract with the City and County of Honolulu Department of Emergency Management, on behalf of the Hawai‘i RCPT, Mr. Kaufman was instrumental in development of the Hawai‘i RCPT Regional Resource Database integrating FEMA resource typing as well as customized regional resource typing.

Catherine Courtney, PhD, is a Senior Marine Environmental Scientist with Tetra Tech, Inc. She has over 37 years of experience as a program manager, project manager, and technical lead for large and small projects on marine and coastal management, climate change adaptation, and coastal community resilience in the U.S. and internationally. She has served as senior advisor on international projects funded by USAID, such as the Coastal Resource Management Project, the US Indian Ocean Tsunami Warning System Program, and the US Coral Triangle Initiative. In Hawai‘i, she prepared the Hawai‘i Ocean Resources Management Plan, Hawai‘i Watershed Guidance, and the Hawai‘i State Sea Level Rise Vulnerability Assessment Adaptation Report and two supporting guidance documents on addressing sea level rise and disaster recovery and reconstruction into state, county, and community planning in Hawaii. She worked with the County of Maui Department of Parks and Recreation to assess the sea level rise vulnerability of all county beach parks and identify adaptation strategies, and also with UH Sea Grant to design a dune restoration project for a beach park on Maui.

Caitlin Kelly is an all-hazards planner with expertise in all phases of emergency management as well as developing, coordinating, and executing training and exercises. With more than a decade of diverse experience including working for the Philadelphia Office of Emergency Management, Ms. Kelly collaborated on numerous exercise, training and planning efforts with the Philadelphia Department of Public Health, the Philadelphia Fire Department, the Philadelphia Police Department, and a number of other response based agencies. In addition, Ms. Kelly has served in several Philadelphia Emergency Operation Center activations, Mobile Command Posts deployments, and field responses. Since joining Tetra Tech, Ms. Kelly has led or participated in a wide variety of specialized planning and response engagements including Severe Weather, Hazard Mitigation, Mass Casualty/Fatality Response, Evacuation and Shelter Operations, Hazardous Materials and Disaster Recovery. Ms. Kelly was the lead planner for the Maui County Hazard Mitigation Plan in 2015.

Sara van der Capellen, is a certified Master Business Continuity Professional (MBCP) and for more than 24 years has provided continuity support to all levels of government from local planners to federal leadership at the U.S. Senate, the U.S. Nuclear Regulatory Commission, and the U.S. Office of Personnel Management. Most recently Ms. van der Capellen was the lead planner supporting business continuity efforts for the Orange County Healthcare Agency (HCA) as well as dozens of municipalities within Southern California. At the federal level, Ms. van der Capellen managed the U.S. Senate Sergeant at Arms Continuity of Operations Test, Training, and Exercise Program, providing to the U.S. Senate Sergeant at Arms (SAA) Office of Security and Emergency Preparedness (OSEP) and served as the primary point of contact for the U.S. Senate Contracting Officer's Technical Representative. She also led the development of Continuity Plan development and revision efforts for the U.S. Nuclear Regulatory Commission (NRC) Region IV, U.S.

Office of Personnel Management (OPM). She also supported initial development of FEMA's Guardian Accord Workshop which emphasizes the importance of incorporating terrorism awareness into continuity planning. Ms. van der Capellen leads the BCP for Tetra Tech, Inc. and was also involved in the initial development of the BCP at her previous employer, SRA International.

Chris Curatilo is a resident of Hawaii Kai and has over 34 years of emergency response and preparedness experience. Mr. Curatilo retired from the U.S. Coast Guard (USCG) with extensive experience in emergency response, plan development, drills, exercises, maritime security, and HAZMAT response. After serving on the National Strike Force, he assumed duties as the Chief of Port Operations in Portland, Oregon and Honolulu, Hawaii. Those assignments, coupled with years of operational response experience, earned him the distinction of being one of the first NIMS Incident Command System (ICS) Type II certified Planning Section Chiefs.

Cynthia Addonizio-Bianco, PP, AICP, CFM, LEED AP BD+C, is involved in the management and performance of Community Reconstruction Plans, Resiliency Projects and Local Hazard Mitigation Planning (HMP) projects regulated under the Disaster Mitigation Act of 2000 (DMA 2000). She has over 33 years' experience in engineering and planning, including experience in hazard mitigation planning, and as a mechanical engineer, packaged equipment engineer and manager. Her mitigation planning experience includes work New York Rising Community Reconstruction Plans and on single and multi-jurisdictional mitigation plans. Her experience includes the oversight of hazard mitigation planning and engineering groups to ensure quality standards and performance of work within project schedules. Ms. Addonizio-Bianco has managed both countywide (multi-jurisdictional) and single jurisdiction HMP projects in New York and New Jersey (FEMA Region II), working along with the New York State Division of Homeland Security and Emergency Services NYSDHSES) and New Jersey Office of Emergency Management (NJOEM). In addition, she has performed FEMA BCA analysis and e-grant support for a flood mitigation project in New Jersey. In addition to mitigation planning, Ms. Addonizio-Bianco is knowledgeable in the support of county and local governments throughout New York and New Jersey with plan implementation, including grant application and BCA support.

Gina Behnfeldt, MPA, is an accomplished economic development leader providing financial solutions for complex urban redevelopment projects for more than 30 years. She possesses broad knowledge of tax credit, state and federal funding resources, creative funding structures, public/private partnerships, community and economic development best practices, real estate development, credit underwriting, and equity investing. She has expertise in attracting capital and investor interest, and an extensive network from which to draw to fund challenging projects. Ms. Behnfeldt has led the development and implementation of multiple financing and incentive programs including the State of New Jersey's consolidation of its largest real estate development and business incentives, and creation of the State's grant and financing programs using Community Development Block Grant-Disaster Recovery (CDBG-DR) funding to address business recovery and resilience in the wake of Superstorm Sandy.

Erik Genga is a community and regional planner, with more than 24 years' experience managing and contributing to diverse land use and community planning projects as well as redevelopment and growth planning initiatives specializing in providing community development consulting services. He has worked with multi-disciplinary teams of sub consultants in key project roles providing detailed community, site and market analysis, redevelopment strategies, economic impact analysis, public engagement, disaster recovery plans, implementation and funding strategies, creation of conceptual site plans, as well as technical plan development and public presentation. His work history includes assisting municipalities and counties with federal and state grant programs, including all phases of grant activity from application completion and submission to funding and compliance management. He primarily worked with counties and municipalities to obtain and manage federal grant programs through the U.S. Department of Housing and Urban Development (HUD), including the Community Development Block Grant (CDBG) program and the HOME Investment Partnership program. In more than a decade of CDBG program experience Erik has managed dozens of county and municipal clients throughout Pennsylvania and New Jersey.

Jason Hellendrung, ASLA, PLA, is a Vice President and Director of Planning at Tetra Tech. In this role he directs landscape architecture, planning, and urban design work on a wide range of (complex) urban, public infrastructure projects. Mr. Hellendrung maintains a special interest and practice in the evolution and transformation of cities through infrastructure improvements, including the redevelopment of urban waterfronts and the integration of transit. His past projects include the HUD Rebuild by Design project for the Jersey Shore, developing 8 community reconstruction plans for NY Rising, redevelopment of the Allegheny Riverfront in Pittsburgh, and development of Shelby County's application to HUD's National Disaster Resilience Competition. Mr. Hellendrung served as Managing Principal of the Cedar Rapids River Corridor Redevelopment Plan and implementation of several design projects developed to guide the city's recovery from their historic flood in June 2008. He was also the project manager of the urban design and landscape architecture for the Healthline BRT and transformation of Euclid Avenue in Cleveland. With 29 years of experience, he is responsible for project management, coordination with clients including multi-stakeholder teams, and leading and facilitating public participation.

Tony Subbio, CEM, CFM, PMP, has 21 years of professional experience in emergency management, with special expertise in emergency planning at the state-, region-, and county-levels. Mr. Subbio has led and contributed to projects including all-hazards emergency operations planning, hazard mitigation planning, continuity of operations planning, public health emergency planning, and post-disaster community (long-term) recovery planning. He has particular expertise in floodplain management and flood resilience. Mr. Subbio has developed, delivered, and evaluated Homeland Security Exercise & Evaluation (HSEEP)-compliant tabletop, functional, and full-scale exercises. Mr. Subbio has managed projects with budgets ranging from $1,400 to $1 million.

Donald Kunish, CEM, is a Certified Emergency Manager with 27 years' experience and has worked on 47 disasters throughout his career. Currently he provides multiple communities with support to utilize U.S. Government grants to respond, recover and mitigate to natural and manmade disasters across the country. These programs include the management of applications and awarded funding to elevate and buy out residences, build back damaged infrastructure to be more disaster resilient, and work for reimbursement of local governments for response and recovery efforts. Over the past 19 years, Mr. Kunish has responded to disasters from the private and public-sector emergency management perspective including hurricanes, floods, ice storms, fires, emergency repatriations, tornadoes, public health epidemics, hazardous material releases and earthquakes.

Julia Mates, MA, has practiced the fields of history/architectural history and cultural resource management for 23 years. Based on her level of education and experience, Ms. Mates qualifies as a historian/architectural historian under the United States Secretary of the Interior's Professional Qualification Standards (as defined in 36 CFR, Part 61). She has served as a consulting historian on historical research investigations for federal, state and local governments. Her experience includes the inventory, recordation, and evaluation of historic resources using National Register of Historic Places and California Register of Historic Resources guidelines. Her environmental planning experience includes preparing reports for and making recommendations to federal, state, municipal and private entities regarding Section 106 review and compliance, including consultation with various State Historic Preservation Officers. She has experience with Section 106 of the National Historic Preservation Act, National Environmental Policy Act (NEPA), and the California Environmental Quality Act (CEQA). She has evaluated diverse types of historical resources for eligibility for National and State Registers, including dams, pipelines, culverts, bridges, roads, military structures, water conveyance systems, navigational aids, residences, and commercial and industrial buildings. She has served as a consulting historian, principal investigator, and resource author.

John Bock is a senior environmental scientist with 31 years of experience in environmental impact analysis, project management, environmental decision making, health and safety planning, and natural resource management. He has managed and overseen projects involving the preparation of National Environmental Policy Act documents, California Environmental Quality Act documents, Section 7 consultation support, Section 106 consultation support, Section 404

and 401 permit applications, wetland delineations, biological assessments, sensitive species surveys, and architectural and archaeological resources surveys. He has served as a program manager and project manager under contracts with FEMA, New York Governor's Office of Storm Recovery, San Francisco Mayor's Office of Housing, US Army Corps of Engineers, US Bureau of Reclamation, US General Services Administration, California Department of General Services, New Jersey Department of Environmental Protection, Alameda County Public Works Agency.

Jason Fussel, PE, PLS, QSD/P, LEED AP, ENV SP, is a Civil Engineer with a broad knowledge of civil engineering and has more than 22 years of experience. He is a licensed PE in Hawaii and California and also a licensed Land Surveyor in California. His experience includes work on both public and private sector jobs of varying size and construction material types including the design of sewer transmission systems, water distribution systems, street and storm drain improvements and grading activities varying from mass grading to final precise grading plans. Mr. Fussel has extensive and relevant experience in the stormwater, Best Management Practice (BMP) and Low Impact Development (LID) arena, which includes successful implementation of sustainable design practices for a vast array of improvement projects. Additionally, Mr. Fussel is a LEED® Accredited Professional, Envision™ Sustainability Professional and is serving as the Project Engineer for the DLNR Nā Pali Coast State Wilderness Park Improvements Project in Kauai.

Stephen Fisher, PE, is a licensed professional civil engineer and project manager with 34 years' experience in four principal areas: environmental, infrastructure planning, land development, and international community development. Project experience encompasses management, planning, studies, design, and construction. Mr. Fisher has performed numerous studies and plans involving land use planning, land and watershed management, community participation water resources, water facilities, optimization, stormwater pollution prevention and erosion control, and permitting. A key focus of Mr. Fisher is Sustainable Infrastructure Systems, specifically city-scale climate inventories and community participation to assist local governments in sustainability and climate change policy and outreach.

Michael Donoho, AICP is an environmental planner and natural resources specialist with extensive experience directing and implementing complex conservation initiatives involving multiple endangered species, private landowners, state and federal resource agencies, and stakeholders in Hawaii. Prior to joining Tetra Tech, Mr. Donoho has served as a planner for Townscape, Inc., the US National Park Service, and Hawai‘i Department of Natural Resources. He served as the Senior Vice President for Natural Resources for Pulama Lanai and successfully negotiation a Comprehensive Conservation Agreement with the US Fish and Wildlife Service and Hawai‘i Department of Land and Natural Resources to protect endangered plant and animal species on Lanai in lieu of designating Critical Habitat on the island. He has owned two planning firms (Kukui Planning Company, LLC and Zen Planning Hawai‘i).

4. Past Performance

Past performance is the best indicator of future success, and Tetra Tech has supported government agencies continuously for 59 years. Our clients recognize our superior performance, and Tetra Tech is routinely cited as an industry leader by such publications such as Environmental News-Record, Fortune and Forbes. More importantly, our track record of quality has led to the most important metric of client satisfaction, additional work.

Tetra Tech's current suite of government contracts has a combined value of over $14B. Tetra Tech's past performance record on contracts for federal and state agencies provides us with the experience to make efficient use of all resources to maintain the quality of work, control cost, and provide timely performance to meet schedules.

As Noted by our Clients:

"Our experience with Tetra Tech was excellent. From the outset, when their team met with ours to begin our work, it was clear that they had the knowledge and expertise to help us develop an excellent plan. They were familiar with the latest FEMA requirements for a Hazard Mitigation Plan. They provided us with an organizational structure that enabled us to coordinate with the nine towns and six villages within the county to have 100% participation of the jurisdictions together with four school districts. Their staff was available on our schedule, and got the work done in a professional and timely fashion."

Judith Quigley, County Attorney, Tioga County, New York, Law Department

"I am pleased to notify you that both FEMA Region II and NYS OEM have completed the review of the Suffolk County Multi-Jurisdictional Hazard Mitigation Plan, and the Plan is now approvable pending local adoption…after months of hard work and adhering to a very tight schedule for updating the Hazard Mitigation Plan, it would be appropriate to thank all of you for your efforts including Tetra Tech, NYS OEM and FEMA for getting us all across the finish line. Again, thank you for ensuring a safer county and finishing with a superior plan produced in record time."

Thomas O'Hara, Hazard Mitigation Plan Coordinator, Suffolk County Department of Fire, Rescue and Emergency Services

5. Capacity to Accomplish the Work in the Required Time

Tetra Tech's corporate structure enables us to seamlessly identify and work with experts across the country to offer creative solutions and readily meet our client's technical and schedule requirements. With more than 30,000 employees, and our capability for extensive reach-back, our multidisciplinary team of specialists is just a click or call away for client collaboration, regardless of their location.

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1. State of Hawai‘i Hazard Mitigation Plan

Client Name and Address:	Hawai‘i Emergency Management Agency 4204 Diamond Head Road Honolulu, HI 96816 (808) 983-2570
Primary Point of Contact:	Kelsey Yamanaka, State Hazard Mitigation Officer (808) 983-2570 kelsey.a.yamanaka@hawaii.gov
Project Cost:	$286,700
Period of Performance:	May 2022 – March 2024

Tetra Tech was engaged by the Hawai‘i Emergency Management Agency (HI-EMA) in both 2018 and 2022 to update the SHMP. Through this work, Tetra Tech identified opportunities to enhance the planning process and optimize the use of the State's resources by leveraging insights gained from the development of the 2018 SHMP.

The 2023 SHMP update laid the groundwork for a strategy aimed at reducing hazard risk throughout the State of Hawai‘i. Tetra Tech integrated its efforts with the established State Hazard Mitigation Forum, which has been in operation since 1998. This integration facilitated the creation of a mitigation strategy that is effectively aligned with the State's current capabilities and resources.

Engagement with over 75 subject matter experts (SMEs) from diverse sectors was an integral part of this process. Methodologies included individual meetings, virtual discussions, and public outreach initiatives to gather input, ensuring that the most accurate data and methodologies were utilized. Two focus groups were formed, one concentrating on building codes and standards and the other on social vulnerability, providing specialized insights to enrich the SHMP.

Tetra Tech facilitated collecting data from SMEs, conducting risk and vulnerability assessments, identifying new mitigation actions, performing a capabilities assessment, and drafting the overall plan.

To promote public awareness and education throughout the planning process, Tetra Tech developed a public-facing StoryMap. This tool served to keep the community and stakeholders informed about the ongoing planning efforts and to gather feedback on the content of the plan.

The SHMP update sought to integrate mitigation planning efforts with various state and federal programs and initiatives. This included a thorough review of local HMPs, the HI-EMA Strategic Plan, and other relevant documentation to foster a cohesive approach.

The State of Hawai‘i 2023 SHMP was approved by FEMA on September 28, 2023.

2. County of Hawai‘i Hazard Mitigation Plan

Client Name and Address:	Hawai'i County Civil Defense Agency
Primary Point of Contact:	Talmadge Magno Civil Defense Administrator Talmadge.Magno@hawaiicounty.gov 808-935-0031
Contract Value:	$146,524
Period of Performance:	04/19/2020 – 01/31/2021

Tetra Tech successfully updated the hazard mitigation plan by following the planning process in accordance with DMA 2000 and CRS Activity 510 guidelines. Throughout the update, Tetra Tech improved the previous plan to enhance readability, usability, and alignment with County plans and programs. Additionally, Tetra Tech coordinated stakeholder and public engagement activities to gather feedback and input for plan development. We conducted a comprehensive risk assessment using Hazus-MH and GIS analysis for 12 identified hazards, which involved updating the general building stock inventory and establishing a database for critical facilities.

3. Maui County Hazard Mitigation Plan 2025

Client Name and Address:	Maui Emergency Management Agency 200 S High St Kalana O Maui Bldg, 1st Fl Wailuku, HI 96793
Primary Point of Contact:	Amos Lonokailua-Hewett, Administrator
Contract Value:	$282,079.47
Period of Performance:	October 2024 – August 2025

Tetra Tech collaborated with Maui County to update the County's Hazard Mitigation Plan to identify the County's exposure to natural hazards, such as coastal erosion, dam failure, drought, flood, hurricane, tsunami, and wildfire. The project was unique due to enhanced interest by the public and stakeholders following the August 2023 wildfires. Tetra Tech facilitated meetings of the 40-member Hazard Mitigation Working Group to incorporate the varied interests of the County's residents, organizations, and businesses across the County's three inhabited islands. In addition to maintaining the County's eligibility for FEMA Hazard Mitigation grants, the HMP also serves as the Floodplain Management Plan for Community Rating System points. Throughout the project, we collaborated closely with the County to strategically identify opportunities that build upon their previous efforts while ensuring the effective utilization of County resources. The 2025 Maui County HMP may be viewed at the following link: 2025 Maui County Hazard Mitigation Plan.

4. Maui County FEMA Community Rating System (CRS)

Client Name and Address:	Rodrigo "Chico" R. Rabara
Primary Point of Contact:	Engineering Division Chief
Contract Value:	$50,000.00
Period of Performance:	April 30, 2024 – Present

Tetra Tech continues to provide technical support services to the Maui County Public Works Department for National Flood Insurance Program (NFIP)/FEMA Community Rating System (CRS) tasks. Maui County joined the NFIP in 1977 and FEMA's CRS program in 1995. Participation in the CRS program results in a flood insurance discount that is realized by all NFIP policy holders within Maui County. Currently, participation in FEMA's CRS program is the only discount available to offset the cost of NFIP flood insurance. Maui County has maintained a 15% NFIP savings

4. Maui County FEMA Community Rating System (CRS)

since 2018. As a CRS participating community, there are multiple aspects of the CRS program that are reviewed on an annual and 5-year program audit. Tetra Tech provides direct CRS technical support for the County's annual CRS recertification, annual construction certificate reviews, and 5-year program audit. The Tetra Tech team has supported developing material such as flood information fact sheets and GIS layers to enhance the day-to-day floodplain management duties. Floodplain management support includes developing an ArcGIS dashboard that puts floodplain management and CRS tasks in one place to aid in the routine duties of the floodplain manager. The dashboard will include interactive tools such as task planning, permitting tracking, logs of services, annual progress reports, and real time mapping.

5. Hawai'i RCPG FY09 Public Disaster Awareness Campaign Project

Client Name and Address:	City & County of Honolulu, Department of Emergency Management (DEM) 650 South King Street, Basement. Honolulu, HI 96813
Primary Point of Contact:	Mel Kaku 808.723.8951
Contract Value:	$497,786
Period of Performance:	September 2011 – December 2012

Tetra Tech lead a team of social scientists, emergency managers, market researchers, media producers (television, radio, print, and Internet), and communications specialists to improve public disaster preparedness and resilience in Hawaii. Conducted initial research to establish a baseline preparedness level. Outreach included more than 30,000 calls to island telephone numbers and several face-to-face meetings with non-governmental organizations - designed to learn more about disaster preparedness in several hard-to-reach and under-served populations.

Developed a simple preparedness strategy, and complementary messages and multiple methods to reach key demographics, including TV, radio, newspaper, social media and environmental advertisement channels. Developed a disaster preparedness planning website – GetReadyHI.org. Ran a month-long, statewide campaign, kicked off by all four Hawaii mayors. Conducted post-campaign research to determine which campaign message and messaging vehicles worked best. Developed a refined template campaign plan for future use – one that describes specific returns on each previous campaign idea and investment.

6. Hawai'i RCPT Catastrophic Hurricane Response and Logistics Frameworks

Client Name and Address:	City and County of Honolulu, Department of Emergency Management 650 S. King Street, Honolulu, HI 96813
Primary Point of Contact:	Divina Corpuz-Kuhl, RCPG Project Interagency Liaison 808.723.8960
Contract Value:	$1.25 Million
Period of Performance:	2012 – 2014

Under contract with the City and County of Honolulu's Department of Emergency Management, on behalf of the Hawaii Regional Catastrophic Planning Team (RCPT), Tetra Tech developed county-specific hurricane response frameworks and associated logistics annexes for all four counties. The frameworks included the guidance on essential activities such as public warning and evacuation consistent with storm surge or flooding due to extreme rainfall. The initial planning project took place over the course of 2013 and included diverse stakeholder groups from

6. Hawai‘i RCPT Catastrophic Hurricane Response and Logistics Frameworks

each county including all aspects of governmental, private and non-profit groups. Tetra Tech also conducted a Gap Analysis and provided logistics planning templates for each county.

In 2014, Tetra Tech was given additional tasking to socialize the frameworks by providing multiple stakeholder seminars for each county. In addition, Tetra Tech provided Executive Seminars for the Counties' Mayors and Executive Leadership. A separate State-level Seminar was provided Hawaii State Civil Defense to provide insight into best practices and lessons learned from Superstorm Sandy.

As part of this project Tetra Tech updated the frameworks in Summer of 2014.

7. Hawai‘i RCPT Regional Resource Database

Client Name and Address:	City and County of Honolulu, Department of Emergency Management 650 S. King Street, Honolulu, HI 96813
Primary Point of Contact:	Nicole Maglinao, RCPG Project Interagency Liaison 808.723.8960
Contract Value:	$350,000
Period of Performance:	October 2014 – February 2015

Under contract with the City and County of Honolulu's Department of Emergency Management, on behalf of the Hawaii Regional Catastrophic Planning Team (RCPT), and inclusive of the Counties of Maui, Kauai, and Hawaii, Tetra Tech developed a web-based resource database integrating FEMA resource typing as well as customized regional resource typing. The project included development and associated training modules.

8. Hawai‘i RCPT Population Redistribution Analysis Report

Client Name and Address:	City and County of Honolulu, Department of Emergency Management 650 S. King Street, Honolulu, HI 96813
Primary Point of Contact:	Nicole Maglinao, RCPG Project Interagency Liaison 808.723.8960
Contract Value:	$40,000
Period of Performance:	October 2014 – February 2015

Under contract with the City and County of Honolulu's Department of Emergency Management, on behalf of the Hawaii Regional Catastrophic Planning Team (RCPT), and inclusive of the Counties of Maui, Kauai, and Hawaii, Tetra Tech identified capacities of each county to support evacuees from neighboring islands in the event of a major disaster. In addition, Tetra Tech is engaging emergency management agencies from four identified CONUS locations, including San Diego, Los Angeles, San Francisco, and Seattle, to determine the ability of these regions to support large populations of displaced evacuees.

9. Hawai'i RCPT Strategic Plan and Grant Closeout Deliverables

Client Name and Address:	City and County of Honolulu, Department of Emergency Management 650 S. King Street, Honolulu, HI 96813
Primary Point of Contact:	Divina Corpuz-Kuhl, RCPG Project Interagency Liaison 808.723.8960
Contract Value:	$200,000
Period of Performance:	October 2014 – February 2015

Under contract with the City and County of Honolulu's Department of Emergency Management, on behalf of the Hawaii Regional Catastrophic Planning Team (RCPT), and inclusive of the Counties of Maui, Kauai, and Hawaii, Tetra Tech developed a regional Strategic Plan and other deliverables related to close out of the Regional Catastrophic Grant Program (RCGP). Deliverables included a regional training and exercise plan, a grant linkage plan, and a sustainment plan.

10. Maui County Hazard Mitigation Plan

Client Name and Address:	County of Maui Emergency Management Agency (MCEMA) 200 S High St, Kalana O Maui Bldg, 1st Fl Wailuku, HI 96793
Primary Point of Contact:	Jim Buika, Shoreline Planner 808.270.6271 e-mail: James.Buika@mauicounty.gov
Contract Value:	$72,000
Period of Performance:	October 2014 – September 2015

In October 2014 Tetra Tech was awarded the project to prepare the 2015 update to the Maui County Hazard Mitigation Plan (HMP), as required by FEMA regulations, and to meet the County's October 2015 annual recertification deadline for participation in the National Flood Insurance Program (NFIP) Community Rating System (CRS). Tetra Tech conducted the HMP update using a planning process that met both Disaster Mitigation Act (DMA) of 2000 requirements and CRS Activity 510 Comprehensive Floodplain Management Plan requirements. Tetra Tech performed the following tasks as part of the 2015 update:

- (1) Completed an extensive repackaging of the County plan to increase readability, usability and more clearly meet DMA and CRS requirements; (2) Organized a stakeholder steering committee that oversaw the plan development processes and facilitated nine steering committee meetings; (3) Updated goals, objectives and mitigation initiatives to more readily align with existing County and State goals, programs and priorities; (4) Conducted an enhanced risk assessment using HAZUS-MH and GIS analysis as applicable for 12 hazards of concern. The assessment included an update of the general building stock as well as the development of a critical facilities database; (5) Developed and employed a public participation strategy that included a public survey, several public meetings, and a public comment period; (6) Updated hazard profiles with best available data, the results of the risk assessment and a description of hazard events that have impacted the County since the development of the previous plan; (7) Conducted a strengths, weaknesses, obstacles and opportunities assessment that was used to develop a comprehensive mitigation catalog from which the 65 mitigation initiatives included in the plan were chosen; (8) Prepared the plan to meet both DMA and CRS requirements resulting in first pass approval by the State and FEMA.

10. Maui County Hazard Mitigation Plan

In addition to maximizing County resources by structuring the planning process to meet two separate, but complimentary sets of planning objectives (CRS and DMA), Tetra Tech developed several innovative approaches and enhancements that contributed to agency reviewers indicating that the updated Maui Plan was now the “gold standard” for Hawaii hazard mitigation plans:

- An overview of climate change was included along with how climate change may impact each hazard of concern and an exposure assessment of sea level rise impacts on general building stock and critical facilities.
- Discussion of impacts on the environment were enhanced to include both onshore and offshore environments.
- Existing land uses within each of the hazard areas with defined extents and locations were assessed to provide a clear nexus to land use planning and hazard mitigation principles.
- A methodology was developed and utilized providing population exposure estimates to hazards of concern for not only the resident population, but also the visitor population.
- The plan maintenance and implementation strategy were revised, updated and enhanced to encourage greater coordination and planning for hazard mitigation funding opportunities

11. State of Hawai‘i Hazard Mitigation Plan

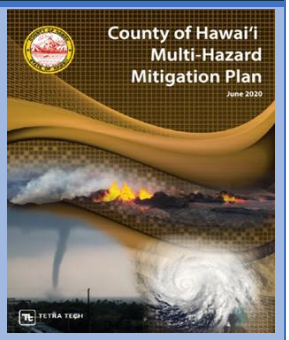
Client Name and Address:	State of Hawai‘i Emergency Management Agency (HIEMA) 3949 Diamond Head Road, Honolulu, HI 96816-4495
Primary Point of Contact:	David Kennard 808.733.4300
Contract Value:	$220,000
Period of Performance:	September 2017 – August 2018

Tetra Tech completed a comprehensive update to the State Hazard Mitigation Plan. This was a multi-hazard planning effort covering all of the islands within the state and included representatives from all of the counties as well as subject matter experts and the State Hazard Mitigation Forum. As with all Tetra Tech plans, the cornerstone of this project was a comprehensive risk assessment of hazards of concern. Although given a shortened project timeframe, and despite several real-world disasters, Tetra Tech integrated stakeholder input while ensuring the project remained on track and was completed on time, thus ensuring the state remained eligible for reimbursement and future mitigation funding.

12. Hawaii County Multi-Hazard Mitigation Plan

Client Name and Address:	County of Hawaii Civil Defense Agency (HCCDA) 920 Ululani Street, Hilo, HI 96720
Primary Point of Contact:	Talmage Mango, Civil Defense Administrator 808.935.0031 e-mail: Talmadge.Magno@hawaiicounty.gov
Contract Value:	$153,000
Period of Performance:	August 2019 – June 2020

12. Hawaii County Multi-Hazard Mitigation Plan



In July of 2019 Tetra Tech was awarded the project to prepare the 2020 update to the Hawaii County Hazard Mitigation Plan (HMP), as required by FEMA regulations. Tetra Tech conducted the HMP update using a planning process that met both Disaster Mitigation Act (DMA) of 2000 requirements and CRS Activity 510 Comprehensive Floodplain Management Plan requirements. Tetra Tech performed the following tasks as part of the 2020 update:

- Completed an extensive repackaging of the County plan to increase readability, usability and integration opportunities witth County plans and programs that could support/enhance hazard mitigation actions identified by the plan.
- Organized a stakeholder working group that oversaw the plan development processes and facilitated nine steering committee meetings.
- Updated goals, objectives and mitigation initiatives to more readily align with existing County and State goals, programs and priorities.
- Conducted an enhanced risk assessment using HAZUS-MH and GIS analysis as applicable for 12 hazards of concern. The assessment included an update of the general building stock as well as the development of a critical facilities database.
- Developed and employed a public participation strategy that included a public survey, several public meetings, and a public comment period.
- Updated hazard profiles with best available data, the results of the risk assessment and a description of hazard events that have impacted the County since the development of the previous plan.
- The plan identified and Prioritized over 35 actions based upon the County's core capabiloities and capacity to implement the actions.

The Planning process for this update concluded in June of 2020 with a final public comment period and are target date for plan submittal by July 1, 2020.

13. Oahu Coastal Communities Evacuation Planning Project, Honolulu, Hawaii

Client Name and Address:	City and County of Honolulu, Department of Emergency Management 650 South King Street, Basement Honolulu, HI 96813-3078
Primary Point of Contact:	Crystal van Beelen 808.723.8956
Contract Value:	$800,000
Period of Performance:	2017 – 2019

The Oahu Coastal Communities Evacuation Project is a critical preparedness effort for the residents and visitors of Oahu, which will result in much needed tsunami evacuation routes, signage and designated Safe Sites correlated with updated tsunami modeling. In fall 2017, Tetra Tech, Inc. was contracted by the City and County of Honolulu's (City) Department of Emergency Management (DEM) to complete Phase 2 of this effort. Phase 1 of the project had been completed in 2015 under contract with a consulting team led by Atkins, and Phase 2 was designed to complete tsunami evacuation routing and Safe Site identification for the southern coast of Oahu which was not addressed in Phase 1.

To assist the City in promoting vertical evacuation, Phase 2 included the design and development of an engineering evaluation tool to serve as the basis for a future Tsunami-Safe Vertical Evacuation Program. This Engineering Assessment Tool was developed by Tetra Tech's Team subcontractor Degenkolb Engineers in close coordination with the Hawaii Earthquake and Tsunami Advisory Committee (HETAC). Phase 2 also included geocoded sign

13. Oahu Coastal Communities Evacuation Planning Project, Honolulu, Hawaii

placements supported by mapping and pictures of each location with digital representations of installed signs, either on existing poles or recommended installation sites. Another a major component of Phase 2 was the identification and selection of Safe Sites to be used as a place of refuge during a Tsunami event.

As a culminating task, Tetra Tech worked closely with DEM to develop approved language describing project outcomes, such as evacuation routes, signage and safe sites for dissemination and future outreach efforts. In doing so, Tetra Tech and DEM looked to balance the nuances of the project and terminology while ensuring consistent and simplified messaging that will be easily understood not only by residents, but by visitors with limited exposure to existing tsunami plans and signage.

14. State of Hawai‘i Emergency Operations Plan (EOP) Annex Update

Client Name and Address:	Hawaii Emergency Management Agency 3949 Diamond Head Road Honolulu, HI 96816-4495
Primary Point of Contact:	David Lopez 808.733.4300
Contract Value:	$200,000
Period of Performance:	2018 – 2020

Under contract with the Hawaii Emergency Management Agency (HIEMA) Tetra Tech conducted stakeholder outreach and planning activities in support of rewrites to four major annexes to the State Emergency Operations Plan (EOP). These Annexes included Search and Rescue, Hazardous Materials & Oil, Mass Casualty and Chemical, Biological, Radiological, Nuclear and Explosive (CBRNE).

Tetra Tech worked closely with stakeholders from state and local agencies as well as non-profits and the military to identify and outline points of interface and objectives for managing a response. Key Stakeholders included the State Department of Health, the National Guard and local fire and police agencies from the various counties.

15. Maui County EOP Revisions and EOC Standard Operating Procedures

Client Name and Address:	County of Maui Emergency Management Agency (MEMA) 650 South King Street, Basement. Honolulu, HI 96813
Primary Point of Contact:	Andrea Finkelstein 808.270.7285
Contract Value:	$100,000
Period of Performance:	May 2017 – July 2018

In coordination with Maui Emergency Management Agency (MEMA), Tetra Tech rewrote the Maui County Emergency Operations Plan (EOP) including a completely new Basic Plan and revised format for associated annexes. In addition, Tetra Tech provided Standard Operating Procedure (SOP) templates for all of the major positions within the Emergency Operations Center (EOC).

16. HMEP Grant Support: Local Emergency Planning Committee (LEPC) Planning Guide for the Four (4) State of Hawai‘i LEPCs: County of Maui, County of Kauai, County of Hawai‘i, and the City & County of Honolulu

Client Name and Address:	State of Hawai‘i Department of Health (DOH) Hazard Evaluation and Emergency Response (HEER) Office 919 Ala Moana Boulevard, Room 206 Honolulu, HI 96814-4920
Primary Point of Contact:	Harold Lao 808.586.4253
Contract Value:	$40,000
Period of Performance:	August 2014 – September 2014

Tetra Tech created a Local Emergency Planning Committee (LEPC) Planning Guide for use in the State of Hawaii by its four (4) LEPCs: County of Maui, County of Kauai, County of Hawaii and the City & County of Honolulu. Tetra Tech researched LEPC planning requirements under federal and state law known respectively as the Emergency Planning and Community Right-to-Know Act (EPCRA) and the Hawaii Emergency Planning and Community Right to Know Act (HEPCRA). The research focused on whether or not distinct and separate LEPC emergency plans are required and to what extent LEPC requirements can be met by County EOPs. Tetra Tech conducted a review of all four (4) county-level EOPs. Upon completion, Tetra Tech provided analysis and recommendations for future revisions based upon best practices. Tetra Tech aggregated best practices for emergency management planning and the findings from Task 1 into an LEPC Planning Guide for use in the State of Hawaii. Rather than a template, the planning guide defined expectations and requirements for LEPCs under EPCRA and HEPCRA, while emphasizing a flexible approach and providing guidance based upon best practices. The guidance produced was consistent with FEMA’s Comprehensive Preparedness Guide (CPG) 101, Version 2 as well as the National Incident Management System (NIMS).

17. HMEP Grant Support: Kauai County HazMat Annex Development

Client Name and Address:	State of Hawai'i Department of Health (DOH) Hazard Evaluation and Emergency Response (HEER) Office 919 Ala Moana Boulevard, Room 206 Honolulu, HI 96814-4920
Primary Point of Contact:	Harold Lao 808.586.4253
Contract Value:	$35,000
Period of Performance:	July 2015 – September 2015

Tetra Tech reviewed and revised the Kauai County Hazardous Materials (HazMat) Annex in order to support Local Emergency Planning Committee (LEPC) requirements under the federal Emergency Planning and Community Right to Know Acts (EPCRA) and similar provisions at the State level. The HazMat Annex is part of the County Emergency Operations Plan (EOP). Tetra Tech reviewed the completed gap analysis of the Kauai County EOP and identified which required elements were currently being met by the HazMat Annex. Tetra Tech worked with Kauai County to identify appropriate stakeholders, including representatives from Civil Defense, the Fire Department, the Police Department, and the LEPC. The Stakeholder Group would review drafts, provide comments, and approve submitted deliverables. Tetra Tech developed a HazMat Annex Outline that met LEPC requirements and was consistent with County HazMat operations as well as the larger County EOP. Tetra Tech submitted the HazMat Annex Outline to the Stakeholders for review and comment. Tetra Tech then worked with the stakeholders to develop a Draft HazMat Annex consistent with the previously approved Annex Outline. Tetra Tech presented the Draft annex to the stakeholders for additional comment and discussion, then made final revisions and submitted the Final Draft for approval.

18. HMEP Grant Support: Maui County HazMat Annex Development

Client Name and Address:	State of Hawai'i Department of Health (DOH) Hazard Evaluation and Emergency Response (HEER) Office 919 Ala Moana Boulevard, Room 206 Honolulu, HI 96814-4920
Primary Point of Contact:	Harold Lao 808.586.4253
Contract Value:	$35,000
Period of Performance:	January 2016 – May 2016

Tetra Tech reviewed and revised the Maui County Hazardous Materials (HazMat) Annex in order to support Local Emergency Planning Committee (LEPC) requirements under the federal Emergency Planning and Community Right to Know Acts (EPCRA) and similar provisions at the State level. The HazMat Annex is part of the County Emergency Operations Plan (EOP). Tetra Tech reviewed the completed gap analysis of the Maui County EOP and identified which required elements were currently being met by the HazMat Annex. Tetra Tech worked with Kauai County to identify appropriate stakeholders, including representatives from Civil Defense, the Fire Department, the Police Department, and the LEPC. The Stakeholder Group would review drafts, provide comments, and approve submitted deliverables. Tetra Tech developed a HazMat Annex Outline that met LEPC requirements and was consistent with County HazMat operations as well as the larger County EOP. Tetra Tech submitted the HazMat Annex Outline to the Stakeholders for review and comment. Tetra Tech then worked with the stakeholders to develop a Draft HazMat Annex consistent with the previously approved Annex Outline. Tetra Tech presented the Draft annex to the stakeholders for additional comment and discussion, then made final revisions and submitted the Final Draft for approval.

19. Volcanic Risk Assessment and Mitigation Action Plan

Client Name and Address:	County of Hawai'i Department of Planning 25 Aupuni Street, Hilo, HI 96720
Primary Point of Contact:	April J. Surprenant 808.961.8131
Contract Value:	$300,000
Period of Performance:	May 2019 – June 2020

The unique landscape of the County of Hawai'i originates from volcanic activity. The Kīlauea eruption of 2018 provides the most recent evidence of volcanic hazard risk in the County. Impacts to natural and cultural resources, housing, infrastructure, the economy, health and social services, and community planning and capacity building were felt in Puna and island wide. Numerous challenging decisions must be addressed about recovery and rebuilding, including how and where to rebuild or repair damages to reduce risk from future events.

The County of Hawai'i Volcanic Risk Assessment describes, and to the extent possible, quantifies risk from volcanic and other natural hazards. The assessment defines High Hazard Areas at greatest risk to future volcanic events and other natural hazards. The assessment was conducted to support recovery and hazard mitigation planning and provide strategic focus for the use of limited recovery and mitigation funds.

The entire County of Hawai'i is subject to future volcanic activity. Volcanic activity is comprised of multiple hazards that are not all reflected on the U.S. Geological Survey (USGS) lava-flow hazard zone map. All hazards related to volcanic activity on the island were identified and defined. Best available data at the time of this assessment was then gathered and compiled in a spatial format. The USGS lava-flow hazard zone map, historic lava flow inundation, USGS peak ground acceleration (PGA) mapping, and National Earthquake Hazard Reduction Program (NEHRP) soil classifications were used. A Core Planning Team was formed at the County and, in consultation with USGS Hawaiian Volcano Observatory (HVO), they identified the areas that present the greatest risk to the volcanic hazard from these data sources to delineate a Volcanic High Hazard Area (VHHA). Additional Natural High Hazard Areas were also delineated as part of the assessment.

The VHHA is the combined areas of lava zones 1 and 2 (with a 1,000-foot buffer), historic lava flow areas dating back to 1790, and NEHRP class soils D and E. Lava zones 1 and 2 were selected because, according to USGS, they are the zones identified with the greatest severity to the lava flow hazard. A 1,000-foot buffer was applied to each lava zone 1 and 2 to account for the uncertainty of the location to these boundaries. Historic lava flow events and associated inundation extent were only available for the last 230 years; however, they were included because lava zones do not have an associated probability and, when considering policy and mitigation, it is important to understand where previous impacts have occurred to avoid future repetitive losses. Further, NEHRP-classified D and E soils, which amplify and magnify ground shaking and increase building damage and losses, were also included in the VHHA.

A spatial analysis was conducted to determine the number of residents, buildings, critical facilities, roads, natural and cultural resources located within each of the USGS lava flow zones, as well as the VHHA; also known as an exposure assessment. In addition, the assets considered most vulnerable to hazard exposure were identified, where possible.

It is also important to understand exposure relative to other natural hazards, when examining exposure to the volcanic hazard, so that the design of recovery and mitigation strategies is robust and resilient to future events. As such, additional Natural High Hazard Areas, including flood, sea level rise, landslide, tsunami, hurricane storm surge, wildfire, and dam failure, were defined and assessed.

The results of the assessment are summarized for the County as a whole and for each Community Development Planning (CDP) area in subsequent individual sections for ease of review and use of this information. It is recognized this risk assessment represents a snapshot in time, based upon currently available data, that will continue to evolve and be updated. However, high-level recommendations are included so this assessment may continue to serve as a foundation to support risk-informed decision making.

20. Kilauea Eruption Community Relief, Relocation, and Recovery Planning

Client Name and Address:	County of Hawai‘i, Department of Planning 25 Aupuni Street, Hilo, HI 96720
Primary Point of Contact:	Douglas Le Disaster Recovery Officer 808.961.8174
Contract Value:	$2,040,989
Period of Performance:	May 2019 – July 2020

Tetra Tech assisted the County of Hawai‘i with a multiphase project to support recovery activities in the wake of the 2018 Kīlauea Eruption and subsequent federal disaster declaration. For more than a year, Tetra Tech worked closely with the County and conducted multiple rounds of data validation, community engagement, objective setting and project identification, resulting in a Recovery and Resiliency Plan that provides the County with a blueprint for a variety of strategies and projects to facilitate meaningful recovery to the County residents and businesses that were displaced or impacted.

Tetra Tech performed the following key tasks as part of the development:

- GIS Database Validation and Development (Impact datasets, land use, infrastructure, hazard data)
- Stakeholder Coordination, Facilitation, and Engagement (Federal, State, County, non-profit, and public)
- Stakeholder Workshops
- Volcanic Risk Assessment and Mitigation Strategies
- Scenario Planning and Recovery Strategies
- Decision Framework and Project Planning Tool
- Plan Integration
- Capacity Assessment
- Community Development Block Grant Disaster Reduction Action Plan (CDBG-DR Action Plan)
- Recovery and Resiliency Plan Development

The Recovery and Resilience Plan was designed and developed to be aligned with the General Plan update as well as Hawai‘i County’s Community Development Plans. The Recovery and Resilience plan was developed in parallel to the Hawai‘i County Multi-Hazard Mitigation Plan and is being used to inform future decisions on prioritizing expected federal and state grants available for long-term recovery as well as County general funds being used to support recovery efforts. This includes more than $250M in state and federal recovery funding including the Stafford Act, the Hazard mitigation Grant Program, and the Community Development Block Grant (CDBG) Programs. In addition, Tetra Tech is providing Strategic Communications support to the County.

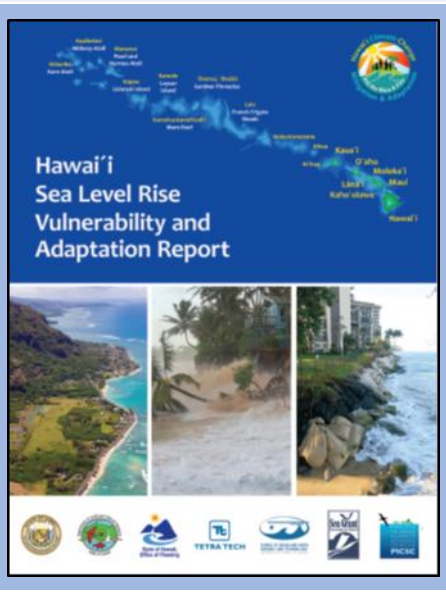
Tetra Tech organized multi-disciplinary planning workshops with Federal, State and County partners to identify impacts, define needs, and identify recovery and mitigation projects. In addition, Tetra Tech supported several “Speak Out” engagements developed by the County to educate the public on the process and gather specific information and suggestions on recovery priorities. Using these and other engagement methods, Tetra Tech worked with the County to identify and gather potential recovery project suggestions, not only from County departments, but from non-profit organizations, the business community and the public. Potential projects were identified and outlined into a project tracking tool.

As an additional scope item, Tetra Tech wrote grant applications and Benefit Cost Analysis for multiple proposed projects encompassing more than $100M in requested funding through the Hazard Mitigation Grant Program (HMGP) and continued support during the state and federal application process until the end of the project.

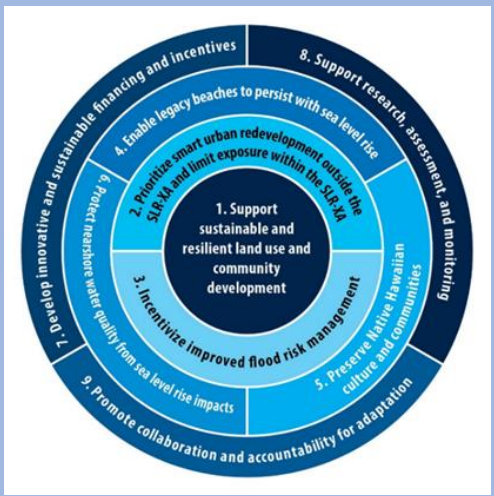
21. Hawai'i Sea Level Rise Vulnerability and Adaptation Report

Client Name and Address:	Hawaii Department of Land and Natural Resources (DLNR) Engineering Division 1151 Punchbowl St., Rm 221 Honolulu, HI 96813
Primary Point of Contact:	Brandon J. Kim 808.587.0248
Contract Value:	$353,000
Period of Performance:	January 2015 – December 2018

Tetra Tech, Inc. conducted a state-wide sea level rise vulnerability assessment and prepared the Hawai'i State Sea Level Rise Vulnerability and Adaptation Report that was submitted to the Hawai'i State legislature in December 2017. The Hawai'i Climate Adaptation Initiative Act (Act 83), passed in 2014, recognized that climate change is the paramount challenge of this century, posing both an urgent and long-term threat to the State's and created an Interagency Climate Adaptation Committee (ICAC), co-chaired by the Hawai'i Department of Land and Natural Resources (DLNR) and Office of Planning. The first task of the ICAC was to commission a statewide Sea Level Rise Vulnerability and Adaptation Report (SLR Report). Key tasks included:



- Conducted a state-wide vulnerability assessment for sea level rise
- Provided recommendations to address impacts of sea level rise
- Facilitated the Hawai'i Interagency Climate Adaptation Committee
- Prepared draft and final reports for submission to the State Legislature

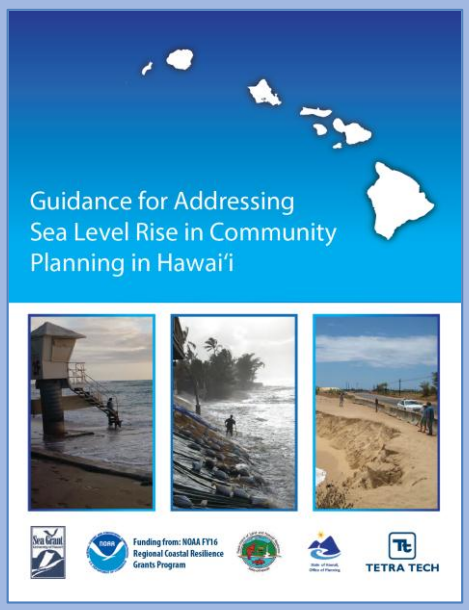


Tetra Tech conducted as statewide sea level rise vulnerability assessment to quantify the impacts of sea level rise on social, economic, and environmental assets on all islands. Tetra Tech developed the Sea Level Rise Exposure Area (SLRXA) based on modeling of passive inundation, coastal erosion, and annual high wave run-up conducted by the University of Hawai'i to assess the impacts from chronic coastal flooding and land loss due 1, 2, and 3 feet of sea level rise. Tetra Tech facilitated meetings of the Interagency Climate Adaptation Committee and conducted interviews and focus group discussions with key stakeholders to identify issues and concerns and document existing strategies and tools used to manage coastal erosion and other hazards. Sea level rise adaptation stories were developed through interviews with each county director to capture ongoing efforts to address coastal erosion and other hazards. Tetra Tech organized and facilitated two sea level rise vulnerability and adaptation workshops and conducting public meetings in the islands to provide updates of the State's efforts and to solicit input from a broad array of stakeholders. The Sea Level Rise Report can be found here: https://climateadaptation.hawaii.gov/wp-content/uploads/2017/12/SLR-Report_Dec2017.pdf. Tetra Tech also assisted in the design and provided data layers for the Hawai'i Sea Level Rise Viewer found here: https://www.pacioos.hawaii.edu/shoreline/slr-hawaii/.

22. Guidance for Addressing Sea Level Rise in Community Planning in Hawai'i

Client Name and Address:	UH Sea Grant College Program 2525 Correa Road HIG 238 Honolulu, HI 96822
Primary Point of Contact:	Bradley Romine, PhD Coastal Management and Resilience Specialist 808.956.3013 email: romine@hawaii.edu
Contract Value:	$94,052
Period of Performance:	April 2017 – April 2020

Through a National Oceanic and Atmospheric Administration (NOAA) Regional Coastal Resilience Grant, the Hawai'i Sea Grant College Program together with the State of Hawai'i Department of Land and Natural Resources (DLNR), Office of Planning, and Tetra Tech, Inc., developed statewide guidance documents and tools to improve community resilience to coastal hazards and sea level rise. The *Guidance for Addressing Sea Level Rise in Community Planning in Hawai'i* is intended to assist planners in the counties in building on and improving existing efforts to address sea level rise in planning. Key tasks included:



- Reviewed similar guidance documents in the US and internationally
- Conducted consultations, webinars, and meetings with County planning staff to document and learn from ongoing efforts, good practices, and lessons
- Develop guidance and recommended practices to apply state-wide
- Documented practices from ongoing efforts of county planners to address sea level rise in the Hawai'i County General Plan, West Maui Community Plan, Honolulu Primary Urban Center Development Plan, and West Kaua'i Community Plan.

The Guidance provides recommended practices under four key topics: vulnerability assessment, land use and development alternatives, plan and policy alignment, and adaptive management. Recommended practices under each guidance topic can be applied at county-wide and community-scale planning. Examples and resources are provided to demonstrate and further guide in the application of recommended practices. This Guidance was developed through extensive input from the Hawai'i, Maui, Honolulu, and Kaua'i Counties. Recommended practices and examples were developed through research, consultations with planners and through shared learning from ongoing community and general plan updates. Webinars, in-person meetings, and workshops, with state and county entities and other stakeholders were used to gain a deeper shared understanding of opportunities and challenges in addressing sea level rise in county planning as well as to obtain feedback on draft products. Input to the development of the Guidance was gathered through 15 outreach events to over 100 county staff and other stakeholders. Written comments were also received from state and county entities and were essential to refining the Guidance. This Guidance will be available in July 2020.

23. Guidance for Disaster Recovery Preparedness in Hawai‘i

Client Name and Address:	UH Sea Grant College Program 2525 Correa Road HIG 238 Honolulu, HI 968220
Primary Point of Contact:	Bradley Romine, PhD Coastal Management and Resilience Specialist 808.956.3013 email: romine@hawaii.edu
Contract Value:	$94,052
Period of Performance:	April 2017 – April 2020

Through a National Oceanic and Atmospheric Administration (NOAA) Regional Coastal Resilience Grant, the Hawai‘i Sea Grant College Program together with the State of Hawai‘i Department of Land and Natural Resources (DLNR), Office of Planning, and Tetra Tech, Inc., developed statewide guidance documents and tools to improve community resilience to coastal hazards and sea level rise. Tetra Tech worked with Hawaii state and county governments to identify resilience-focused recovery practices before a disaster hits to enable communities to recover quickly while also adapting to sea level rise and protecting sensitive coastal environments. In response to requests from the counties, the Guidance for Disaster Recovery Preparedness Guidance includes model resources to: (a) improve governance structure for recovery functions, (b) identify pathways to pursue critical disaster recovery preparedness activities to support resilient recovery and reconstruction, (c) encourage integration of disaster recovery preparedness efforts among related plans and policies. The Guidance includes model resources to support resilient and streamlined post disaster permitting for reconstruction. This Guidance and model resources were developed over the course of many months and included input and recommendations from a variety of stakeholders. The project team reviewed the following previously conducted work upon which this effort builds, conducted additional background research, and identified areas where additional clarification/information was needed from key stakeholders. Consultations and outreach efforts included information-gathering meetings with key state and county stakeholders, introductory webinars for key county and state agency staff, in-person consultations on draft Guidance and model resources with each of the counties, and a 1-day workshop at the 2018 Pacific Risk Management ‘Ohana (PRiMO) Conference. The draft Guidance was disseminated for review to over 157 people from county government departments in Hawai‘i (9), Maui (20), O‘ahu (65), and Kaua‘i (23), state (15) and federal agencies (6), as well as nongovernmental and academic institutions (12). Over 180 general and specific review comments were received, reviewed, and incorporated as appropriate in the finalization of the document.

This Guidance and can be found here: http://seagrant.soest.hawaii.edu/wp-content/uploads/2019/07/HI_Disaster_Recovery_Preparedness_Guidance_Final_26June2019.pdf

24. Public-Private Partnership Strategic Plan

Client Name and Address:	Burlington County Office of Emergency Management 1 Academy Drive, Westampton, NJ 08060
Primary Point of Contact:	Kevin Tuno 609.261.3900 Email: ktuno@co.burlington.nj.us
Contract Value:	$140,000
Period of Performance:	September 2011 – January 2013

Tetra Tech was engaged by the Burlington County, New Jersey, Office of Emergency Management (OEM) to develop a strategic plan to increase the resiliency of the county's business community in times of emergencies and disasters. Following an analysis of the private sector businesses and non-governmental organizations (NGOs) in the county, Tetra Tech proposed the establishment of a public-private partnership (PPP) and the development of a strategic plan that the PPP could implement in order to organize and operate.

Tetra Tech conducted several meetings with private sector stakeholders interested in disaster preparedness to introduce and educate them about the aspects of the PPP. Through the establishment of the PPP, the county provides businesses with the information necessary to assess their risks to natural and human-caused hazards with the goal of these entities developing business continuity plans that are mutually supportive to the county emergency operations plan. Further, the PPP will support government and NGOs in Burlington County in developing an effective system of coordinating resources in times of emergency. The county will facilitate private sector involvement, information, and education in community-wide preparedness and recovery.

The comprehensive PPP strategic plan that Tetra Tech developed provided all of the guidance necessary for the initial and intermediate steps of the establishment of the partnership. It includes strategic goals and objectives, aspects of partnership organization, partnership principles for success, communications plan, bylaws, Burlington County business directory, brochures for self-promotion, and a business continuity plan template and guide. While such emergency management PPPs exist in other regions of the country, Tetra Tech's PPP initiative and strategic plan for Burlington County has been viewed as a model by other counties throughout New Jersey.

25. Operation Quick Disconnect Communications Plan Validation

Client Name and Address:	Burlington County, Office of Emergency Management 1 Academy Drive, Westampton, NJ 08060
Primary Point of Contact:	Kevin Tuno 609.261.3900 email: ktuno@co.burlington.nj.us
Contract Value:	$50,000
Period of Performance:	August 2011 – July 2012

Tetra Tech was contracted by the Burlington County, Office of Emergency Management for project management services for the county's exercise series, Operation Quick Disconnect. The Quick Disconnect program was a multi-phased approach to the validation of internal county policy and procedures using a homeland security exercise evaluation program exercise and training series. Phase one of the exercise program included the planning, execution, and evaluation of a tabletop exercise designed to validate internal policy and procedures for the Burlington County's Central Communications Center, the countywide 9-1-1 center. This tabletop exercise focused its objectives on the actions of county telecommunication staff to respond to an incident that forces the evacuation and relocation of all Public Safety Answering Point (PSAP) services to their planned municipal based redundant sites.

Phase two of Operation Quick Disconnect was developed based on the findings from the phase one tabletop exercise. The modification of internal policy and procedure for communication staff developed the need for additional training in the area of evacuation. Tetra Tech, in coordination with emergency management staff from the county, developed a multimedia-based training program designed to be delivered to all staff within the central communications center. This program provided an overview of the triggers to activate the communications center evacuation plan, the procedures for terminating operations during emergency conditions and the process for operating within the assigned off-site municipal based emergency locations. The intent of the program was to provide a training program that can be delivered in a short duration of time and on an annual basis to ensure staff awareness of the county evacuation procedures.

The final phase of Operation Quick Disconnect was the development of a full-scale exercise with the intent to validate the assumptions made during the original drafting and modification of the evacuation policy and procedure. In addition to the validation of the policy and procedure, this exercise provided county information technology staff with the opportunity to validate their procedures in the emergency relocation of operations to an off-site location and neighboring counties. The exercise held staff from the outgoing shift as redundant services while the new shift employees populated the off-site operations center.

Throughout the planning of this project, Tetra Tech provided expertise in project management and exercise design to the county. The development of an exercise planning committee comprised of county staff combined with Tetra Tech staff ensured the scenario was representative of the county and the operations within the facility. Tetra Tech provided support to Burlington County for the remaining phases of the exercise program, including planning, execution, evaluation, and the after action/improvement planning process.

26. Massachusetts Statewide Evacuation Planning

Client Name and Address:	Massachusetts Emergency Management Agency 400 Worcester Road, Framingham, MA 01702
Primary Point of Contact:	Mike Philbin, All Hazards Planner 508.820.2008 email: mike.philbin@state.ma.us
Contract Value:	$299,921.57
Period of Performance:	March 2013 – Present

Tetra Tech, Inc. (Tetra Tech) and its teaming partners, Atkins North America (Atkins) and Hagerty Consulting, LLC (Hagerty) determined the current state of evacuation planning in the Commonwealth of Massachusetts (the Commonwealth) and developed a plan for the coordination of evacuation efforts by the Massachusetts Emergency Management Agency (MEMA). Throughout the project, Tetra Tech and its teaming partners worked with the Commonwealth's Project Management Team (PMT), comprised of representatives from MEMA, the Massachusetts Department of Transportation (MassDOT), the Massachusetts Office on Disability, regional transportation authorities, local cities and towns, the American Red Cross (ARC), and others.

In the first phase of the project, Tetra Tech determined the state of evacuation planning throughout the Commonwealth. To this end, Tetra Tech conducted meetings with state, regional, and local stakeholders in each MEMA Region. During these meetings, Tetra Tech gathered information on the stakeholders' experience with effecting evacuations, the challenges and successes in conducting evacuation efforts, and the expectations that exist regarding intergovernmental coordination between local jurisdictions and MEMA. Tetra Tech compiled the results of this information gathering effort into an Initial Findings Report, which discussed the findings in terms of existing evacuation planning efforts, evacuation experiences, evacuation resources available throughout the Commonwealth, concerns regarding the adequacy of the roadway infrastructure to support a large-scale evacuation, and intergovernmental coordination.

In the next phase of the project, Tetra Tech and Atkins examined the transportation and infrastructure resources to support multi-hazard evacuations at the regional and state levels, and the capabilities of the Commonwealth and local jurisdictions to conduct evacuations. Tetra Tech and Atkins created a database of information on key transportation infrastructure, including highways, bridges, and tunnels to help local jurisdictions enhance their planning efforts. In addition, Atkins conducted extensive research on best practices in place throughout the country for carrying out evacuations and organized these best practices into a searchable reference tool. The infrastructure and capability information and the best practices were then documented in a Capability Assessment and Best Practices Report.

Future phases of this ongoing project include developing evacuation coordination plans for each MEMA Region based on the statewide Evacuation Coordination Plan and providing a toolkit for each of the 351 cities and towns to develop local evacuation plans that align with the Commonwealth's strategy.

27. Executive Information Presentation – Cat-X Playbook

Client Name and Address:	NY/NJ/CT/PA Regional Catastrophic Planning Team (RCPT) NYC Office of Emergency Management
Primary Point of Contact:	Dina Maniotis DManiotis@oem.nyc.gov
Contract Value:	$325,000
Period of Performance:	May 2010 – 2011

In conjunction with All Hands Consulting and Hagerty Consulting, Tetra Tech was awarded a contract by the NY/NJ/CT/PA Regional Catastrophic Planning Team (RCPT) to develop a method for delivering and communicating information to executive decision makers. Concurrent with this effort, an Executive Stakeholder Program designed to elicit feedback from regional, county and city executive leadership on what type of information was needed and to what scale or detail guidance would be desired during a regional catastrophic event.

Tetra Tech and its partners facilitated more than a dozen meetings with executive leadership from state and local governments across more than twenty regional counties along with the City of New York and the NJUASI. This feedback culminated in the production of a Catastrophic Incident Executive (CAT-X) Playbook. This playbook is a cutting edge data management and executive guidance tool designed from the ground up. To date it has received nearly universal acknowledgement as the next step in the evolution of emergency management.

28. Massachusetts THIRA/ State HMP/ Capabilities Assessment

Client Name and Address:	Massachusetts Emergency Management Agency 400 Worcester Road, Framingham, MA 01702
Primary Point of Contact:	Scott MacLeod, Hazard Mitigation Grants Coordinator 508.820.1445 email: scott.macleod@state.ma.us
Contract Value:	$442,250.45
Period of Performance:	August 2012 – October 2013

Tetra Tech, Inc. (Tetra Tech) identified hazards, assessed capabilities to respond to hazards, and updated the hazard mitigation plan for the Commonwealth of Massachusetts. During the first part of the project, Tetra Tech identified and analyzed the natural and man-made threats, hazards, and risks faced by the Commonwealth and its local jurisdictions. Expert judgment and stakeholder input was used to determine relevant hazards, the severity of their threat to the Commonwealth, and the Commonwealth's vulnerability to and expected consequences from those hazards. Tetra Tech analyzed federal-level critical infrastructure data to help the project team evaluate the risks different hazards pose to the Commonwealth and its assets, systems, and infrastructure.

During the second part of the project, Tetra Tech evaluated the capabilities of the Commonwealth and each homeland security planning region and documented the ways those capabilities were developed using previous homeland security grant funding. Future grants from the U.S. Department of Homeland Security (DHS) and Federal Emergency Management Agency (FEMA) are going to focus on reducing jurisdictions' risk from natural and man-made hazards. To be able to demonstrate the ways funding will be used to reduce risk, the Commonwealth first had to establish its core level of competency based on capabilities it had developed over the past several years. To assess the capabilities, Tetra Tech met with representatives of each of the five homeland security planning regions to compare local and regional capabilities against the National Preparedness Goal's Core Capabilities. Then, Tetra Tech met with a multi-disciplinary, state-level work group organized around each of the Core Capabilities to assess the Commonwealth's capabilities. The local/regional assessment was combined with the Commonwealth-level assessment to determine the emergency management and emergency response community's capabilities across the Commonwealth.

The risk assessment and capabilities assessment were then combined to determine the Commonwealth's vulnerability to natural and man-made hazards. Tetra Tech used this analysis as the foundation of the Commonwealth's Threat and Hazard Identification and Risk Assessment (THIRA), required by FEMA doctrine.

During the third part of this project, Tetra Tech updated the Commonwealth of Massachusetts' State Hazard Mitigation Plan (HMP). Tetra Tech used the risk assessment described above (which exceeded the Disaster Mitigation Act of 2000 [DMA 2000] requirements of HMPs) as the basis of the mitigation planning effort. Tetra Tech met with a wide range of stakeholders in the Commonwealth to develop a mitigation strategy that incorporated and built upon the local jurisdictions' and Commonwealth's capabilities to minimize the effects of all hazards.

29. Regional Interoperable Communications Program

Client Name and Address:	The Finger Lake Region, Monroe County NY 1190 Scottsville Rd Rochester, NY 14624
Primary Point of Contact:	Fred Rion 585.753.3816
Contract Value:	$285,000
Period of Performance:	January 2014 – March 2015

Tetra Tech has partnered with the Finger Lakes Region of New York State to develop a multi-phased exercise program that validates the regions interoperability. This program is the final phase of a multi-year, multimillion-dollar radio infrastructure upgrade for the regional partnership within the state.

Phase 1 of the program begins with the development of training materials. These materials will be provided through the execution of county-based seminar programs targeting the first response and support communities. The seminar training reviews the requirements for interoperability by the federal government, the approach provided by New York State, the technology upgraded completed within the region and the continual plan development process by each of the participating counties.

Phase 2 will commence upon the completion of the final seminar program. This phase builds upon the seminar delivery through the use of a discussion-based exercise program. These programs are delivered in targeted counties that work together on a regular basis and require interoperability. Following the completion of these discussion-based programs, the region will continue the advancement and modification of the existing plans to ensure lessons learned are captured.

Phase 3 will conclude this exercise series with a region wide full-scale exercise program that will include federal and international partners. This operations-based exercise will look to validate the regional planning as well as the newly deployed technology supporting interoperability.

Through this exercise, the region intends to develop a follow-up series of training sessions to build in an understanding and ability of interoperable technology.

30. HazMat Response Capabilities and Planning Assessment

Client Name and Address:	Jersey City/Newark Urban Area Security Initiative
Primary Point of Contact:	Helene Dougan 732.316.7146 email: helene.dougan@co.middlesex.nj.us
Contract Value:	$199,000
Period of Performance:	April 2012 – April 2013

The Jersey City/Newark (NJ) Urban Area Security Initiative (UASI) initiated a project to review hazmat response capabilities in seven contiguous counties and two core cities. The project utilized a ground-up approach to gather information from hazmat teams that support response activities throughout the UASI region. Information collected during the project was used to assess the UASI region's overall response capabilities, identify potential training gaps, review UASI region's equipment caches, and prioritize future grant expenditures.

To collect information on each team, the UASI region contracted with Tetra Tech to develop a web-based survey tool. Teams completed an online survey, based on their jurisdictional responsibilities and general hazmat/WMD response capabilities.

Tetra Tech arranged for on-site visits with each hazmat team. Teams with multiple platoons received a visit for each platoon. Other teams received one on-site visit. During these site visits, Tetra Tech: (1) verified survey information provided and asked a few additional follow-up questions and (2) conducted skills testing with each team/platoon. Skills testing did not require dressing-out in PPE or lengthy equipment set ups (e.g., decontamination lines, shelters, etc.), but validated basic knowledge of hazmat plans, policies, and procedures. Part of the assessment involved a short, scenario-based question and answer session, much like a tabletop exercise. A larger portion of the testing involved use/demonstration of the team's more advanced/technical equipment, with a focus on UASI provided equipment, as appropriate. Site visits/testing required approximately 3 hours start-to-finish.

The results of surveys and sight visits were compiled into a final report. The report detailed the strengths and areas requiring improvement for each team assessed. Recommendations were developed for each individual team based on the success of the practical exercises, interview, and tabletop scenario. Additional recommendations were made based upon OSHA 1910.120 standards for hazardous materials response teams and other worker safety standards.

31. HazMat and BSL Planning Template Development

Client Name and Address:	Massachusetts Emergency Management Agency 400 Worcester Road Framingham, MA 01702 -5399
Primary Point of Contact:	Jeff Trask 508.820.2053 email: jeffrey.trask@state.ma.us
Contract Value:	$325,000
Period of Performance:	January 2010 – January 2011

Tetra Tech was awarded a contract by the Massachusetts Emergency Management Agency (MEMA) to perform multiple tasks related to hazmat response planning and biosafety level 2 and 3 emergency response planning and exercising. These tasks included the creation of a statewide hazmat response plan, updating the local and regional hazmat response template, and the creation of a biosafety level (BSL) 2 and 3 laboratory response template. The assumptions made during the planning process of the BSL 2 and 3 template were validated via 5 tabletop exercises (TTX) throughout the state.

While reviewing the local and regional hazmat response templates, Tetra Tech analysts discovered that the state did not have an over-arching hazmat response plan. Tetra Tech's project manager brought this to the attention of the MEMA point of contact, and Tetra Tech was assigned the task of creating the first statewide plan. Tetra Tech analysts held several focus group meetings with the state emergency response committee to understand how the state currently handles hazmat response at the local and regional levels, and then worked to integrate the home-rule operations of a commonwealth state government with the process of requesting and utilizing federal assets.

Tetra Tech homeland security and emergency management specialists worked with local, state, university, and private sector stakeholders in the development of the BSL 2 and 3 Response Template and during the TTX development phase. Each TTX was conducted in accordance with guidelines provided by the U.S. Department of Homeland Security (DHS), under the Homeland Security and Exercise Evaluation Program (HSEEP). Tetra Tech conducted 5 TTXs in Boston, Cape Cod, Amherst, Cambridge, and Worcester. The exercises brought together stakeholder groups including public safety emergency response personnel, private sector BSL 2 and 3 facility safety experts, personnel from local research universities, and public health officials. Participants developed new, or strengthened existing, working relationships. Discussion included the need to protect private stakeholder interests related to security and business information while balancing the need for emergency responders to pre-plan for effective and efficient operations at these specialized facilities.

The exercise design team introduced several draft scenarios, highlighting different threats (physical, chemical, biological, radiological, etc.) and situations (medical, fire, domestic/workplace violence) that emergency responders would face in a laboratory setting. Each scenario presented both the facility and emergency responders with unique challenges to overcome for a "normal" emergency response call because the location of each scenario was in a BSL 2 or 3 facility. Security, access control, personal protection equipment, building searches, and awareness training were discussion points that each stakeholder group gained a better perspective for the other's during the discussions. Feedback from both biosafety officers and emergency responders was very positive in all five deliveries.

32. Comprehensive Emergency Management Plan (CEMP) & Hazard Mitigation Plan (HMP)

Client Name and Address:	Town of Greenburgh, NY 177 Hillside Ave. Greenburgh, NY 10607
Primary Point of Contact:	Chief Dicarlo 914.682.5340
Contract Value:	$250,000
Period of Performance:	May 2010 – Present

Tetra Tech was awarded a contract by the Town of Greenburgh, NY to develop a Comprehensive Emergency Management Plan (CEMP) along with a Hazard Mitigation Plan (HMP) for the Town of Greenburgh and six associated villages. This project is complicated by the existence of the villages as separate political entities which share some government services. Each village has its own fire department, police department, varying solutions to Emergency medical transportation. In addition, the unincorporated area of Greenburgh is served by 3 separate yet autonomous Fire Departments. Tetra Tech's ability to manage multiple stakeholders and build consensus has proven highly beneficial for this project.

33. Emergency Operations Plan (EOP) Revision

Client Name and Address:	Lucas County Office of Emergency Management 2144 Monroe Street Toledo, Ohio 43604
Primary Point of Contact:	Joe Walter, EMA Director 419.213.6505 email: jowalter@co.lucas.oh.us
Contract Value:	$65,100
Period of Performance:	October 2009 – 2010

Lucas County is a major urban region in located along the southern shores of Lake Erie in northwest Ohio. Lucas County is approximately 843.5 square miles in total area with approximately seventy percent of its area in residential or commercial development. The County includes ten municipal jurisdictions (Toledo being the largest) and eleven Townships. As of the 2000 Census the population of Lucas County was approximately 455,030.

Tetra Tech has been contracted by Lucas County Emergency Management (EMA) to assist with reviewing and updating the current annexed based county Emergency Operation Plan (EOP). As part of this project Tetra Tech will also be combining the county EOP with the Emergency Plan for the City of Toledo into one Emergency Support Function (ESF) based comprehensive EOP.

As part of this project Tetra Tech has and will perform the following tasks:

1. Tetra Tech conducted a critical review and complete an assessment of the Lucas County and City of Toledo EOPs, functional Annexes and Hazard Specific Appendices for compliance with local, State, and Federal guidelines and standards.
2. Tetra Tech identified and summarized gaps in the current plans and reviewed the assessment findings with the Lucas County EMA and the Emergency Plan Working Group (EPWG). Tetra Tech conducted enough meetings, as necessary, with the EPWG and others to facilitate the planning of the drafting process.
3. Tetra Tech worked with designated ESF Lead/Primary and Support Agencies to develop an updated Draft ESF based EOP for Lucas County that addressed all hazards as defined by the current Lucas County Threat/Risk and Capability Assessment and was consistent with state and federal guidance. The Draft EOP provided for a comprehensive integrated approach for responding to and managing major incidents. Tetra Tech facilitated review of the completed Draft EOP by EMA and ESF Lead/Primary/Support Agencies. Upon receipt of comments, Tetra Tech revised and submitted the final EOP for review and acceptance by the Lucas County Director of EMA and the Ohio EMA for final promulgation by the Board of Lucas County Commissioners.
4. Upon completion and acceptance of the EOP, Tetra Tech will develop and provide an EOP management tool for rapid assessment and decision-making for use by local officials, first responders and public sector department executives.
5. Tetra Tech will develop and facilitate an EOP Workshop for local officials and other EOP users that will provide an overview of the new EOP and the manner in which it will serve Lucas County officials and other local jurisdiction's that make up its political subdivisions.

34. Hudson County Non-Natural Hazard Mitigation Study

Client Name and Address:	Hudson County, New Jersey, Office of Emergency Management
Primary Point of Contact:	Gerry Drasheff 201.319.3872
Contract Value:	$425,000
Period of Performance:	November 2006 – 2008

Hudson County, the most densely populated county in New Jersey, is located directly across the Hudson River from Manhattan. In addition to addressing the county's extreme vulnerability to coastal storms and storm surge inundation, this Disaster Mitigation Act (DMA) of 2000 planning project addressed both man-made and technological hazards (including terrorism). Tetra Tech is preparing a multi-jurisdictional, all-hazard mitigation plan for all 12 jurisdictions in Hudson County. This project involves collecting and analyzing hazard data, inventorying critical infrastructure and critical facilities, assessing vulnerability data, and completing risk assessments for various natural hazards. Tetra Tech is working with various stakeholders to develop mitigation goals and objectives, conducting public outreach, and developing mitigation strategies.

As part of this project, Tetra Tech is preparing the Hudson County Non-Natural Hazards Mitigation Study to help Hudson County assess non-natural hazards and develop mitigation strategies to address those hazards. Mitigation strategies specify actions to prevent, protect against, prepare for, and respond to events posing non-natural hazards. Mitigation strategies fall into two types: (1) actions that occur in the built environment for prevention and protection in order to reduce the likelihood of an event and therefore minimize need for response and recovery actions and (2) actions that enhance response and recovery in order to lessen the impact of an event. Tetra Tech developed the report in accordance with FEMA 386-7, Integrating Man-Made Hazards into Mitigation Planning. For this project, the focus of "non-natural hazards" includes terrorist acts, considered the major threat objectives from the trans-national terrorist perspective of attacking the "far enemy," including (1) killing as many Americans as possible, (2) disrupting the American economy, and (3) inflicting a political impact large enough to cause a major U.S. foreign policy shift. In order evaluate the county's ability to respond, we recognized the need to determine countywide vulnerabilities and gaps in capabilities. Therefore, Tetra Tech referenced the national planning scenarios (NPS) developed by DHS as the threat to Hudson County assets. Tetra Tech profiled each NPS attack by describing the method of attack and consequences of the attack—quantifying the casualties, damage to infrastructure, evacuation or displacement of persons, level of contamination, economic impact, and recovery timeline.

To generate mitigation strategies that align with the missions to prevent and protect sector-specific assets, Tetra Tech collected and evaluated available data from existing vulnerability assessments. We used this data to (1) prioritize each asset by consequence of loss of that asset, (2) normalize the threat across assets considering the attractiveness of the asset, and (3) evaluate recorded in-place activities to deter, detect, delay, and respond to an attack. To generate mitigation strategies that align with the missions of response and recovery, we identified actions to address the gaps revealed in the capability assessment.

35. Allegheny County/Region 13 UASI Regional Risk, Capability, and Needs Assessment

Client Name and Address:	PA Region 13 Task Force 400 North Lexington Street, Pittsburgh, PA 15208
Primary Point of Contact:	Christopher J. Moran, BA, MPIA 412.473.3762 email: cmoran@county.allegheny.pa.us
Contract Value:	$165,000
Period of Performance:	December 2011 – Present

Tetra Tech and its teaming partners identified and analyzed the natural and man-made threats, hazards, and risks faced by the thirteen counties of the PA Region 13 Task Force, which includes the Allegheny UASI region. Expert judgment and region stakeholder input was used to determine relevant hazards, the threat they faced to the region, and the region's vulnerability to and expected consequences from those hazards. This analysis serves as the region's baseline Threat and Hazard Identification and Risk Assessment (THIRA), required by new FEMA doctrine. The second part of the project was to assess the region's capabilities, and how those capabilities were developed using previous homeland security grant funding. Tetra Tech met with each of the region's standing committees to assess the region and its member jurisdictions against the existing Target Capabilities and the newly released Core Capabilities of the National Preparedness Goal. As the final aspect of the project, Tetra Tech developed a comprehensive report that presented the findings of the risk and capabilities assessments and identified actions to take to decrease the region's overall vulnerability to natural and man-made hazards. The costs of these actions were quantified to assist the region in developing a benefit-cost analysis of any future expenditures.

Future grants from DHS/FEMA are going to focus on reducing the risk faced by a jurisdiction to natural and man-made hazards. To be able to demonstrate how funding will be used to reduce risk, the region first had to establish its baseline based on capabilities it had developed over the past several years. The THIRA portion of the project did just that. The region also wanted strategic guidance on where future funding should be spent to get the greatest return on investment (i.e., the greatest reduction in overall risk). By demonstrating to the region which capabilities are the strongest and which have significant room for improvement, as well as the risk reduction associated with developing each of those capabilities, this project has given the region the tools its member jurisdictions need to wisely spend ever-decreasing funding.

Tetra Tech subcontracted to Binera, Inc. (Binera) the performance of the risk assessment portion of the project. Binera utilized its System-wide Multi-hazard Risk Tool (SMRT) system to analyze federal-level critical infrastructure data to help the project team evaluate the risks that different hazards pose to the region and its assets, systems, and infrastructure.

Tetra Tech also subcontracted to Filler Security Strategies, Inc. (Filler) to assist in identifying the specific risks that each of the region and its assets, systems, and infrastructure faces.

36. 2012 Cape May County Communications Plan Assessment & Validation

Client Name and Address:	Cape May County Emergency Management Communications Center 30 West Mechanic Street, Cape May Court House, NJ, 08210
Primary Point of Contact:	Frank McCall 609.463.6570
Contract Value:	$60,000
Period of Performance:	March 2012 – May 2012

The 2012 Cape May County Communications Exercise was conducted to assess and validate the plans and capabilities of the Cape May County Emergency Management Communications Center (EMCC) and specific Emergency Medical Services (EMS); Fire Departments (FD); Law Enforcement (LE) agencies, including Cape May County Sheriff's Office and the Prosecutor's Office; local Offices of Emergency Management (OEMs), and Departments of Public Works (DPWs) of the county and its municipalities to send, receive, and verify multiple messages on VTAC, UTAC, 8TAC and other appropriate frequencies in specific locations in Cape May County and direct responding agencies to an appropriate operations frequency. Conducted over 5 days, the exercise engaged specific disciplines on individual days prior to culminating in a multi-discipline, full scale, integrated communications exercise on the fifth day. Participants were asked to communicate with their emergency response partners and with their dispatch centers, while at a remote location. The capability to communicate clearly on various channels was evaluated and documented to present which channels and frequencies provide coverage sufficient enough to allow clear and understandable radio communication.

37. Regional Evacuation Planning

Client Name and Address:	Indiana-Illinois-Wisconsin Combined Statistical Area 1411 Madison Street Chicago, IL 60607
Primary Point of Contact:	Earl Mashaw 312.743.1770 email: earl.mashaw@cityofchicago.org
Contract Value:	$1,510,000
Period of Performance:	August 2011 – Present

Tetra Tech is under contract to support the Chicago Regional Catastrophic Planning Team (RCPT) efforts to develop an evacuation system linking evacuation assembly points (EAP), regional hub reception centers (RHRC), and shelters. These locations are needed to coordinate evacuation and mass care following catastrophic incidents within the Illinois-Indiana-Wisconsin Combined Statistical Area (IL-IN-WI CSA). Consistent with the Federal Emergency Management Agency's (FEMA) Whole Community approach, a synchronized effort across the jurisdictions within the 16 counties in the IL-IN-WI CSA, the City of Chicago, and three states (Illinois, Indiana, and Wisconsin) will be crucial.

The Whole Community approach promotes a paradigm shift from a government-centric emergency response approach to a community-based system of core capabilities essential to successful response and recovery activities. This approach views the public as an asset and encourages collaboration with citizen, local, state, and federal response partners to address and mitigate community risks. Communities are encouraged to think creatively with their resources and concepts of operations, understanding that regulatory waivers, alternative standards of care, and policy changes may be necessary. By adopting the Whole Community approach, current IL-IN-WI CSA planning guidance seeks not to void existing local, state, and federal planning products created through previous initiatives, but rather to identify remaining gaps and retrofit existing plans as necessary to include the Whole Community philosophy.

Tetra Tech is currently developing guidance documents to establish facility-specific plans for RHRCs and EAPs. To staff these facilities, local managers are developing tools to accept the influx of affiliated and spontaneous volunteers who will play a critical role in successfully operating a RHRC. The projects also include an outreach component to local agencies, non-governmental organizations and the private sector in the planning effort to develop plan content, and coordinate with their individual constituents.

38. Coastal Community Resilience Planning and Training

Client Name and Address:	University of Hawaii Headquarters Manoa Innovation Center 2800 Woodlawn Drive, Suite 261 Honolulu, HI 96822
Primary Point of Contact:	Louise Kubo, Associate Director for Research and Development 808.988.5144 email: lkubo@hawaii.edu

Tetra Tech is supporting the development awareness-level course for the University of Hawaii, National Disaster Preparedness Training Center (NPDTC), and a member of the HLS National Disaster Preparedness Consortium. Tetra Tech provided support for course conceptualization, graphics development, terminal and enabling learning objectives structure, and all course content - working closely with academic and DHS representatives through course design and piloting. Tetra Tech prepared all materials in accordance with the guidance provided for the National Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA), National Preparedness Directorate (NPD), National Training and Education Division (NTED) (formerly the Training and Exercise Integration/ Training Operations (TEI/TO) Training Division). The training is being prepared under the direction of NDPTC and the course program manager. The development process has included development of (1) Course Needs Assessment, (2) Course Design Document, (3) Terminal and Enabling Learning Objectives, and (4) Instructor and Participant Guides. The Subject Matter Expert (SME) Pilot (Pilot 2) is planned for Hilo, Hawaii in January 2010. Tetra Tech is preparing content, formatting all materials, providing instructors, and coordinating implementation in close coordination with the client NDPTC. The course is designed to provide information on coastal community resilience a framework for natural hazards preparedness in coastal communities and provides an overview of hazard risks, vulnerabilities, and impacts in coastal communities; the framework for coastal community resilience; practices to improve coastal community resilience; and actions organizations can take to begin building resilience in their community.

39. Strategic Planning and Capability Assessment

Client Name and Address:	Capitol Region Council of Governments 241 Main Street, Hartford, CT 06106
Primary Point of Contact:	Dan Scace 860.522.2217 ext. 223
Contract Value:	$650,000
Period of Performance:	June 2009 – January 2012

The Capitol Region Council of Governments (CRCOG), representing the Hartford Urban Area Security Initiative, retained Tetra Tech to perform a programmatic capability assessment and gap analysis for the Hartford, Connecticut metropolitan area. The purpose of the engagement was to assist the Hartford region in developing a Strategic Plan as well as a prioritized list of preparedness projects to help guide future homeland security grant investments.

Tetra Tech initiated the assessment process by conducting a hazard analysis for the region. Tetra Tech collected all local, state, and federal disaster declaration information available to summarize historical disaster risk and impact. This information was then compared with local and state hazard mitigation plans and other data (i.e. spill reports from the National Response Center) to better clarify the true regional hazard and threat profile. Finally, each hazard was assigned measures of probability and impact that reflected historical trends and current assumptions. Tetra Tech used the results of the hazard analysis to establish the planning assumptions for the capability assessment process.

Tetra Tech's assessment methodology was designed to evaluate each of the critical tasks in the U.S. Department of Homeland Security (DHS) Target Capability List. Tetra Tech worked with CRCOG to identify the appropriate regional stakeholders to participate in the assessment process. Six work groups were established; each comprised of stakeholders from the regional emergency support function (RESF) committees. Tetra Tech facilitated assessment workshops with regional stakeholders using the Pilot-Capability Assessment Tool (P-CAT), developed by the U.S. Department of Homeland Security. An average score was calculated for each target capability, based on the stockholder's responses to between 12 and 40 critical task descriptions required to support the target capability.

Tetra Tech analyzed the results of the assessment process, recording both the existing capability descriptions and gaps into a draft assessment report. Preliminary recommendations for enhancement projects related to each target capability were also presented in the draft assessment report. Tetra Tech then facilitated a workshop with the Urban Area Workgroup membership where the preliminary assessment findings relative to the hazard analysis and the existing Urban Area Homeland Security Strategy were presented. The UAWG membership was then asked to rank each target capability as high, medium, or low priority. Tetra Tech converted the rankings into a quantitative metric and used the results from the ranking process to prioritize the target capabilities for the region. Based on the outcome of this process, consensus was reached on the top 10 priority capabilities for the region and Tetra Tech developed an implementation plan for each capability, identifying project objectives, steps, and performance measures that could be translated into future grant investment justifications.

40. Hazard Analysis, Modeling and Mitigation Planning

Client Name and Address:	City of Roseville, CA 311 Vernon Street, Roseville, CA 95678
Primary Point of Contact:	Carl Walker, Senior Civil Engineer, Floodplain Management Section 916.746.1349
Contract Value:	$500,000
Period of Performance:	2008 – Present

As part of a broader and ongoing set of services, Tetra Tech facilitated the development of a comprehensive hazard mitigation plan that addressed both natural and non-natural hazards. Working with the local jurisdictions, Tetra Tech collected data to update the base map inventory in HAZUS-MH and updated maps to support the flood modeling aspects of the project. Using the combined planning, GIS, modeling, and hydrology expertise of the project team, Tetra Tech prepared a hazard mitigation plan that resulted in FEMA awarding Roseville a Class 1 rating in the NFIP Community Rating System (CRS). This was, and continues to be, the first and only such rating achieved in the country throughout the history of the NFIP CRS program. The plan is still the highest scoring plan in the country under the CRS program.

The Roseville HMP and associated modeling and analysis has become the benchmark for successful flood and hazard mitigation planning at the jurisdictional level and is currently being used by academic institutions (New York University and the University of Washington) in graduate-level urban planning curriculum as examples of good planning. Tetra Tech has developed a long-standing relationship with the city since the completion of the initial planning effort, and recently completed the 5-year update to the HMP plan per DMA and CRS requirements. This update includes a comprehensive analysis of dam and levee failure.

Tetra Tech continues to provide services to the City of Roseville via an annual "on-call" contract to support the City's nationally acclaimed CRS and Hazard Mitigation programs. As the nation's first and only CRS class 1 community, Roseville has become the national role model for pro-active floodplain management and hazard mitigation. Tetra Tech has been the city's principle support contractor for these programs since 2005.

41. Los Angeles/Long Beach UASI Strategic Planning

Client Name and Address:	City of Los Angeles Mayor's Office on behalf of Los Angeles/Long Beach UASI and Los Angeles County Operational Area 500 East Temple, Los Angeles, CA 90012
Primary Point of Contact:	Anna Burton 213.484.4822 email: Anna.burton@lacity.org
Contract Value:	$1,377,000
Period of Performance:	August 2009 – December 2010

Tetra Tech was selected to develop a strategic plan for the Los Angeles/Long Beach Urban Area (LA/LB UA) and the Los Angeles County Operational Area (LACOA). This plan is essential to enhance the region's ability to prevent, protect against, respond to, and recover from catastrophic events related to acts of terrorism, natural disasters, and manmade disasters.

The capabilities assessment incorporated the use of both target capabilities list (TCL) requirements and emergency support function (ESF) subject matter experts (SME). We identified resource requirements associated with FEMA's Gap Analysis Program (GAP). Data collected for the assessment was divided into two categories: quantitative and qualitative. Separating the analysis into two categories ensured the data analysis encompassed measurable resources (quantitative) and the ability to deploy those resources, in addition to assessing the capability to perform certain tasks deemed critical in the TCL (qualitative). This two-pronged data analysis approach was consistent with FEMA best assessment practices and allowed us to comprehensively identify and analyze gaps in required response resources within an all-hazards framework. The compilation of data from each of the jurisdictions reflected the regional capability; however, we noted where (spatially) shortfalls existed on a jurisdiction-level basis to ensure that corrective actions could be appropriately targeted.

The resultant plan serves as a long-term guide in directing programmatic efforts, accomplishing necessary goals, ensuring accountability, and allocating limited resources over the next 5 years. The plan includes a comprehensive vision statement that articulates the objectives for emergency management and homeland security capabilities, an assessment of current capabilities, a gap analysis, measurable strategic goals, and a 5-year implementation plan to achieve the desired strategic goals. In developing the plan, Tetra Tech addressed the region's homeland security capabilities related to training and exercise programs, critical infrastructure protection programs, intelligence, information sharing, counter-terrorism programs, and citizen preparedness programs in order to provide future direction for UASI and SHSGP funding allocations and projects. In addition, we addressed the region's emergency readiness capabilities for both natural and human-caused disasters.

42. Kaua‘i Multi-Hazard Mitigation & Resilience Plan

Client Name and Address:	County of Kaua‘i 444 Rice Street Līhu‘e, HI 9677
Primary Point of Contact:	Chelsie Sakai Senior Staff Office (Kaua‘i Emergency Management Agency) 3990 Ka‘ana Street, Suite 100, Līhu‘e, HI 96766 808.241.1850 email: csakai@kauai.gov
Contract Value:	$100,000
Period of Performance:	March 2019 – June 2021

In April of 2020 Tetra Tech was awarded the project to prepare the 2020 update to the Kaua‘i County Hazard Mitigation Plan (HMP), as required by FEMA regulations. Tetra Tech is conducting the HMP update using a planning process that meets both Disaster Mitigation Act (DMA) of 2000 requirements and CRS Activity 510 Comprehensive Floodplain Management Plan requirements. Tetra Tech is performing the following tasks as part of the 2020 update:

- Repackaging of the County plan to organize data by community planning area, increase readability, usability and integration opportunities with County plans and programs that could support/enhance hazard mitigation actions identified by the plan.
- Organize a stakeholder working group (Steering Committee) that is overseeing the plan development processes and facilitate steering committee meetings.
- Update goals, objectives and mitigation initiatives to more readily align with existing County and State goals, programs and priorities.
- Conduct an enhanced risk assessment using HAZUS-MH and GIS analysis as applicable for hazards of concern.
- Develop and employ a public participation strategy that includes a public survey, several public meetings, and a public comment period.
- Update hazard profiles with best available data, the results of the risk assessment and a description of hazard events that have impacted the County since the development of the previous plan.

The Planning process for this update is ongoing with a planned submittal date for FEMA approval in January 2021. To date, key tasks that have been undertaken are:

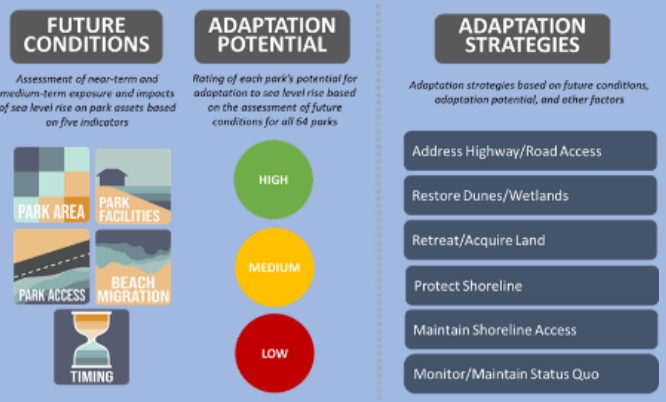
- Organization of Core Planning Team and Steering Committee (members consisting of County and external stakeholders)
- Development of plan Vision, Mission, Goals, and Objectives
- Identification of Hazards of Concerns
- Conducting Risk Assessment on 17 Hazards of Concern
- Preparation underway for first public meeting to review results of Risk Assessment

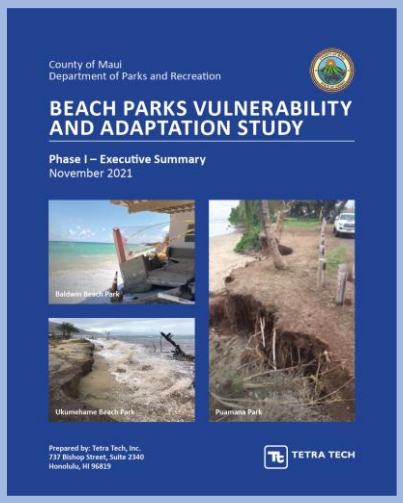
43. Maui Beach Parks Vulnerability and Adaptation Study

Client Name and Address:	County of Maui Department of Parks and Recreation 700 Halia Nakoa St. Unit 2 Wailuku, HI 96793
Primary Point of Contact:	David Yamashita, Planner VI 808.270.6508 email: David.Yamashita@co.maui.hi.us
Contract Value:	$350,000
Period of Performance:	June 2021 – Completion date: December 2022

In Phase I of the project, Tetra Tech developed a vulnerability and adaptation framework; assessed vulnerability for 65 parks; developed a compendium of adaptation strategies; developed a web-based mapping application and trained staff on use and prepared the Phase I Project Report.

In Phase 2, Tetra Tech will develop adaptation plans for 5 – 6 parks and conduct public outreach. Project outputs are not yet available online.





44. Corals and Climate Adaptation Planning and Design Tool

Client Name and Address:	US Environmental Protection Agency Office of Research and Development Ronald Reagan Building Office 71297 1300 Penn Ave, NW Washington, DC 20004
Primary Point of Contact:	Jordan West, PhD 202.564.1555 email: west.jordan@epa.gov
Contract Value:	$75,000
Period of Performance:	September 2015 – September 2017

Scientists and managers of natural resources have recognized an urgent need for improved methods and tools to enable effective adaptation of management measures in the face of climate change. Tetra Tech developed, with EPA, NOAA, and TNC, the Adaptation Design Tool for Corals and Climate Adaptation. The Adaptation Design Tool uses a structured approach to break down an otherwise overwhelming and complex process into tractable steps. Key tasks included:

- Conducted a comprehensive literature review to develop a compendium of coastal and reef management actions
- Developed a robust adaptation design framework to enable managers to integrated climate-smart design into existing and new management measures for watershed and reef environments
- Conducted expert elicitation workshops to provide input on the planning process, climate-smart design guidance, worksheets, and examples

The tool contains worksheets that guide users through a series of design considerations for adapting their planned management actions to be more climate-smart given changing environmental stressors. Also provided with other worksheets is a Compendium for brainstorming new adaptation options in response to climate threats not yet addressed in the current plan based on a comprehensive review of the best available science. Upon completion of the Adaptation Design Tool, Tetra Tech was contracted by the University of Guam to conduct a 2-day workshop on integrating climate-smart design into the Guam Reef Resilience Strategy and by the Nature Conservancy to support climate-smart design of the South Kohala Conservation Action Plan on the Island of Hawai'i. Guidance, on-line self-paced training, and publications from this work are listed below:

Adaptation Planning & Design Tool

https://www.coris.noaa.gov/activities/CCAP_design/#:~:text=The%20Adaptation%20Design%20Tool%20of,stage%20of%20planning%20and%20implementation

West, J. M., Courtney, C. A., Hamilton, A. T., Parker, B. A., Gibbs, D. A., Bradley, P., & Julius, S. H. (2018). Adaptation Design Tool for Climate-Smart Management of Coral Reefs and Other Natural Resources. Environmental Management, 62(4), 644-664. doi:10.1007/s00267-018-1065-y

West, J. M., Courtney, C. A., Hamilton, A. T., Parker, B. A., Julius, S. H., Hoffman, J., . . . MacGowan, P. (2016). Climate-Smart Design for Ecosystem Management: A Test Application for Coral Reefs. Environmental Management, 59(1), 102-117. doi:10.1007/s00267-016-0774-3

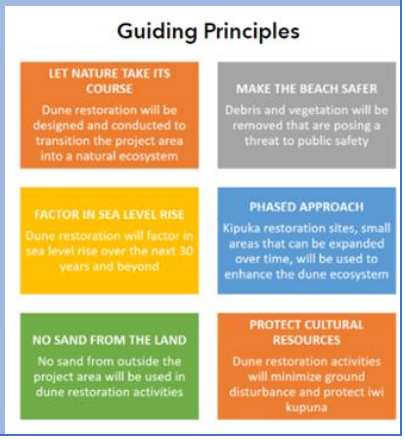
45. Dune Restoration Planning and Design for Kapukaulua (Baldwin Beach), Maui, Hawai‘i

Client Name and Address:	Hawai‘i Sea Grant College Program 2525 Correa Rd HIG 236 Honolulu, HI 96822
Primary Point of Contact:	Tara Owens Extension Faculty, Coastal Processes and Hazards Specialist Science and Technical Advisor to the County of Maui Planning Department 808.463.3868 email: taram@hawaii.edu
Contract Value:	$147,000
Period of Performance:	May 2020 – September 2021

Tetra Tech prepared a detailed dune restoration design package, implementation plan, and permits for dune restoration in the Baldwin littoral cell from Wawau Point to Pā‘ia Park. LiDAR surveys were conducted to obtain a high-resolution topography of the entire study area and to identify dune restoration zones. Flora and faunal surveys were conducted to identify appropriate coastal vegetation for dune restoration. Conceptual site plans for each zone were developed and used to gain stakeholder feedback before detailed engineering designs were prepared. Tetra Tech prepared a comprehensive implementation plan that included phasing and options based on funding. A complete set of permit applications was prepared making the entire project near “shovel-ready” once funding for implementation is secured.

The Kapukaulua Advisory Group, consisting of 25 members representative of the community, non-profit, private and public sectors, was established to provide knowledge, insight, and guidance to support the development of the Kapukaulua Dune Restoration strategies. The advisory group participated in multiple stakeholder meetings and talk story sessions. Stakeholder input was used to inform and update the original proposed restoration strategies. Guiding principles for dune restoration were defined with direct result of stakeholder feedback.

See project web application here.

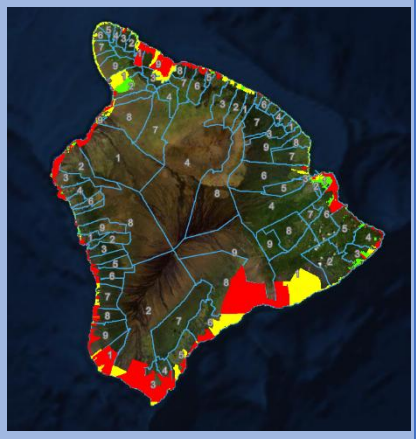


46. Analysis of Shoreline and Riparian Setbacks

Client Name and Address:	County of Hawai‘i Department of Planning 101 Pauahi Street, Suite 3 Hilo, HI 96720
Primary Point of Contact:	Bethany Morrison, Planner VI, Long Range Planning Division 808.961.8138 email: Bethany.Morrison@hawaiicounty.gov
Contract Value:	$245,000
Period of Performance:	June 2021 – Completion date: July 2023

Tetra Tech was contracted by the County of Hawai‘i to develop the technical foundation to revise the County's shoreline setback rules to more effectively reduce risk to coastal hazards and climate change. Tetra Tech is developing a coastal hazards typology island-wide to support the analysis of policy-induced vulnerabilities and identification data gaps. In addition, a pilot study of using shoreline certification reports to determine shoreline changes rates has been completed. Tetra Tech will integrate the results of new data collection provided by UH-Hilo Spatial Data Analysis and Visualization Lab in defining shoreline typologies for the island that can be used to develop shoreline setback rules by typology.

Tetra Tech updated the policy capability assessment and developed a tool that the County can use to review and update policies and plans and assign a resilience score.



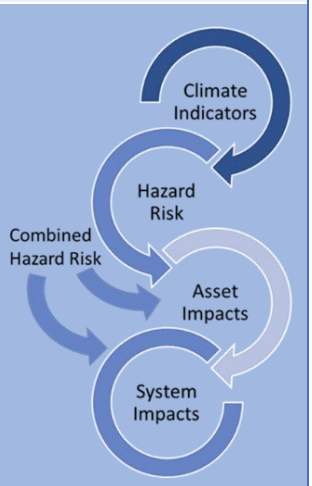
Case studies of shoreline setback policies and rules from the US and international jurisdictions have been completed to identify methods of determination and data requirements that may be applicable to Hawai‘i County.

A draft and final report summarizing the methodology, results, recommendations, and draft county legislation for shoreline setback rules from this project will be prepared. The report is also envisioned to serve a process guide to enable the County to repeat and scale-up policy integration for other similar efforts or as new data become available.

47. County of Hawai‘i Climate Adaptation Plan

Client Name and Address:	Focused Planning Solutions for the County of Hawai‘i Department of Planning
Primary Point of Contact:	Amy DeBay, Focused Planning Solutions Bethany Morrison, County of Hawai‘i, Planner VI, Long Range Planning Division 808.961.8138 email: Bethany.Morrison@hawaiicounty.gov
Contract Value:	$16,000 (Phase I)
Period of Performance:	July 2021 – Completion date: July 2023

Tetra Tech has been subcontracted by Focused Planning Solutions to prepare the County of Hawai‘i Climate Adaptation Plan. The first phase of this project, to develop a project work plan, was completed in November 2021. The second phase of the project will be to prepare the Climate Adaptation Plan. Key activities conducted to develop the Work Plan included:



- Identified climate threats based on existing information and data from the hazard mitigation plan and other sources (sea level rise, storms, wildfire, rainfall/drought, temperature extremes) and identify data gaps
- Identified County assets and systems at risk (parks & beaches, critical infrastructure, socio-economic, fiscal, etc.) based on review of existing risk and vulnerability assessments. Identified any other relevant assets and systems to include (economic sectors, etc.) not addressed in previous efforts
- Developed a map viewer geospatial information from the Hawai‘i County Hazard Mitigation Plan (HMP)
- Reviewed existing capability assessment to identify gaps
- Reviewed ICLEI Temperate tool for climate change analysis for inclusion in the threats and assets.
- Coordinated with other relevant County projects and initiatives to identify areas of synergy
- Identified criteria that can be used to prioritize assets for adaptation projects (level of service impairment, costs - CIP, land use, community value, timing, tax revenue, etc.)

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