



1255 East Street, Suite 202 • Redding, CA 96001 • (530) 262-6190 • Fax: (530) 262-6189
E-mail: srta@srta.ca.gov • Website: www.srta.ca.gov

Daniel S. Little, Executive Director

December 18, 2018

Priscilla Martinez-Velez
Senior Transportation Planner
Sustainable Transportation Planning Grants
California Department of Transportation
Division of Transportation Planning
Office of Regional Planning
1120 N Street, MS 32
Sacramento, CA 95814

SUBJECT: Amendment to the ShastaReady Extreme Climate Event Mobility and Adaptation Plan

Dear Ms. Martinez-Velez:

The Shasta Regional Transportation Agency (SRTA) is pleased to amend our grant application for the ShastaReady Extreme Climate Event Mobility and Adaptation Plan to include the augmented budget and scope of work for ButteReady. SRTA has a long and productive history of collaborating with the Butte County Association of Governments (BCAG) and now, with the shared experience of two devastating fires in the same year, we plan to conduct joint efforts where it makes sense to do so while continuing to recognize the challenges and stakeholders unique to each region.

Thank you for your consideration of adding BCAG at this time; it would not have been otherwise possible with the grant deadline immediately following the Camp Fire. We hope Caltrans can find resources to fund both regional components of the project. If not, we ask that ButteReady be viewed as a severable component. If this were to happen, SRTA would still include BCAG in the ShastaReady process in hopes that the lessons learned can be integrated into a subsequent ButteReady process, if funded.

We are confident that both of these efforts will have widespread applicability in other regions throughout the state.

Sincerely,

A handwritten signature in blue ink, appearing to read "Daniel S. Little", is written over a horizontal line.

Daniel S. Little, AICP, Executive Director

dsl/acl



326 Huss Drive, Suite 150
Chico, California 95928-8441
(530) 809-4616 FAX (530) 879-2444
www.bcag.org

December 17, 2018

Priscilla Martinez-Velez
Senior Transportation Planner
Grant Management
Office of Regional Planning
1120 N Street, MS-32
Sacramento, CA 95814

Dear Ms. Martinez-Velez,

The purpose of this correspondence is to respectfully request Caltrans accept and consider this revision to the ShastaReady Extreme Climate Event Mobility and Adaption Plan submitted by the Shasta Regional Transportation Planning Agency. Shasta TPA has graciously accepted modifying their grant submittal to allow for an increase in scope and budget to achieve the same deliverables as proposed by the Butte County Association of Governments.

As you are aware of the devastating fires which began on November 8, 2018 in and near Paradise, our region is still in shock with the magnitude of impacts not only in Paradise, but the surrounding region as well. We appreciate the state's willingness to accept this grant modification at a time when we really need "planning" now as the town and region moves forward in its rebuilding efforts. The total acres burned were 153,336 with 13,972 residences, 528 commercial buildings and 4,293 other buildings destroyed. Words cannot categorize the destruction we are facing. In addition, in 2017 we faced flooding concerns with the Oroville Dam, also in Butte County. Our environment is changing and we as a region in the north state, including Shasta are requesting the funds to help us better prepare and plan for the future.

Due to these circumstances we have an opportunity to accomplish some good planning work. We have an opportunity to gather the immense data and experiences as well as other climate change potential impacts and identify some potential solutions in the effort to minimize loss of life and improve the communications and processes for all of the agencies involved. The work effort from this project would be incorporated into BCAG's Regional Transportation Plan / Sustainable Communities Strategy.

BCAG has prepared the same project timeline submitted by Shasta TPA. Butte and Shasta counties are similar in population and land area size. We believe the magnitude of supplemental work effort will mirror Shasta County. This will also facilitate the management of

Ms. Priscilla Martinez-Velez
December 18, 2018
Page 2

the consultant contract should it be awarded. As such, BCAG is requesting \$289,850 in grant funds with \$48,700 in local match for a supplement request of \$341,000.

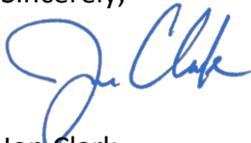
In addition, BCAG would want to ensure that in no way this supplemental request would jeopardize Shasta's original grant award. First and foremost is Shasta Transportation Planning Agency's original grant submittal.

Should the grant funds be approved, BCAG and Shasta would revise the Scope of Work and Project Timeline to include both regions and or other changes as requested by the State.

If you have any questions, please give Ivan Garcia of my staff a call directly at 530-809-4603 or by email at igarcia@bcag.org.

Thank you again for the grant funding consideration.

Sincerely,



Jon Clark
Executive Director

Attachments:

- Revised Cover Letter from Shasta County Regional Transportation Planning Agency
- Supplemental Project Timeline
- North State Super Region Letter of Support



North State Super Region

1255 East Street, Suite 202, Redding, CA 96001
(530) 262-6190 nssr16@gmail.com
www.superregion.org
Ivan Garcia, Chair

Jon Clark

Butte County Assn. of Governments

Scott Lanphier

Colusa County Transportation Comm.

Tamera Leighton

Del Norte Local Transportation Comm.

Di Aulabaugh

Glenn County Transportation Comm.

Marcella Clem

Humboldt County Association of Govt.

Lisa Davey-Bates

Lake Co City/Area Planning Comm.

Richard Egan

Lassen County Transportation Comm.

Phil Dow

Mendocino County Council of Governments

Debbie Pedersen

Modoc County Transportation Comm.

Daniel Landon

Nevada County Transportation Comm.

Robert Perreault

Plumas County Transportation Comm.

Daniel S. Little

Shasta Regional Transportation Agency

Tim Beals

Sierra County Transportation Comm.

Melissa Cummins

Siskiyou County Local Trans. Comm.

Gary Antone

Tehama County Transportation Comm.

Richard Tippett

Trinity County Transportation Comm.

December 18, 2018

Priscilla Martinez-Velez

Senior Transportation Planner

Grant Management

Office of Regional Planning

1120 N Street, MS-32

Sacramento, CA 95814

Subject: Adaptation Planning Grant Submittal - ShastaReady Extreme Climate Event Mobility and Adaption Plan

Dear Mr. Martinez-Velez,

The North State Super Region (NSSR), a coalition of sixteen counties in Northern California writes to support the grant funding efforts submitted by the Shasta Regional Transportation Agency for the "ShastaReady Extreme Climate Event Mobility and Adaptation Plan".

Please accept this letter of support from the NSSR for Shasta's original grant submittal foremost, and if able to, BCAG's supplemental grant request to accomplish the same work products as identified in the grant.

Recent climate-related events such as the Shasta wildfires, Butte County wildfires and the 2017 Oroville Dam crisis have significantly underscored vulnerabilities in the north state. If there was ever a need for adaptation planning moving forward, the time is now. The successful delivery of this work effort will provide us with the tools, processes and identification of potential project for inclusion in our respective Regional Transportation Plan/Sustainable Communities Strategies.

Again, thank you for the consideration.

Sincerely,

Ivan Garcia, Chair
North State Super Region



1255 East Street, Suite 202 • Redding, CA 96001 • (530) 262-6190 • Fax: (530) 262-6189
E-mail: srta@srta.ca.gov • Website: www.srta.ca.gov

Daniel S. Little, Executive Director

November 30, 2018

Priscilla Martinez-Velez
Senior Transportation Planner
Grant Management
Office of Regional Planning
1120 N Street, MS-32
Sacramento, CA 95814

Dear Ms. Martinez-Velez

We are all painfully aware of this season's California wildfires, with the Butte and Shasta regions hardest hit. Still reeling from the fires, we are already seeing severe flooding and debris flows. This winter will include snow events that continue to increase in duration and intensity, routinely closing Interstate 5 for days. Car and freight traffic face detours of over 100 miles, overloading our two-lane highways and rural communities.

After discussion with our District 2 partners and member agencies, SRTA is proposing a Caltrans Adaptation Planning Grant project to better prepare the Shasta Region for the mobility challenges associated with these extreme weather events. ShastaReady will bring together emergency agencies, Caltrans, cities, the county, and other agencies with mobility interests to focus on a common goal: Optimize the efficiency and safety of evacuation routes, emergency ingress, and detours, while minimizing associated impacts. In addition, the ShastaReady process and outcomes will be replicable to other regions.

The recent catastrophes have left our region so busy with adaptation on the fly, there has been little time to develop the adaptation grant application or press emergency response agencies for letters of support. Though the timing to assemble the grant application is poor, the necessity to step up adaptation planning efforts is starkly clear. The need for better data, tools, community involvement, and agency collaboration are undeniable. This is the focus of the ShastaReady work plan. ShastaReady does not pretend to have all the answers to make mobility safer in times of extraordinary need; rather, it provides the framework and resources for this to occur.

ShastaReady will include hundreds, if not thousands, of hours of in-kind resources from a broad range of agency stakeholders. We do not attempt to quantify or seek credit for this in the grant application. The grant also includes a commitment by SRTA to continue to engage the region and incorporate ShastaReady strategies and tools into other agency response plans and efforts.

Let's get the tools in place to brace for what appears to be the new normal.

Sincerely,

A handwritten signature in blue ink, appearing to read "D. Little", is written over a horizontal line.

Daniel S. Little, AICP, Executive Director

FY 2019-20
**CALTRANS SUSTAINABLE TRANSPORTATION PLANNING
ADAPTATION PLANNING GRANT APPLICATION**

PROJECT TITLE	ShastaReady Extreme Climate Event Mobility and Adaptation Plan
PROJECT LOCATION (city and county)	Shasta County

	APPLICANT	SUB-APPLICANT	SUB-APPLICANT
Organization	Shasta Regional Transportation Agency (SRTA)		
Mailing Address	1255 East Street, Suite 202		
City	Redding		
Zip Code	96001		
Executive Director/designee and title	Daniel S. Little Executive Director		
E-mail Address	dlittle@srta.ca.gov		
Contact Person and title	Michael Kuker Assistant Transportation Planner		
Contact E-mail Address	mkuker@srta.ca.gov		
Phone Number	530-262-6190		

FUNDING INFORMATION
Use the Match Calculator to complete this section.
[Match Calculator](#)

Grant Funds Requested	Local Match - Cash	Local Match - In-Kind	Total Project Cost
\$289,850	\$48,700	\$	\$341,000

**Specific Source of Local Match and Name of Provider
(i.e., local transportation funds, local sales tax, special bond measures, etc.)**

Federal planning funds (PL)

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**CALTRANS SUSTAINABLE TRANSPORTATION PLANNING
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LEGISLATIVE INFORMATION*			
Please list the legislative members in the project area. Attach additional pages if necessary.			
State Senator(s)		Assembly Member(s)	
Name(s)	District	Name(s)	District
Ted Gaines	1	Brian Dahle	1
	-		-
	-		-
	-		-
	-		-
	-		-

*Use the following link to determine the legislators.
<http://findyourrep.legislature.ca.gov/> (search by address)

1A. Project Timeframe (Start and End Dates): July 2019 through December 2021
1B. Project Area Boundaries: Shasta County
1C. Project Description: Briefly summarize project in a clear and concise manner, including major deliverables, parties involved, and any connections to relevant local, regional, and/or State planning efforts. (150 words maximum): <p>The ShastaReady Extreme Climate Event Mobility and Adaptation Plan will—for the first time—identify regional vulnerabilities to climate change and provide actionable strategies for incorporation into regional and local transportation plans, capital improvement programs, and emergency response plans.</p> <p>The proposed plan will be informed in part by recent planning efforts by Caltrans District 2 (Climate Change Vulnerability Assessment and Climate Action Report) and the City of Redding (Community Planning Assistance for Wildfire), as well as incorporate lessons learned from recent extreme climate events experienced by first responders, public officials, and other stakeholders.</p> <p>The ShastaReady plan's outputs will be incorporated into SRTA's 2022 regional transportation plan and will inform other plans and programs within the region such as: hazard mitigation plans, general plans, community plans, the State Highway Operation and Protection Plan, State Transportation Improvement Plan, California Transportation Plan, public transit plans, Office of Emergency Services response plans, and others.</p>

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2A. Project Justification: Describe the problems or deficiencies the project is attempting to address, as well as how the project will address the identified problems or deficiencies. Additionally, list the ramifications of not funding this project. This section needs to clearly define the existing issues surrounding the project (e.g., transportation issues, inadequate transit services, impacts of extreme weather on local streets, air pollution, etc.). Competitive applications support the need for the project with empirical data, describe how this project addresses issues raised, define the public benefits, explain how the public was involved in identifying issues, and describe the impact of not funding the project. **(Do not exceed the space provided.)**

Recent years are making it increasingly clear that climate change has arrived in California. Following on the heels of a historic five-year drought, early 2017 saw record precipitation events. The first was a snowstorm that caused an overnight closure of Interstate 5, causing traffic backups of over 10 miles and heavily impacting the entire region's traffic. The following month, extreme precipitation required Shasta Dam's drumgates to be opened for the first time in nearly 20 years and caused water releases of over 70,000 cubic feet per second, resulting in considerable downstream flooding and damage. The same precipitation event contributed to the Oroville Dam crisis, which resulted in the evacuation of over 180,000 people and damage to the dam requiring \$1.1 billion in repairs. Later in 2017, the city of Redding set a new record for the most days of 100-plus degree temperatures.

Additionally, 2018 has seen record-breaking wildfires in and around the Shasta Region, most notably the Camp Fire, which still smolders south of this region in the foothills and ridges of Butte County, having destroyed over 18,000 structures (including 95% of the ridge-top community of Paradise), burned over 153,000 acres, and left at least 85 people dead, hundreds missing, and tens of thousands displaced. Just days after the Camp Fire was finally contained, a storm caused road closures and evacuations in the burn area, trapping nearly 100 cars due to multiple debris flows and flooding. Much of the area east of Interstate 5 in the Shasta Region is very similar to that which burned so disastrously in the Camp Fire and contains numerous disadvantaged rural foothill communities with limited ingress/egress routes, much like Paradise.

Within the Shasta Region, this year also gave us the Carr Fire--the 7th most destructive in history--having burned over 229,000 acres, destroyed over 1,600 structures, burned into the city limits of Redding, and resulted in 8 deaths. The fire burned so large and so hot, it created a "firenado" equal to an EF-3 tornado--a whirl of smoke and fire that reached up to 18,000 feet high as it moved through parts of Redding at speeds estimated as high as 143 mph. While the Carr Fire was still burning, two other large fires sprung up: the Hirz fire, which burned another 44,000 acres; and the Delta Fire, which burned over 63,000 acres. All told, these three fires burned over 1/10 of all the land in Shasta County or an area roughly 11 times that of San Francisco.

These historic fires caused a series of cascading impacts that the region is still dealing with. Initial short-term impacts included closures of local streets/roads, highways, rail corridors, and Interstate 5 (including a five-day closure, the longest in recent memory). During its closure, Interstate 5 traffic was detoured onto Highways 299 and 89, adding 140 miles to the length of each trip (consequently increasing GHG emissions) and sending heavy traffic through small, disadvantaged mountain communities such as Montgomery Creek, Round Mountain, and Burney that were unaccustomed to the heavy volumes and unequipped to deal with them. Between the closure of Interstate 5 (which carries the highest truck volumes in Caltrans District 2) and the Union Pacific railroad's mainline, freight movement on the entire west coast was severely compromised. As the rainy season begins, the threat of longer term impacts such as mudslides in the burn areas are now looming large.

Each one of these climate events contributes to a feedback loop that makes future events more frequent and more severe: Increased congestion, long detours, induced trips due to evacuation and disaster response, reconstruction efforts, and even the fires themselves all release additional greenhouse gases into the atmosphere, further hastening climate change.

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(2A. Project Justification Continued)

In short, climate events and their related impacts are becoming longer, more frequent, and more severe; and conditions are only expected to worsen. According to the Climate Change and Health Profile Report for Shasta County developed by the California Office of Health Equity, average July temperatures in the region are expected to increase 3-5°F by 2050 and 8-10°F by 2100; as a result, wildfire risks may be multiplied 6 to 14 times current levels. Caltrans District 2 has recently completed a Climate Change Vulnerability Assessment that also predicts increased temperatures and vulnerability to fire in the region, as well as more extreme precipitation: 100-year storms in the region could see up to a 20% increase in precipitation depth. District 2 is now developing a Climate Action Report that incorporates the findings of their previous effort to help prioritize adaptation assessments based on vulnerability and the City of Redding has just been awarded assistance through the national Community Planning Assistance for Wildfire program to help identify opportunities to reduce wildfire risks through improved land use planning. With the proposed ShastaReady plan, SRTA aims to build upon community interest and momentum towards addressing these impacts.

Shasta County is a rural county with an overall population density of 46 people per square mile. Even city population centers have low density compared to other California cities: the city of Redding, Shasta County's largest, has a population density of just 1,539 people per square mile. Despite its sprawling area, the Shasta Region also has a lower level of household access to an automobile than the state average. Compounding these challenges are large populations of seniors and people of limited means. Recent climate events such as the Camp Fire in Paradise have shown there is a need to improve multimodal mobility and accessibility for all people, preserve the multimodal transportation system, and improve public safety and security.

The ShastaReady plan will identify and assess regional vulnerabilities to climate change and provide actionable strategies for incorporation into regional and local plans and programs. In addition to evaluating vulnerable communities, demographics, travel modes, structures, and other infrastructure with a transportation nexus (e.g communications), the plan will also examine the following potential vulnerabilities: transportation corridors and pinch-points, areas with limited ingress and egress, and areas where gridlock is likely. The ShastaReady plan anticipates using flexible and adaptive approaches to improve the efficiency of the existing network, identify future improvements to address impacts, and develop strategies to better preserve current and future transportation resources.

One possible strategy that may be studied is expanding and improving the use of transit fleets in the evacuation rural communities, such as when the Redding Area Bus Authority (RABA) fleet assisted in the evacuation of French Gulch during the Carr Fire. Improved coordination between agencies combined with the prioritization of vulnerable and disadvantaged communities could see significant benefits for relatively low costs.

Assessments will be made of existing and potential evacuation routes, and strategies evaluated to improve outcomes, such as ITS solutions, reverse direction lanes, fuel management on roadways, deployment of public transit fleets, emergency fueling of vehicles, temporary traffic controls, facility improvements, and others. This project will also examine detour routes and strategies, including ITS solutions, mitigation of impacts on overloaded rural routes, improvements such as heavy truck staging during closures, temporary traffic controls, and others. Travel modeling will be used to simulate impacts and potential mitigations, and other innovations such as autonomous vehicles, vehicular platooning, mobile phone travel apps, and improved communication systems may also be considered.

If not funded, possible impacts may include unnecessary loss of life (particularly in disadvantaged communities), increased GHG emissions, increased damage to regional transportation assets, and subsequent increased expenditures to repair damage from climate change impacts.

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3. Grant Specific Objective: Explain how the proposed project addresses the grant specific objective of the Adaptation Planning grant program. Applicants should integrate the following Grant Program Considerations (Pages 3-9) in the responses for 3A-C below, as applicable:

- Executive Order S-13-08
- Executive Order B-30-15
- California Transportation Plan (CTP) 2040
- Regional Transportation Plan Guidelines
- General Plan Guidelines
- Integrated Climate Adaptation and Resiliency Program (ICARP)
- Addressing Disadvantaged Communities

3A. Applicants must demonstrate how the proposed effort will accomplish the following:

- Demonstrate on-going collaboration and partnerships between sectors and jurisdictions, across levels of government at a regional scale
- Identification of co-benefits of adaptation work, such as benefits to public health, natural ecosystems, air quality, social equity, the economy, or reductions in greenhouse gas emissions **(Do not exceed the space provided.)**

As the Metropolitan Planning Organization (MPO) and Regional Transportation Planning Agency (RTPA) for the Shasta Region, SRTA has a long history of regional collaboration and partnerships between sectors and jurisdictions across levels of government--particularly with Caltrans District 2; the California Transportation Commission, Shasta County; RABA; and the cities of Redding, Anderson, and Shasta Lake.

In addition to partnering with other government sectors and jurisdictions, SRTA has established itself as a leader in collaboration and partnerships among conventional and non-conventional stakeholders, resulting in better communication, synergy of effort, and leveraging of limited resources. Notable examples include: a public-private philanthropic partnership that yielded one IIG and two AHSC grants for redevelopment and sustainable transportation infrastructure, resulting in an investment of over \$84 million in Downtown Redding; a zero-emission intercity bus fleet to be in operation between Redding and Sacramento beginning Winter 2019; and the creation of the sixteen-county North State Super Region, an alliance between 16 regional transportation agencies to work together and support each other on issues related to transportation and to have a unified voice representing the North State.

The ShastaReady plan will further this record by bringing together current and new partners and resources to the table. Key objectives include enhanced communication channels and cross-education of best practices (Safeguarding California, Policy T-5) among first responders (e.g. local fire, police, and sheriff departments, CalFIRE, CHP, and others), representatives from involved public agencies (e.g. CalOES, National Park Service, Bureau of Land Management, and others); and public officials in impacted communities (i.e. Redding, Paradise, and Santa Rosa).

By carefully aligning with the grant specific objectives, ShastaReady is expected to provide numerous co-benefits to the region: Minimizing disruptions to west coast freight operations on the Union Pacific Railroad mainline and Interstate 5 will help support a vibrant economy. Easier egress from impacted areas for victims and easier ingress for first responders will improve public safety and security. Reducing fuel loads along transportation corridors combined with the use of biofuels for clean energy generation could help promote environmental stewardship and protect natural ecosystems. Eliminating or reducing long detours will help reduce GHG emissions. Addressing inequitable impacts in disadvantaged communities will promote social equity.

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3B. Applicants should demonstrate how the proposed effort will accomplish one or more of the following:

- Identify system-wide climate change impact risks to multimodal transportation infrastructure in the project area
- Identify specific transportation infrastructure vulnerabilities to climate change impacts
- Identify adaptation strategies and specific actions to remedy identified climate related vulnerabilities
- Advance the planning of specific climate adaptation projects, such as developing a cost estimate or conceptual design
- Include economic analysis and/or cost-benefit analysis of identified adaptation strategy or strategies **(Do not exceed the space provided.)**

The ShastaReady Plan will identify adaptation strategies and specific actions to remedy climate-related transportation vulnerabilities exposed by recent climate events such as the extreme precipitation events of 2017, the heatwave of 2017, and the wildfires of 2018. In addition to developing strategies to mitigate known issues such as road/highway/railroad closures, detours, congestion along evacuation routes, and limited ingress/egress routes, the plan will also attempt to identify and mitigate less obvious impacts such as detour-related congestion in rural communities, increased GHG emissions due to long detours, identification of alternate routes, and other safety issues.

The ShastaReady Plan will evaluate potential strategies to improve evacuations such as (but not limited to) ITS solutions, reverse direction lanes, improved fuel management next to roadways, use of public transit fleets, improved utilization of right-of-ways, and infrastructure improvements. The plan will also evaluate detour routes and strategies to mitigate impacts on overloaded rural routes and highways like those seen during the Carr, Hirz, and Delta Fires. Potential strategies that could be evaluated include (but are not limited to): ITS solutions, improved communication reliability, mobile phone applications for improved realtime detour informations, prioritized improvements on detour routes, and temporary traffic controls.

Climate-related flooding in 2017 damaged Redding's Sacramento River Trail, the backbone of the regional multimodal trail network, in a section between residential cul-de-sacs on the canyon tops and the river itself. The following year's Carr Fire burned many of the same canyon-top neighborhoods, causing many evacuation challenges. The ShastaReady plan could potentially use this as a case study to identify ways to build multimodal trails to be more resilient to climate-related damage and double as alternate ingress/egress routes during emergencies to communities with limited access, saving money and lives.

The ShastaReady plan may also use travel modeling to simulate the impacts of likely future events and evaluate potential mitigation strategies. If resources allow, longer-term innovations such as autonomous vehicles, vehicular platooning, and the creation of data clearinghouses to better integrate existing modeling and spatial data into planning processes may be considered as well.

Additionally, plans that are developed to address climate change impacts such as wildfire or flooding may also be used to mitigate vulnerabilities to other extreme events that may occur in the region, such as dam failures, earthquakes, or volcanic eruptions.

SRTA will work with the consultant to ensure the strategies offered in the final draft align with the goals of the California 2040 Transportation Plan; with particular emphasis placed on Goal 3 (support a vibrant economy), Goal 4 (improve public safety and security), and Goal 6 (practice environmental stewardship).

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3C. Competitive applications should include one or more of the following:

- Identification of and benefit to disadvantaged/and or vulnerable communities, including transit-dependent populations (when applicable)
- Demonstration of collaboration and partnerships with diverse external stakeholders such as businesses, non-governmental agencies, community-based organizations, and community residents **(Do not exceed the space provided.)**

As noted previously, there are a number of communities and demographics located in areas of Shasta County that are extremely vulnerable to the impacts of climate change. According to the California Healthy Places Index (HPI), Shasta County as a whole scores well below the state average of households with access to an automobile (35.7 percentile) and there are census tracts within the region that score as low as the 1.9 percentile. Shasta County also scores poorly on HPI's economic measures: the 42.9 percentile of households above poverty metric, the 30.4 percentile of the employment metric, and the 28.6 percentile of the median household income metric. Some of the most disadvantaged tracts (FIPS 06089012604 and 06089012601) in the region are also among the most vulnerable to the impacts of the climate change and face many of the same transportation challenges that caused so many deaths during the Camp Fire, such as limited ingress/egress and limited access to automobiles.

Some of the Shasta Region's unusual demographics pose unique challenges. According to a demographics report prepared by the Shasta County Health and Human Services Agency, "46.8% of Shasta County residents were adults over the age of 45 compared to 37.2 of statewide... Further, 18.1% of Shasta County residents were seniors over 65 compared to 12.1% statewide." As these populations continue to age, their mobility challenges will only further increase. The Shasta Region also differs in that our Native American population is a higher proportion than that of the state's. A recent study published by PLOS ONE, "The unequal vulnerability of communities of color to wildfire," found that communities of color experience "50% greater vulnerability to wildfire compared to other census tracts" and that Native Americans are "highly overrepresented in all of the most vulnerable areas." The report also found these communities often have worse prospects for recovery from wildfire. Coordination with the Shasta Health and Human Services agency and first responders may yield methodologies for improved advanced evacuation warnings to these communities. By identifying and implementing flexible and adaptive approaches to challenges like limited mobility, these communities will benefit from better equity, mobility, accessibility, safety, and security, and the ShastaReady plan will fulfill the directives issued in Executive Order B-30-15.

As part of the planning process, SRTA will engage stakeholders through online outreach, in-person meetings, and public workshops. Likely stakeholders will include: businesses and residents in communities that have experienced direct impacts from recent climate events (such as Redding, Lakehead, or others) secondary impacts (such as Burney or others), and communities that may be impacted by future events (such as Shingletown, Palo Cedro, or others). SRTA will also consult with businesses operating within the region that can offer specialized insights, such as contractors, damage restoration services, or landscape architects. Community-based organizations such as Friends of the Redding Trails and the Redding Trail Alliance may have unique ideas on how community transportation assets like recreational trails can be leveraged as firebreaks or access to/from vulnerable areas. SRTA will attempt to partner with tribal governments (Redding Rancheria, Pit River Tribe) and community-based organizations (Native Roots Networks) to gather their experiences, perspectives, and input.

SRTA will also seek collaboration with a diverse group of stakeholders by including an online engagement component as part of the planning process. It is believed this form of outreach can reach a wider audience of stakeholders that may be unable or unwilling to attending public meetings or workshops, but nevertheless have valuable feedback to contribute. Possible strategies could include (but not be limited to) social media, videos, and even an interactive website that uses participant feedback, modeling tools, and maps to present adaptation strategies and project alternatives. Members of various stakeholder groups will also be selected to participate in a technical advisory committee (TAC) to continue the maintenance and enhancement of information sharing and education, fulfilling Safeguarding California Policy T-5.

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4. Project Management: See Scope of Work and Project Timeline samples and checklists for requirements (Grant Application Guide, Pages 33-39), also online at: http://www.dot.ca.gov/hq/tpp/grants.html.

4A. Scope of Work in required Microsoft Word format
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4B. Project Timeline in required Microsoft Excel format
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Application Signature Page

If selected for funding, the information contained in this application will become the foundation of the contract with Caltrans.

To the best of my knowledge, all information contained in this application is true and correct. If awarded a grant with Caltrans, I agree that I will adhere to the program guidelines.



Signature of Authorized Official (Applicant)

Executive Director

Title

Daniel S. Little

Print Name

November 30, 2018

Date

Signature of Authorized Official (Sub-Applicant)

Print Name

Title

Date

Signature of Authorized Official (Sub-Applicant)

Print Name

Title

Date

SCOPE OF WORK: ShastaReady Extreme Climate Event Mobility and Adaptation Plan

INTRODUCTION:

Recent climate-related events such as the Shasta wildfires, road closures from extreme snow, rain and landslides, and the 2017 Oroville Dam crisis have underscored vulnerabilities in the Shasta Region's transportation infrastructure and system management in times of crisis. The proposed project will — for the first time — identify the climate-related weaknesses and provide actionable strategies for integration into transportation plans, transportation improvement programs, and emergency response plans. The implementation of these strategies will save lives and reduce the duration and severity of impacts related to the transportation system.

Some of the Shasta Region's unusual demographics pose additional challenges. According to a demographics report prepared by the Shasta County Health and Human Services Agency, "46.8% of Shasta County residents were adults over the age of 45 compared to 37.2 of statewide... Further, 18.1% of Shasta County residents were seniors over 65 compared to 12.1% statewide." As these populations continue to age, their mobility challenges will only further increase.

The Shasta Region consists of Shasta County, a rural county with an overall population density of 46 people per square mile. Even regional population centers have low density compared to other California cities: the city of Redding, the county's largest, has a population density of just 1,539 people per square mile. Despite its sprawling area, the Shasta Region also has a lower level of household access to an automobile than the state average.

The Shasta Region also differs from the rest of the state in that our population has a higher proportion of Native Americans. A recent study published by PLOS ONE, "The unequal vulnerability of communities of color to wildfire," found that communities of color experience "50% greater vulnerability to wildfire compared to other census tracts" and that Native Americans are "highly overrepresented in all of the most vulnerable areas."

According to the California Healthy Places Index (HPI), Shasta County scores well below the state average of households with access to an automobile (35.7 percentile) and there are census tracts within the region that score as low as the 1.9 percentile. Shasta County also scores poorly on HPI's economic measures: the 42.9 percentile of households above poverty metric, the 30.4 percentile of the employment metric, and the 28.6 percentile of the median household income metric. Some of the region's most disadvantaged tracts (FIPS 06089012604 and 06089012601) contain forested foothill communities that have the same conditions and challenges that caused so many deaths when the Camp Fire ravaged Paradise.

In order to find the optimal strategies to address these challenges, SRTA will interview first responders and those impacted by recent extreme climate events and then consult with regional stakeholders and the public on best practices to brace the Shasta Region for future events. SRTA's Adaptation Plan will contain planning information and projections, recommended strategies, and address disadvantaged communities and populations most vulnerable to mobility restrictions during these extreme events. Upon completion, ShastaReady will better inform communities, first responders, and local and regional agencies regarding transportation management strategies and projects that have a high potential to improve public safety. ShastaReady recommendations, fortified by a process of enhanced interagency and community collaboration, will strengthen emergency response and hazard mitigation plans.

The scope of work shown below reflects the anticipated process and deliverables for the ShastaReady Extreme Climate Event Mobility and Adaptation Plan.

RESPONSIBLE PARTIES:

SRTA will be responsible for the work in collaboration with SRTA member agencies, Caltrans District 2 and first-responders. A consulting firm will assist SRTA and be selected consistent with SRTA procurement procedures.

OVERALL PROJECT OBJECTIVES:

- Lead and facilitate a collaborative, interagency climate adaptation plan focused on mobility that results in regional mitigation projects and transportation management strategies.
- Inform plans and programs for the region such as the RTP, hazard mitigation plans, general plan updates, community plans, SHOPP plan, STIP, RTIP, the State CTP, public transit plans, emergency response plans, and others.
- Develop and analyze regional climate change vulnerability maps to identify at-risk communities, transportation assets, resources, and transit-dependent populations within the Shasta Region.
- Identify interdependencies between community services, the transportation system, and other response-related systems (such as communications), to highlight vulnerable areas and populations with greatest possible consequences if damaged/impacted.
- Develop strategies to increase resilience of the region’s transportation system to climate change.
- Collaborate with first responders and public officials from jurisdictions impacted by recent extreme climate events such as the Carr Fire, Camp Fire, and the 2017 Oroville Dam crisis to identify “lessons learned” and ways to improve future outcomes.
- Facilitate meetings between applicable local and regional stakeholders (such as community residents, infrastructure owners/operators, businesses, and public agencies) to determine adaptation priorities, timelines, and possible funding sources to act upon the project recommendations.

1. Project Initiation

Task 1.1: Project Kick-off Meeting

- SRTA will hold a kick-off meeting with Caltrans staff to discuss grant procedures and project expectations including invoicing, quarterly reporting, and all other relevant project information. Meeting summary will be documented.
- Responsible Party: SRTA

Task 1.2: Project Management

- Monthly project team meeting with consultants to ensure good communication on upcoming tasks and to make sure the project remains on time and within budget. Caltrans staff will be invited to the project meetings.
- Responsible Party: SRTA

Task 1.3: Procurement of Consultant Services

- Complete process for selection of a consultant using the proper competitive procurement procedures.
- Responsible Party: SRTA

Task 1.4: Establish and Maintain Project Technical Advisory Committee (TAC)

- Establish a Technical Advisory Committee (TAC) consisting of representatives of relevant agencies and responders to encourage collaboration, facilitate discussion, determine data needs, and share information. Meetings will be held at least three times throughout the planning process and the TAC's input will inform the draft and final plans.
- Responsible Party: SRTA & Consultant

Task 1.5: Draft Initial Case Study

- Draft the first of two case studies to be included in OPR's Adaptation Clearinghouse. Send case study to OPR.
- Responsible Party: SRTA & Consultant

Task	Deliverable
1.1	<i>Agenda, Meeting Notes with Action Items</i>
1.2	<i>Monthly Meeting Notes, Staff Reports</i>
1.3	<i>Request for Proposal, Qualifications, or Bid; Copy of Procurement Procedures; and Contract</i>
1.4	<i>TAC Invitations, Email Lists, Agendas, Sign-in Sheets, Meeting Notes</i>
1.5	<i>Initial Case Study</i>

2. Identify and Assess Existing Conditions

Task 2.1: Identify Existing Conditions

- Gather existing vulnerabilities and background data by identifying opportunities and constraints as well as standards that should be used to guide preparation of the plan such as climate change projections (precipitation, temperature, wildfires, dam failure, etc.), asset locations and information, existing and planned land uses, population characteristics, and travel projections within the region. Perform literature review of existing plans and materials.
- Responsible Party: SRTA & Consultant

Task 2.2: Assess Existing Conditions

- Inventory and evaluate vulnerable populations, communities, transportation infrastructure, and other resources.
- Responsible Party: SRTA & Consultant

Task 2.3: Conduct Climate Event "Debriefing" Interviews

- Identify, contact, and interview public officials, first responders, and other stakeholders from nearby communities impacted by recent extreme climate events (such as the Carr Fire, Camp Fire, and 2017 Oroville Dam crisis) as well as first responders to identify "lessons learned" and gather possible strategies to address future events.
- Responsible Party: SRTA & Consultant

Task	Deliverable
2.1	<i>Internal Draft, Public Draft, Final Technical Memo #1 & Mapping</i>

2.2	<i>Internal Draft, Public Draft, Final Technical Memo #2, Mapping & Modeling</i>
2.3	<i>Internal Draft, Final Technical Memo #3 with Interview Documentation</i>

3. Stakeholder Outreach

Note: All meetings will be publicly noticed to ensure maximum attendance.

Task 3.1: Plan & Conduct Public Workshops

- At least five public workshops will introduce the project to the public, define project parameters, inform the public of project opportunities and constraints, present lessons learned from recent extreme climate events (see: Task 2.2), solicit opinions from the public to shape Task 4.1, Develop Adaptation Concept, and solicit further feedback to Shape Task 4.5, Final Adaptation Plan.
- Responsible Party: SRTA & Consultant

Task 3.2: Plan & Conduct Online Engagement

- SRTA and the Consultant will also use online engagement to gather input and feedback from those unable or unwilling to attend public workshops. Possible strategies could include (but not be limited to): social media; videos; and an interactive website that uses participant feedback, modeling tools, and maps to present adaptation strategies and project alternatives. Feedback would be used to shape Task 4.1, Develop Adaptation Concept, and solicit further feedback to Shape Task 4.5, Final Adaptation Plan.
- Responsible Party: SRTA & Consultant

Task 3.3: Plan & Conduct Stakeholder Meetings

- Hold at least three stakeholder meetings that introduce the project, define project parameters, inform stakeholders of project opportunities and constraints, present lessons learned from recent extreme climate events (see: Task 2.2), solicit opinions from the stakeholders to shape Task 4.1, Develop Adaptation Concept, and solicit further feedback to Shape Task 4.5, Final Adaptation Plan. Stakeholders have yet to be fully identified, but could consist of Native American Tribal Governments, vulnerable communities, disadvantaged populations, or others to be determined.
- Responsible Party: SRTA & Consultant

Task	Deliverable
3.1	<i>Invitations, Agendas, Sign-in Sheets, PowerPoint presentation, Meeting Notes, Photos</i>
3.2	<i>Web & Social Media Content, Press Releases, Media Meetings, Feedback Summary</i>
3.3	<i>Invitations, Agendas, Sign-in Sheets, PowerPoint presentation, Meeting Notes, Photos</i>

4. Extreme Climate Event Mobility and Adaptation Plan

Task 4.1: Develop Adaptation Concepts & Alternatives

- Based on the existing conditions report and initial public/stakeholder input, priorities for analysis and concept adaptation strategies will be developed. Conceptual adaptation designs will incorporate natural infrastructure planning where possible and may include plans, sketches, and photos.
- Responsible Party: SRTA & Consultant

Task 4.2: Draft Adaptation Plan

- Incorporating feedback on the adaptation priorities and strategies, a draft report will be prepared. The draft report will be presented online for public comment.
- Responsible Party: SRTA & Consultant

Task 4.3: Identify Potential Funding Sources

- Review and identify potential funding sources for future implementation of priority projects or programs.
- Responsible Party: SRTA & Consultant

Task 4.4: Final Adaptation Plan

- Complete the final report that addresses comments received. Four hard-copies and four electronic copies of the final report will be submitted to Caltrans. Credit of the financial contribution of the grant program will be credited on the cover of the report.
- Responsible Party: SRTA & Consultant

Task 4.5: Present Final Plan to SRTA Board of Directors & Others as Requested.

- Present the final Adaptation Plan at a SRTA Board of Directors meeting. Action taken by the Board of Directors to adopt/accept/reject final SRTA Adaptation Plan. Present final Adaptation Plan to others (up to 5) as requested.
- Responsible Party: SRTA & Consultant

Task 4.6: Support & Provide Resources to Implement Recommendations

- Based upon findings and recommendations from the final ShastaReady Extreme Climate Event Mobility and Adaptation Plan, provide support and resources to implement future projects and strategies to reduce the damage from climate change and extreme weather events.
- Responsible Party: SRTA, Caltrans, & Others

Task	Deliverable
4.1	<i>Internal Draft, Public Draft, Final Technical Memo #4 with Illustrations</i>
4.2	<i>Internal Draft, Agency Draft, Public Draft</i>
4.3	<i>Funding Source Report</i>
4.4	<i>Internal Draft, Final Plan</i>
4.5	<i>Agenda(s), Meeting Notes, Staff Report, Presentation Materials</i>
4.6	<i>Deliverables to be Determined in Plan</i>

5. Fiscal Administration

Task 5.1: Invoicing

- Submit complete invoice packages to Caltrans District 2 staff based on milestone completion, at least quarterly, but no more frequently than monthly.
- Responsible Party: SRTA

Task 5.2: Quarterly Reporting

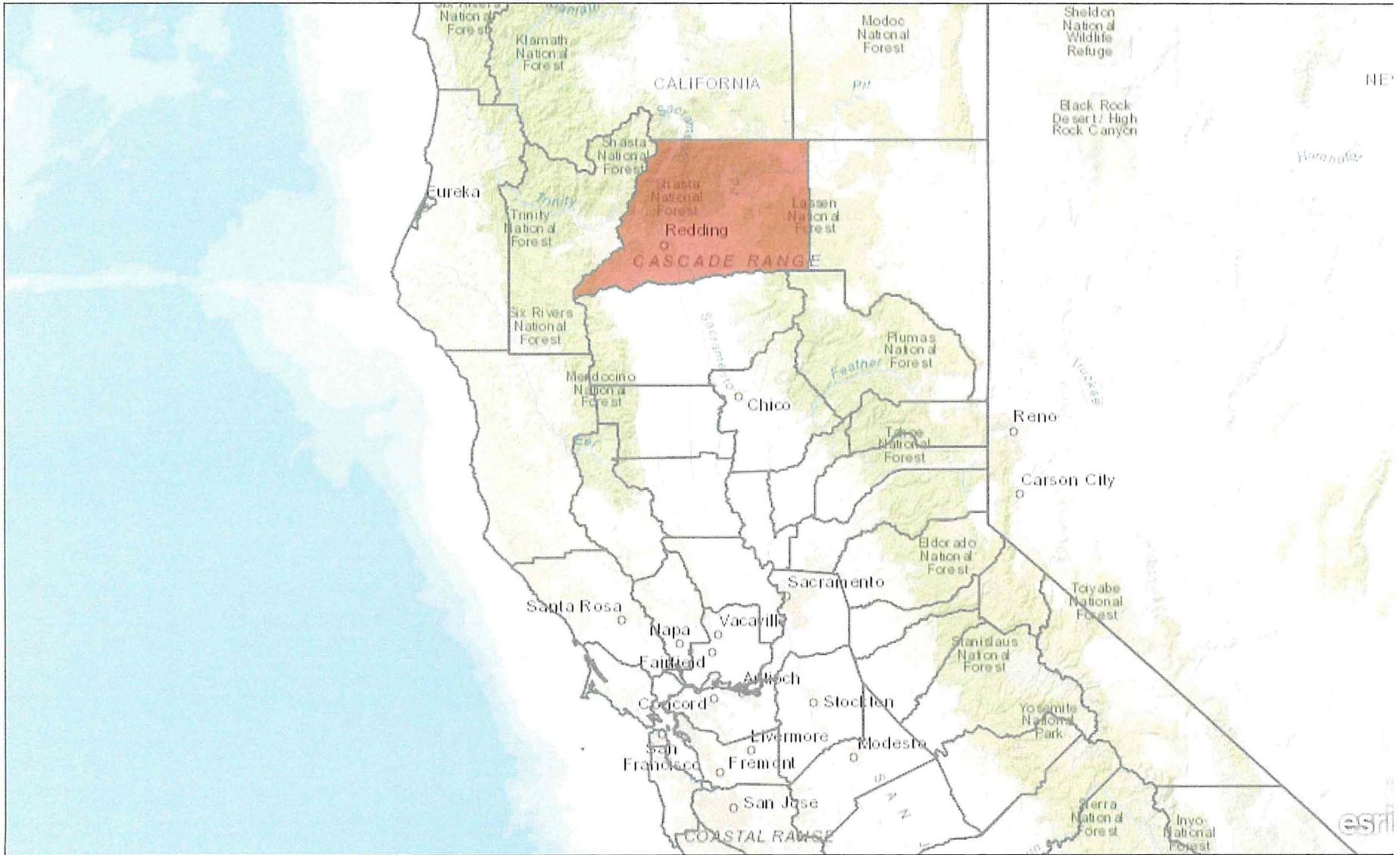
- Submit quarterly reports to Caltrans district staff providing a summary of project progress and grant/local match expenditures.
- Responsible Party: SRTA

Task 5.3: Close-out Grant

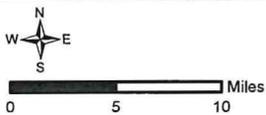
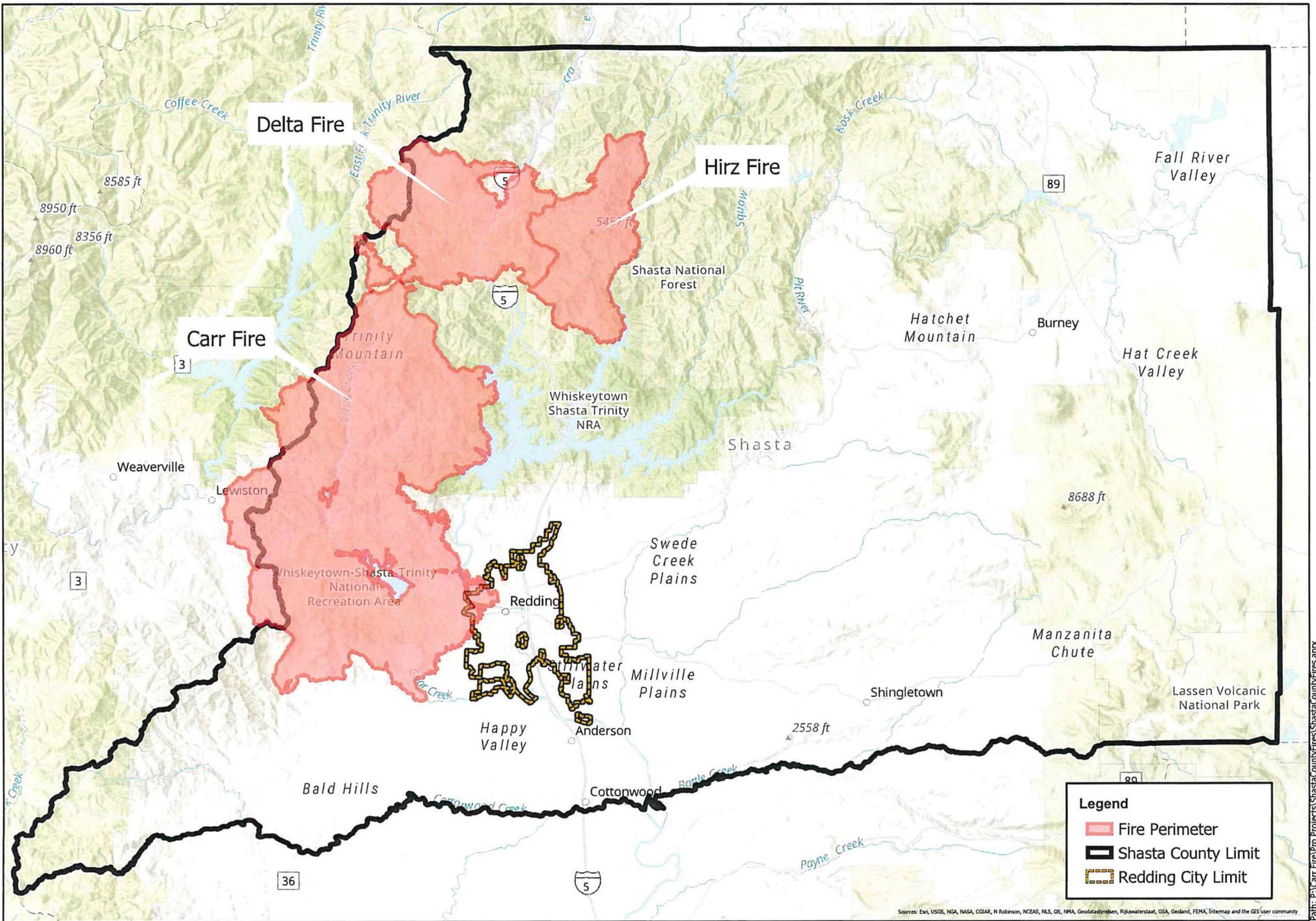
- Complete and sign the Grant Close-out Reform Form, review the Quarterly Progress and Expenditure Report for MPOs/RTPAs that notes the grant project is 100% completed, review the final Request For Reimbursement (RFR), send one copy of each of the above to the ORP Liaison, review and keep one copy of the Final Report, and send an electronic copy of the Final Report to the ORP Liaison. Write and deliver the second of two case studies to be included in OPR's Adaptation Clearinghouse.
- Responsible Party: SRTA

Task	Deliverable
<i>5.1</i>	<i>Invoice Packages</i>
<i>5.2</i>	<i>Quarterly Reports</i>
<i>5.3</i>	<i>Completed Grant Program Close-Out Form, completed Quarterly Progress and Expenditure Report, finalized RFR, Final Report, Second Case Study</i>

ShastaReady Project Area

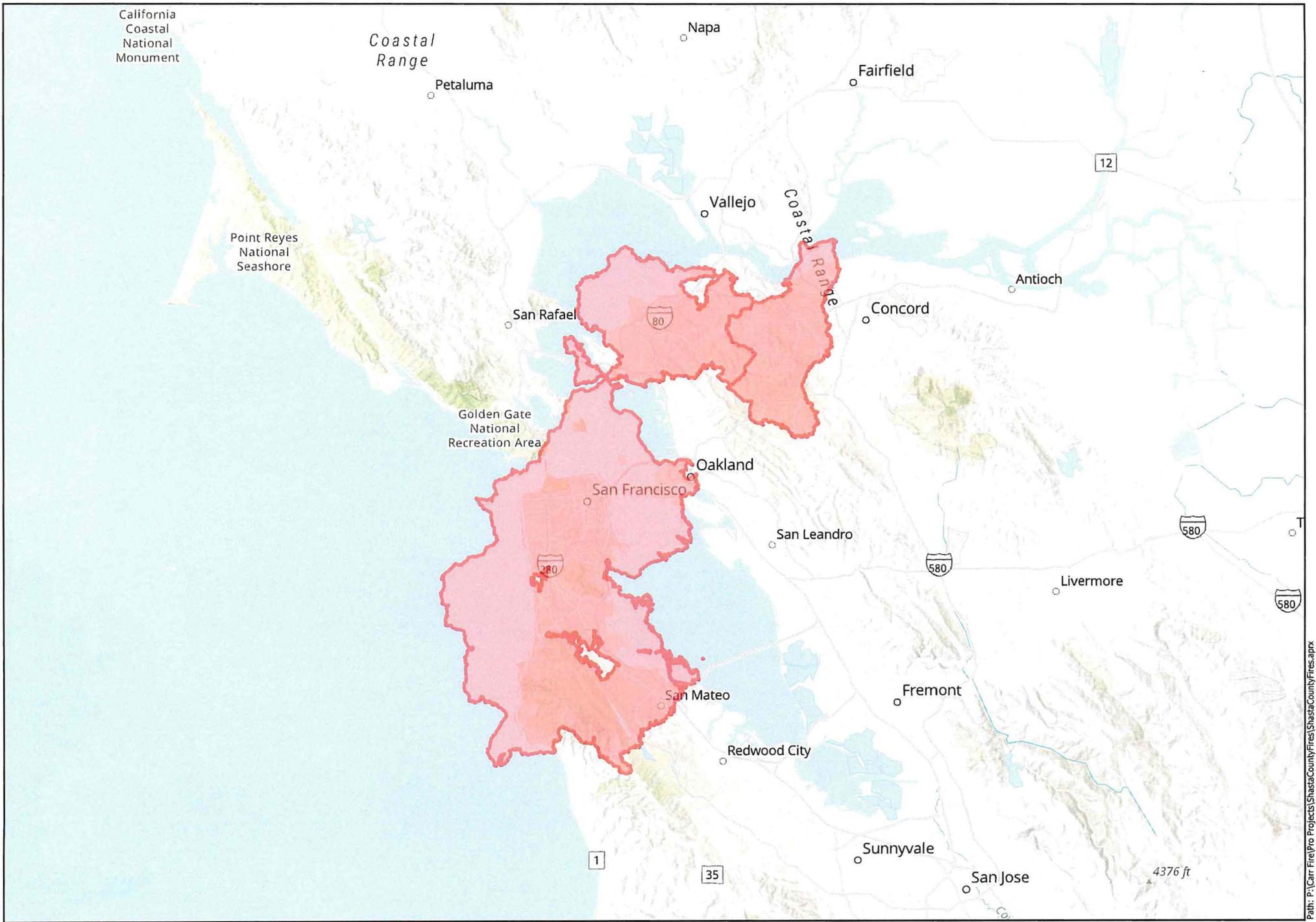


Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NF

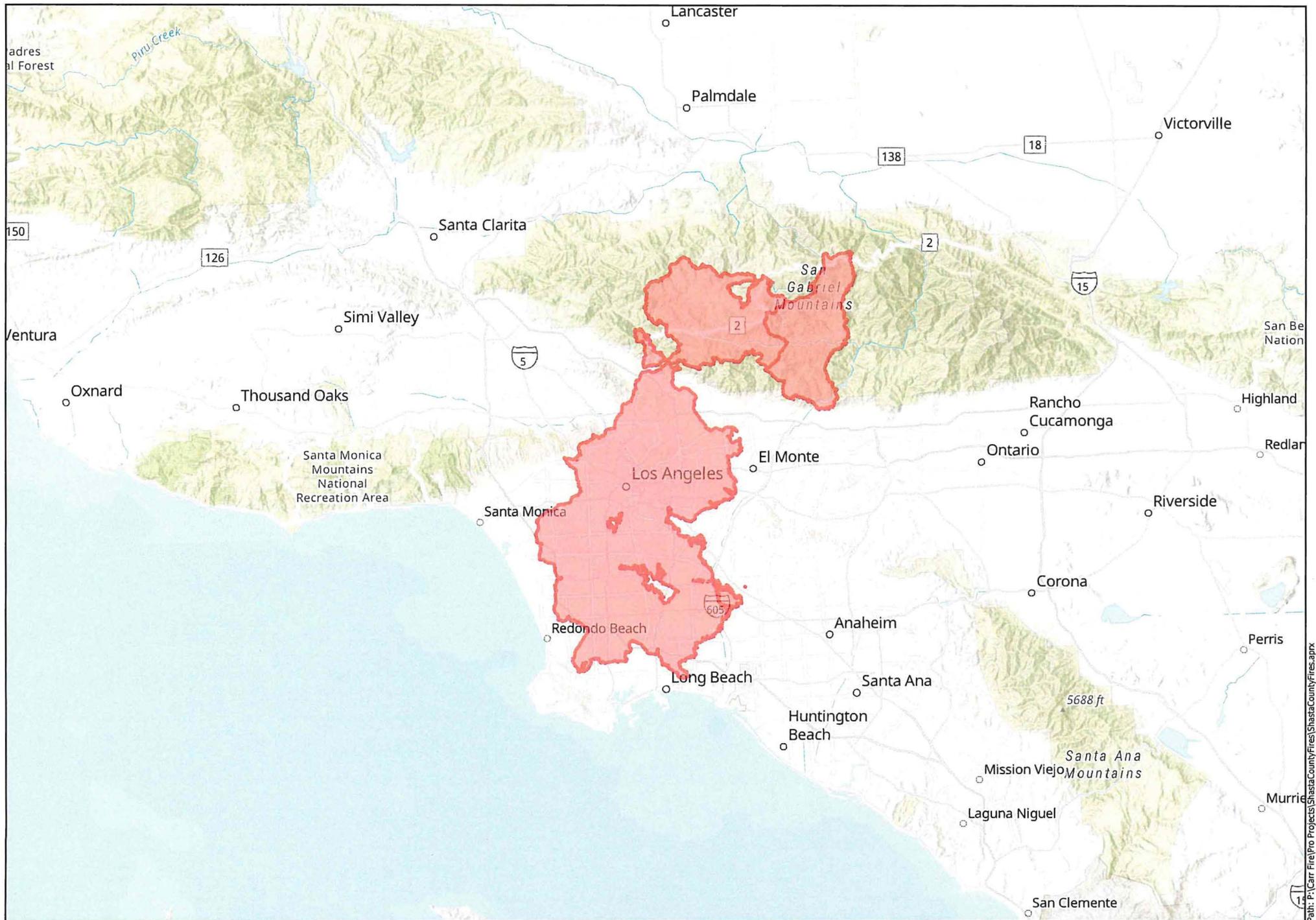


Shasta County Fires 2018



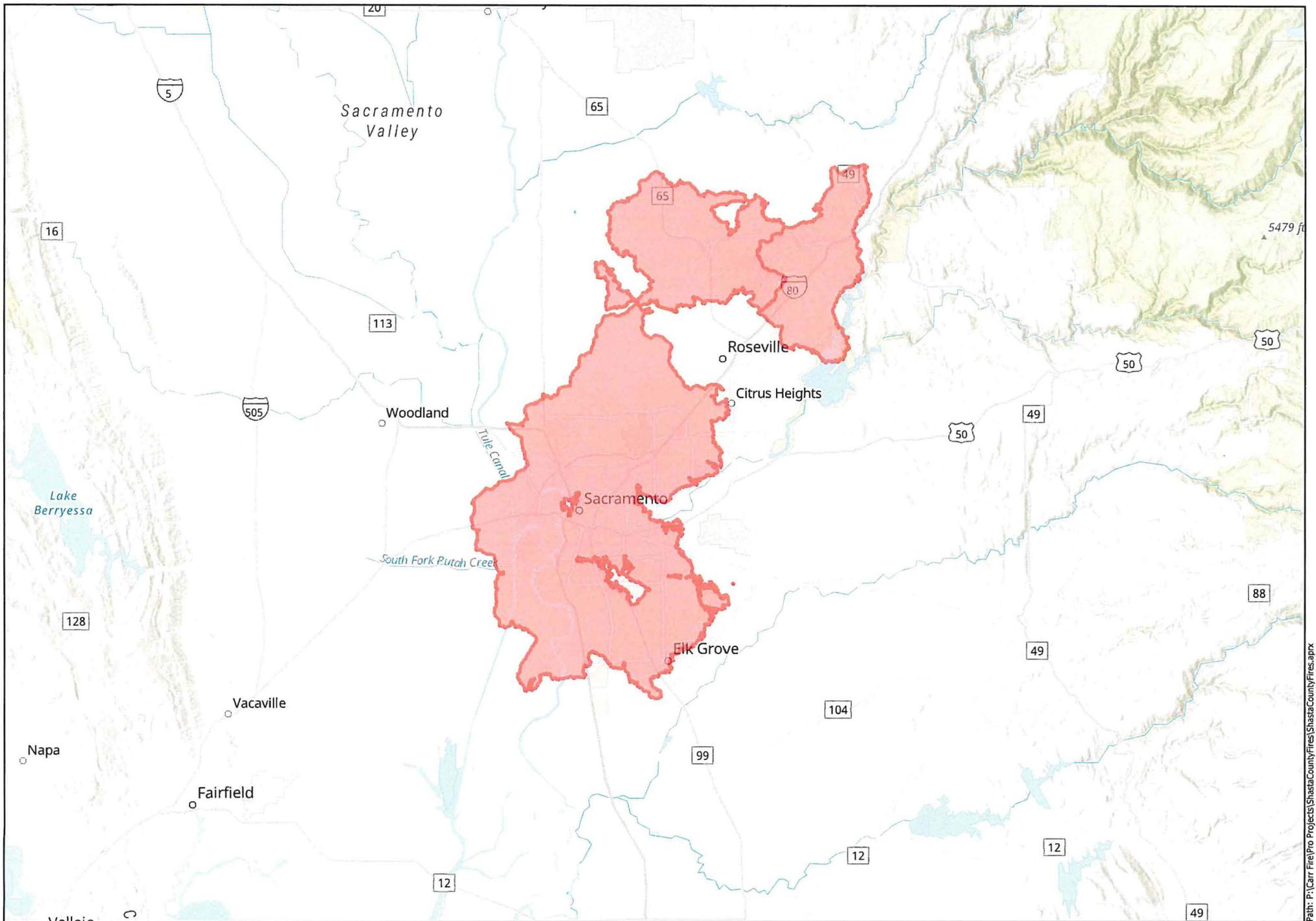


2018 Shasta County Fires Overlaid on San Francisco

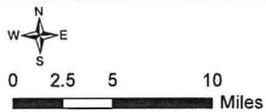


2018 Shasta County Fires
Overlaid on Los Angeles





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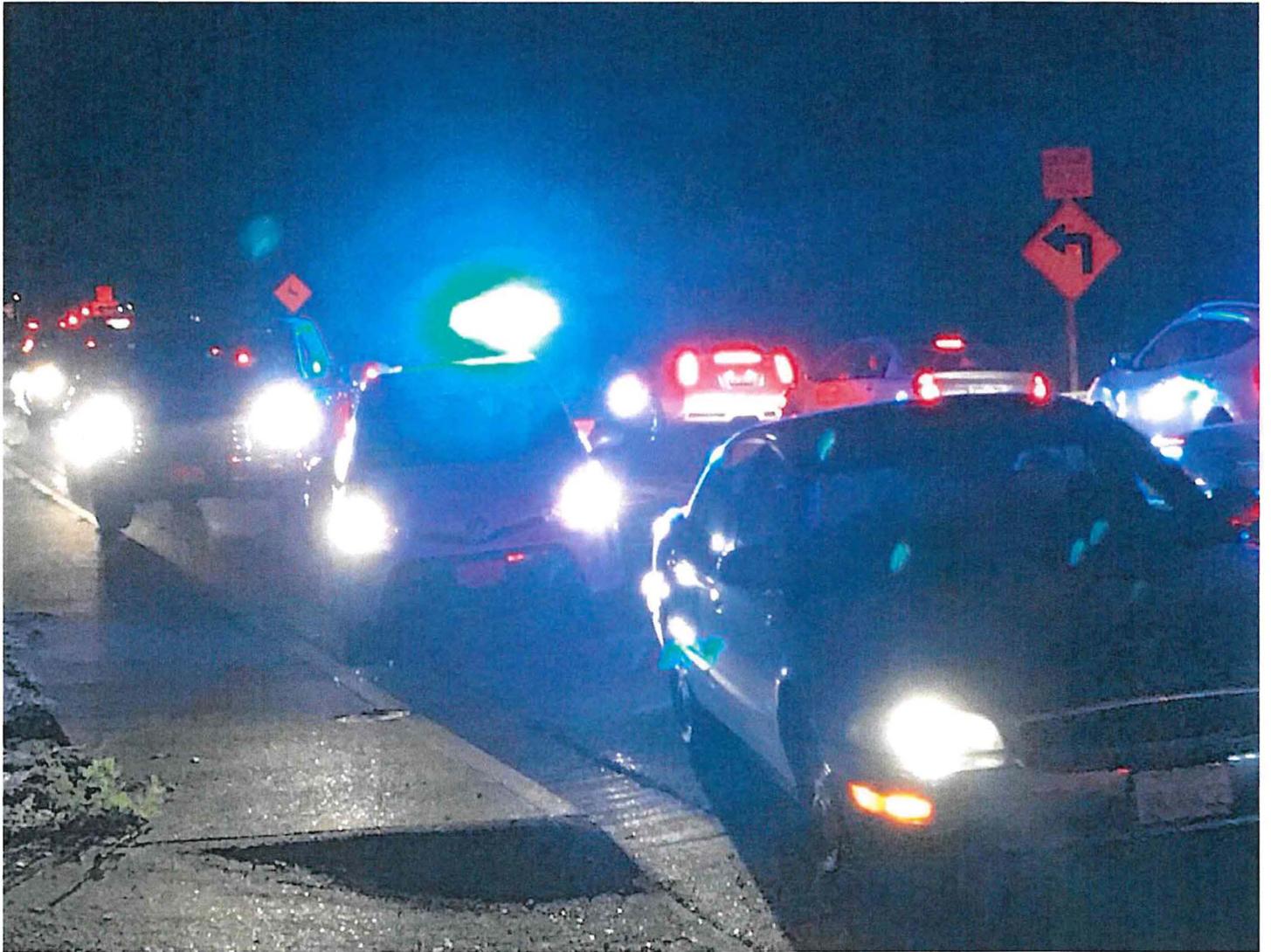


2018 Shasta County Fires Overlaid on Sacramento

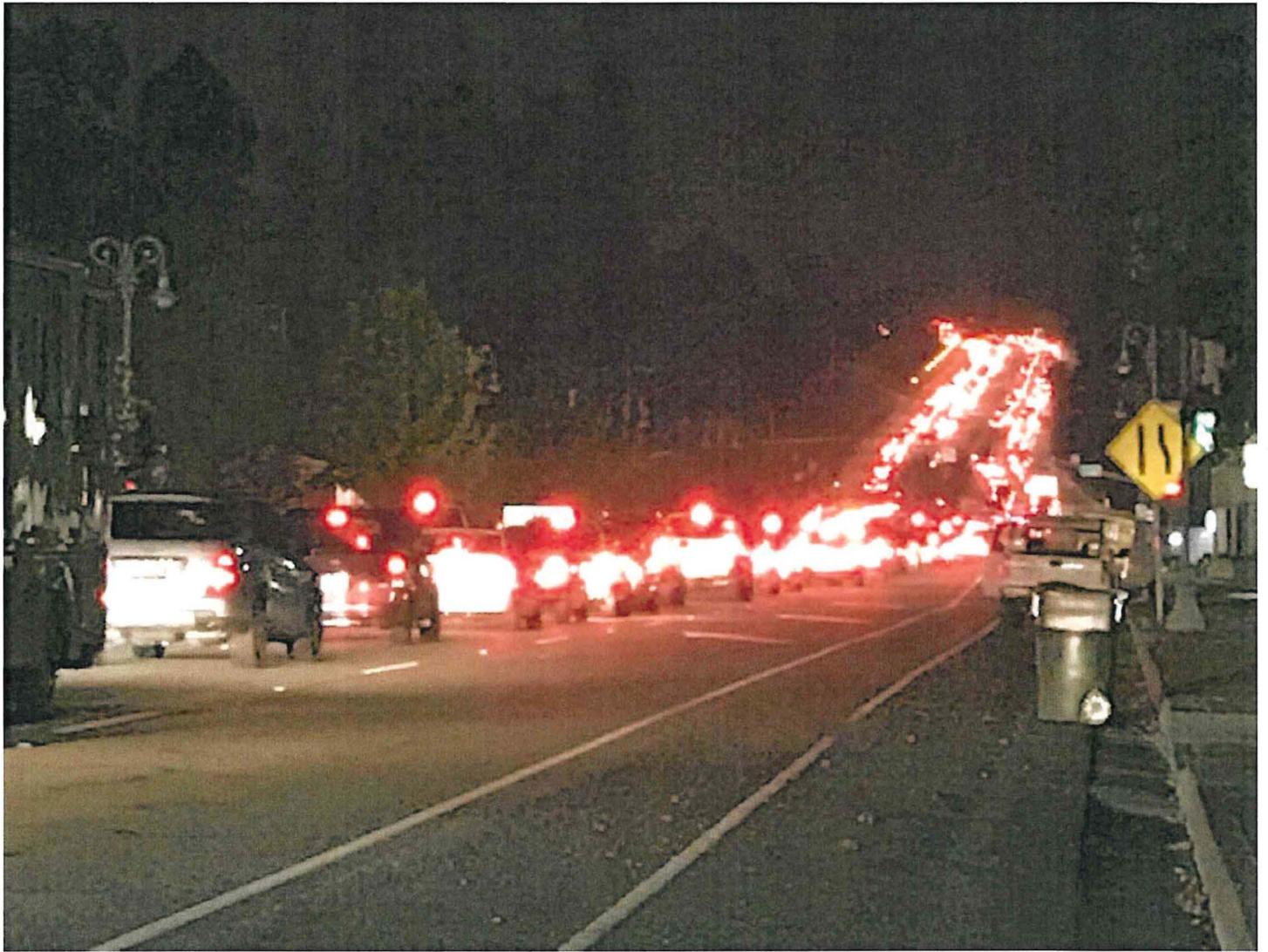
Previous Page: A map showing the footprints of the three major 2018 wildfires in the Shasta Region. Much of this land is steep terrain now vulnerable to erosion and mudslides. Note the Carr Fire's intrusion in the Redding city limits as well as how the Carr Fire and Delta Fire resectively burned along lengths of Highway 299 and Interstate 5. (Map courtesy of City of Redding GIS.)



A comparatively minor vegetation fire results in a lane closure and a lane blocked on northbound Interstate 5, resulting in 10 miles of slow or stopped traffic. (Photo courtesy of Caltrans District 2.)



“Traffic bumper-to-bumper. Sirens heard everywhere [in Redding, during the Carr Fire].” -Jim Schultz, Record-Searchlight, July 26, 2018 at 8:34 PM.



“Northbound, as well as southbound, lanes on North Market Street on Miracle Mile [in Redding, CA], restricted to only northbound traffic as residents evacuate [during the Carr Fire].” -Jim Schultz, Record-Searchlight, July 26, 2018 at 9:09 PM.



The National Guard enforces a mandatory closure of Highway 299 during the Carr Fire. (Photo courtesy of Caltrans District 2.)



“A row of burned vehicles are seen on Skyway during the Camp Fire in Paradise, California, U.S. November 9, 2018. Photo by Stephen Lam/Reuters.” There are many smaller communities in the Shasta Region that share similar vulnerabilities to Paradise.



Traffic backup on northbound Interstate 5 due to snow closure in January of 2017. This photo was taken over ten miles from the closure point. This stretch of I-5 runs through the heart of the City of Redding and caused cascading impacts on the flow of traffic. (Photo courtesy of SRTA.)



Extreme precipitation and subsequent flooding in 2017 necessitated the closure of this four-lane city street in Redding, California. Climate change has the potential to worsen extreme weather events like this. (Photo by Michael Kuker.)



This City of Redding bike lane bears more resemblance to an idyllic lake during a 2017 extreme precipitation event. (Photo by Michael Kuker.)