TETRA TECH

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Proposal for (RFP #SHF-2024-01)

Professional Services to Update the Multi-Jurisdiction Local Hazard Mitigation Plan

Humboldt County

Original | September 2024

A. Cover Letter

Humboldt County Sheriff's Office of Emergency Services
Attn: Multi-Jurisdiction Local Hazard Mitigation Plan
826 4th Street
Eureka, CA 95501

September 30, 2024

Subject: Professional Services to Update the Multi-Jurisdiction Local Hazard Mitigation Plan- SHF-2024-01

Dear Humboldt County Sheriff's Office of Emergency Services and Members of the Selection Committee,

Tetra Tech greatly values its longstanding relationship with Humboldt County (County), and we are pleased to submit this proposal to support the County once again in updating its Multijurisdictional Local Hazard Mitigation Plan (LHMP). Our proposal outlines Tetra Tech's experience providing similar services and a project approach proven to deliver results.

As a national leader in mitigation planning, Tetra Tech has developed more than 300 FEMA-approved hazard mitigation plans in the last 20+ years. We strive to integrate mitigation efforts into the other areas of emergency management: preparedness, response, and recovery with a focus on making communities more resilient to disasters. We work closely with each client to customize their plan while ensuring compliance with both state and federal guidance.

Tetra Tech brings the following qualifications to this endeavor:

- ***12+ Years of Experience Supporting Humboldt County.*** Over the past decade, Tetra Tech has assisted the County and various planning partners with its previous three LHMP planning cycles. Tetra Tech has also supported a number of these planning partners with additional services, such as benefit-cost analysis projects, and grant support services, among others.

  Having worked with many of the same planning partners that were part of the previous LHMP, Tetra Tech is very familiar with the different communities in the County – coastal and rural – and the opportunities to engage with them. This experience will prove effective for outreach efforts in conducting this plan update.

- ***California-Based Company with Statewide Emergency Management and Hazard Mitigation Planning Experience.*** Tetra Tech is a California-headquartered company that provides consulting, environmental, water and wastewater, emergency management, and disaster recovery services in California and throughout the world. We know California well, having assisted local jurisdictions and state agencies in preparing for, responding to, recovering from, and mitigating against emergencies and disasters, such as earthquakes, wildfires, floods, and winter storms. Our statewide mitigation work includes completing the most recent update to the State of California's Enhanced Hazard Mitigation Plan and planning efforts for counties including Humboldt, Del Norte, Sonoma, San Mateo, and Nevada; cities such as Oakland, Livermore, Pleasanton, Dublin, Roseville, Los Angeles, and Long Beach; and a number of special districts and tribal nations.

- ***Public Engagement with Transparency and Collaboration.*** Public engagement is a cornerstone of successful hazard mitigation planning. We will utilize StoryMap technology to create an interactive platform that makes it easier for residents to understand and participate in the planning process. This will enhance transparency and build public trust while providing valuable insights into hazard data and proposed mitigation actions. Recognizing the diverse needs of Humboldt County's population, we are committed to ensuring inclusive community participation. We will provide public engagement printed

materials in Spanish, Hmong, and Simplified Chinese. This inclusive approach will help gather comprehensive feedback and foster a collaborative planning environment.

- ***Deep Bench of Expertise.*** With nearly 100 staff, Tetra Tech's Emergency Management, Risk & Resilience Team is experienced and well versed in all emergency management phases in delivering plans and services to such specialty areas as Benefit-Cost Analysis (BCA), grant support, floodplain management, substantial damage management plans, among others.
- ***Integrated Technology for Innovation and Efficiency.*** Tetra Tech leverages advanced tools and technology to enhance the effectiveness of hazard mitigation plans. For example, our innovative BATool[SM] software provides robust support for ongoing and future mitigation efforts, ensuring efficient use of resources and helping evidence the County's priorities and needs in the mitigation space.

We understand that the County sees this project as an opportunity to do more than update the plan; this is an opportunity to critically review opportunities to **build community resilience throughout Humboldt County and secure funding to implement projects that will enhance the local community**. We look forward to supporting this vision and continuing our successful relationship with the County.

For questions regarding this response, please contact the representatives listed below.

Technical Representative:
Mr. Bart Spencer, Project Manager
Phone: 650-324-1810
bart.spencer@tetratech.com

Contractual Representative:
Ms. Betty Kamara, Senior Contracts Administrator
Phone: 321-441-8500 | Fax: 321-441-8501
EMRR.Contracts@tetratech.com

As an authorized representative of the firm, I am empowered to sign this proposal and bind the firm in contractual commitments.

Sincerely,

Jonathan Burgiel
Tetra Tech | TDR Business Unit President

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B. Signature Affidavit

Attachment A
Submit With RFP

RFP COVER PAGE
SIGNATURE AFFIDAVIT

NAME OF FIRM:	Tetra Tech, Inc.
STREET ADDRESS:	2301 Lucien Way, Suite 120
CITY, STATE, ZIP	Maitland, FL 32751
CONTACT PERSON:	Jonathan Burgiel
PHONE #:	407-803-2551
FAX #:	321-441-8501
EMAIL:	EMRR.contracts@tetratech.com

Government Code Section 6250 *et.seq*., the "Public Records Act", define a public record as any writing containing information relating to the conduct of public business. The Public Records Act provides that public records shall be disclosed upon written request, and that any citizen has a right to inspect any public record, unless the document is exempted from disclosure.

In signing this proposal, I certify that this firm has not, either directly or indirectly, entered into any agreement or participated in any collusion or otherwise taken any action in restraint of free competition; that no attempt has been made to induce any other person or firm to submit or not to submit a proposal; that this proposal has been independently arrived at without collusion with any other proposer, competitor or potential competitor; that this proposal has not been knowingly disclosed prior to the opening of proposals to any other proposer or competitor; that the above statement is accurate under penalty of perjury.

The undersigned is an authorized representative of the above named firm and hereby agrees to all the terms, conditions, and specifications required by the County in this Invitation to Bid and declares that the attached proposal and pricing are in conformity therewith.

Signature	Business Unit President **Title**
Jonathan Burgiel **Name (type or print**	9/26/2024 **Date**

This firm herby acknowledges receipt / review of the following addendum(s) (If any)
Addendum # Addendum # Addendum # Addendum #

Q&A Response
9/16/24

C. Project Understanding

Humboldt County seeks to update its Multi-jurisdictional Local Hazard Mitigation Plan (LHMP) to continue a unified, countywide strategy that addresses natural hazards, reduces vulnerability, and increases resilience for the County and its participating municipalities and special districts. The LHMP must comply with FEMA and California Office of Emergency Services (Cal OES) standards and guidance, ensuring that the County remains eligible for critical funding under the Hazard Mitigation Assistance (HMA) and other federal programs. Our understanding of this project includes:

Comprehensive Hazard Mitigation Planning

The goal of this project is to update the County's existing LHMP and maintain its multijurisdictional format, incorporating input from local jurisdictions, including the cities and special districts outlined in the RFP. The updated LHMP will identify, assess, and prioritize hazards such as wildfires, earthquakes, flooding, drought, and coastal erosion, while considering the increased impacts of climate change.

Stakeholder Engagement and Public Participation

The success of the LHMP depends on the active engagement of community stakeholders, local governments, and special districts. We understand the need for inclusive public outreach that involves vulnerable populations as well as the integration of public feedback into the planning process. This will be achieved through workshops, public meetings, and the use of digital engagement tools like StoryMap and online surveys.

Risk Assessment and Mitigation Strategy Development

We will conduct a detailed risk assessment for each identified hazard, using tools such as Hazus and GIS mapping to evaluate vulnerabilities and potential losses. Based on these findings, we will work with the County and participating jurisdictions to develop actionable mitigation strategies, identify funding sources, and prioritize projects that can reduce the County's risk exposure.

Plan Submission and Approval Timeline

To maintain eligibility for future mitigation funding, the County needs to submit the final LHMP to Cal OES for review not later than January 2026, ensuring sufficient time for review and approval. The entire process is expected to follow an efficient timeline, with ongoing collaboration between the project team and stakeholders to ensure timely completion while complying with the updated guidance.

Experience with Humboldt County

Tetra Tech is proud of our history working with Humboldt County on **its previous three LHMP updates**. This experience provides us with a unique perspective of the County and its **most probable hazards**. This experience also provides our team with existing relationships with the County and its planning partners which will be leveraged to help expedite the planning process to allow the County to be eligible to apply for grants under the 2025 Notice of Funding Opportunity (NOFO). **This will require the draft plan to be through Cal OES review and with FEMA no later than October 2025.**

By working with Tetra Tech, the county gains the advantage of having a trusted team that already knows the County and has an understanding of its hazard profile. Our project team includes **Mr. Bart Spencer** who served as the Lead Planner on the previous plan update and supported meeting facilitation and stakeholder engagement efforts. We also have included **Ms. Sasha Jones** who recently joined Tetra Tech from Cal OES where she supported the County by providing feedback on the draft Humboldt County Recovery Annex to the Emergency Operations Plan, and **Ms. Karen Montes-Barrios** completed the QA/QC on the County's planning subapplication prior to its submission to FEMA.

Our team will leverage lessons learned from the two previous LHMP projects, as well as **experience gained from completing over 40 LHMPs in California and the 2023 State of California Enhanced State Hazard Mitigation Plan (SHMP).** This knowledge will allow our team to identify schedule efficiencies, identify planning objectives, and define a path for project success.

Management Approach to Meeting Project Schedule and Deliverables

As a firm, we are proud of our ability to manage complex projects for our clients worldwide. Our strength comes from the expertise of our team, the ability to draw on a large pool of staff resources and national experts, and tested project management practices. This allows us to manage dynamic project schedules, including simultaneous tasks, while never compromising on quality and customer support. Our management approach ensures that we manage technical requirements in an effective, efficient, and responsive manner while maintaining oversight of scheduling and financial controls.

Tetra Tech's project managers all understand the importance of appropriate planning, status, and monitoring is key to successful project execution and completion, especially for projects that require multiple tasks or projects to be completed simultaneously on time and within budget. Tetra Tech's Project Controls methodology and practice focus on ***Shared Vision, Do it Right*** principles, and providing client value through service and quality. For this project, Tetra Tech will use our proven program management process which focuses on staff assignments, staffing, reporting, and identifying problems early. **Exhibit 1** below, demonstrates our approach for effective management of this project.

Exhibit 1: Tetra Tech's Management Approach

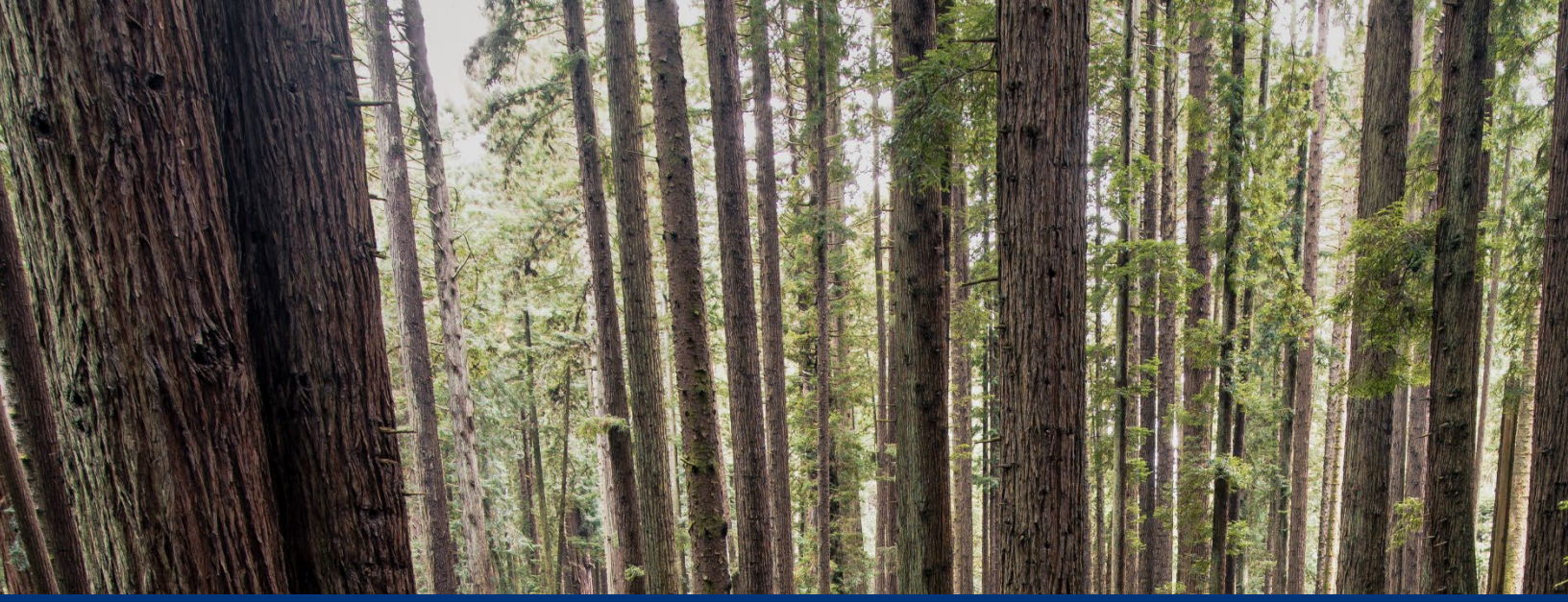
Function	Task Management Procedures and Activities	Management Tools and Techniques
Staffing/ Resourcing	• Identify key roles and responsibilities, disciplines, and needed experience/expertise • Identify qualified staff, obtain project commitments, and continuously manage staff workload • Maintaining a strong project management presence throughout the contract period of performance • Identify reserve pool of staff and manage succession planning as needed	• Project-specific work breakdown structure (WBS) • Online, searchable resume SharePoint site and Microsoft Teams site • Workload tracking tables for project management and task order level staff
Adhering to Schedules	• Establish County approved project and task-level schedules for deliverables and other support • Identify key project or deliverable milestones and dependencies • Communicate frequently with the County to identify external drivers and changes to approved schedules	• Standing project status meetings • Gantt, Program Evaluation Review Technique (PERT), and other critical path planning tools • Deliverable tracking system and dashboards

Function	Task Management Procedures and Activities	Management Tools and Techniques
	• Make staffing and resource adjustments to maintain adherence to the approved schedule	• Task order Microsoft Teams channels and calendar tools
Tracking and Controlling Costs	• Establish and track task level budgets • Perform weekly monitoring of project costs incurred (more frequent near task order completion) • Track costs incurred against established budget • Make funding adjustments across tasks if needed • Communicate any cost issues to County project manager early and identify recommendations	• Oracle financial project tracking system • Weekly financial tracking reviews • Budget tracking spreadsheets • Tool to streamline compilation, review, and approval of Monthly Status Reports
Identifying and Correcting Issues	• Identify potential challenges early through cost, hours, and schedule variances • Leverage cost and schedule controls, as needed • Inform the County project manager as appropriate • Identify and implement solutions to challenges • Implement training, corrective actions, or replacement of poor-performing staff	• Proactive management and monitoring of project delivery • Early detection via quality assurance/ quality control (QA/QC) processes • Routine communication and quality checks with County • Performance monitoring and improvement plans
Completing and Closing Out Task Orders	• Ensure project and task deliverables are complete • Complete required task order documentation/reporting • Provide electronic files of deliverables to the County	• Task Order Close-Out procedures • Close-out checklists • Provide documentation and obtain client confirmation

While the Tetra Tech team has the capacity for numerous detailed procedures, systems, and methodologies to increase the probability of success, we are also aware there is no one size fits all approach to project execution. Through communication and planning efforts, a project-specific controls approach may be adjusted to fit what is mutually best agreed upon to benefit the project outcome and allow for multiple tasks to be successfully managed at once to maintain the project schedule and budget.

In support of our project management activities, Tetra Tech maintains a robust QA/Q C program and procedures that follow the American National Standards Institute (ANSI)/American Society for Quality (ASQ) A4-2014, Quality Systems for Environmental Data and Technology Programs: Requirements with Guidance for Use. Our QA/QC program activities grow from a business culture in which they are part of every component of program and project work. This is the result of two conditions: ***(1) a clear and unequivocal emphasis on proactive quality management from its corporate leadership; and (2) using proven project-specific quality planning, assurance, and control techniques.*** From this, QA/QC is implemented in the following ways, best summarized as **"Plan > Do > Check > Act."**

Tetra Tech is prepared to continue its relationship with the County and provide comprehensive services in line with these objectives, ensuring the delivery of a **robust, FEMA-approved LJMP** that supports the **long-term resilience** of Humboldt County and its planning partners.



Our commitment to **Humboldt County**...

- ✓ Northern CA planning staff to meet on-site with County and stakeholders
- ✓ Work with planning partners to develop customized annexes
- ✓ Address compliance with current Cal OES and FEMA guidance
- ✓ Provide interactive StoryMap so residents can see hazards based on address
- ✓ Devise detailed mitigation strategies to assist with HMA and BRIC applications

Tetra Tech consistently delivers **customized and approvable LHMP**s for its clients and ensures that plans comply with current state and federal guidelines while incorporating industry best practices.

Knowing that inclusivity is an essential principle for FEMA and Cal OES, Tetra Tech's planning process incorporates strategies for engaging all populations and interested groups in the County.

...is to deliver a **best-in-class** LHMP update.

D. Scope of Work

Tetra Tech will develop the LHMP update to meet the requirements outlined in the Stafford Act and Code of Federal Regulations (CFR) 44 Part 201 Mitigation Planning following FEMA's current Local Mitigation Plan Review Guide, FEMA's 2023 Local Mitigation Planning Handbook, April 2022 FEMA Local Mitigation Planning Policy Guide (FP 206-21-0002), 2017 Tribal Mitigation Plan Review Guide, 2019 Tribal Mitigation Planning Handbook, and Cal OES standards.

Our recommended approach has been successful in similar planning processes and is consistent with the requirements of both Cal OES and FEMA Region 9. However, we are flexible to amend it at the request of the County and its planning partners. Assumptions made in the development of this proposed work plan are provided in the **G. Itemized Cost Proposal** section of this proposal.

Project Management

Tetra Tech's Northern California-based project manager, Bart Spencer, will oversee the planning process. Throughout the performance of a task, our project manager will conduct and coordinate technical and financial reviews to keep the project on schedule and budget.

Project Initiation Meeting. Tetra Tech's project manager will begin the project by conducting a one-hour virtual meeting with the County's project manager. This will be an opportunity to confirm the project schedule, discuss anticipated planning partner participation, and set communications and reporting schedules. Logistics for the project kickoff meeting will also be discussed. Information collected during this meeting will be used to populate the project management plan.

Project Work Plan. Using the information collected during the Project Initiation Meeting, Tetra Tech's project manager will develop a project work plan that outlines project roles and responsibilities, identifies key project dates (deliverable due dates, review period, reporting deadlines), and establishes communications protocols. The project work plan will be provided to the County's project manager for review and approval. If the scope or schedule of the project is significantly altered during the period of performance, the project manager will work with the County to revise the work plan to reflect changes and obtain approval for a revised work plan.

Progress Reporting. The project work plan will be used to develop monthly progress reports that outline key activities completed in the previous month, upcoming activities, and invoicing updates. The reports will also outline anticipated schedule deviations and provide suggested mitigation actions to keep the project on schedule, and budget. In addition to the reports, Tetra Tech's project manager will conduct a monthly project management call with the County's project manager to review the report and address questions they may have on the project's progress. Calls are expected to last no more than one-hour.

Information Sharing and Collaboration. Tetra Tech will develop a Microsoft Teams Site to facilitate the sharing of information regarding schedules, progress reports, and contact information; managing documents from start to finish; and publishing and issuing final documents. Members of the Planning Team (PT) and LHMP Steering Committee will be provided access to the Teams Site. Teams will also be leveraged to conduct virtual meetings.

Quality Assurance. Tetra Tech's quality program will play an important role in this project. We will maintain high-quality technical performance through strict adherence to our corporate Quality Management Plan (QMP), which describes quality assurance and quality control (QA/QC) requirements and is based on 10 quality system elements required by the American National Standard: Quality Systems for Data and Technology Programs—Requirements with Guidance for Use (ANSI/ASQ E4-2014). The assigned quality control coordinator will work with the project

manager to establish the appropriate QC review level, balancing the need for responsiveness with the importance and intended use of each deliverable.

Exhibit 2: Project Management Meetings and Deliverables

Meetings	• One-hour virtual project initiation meeting attended by the Tetra Tech project manager and County project manager to confirm project schedule, goals, reporting requirements, and discuss planning partner participation. • Monthly virtual project report meetings attended by the Tetra Tech project manager and County project manager to discuss project progress, upcoming activities, and project scheduling
Deliverables	• Project work plan outlining project roles and responsibilities, defining key deliverables and due dates, and establishing communications protocols. • Monthly project summary reports outlining activities from the previous month, upcoming activities, and overall project progress.

A. Facilitate Special District Participation/Adoption of the LHMP

Coordinate/Communicate with Participating Jurisdictions

Tetra Tech will work with the County and its planning partners to organize the key components for this plan update process in alignment with Cal OES and FEMA programmatic requirements. Tetra Tech recommends the following organizational structure to oversee this planning update process:

Planning Team. The PT would be made up of discipline leads from the Tetra Tech team and key staff from the County (recommended minimum: Humboldt County project manager, a GIS liaison, and a public information liaison). From project inception to completion, the PT will conduct monthly project coordination calls to discuss project status, identify issues in the planning process, review deliverables, and confirm meeting content for planning committee meetings.

Planning Partnership (Planning Partners - Municipalities and Special Districts). Once the organizational oversight structure is in place, the PT will begin facilitating the plan update process. The first step will be to contact eligible local governments and service districts within the planning area to confirm a Planning Partnership for this multijurisdictional planning effort. This will include planning partners that were covered under the 2020 plan and any additional eligible local governments identified by the PT as outlined in the RFP.

Potential planning partners identified by the PT will be invited to an **in-person kickoff meeting** facilitated by two Tetra Tech staff to be conducted within 30 days of contract execution. The purpose of this 90-minute meeting will be to:

- Present the plan update scope of work to the potential planning partnership.
- Introduce the PT and Steering Committee and explain their roles in the plan update process.
- Present the planning partner expectations and explain the definition of “participation.”
- Seek formal commitment in the form of a notice of intent to participate.
- Present data needs for the risk and capability assessments.

More information on this meeting will be outlined below in **G. Public Engagement/Meetings/Public Hearings**

Planning partners will be asked to formally commit to the plan update process via a "Notice of Intent" to participate that will indicate their understanding of the participation requirements for each planning partner as defined by the PT. Each Notice of Intent will certify that the partner agrees to the expectations and designate a lead point of contact.

Planning partners will be expected to participate in six (6) planning meetings throughout the planning process. More information on these meetings is discussed below in **G. Public Engagement/Meetings/Public Hearings**.

It is important to remember that FEMA requires that all planning partners seeking compliance from a multijurisdictional plan must participate in the plan development process. Tetra Tech's plan for active engagement and development of jurisdictional annexes will meet this FEMA requirement. A timeline for completion will be provided at the Steering Committee meetings and plan development workshops. Failure to meet this timeline will be considered a failure to meet key planning partner expectations and a failure to meet the participation requirement. Tetra Tech will make every effort, in coordination with the County's project manager, to have all planning partners who sign a letter of intent to participate be actively engaged in the process through the final plan adoption process.

Steering Committee. A key component of this phase will be the establishment of a Steering Committee made up of government and non-governmental partners who want to be actively engaged in the plan update process. The Steering Committee will make key milestone decisions while streamlining the overall planning process. The Steering Committee will consist of an inclusive makeup of identified stakeholders within the planning area (Humboldt County), ideally with representation from the involved planning partners and relevant technical experts. **The LHMP Steering Committee used for the 2020 planning effort will be the starting point for this phase.** The Steering Committee will operate under a set of ground rules established by its membership, and meetings will be facilitated by the PT, open to the public, and advertised as such under the public outreach strategy for this plan update.

FEMA's 2023 Local Mitigation Planning Policy Guide emphasizes the role of collaboration among various sectors to ensure that mitigation capabilities continue to grow, and that comprehensive mitigation includes strategies for community sectors. Tetra Tech will work with Humboldt County to ensure that the following stakeholders are invited to participate in the LHMP update by serving on the Steering Committee and to engage as many as possible in a meaningful way.

- Elected or appointed officials
- Emergency response agencies (fire, law enforcement, and EMS)
- School districts and other public or private schools
- Academic institutions, hospitals, congregate care centers, nursing homes, and other institutions with resident populations
- Daycare centers and pre-schools
- Chambers of commerce, business leaders, and major employers
- Historic districts and historical preservation organizations
- Community leaders
- Neighborhood groups and housing organizations
- Groups that advocate for socially vulnerable populations
- Groups representing infrastructure that runs through the County (e.g., Caltrans)
- Local representatives from the State (e.g., Cal OES, CAL FIRE, and other state agencies) and federal (e.g., FEMA, USACE) agencies, especially those with installations or offices in the County

- Humboldt County residents
- Officials from the neighboring counties

Following the planning partner kickoff meeting, the Steering Committee will be formed. The Steering Committee meeting schedule will be defined in the ground rules established at the first Steering Committee meeting.

It is anticipated that **the Steering Committee will need to meet a minimum of four times** over the projected update timeline to meet FEMA requirements. At these meetings, the Steering Committee will provide guidance to the PT on key milestones such as:

- Confirming goals and objectives for the plan
- Defining an "equity lens" to be applied to the planning process
- Identifying a public outreach strategy for the overall process
- Defining critical facilities to be assessed
- Confirming a plan maintenance strategy for the plan
- Identifying a comprehensive range of mitigation alternatives that each planning partner may consider in identifying their jurisdiction-specific actions for the plan.

Adoption/Annexation of Special Districts into the LHMP

Throughout the planning process, Tetra Tech will work with the Special District planning partners to gather information for inclusion in the risk and vulnerability assessments, gather information on their individual capabilities and overall ability to support mitigation efforts across the County and develop their annexes which will populate Volume II of the plan. Every effort will be made to encourage their participation in meetings and workshops and Tetra Tech will provide the Special Districts with documentation to support their adoption of the plan including a sample resolution and briefing document.

Exhibit 3: Facilitate Special District Participation/Adoption of the LHMP Meetings and Deliverables

Meetings	• 90-minute in-person kickoff meeting for the PT. The meeting will be facilitated by two members of the Tetra Tech team. Tetra Tech will provide meeting invitations, develop the meeting presentation, take attendance, and provide a meeting summary within 5 business days of the meeting taking place. The meeting agenda will be provided electronically to attendees at least 3 business days prior to the meeting taking place. • Throughout the project the PT members will meet at least 6 times, including the above mentioned kickoff meeting, and the Steering Committee will meet 4 times. A total of three PT meetings will be in-person. Steering Committee meetings are anticipated to be virtual unless they are scheduled on the same trip as the PT meetings. For all meetings, Tetra Tech will provide meeting invitations, develop the meeting presentation, take attendance, and provide a meeting summary within 5 business days of the meeting taking place. The meeting agendas will be provided electronically to attendees at least 3 business days prior to the meeting taking place.
Deliverables	• Tetra Tech will distribute a letter of intent for PT member participation in the planning process. Tetra Tech will maintain electronic copies of the signed agreements and provide them to the County.

	• A Steering Committee Charter will be developed that outlines the ground rules agreed upon at the initial meeting. This will be used to guide participation in the LHMP development process

B. Hazard Identification

One of the initial steps in updating the LHMP, following the selection of a PT and Steering Committee, is identifying the hazards that pose a significant risk and identifying the planning area. Working with the PT, Tetra Tech will help navigate this process. Part of that process will include reviewing the hazards that were profiled in the previous plan and considering them in light of the recent FEMA updated guidance.

Hazard Identification. Building on the hazards that were identified in the previous plan, incorporating input from FEMA's National Risk Index, and integrating FEMA's 2023 updated HMP guidance, we will work with the PT to determine the hazards that pose significant risks to the planning areas. These hazards will then be assessed in the next phase of the planning process.

Update/Develop Community Profiles

Working with the planning partners, Tetra Tech will update the community profiles that were included in the 2020 plan, and develop new profiles for communities and Special Districts that did not previously participate. Using the guidance provided by FEMA, Tetra Tech will provide planning partners with data collection worksheets that help to collect information on the partners' critical facilities and infrastructure, key resources, and current capabilities. This information, along with updated information on the County, will be integrated into the County Profile included in Volume 1 of the LHMP.

Update/Develop Hazard Profiles

Tetra Tech will obtain information and data on the hazards to which Humboldt County is susceptible. We assume that the County will include the hazards of concern from the most recent LHMP**: earthquake, wildfire, severe weather, landslide, sea level rise, flooding, tsunami, drought, climate change, and dam failure.** For the 2025 update, the County may wish to adjust the list of hazards of concern to align with current hazards and county plans and to align with updated FEMA guidance and the State of California Enhanced HMP.

The County may also choose to re-evaluate the number of hazards of concern in light of FEMA's updated local plan guidance, as each plan participant will need to develop at least one action that addresses each hazard of concern. Other clients have chosen to consolidate their hazards of concern list or combine hazards in instances where one hazard is a cascading impact of other hazards.

We will work with the PT, Steering Committee, and Planning Partnership to obtain up-to-date information and data on the hazards and develop an updated hazard profile. This will include a description of previously available data, new data sources, and data limitations.

The profiles will be updated to include a brief hazard definition, recent historical occurrences and losses, location, extent/magnitude, and probability of occurrence within the County. In addition, other relevant plans and reports will be reviewed to identify vulnerable areas throughout the County, thus building on prior mitigation and risk reduction planning efforts. To address Element B (Risk Assessment Requirements) in the FEMA Local Mitigation Plan Review Guide, we will include a discussion of the effects of climate change on relevant hazards and its impacts

on the probability of future occurrence, referencing recent, peer-reviewed documents on integrating climate science into planning, as we have done in all our HMPs. Outputs from this task will include:

- Maps that illustrate the extent and location of hazard areas for each applicable hazard of concern
- Review of hazard occurrences since the last LHMP update
- Streamlined hazard chapters with enhanced graphics to summarize analyses performed

Tetra Tech will produce infographics, summary information, and easy-to-interpret maps for each hazard in the plan. **StoryMap** will be used to allow visitors to interact with each hazard, allowing them to visualize impacts and understand varying levels of risk in their community and their homes.

Vulnerability Analysis

This part of the hazard assessment overlaps with areas of the risk assessment when analyzing and assessing the vulnerability of hazards. The information captured during this phase of the project will feed into the work outlined below. As part of this overlap, areas that will be included are:

- General building stock – inventorying the number and types of structures at risk from the list provided by the County and planning partners
- Assess the impact to life, safety, health, and welfare
- Evaluate the need for procedures for waring and/or evacuation – consider existing plans and procedures in existing county plans
- Review development trends and potential or anticipated development trends
- Assess how climate change affected the selected hazards. Current guidance has climate change as part of each hazard instead of a stand-alone one

Exhibit 4: Hazard Identification Deliverables

Deliverables	• Community profiles of the County and the participating jurisdictions and Special Districts. This will include a historical overview, a description of the physical setting, land-use patterns, and development trends. • Hazard profiles for each of the agreed upon hazards that will be addressed by the LHMP. This will provide an overview of the hazards, and its anticipated impacts on the County, maps illustrate the extent and location of hazard areas, and an overview of the analysis conducted. This information will be integrated into Volume 1 of the LHMP.

C. Risk Assessment

As the cornerstone of an effective plan, we will determine which hazards pose the greatest threat and impact and then develop a risk assessment and a ranking of risk based on the outputs from this assessment. This will enable communication of identified risks to citizens and stakeholders throughout the planning area. We will use models (Hazus) that enable our experts to identify the assets at risk and estimate the impact of each hazard individually. We will then aggregate those results to estimate planning area vulnerability sufficient to rank risk.

Additionally, we will update the County's critical facility inventory to include community lifelines using electronic data, such as spreadsheets, databases, and GIS files. These updates will provide quantifiable results detailing the impacts of identified hazards, which can be used to develop specific, actionable mitigation measures.

Natural Hazards Assessment

Tetra Tech will perform a thorough assessment of the identified hazards and the vulnerability of Humboldt County using tools such as GIS/Hazus, BCA tools, and the best available scientific data and historical/local knowledge of past occurrences.

Tetra Tech will work with County GIS staff and data available from both county and state agencies to update the building and critical facility inventories used for the 2025 LHMP risk assessment and previous planning efforts. For the identified hazards, we will perform a vulnerability analysis that will include an inventory of the number and type of structures at risk; the impact on life, safety, and health and the need and procedures for warning and evacuation; the identification of critical facilities and the impact of the hazard on those facilities; and a review of the development/redevelopment trends projected for the future in each identified hazard area. In addition, the flood hazard risk assessment will include a review of FEMA-identified repetitive loss and severe repetitive loss properties within the planning area.

Tetra Tech will produce infographics, summary information, and easy-to-interpret maps for each hazard in the plan. A StoryMap will be developed and used to interact with each hazard, allowing those who access the website to visualize impacts and understand varying levels of risk in their community.

HAZUS Analysis

The primary tool utilized in the development of this risk assessment will be Hazus. This will be a level 2, user- defined analysis supported by information provided by the County. For those hazards not addressed by the Hazus model, outputs will be modeled using GIS applications (applying damage functions to an inventory exposed to a hazard). The Hazus models, their data inputs, and their results will be provided to Humboldt County after this project to update their existing data sets as well as training for appropriate personnel on their use. Hazus data will be formatted such that it can support both the plan content and the public involvement strategy.

Our FEMA Hazus Level 2 analysis will include:

- ✓ One flood scenario (1% annual chance event)
- ✓ Two earthquake scenarios (500-, and 2,500-year mean return periods)
- ✓ One dam failure scenario
- ✓ One wind scenario

Cal OES and FEMA Region 9 have established a priority in their plan reviews that HMPs clearly document changes in risk since the development of the last plan. The basis for this analysis is to look at all new developments that have occurred since the last plan to determine what, if any, of that new development occurred within identified hazard areas and to estimate the vulnerability of that new development. Tetra Tech will request changes in development from all participating jurisdictions and provide an online tool to identify the new or anticipated development on an interactive and easy-to-use map (Survey123).

Hazus models, their data inputs, and their results will be provided to the County after this project to update their existing data sets as well as training for appropriate personnel on their use.

Vulnerability Assessment

During earlier phases of the project, the hazards from the previous update will have been reviewed. From discussion with the PT and in consideration of FEMA's National Risk Index of hazards and FEMA's updated guidance, the PT will select which hazards should be assessed with accompanying risk analysis for the 2025 LHMP update.

The selected hazards will be profiled which includes past occurrences in the county and nearby effected areas, a summary description of the hazards, vulnerability, likelihood of future occurrences, and potential consequences, including those on socially vulnerable populations. The hazards will also be assessed for how they may be impacted by climate change as required under SB 379/SB 1000.

Additionally, our approach will incorporate the elements of Justice40 to identify the location of socially vulnerable populations. This will include a geospatial analysis identifying the location of socially vulnerable populations in the County, mapping, and a discussion of not only areas of greatest risk but areas with the greatest need in the vulnerability assessment. We will also examine how hazards impact public health and safety, the economy, and the overall tax base.

We will update the community lifelines as part of our data collection efforts. FEMA identifies community lifelines as the most fundamental services in the community that, when stabilized, enable other aspects of society to function. Efforts to mitigate potential impacts on community lifelines are key to building resilience, and it is important to include those as part of the planning process.

Most importantly, the vulnerability assessment will be presented in a way that clearly outlines the science and sources used but is easily understood by a reader who may not have extensive knowledge of the information included. We will seek to present the findings so that the public can understand their potential risks and make educated decisions on how to protect themselves and their loved ones.

Community Capabilities Assessment. As part of analyzing a community's vulnerabilities, an assessment of its capabilities is required. In order to meet the updated FEMA guidance, Tetra Tech will conduct a comprehensive assessment of existing community capabilities, plans, policies, procedures, and resources available to mitigate hazards.

The assessment of existing community capabilities will involve:

- **Capabilities Requirements.** FEMA requires that each participant provide an assessment of the capabilities listed below. We will provide worksheets and work with the planning partners to complete the necessary information.
    - Planning and regulatory
    - Development and permitting
    - Administrative and technical

- Fiscal
- Education and outreach

- **Inventory of Current Authorities (codes, ordinances, and regulations), Plans, and Programs.** We will identify and document current authorities, policies, programs, staffing, funding, and other resources currently in place within Humboldt County and each participating jurisdiction.
- **Infrastructure Analysis.** We will review and document existing infrastructure, such as flood control systems, that positively or negatively impact the County's vulnerability to hazards.
- **Strategies for Improvement.** We will develop strategies to expand and improve existing capabilities based on the findings of the capability assessment.

FEMA planning guidance indicates that comprehensive updates to the risk assessment portion of an LHMP are required in plan updates if new technical data pertaining to a hazard have been recorded by a credible source since the plan's initial development. These data could include recent studies, mapping, and loss records.

Exhibit 5: Risk Assessment Deliverables

Deliverables	All of the information gathered during this phase of the project will be integrated into Volume 1 of the LHMP. • Assessment of the applicable natural hazards that will be included in the LHMP. Assessments will involve the integration and use of GIS/Hazus, BCA tools, and the best available scientific data and historical/local knowledge of past occurrences. • HAZUS Level 2 assessments of one flood scenario (1% annual chance event), two earthquake scenarios (500-, and 2,500-year mean return periods), one dam failure scenario, and one wind scenario. • Capability assessment of current planning, development and permitting, fiscal, administrative, and infrastructure within the County and the jurisdiction of its planning partners.

D. Mitigation Strategy

Tetra Tech will work with the PT to integrate the needs and concerns of the disability, access, and functional needs (DAFN) community and other vulnerable populations. During the process of developing mitigation goals, objectives, and action items, we will strategize on the incorporation of strategies that consider marginalized and socially vulnerable populations and people in Disability, Equity, Inclusion, and Accessibility (DEIA) communities.

Mitigation Goals and Objectives

Working closely with the PT and the Steering Committee, we will confirm a clear vision for the updated goals and objectives. This will include a thorough assessment of the County's current capabilities to implement mitigation actions, a comprehensive range of potential alternatives to be considered, and the development of a formal mitigation action plan. The most recent LHMP will serve as the foundation for this task, providing insight into the 6 goals and 12 objectives previously identified. Our team will evaluate whether these goals are still relevant in light of the new information gained from vulnerability and risk assessments, climate change impacts, and stakeholder input, ensuring that the plan aligns with FEMA and state requirements.

The development of goals and objectives frequently occurs early in the planning process and aids in the framework and strategy of the updated plan. This subsequently assisted when selecting action items for each planning partner.

Mitigation Strategies and Actions Development

Review the 2020 Mitigation Strategy. We will conduct a thorough review of the mitigation strategy our team developed for the 2020 LHMP. This review will help us identify which actions have been successfully completed and should be closed, which actions should be carried forward into the updated plan, and which actions are no longer viable due to changes in capabilities, priorities, or the hazard landscape. By reassessing these strategies, we ensure the updated plan reflects the current risks and capabilities of the County and its participating jurisdictions.

Assess Mitigation Capabilities. FEMA requires that HMPs describe each participant's current and future process of integrating hazard mitigation into a broad range of local capabilities. Tetra Tech will work with the County and the Planning Partnership to update their capabilities using an online survey to collect input. We will review currently applicable policies, plans, and regulations as they relate to emergency management and the reduction of risk to natural hazards. After our review, we will document how each participant currently integrates the LHMP's data, information, goals, and actions into other planning mechanisms. We will also identify local planning mechanisms where hazard mitigation information and actions may be integrated.

Identify and Prioritize Mitigation Actions. Tetra Tech will work with the County and Planning Partnership to begin to develop mitigation actions for each of the identified hazards. For each action, we will identify points of contact to lead the implementation of the action, timeframes for completion, cost, funding programs, and benefits. We will incorporate as much detail as is available from the County (e.g., lowest floor elevation, the market value of existing structures, etc.). A focus will be on identifying new mitigation actions that enhance community resilience and reduce long-term vulnerability. Tetra Tech will work with the County and Planning Partnership to prioritize potential actions based in part on a review of costs versus benefits.

Develop a Plan Maintenance Strategy. Together with the County, Tetra Tech will develop clear, effective, and efficient procedures for regular plan review and maintenance. Tetra Tech will begin the plan maintenance strategy update by working with the County to assess the effectiveness of the plan maintenance strategy identified in the previous HMP. Together with the Steering Committee, we will develop an implementation workbook that will help guide the County and municipalities with integration measures. We will leverage FEMA's Safe Growth worksheets, the American Planning Association's (APA) Hazard Mitigation: Integrating Best Practices into Planning, FEMA's Integrating Hazard Mitigation into the Local Comprehensive Plan, and information collected throughout the planning process to develop a roadmap to implementation and resilience.

Value Added Activity: BCA Tool Training Session

One of the primary benefits of developing an LHMP is to enable a jurisdiction to become grant-eligible. Grant eligibility starts with actionable projects that provide wide community benefits, and Tetra Tech's expertise in identifying such projects is unsurpassed. In the current economic situation, and with grant funds quickly dwindling, the ability to obtain grant dollars has become increasingly important. Tetra Tech team members assigned to this project have expertise in the development of sound strategies and in hazard mitigation grant applications under all five FEMA Hazard Mitigation Assistance grant programs. Tetra Tech can help the County and its planning partners identify fundable, implementable projects that serve as building blocks to a resilient community.

Tetra Tech will provide a two-hour virtual training session for the County and its partners on FEMA's BCA Tool. Stakeholders will be invited to attend this training, bringing their projects with them to learn how to use the tool

to support future grant applications. The purpose of this task will be to provide participants with the ability to quickly develop support for grant applications.

Mitigation Action Matrix

Working with each planning partner and based on their respective data and information, Tetra Tech will assist in the development of action items that align with current guidance, plan goals and objectives, and the needs of the respective jurisdiction and Special District. Each planning partner will need to develop at least one action item for hazards that affect it – there can be overlapping action items, for example, one action item may cover more than one hazard.

When determining the action items, Tetra Tech will assist in considering the action item timeline, cost and funding sources, and ability to achieve, among others. Having assisted many of the planning partners during the last LHMP update, Tetra Tech is very familiar with the area hazards and impacts and worked closely in the development of previous action items. The team will conduct outreach to the participating planning partners to obtain their resource commitment and confirm timeline accuracy.

The identified actions will be placed into a matrix that aligns them with the appropriate plan goals and objectives and included in Volume 1 of the LHMP.

Value-Added Activity: Implementation Workbook

Together with the PT, we will develop an implementation workbook that will help guide the County with plan integration measures. This will provide a clear process for incorporating the requirements of the mitigation plan into other planning mechanisms and subsequently documenting these efforts. We will leverage FEMA's Safe Growth worksheets, the American Planning Association's (APA) *Hazard Mitigation: Integrating Best Practices into Planning*, FEMA's *Integrating Hazard Mitigation into the Local Comprehensive Plan*, and information collected throughout the planning process to develop a roadmap to integration, implementation, and resilience.

Exhibit 6: Mitigation Strategy Deliverables

Deliverables	All of the information gathered during this phase of the project will be integrated into Volume 1 of the LHMP. • Updated goals and objectives for the LHMP aligning with current County and planning partner capabilities, community growth, and needs. • Mitigation strategies and actions align with the profiled hazards. Each planning partner will be required to develop actions for applicable hazards. • LHMP maintenance strategy that outlines how the plan will be evaluated, adopted, implemented, and mitigation actions tracked over the next 5 years. • Mitigation Action Matrix that aligns identified mitigation actions against the plan's goals and objectives.

E. Plan Preparation

Lead the Participating Partners

Using the information collected from the Planning Partners, Tetra Tech will serve as the primary plan author and begin assembling the plan into the two-volume format outlined below. Tetra Tech will work with the jurisdictions and Special Districts to complete the templates for their annexes which will comprise Volume 2 of the plan. Virtual

workshops will be conducted on how to complete the templates. More information on those workshops is provided below.

Tetra Tech will make every effort to encourage and engage with planning partners. We will work with the County to address partners that are not meeting their requirements as outlined in the notice of intent letter.

2-Volume Format Plan

Using the information gathered throughout the project, Tetra Tech will assemble the plan. Tetra Tech recommends a 2-volume format, in which the second volume presents jurisdiction-specific annexes for each planning partner that fully participates in the plan update process.

Volume 1 of the LHMP update will include all information that applies to the whole planning area, such as the description of the planning process, risk assessment, goals and objectives, and plan maintenance strategy. Volume 2 will include elements that are jurisdiction or special district-specific, such as the jurisdictional capability assessment, risk ranking, and mitigation strategy. Volume 2 will include a jurisdictional annex for each participating local government that fully meets its participation requirements (see Task 1). These annexes will meet DMA requirements for each jurisdiction. The proposed structure of the updated HMP will be in two volumes, as shown below.

As part of our internal Quality Assurance/Quality Control (QA/QC) process, Tetra Tech will perform an in-house review of the draft plan using the plan review resources and tools used by Cal OES and FEMA 9 reviewers (i.e., the 2023 Local Plan Review Tool [crosswalk]). This review will document compliance of the mitigation plan with DMA 2000 requirements and 2023 guidance update and verify that it meets or exceeds the requirements of the FEMA Local Plan Review Tool, FEMA Local Mitigation Planning Policy Guide, and 44 CFR 201.6.

Volume I	Appendices
Part 1 – Introduction: The Planning Process and Planning Area ○ Planning Process ○ Countywide Profile including History, Physical Setting, Land-Use Patterns, and Development Trends ○ OA Mission, Goals, Programs, and Policies Part 2 – Risk Assessment ○ Chapter on Climate Change and Possible Impacts ○ List of Hazards and Risks ○ Summary of Programs and Policies to Address Identified Risks Part 3 – Capability Assessment Part 4 – Mitigation Strategy Part 5 – Plan Maintenance ○ Strategy for evaluating, adopting, and implementing the LHMP.	• Sample Adoption Resolution • Participation Matrix • Meeting Documentation • Public and Stakeholder Outreach • Risk Assessment Information • Mitigation Strategy Support Documentation • Plan Maintenance Tools • Linkage Procedures (if applicable) • Critical Facilities (if appropriate)
Volume II	
Part 6 – Jurisdictional Annexes	

Assisting Planning Partners and Workshops

As stated in this proposal, Tetra Tech will provide planning partners with worksheets and templates to develop their annexes to the LHMP which will comprise Volume 2. To support their involvement and to help them gain a better understanding of the FEMA requirements, Tetra Tech will hold two virtual workshops. One workshop will be for the County's municipal partners and one for the Special Districts. These 90-minute workshops will serve as an opportunity to go over the templates, outline the information needed, discuss information gaps that may exist, and conduct one-on-one support for planning partners. For the workshops, Tetra Tech will send out meeting invitations, develop a presentation, take attendance, and develop a meeting summary. The agenda will be sent out three days in advance of the workshop, and the meeting summary will be submitted within 5 days. At the County's request, Tetra Tech can record the training sessions and provide the videos on the Microsoft Teams site so that planning partners who are unable to attend can view them at a later time.

Value-Added Activity: Tetra Tech's BATool[SM] Program

To support annual plan reviews, Tetra Tech has developed an automated, online annual plan review program (*BATool*[SM] Program). Through this system, our clients log into the program from their desktops and update the progress of each mitigation action included in the plan using a set of simple, intuitive screens. The County can view the status of department-specific mitigation projects using the dashboards and query project status right from your desktops. Users can generate reports summarizing the input collected to submit progress reports, align with funding, and support regulatory reporting to the State for mitigation planning and annual CRS Activity 510 progress reports.

Tetra Tech's cost provides one-year access to the system with logins for the County and its planning partners. Tetra Tech will populate the completed County mitigation strategies in the FEMA-approved plan into the program. Participants will be able to log into the program from their desktops and update their progress on each mitigation action in simple, intuitive screens. A report will be generated summarizing the input collected to submit to HI-EMA as an annual status report. This report template can be leveraged by the County during future annual reviews. ***Updating mitigation action progress and meeting the annual progress reporting requirements has never been easier!***

Exhibit 7: Plan Preparation Meetings and Deliverables

Meetings	• Two 90-minute virtual workshops (one for municipalities and one for special districts) on how to complete the annex template for inclusion in Volume 2 of the LHMP. Tetra Tech will provide meeting invitations, develop the meeting presentation, take attendance, and provide a meeting summary within 5 business days of the meeting taking place. The agenda will be provided electronically to attendees at least 3 business days prior to the meeting taking place. • Tetra Tech can record the sessions and post to Microsoft Teams if desired by the County to allow partners who are unable to attend the watch at a later date.
Deliverables	• Templates and worksheets to facilitate the development of annexes for the participating municipal and special district partners. Tetra Tech will provide technical assistance to partners as needed. Tetra Tech will review and format the annexes for inclusion in the final LHMP.

	• Development of a 2-volume LHMP that includes information collected, developed, and analyzed throughout the project.

F. Plan Drafting

Draft LHMP

Administrative Draft. As outlined above, Tetra Tech will collate the information collected into a two-volume LHMP. The plan will undergo a technical and editorial review prior to being considered an administrative draft for initial review by the PT, Steering Committee, and planning partners. This draft will be provided for an up to two-week review and comment period. Each jurisdiction will be asked to review and approve a jurisdictional annex in preparation for public review and posting on the website. Edits and comments should be collated by the County project manager into a single file using tracked changes and comments in Microsoft Word. Tetra Tech will address one round of comments to develop the Draft for Public Comment.

Review Draft LHMP & Receive Input

Draft for Public Comment. Tetra Tech will prepare a Draft for Public Comment using the feedback provided. The draft for public comment will be posted online for a minimum of 14 days to solicit public comment. Tetra Tech will keep a record of the comments for review by the PT and Steering Committee. At the conclusion of the public comment period, Tetra Tech will convene a one-hour virtual meeting with the County Project Manager and PT to discuss public comments received and integrate them into the draft for submittal, as appropriate. Tetra Tech will address one round of comments prior to the development of the draft final LHMP.

Draft Final LHMP

Using the feedback collected from the Administrative and Public Comment drafts, Tetra Tech will develop the draft final LHMP. The draft final LHMP will undergo a quality control review against the FEMA plan checklist to confirm that the required elements are addressed and comments have been sufficiently addressed. This draft will be used as the version of the LHMP submitted to Cal OES for the initial review. Updates to this draft will be made based on Cal OES feedback and used to submit to FEMA for review and approval.

Exhibit 8: Plan Drafting Meetings and Deliverables

Meetings	• One-hour virtual meeting to review the comments provided during the public comment period. Two members of the Tetra Tech team will attend. Tetra Tech will provide meeting invitations, take attendance, and provide a meeting summary within 5 business days. The meeting will not require an agenda as it will only focus on comment review and adjudication.
Deliverables	• Administrative draft of the LHMP for review by the County, PT, Steering Committee, and planning partners. Jurisdictions and Special Districts will be provided a copy of their annex for review and comment. The draft will undergo a

	technical and editorial review prior to submission. The County and its partners will have two weeks to review and provide comments. The County's project manager will be responsible for collating feedback and adjudicating any conflicting feedback. Tetra Tech will address one round of comments. • Public comment draft of the LHMP which will be posted for a minimum of 14 days. Provided comments will be tracked for review by the PT and Steering Committee. Tetra Tech will address one round of comments on the public comment draft. • Draft final LHMP for submission to Cal OES and FEMA. The draft will undergo a quality control review against Cal OES and FEMA requirements and confirm that comments have been addressed from the administrative and public comment drafts.

G. Public Engagement/Meetings/Public Hearings

Documentation

Tetra Tech understands that FEMA and Cal OES require that each step of the LHMP development and engagement process be clearly documented. This includes creating meeting agendas to clearly outline what is being discussed at each meeting, providing meeting invitations, taking attendance, and providing meeting summaries that outline the discussion that took place and the assignment of action items. Tetra Tech will provide meeting agendas at least three business days prior to meetings taking place to allow participants to fully engage during meetings, and provide meeting summaries within five business days of meetings and workshops taking place. Meeting documentation will be stored on the Microsoft Team site so that the County can access it at any time.

Develop a Public Engagement Plan

Public Engagement Plan. We will work with the County to develop a public engagement plan that engages stakeholders and the community throughout the planning process. The plan will serve as a guide for engaging the community and include a special focus on members of DAFN communities and identified vulnerable populations. This plan will encompass four public workshops and two outreach surveys whose purpose is to provide planning process information and solicit feedback on hazards potentially affecting the various areas in the County.

Website. Tetra Tech will collaborate with County OES in the development of a public-facing website. It will include information on the HMP planning process, HMPWG meetings, contact information, reference material, links to preparedness materials, StoryMap, draft plans, and surveys, among other information.

StoryMap. Since the adoption of the previous HMP, StoryMaps have become a significant technological tool conveying the impacts of hazards intersecting with specific areas and addresses. Building on the County's existing Esri license, Tetra Tech will develop an interactive site that allows users to access hazard information, maps, and dashboards based on specific addresses. It will summarize the updated mitigation planning process and provide an updated overview of the hazards of concern and risk in Humboldt County, inclusive of interactive maps and dashboards. The StoryMap will be a link on the website and focus on engaging the public and communicating hazard risk. The StoryMap may remain live after the planning process concludes to continue educating residents on hazard mitigation and serving as a form of continued outreach.

Problem Identification Web Form. Our GIS team will develop, maintain, and monitor a simple online geospatial tool through which residents and other stakeholders can report how hazards affect Humboldt County and its jurisdictions. The web form will allow a user to place a pin on a digital map and describe the problem (e.g., water collects on the road, lack of backup power at a critical facility, etc.). This will be available in English only.

Public and Stakeholder Mitigation Surveys. We will develop, maintain, and monitor a set of online surveys designed to gauge household and stakeholder preparedness for hazards that may impact Humboldt County and to assess stakeholders' and the public's level of knowledge about tools and techniques that can be used to reduce risk and loss from those hazards. Tetra Tech will also develop a survey to seek input on mitigation actions developed towards the latter half of the planning process. Surveys will be available in English and Spanish.

Press Releases, Public Notices, and Social Media Posts. Other methods of outreach may include the development and distribution of an informational brochure, media releases, social media (Facebook, X, and NextDoor), and leverage of existing public forums to promote project awareness and participation. Recognizing that local staff understand beneficial ways of distributing information, we will develop the materials for the County to distribute in the appropriate and beneficial channels.

Planning Meetings

Tetra Tech will conduct six planning meetings with the Planning Team and four meetings to engage with the Steering Committee and planning partners. The table below provides a summary of these meetings and whether they will be virtual or in-person.

Exhibit 9: Meeting Overview

Meeting	Anticipated Outcomes/Discussion	Meeting Format
Planning Team Meeting #1 – Kickoff	Engage with the PT and planning partners to provide an overview of the planning process and expected participation and engagement requirements.	90-minute in-person meeting attended by two members of the Tetra Tech team.
Planning Team Meeting #2 – Goals and Objectives	Review the goals and objectives from the previous plan and update for the LHMP draft.	60-minute virtual meeting attended by two members of the Tetra Tech team.
Planning Team Meeting #3 – Hazard Assessment	Review the hazards included in the 2020 plan and confirm the hazards to be included in the LHMP update.	60-minute virtual meeting attended by two members of the Tetra Tech team.
Planning Team Meeting #4 – Risk Assessment	Discuss the results of the risk and vulnerability assessment and present information to be shared with the community at the first community engagement meeting.	90-minute in-person meeting attended by two members of the Tetra Tech team. This will be held on the same trip as the first community engagement meeting.
Planning Team Meeting #5 – Mitigation Strategy	Discuss mitigation actions and strategies to be included in the plan. Discuss the plan implementation and maintenance strategy. Presentation of the BATool and how it will be used to track mitigation actions.	90-minute virtual meeting attended by two members of the Tetra Tech team.

Meeting	Anticipated Outcomes/Discussion	Meeting Format
Planning Team Meeting #6 – Draft Plan Review	Provide a review of the feedback collected on the administrative plan, address the release and feedback collection of the public comment draft.	90-minute in-person meeting attended by two members of the Tetra Tech team. This will be held on the same strip as the second community engagement meeting.
Steering Committee Meeting #1 – Kickoff/Goals and Objectives	Provide an overview of the LHMP planning process, determine steering committee makeup, and agree on rules of engagement. Present the goals and objectives recommended by the PT to the Steering Committee and planning partners.	90-minute virtual meeting attended by two members of the Tetra Tech team.
Steering Committee Meeting #2 – Hazard Assessment	Present the hazards recommended for inclusion in the LHMP by the PT and obtain confirmation that these hazards will be addressed in the plan.	60-minute in-person meeting attended by two members of the Tetra Tech team.
Steering Committee Meeting #3 – Mitigation Strategy	Review and confirm the mitigation actions and strategies to be included in the plan as suggested by the PT. Discuss the plan implementation and maintenance strategy and obtain planning partner confirmation of engagement with future plan reporting requirements.	60-minute virtual meeting attended by two members of the Tetra Tech team.
Steering Committee Meeting #4 – Draft Plan Review	Provide a review of the feedback collected on the administrative plan, address the release and feedback collection of the public comment draft, and any additional engagement needed to support plan adoption.	60-minute in-person meeting attended by two members of the Tetra Tech team. This will be held on the same strip as Planning Team Meeting #6.

Community Engagement

Tetra Tech will work with County OES, the PT, and the Steering Committee to identify methods and strategies that have been successful in engaging the public in the County. Section 201.6.b of 44 CFR states that "the planning process will include: an opportunity for the public to comment on the plan during the drafting stage and before adoption." FEMA guidance documents suggest using multiple media outlets such as the internet, brochures, fliers, questionnaires, and public meetings. Any or all of these approaches qualify as "public involvement" per the FEMA guidance. The following describes how we will develop and implement the public involvement strategy.

Recognizing that Humboldt County residents live in various places throughout the County in rural settings, Tetra Tech will work with county leaders and stakeholders, among others, to develop a public engagement plan utilizing existing pathways and proven practices to provide outreach to the communities, including vulnerable ones, throughout the County.

Focus on Community Engagement and Inclusivity. Recognizing that FEMA emphasizes engaging various participants during the mitigation planning process — staff members and local leaders, community members, stakeholders, interested groups, and socially vulnerable or DAFN communities — Tetra Tech will collaborate with the PT to develop outreach strategies to various parties. Having worked with a number of jurisdictions throughout the State, Tetra Tech understands that not all individuals or groups have access to the internet, social media, and other electronic communication. We appreciate the desire to include these groups not just during the public comment period but throughout the planning process.

Past examples have included outreach surveys that have been distributed electronically and on paper at libraries and community centers and provided at outreach activities and events. Surveys have also been developed in languages other than English. Meetings have taken place at locations close to transportation routes to allow for wider participation. We will work with the County to identify the best ways to engage with the widest possible audience while developing the engagement strategy and update methods throughout the project based upon effectiveness.

We aim to build LHMPs that are not only compliant and effective but also easily understood by all stakeholders, encouraging their active participation in the mitigation planning process. Our expertise in simplifying complex concepts ensures our plans are both practical and widely comprehensible.

We propose conducting two in-person public outreach meetings. One would take place during the risk assessment process to engage with the community and solicit their input on how they are impacted by the hazards of concern, and prior to the release of the public comment period to inform them of the selected mitigation action and encourage their participation in the comment period. Tetra Tech recommends these meetings take place during the evening on a Friday or during the day on a weekend. In addition to the conduct of the public meeting, Tetra Tech is willing to provide staff to man a booth at community events such as Arts Alive in Old Town Eureka, the Arcata Farmer's Market, Humboldt Flea Market, or Firemen's Games at the Ferndale VFD. The community outreach events would focus on encouraging community engagement in the planning process. This would be coordinated on the same trip at the public meetings and up to two events would be supported.

Tetra Tech anticipates the public meetings to last no longer than 2 hours each, and two members of the team will attend. Tetra Tech will work with the County to publicize the events. For the meetings, Tetra Tech will develop a meeting agenda, and presentation, provide sign-in sheets, and take notes. Tetra Tech will provide a meeting summary to the County project manager and PT within five business days of the meeting.

For the community events, Tetra Tech will provide printed materials in English, Spanish, Hmong, and Simplified Chinese. The County will be responsible for any additional translations.

Value-Added Activity: Future Recommendations Document

At the conclusion of all public engagement activities, the Tetra Tech team will develop a written analysis of key findings ascertained through the engagement of stakeholders as well as general public outreach efforts. Any information not incorporated into the updated HMP will be documented in the recommendations report for future analysis. The recommendations report will determine geographic areas for future community outreach as well as identify mitigation-related topics to be investigated in the future.

Exhibit 10. Public Engagement/Meetings/Public Hearings Meetings and Deliverables

Meetings	• 6 Planning Team meetings ranging from 60-90 minutes each facilitated by two members of the Tetra Tech team. Meetings will take place at key decision periods during the planning period.

	• 4 Steering Committee meetings ranging from 60-90 minutes each facilitated by two members of the Tetra Tech team. Meetings will take place at key decision periods during the planning period. • 2 community engagement meetings (two hours each) to obtain community feedback on the risk assessment and encourage participation in the online public comment. Participation at community events if desired can be coordinated on the same trip as the community engagement meetings.
Deliverables	• Meeting agendas provided within three business days of meetings taking place. • Meeting presentations, sign-in sheets for in-person meetings, attendance for virtual meetings, meeting summaries provided within 5 business days of meetings taking place. • Engagement plan with accompanying website content language, social media posts, online survey to support community data collection, problem identification online form, and press release language.

H. Plan Adoption

Submit Final Plan for State Review

Submittal to Cal OES and FEMA. Once public comments are incorporated into the plan and the PT agrees that the content meets 44 CFR Part 201 and has followed all the steps outlined in the Local Mitigation Planning Handbook and the FEMA Local Mitigation Planning Policy, Tetra Tech will prepare a draft for submittal to Cal OES. In addition, Tetra Tech will complete FEMA's Local Mitigation Plan Review Tool to document where each FEMA requirement is addressed in the plan. After the Cal OES review has been completed, Tetra Tech will address Cal OES' "required revisions" before submitting the HMP to FEMA Region 9.

FEMA Approval Support. Tetra Tech will address "required revisions" identified in the FEMA Region 9 review and will communicate and coordinate with Cal OES and FEMA until the plan is given the "Approvable Pending Adoption" (APA) status. Once FEMA issues the APA status, the County will need to begin the formal adoption process.

Adoption of Plan

Adoption Support. Tetra Tech will develop an adoption package that includes a sample resolution and an executive summary of the plan, and a staff briefing document will be provided to all planning partners. We will work with the County and partners to track their progress on the adoption process. We will collect all adoptions as they are received, include them in the appropriate plan appendix, and forward them to Cal OES and FEMA.

Adoption Meetings. Following FEMA approval of the LHMP, the planning partners should schedule meetings for their respective governing bodies to adopt the plan (FEMA requirement). Tetra Tech will supply language and support, including resolution samples.

Project Closeout. To close out the project and following the completion of Cal OES's and FEMA's approval, the Tetra Tech's project manager will provide a closeout document for grant compliance that includes a project summary, planning process overview, identified hazards, number of action items, any outstanding progress notes and reports, and final invoice. As required by the RFP, Tetra Tech will produce five printed and bound copies of the LHMP for the County.

Exhibit 11: Plan Adoption Deliverables

Deliverables	• Submission of the draft final LHMP to Cal OES for review. It is anticipated that the review will take up to 45 days. Tetra Tech will address Cal OES' comments as received. • Submission of an updated draft of the LHMP with Cal OES comments addressed to FEMA Region 9 for review and approval. Tetra Tech will address FEMA's comments as received. • To support plan adoption and adoption meetings, Tetra Tech will develop a package that includes a sample resolution, and an executive summary of the plan, and a staff briefing document. We will track adoptions as they are received and forward them to Cal OES and FEMA. • Project closeout package with project summary, planning process overview, identified hazards, number of action items, any outstanding progress notes and reports, and final invoice. • Five printed and bound copies of the LHMP.

Optional Services

Tetra Tech understands the complexities that come with identifying and applying for grants to support mitigation actions. Our team stands ready to provide support for developing applications for BRIC, FMA, and HMGP. Our team specializes in these services, having partnered with sub-applicants across the Country, working together to assemble complete and competitive grant applications.

The County will have access to our team that has not only served as grant writers and BCA analysts with a successful award record but also served as technical reviewers on behalf of states and FEMA. The Tetra Tech team debriefs after each grant round, sharing tips and best practices learned so we can continuously evolve as a successful grant practice. This includes data documentation, FEMA-accepted analyses, new/innovative project scopes deemed eligible, and other lessons learned from which the County will benefit.

In general, the following steps are taken when applying for state or federal funds. Our team will partner directly with the County through each step of the process.

- Initial project scoping call to define the technical assistance request, identify the project, and develop a list of deliverables required to complete a competitive application, BCA, or both.
    - Deadlines are identified and a plan is made to ensure that the application and all deliverables are submitted on time.
    - Method of file transfer is identified and established.
- If the project requires a BCA or a detailed environmental review, those activities begin immediately.
- Communication line with the funding agency is established to help identify areas of concern and answer questions.
- Once the project has been identified, a scope of work, detailed budget, and work schedule are created.
    - In many cases, technical experts or project engineers are required to assist in this effort.
    - The schedule should map to each task and/or deliverable identified in the scope of work.

- While the major application elements are being developed, any other required documentation is also prepared.
- Throughout the development of the application, regular meetings with Tetra Tech and County leadership will take place to coordinate deliverables and reviews to meet the grant application schedule.
- As the application is developed, Tetra Tech will also prepare corresponding narrative reports to help explain to program reviewers the methodology used to prepare the application and describe the supporting documentation provided.
- Once the application and all requirements are complete, a quality assurance check is completed to ensure that all program requirements meet expectations.
- Finally, required signature forms are signed and dated, and the application, along with the required supporting documentation, is submitted to the funding agency.
- The County will need to provide the requested materials electronically and provide access to FEMA GO or other application portal, if needed.
- If a BCA technical review is requested, it will encompass the following:
    - Verify that the project is eligible under applicable FEMA grant guidelines.
    - Verify that required components of the BCA were submitted and documented in the Summary of Findings document per project (i.e., project scope, software version used, hazard, project useful life, cost [project and maintenance], benefits [pre-calculated, quantitative, and qualitative], project effectiveness).
    - Review the BCA to determine if it is defensible based upon the documentation provided and assumptions presented.
    - Recreate the BCA ratio solely based on the information provided.
    - Document the review findings and conclusion of the review (i.e., whether or not the project was found to be cost-effective) in the Summary of Findings document.
    - As applicable, BCA reviewers will identify additional information needed to complete the BCA and provide recommendations to strengthen and update the BCA if the project is not deemed cost-effective.

E. Qualifications

Company Profile

As a leader in emergency management and disaster recovery and having worked with local jurisdictions and state agencies throughout California for more than 40 years, Tetra Tech, Inc. (Tetra Tech) continues to provide quality services to its clients. Known for building and maintaining relationships throughout the state, we strive to ensure our clients receive superior support and service.

Tetra Tech has completed more than 40 HMPs across the State of California in full accordance with Cal OES and FEMA planning standards and guidance. Our experience translates into an efficient, cost-effective, and comprehensive planning process, resulting in plans designed to improve the ability of communities to effectively implement mitigation and resiliency strategies.

Why Choose Tetra The?

- Trusted partner with proof of success over **three previous LHMP planning cycles**
- Northern California project manager with experience working with Humboldt County
- Successful record on approved California HMPs, including the 2023 State Enhanced Hazard Mitigation Plan
- Developed 40+ HMPs for CA counties, cities, tribes, and special districts
- More than 100 planning professionals specializing in mitigation, resilience, and emergency management

National Experts in Hazard Mitigation

As a national leader in developing and implementing innovative hazard mitigation planning, community engagement, and risk-modeling projects, Tetra Tech has led single- and multijurisdictional hazard mitigation projects for a broad range of clients and environments, from highly urbanized to predominantly rural, from coastal plains to mountainous watersheds. **We have developed or updated plans for more than 3,100 jurisdictions, including universities, tribes, special districts, and over 2,800 municipalities.** We have extensive experience delivering the Disaster Mitigation Act of 2000 (DMA) and CRS-compliant plans nationwide.

Additionally, our team has **conducted more than 2,000 benefit-cost analyses to help over 100 clients seek over $2 billion in grant funding for projects related to flood, fire, earthquake, and landslides.**

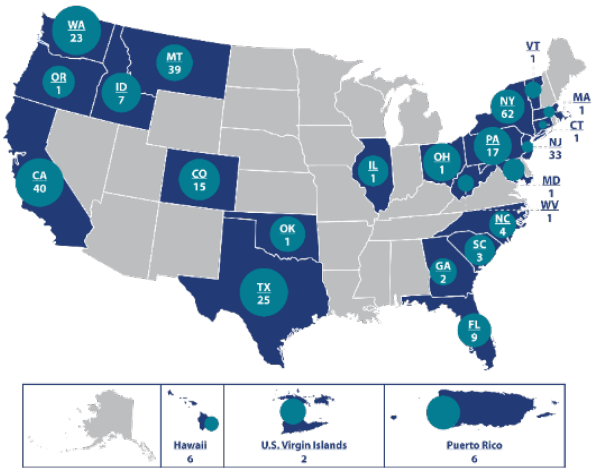


Exhibit 12: Tetra Tech's HMP Experience

We also provide additional services directly associated with hazard mitigation. For example, we have helped develop Substantial Damage Response Plans under the FEMA Hazard Mitigation Technical Assistance Program (HMTAP) for communities, compiled benefit-cost analysis (BCA) for Hazard Mitigation Assistance (HMA), and Building Resilient Infrastructure and Communities (BRIC) grants and provided technical guidance and assistance to communities wanting to enter or seeking to achieve higher ratings within the CRS program. For more than 15 years, we have served as a mission support contractor for FEMA's advancement of Hazards U.S. (HAZUS), the preferred software solution used to conduct risk assessments for HMP projects.

Our broad, active involvement in all aspects of mitigation has allowed Tetra Tech's staff to develop strong working relationships with both stakeholders and regulators, including Cal OES. Our plans are well received by our clients as well as by the agencies that review them. Tetra Tech is a nationally recognized leader in the development of FEMA-approved HMPs.

The following highlights our qualifications as national leaders in hazard mitigation planning, with California-specific knowledge and experience:

Compliance and Review Success

All California HMPs developed by our team have passed Cal OES and FEMA reviews for compliance with 44 CFR and FEMA mitigation planning guidance, often with minimal or no required revisions.

ASFPM Membership and Certification

Many of our HMP staff are active members of the National Association of State Floodplain Managers (ASFPM), and our team includes ASFPM Certified Floodplain Managers (CFM), ensuring well-informed and actionable HMP development.

Grant Application Success

Tetra Tech is a national leader in FEMA, BCA, and HMA grant applications and management. Our team has supported mitigation project implementation through grant application assistance, securing tens of millions of dollars in awards for county and local governments.

Nationwide Commitment to Resiliency

With over a decade of support for communities to reduce hazard impacts, we are a FEMA HMTAP prime contractor, providing expertise to the nation's most impacted communities as a force multiplier for FEMA at the national level.

Leadership and Reliability

Our staff is dedicated to hazard mitigation planning and community resilience, sustainability, and adaptation programs and maintain their expertise through regular continuing education. We have nationwide resources to quickly respond to surges in demand during HMA and HMGP application periods, completing every project on time and on budget.

Full Lifecycle Support

Tetra Tech works across all phases of emergency management and is well-versed in how to integrate HMPs into emergency operations plans (EOP), recovery plans, evacuation plans, continuity of operations plans (COOP), and more. Our team offers turnkey support for the entire continuum of emergency management.

California Hazard Mitigation Planning Experience

Having prepared hazard mitigation plans for over 40 counties, municipalities, tribes, and special districts in California, we have developed an approach that consistently meets FEMA, CRS, and Cal OES requirements. **We have successfully completed multiple plans in compliance with FEMA's new 2023 guidance and regularly interact with Cal OES leadership. Exhibit 13** summarizes Tetra Tech's experience within California.

Exhibit 13: Hazard Mitigation Planning Experience in California

State	• State of California Enhanced Hazard Mitigation Plan	
Counties	• Del Norte (three times) • **Humboldt (three times)** • Contra Costa (twice) • Tehama County • Siskiyou County • Ventura County	• San Mateo County (twice) • Santa Clara County • Shasta County • Sonoma County (twice) • Nevada County
Cities	• Roseville (four times) • Los Angeles (twice) • Union City/Newark • Dublin/Livermore/Pleasanton (twice) • Redwood City (twice)	• Long Beach • Norwalk • Oakland • Pico Rivera • San Carlos (twice)
Tribal	• Yurok Tribe (state-level standard plan) • Santa Ynez Band of Chumash Indians	
Special Districts	• Dublin San Ramon Services District • East Orange County Water District • Crescenta Valley Water District • San Bernadino Community College District	• Marin Municipal Water District • Metropolitan Water District of Southern California

Proof of Success: We have helped over 40 **California communities** build resilience and develop hazard mitigation and emergency plans.

State of California

Led the first HMP update conducted by contractor; enhanced plan updated

San Mateo County

Supporting MJHMP update for the second time; 36 planning partners; 15+ year relationship; supporting various cities in the County with efforts

Del Norte County

Supporting the MJHMP update; supported the three previous MJHMP planning efforts

Nevada County

MJHMP update incorporating new FEMA guidance

Sonoma County

10+ year relationship; supported emergency planning and hazard mitigation efforts and services, including two previous MJHMP planning efforts

Humboldt County

Supported three LHMP planning efforts and additional mitigation support services plus additional benefit cost analysis and grant application support to LHMP planning partners

We are a **trusted and proven resource** to the State of California, our local partners, and the local community.

Disaster planning and recovery missions involve a maze of coordination among various federal, state, and local jurisdictions and agencies. Over the past 40 years, Tetra Tech has worked with California agencies at all levels, including counties across northern California.

Our work in Northern California has included support for **Butte County** in wildfire recovery (2021) and COVID resilience (2023–2024), **Siskiyou County** in wildfire recovery (2022–2024) and hazard mitigation planning (2010–2012), multijurisdictional plan updates for **Humboldt County** (2006–2020), hazard mitigation planning for **Del Norte County** (2008 - 2025), and more.

Technical Capabilities

Geographic Information Systems

For nearly two decades, Tetra Tech has been an industry leader in the innovative use of GIS technology. Our analysts produce site maps and illustrations and manage large, multi-disciplinary environmental databases in support of our mitigation planning projects. In addition, our analysts are highly experienced in GIS and database automation, applications programming, spatial modeling, 3D modeling, advanced image analysis, and interactive web mapping. Tetra Tech is also an expert in data collection, including various methods of aerial survey (including Light Detection and Ranging [LiDAR]), land survey, and hydrographic survey.

Tetra Tech's team includes highly experienced GIS analysts who are adept at using large data sets to create clearly understood tables and maps to support HMP development. Additionally, our team is capable of doing both Level 2 and Level 3 assessments on FEMA's Hazus program. Tetra Tech has extensive experience using 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's efforts provided significant shaping of the Hazus model: Using Hazards US-Multi-Hazard (Hazus-MH) for Risk Assessment FEMA-433. Tetra Tech is a FEMA-certified Hazus vendor. **We will incorporate the use of Hazus for those applicable hazards such as earthquakes and floods.**

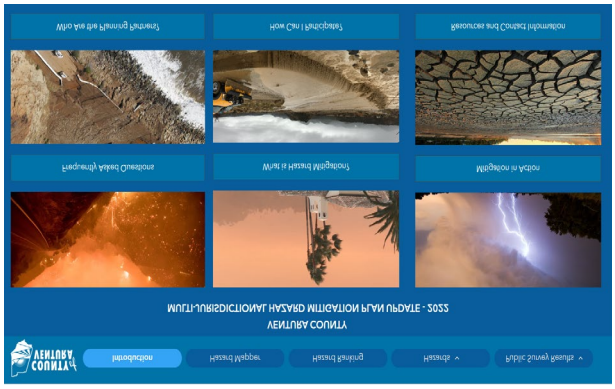
Critical Facility Review Period

Tetra Tech will develop an interactive Web Application that displays the spatial Critical Facility inventory data, symbolized by Critical Facility type. Additionally, an Excel will be provided that lists the Critical Facilities within the inventory and their respective attributes, such as Facility Name, Address, Critical Facility type, Latitude, and Longitude. The Web Application and Excel combination provide two types of resources to review the Critical Facilities within the study area during the designated review period. Modifications, removals, and additions can be provided during the review period by updating the previously provided Excel.

StoryMaps

Tetra Tech uses Esri StoryMaps to convey complex information on threats and hazards in a way that is easily accessible to the reader using web-enabled maps, text, multimedia content, and functionalities that enable users to interact with them. This multi-faceted tool can be used for a wide variety of purposes, whether the goal is to share information with the public, present research findings, or showcase points of interest in the County. The StoryMap allows community members to actively engage in the MHJMP update process, and understand their personal risks, and is 508 compliant[1] allowing for wide use and accessibility.

Pictured below are two webpage StoryMap samples:



Hazard Mitigation Grant Programs and Benefits

To leverage actions identified in the LHMP update, Del Norte County can submit eligible projects for FEMA Hazard Mitigation Assistance (HMA) grants and other sources of funding. Tetra Tech has in-depth knowledge of the FEMA HMA program and grant writing and extensive experience in calculating benefit-cost analysis (BCA) ratios, resulting in a high rate of grant funding for our county and municipal clients. We actively align HMPs to leverage grant funding, and we have applied this expertise in developing grant applications to the following programs:

- Building Resilient Infrastructure and Communities (BRIC)
- FMA
- HMGP
- Pre-Disaster Mitigation (PDM) (Congressional Earmark)

[1] ArcGIS StoryMaps has been evaluated for conformance according to WCAG 2.0 AA, WCAG 2.1 AA, and the Revised Section 508 standards. This evaluation is also known as a Voluntary Product Accessibility Template (VPAT), and it explains the extent to which a product such as ArcGIS StoryMaps adheres to such important accessibility guidelines. The results of the ArcGIS StoryMaps evaluation are available through the Accessibility Conformance Report. Accessibility and supported languages—ArcGIS StoryMaps | Documentation

Our goal is to help our clients identify mitigation actions and strategies that are not only easily implementable but also have a higher probability of being awarded available grant funding.

As an optional future service, following the adoption of a FEMA-approved LHMP, should the County wish to submit grant applications, Tetra Tech can support formal BCAs in accordance with FEMA's benefit-cost methodology, using FEMA's BCA software. Tetra Tech can also compile and prepare backup documentation and submit full BCA packages using FEMA's online e-Grants system for HMA grant funding. Our proposed team has performed hundreds of BCAs and has secured millions of dollars to implement projects within the following categories:

- Structural Elevation and Retrofit
- Acquisition/Relocation/Demolition
- Stormwater Drainage Improvements
- Outfall Improvements
- Collection Systems/Pumping Stations
- Bulkheading and Tide-Check Valves
- Coastal Revetment
- Bank and Soil Stabilization
- Roadway Elevations
- Dam Spillway Improvement
- Bridge Hardening
- Levees and Floodwalls
- Living Shoreline
- Seismic and Wind Retrofit
- Post-Disaster Code Enforcement
- Safe Room Construction
- Green Infrastructure
- Co-Generation Facilities
- Landslide Mitigation
- Wet and Dry Floodproofing
- Backup Power
- Wildfire Mitigation
- Harden Communication Systems

Strategic Guidance and Documents

As the hazard mitigation world evolves and plan guidance is updated, Tetra Tech consistently works with both Cal OES and FEMA to stay abreast of the latest updates and their impact on plans. We recently updated our plan format to better align with FEMA' most recent updates and to further integrate the impacts of climate change on communities and States. Our experience will be important to Del Norte County and its planning partners as they respond to California State mandates driven by Assembly Bill 2140, and Senate Bills 379, 747, and 1000. This legislation mandates the integration of hazard mitigation plans and community general plans and applications for addressing climate change.

Additionally, we offer a thorough understanding of land use management, codes and ordinances, community and economic development, and components of real estate development. This enables us to support our clients with identifying and prioritizing projects and establishing detailed implementation strategies that align with local values to guide sustainable growth.

Demonstrated Ability to Meet Schedules and Complete Projects Without Major Cost Escalation or Overruns

As the incumbent, we have consistently delivered high-quality work on time and within budget for Humboldt County and neighboring jurisdictions. The project profiles below support our record of success.

San Mateo County Multijurisdictional Hazard Mitigation Plan

Organization Name/Address: San Mateo County Department of Emergency Management
501 Winslow, Redwood City, CA 94063

Technical Representative: Ryan Reynolds, Emergency Management Coordinator
rreynolds@smcgov.org | 650-454-7886

Performance Overview:

Budget: $200,000.00

Cost Escalations or Overruns: None

Summary: Following the development of the 2016 San Mateo County MJHMP, Tetra Tech completed the 5-year update to the plan for the County, 20 cities, and 15 independent special districts. This planning effort is unique in that a social equity lens was applied to all phases of plan development. The cornerstone of this plan is a comprehensive risk assessment of 12 natural hazards of concern, including a profile on the impacts of each hazard of concern from climate change. The MJHMP identifies and prioritizes over 800 mitigation actions to be implemented by the 36 planning partners of the 5-year performance period for the plan.

The County requested an accelerated timeline for their 2021 update since their 2016 plan had expired. Tetra Tech was able to complete the updated plan within 8 months.

Project Web Link: https://www.smcgov.org/ceo/multi-jurisdictional-local-hazard-mitigation-plan

Period of Performance: January 2021–November 2021

Schedule Adjustments: None

Project Status: FEMA Region 9 approved this plan on December 7, 2021

Sonoma County Multijurisdictional Hazard Mitigation Plan Update

Organization Name/Address: Department of Emergency Management
2300 County Center Dr., Suite B220, Santa Rosa, CA 95403

Technical Representative: Jeff DuVall, Director, Department of Emergency Management
jeff.duvall@sonoma-county.org | 707-565-1152

Performance Overview:

Budget: $157,755.00

Cost Escalations or Overruns: None

Summary: Tetra Tech completed a comprehensive update to the Sonoma County MJHMP by converting the plan from a single jurisdiction format that covered only Sonoma County to a multijurisdictional format providing

compliance to 15 local governments (the County, 4 cities, and 10 special districts) within the Sonoma County Operational area.

As with all Tetra Tech plans, the cornerstone of this plan was a comprehensive risk assessment of nine hazards of concern (dam failure, drought, earthquake, flood, landslide/debris flow, sea-level rise, severe weather, tsunami, and wildfire). The wildfire component of the plan was enhanced using new wildfire mapping and severity data generated by the county using vital data from recent fires within the operational area.

Also unique to this planning effort was the development of an ESRI StoryMap as an interactive public engagement/risk communication tool: Sonoma County MJHMP Web Experience (arcgis.com). This StoryMap supported a public outreach strategy that emphasized inclusion and social equity within the planning area. The plan identifies and prioritizes 309 actions to be implemented by the 15 planning partners.

Project Web Link: https://permitsonoma.org/longrangeplans/adoptedlong-rangeplans/hazardmitigation

Period of Performance: June 2020–August 2021

Schedule Adjustments None

Project Status: FEMA Region 9 approved this plan on October 13, 2021

City of Concord Hazard Mitigation Plan

Organization Name/Address: City of Concord
1950 Parkside Dr., Concord, CA 94519

Technical Representative: Trish Beirne, Emergency Services Manager
Trish.beirne@cityofconcord.org | 925-671-3184

Performance Overview:

Budget: $80,000.00

Cost Escalations or Overruns: None

Summary: The City was previously a planning partner on the Contra Costa County Hazard Mitigation Plan (2016), which Tetra Tech assembled. With grant funding pending, the City of Concord elected to pursue a separate HMP. Having previously worked with Tetra Tech; the City selected us to update its plan. Working with the City's emergency manager and other senior leaders, seven hazards were profiled, and 23 actions were developed.

The City requested an accelerated timeline because of pending grant application. **Working with City leaders, Tetra Tech was able to complete the plan development and obtain CAL OES and FEMA Region 9 approval within 9 months.**

Project Web Link: Local-Hazard-Mitigation-Plan-MJHMP---Final-Approved-Document- (cityofconcord.org)

Period of Performance: July 2022–June 2023

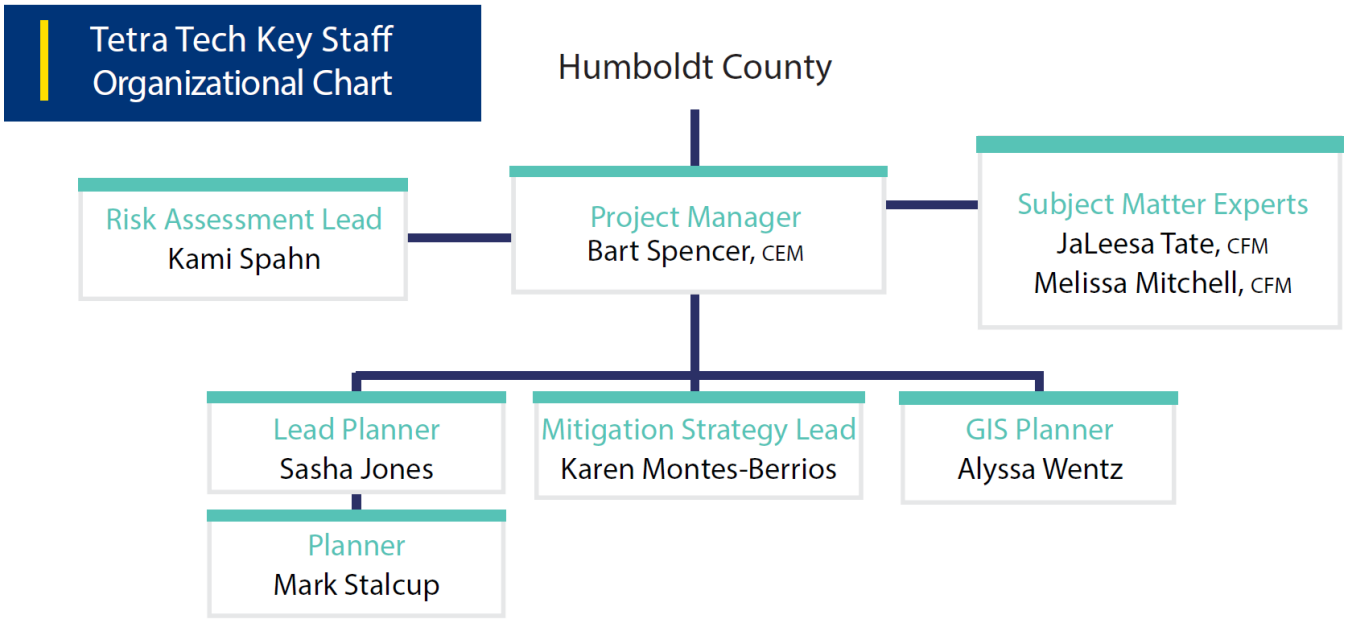
Schedule Adjustments: None

Project Status: FEMA 9 approved plan on April 18, 2023

Qualifications of Key Personnel

Our project team includes experienced hazard mitigation planners, GIS analysts, and editorial professionals with proven experience developing FEMA-approved HMPs. This core team is supported by subject matter experts and planners across our company who stand ready to provide reach-back support as needed. Our team is organized as shown in the figure below. **Résumés for proposed project staff detailing recent experience on comparable projects are provided in Appendix A.**

Exhibit 14. Organizational Chart



Project Management: Mr. Bart Spencer, who has led nearly 20 California HMP projects, will lead the Humboldt County project team. Mr. Spencer has delivered 100% of these projects on time and on budget. In his current role, he oversees projects and team working on various emergency preparedness and hazard mitigation projects in the West and throughout California. His experience, diversity, and ability to interact with a variety of jurisdictions, agencies, and departments allows him to share knowledge, skills, and best practices with his clients. Having a solid working knowledge of all four areas of emergency management affords his depth of expertise. Bart has worked with the selected Humboldt County project team on other hazard mitigation projects which will prove to be beneficial for this project.

Planning and Coordination: Leading our planning functions is Sasha Jones, a climate resilience professional with five years of experience in risk management and data analytics. Sasha excels in developing holistic risk assessments and liaising between technical and non-technical groups. She will be supported by a team of experienced planners, including Mark Stalcup and Karen Montes-Berríos. Mark has extensive experience in developing and delivering multijurisdictional plans. Karen, a bilingual hazard mitigation specialist, has provided technical assistance for various planning projects at the local, county, and state levels.

Geospatial Analysis: Our Risk Assessment will be led by Kami Spahn, a GIS specialist with nine years of experience in GIS data analysis and management. Kami specializes in ArcGIS Pro, ArcGIS Online, and hazard risk assessments using Hazus. She will be supported by our GIS Planner Alyssa Wentz. Alyssa brings over seven years of experience in GIS data science and cartography, focusing on data analysis and map production.

Subject Matter Experts: Melissa Mitchell, CFM, a floodplain management analyst with over 20 years of experience, will provide technical support for FEMA's floodplain management. Her extensive knowledge of the NFIP and local government practices will be instrumental in enhancing the County's floodplain management capabilities. JaLeesa Tate, CFM, an expert in hazard mitigation and climate resilience, will provide specialized knowledge in mitigation principles. With 10+ years of experience, JaLeesa has worked on numerous high-profile projects, offering solution-driven recommendations for integrating equity considerations into resilience and mitigation planning.

Together, this team brings a comprehensive and collaborative approach to updating Humboldt County's LHMP.

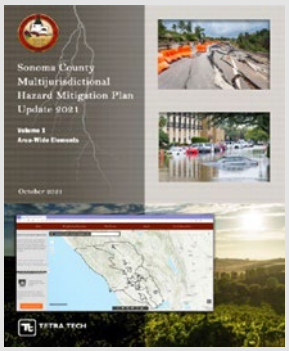
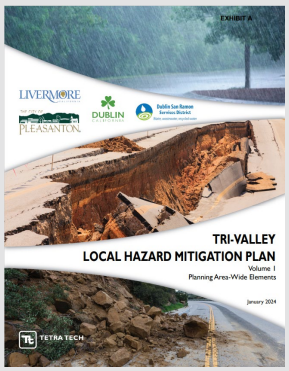
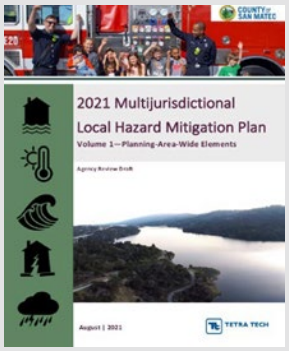
Exhibit 15. Team Member Qualifications

Name and Role	Professional Qualifications/Experience
Bart Spencer, CEM *Project Manager*	Bart Spencer is a Northern California-based senior project manager with 40+ years of experience in public safety and emergency services. Bart has worked on many projects in California, including emergency management and HMP updates for the State of California; Sonoma, Humboldt, San Mateo, and Nevada Counties; and the Cities of Los Angeles, Roseville, Oakland, and Long Beach, among others. Notably, Mr. Spencer served as the lead planner for the 2016 plan update. In that role, he spearheaded the planning process, interacted directly with the planning partners, was instrumental in the development of customized action items, and traveled to the county 5 times during the planning process. He was successful working with each planning partner in the development of their respective annex and action items often meeting with them during off-working hours. Before joining Tetra Tech, Bart worked as an emergency manager at both the city and county levels and as a first responder, allowing him to bring a unique perspective from working in the office, in the field, and on major incident deployments to this work. Bart currently heads up projects and teams that address mitigation, preparedness, and response efforts in California and the West.
Sasha Jones *Lead Planner*	Sasha Jones is a community resilience advocate who recently joined Tetra Tech from Cal OES, where she developed disaster recovery, community resilience, hazard mitigation, and climate adaptation planning guidance, templates, resource guides, and job aids. During her time at Cal OES, she also provided technical assistance to California's 58 county emergency management, planning, and resilience offices about natural hazard risk reduction, community planning and capacity building funding opportunities, and aligning Local Hazard Mitigation Plans with community resilience plans, such as Climate Adaptation Plans, General Plans, Comprehensive Economic Development Strategies, and Community Wildfire Protection Plans. In 2023, Ms. Jones reviewed and provided feedback on the draft Humboldt County Recovery Annex to the Emergency Operations Plan. In March of 2024, Ms. Jones facilitated a capacity-building webinar featuring speakers from the FEMA Community Disaster Resilience Zones, FEMA Voluntary Agency Liaison, and the Humboldt County Emergency Services Manager.
Mark Stalcup *Planner*	Mark Stalcup brings broad experience in developing HMPs, emergency operations plans, and wind feasibility studies for cities, counties, and tribal nations. Since 2021, Mark has developed and delivered single- and multi-jurisdictional plans for communities, including Hawai'i County, HI, and Genesee County, NY.

Name and Role	Professional Qualifications/Experience
Karen Montes-Berrios *Mitigation Strategy Lead*	Karen Montes-Berrios is a hazard mitigation specialist who engages clients to improve their natural hazard preparedness and enhance mitigation planning. Fully bilingual in English and Spanish, she possesses in-depth understanding of hazard mitigation planning and climate adaptation preparedness. Familiar with Northern California, Karen has developed multiple mitigation planning projects for local and county jurisdictions in Northern California, such as Butte County, Tehama County, El Dorado County, and Plumas County, providing project management oversight and serving as lead grant management specialist for planning projects. She has also assisted in planning development for mitigation strategies, hazard identification processes, and vulnerability assessments.
JaLeesa Tate, CFM *SME Community Engagement*	JaLeesa Tate is a leader in hazard mitigation and an experienced urban planner and emergency manager. She has hands-on experience working in rural and urban local government and State government. JaLeesa is a nationally recognized thought leader who has provided solution-driven recommendations concerning climate resilience, flood risk reduction, and grant development. She has provided direct technical assistance to local governments and non-governmental organizations to secure grant funding and resources to implement transformative resilience activities.
Melissa Mitchell, CFM *SME Floodplain Management*	Melissa Mitchell is a floodplain management analyst for Tetra Tech. She has over 20 years of experience working with floodplain management, planning, and zoning, commercial and residential development, and local government. She provides technical support to existing FEMA Community Rating System (CRS) communities and leverages her background in the National Flood Insurance Program (NFIP), CRS, and knowledge of city government to help our clients.
Kami Spahn *Risk Assessment Lead*	Kami Spahn is a GIS specialist for Tetra Tech's Resilience and Mitigation practice. Kami has worked in both the private sector and the local government level with a variety of project responsibilities, from performing risk assessments for numerous jurisdictions across the country to configuring various Esri-based web maps, apps, and dashboards. She specializes in ArcGIS Pro, ArcGIS Online, ArcGIS Enterprise, GIS data analysis, map design and production, natural hazard risk assessments using Hazus, web map, app and dashboard creation, feature dataset manipulation, database management, and Microsoft Office.
Alyssa Wentz *GIS Planner*	Alyssa Wentz is a GIS analyst for Tetra Tech's Resilience and Mitigation practice. Alyssa has worked on numerous hazard mitigation plans for communities in Texas, Ohio, and Maryland, where she performed large data analyses in Esri ArcGIS and FEMA's Hazus-MH Tool; led technical teams to develop data analyses for vulnerability assessments; and developed StoryMaps to support the distribution of information about areas at risk and hazards of concern.

F. Work Samples

Beyond the three LHMP updates we have conducted for Humboldt County; the work samples below highlight our regional expertise and commitment to delivering results to Northern California communities.

Organization & Contact	Summary
Sonoma County Department of Emergency Management 	**Link to Plan:** https://permitsonoma.org/longrangeplans/adoptedlong-rangeplans/hazardmitigation **Period of Performance:** June 2020–August 2021 **Key Team Members Participating in the Project:** Bart Spencer Tetra Tech has a long-standing relationship working with the County, having supported various projects and providing services for 15+ years. Tetra Tech supported the development of the last two multijurisdictional HMPs for the County. The most recent update included 15 local governments (the County, 4 cities, and 10 special districts) within the Sonoma County Operational area.
City of Livermore (Tri-Valley MJHMP Planning Lead) 	**Link to Plan:** https://www.livermoreca.gov/departments/community-development/planning/hazard-mitigation **Period of Performance:** March 2022–December 2023 **Key Team Members Participating in the Project:** Bart Spencer, Kami Spahn, Alyssa Wentz Tetra Tech has supported the last two MJHMPs for the Cities of Livermore, Dublin, Pleasanton, and Dublin San Ramon Services District. Following the most recent HMP update, Dublin contracted with Tetra Tech with a Master Service Agreement (MSA) to provide emergency management services (EOP review, Gap Analysis, trainings, and exercises). Pleasanton requested Tetra Tech update the City's EOP. Livermore asked Tetra Tech to update its Disaster Plan. DSRSD signed an MSA for emergency management support.
San Mateo County Department of Emergency Management 	**Link to Plan:** https://www.smcgov.org/ceo/2021-multijurisdictional-lhmp **Period of Performance:** January 2021–November 2021 **Key Team Members Participating in the Project:** Bart Spencer Tetra Tech has a 10+ year relationship with the County and has supported the development of the last two MJHMPs. The team completed the 5-year update to the plan for the County, 20 cities, and 15 independent special districts. This planning effort is unique in that it was one of the first to apply a social equity lens to all phases of plan development. This application was in advance of the new guidance requiring the inclusion of socially vulnerable groups.

G. Itemized Cost Proposal

Tetra Tech proposes performing the scope of work on a **time and material basis for a not to exceed price of $223,966.000.** The price is derived from estimating the number of work hours for each task; estimating the cost of materials, administrative expenses; logistical costs; and budgeting for reasonable and customary travel expenses (hotel, per diem, flight, mileage, etc.) for on-site meetings. Project management costs are included within the project phases listed below.

Exhibit 16: Proposed Cost

Project Task	Cost
A. Facilitate Special District Participation/Adoption of the LHMP	$10,615.00
B. Hazard Identification	$28,275.00
C. Risk Assessment	$34,101.00
D. Mitigation Strategy	$19,031.00
E. Plan Preparation	$36,511.00
F. Plan Drafting	$35,280.00
G. Public Engagement/Meetings/Public Hearings	$42,013.00
H. Plan Adoption	$8,140.00
Total	**$223,966.00**

Fee Schedule Hourly Rates

Tetra Tech provides the following fee schedule and job titles for personnel qualified and available to do the work. The rates are firm for the period of performance outlined in the project schedule.

Exhibit 17: Proposed Hourly Rates

Name	Title	Anticipated Total Hours[1]	Hourly Rate[2]	Overhead	Profit
Bart Spencer	Project Manger	188	$175.00	53%	10%
JaLeesa Tate	SME	49	$175.00	53%	10%
Karen Montes-Barrios	Mitigation Strategy Lead	112	$150.00	53%	10%
Dan Portman	Editorial Support	160	$150.00	53%	10%
Sasha Jones	Lead Planner	388	$145.00	53%	10%
Kami Spahn	Risk Assessment Lead	76	$125.00	53%	10%
Melissa Mitchell	SME	24	$125.00	53%	10%

Name	Title	Anticipated Total Hours[1]	Hourly Rate[2]	Overhead	Profit
Lito Valdivia	Administrative Support	18	$120.00	53%	10%
Mark Stalcup	Planner	248	$110.00	53%	10%
Alyssa Wentz	GIS Planner	164	$110.00	53%	10%
Grace Altenburg	Junior Planner	52	$85.00	53%	10%

[1] Anticipated total hours are based on Tetra Tech's understanding of the project. Tetra Tech retains the right to use more or less hours for a particular team member so long as total costs per task as outlined in **G.** are not exceeded.

[2] Rates are fully burdened to include wages, applicable overhead, and profit.

Indirect and Miscellaneous Expenses

Anticipated indirect and miscellaneous expenses are provided below. Tetra Tech retains the right to leverage unused indirect and miscellaneous expense amounts for project labor so long as total costs per task as outlined in **Exhibit 18** are not exceeded. Expenses will be invoiced at cost without markup. Travel will be at GSA-approved rates for 2025.

Exhibit 18: Anticipated Indirect and Miscellaneous Costs

Expense Type	Amount
Printing and Reproduction	$2,725.00
BATool (One Year Access)	$7,500.00
Translation of Public Materials	$2,500.00
Travel	$8,306.00

Cost Assumptions

This proposal is based on our current understanding of the project. Revisions will be subject to a mutual agreement on the final work scope/schedule and other technical/management requirements desired by the County. The final approved proposal will be part of the resulting contract or purchase order by reference or incorporated as an attachment. The costs in this proposal are based on the following cost assumptions:

Since the County will be utilizing grant funding to support this project the contract provisions of 2 CFR 200 are applicable.

- **Contract Terms & Conditions:** Tetra Tech assumes the performance of the work under mutually agreeable contractual terms and conditions. Tetra Tech is performing services that will exercise the degree of skill, care, and diligence consistent with customarily accepted good practices and procedures at the time and location and for the type of services performed. Neither Tetra Tech nor the County will be responsible for any delay that is:
    - Due to causes outside their control.
    - Not due to fault or negligence
    - Not reasonably foreseeable or, if foreseeable, not able to be avoided by the exercise of all reasonable efforts.

- **Project Lead:** The County will establish a project lead who will work with Tetra Tech to address administrative and financial aspects of the project in coordination with Tetra Tech's project manager.
- **Period of Performance:** Tetra Tech's proposed schedule is based on a Notice to Proceed in November 2024. Should the schedule materially change during the period of performance, Tetra Tech may be entitled to equitable adjustments in schedule, price, or both.
- **Invoicing:** County will be invoiced monthly, based on percent of each phase completed. Invoice payment terms are net 30 days.
- **Data Collection:** At the onset of the project, Tetra Tech will provide County with a specific list of data needs required for the development of the LJHMP. The County will provide as much of this data as possible to Tetra Tech at the start of this project; or facilitate obtaining the needed data from local agencies/departments to maintain the project schedule. This data includes relevant planning documents and GIS shapefiles/geodatabases including buildings, assessed values/replacement costs, state owned/leased/occupied facilities, critical facilities and infrastructure from the 2020 LJHMP effort (or more recent), and recent and projected new development.
    - Tetra Tech's proposed scope and budget include developing a critical facility inventory for the d County. Tetra Tech will accept spatial data that the County may already have either from the current LHMP, or as part of their GIS inventory that may be used for the critical facility inventory. Tetra Tech will compile and consolidate the data into one geodatabase to be compliant with FEMA's Hazus CDMS program.
    - Tetra Tech assumes the County has documentation of all mitigation projects that were implemented in the past.
    - Tetra Tech will provide the County with the GIS datasets (shapefile or geodatabase format) generated for this project. If Tetra Tech needs to develop GIS and other spatial datasets, these datasets will be created at accuracy levels suitable for analysis and presentation required to meet the requirements of DMA 2000 planning. Datasets will only be created if Tetra Tech is provided a spreadsheet with geographic coordinates, from which the GIS dataset can be created.
    - Tetra Tech assumes that digital floodplain mapping is readily available in formats suitable for direct incorporation and analysis using Hazus and that this mapping will be provided to Tetra Tech at no charge.
- **Accuracy:** Tetra Tech will rely on information furnished by other parties in performing its services under this project. In relying on such information, Tetra Tech will strive to provide the best level of accuracy; however, Tetra Tech does not assume an obligation to investigate or independently verify the accuracy or completeness of such information.
- **Meetings:**
    - The County will provide facilities for any in-person planning meetings at no charge to Tetra Tech. This includes necessary audio/visual capabilities.
    - In-person meetings will not take place during the week of a state or federally-recognized holiday. PT and Steering Committee meetings will take place Monday – Friday 8am – 5pm Pacific. Public meetings may be held outside of the 8am – 5pm Pacific timeframe but are not anticipated to be held on weekends.
    - In-person LJHMP Steering Committee Meetings will be scheduled on the same trip as public meetings as outlined in the technical approach.

- **StoryMap:** Tetra Tech assumes that the County will provide access to its ArcGIS Online license, by providing an alias account for Tetra Tech to develop the proposed StoryMap, web map, and/or dashboards on the County's account. Esri is responsible for all data security, privacy, and compliance for their software. The County will have a choice of StoryMap templates that are available through their Esri license; additional requested functionality and visualization will be at an additional cost. Tetra Tech assumes after we develop, test, and receive approval from the County regarding the StoryMap and dashboarding, the County will maintain the StoryMap after project completion.
    - Should the County not have an applicable license, additional costs may apply for the use of StoryMap.
    - The proposed StoryMap will be developed for desktop only, in English. There is an additional cost to deploy a mobile-friendly site.
    - Tetra Tech will not perform any custom software application development and/or scripting.
- **Data Security:** Tetra Tech is not responsible for the security, privacy, compliance, and updates of software and data maintained by third-party providers (i.e., Esri, Microsoft, etc.). Esri is responsible for all data security, privacy, and compliance for their software.
- **Section 508 Compliance:** Esri products are voluntarily evaluated for accessibility under Section 508 of Rehabilitation Act (29 U.S.C. 794d). Tetra Tech cannot ensure compliance with all Section 508 standards when using Esri or other State-provided products to build web mapping applications and tools; in addition, the team cannot ensure compliance with other State standards. Most Esri tools such as Survey 123, StoryMaps, and dashboarding offer some compliance with alternative text for images, contrasting colors, and meaningful sequences. However, mapping components may not have alternative texts or keyboard focus.
- **Deliverables:**
    - Tetra Tech will develop the plan in MS Word. We will draft up to three style templates in MS Word using the provided style guidelines and guidance for the County to select the final style to be used. The plan will include the use of hazard icons (one per hazard) and hazard mapping. Graphical summaries will be included in the Executive Summary.
    - Throughout the planning process, the Steering Committee and PT will be expected to review LHMP-related material and provide feedback within two weeks of delivery. Feedback will be provided in MS Word tracked changes, with all reviewers' comments consolidated and adjudicated into one edited document by the Project Lead.
    - Tetra Tech understands that comments to the draft and final documents may be made by participants or others throughout the process. One round of comments is included in the provided scope and budget. Tetra Tech will make every reasonable attempt to address these comments. However, in the interest of schedule and budget, it will remain the discretion of Tetra Tech to consider and address comments made after mutually agreed upon review and response deadlines.
    - Tetra Tech has assumed no costs for translation services of the final plan document; the plan will only be provided in English.
    - Public engagement materials will be translated into up to three languages. For pricing Tetra Tech has assumed Spanish, Hmong, and Simplified Chinese.
    - Tetra Tech will provide five printed copies of the final plan deliverable.
    - Tetra Tech will not be responsible for 508 compliance.
- **Validity**: This proposal is valid for a period of 120 days from the date of submittal.

H. Schedule

The schedule shows the timeline for completing each task defined in the scope of work. Our experience and familiarity with current guidance will help accelerate submission to Cal OES and FEMA and reduce requests for revisions before approval. We will work closely with Humboldt County and the Steering Committee to establish a firm project schedule that emphasizes efficiency and speed while ensuring that the goals and objectives of this process are fully met.

We assume a start date in November 2024 with a goal of having the plan with FEMA for review by October 2025 and final plan adoption by the County and its participating jurisdictions no later than January 2026.

Exhibit 19 provides the project schedule by task and subtask. Tetra Tech does not have control over how long regulatory review may take at the State and FEMA levels. The schedule may need to be adjusted if the State takes longer than 45 days to review and FEMA takes longer than the 45-day review period as outlined in the regulation.

We will adjust the timeline as necessary, based on any discussions with the County and based on the final contract.

Our proposed schedule estimates a 45-day Cal OES review and a 45-day FEMA review and may be adjusted if it does not align with the expiration of the grant funding performance period.

Exhibit 19. Proposed Project Schedule

Phase	Expedited Date Range
Project Management • **Project Initiation Meeting** • **Project Work Plan** • **Microsoft Teams Site** • **Monthly Reporting** • **Monthly Project Status Meetings** • **QA/QC**	November 2024 – January 2026
A. Facilitate Special District Participation/Adoption of the LHMP • **PT and Steering Committee selected** • **Goals and objectives considered** •	November 2024 – January 2026
B. Hazard Identification • **Hazards reviewed and considered** • **Goals and objectives finalized** • **Hazards identified and profiling stated**	November – December 2024
C. Risk Assessment • **Hazard, risk and vulnerability assessment and analysis**	January – March 2025
D. Mitigation Strategy • **Review of past action items**	February – March 2025

Phase	Expedited Date Range
• **Development of new action items**	
E. Plan Preparation • **Development of jurisdictional/planning partner annexes** • **Approval of plan template** • **Planning partners workshops**	April – August 2025
F. Plan Drafting • **Administrative draft plan for review** • **Public comment draft plan** • **Development of final draft plan for State and FEMA review**	April – August 2025
G. Public Engagement/Meetings/Public Hearings • **Development and approval of outreach strategy** • **In-person kickoff meeting** • **6 CPT meetings** • **4 Stakeholder/Steering Committee meetings** • **2 Community engagement meetings**	November 2024 – January 2026
H. Plan Adoption • **Submit Plan for Cal OES Review** • **Submit Plan for FEMA Review** • **Support Plan Adoption** • **Support jurisdictional adoptions** • **Delivery of approved plan**	August 2025– January 2026

Approach to Delivering Results in Compressed Timeframes

With our experience delivering similar plans in compressed timeframes, we are confident in our ability to meet this timeline while maintaining the highest standards of quality and compliance with FEMA and State of California requirements. We utilize efficient project management techniques and collaborative tools that ensure each milestone is achieved promptly, allowing us to deliver the final plan on time without compromising the thoroughness or accuracy required for FEMA and Cal OES approval.

Tetra Tech will work closely with the County to apply and adapt our fundamental project management standards to this effort:

- **Transparency:** *Maintaining visibility of the project's contractual scope, prioritization, schedule, budget, and cost areas.* Real-time data sharing creates a common operating platform and allows the County, its stakeholders, and our team to access the same accurate information, which markedly improves their ability to execute efficiently. This will be accomplished through monthly reporting and the use of Microsoft Teams.
- **Resources:** *Ensuring availability and proper distribution of staff and equipment*. We have never failed to respond to a client, regardless of the size of the project. Our resources include the largest pool of qualified

emergency management and disaster recovery professionals in the nation. They are supported by a team of editorial, formatting, graphics, administrative, and financial management professionals.

- **Compliance:** *Maximizing funding as well as documenting and managing potential issues*. Tetra Tech teams strictly adhere to funding agency and grant requirements, in-process quality controls, and guidance from our leadership team. As a result, our team is able to adhere to contractual requirements and complete necessary forms and filings.
- **Efficiency:** *Keeping pace with scheduled goals and milestones throughout project work*. The County will have real-time access to data and will have the ability to visualize work activities. Throughout project execution, Tetra Tech project managers monitor and adhere to project timelines and milestones to ensure pace with the County's expectations.
- **Mitigation:** *Identifying risks, managing the project risk matrix, and documenting risks encountered*. Tetra Tech provides a deep understanding of the various critical functions of hazard mitigation planning, vulnerability assessments, and community engagement-focused projects. This experience allows our team members to proactively identify risks, appropriately develop and document mitigation measures, and continually improve.

Anticipated Risks and Mitigation Strategies

Our team has supported over 270 hazard mitigation plan updates nationwide over the last two decades. This has provided us with a number of lessons learned and best practices to help our clients increase efficiencies in the planning process. We also recognize that real-world emergencies and other priorities will arise that may impact the project schedule and completion. In designing our approach for this project, we have carefully considered potential risks to the project and potential impact on project objectives, timeline, and costs. **Exhibit 20** identifies risks and describes our strategies to mitigate their impact.

Exhibit 20. Risks and Mitigation Strategies

Identified Risks	Mitigation Strategies
Plan expiration timeline requires strict adherence to schedule	• Dedicated project team ready to begin work immediately upon receiving notice to proceed. • Strong project management process that includes monthly reporting on deliverable progress and regular schedule updates. • Reach back to over 100 emergency management consultants in Tetra Tech's EMRR practice who can provide the necessary expertise and additional surge capacity as necessary to maintain the project schedule. • Experience working with the County which can be leveraged for this project.
Stakeholder engagement fatigue due to requesting a significant amount of information in a compressed timeframe	• Working with the established Steering Committee and leveraging their experience and knowledge early in the planning process. • Meeting structure that maximizes stakeholder input while respecting already busy schedules. • Existing local and regional relationships that can be called upon to encourage engagement.

Identified Risks	Mitigation Strategies
	• Engagement tools that can be quickly customized to streamline outreach efforts. • Leveraging prior efforts to reduce the amount of information being requested from stakeholders and the public.
Difficulty in engaging rural, vulnerable and marginalized communities, could lead to incomplete representation and missed priority needs for mitigation actions.	• Implement targeted outreach strategies • Develop culturally and linguistically appropriate communication. • Build trust through consistent and inclusive engagement practices.
Impact of a real-world event that requires stakeholders to focus on response and recovery operations.	• Build on stakeholder engagement mitigation strategies identified above to streamline and prioritize the information stakeholders are being asked to provide. • Experienced team of planners capable of working together to expedite document development, including over 100 emergency management consultants as identified in the mitigation strategies to mitigate schedule disruptions.

I. Evidence of Insurability and Licensure

CERTIFICATE OF LIABILITY INSURANCE

DATE(MM/DD/YYYY)
09/23/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Aon Risk Insurance Services West, Inc. Los Angeles CA Office 707 Wilshire Boulevard Suite 2600 Los Angeles CA 90017-0460 USA	**CONTACT NAME:** **PHONE (A/C. No. Ext):** (866) 283-7122 **FAX (A/C. No.):** (800) 363-0105 **E-MAIL ADDRESS:**
INSURED Tetra Tech, Inc. 3475 E. Foothill Boulevard Pasadena, CA 91107 USA	

INSURER(S) AFFORDING COVERAGE		NAIC #
INSURER A:	Safety National Casualty Corp	15105
INSURER B:	American International Group UK Ltd	AA1120187
INSURER C:	Allied World Surplus Lines Insurance Co	24319
INSURER D:		
INSURER E:		
INSURER F:		

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS. **Limits shown are as requested**

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X **COMMERCIAL GENERAL LIABILITY** CLAIMS-MADE X OCCUR X X, C, U Coverage GEN'L AGGREGATE LIMIT APPLIES PER: POLICY X PRO-JECT X LOC OTHER:			GL6676804	10/01/2024	10/01/2025	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$2,000,000 $1,000,000 $10,000 $2,000,000 $4,000,000 $4,000,000
A	**AUTOMOBILE LIABILITY** X ANY AUTO OWNED AUTOS ONLY HIRED AUTOS ONLY SCHEDULED AUTOS NON-OWNED AUTOS ONLY			CA 6676805	10/01/2024	10/01/2025	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$5,000,000
B	X **UMBRELLA LIAB** X OCCUR **EXCESS LIAB** CLAIMS-MADE DED X RETENTION $100,000			62785232	10/01/2024	10/01/2025	EACH OCCURRENCE AGGREGATE	$1,000,000 $1,000,000
A A	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** ANY PROPRIETOR / PARTNER / EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N: N **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		LDC4068970 AOS PS4068969 WI	10/01/2024 10/01/2024	10/01/2025 10/01/2025	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE-EA EMPLOYEE E.L. DISEASE-POLICY LIMIT	 $1,000,000 $1,000,000 $1,000,000
C	Professional Liability and Contractor's Pollution Liability			03120276 Prof/Poll-Claims Made Cov SIR applies per policy terms & conditions	10/01/2024	10/01/2025	Each Claim Aggregate	$1,000,000 $1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

Evidence of Insurance

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Aon Risk Insurance Services West, Inc.

J. Current Workload

With over 100 professionals in Tetra Tech's Emergency Management, Risk, and Resilience practice, we are fully prepared to allocate the personnel and resources required to execute the scope of work within the project timeframe. Our proposed team is available to begin work immediately and has the capacity to commit to this endeavor throughout the project lifespan.

Currently, members of the Tetra Tech team proposed for this project are supporting the following hazard mitigation planning projects:

- Nevada County MJHMP – With Cal OES for teview
- Metro Valley Water District MJHMP – Under development
- Del Norte County MJHMP – Under development

We understand the importance of identifying a dedicated project team that has the capacity to support the project from inception to completion and as such **have identified key project team members who have the capacity and expertise to successfully implement this project**. We are prepared to provide immediate and dedicated support to Humboldt County. The identified key project team members (in bold), and support team, are listed below along with their expected participation in the project and available time capacity.

Exhibit 21: Project Staff Assignments and Capacity Based on Current Backlog

Name	Title	Anticipated Total Hours	Availability to Support Project [1]
Bart Spencer	Project Manger	188	40%
JaLeesa Tate	SME	49	25%
Melissa Mitchell	SME	24	25%
Sasha Jones	Lead Planner	388	50%
Mark Stalcup	Planner	248	50%
Karen Montes-Barrios	Mitigation Strategy Lead	112	40%
Kami Spahn	Risk Assessment Lead	76	35%
Alyssa Wentz	GIS Analyst	164	45%
Dan Portman	Editorial Lead	160	40%
Lito Valdivia	Administrative Support	18	25%
Grace Altenburg	Junior Planner	52	35%

[1] Availability calculated based on 2080 work hours in calendar year.

Tetra Tech maintains a deep bench of in-house professionals with similar qualifications, assuring the County of continuity of operations should the need to replace any team member arise throughout the planning process. Any change would be made with caution and consideration to maintain project schedule and avoid any budget overruns.

Exhibit 22: Available Staff Capacity and Reach Back

Category	Number of In-House Staff
Engineering	2,639
Design	679
Project Management	3,193
Modeling, GIS, CRS Experts – Flood-Centric Resources	89
H&H Modelers	618
Floodplain Managers	52
Mitigation and Resilience Planners	21
Grant Specialists	32
Public/Community Outreach Specialists	67
Technical Editors	82

Appendix A: Resumes

TETRA TECH

Bart Spencer

Project Manager

EXPERIENCE SUMMARY

Bart Spencer is a Bay Area-based senior project manager with 40+ years of experience in public safety and emergency services. He has worked on many projects in California, including emergency management and hazard mitigation plan updates for the State of California; Sonoma, Humboldt, San Mateo, and Nevada Counties; and the Cities of Los Angeles, Roseville, Oakland, and Long Beach, among others. Before joining Tetra Tech, he worked as an emergency manager at both the city and county levels and as a first responder, allowing him to bring a unique perspective from working in the office, in the field, and on major incident deployments to this work.

RELEVANT EXPERIENCE

Hazard Mitigation Plan Update | Humboldt County, CA

Mr. Spencer served as the Project Lead working with the County, planning partners (municipalities and special districts) and Steering Committee to update the countywide plan.

Hazard Mitigation Plan | Sonoma County, CA

Mr. Spencer was the Project Lead for this countywide multijurisdictional project. His responsibilities included being the primary point of contact between the County and Tetra Tech, coordinating meeting and planning efforts, interacting with planning partners, and organizing Tetra Tech team efforts. His additional duties include interacting with Cal OES officials on hazard mitigation. Since Sonoma County has experiences multiple wildfires over the last several year, Mr. Spencer, because of his fire background, was charged with ensuring all the various fire agencies in the county were engaged on this project.

COVID After Action & Improvement Plan | Sonoma County, CA

Sonoma County experienced multiple simultaneous incidents – COVID, wildfire, heat wave, and power shutdowns – Tetra Tech was engaged to conduct an assessment of EOC activation and countywide interaction with municipalities and special districts. The project included assessing 5 specific focus areas: 1) Operational Coordination, 2) Public Information and Warning, 3) EOC functions, 4) County COOP Operations, 5) EOC and Health Services DOC Coordination. Mr. Spencer served as projected manager. He and his team were tasked with collecting feedback through interviews and surveys; reviewing data and reports; and drafting summary assessment reports and considered the impact to the whole community.. Tetra Tech wrote the final assessment report and improvement plan using the same five focus areas. Multiple action items were assigned to each of the five areas. Mr. Spencer also presented the Board of Supervisors with a summary report at one of its meetings.

Hazard Mitigation Plan Update | State of California

Areas of Expertise

Emergency Planning

Incident Management

EOC Staff Development and Training

Exercise Design

EOC Design and Function

Hazard Mitigation Planning

Registrations/Affiliations

International Association of Emergency Managers

California Emergency Services Association

San Mateo County Emergency Managers Association

KEY Training/Certifications

Incident Command System 100-400

FEMA Professional Development Series

HSEEP

SEMS - Instructor

NIMS IS-700

NIMS IS-800

Additional FEMA certification

Education

MA (honors) Santa Clara University

BA, Rhodes College

EMT & Paramedic, Southwest Tennessee College

Germantown Fire Academy

The State engaged Tetra Tech to update the statewide mitigation plan while maintaining its enhanced FEMA status. Mr Spencer was part of the Planning Team and served as a Lead Planner specializing in local planning efforts.

Hazard Mitigation Plan Update | City of Los Angeles, CA
Having recently completed its flood pain study, Los Angeles selected Tetra Tech to update its mitigation plan. Mr. Spencer served as the Lead Planner coordinating planning efforts between the Tetra Tech team and City leaders and staff members.

Hazard Mitigation Plan | City of Concord, CA
Concord selected Tetra Tech to updates its mitigation plan. Mr. Spencer served as Project Manager orchestrating all aspects of the project including client contact and team and financial management while ensuring the plan was consistent with current guidance and best management practices.

Hazard Mitigation Plan Update | City of Roseville, CA
The City has selected Tetra Tech for each of its last three mitigation plan updates. Tetra Tech was again asked to update the City's plan. Mr. Spencer functioned as the Project Lead for this update.

Hazard Mitigation Plan Update | San Mateo County, CA
San Mateo County and 38 jurisdictions participated in updating the multijurisdictional plan. Mr. Spencer served as the Project Lead overseeing the planning process. Because of the accelerated plan timeline, Mr. Spencer coordinated efforts with Cal OES and FEMA. As part of the planning process, Tetra Tech worked with the County on developing a social equity component to contact the local vulnerable and hard to reach populations including culturally diverse groups.

Hazard Mitigation Plan Update | Tri-Valley (Cities of Pleasanton, Livermore, and Dublin), CA
Mr. Spencer served as the Project Lead during the udate process interacting with city leaders, state and federal officials, and Tetra Tech staff.

Hazard Mitigation Plan Update | City of Long Beach, CA
Mr. Spencer orchestrated the project activities as the Project Lead for the City during the udate process interacting with City leaders, State & FEMA officials, and Tetra Tech staff.

Hazard Mitigation Plan | Metropolitan Water District, Southern CA
Serving 9 counties in Southern California, Metroploitan Water embarked on its first hazard mitigation plan. Mr. Spencer served as the Project Lead coordinating all project activities.

Hazard Mitigation Plan | City of Oakland, CA
As the Project Lead Mr. Spencer worked with the City's project lead and Project Planning Team to steer the project through an accelerated timeline

Hazard Mitigation Plan | Marin Municipal Water District, CA
Mr. Spencer worked as the Project Lead to navigate the planning process through the Water District's first Hazard Mitigation Plan.

Hazard Mitigation Plan | Crescenta Valley Water District, Crescenta, CA
Mr. Spencer worked as the Project Lead to navigate the planning process through the Water District's first Hazard Mitigation Plan.

Hazard Mitigation Plan | East Orange County Water District, Orange, CA
Mr. Spencer worked as the Project Lead to navigate the planning process through the Water District's first Hazard Mitigation Plan.

Hazard Mitigation Plan | City of Norwalk, CA

Mr. Spencer worked as the Project Lead to navigate the planning process through the Water District's first Hazard Mitigation Plan.

Emergency Operation Plan Update | Pleasanton, CA

Tetra Tech drafted the City's EOP in 2016 and recently updated it to comply with current standard and best practices. Working with city staff, Mr. Spencer served as the project manager to customize the plan so that it was workable and easy to use during an emergency situation.

Emergency Management Program Support | Dublin, CA

The City requested that Tetra Tech review and update its emergency management program through gap analysis, trainings and exercises, plan reviews, EOC evaluation. Mr. Spencer served as the project manager for the multi-year agreement working with senior City officials and managing various Tetra Tech teams.

COVID After Action Report & Improvement Plan | Yolo County, CA

Yolo County selected Teta Tech to conduct an after action assessment following the County's response to the COVID crisis and other emergencies. Mr. Spencer served as the project manager overseeing the process, interacting with County officials, and managing a team. The final report will be presented to senior leadership and the Board of Supervisors.

Emergency Operations Plan Update | San Mateo County, CA

The County engaged Tetra Tech to update its Emergency Operations Plan and various hazard specific annexes to better align with current guidance, state requirements, and best management practices. Mr. Spencer coordinated project efforts overseeing a team of emergency management planners and met with various identified county leaders in collaboration of this project.

Emergency Operations Plan Update | Tracy, CA

The City of Tracy contracted with Tetra Tech to review the City's emergency management program and update its EOP. Mr. Spencer orchestrated this effort leading a team and working with City and Fire District officials. Mr. Spencer presented a summary overview of the process and plan to the City Council.

Emergency Operations Plan Update | Cities of Redwood City and San Carlos, CA

In their effort to better collaborate on emergency services projects the cities joined efforts to update and align their EOPs and other emergency management programs. Mr. Spencer led a team to oversee the project; he met with city officials to coordinate collaborative efforts and to ensure the deliverables me both state and federal requirements as well as incorporating current best practices.

Dam Failure and Evacuation Planning Coordination & Exercise | U.S.F.S., Northern California

Tetra Tech was tasked to work with U.S. Forest Service and officials to address high-hazard dams in Northern California, review Emergency Action Plans, and developed and conducted trainings and exercises for local officials and USFS personnel and drafted an After Action Report and Improvement Plan. Mr. Spencer served as Project Manager orchestrating the various activities and overseeing the Report and Plan development.

Emergency Operation Plan Update | Half Moon Bay, CA

Following the completion of the County's Multijurisdictional Hazard Mitigation Plan, Half Moon Bay requested Tetra Tech to update its EOP and Annex and conduct trainings for EOC staff personnel. Mr. Spencer was tasked to manage the project overseeing a team to ensure a customized, workable and compliance document.

Emergency Operations Plan Update | Tracy, CA

The City engaged Tetra Tech to update its emergency plan. Mr. Spencer orchestrated the project and lead a team who reviewed existing material, researched applicable guidance and standards, and interviewed staff in order to provide the City with a useable and compliant plan. Deliverables also included EOC position descriptions, city department

responsibilities, EOP orientation and additional trainings. The plan was cross-walked for compliance with federal, county and state standards.

Disaster Debris Management Plan | San Mateo County, CA

San Mateo County tasked Tetra Tech with developing a post-disaster debris management plan. The project included interacting with several county departments developing their responsibilities following a disaster, ensuring FEMA compliance, and orientating leaders and stakeholders on their responsibilities. During this year long process Mr. Spencer managed a team and coordinated efforts that included interacting overseeing plan development and production, and meetings, trainings and plan orientation.

Emergency Operation Plan Update | El Cerrito, CA

El Cerrito contracted with Tetra Tech to update the City's EOP. The project included reviewing the previous plan, interacting with various department leaders and Contra Costa County OES officials, updating the plan including the addition of hazard specific and functional annexes, drafting EOC job-aids, conducting EOC staff orientation. As project manager, Mr. Spencer managed a team to ensure the EOP and Annexes met current standards, guidance, and codes.

TETRA TECH

Sasha Jones

Lead Planner

5 YEARS OF EXPERIENCE

Areas of Expertise

Climate Adaptation and Resilience

Whole Community Disaster Recovery Planning

Public-Private Partnerships

Emergency Response

Community Development Block Grant – Disaster Recovery and Mitigation

Affiliations

California Emergency Services Association

Florida Emergency Preparedness Association

Key Training/Certifications

FEMA National Emergency Management Basic Academy

FEMA Professional Continuity Practitioner

Education

California State University Channel Islands, BA Sociology, 2019

Location

Sacramento, California

Contact

+1 279-895-7865

sasha.jones1@tetratech.com

EXPERIENCE SUMMARY

Sasha Jones is a Senior Resilience and Climate Adaptation Planner for Tetra Tech. She has over 5 years of experience working with hazard mitigation planning, climate adaptation planning, Community Development Block Grants, whole community disaster recovery, emergency response, and local government technical assistance. Sasha has experience leading both Emergency Support Functions and Recovery Support Functions.

RELEVANT EXPERIENCE

Climate Adaptation and Resilience
Whole Community Disaster Recovery Planning
Senior Emergency Services Coordinator (2023 – 2024)

California Office of Emergency Services | Sacramento, CA

Ms. Jones served as the Community Planning and Capacity Building Coordinator for the California Office of Emergency Services Recovery Directorate. In this role, Ms. Jones led the Community Planning and Capacity Building Recovery Support Function, developed funding opportunity resource guides, hosted climate adaptation planning webinars, and collaborated with the California Governor's Office of Planning and Research, California Strategic Growth Council, and American Planning Association California Chapter. In addition, Ms. Jones developed 300+ pages of ADA-compliant disaster recovery, community resilience, hazard mitigation, and climate adaptation planning guidance, templates, resource guides, and job aids to support local governments in their community planning integration efforts.

Public-Private Partnerships
Emergency Response
Private Sector Liaison/Emergency Coordination Officer (2020-2023)

Florida Department of Economic Opportunity | Tallahassee, FL

Ms. Jones served as the Private Sector Liaison for the Florida State Emergency Operations Center. In this role, Ms. Jones led Emergency Support Function 18: Business, Industry and Economic Stabilization during COVID-19, tropical storms, wildfires, the Surfside building collapse, and Hurricanes Ian and Nicole. She cultivated a national network of public, private, nonprofit, and philanthropic partners and stakeholders to foster community resilience and business support for emergency preparedness, mitigation, and recovery initiatives. Following Hurricane Ian in 2022, Ms. Jones executed statewide economic recovery and resilience training, workshops, and events in partnership with FEMA, EDA, SBA, and other federal disaster recovery agencies to provide disaster recovery technical assistance, resources, and planning information to city and county emergency managers, economic development professionals, regional planning councils, tourism development boards, and small business organizations. In 2021,

Ms. Jones was appointed to the Florida State Emergency Response Commission for Hazardous Materials by Governor DeSantis.

Community Development Block Grant – Disaster Recovery and Mitigation

Government Operations Consultant (2019-2020)

Florida Department of Economic Opportunity | Tallahassee, FL

Ms. Jones served as a Government Operations Consultant for the Florida Department of Economic Opportunity Office of Long-Term Resilience CDBG-DR and CDBG-MIT 2017-2018 Hurricanes. In this role, Ms. Jones provided technical assistance to applicants and subrecipients for a $632 million HUD grant with three programs - infrastructure, critical facility hardening, and mitigation planning – and launched the $20 million CDBG-MIT Rebuild Florida General Planning Support Program. Ms. Jones developed mitigation program policies and procedures, revised the CDBG-MIT Action Plan, reviewed and scored mitigation planning applications, developed mitigation planning subrecipient agreements, and monitored grants for compliance.

EMPLOYMENT HISTORY

Tetra Tech, Inc	Senior Resilience and Climate Adaptation Planner	2024 – Present
California Office of Emergency Services	Senior Emergency Services Coordinator	2023-2024
Florida Department of Economic Opportunity	Senior Management Analyst	2020-2023
Florida Department of Economic Opportunity	Government Operations Consultant	2019-2020

TETRA TECH

Mark Stalcup

Planner

3 YEARS OF EXPERIENCE

Areas of Expertise

Project Management

Training & Exercises

Hazard Mitigation Planning

Preparedness & Resiliency

Meteorology, Climate Adaptation

EOC Support

Key Training/Certifications

FEMA IS 100.b, 200.b, 212.a, 318, 393.a, 634, 700.1, 800.b

Education

University of Oklahoma, BS Meteorology, Minor in Mathematics, 2016

University of Houston, BA Art History, Minor in Photography, 2009

EXPERIENCE SUMMARY

Mr. Mark Stalcup serves as a Hazard Mitigation Planner in the Emergency Management, Risk, and Resiliency (EMRR) Division. Mr. Stalcup possesses broad experience in hazard mitigation plans (HMPs), Emergency Operations Plans (EOPs), and Wind Feasibility Studies for cities, counties, and tribal nations. Since 2021, Mark has developed and delivered single- and multi-jurisdictional plans for communities across FEMA Region VI.

RELEVANT EXPERIENCE

Hazard Mitigation Lead Planner

Hawai'i County, HI | 2025 Multi-Hazard Mitigation Plan

Serving as Lead Planner, Mr. Stalcup worked directly with the Project Manager, JaLeesa Tate, assisting her with project development and execution. In addition to shadowing the PM, his roles included developing the Excel tracker, creating online survey forms, attended all Working Group meetings, while also supporting other Planners in the development of the Capability and Risk Assessments.

Harris County, TX EOC Activation

Houston, TX | 2025 Hazard Mitigation Plan Update

Following the May 2024 Derecho event, Mr. Stalcup joined Christina Parkins at the Harris County Emergency Operations Center (EOC) in Houston as the County transitioned its Response efforts to Recovery. He attended daily conference calls with federal partners as well as those from the County, City, and State of Texas. As Documentation Specialist, his work directly supported the client as the community worked to recover from DR-4781-TX.

Hazard Mitigation Planner

Genesee County, NY | 2025 Hazard Mitigation Plan Update

Mr. Stalcup gathers community-specific hazard mitigation information. He is updating municipality annexes and hazard profiles and serves as point of contact between Tetra Tech and jurisdictional participants.

Hazard Mitigation Planner

Cattaraugus County, NY | 2025 Hazard Mitigation Plan Update

Mr. Stalcup gathers community-specific hazard mitigation information. He is updating municipality annexes and hazard profiles and serves as point of contact between Tetra Tech and jurisdictional participants.

Project Manager (December 2021 – August 2023)

Durant, OK | 2023 Choctaw Nation Wind Feasibility Study

Mr. Stalcup spearheaded a customized Wind Feasibility Study (WFS) for the Choctaw Nation of Oklahoma that included collaborations among planning team members, engineering firms, local EMs, State Climatological officials, the Choctaw

Housing Authority, and Code Enforcement. Culminating with a FEMA-compliant BCA, the WFS supports tribal mitigation efforts to enhance and improve tribal home-building practices for future conditions. Mr. Stalcup presented the report and its findings to FEMA's HMA External Stakeholder Working Group 2023 Q3 Meeting.

Project Lead/Planner (August 2023 – April 2024)

Muskogee County, OK | 2024 Hazard Mitigation Plan Update

Mr. Stalcup presented hazard mitigation information subject matter at community workshops and public meetings, and led stakeholder discussions on hazard risks, jurisdictional-specific vulnerabilities, and mitigation strategies regarding future impacts from twelve natural hazards.

Project Lead/Planner (March 2023 – January 2024)

Delaware County, OK | 2023 Hazard Mitigation Plan Update

Mr. Stalcup presented hazard mitigation information subject matter at community workshops and public meetings, and led stakeholder discussions on hazard risks, jurisdictional-specific vulnerabilities, and mitigation strategies regarding future impacts from twelve natural hazards. He also was responsible for aspects of the report development and final delivery of the HMP to the client.

Project Lead/Planner (January 2023 – September 2023)

City of Grove, OK | 2023 Hazard Mitigation Plan Update

Mr. Stalcup served as the primary mitigation planner and presented mitigation material and subject matter to clients in Grove. At Stakeholder and Core Group Meetings, he served as the primary lead in group discussions while developing updated mitigation strategies for the City.

Hazard Mitigation Planner (June 2022 – February 2023)

Okmulgee County, OK | 2023 Hazard Mitigation Plan Update

Mr. Stalcup served as the point of contact and primary mitigation planner during the development of the County's 2023 HMP Update. He helped present material at Stakeholder Workshops and developed a new planning process that helped retain 100% jurisdictional participation during the Plan development.

Hazard Mitigation Specialist (May-August 2015)

Moore, OK | DR-4222

Mr. Stalcup supported Oklahoma Office of Emergency Management (OEM) HMP Reviewers as the state organized and prepared content to be included in the next State Plan Update. His work incorporated meteorological data and maps that were included in the next Oklahoma State Hazard Mitigation Plan. Mr. Stalcup then joined the OK State Hazard Mitigation Officer (SHMO) as the FEMA response kicked off during DR-4222. Moving to the Joint Field Office (JFO) in Moore, Mr. Stalcup worked with State and Federal partners to expedite funding assistance for disaster victims.

EMPLOYMENT HISTORY

Meshek & Associates, LLC.	Hazard Mitigation Planner	Nov. 2021 – Apr. 2024
Universal Weather & Aviation	Master Meteorologist	Jan. 2017 – Nov. 2021
OK Office of Emergency Management	Hazard Mitigation Specialist	May 2015 – Aug. 2015

TETRA TECH

Karen Montes-Berríos

Lead Mitigation Strategy Lead

5 YEARS OF EXPERIENCE

Areas of Expertise

Hazard Mitigation

Planning Projects

Project Management

Technical Assistance

FEMA HMGP

Community Outreach

Public Speaking

Policies and Procedures

Key Training

AWR-356 Community Planning for Disaster Recovery

AWR-347 Climate Adaptation Planning for Emergency Management

G-393 Mitigation for Emergency Managers

IS-318 Mitigation Planning for Local and Tribal Communities

IS-329 State Hazard Mitigation Planning

IS-362 Multi-Hazard Emergency Planning for Schools

IS-366 Planning for the Needs of Children in Disaster

Education

Master of Science, Disaster Science and Management, University of Delaware, 2019

Bachelor of Arts, Communications and Geography, University of Puerto Rico Rio

EXPERIENCE SUMMARY

Ms. Karen Montes-Berríos is an initiative-taking hazard mitigation specialist who engages clients to improve their natural hazards preparedness and enhance mitigation planning. Fully bilingual in English and Spanish, she possesses in-depth understanding of hazard mitigation planning and climate adaptation preparedness. She has provided programmatic technical assistance to local and county planning mitigation efforts by assisting in planning development for mitigation strategies, hazard identification process and vulnerability assessments. Additionally, she has developed multiple mitigation planning projects at the local, county, and state level via programmatic technical assistance, providing project management oversight and serving as lead grant management specialist for planning projects.

RELEVANT EXPERIENCE

Hazard Mitigation Professional (2022 – July 2024)

Hagerty Consulting

- Supporting the California Office of Emergency Services (CalOES), served as subject matter expert for hazard mitigation planning and provided programmatic technical assistance to 15+ planning projects ranging from LHMPs to planning-related activities by reviewing supporting documentation to satisfy programmatic planning requirements
- Led fast-track initiative for planning projects in California by working directly with subapplicants to provide hands-on programmatic technical assistance to submit comprehensive planning subapplications incorporating latest planning and programmatic guidance
- Managed 30+ HMGP projects from pre-award to project closeout
    - Provided technical assistance to subrecipient for programmatic requests such as policy guidance scope of work, quarter progress reports, reimbursements, project and closeout monitoring, budget modification requests, etc.
    - Provided support for grand administration technical assistance to team members and grant specialists
- Provided programmatic technical assistance and grant management for 20+ BRIC, HMGP and FMA projects from pre-award status, addressing RFIs and after project award

Delaware Emergency Management Agency (2019 – 2022)

State Hazard Mitigation Officer/Planner IV

- Served as subject matter expert on hazard mitigation planning
- Assisted communities with identifying planning need, develop planning projects and review data to incorporate into mitigation plans

- Assisted all three counties as programmatic reviewer for their LHMP and actively developed their mitigation actions, hazard identification process and vulnerability assessments
- Performed duties as the State Hazard Mitigation Officer for Delaware, leading mitigation planning activities and HMA grant management for projects located in all three counties
- Engaged in community planning outreach and public speaking on mitigation planning initiatives statewide in English and Spanish
- Served as chairperson for the Delaware State Hazard Mitigation Council (SHMC) and the State Hazard Mitigation Policy Group (SHMPG)
    - The State Hazard Mitigation Council (SHMC) – made up of public representatives, private citizens, business, and organizations – was brought together to work with DEMA for enhancing statewide mitigation planning and project implementation.
    - Tasks included coordinating meetings involving State agencies and public organizations that might have a role in the implementation of statewide mitigation planning, conducting strategy meetings, and opportunities for input and comment on all draft deliverables.
- Developed and planned three Mitigation Strategy documents for three separate statewide declared disasters (DR4566 Tropical Storm Isaias in 2020, DR4526 COVID-19 in 2020 and DR-4627 Tropical Depression Ida in 2021); these strategies serve as priority guidance and mitigation planning activities the State of Delaware intends to pursue to enhance capabilities against natural hazards
- Led the HMA grant management program for Delaware, managing over 10 projects from project pre-award to project closeout
- Provided outreach on mitigation subject matter expertise as State Lead in the development of hazard mitigation project application development, planning, policies, procedures, and practices for state and local partners
- Streamlined grant project reports for state leadership to facilitate monthly updates, fiscal review, and project progress

TETRA TECH

JaLeesa D. Tate, CFM

Technical Advisor: Floodplain Management

10 YEARS OF EXPERIENCE

Areas of Expertise

Preparedness, Hazard Mitigation, and Climate Resilience

Grant Administration

Floodplain Management

Urban Planning and Community Development

Diversity, Equity, and Inclusion

Response and Recovery

Registrations/Affiliations

Association of State Floodplain Managers, 2016 - Present

Maryland Association of Stormwater and Floodplain Managers, Mitigation Co-Chair, 2016 - Present

National Emergency Management Association, SHMP Subcommittee Chair, 2018-2021

FEMA External Stakeholders Working Group, 2021

Key Training/Certifications

Certified Floodplain Manager, No. US-16-09169

Education

Salisbury University, B.S., Geography and Geosciences; Focus: Environmental/Land Use Planning, 2012

Location

WAH

Contact

jaleesa.tate@tetratech.com

302-283-2231

EXPERIENCE SUMMARY

Ms. Tate is a leader in hazard mitigation and an experienced Urban Planner and Emergency Manager. She has hands-on experience working in rural and urban local government and State government. Ms. Tate is a nationally recognized thought leader who has provided solution-driven recommendations concerning climate resilience, flood risk reduction, and grant development. She has provided direct technical assistance to local governments and non-governmental organizations to secure grant funding and resources to implement transformative resilience activities.

RELEVANT EXPERIENCE

Planner (2022 – 2023)

Iowa Department of Homeland Security and Emergency Management | Diversity and Equity in Disaster Management

Ms. Tate reviewed State and local plans, programs, and policies to assess the integration of diversity, equity, inclusion, and accessibility (DEIA) principles throughout the structure of the Iowa Department of Homeland Security and Emergency Management. The multi-phase project includes identifying underserved and historically marginalized populations based on the unique characteristics and barriers present within the State. A dynamic engagement plan was conducted that prioritized identifying communication methods to best engage the whole community including individual interviews, virtual and in-person town halls, surveying, and more. An equitable framework for implementing the disaster management process will be developed and tailored to the needs of Iowa as identified through the project.

Planner (2022)

Caroline County, MD Department of Emergency Services | Diversity, Equity, Inclusion, and Accessibility Assessment for Emergency Operations Plan

Ms. Tate assessed Caroline County's Emergency Operations Plan to develop a baseline of DEIA within the emergency management structure of the County. Ms. Tate developed recommendations for the County to increase efforts to serve the whole community with equity at the forefront. These recommendations were based on findings in the plan and focused on identifying feasible actions to build upon the County's existing framework while working towards integrating transformational changes.

Project Manager (2023 – ongoing)

Baltimore Department of Planning | 2023 Disaster Preparedness and Planning Project

Ms. Tate serves as the Project Manager to update the City of Baltimore's Disaster Preparedness and Planning Project, which serves as the City's hazard mitigation

plan. The plan is a climate-focused plan, which prioritizes the integration of climate action planning. The plan assesses flooding, coastal storms, severe storms, drought, extreme temperatures, earthquakes, soil movement, and human-caused hazards.

Deputy Project Manager (2022 – ongoing)

California Office of Emergency Services | 2023 State of California Hazard Mitigation Plan

Ms. Tate serves as the Deputy Project Manager to update the State of California's hazard mitigation plan. The Plan profiles thirty-four natural and human-caused hazards, with an emphasis on integrating equity considerations and climate change impacts into the risk assessment. The planning process utilizes a robust stakeholder engagement plan, which convenes nine working groups and one advisory group.

Deputy Project Manager (2022 – ongoing)

West Virginia Emergency Management Division | 2023 State of West Virginia Hazard Mitigation Plan

Ms. Tate serves as the Deputy Project Manager to update the State of West Virginia's hazard mitigation plan. The update focuses on providing a data-driven approach to assess risk and vulnerability. The plan will be developed to prioritize usability to ensure the plan is actionable.

Lead Planner (2022 – ongoing)

Frederick County Division of Emergency Management | Safe Frederick Plan

Ms. Tate facilitated stakeholder interviews and assisted with the development of the Safe Frederick Plan, a long-term strategic plan for public safety organizations in Frederick County, MD. The planning process served to identify opportunities for cross-collaboration and coordination amongst public safety partners, identify gaps and opportunities for non-traditional partners to be engaged, and shape the future of public safety in Frederick County.

Grant Writer (2023)

Tohopekaliga (Toho) Water Authority | Resilient Florida Grant

Ms. Tate aided in the development of the Buena Ventura Lakes Water Treatment Plant Flood Mitigation Improvements grant for submittal to the Resilient Florida Grant Program. The grant was awarded, and the Toho Water Authority received $1,529,187 to mitigate stormwater flooding onsite of a critical water treatment facility servicing 100,000 residents throughout Kissimmee, Poinciana, and unincorporated areas of Osceola County.

Region Lead (2021 – 2022)

North Carolina Office of Recovery and Resiliency | North Carolina Regional Resilience Project Portfolios

Ms. Tate served as the technical lead for four North Carolina counties to develop a vulnerability assessment, identify projects, develop project implementation plans, and conduct extensive stakeholder and community engagement. The project focused on identifying regional-scale projects to address rural, urban, and coastal resilience issues. Ms. Tate incorporated existing and emerging natural hazards, cascading impacts and consequences, and social vulnerability into the project.

State Hazard Mitigation Officer/Branch Manager (2018-2021)

Maryland Department of Emergency Management

Ms. Tate led the State of Maryland's Hazard Mitigation Program overseeing the implementation of eight HMGP awards; closing four HMGP Disasters; successfully leading the State to receive 1 of 22 competitive FY20 BRIC awards; and championed the update of the State's 2021 Hazard Mitigation Plan. She was hands-on in every aspect of the grant management cycle for Disaster and Non-Disaster awards. Ms. Tate oversaw hazard mitigation planning for the entirety of the State, providing technical assistance and guidance for local multi-jurisdictional plans and training state staff for local mitigation plan reviews. Additionally, Ms. Tate served in several capacities to lead the State in building its resilience,

including establishing partnerships with the Association of Climate Change Officers, the Netherlands Water Partnership, and the Nature Conservancy.

Coastal Resources Planner (2016-2018)

Baltimore City Department of Planning

Ms. Tate administered the City's Critical Area Management Program and served as the Floodplain Manager for the Baltimore Harbor and Port of Baltimore. During this time, she worked closely with developers and City officials to ensure adverse impacts to people, property, and the environment were minimized from development. Ms. Tate led code enforcement of the higher regulatory floodplain ordinance. Ms. Tate was part of the Baltimore Office of Sustainability and participated in the development of the City's Sustainability Plan and Disaster Preparedness and Planning Project.

TETRA TECH

Melissa Mitchell, CFM

Technical Advisor: Floodplain Management

22 YEARS OF EXPERIENCE

Areas of Expertise

National Flood Insurance Program (NFIP)

FEMA's Community Rating System (CRS)

Floodplain Management

Local Government

Registrations/Affiliations

Association of State Floodplain Managers

Key Training/Certifications

PM 1

Certified Floodplain Manager (CFM)

E0273 NFIP, L0278 CRS, IS0279 Retrofitting, L0141 Instructional, IS212 HMAP, L276 BCA, IS30 eGrant

Education

Johnson County Community College – Overland Park, KS

A.G.S.

Vocational Certificate Construction Management

EXPERIENCE SUMMARY

Ms. Melissa Mitchell is a Floodplain Management Analyst for Tetra Tech. She has over 20 years of experience working with floodplain management, planning, and zoning, commercial and residential development, and local government. She provides technical support to existing FEMA Community Rating System (CRS) communities and leverages her background in the National Flood Insurance Program (NFIP), CRS, and knowledge of city government to help our clients.

RELEVANT EXPERIENCE

Hazard Mitigation Planning, FEMA Community Rating System (CRS) and Floodplain Management

Township of Little Falls, New Jersey, and City of Woodland Park, New Jersey | Annual CRS Recertification Support (July 2023 – Present)

Ms. Mitchell is providing CRS technical support to aid in the completion of required annual recertifications, elevation certificate review(s), and analysis of CRS classification improvement.

Stone Harbor, New Jersey | Repetitive Loss Area Analysis (May 2023 – Present)

Ms. Mitchell is providing technical floodplain management support in the development of a CRS creditable Repetitive Loss Area Analysis. The analysis is a detailed mitigation plan for NFIP repetitive loss areas within the community. This project includes public outreach, stakeholder participation, data collection, and assessment of the flooding source with identified mitigation measures appropriate for the structure type.

Orange County, California | Floodplain Management Plan (March 2023 – Present)

Ms. Mitchell is supporting the development of a comprehensive floodplain management plan for the County of Orange. This multi-phase project includes a planning process, ordinance reviews, a steering committee, public outreach, coordination between stakeholders and participating communities, hazard assessment, mitigation possibilities, and identifying an action plan.

Snoqualmie, Washington | Repetitive Loss Area Analysis (March 2023 – Present)

Ms. Mitchell is providing technical floodplain management support with an emphasis on FEMA's Community Rating System program. This analysis includes public outreach, stakeholder participation, data collection, and assessment of the flooding source with identified mitigation measures appropriate for the structure type.

Kansas City, Kansas | NFIP Floodplain Management and FEMA CRS Support Services (October 2022 – Present)

Ms. Mitchell is delivering ongoing NFIP and FEMA CRS support to multiple departments within the City of Kansas City. Her focus is on supporting the daily

duties and goals of the city's floodplain management program, NFIP compliance, and continued FEMA CRS success. Technical services have included CRS class improvement, ordinance review, Building Code Effectiveness Grading Schedule (BCEGS) survey guidance, recertification, staff training, and Flood Mitigation Assistance grant application support.

Long Beach, New York | Community Rating System Verification (December 2022 – July 2023)
Ms. Mitchell provided specialized support to the community with their 3-year CRS Verification application and aided in the development of a CRS Program for Public Information.

San Diego County, California | Community Rating System Verification (2022)
Ms. Mitchell has supported the city's ongoing CRS efforts which included annual recertification support, CRS verification technical services, and the completion of a baseline assessment analysis of their CRS program.

Bellaire, Texas | Community Rating System Verification (2023)
Ms. Mitchell provided support to the city's CRS verification/modification documentation with specific aid for the community's outreach program and drainage system maintenance.

Corte Madera, California | Community Rating System Verification (2022)
Ms. Mitchell provided support to the Town of Corte Madera with their CRS annual recertification and CRS verification visit. Services included CRS training for staff members.

Bellevue, Washington | Community Rating System Verification (2022)
Ms. Mitchell provided technical support with the completion of the city's CRS verification application and documentation.

Woodland Park, New Jersey, and Snoqualmie, Washington | Community Rating System Annual Recertifications (2022)
Ms. Mitchell aided both communities with the completion of their annual CRS recertifications.

Federal Insurance and Mitigation Administration (FIMA) | Local Substantial Damage Standard Operating Procedures
Ms. Mitchell provided support in the review and assessment of the substantial damage management plan templates to ensure consistency.

State Program and Grant Administration Support Specialist

Pennsylvania Governor's Office of the Budget | Redevelopment Assistance Capital Program (January 2023 – May 2023)
Ms. Mitchell provided specific support in the review and compliance of payroll documentation associated with prevailing wage regulations and state criteria for qualifying projects.

Illinois Department of Natural Resources | Asian Carp Business Assistance (March 2023 – May 2023)
The Illinois Department of Natural Resources has paired with Tetra Tech to establish a program that has rebranded the invasive Asian carp species. Ms. Mitchell assisted in data collection, verification, and payment processing program for the fishing contractors and fish processor facilities.

National Flood Insurance Program's Community Rating System, Insurance Services Office

CRS Specialist (2014 – 2022)
Ms. Mitchell served as the primary CRS Specialist assigned to six states within three FEMA Regions. This territory included the management of ninety-eight CRS communities within the states of Kansas, Missouri, Iowa, Nebraska, Arkansas, and Minnesota. CRS Specialist support was provided to communities in California, Tennessee, and Florida as needed. Responsibilities included high-level technical services to support existing communities and foster the growth and interest of the CRS program. Duties included reviewing community requests for Community Rating Systems classifications, verifying creditable activities, and providing supportive workshops, presentations, conference participation, and user group support. In addition to supporting existing CRS Community participants, equal efforts were in place for interested communities. She aided as an instructor for FEMA's 4-day and 2-day CRS courses that were field-deployed nationwide.

Department of Urban Planning, Unified Government of Wyandotte County, Kansas

Development Review Committee Coordinator/Floodplain Administrator (2008 – 2014)

As the Development Review Committee Coordinator, Ms. Mitchell was responsible for the task management of commercial development permit applications. She served as the floodplain administrator and CRS Coordinator. Assisted with CRS entry applications for two out of the three cities within the County. Responsibilities included floodplain permit plan review, floodplain development permitting, and code enforcement.

TETRA TECH

Kamille Spahn

Risk Assessment Lead

9 YEARS OF EXPERIENCE

Area of Expertise

ArcMap

ArcGIS Pro

ArcGIS Online

ArcGIS Enterprise

ArcGIS Web Maps, Apps, & Dashboards

ArcGIS Survey123/Survey123 Connect

Model Builder

CDMS

FEMA Hazus (v5.1, v6.0)

GIS Data Analysis

GIS Database Management

Education

B.A., Geography, Concentration: Global Issues, Rowan University, 2014

Gamma Theta Upsilon Geography Honor Society

Tau Sigma Transfer Honor Society

A.S., Elementary Education, Camden County College, 2012

EXPERIENCE SUMMARY

Ms. Kamille Spahn is a GIS Specialist for Tetra Tech's Resilience and Mitigation division for the Emergency Management Community Resilience Program. She obtained her Bachelor's degree in Geography with a concentration in Global Issues from Rowan University in 2014 with Honors. Ms. Spahn has worked in both the private sector and the local government level with a variety of project responsibilities, from performing risk assessments for numerous jurisdictions across the country to configuring various ESRI-based Web Maps, Apps and Dashboards. She specializes in ArcGIS Pro, ArcGIS Online, ArcGIS Enterprise, GIS data analysis, map design and production, natural hazard Risk Assessments using Hazus, Web Map, App and Dashboard creation, feature dataset manipulation, database management and Microsoft Office.

RELEVANT EXPERIENCE

Geographic Information Systems

Northeast United States Hazard Mitigation Plans

Monroe County, NY; Delaware County, PA; Bedford County, PA; Herkimer County, PA; Warren County, NY; State of West Virginia; Ulster County, NY; Sussex County, NJ; City of Baltimore, MD; York County, PA (09/2022 – Present)

Ms. Spahn has worked on several hazard mitigation plans for jurisdictions in New York, Pennsylvania, Maryland and New Jersey.

- The following tasks are required: Reviewing and prepping technical data from the assessor, jurisdiction's GIS, and county and/or state's databases for spatial analysis; collecting and analyzing appropriate hazard data for analyses; running analyses in the ESRI ArcGIS platform and FEMA Hazus; summarizing spatial analyses results; reviewing and writing a vulnerability assessment for the client based upon spatial analysis of hazard; assess risk to socially vulnerable populations; perform QAQC of spatial data and analyses results; and mapping support.
- These projects assessed hazards such as Flood 100-year, Flood 500-year, High Hazard Dam Failure, NEHRP Soils D and E, Landslide Incidence and Susceptibility, Hurricane 100-year, Hurricane 500-year, Hurricane 1000-year, Historical Hurricane, Wildfire Interface and Intermix, Earthquake 500-year, Earthquake 2500-year, Levee Failure, Hazardous Materials, Radiological Incidents, SLOSH Category 1, Sea Level Rise (including 1% annual chance flood + 6' SLR for 2100), Steep Slope (Over 15-percent Grade), and Subsidence.

Western United States Hazard Mitigation Plan Supportive Tasks

California State; Cowlitz County, WA; Adams County, WA; Hawaii State; City of Concord, CA; Tri-Valley, CA; City of Roseville, CA; Lewis County, WA; Idaho State; Whatcom County, WA (09/2022 – Present)

Ms. Spahn worked on several supportive tasks for Western United States Hazard Mitigation Plans. Some of these tasks include: sourcing and inventorying source GIS data used for analyses; developing structure and critical facility inventories; developing a substantial damage inventory; QAQC of analyses results; running exposure analyses to hazards of concern on general building stock and critical facility inventories; summarizing spatial analyses results; developing a public web-interface using ESRI Experience Builder; and mapping support.

Central United States Hazard Mitigation Plan Supportive Tasks

Llano County, TX; San Saba County, TX; West Virginia State (10/2022 – 03/2023)

Ms. Spahn worked on several supportive tasks for Central United States Hazard Mitigation Plans.

- Some of these tasks include: developing critical facility inventories; running exposure analyses on State Facilities; summarizing spatial analyses results; assess risk to socially vulnerable populations; perform QAQC of analyses results; collecting population statistics for analyses; mapping support; and running analyses in the ESRI ArcGIS platform and FEMA Hazus.
- These projects assessed hazards such as Flood 100-year, Flood 500-year, Expansive Soils, High Threat Wildfire, Moderate to High Threat Wildfire, Landslide Steep Slope, Levee Failure, Dam Inundation, and Subsidence Carbonate Rock.

Mapping Support

Orange County, NJ; City of Houston, TX; Massachusetts Bay Transportation Authority (11/2022 – 3/2023)

In addition to providing mapping support throughout the previously mentioned projects, Ms. Spahn has developed maps on an as-requested basis for several projects utilizing ESRI ArcMap.

TETRA TECH

Alyssa M. Wentz

GIS Planner

7 YEARS OF EXPERIENCE

Area of Expertise

FEMA Hazus (v5.1)

ArcMap (10.8.2)

ArcPro (3.0.0)

ArcGIS Online

ArcGIS Experience Builder

ArcGIS Story Map

ArcGIS Survey123/Survey123 Connect

GIS Data Analysis

GIS Database Management

Registrations/Affiliations

Keystone GIS
Member | February 2022 - Present

American Association of Geographers
Member | February 2022 - Present

Mid-Atlantic Chapter of URISA
Member | June 2022 - Present

Education

B.S. Geography
Shippensburg University
May 2014

EXPERIENCE SUMMARY

Alyssa Wentz a GIS Analyst for the mitigation and resilience practices for Emergency Management Community Resilience Program. She obtained a Bacherlors of Geography from Shippensburg University and joined Tetra Tech as a GIS Analyst in October 2022. Alyssa has worked on numerous hazard mitigation plans for communities in Texas, Ohio, and Maryland. Ms. Wentz has performed large data analyses in ESRI ArcGIS and FEMA's Hazus-MH Tool; led technical teams to develop data analyses for vulnerability assessments; and has developed story maps to support the distribution of information about areas at risk and hazards of concern.

RELEVANT EXPERIENCE

NJOEM NFIP GIS Update (December 2022 – April 2023)

Lead spatial analyst assessing NJ building footprints, MODIV parcel data, and FEMA NFIP points to join repetitive loss, claims, and policy information across the datasets. Modifying location of NFIP GIS data based on accuracy level indicators provided in FEMA data. Support QAQC of data processing and documentation of processing steps.

Franklin County, Hazard Mitigation Plan (October 2022 – Present)

Preparing and reviewing technical data from assessor, city, county databases for spatial analysis. Collecting and clipping hazard data for analyses. Development of surveys for Problem Areas and New Development using Survey123 Connect. Summarizing spatial data results ran in ESRI ArcGIS and FEMA Hazus. Reviewing and writing vulnerability assessment for client based upon spatial analysis of hazard and qualitative research. Assessing risk to socially vulnerable populations. QAQC of spatial data and analysis. These projects assessed hazards such as the Earthquake 250-year, Earthquake, 1,000-year, Inland Erosion (K-Factor >= 0.49), Flood 100-year, Flood 500-year, Carbonate Rock, and Dam Inundation.

Fort Bend County, Hazard Mitigation Plan (September 2022 – Present)

Preparing and reviewing technical data from assessor, city, county databases for spatial analysis. Collecting and clipping hazard data for analyses. Development of surveys for Problem Areas and New Development using Survey123 Connect. Summarizing spatial data results ran in ESRI ArcGIS and FEMA Hazus. Reviewing and writing vulnerability assessment for client based upon spatial analysis of hazard and qualitative research. Assessing risk to socially vulnerable populations. QAQC of spatial data and analysis. These projects assessed hazards such as the Hurricane 100-year, Hurricane 500-year, Flood 100-year, Flood 500-year, Dam Inundation, Wildfire, Inland Erosion (K-Factor >=0.49), and Expansive Soils (Linear Extensibility >6%).

State of Hawaii, Hazard Mitigation Plan (October 2022 – May 2023)

Summarizing spatial data results ran in ESRI ArcGIS and FEMA Hazus. Assessing risk to socially vulnerable populations, state land use districts, environmental resources, Hawaiian Home Lands, and cultural resources. QAQC of spatial data and analysis. These projects assessed hazards such as the Climate Change & Sea Level Rise (3.2-feet Sea Level Rise and 1-percent annual change flood + 3.2-feet Sea Level Rise), Chronic Coastal Flood (Sea Level Rise 1.1-feet), Dam Failure, Earthquake NEHRP Soils Class D and E, Earthquake 100-year, Ka'ū M8.0, Lāna'i M7.0, Kalapana M7.7 and NE Maui M7.0 Earthquake Events, Flood 100-year (A + V Zones and V Zones), SLOSH Categories 1-4, High Landslide Susceptibility Areas, Tsunami (SOEST, GAT, and ASCE Inundation Areas), Volcanic Lava Flow, and Wildfire.

City of Baltimore, Disaster Preparedness and Planning Project (February 2023 – Present)

Preparing and reviewing technical data from assessor, city, county databases for spatial analysis. Collecting and clipping hazard data for analyses. Summarizing spatial data results ran in ESRI ArcGIS and FEMA Hazus. Reviewing and writing vulnerability assessment for client based upon spatial analysis of hazard and qualitative research. Assessing risk to socially vulnerable populations. QAQC of spatial data and analysis. These projects assessed hazards such as the Earthquake 100-year, Flood 100-year, Flood 500-year, Hurricane 100-year, Steep Slope (Over 30-percent Grade), SLOSH Categories 1-4, and 2050 Mean Sea Level Rise (1% Annual Chance Flood).

ADDITIONAL EXPERIENCE

ESRI ArcGIS, ESRI ArcPro, ESRI ArcGIS Online, Storymap, Experience Builder, FEMA Hazus-MH v5.1, MS Excel, MS Word, MS Outlook, Google Earth

EMPLOYMENT HISTORY

October 2022 – Present	Tetra Tech, GIS Analyst
April 2022 – October 2022	LingaTech, GIS Administrator
July 2019 – April 2022	Wildlands Conservacy, Land Protection Coordinator
May 2016 – July 2019	GIS Specialist, Western Pennsylvania Conservancy
June 2014 – May 2016	GIS Technician, Trimble MAPS

HONORS & AWARDS

Emering Trail Leader Scholarship	2019 | Presented by American Trails
Elaine Bosowksi Map Award	2013 | Presented by Pennsylvania Geographic Society