NAVIGANT
A Guidehouse Company

Wildfire Mitigation Plan Independent Evaluation

Prepared for:

City of Palo Alto Utilities

CITY OF PALO ALTO UTILITIES

Submitted by:
Navigant, A Guidehouse Company
35 Iron Point Circle
Suite #225
Folsom, CA 95630

916.350.0003
guidehouse.com

November 22, 2019

TABLE OF CONTENTS

DISCLAIMER

This report was prepared by Navigant Consulting, Inc., n/k/a Guidehouse Inc. ("Navigant"),[1] for City of Palo Alto Utilities. The work presented in this report represents Navigant's professional judgment based on the information available at the time this report was prepared. Navigant is not responsible for the reader's use of, or reliance upon, the report, nor any decisions based on the report. NAVIGANT MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESSED OR IMPLIED. Readers of the report are advised that they assume all liabilities incurred by them, or third parties, as a result of their reliance on the report, or the data, information, findings and opinions contained in the report.

[1] On October 11, 2019, Guidehouse LLP completed its previously announced acquisition of Navigant Consulting Inc. In the months ahead, we will be working to integrate the Guidehouse and Navigant businesses. In furtherance of that effort, we recently renamed Navigant Consulting Inc. as Guidehouse Inc.

EXECUTIVE SUMMARY

City of Palo Alto Utilities (CPAU) contracted with Navigant Consulting, Inc. n/k/a Guidehouse Inc. (Navigant) to engage in an independent evaluation of its Wildfire Mitigation Plan (Plan or WMP). This independent evaluation report (Report) describes the technical review and evaluation provided by Navigant. Navigant performed this evaluation in October and November 2019 and completed the Report on November 13, 2019. Navigant's project team reviewed detailed information related to the Plan and assessed CPAU's procedures related to the Plan.

CPAU prepared the WMP as a response to Senate Bill (SB) 901, which was signed into law on September 21, 2018. SB 901 sets forth a number of provisions and directives, which includes the requirement for electric utilities to prepare and adopt WMPs within 2019 and revise and update the Plan annually thereafter. Additional statutory requirements are listed in Public Utilities Code (PUC) Section 8387 for publicly-owned utilities (POUs).

Navigant evaluated the Plan based on the statutory requirements of PUC Section 8387 as it relates to POUs. This PUC Section was amended on July 12, 2019 as a result of California's Assembly Bill (AB) 1054 being signed into law. The POUs are now subject to the guidance provided by the California Wildfire Safety Advisory Board[2] and mandatory cyclical reviews. The required elements for a WMP have not been modified by this new legislation. This report meets CPAU's requirements under PUC Section 8387(c), which mandate an independent evaluation of CPAU's Plan. Navigant developed this report to satisfy the statutory requirement for public review. This report underlies the required evaluation by the Board of Directors at a public meeting, scheduled for December 16, 2019. The Report includes the following:

- Background of the legislative history requiring WMPs and their independent evaluations
- Approach and methodology evaluating the Plan's comprehensiveness
- CPAU's Plan elements and their compliance with SB 901 and PUC Section 8387 WMP elements and directives
- An evaluation of the Plan's presented metrics to assess the effectiveness of the overall Plan
- Determinations and results

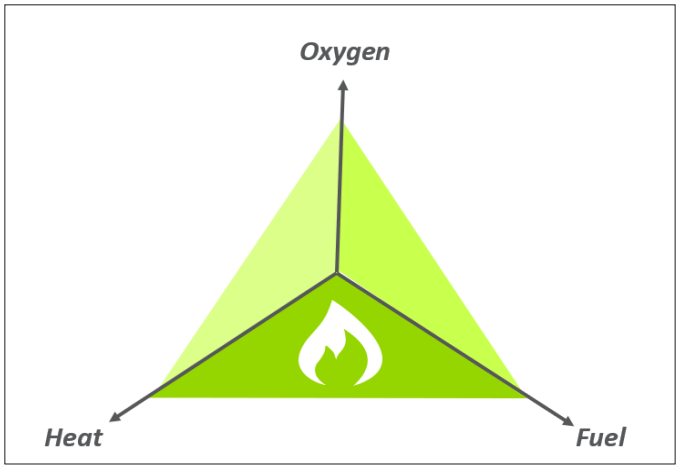
Based on relevant experience in grid hardening and resiliency, natural disaster response, prior experience in WMP development, and active tracking of wildfire legislative and regulatory proceedings Navigant has concluded that CPAU's WMP sufficiently meets the regulatory "comprehensiveness" objective. CPAU should consider enhancing specific elements in future Plan revisions.

[2] Due for implementation in 2020.

1. BACKGROUND

In recent years, California has seen an increase in utility equipment-involved, catastrophic wildfires. The unique geographic profile of California and the impacts of climate change, including continued dry conditions, high winds, and elevated heat index risk from global rising temperatures, have led to elongated fire seasons. The state is also experiencing increased levels of vegetation fuel due to the wet winters and hotter summers following a seven-year drought. This increasingly abundant dry vegetation is the leading driver of wildfires. The levels of dry vegetation fuel have been supplemented by a destructive bark beetle infestation that continues to impact the health of the state's forested areas, further increasing fire risk. These fuel-rich environments, coupled with intensified climatological conditions with high wind gusts and natural electrical infrastructure risks, produce the conditions conducive to potential wildfire ignition. The three attributes that provide optimal conditions for a fire ignition are illustrated through the graphic in Figure 1.

Figure 1: Fire Triangle



Disastrous wildfire threat is a well-known and shared priority among electric utilities in California. The recent spike in utility-involved wildfire incidents since the 2015 wildfire season and the significant financial and social impacts associated with fires have led California and its utilities to develop more formalized efforts to ensure safe operations of electric utility equipment and greater investment in wildfire mitigation efforts.[3] Specifically, the state approved legislation that strengthens governmental and regulatory oversight of wildfire prevention implementation activities, utility WMPs, and proper dispersal of state funds to wildfire victims. In an effort to minimize future devastating occurrences through risk-driven wildfire prevention, electric utilities, including cooperatives, were mandated, by Senate Bill (SB) 901 (Senator Bill Dodd, 2018), to prepare and adopt a WMP before January 1, 2020 and annually thereafter. This effort is foundational to the state's prioritized goal of minimizing the potential of devastating fires in future years.

1.1 SB 901 – Wildfire Mitigation Plans

On September 21, 2018, Governor Jerry Brown signed SB 901 into law. The law directs electrical utilities to annually prepare WMPs that include several mitigation and response elements in each utility's strategies, protocols, and programs. Each electric utility is to prepare and adopt a comprehensive WMP before January 1, 2020. The requirements for publicly-owned utilities (POUs) are presented in Public

[3] California Public Utilities Commission, 2019. "Fire Incident Data Reports for Investor-Owned Utilities," https://www.cpuc.ca.gov/fireincidentsdata/.

Utilities Code (PUC) Section 8387. The details of POU requirements are discussed in Section 2 of this WMP evaluation report (Report).

1.1.1 AB 1054 Statutory Modifications

On July 12, 2019, Governor Gavin Newsom signed Assembly Bill (AB) 1054 into law. This bill was developed with the consideration of the Governor's Strike Force effort to develop prioritized strategies to help the state achieve its decarbonization goals. AB 1054 aims to mitigate the intensity of wildfire impacts through several initiatives that are separate from those actions required of electric utilities. SB 901 directed the Office of Planning and Research to establish a Commission on Catastrophic Wildfire Cost Recovery (SB 901 Commission) with the goal of addressing utility wildfire liability, cost responsibility and victim support, and issues with insurance availability and affordability. On June 18, 2019, the SB 901 Commission presented to the state Legislature, findings and recommendations on the discovery items discussed at public workshops over the course of several months. This, in part with Governor Newsom's Wildfire Reform Package, resulted in legislation that culminated in the provisions listed in AB 1054.

AB 1054 included directives to establish the Wildfire Safety Division at the California Public Utilities Commission (CPUC) and the state's Wildfire Safety Advisory Board. POUs will provide future WMPs by July 1 of each year starting in 2020 for review by and recommendations from the Wildfire Safety Advisory Board. No less than every three years, POUs are required to comprehensively update their WMPs. This change is included in this evaluation as a reference for future requirements.

1.1 CPAU Electric Utility Plan Preparation

The City of Palo Alto is the only municipality in California that operates a full suite of City-owned utility services (electric, water, natural gas, wastewater, fiber optic). CPAU manages these services and has been providing quality service to the citizens and businesses of Palo Alto since 1896.

CPAU is responsible for the design, construction, maintenance, and operation of the utility electric and water systems in the City of Palo Alto and is the lead on all utility system mitigation activities. Various staff within Utilities are involved with creating and implementing the tasks in this plan.

As a POU, CPAU has no fiduciary obligations to shareholders and its actions and decisions are governed by City Council. CPAU has prepared its first WMP pursuant to SB 901 directives. The Plan aims to address each of the required elements presented by PUC Section 8387 and ultimately reduce risk exposure to utility-involved wildfire events through Plan execution and metric tracking.

1.1.1 Independent Evaluation Services

PUC Section 8387(c) directs POUs to procure services for an independent evaluation (IE) of the comprehensiveness of the WMP. In January 2020, upon commencement of the California Wildfire Safety Advisory Board, guidelines and further details related to the scope and timelines of future IEs will be discussed and reviewed. In its present[4] form, the provisions of PUC Section 8387 state that the independent evaluator shall be experienced in "assessing the safe operation of electrical infrastructure" and will perform an assessment to determine the comprehensiveness of the Plan.[5]

CPAU sought out IE services to assess the comprehensiveness of its WMP pursuant to PUC Section 8387(c) prior to presenting the final WMP to City Council and contracted with Navigant Consulting, Inc., n/k/a Guidehouse Inc. (Navigant) through a Multi-Task Consulting Services Agreement with the Northern California Power Agency (NCPA) which CPAU can access through its membership. In October of 2019,

[4] The CPUC has begun its investigation to develop a list of recognized independent evaluators by March of 2021.

[5] It is recognized that this requirement does not yet include a clear definition of comprehensiveness.

CPAU executed a task order with Navigant through NCPA to undertake an assessment of its Plan based on Navigant's prior experience with "assessing the safe operation of electrical infrastructure" which includes grid-hardening and WMPs, with an emphasis on electrical equipment, public, and personnel safety.

Both Navigant and CPAU acknowledge emergent practices and technologies will materialize as evolving legislative action and utility efforts continue to shape wildfire mitigation and safety efforts. Understanding this, Navigant performed a comparison of the wildfire mitigation investments exemplified by other utilities throughout California as well as relied on the team's experience in working directly with utilities to develop their WMPs and data collection practices along with prior experience related to gird hardening and electric safety assessments. This Report presents the results of Navigant's WMP IE. The following section describes the methodology in executing this evaluation.

Navigant Identification of Qualifications

Navigant has provided IE services throughout the United States. Navigant's grid-related IE projects include storm hardening, wildfire mitigation, resiliency assessments, advanced technology suitability, among others. Our approach includes an evaluation of data considered, suitability of tracking metrics – both frequency and trends analysis - and an evaluation of key performance indicators. Navigant assessed the efficacy of tools for creating sufficient awareness and for effectiveness of understanding overall WMP's intended and actual impacts. Navigant also leveraged experience developing "Metrics and Benefits Reporting Plans" to gauge cost-effectiveness of activities and alignment of plans to intentions. Navigant deeply understands CPAU's publicly-owned business practices relative to IOUs, through our experience developing WMPs for two IOUs and our continued tracking of related CPUC dockets intended to refine strategies that carry an effective Plan.[6]

Navigant continues to track proceedings and pending legislation surrounding utility wildfire risk. Our team remains active with WMP engagements across California and elsewhere. As part of maintaining high acumen of prudent mitigation strategies, Navigant participates in forums focused on innovative wildfire mitigation strategies—further expanding our industry knowledge. Navigant provides thought leadership and advisory services related to WMP and other resiliency innovative technologies to the California Energy Commission and has supported their system hardening and fire prevention efforts since 2008. Additionally, Navigant's reach into grid resiliency and disaster-related hardening extends across the United States including island grids, such as Puerto Rico, recovering from recent, weather-related catastrophes.

[6] Navigant provided technical services to Liberty Utilities (CalPeco Electric) and Bear Valley Electric Service (BVES) immediately prior to and within the 2019 calendar year. The services resulted in support of the development and filing of their respective WMPs to the CPUC on February 6, 2019. Navigant continued to support BVES in development of their Data Collection for WMP report, filed on July 30, 2019.

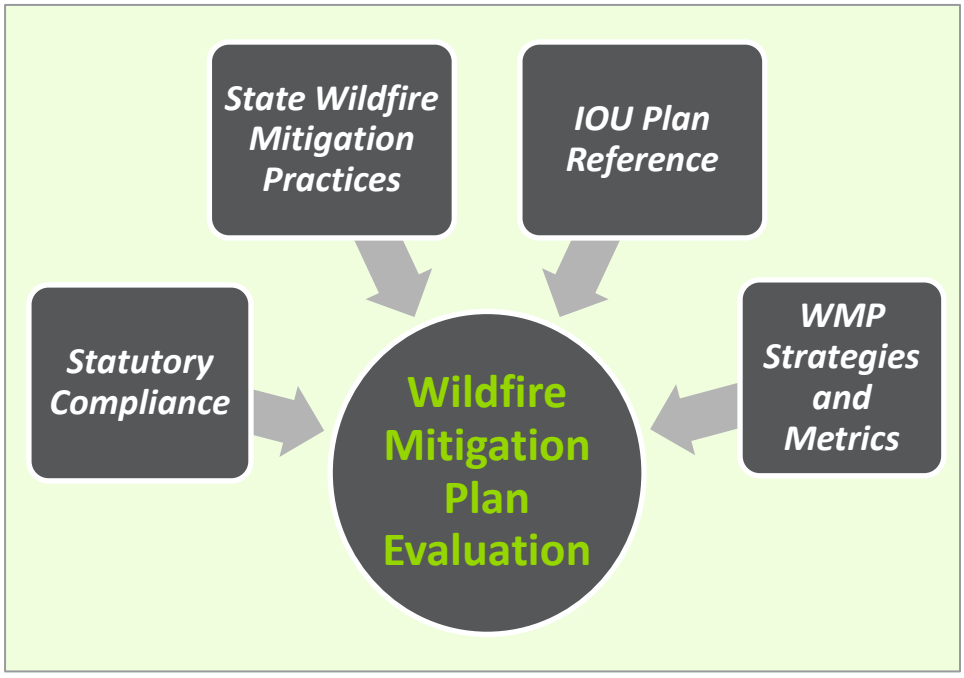
2. EVALUATION SCOPE AND APPROACH

At the time of this IE, the guidelines and requirements were not available to POUs regarding the structure or determination of comprehensiveness pursuant to PUC Section 8387(c). In lieu of this formalized directive, Navigant completed this evaluation based on industry standard practices, our experience developing and reviewing WMPs and other grid hardening activities, our active tracking of wildfire legislative and regulatory proceedings and, most importantly, a comparison of the specific criteria in PUC Section 8387 to the specific wildfire-related plans outlined in CPAU's WMP.

2.1 Evaluation Parameters

Figure 2 represents the attributes comprising the methodology and approach of the evaluation.

Figure 2: Contributing Factors to Evaluate the Plan



2.1.1 Provisional Requirements

As mentioned above, the requirement for electric utilities and corporations to develop WMPs emerged from the directives of SB 901 and associated statutory modifications. With respect to POUs, the nested subsections under PUC Section 8387(b)(2) outline the minimum required elements to be considered in the Plan. See Table 1 for the complete statutory compliance list.

Table 1: POU Requirements for the WMP

PUC Section 8387 *(as amended on July 12, 2019)*
(a) Each local publicly owned electric utility and electrical cooperative shall construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of wildfire posed by those electrical lines and equipment.

(b) (1) The local publicly owned electric utility or electrical cooperative shall, before January 1, 2020, prepare a wildfire mitigation plan. After January 1, 2020, a local publicly owned electric utility or electrical cooperative shall prepare a wildfire mitigation plan annually and shall submit the plan to the California Wildfire Safety Advisory Board on or before July 1 of that calendar year. Each local publicly owned electric utility and electrical cooperative shall update its plan annually and submit the update to the California Wildfire Safety Advisory Board by July 1 of each year. At least once every three years, the submission shall be a comprehensive revision of the plan.
(2) The wildfire mitigation plan shall consider as necessary, at minimum, all of the following:
(A) An accounting of the responsibilities of persons responsible for executing the plan.
(B) The objectives of the wildfire mitigation plan.
(C) A description of the preventive strategies and programs to be adopted by the local publicly owned electric utility or electrical cooperative to minimize the risk of its electrical lines and equipment causing catastrophic wildfires, including consideration of dynamic climate change risks.
(D) A description of the metrics the local publicly owned electric utility or electrical cooperative plans to use to evaluate the wildfire mitigation plan's performance and the assumptions that underlie the use of those metrics.
(E) A discussion of how the application of previously identified metrics to previous wildfire mitigation plan performances has informed the wildfire mitigation plan.
(F) Protocols for disabling reclosers and deenergizing portions of the electrical distribution system that consider the associated impacts on public safety, as well as protocols related to mitigating the public safety impacts of those protocols, including impacts on critical first responders and on health and communication infrastructure.
(G) Appropriate and feasible procedures for notifying a customer who may be impacted by the deenergizing of electrical lines. The procedures shall consider the need to notify, as a priority, critical first responders, health care facilities, and operators of telecommunications infrastructure.
(H) Plans for vegetation management.
(I) Plans for inspections of the local publicly owned electric utility's or electrical cooperative's electrical infrastructure.
(J) A list that identifies, describes, and prioritizes all wildfire risks, and drivers for those risks, throughout the local publicly owned electric utility's or electrical cooperative's service territory. The list shall include, but not be limited to, both of the following:
(i) Risks and risk drivers associated with design, construction, operation, and maintenance of the local publicly owned electric utility's or electrical cooperative's equipment and facilities.
(ii) Particular risks and risk drivers associated with topographic and climatological risk factors throughout the different parts of the local publicly owned electric utility's or electrical cooperative's service territory.
(K) Identification of any geographic area in the local publicly owned electric utility's or electrical cooperative's service territory that is a higher wildfire threat than is identified in a commission fire threat map, and identification of where the commission should expand a high fire-threat district based on new information or changes to the environment.
(L) A methodology for identifying and presenting enterprise wide safety risk and wildfire-related risk.
(M) A statement of how the local publicly owned electric utility or electrical cooperative will restore service after a wildfire.
(N) A description of the processes and procedures the local publicly owned electric utility or electrical cooperative shall use to do all of the following:
(i) Monitor and audit the implementation of the wildfire mitigation plan.
(ii) Identify any deficiencies in the wildfire mitigation plan or its implementation, and correct those deficiencies.
(iii) Monitor and audit the effectiveness of electrical line and equipment inspections, including inspections performed by contractors, that are carried out under the plan, other applicable statutes, or commission rules.

(3) The local publicly owned electric utility or electrical cooperative shall, on or before January 1, 2020, and not less than annually thereafter, present its wildfire mitigation plan in an appropriately noticed public meeting. The local publicly owned electric utility or electrical cooperative shall accept comments on its wildfire mitigation plan from the public, other local and state agencies, and interested parties, and shall verify that the wildfire mitigation plan complies with all applicable rules, regulations, and standards, as appropriate.
(c) The local publicly owned electric utility or electrical cooperative shall contract with a qualified independent evaluator with **experience in assessing the safe operation of electrical infrastructure** to review and **assess the comprehensiveness of its wildfire mitigation plan**. The independent evaluator shall issue a report that shall be made available on the internet website of the local publicly owned electric utility or electrical cooperative, and shall present the report at a public meeting of the local publicly owned electric utility's or electrical cooperative's governing board.

2.1.2 Industry Knowledge and Regulatory Proceedings

The state's priority towards abating future catastrophic wildfire events is demonstrated through continued aggressive measures, directing utilities to enhance their protocols for fire prevention and response. That collection of information is presented in a comprehensive WMP. While POUs are directed to develop this Plan prior to January 1, 2020, Navigant recognizes that California utilities subject to CPUC jurisdiction have filed their respective Plans on February 6, 2019. Navigant tracks docketed proceedings and maintains a presence in state activities and workshops surrounding wildfire prevention. Understanding that CPAU is not subject to CPUC regulations, the insight gained from this related experience is leveraged in assessing CPAU's Plan relative to its risk profile and industry position.

2.2 Evaluation Approach

To perform an assessment of the comprehensiveness of the Plan, Navigant used the following described approach.

2.2.1 Statutory Compliance

Navigant sought to determine compliance with the provisional requirements laid out in PUC Section 8387 as modified by SB 901. The Plan's alignment with the statutory requirement is presented in Appendix A. CPAU's mitigation measures are not required to exceed the statutory requirements.

2.2.2 Industry Wildfire Mitigation Practices Comparison

Accepted practices for wildfire mitigation have been discussed and presented at thought leadership events, such as the Wildfire Technology Innovation Summit, held on March 20-21, 2019. Additionally, Plans approved by the CPUC have garnered significant insight from the industry at large. Navigant's understanding of an effective Plan draws on comparisons from existing WMPs and industry practices and is summarized according to business practice categories described in Figure 3.

Figure 3: Mitigation Strategy Overview

Design & Construction: System, equipment, and structure design and technical upgrades designed to improve system hardening to prevent contact between infrastructure and fuel sources, such as vegetation.

Inspection & Maintenance: Assessment and diagnostic activities as well as associated corrective actions aimed to ensure all infrastructure is in working condition and vegetation adheres to defined minimum distance specifications.

Operational Practices: Proactive, day-to-day actions taken to mitigate wildfire risks aimed to ensure the POU is prepared in high-risk situations, such as dry, windy environmental conditions.

Situational & Conditional Awareness: Methods to improve system visualization and awareness of environmental conditions aimed to provide tools to improve the other components of the plan.

Response & Recovery: Procedures to react to de-energization, wildfire, or other related emergency conditions, aimed to formalize protocols for these situations, so the POU can provide an adequate response and recovery.

Expertise in these critical elements facilitate Navigant's review of the comprehensiveness of CPAU's WMP. While not all of these strategies are present in or applicable to CPAU's Plan, Navigant's understanding of collected utility strategies demonstrated throughout the state are summarized below:

- ***Inspection and maintenance of distribution transmission and substation assets*** including conducting system patrols and ground inspections, using technological inspection tools, managing predictive and electrical preventative maintenance, and conducting vegetation inspections and management, vulnerability detection such as Light Detection and Ranging (LiDAR) inspection; and geospatial and topography identification, geographic information system (GIS) mapping data. A key component is identifying collected data elements through each program and understand how that data is used and shared to improve utility practices.
- ***Vegetation management*** that includes routine preventative vegetation maintenance; corrective vegetation management and off-cycle tree work; emergency vegetation clearance, prioritized for portions of the service territory the lie in high hazard zones, quality control processes; and resource protection plan, including animal and avian mitigation programs.
- ***System hardening*** that includes pole replacement, non-expulsion equipment, advanced fuses, tree attachment removal, less flammable transformer oil, covered wire and wire wrap, and undergrounding where cost beneficial.
- ***Operational practices*** including communications and mustering plans under varying degrees of wildfire risk. Plans to deactivate automatic reclosers, de-energization of "at risk" area powerlines based on type of facility (overhead bare conductions, high voltage, etc.), tree and vegetation density, available dry fuel, and other factors that make certain locations vulnerable to wildfire risk.
- ***Situational awareness*** including obtaining information from devices and sensors on actual system, weather and other wildfire conductivity conditions, two-way communication with agencies and key personnel. Programs such as online feeds and websites such as the National Fire Danger Rating System. Situational awareness should help achieve a shared understanding of actual conditions and serve to improve collaborative planning and decision making.
- ***De-Energization actions*** that are triggered and prioritized by forecasted extreme fire weather conditions; imminent extreme fire weather conditions; validated extreme fire weather conditions; and plans for re-energization when weather subsides to safe levels. Manual or automatic capabilities exist for implementation.

- ***Advanced Technologies*** including Distribution Fault Anticipation technology, tree growth regulators, pulse control fault interrupters, oblique and hyper-spectral imagery; advanced transformer fluids; advanced LiDAR, and advanced SCADA, to reduce electrical ignition while also helping to mitigate power outages and equipment damage.
- ***Emergency Preparedness, Outreach and Response communications*** before, during, and after emergencies including but not limited to engaging with key stakeholders that include critical facilities and served customers; local governments, critical agencies such as California Department of Forestry and Fire Protection (CAL FIRE), local law enforcement agencies and other first responders, hospitals, local emergency planning committees, other utility providers, California Independent System Operator, and the utility's respective Board. Coordination agreements such as Mutual Assistance should be leveraged. Community outreach plan should inform and engage first responders, local leaders, land managers, business owners and others.
- ***Customer support programs*** including financial assistance and support for low-income customers; billing adjustments; deposit waivers; extended payment plans; suspension of disconnection and non-payment fees; repair processing and timing; access to utility representatives; and access to outage reporting and emergency communications. Consideration of languages in addition to English. Identification of priority customers, such as first responders and local agencies, health care providers, water and telecommunication facilities, groups that assist children, elderly, mobility impaired, and other vulnerable populations.

2.2.3 Value Determination of Plan Metrics

Metrics for tracking the Plan's progress intend to allow the utility to refresh information as trends become clearer. Based upon the discussion included in the CPUC's Phase 2 of the SB 901 proceeding docket, interests in metric development and underlying data collection are beginning to take shape. While these determinations do not directly influence the public power sector, insight has been leveraged to employ effective metrics.[7]

2.2.4 Data Request

Navigant submitted requests for additional data as part of this IE. This information supported an understanding of the procedures and details behind the mitigation measures. CPAU provided written responses as well as documents including the *Foothills Fire Mitigation Plan (FFMP)* which details the policies related to the HFTD. Also, draft versions of *Public Safety Power Shutoff (PSPS) Policy* and *Process* and *Response & Communication Procedures*, both of which are currently in development. The PSPS documents detail the metrics and decision process used to determine the necessity of a PSPS; and, the communications, alerts, and notifications that will occur leading up to or in the event of a PSPS.

[7] CPUC Order Instituting Rulemaking to Implement Electric Utility Wildfire Mitigation Plans Pursuant to SB 901 (2018) (Rulemaking 18-10-007) https://apps.cpuc.ca.gov/apex/f?p=401:56:0::NO:RP,57,RIR:P5_PROCEEDING_SELECT:R1810007.

3. CPAU WMP PLAN ELEMENTS

Navigant reviewed the Plan elements to determine whether the activities supported the intention to deploy an effective and comprehensive WMP. This determination incorporated individual elements as well as underlying data sources that further described data collection methodologies and implementation procedures to ensure measures are carried out and also tracked. This understanding also informs internal reviews and subsequent updates for future Plan iterations.

Navigant found that CPAU's WMP does not meet the statutory requirements of PUC Section 8387. Subsequently, Navigant recommends enhancing and clarifying specific elements in future Plan updates to meet the comprehensiveness required by PUC Section 8387(c). In this section we review CPAU's WMP elements and their sufficiency relative to the development and successful execution of the WMP. A table comparing each subsection of PUC Section 8387 to the significant sections of the WMP can be found in Appendix A.

3.1 Objectives and Overview of Preventative Strategies and Programs

PUC Section 8387
(B) The objectives of the wildfire mitigation plan.
(C) A description of the preventive strategies and programs to be adopted by the local publicly owned electric utility or electrical cooperative to minimize the risk of its electrical lines and equipment causing catastrophic wildfires, including consideration of dynamic climate change risks.

CPAU includes clearly stated objectives in its WMP. CPAU's primary objective is minimizing the probability that it's "distribution system may be an original or contributing source for the ignition of a fire." The WMP has a second goal of assessing industry practices to improve system resilience, reduce disruptions, and improve restoration times. The third objective is focused on minimizing unnecessary or ineffective action, but also includes revising existing mitigation efforts or adding mitigating actions based on an ongoing assessment of risks and an evaluation of the effectiveness of the WMP. This particular objective is also reflective of the requirement of 8387(b)(2)(N)(ii) which requires CPAU identify and correct any deficiencies in the WMP r its implementation.

CPAU's preventive strategies are discussed in detail in the "Ongoing Fire Prevention Activities" section of the WMP which begins on page 11. This section describes CPAU's vegetation management, electric system inspection, maintenance, training, and system design and operation aid in preventing wildfire in CPAU's service territory, especially the area that is identified as a Tier 2 area by the CPUC. Specifically, in regards to the electric system design and operation, CPAU lists the strategies it has implemented to prevent wildfire risk in the High Fire Threat Area including disabling of reclosers and patrols/repairs following faults prior to reclosing, the use of only non-expulsive fuses, protective device coordination, and deenergization.

The "Roles and Responsibilities – City of Palo Alto Departments" section also addresses, at a high level, CPAU's preventive strategies and programs, including coordination, reporting, data collection, and training. The WMP relies upon established programs and protocols implemented by various City departments to address public safety and emergencies.

The CPAU WMP describes an organizational strategy adopted by the City which recognizes that the Foothills Fire Mitigation Plan (FFMP), attached to the Plan as Appendix A, involves and requires support from many City Departments. The FFMP originated in the Fire Department, the Public Works Department,

Office of Emergency Services and Community Services Department. CPAU intends to adopt the FFMP as a Community Wildfire Protection Plan (CWPP), which will better position the City to receive grants from Federal or State funding sources. Collectively, these City Departments conduct fire prevention and fuels reduction activities intended to limit wildfire threats.

Further, CPAU has an ongoing relationship with the Santa Clara County Fire Safe Council (SCFSC). The City developed a 5-year Stewardship Agreement with the SCFSC to help implement the FFMP/CWPP. An annual work plan is mutually agreed-upon and based on availability of funding and capacity of the SCFSC.

3.1.1 Risk Assessment & Drivers

PUC Section 8387
(J) A list that identifies, describes, and prioritizes all wildfire risks, and drivers for those risks, throughout the local publicly owned electric utility's or electrical cooperative's service territory. The list shall include, but not be limited to, both of the following:
(i) Risks and risk drivers associated with design, construction, operation, and maintenance of the local publicly owned electric utility's or electrical cooperative's equipment and facilities.
(ii) Particular risks and risk drivers associated with topographic and climatological risk factors throughout the different parts of the local publicly owned electric utility's or electrical cooperative's service territory.
(L) A methodology for identifying and presenting enterprise-wide safety risk and wildfire-related risk.

The CPAU WMP includes a section titled "Wildfire Risk Factors" on page 3 of the Plan. This section includes a description of CPAUs service territory and system characteristics including the design construction, and operation of CPAU's equipment and facilities as well as the topographic and climatologic risk factors and drivers. This discussion includes the fact that 6% of its distribution line is located in the open space western foothills area but it fails to mention that this is the portion of their territory that lies within the Tier 2 High Fire-Threat Area identified by the CPUC. Inclusion of historical climate and weather data against projects of potential future conditions may also be helpful to this discussion.

CPAU also relies upon a 2011 Hazard Risk Assessment that includes and addresses wildfire risks, but it does not set forth a methodology to identify and present enterprise-wide safety risk and wildfire-related risks CPAU is currently negotiating with a consultant to review and update its risk assessment to more completely address the call for a 8387(b)(2)(L) enterprise-wide risk assessment methodology by looking at wildfire risks in the foothills region posed by the electric system. CPAU plans to have this risk assessment complete by July of 2020.

3.1.2 Asset Overview & Service Territory

PUC Section 8387
(K) Identification of any geographic area in the local publicly owned electric utility's or electrical cooperative's service territory that is a higher wildfire threat than is identified in a commission fire threat map, and identification of where the commission should expand a high fire-threat district based on new information or changes to the environment.

The WMP adequately identifies the High Fire Threat Areas within CPAU's footprint on page 10 and graphically in the maps in Appendices B and C. The threat map is included in the WMP showing the CPAU system contains an area determined to be Tier 2 – Elevated Risk. In order to fully meet the regulatory language of part K, the WMP should also include CPAU's conclusion that it is unnecessary to expand or elevate any fire-threat district within the CPAU territory, unless CPAU believes the area should be expanded. In such case, CPAU should describe the additional area it believes should be included as a High Fire Threat Area and the reasons supporting such expansion.

3.1.3 Wildfire Prevention Strategies

PUC Section 8387
(F) Protocols for disabling reclosers and deenergizing portions of the electrical distribution system that consider the associated impacts on public safety, as well as protocols related to mitigating the public safety impacts of those protocols, including impacts on critical first responders and on health and communication infrastructure.
(H) Plans for vegetation management.
(I) Plans for inspections of the local publicly owned electric utility's or electrical cooperative's electrical infrastructure.

3.1.3.1 Disabling Reclosers

In the Electric System Design/Operation section of the WMP, CPAU states it has two reclosers in the HFTD and that automatic reclosing capability is disabled year-round on both reclosers; and, that reclosing capability on the upstream circuit breaker at its substation is disabled. The protocol for reclosing following a fault requires CPAU staff patrol the lines to ensure the cause of an outage is no longer present, and any necessary repairs are made prior to the breaker or reclosers being closed.

3.1.3.2 De-Energization Protocols

In response to extraordinary fire conditions, CPAU asserts its authority to implement a public safety power shutoff (PSPS) on page 13 of the Plan. The WMP sets forth the conditions that are to be considered on a case-by-case basis for a PSPS. Roles and responsibilities are identified in Appendix D to the Plan, and the Draft PSPS Policy is included as Appendix G. Additional details for the implementation of PSPS will be addressed in forthcoming PSPS Policy and Procedure documents which are currently in draft with an expected approval date of January 2020. The policy and procedure, for which Navigant has reviewed the drafts, will address in greater detail the oversight and process for deenergizing electric lines for the purposes of wildfire safety. Additionally, CPAU makes clear that following a PSPS, lines must be patrolled and inspected clearing of debris, assistance with evacuation, ensuring availability of water, and communication with customers and other utilities.

3.1.3.3 Vegetation Management

Vegetation Management is addressed in the "Ongoing Fire Prevention Activities" section of the WMP. CPAU, through the City of Palo Alto's Urban Forestry Department, meets or exceeds CPUC GO 95: Rule 35, as indicated in Table 1, p. 11 of the WMP. The City of Palo Alto also maintains its *Foothills Fire Management Plan (FFMP)* (described on pp. 9-10 and attached as Appendix A prepared in 2009 and updated in 2016) which addresses a broad range of integrated activities planning documents to address and mitigate the impacts of fire hazards in the Palo Alto Foothills Area which limits the likelihood of CPAU

igniting a wildfire in its Tier 2 operations. The area of interest includes the areas west of Foothills Expressway to the city limits of Palo Alto.

The FFMP also addresses fire hazard assessment and regional evacuation routes, wildland fire management recommendations and mitigations. Per its FFMP, CPAU Urban Forestry performs an evaluation of every tree that has the potential to have branches strike, or the entire tree fall into, the overhead facilities within the High Fire Threat Area. Urban Forestry performs more frequent and detailed inspections of the high-threat trees, and works with land owners, as necessary, to remove a tree.

3.1.3.4 Infrastructure Inspections

In the "Electric System Inspection" section, which begins on p. 11, CPAU describes its infrastructure inspection plans as meeting or exceeding the requirements in CPUC GO 95 and GO 165. In support of this assertion, CPAU works to ensure that all inspections within the High Fire Threat Area are completed before the beginning of the historic fire season, typically June 1. CPAU uses infrared scanning of its facilities to detect problems before they reach a point of failure. CPAU also monitors drought conditions and other relevant factors throughout the year to determine if inspections should be completed on a shorter timeframe. Overhead electric line inspections in HFTD are coordinated between CPAU, FIRE, URBAN FORESTRY, OPEN SPACE, and OES staff.

3.1.4 Response & Restoration

PUC Section 8387
(G) Appropriate and feasible procedures for notifying a customer who may be impacted by the deenergizing of electrical lines. The procedures shall consider the need to notify, as a priority, critical first responders, health care facilities, and operators of telecommunications infrastructure.
(M) A statement of how the local publicly owned electric utility or electrical cooperative will restore service after a wildfire.

3.1.4.1 Event Communication

The WMP identifies OES as managing and coordinating the overall emergency response and recovery activities for the city of Palo Alto, and key to ensuring all necessary communication with the community, governmental agencies, and emergency responders. The "Community Outreach" section, on p. 20 of the WMP states CPAU communications staff will work with OES to develop communication protocols that ensure stakeholders are notified of any impending Utility activities that will impact electric service in the foothills. Additional details are provided in the DRAFT PSPS documents "Policy and Process for Public Safety Power Shutoff" and "Utilities Wildfire Mitigation Procedure for Public Safety Power Shutoff."

OES also provides situational awareness to CPAU, community education and training, emergency response planning, and provides alerts and notifications to Palo Alto residents during emergencies. CPAU coordinates activities with OES through the Utilities Communication Manager. The WMP sufficiently addresses that protocols for alerts and notifications during emergencies is documented in the City Emergency Operations (the OES procedures are not duplicated in this WMP).

3.1.4.2 Restoration

In the "Response to Wildfire Incident" section on pp. 19-20 of the WMP, the subsection titled "CPAU" describes activities CPAU and its staff will undertake to restore power. These efforts will be coordinated

with FIRE and would not occur until deemed safe by FIRE. Communications and notifications associated with system restoration are coordinated with OES. Staff will perform a full visual inspection of overhead lines prior to re-energization and any damage or hazardous conditions will be repaired before the lines are re-energized. The restoration process adequately satisfies 8387(b)(2)(M).

3.1.5 Metrics & Plan Monitoring

PUC Section 8387
(A) An accounting of the responsibilities of persons responsible for executing the plan.
(D) A description of the metrics the local publicly owned electric utility or electrical cooperative plans to use to evaluate the wildfire mitigation plan's performance and the assumptions that underlie the use of those metrics.
(E) A discussion of how the application of previously identified metrics to previous wildfire mitigation plan performances has informed the wildfire mitigation plan.
(N) A description of the processes and procedures the local publicly owned electric utility or electrical cooperative shall use to do all of the following:
(i) Monitor and audit the implementation of the wildfire mitigation plan.
(ii) Identify any deficiencies in the wildfire mitigation plan or its implementation, and correct those deficiencies.
(iii) Monitor and audit the effectiveness of electrical line and equipment inspections, including inspections performed by contractors, that are carried out under the plan, other applicable statutes, or commission rules.

3.1.5.1 Responsibilities

3.1.5.2 The roles and responsibilities of individuals responsible for executing this WMP are addressed at a high level in the Roles and Responsibilities section, pp. 7-9. The WMP states CPAU works with other Departments of the City to mitigate the threat of wildfires, and generally lists activities that may occur. The Plan also clearly identifies the personnel responsible for each of the ongoing and proposed wildfire mitigation activities. In Appendix D of the WMP, CPAU has also included an organization chart with each staff member's areas of responsibility related to wildfire mitigation. The chart also references the City's Incident Command Structure and identifies the areas of responsibility in the event of a PSPS. Metrics

CPAU identifies that it monitors two metrics to evaluate the WMP's performance: Counts of Fire Ignitions and Wires Down. These metrics for monitoring the implementation of the WMP are defined further in the WMP, though the WMP does not fully elaborate how well these metrics can be used to evaluate the wildfire mitigation plan's performance or the assumptions that underlie the metrics.

3.1.5.3 Application of previously identified metrics

As is common with many POUs initial WMP, CPAU does not detail the application of any previously identified metrics. It is not expected the initial version of a WMP would include previously identified metrics. To the degree CPAU is leveraging its established role in coordinating with other departments, CPAU collects data related to those historical activities and the data is reviewed annually to inform subsequent revisions and updates to the WMP.

3.1.5.4 Monitor and audit the implementation of the wildfire mitigation plan.

The “Mitigation Plan Review and Assessment Process” section, pp. 21-22 addresses the monitoring and auditing of this WMP. As discussed above, CPAU tracks two metrics to measure the performance of this Wildfire Mitigation Plan: (1) number of fire ignitions; and (2) wires down within the service territory. The WMP states that annually, CPAU will analyze these metrics to identify any deficiencies in the system operation and design, and the any deficiencies in this WMP. Additionally, the Utilities Electric Engineer will monitor completion of WMP activities and hold meetings twice annually to discuss preparation and planning of current and future work. The WMP and any revisions are subject to review by Council and this analysis along with proposed improvements must be presented to Council as part of the annual update.

The CPAU WMP states that the utility will analyze outages in the High Fire Threat Areas to determine if activities implemented in the Wildfire Mitigation Plan: 1) should have prevented the outage, 2) were inadequate to prevent the outage, 3) could be improved, or 4) would not have been able to prevent the outage. CPAU will then revise the plan as necessary.

3.1.5.5 Identifying and correcting deficiencies in the Wildfire Mitigation Plan

The CPAU WMP states under “Mitigation Plan Review and Assessment Process” “Revision and Improvement Implementation Process” that CPAU will “analyze the metrics and identify any deficiencies in the system operation/design or in this Mitigation Plan” and that the Utilities Electric Engineer will monitor the “completion of the mitigation plan activities” and hold bi-annual meetings to discuss preparation and plans. The WMP could be clearer on how it intends to utilize the metrics and evaluate for deficiencies of the Plan implementation but this is likely sufficient.

3.1.5.6 Monitoring and Auditing the Plan

The “Auditing” section, p. 21, states the WMP is subject to a review by an independent evaluator to ensure it complies with the requirements of SB 901, and that the actions contained sufficiently address the risk posed by utility lines. CPAU also states the WMP is subject to review and approval by Council. These reviews will occur on at least an annual basis, in concert with the annual review and update of the WMP.

CPAU states that the personnel listed as responsible for each wildfire mitigation measure will also monitor the activity and propose changes as needed. While electrical line and equipment inspection effectiveness monitoring, in accordance with 8387(b)(2)(N)(iii) is not explicitly identified in the “Mitigation Plan and Assessment Process” section, the Electric Operations Manager is charged with the responsibility for monitoring this program, identifying issues and deficiencies, and making changes to the Plan to address any issues. Future iterations of the WMP should more explicitly describe the efforts under either the inspection or auditing portions of the Plan.

3.1.5.7 Annual Review

CPAU will analyze the metrics and identify any deficiencies in the system operation/design or in this Mitigation Plan, annually as described in the “Revision and Improvement Implementation Process” subsection on p. 21). This analysis along with proposed improvements will be presented to Council as part of the annual update.

4. INDUSTRY PRACTICES COMPARISON

In consideration of industry-accepted and demonstrated mitigation measures, Navigant provided a comparison against approved California utility Plans where comparable to CPAU's service territory, risk profile, and equipment within the HFTD Tier 2 areas. The complete comparison matrix with supporting information is provided in Appendix A. Highlighted strategies for effective wildfire mitigation are represented in the table below; three items have been recommended for detailed discussion of the applicability and efficacy of the proposed strategy.

Covered Conductors

Covered conductors are any conductors (wires) protected by layers of insulation, making the conductors protected against inadvertent contacts. These wires are designed to withstand inadvertent contact with vegetation and/or other debris without starting a fire.

Throughout California, and in many areas of the country, the use of bare overhead wire has been the standard. Bare wire has demonstrated a high-level of reliability in adverse weather conditions such as lightening.

In higher risk areas, (Tier 2), CPAU is in the process of determining an approach to replace bare wire with covered conductors. CPAU is rebuilding the distribution line feeding the Tier 2 foothills area. CPAU expects several months to complete engineering, followed by replacement of the bare wire with covered wire in 2020. This is described in "Appendix F: Status of Proposed Activities to Reduce Risk of Wildfire" as activities 1 and 2.

CPAU's plans to replace bare wire with covered conductor on the circuit feeding the Tier 2 foothills areas is appropriate and consistent with the practices of other utilities in the state.

Disabling Reclosing Operations

Disabling reclosing refers to the ability to turn off the functionality of substation breakers and reclosers to attempt to isolate fault conditions and re-energize (turn back on) areas of the electric grid. Traditionally, electrical circuits were designed to automatically open and close to detect and isolate faults. In many cases, the relays would make two or three attempts to isolate a fault condition. Each potential attempt could cause an electrical spark, which could be a source of ignition. Disabling reclosing significantly reduces the number of potential ignition sources.

CPAU has a program in place in which it has permanently disabled automatic reclosing on the two reclosers on the distribution line feeding the Tier 2 foothills area and at the distribution substation reclosing breaker. Reclosing function on the line reclosers has been manually, permanently disabled at the device control panels. The reclosing function on at distribution substation breaker has been defeated at the substation relay panel.

CPAU also has a manually operated air break switch on the distribution circuit feeding the foothills area. The switch is located at the bottom of the hill of the foothills areas and can be used to execute a deenergization event.

CPAU's approach to disabling reclosing is appropriate and consistent with the practices of other utilities.

Non-Expulsive Fuse Devices

Fuses (Fusing) refer to protective devices that defend the distribution system from faulted or damaged lines and equipment. Historically, CPAU, other utilities in California, and utilities across the country, have used conventional fuses to protect powerlines. These conventional fuses, when operated, expel hot

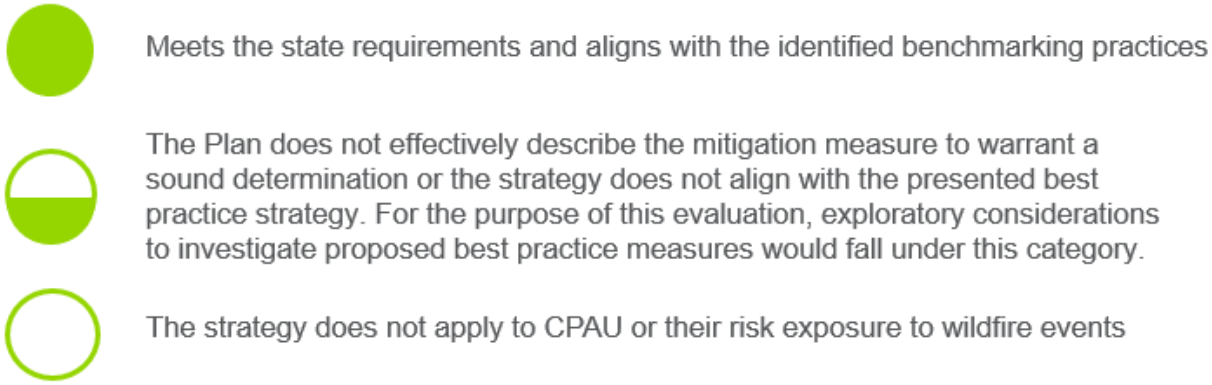
particles and gases, which can start fires. In order to mitigate the potential for fire ignitions, CPAU has replaced all conventional fuses on the distribution line in the foothills area with non-expulsive type fuses.

This is consistent with the practices being performed by the other utilities in the state.

4.1 Mitigation Strategies Assessment

The following describes the scoring determinations of the benchmarking practice. Navigant weighed strategies that have been demonstrated globally, as well as from those proposed by state utilities. As expressed in Figure 4, this benchmarking practice supports efforts to determine the Plan's comprehensiveness when investigating the mitigation measures proposed in CPAU's WMP. This assessment is designed to confirm prudent measures as proposed by CPAU and did not result in any material findings that would result in non-compliance or lack of comprehensive Plan elements.

Figure 4: Determinations for Benchmarking



The selected strategies represented in Table 2 include both statutory requirements that exist as industry standards for POUs as well as accepted industry practices within the state.

Table 2 Industry Practice Strategy Comparison Matrix

Identified Practice Strategy	Mitigation Rationale	Palo Alto Applicability	Plan Elements	Determination	
Situational Awareness / Weather Conditions					
Investing or investigating in opportunities to procure weather stations for instantaneous weather condition reporting	Having access to internal mechanisms to track fire conditions (high wind, dry conditions, high heat), will aid in responding to and preventing potential fires by enacting related protocols during fire watch conditions	Especially in HFTD, weather stations would allow CPAU personnel to have access to real-time monitoring of these areas	CPAU accesses two PG&E weather stations that are near the CPAU service area in the foothills area. CPUA is investigating placing an additional weather station at the top of the hill.		CPAU has access to the PG&E weather stations to adequately monitor weather conditions in the foothills area.
Instantaneous weather conditions web-based portal and GIS data sharing capabilities; weather monitoring	Real-time, weather update tracking allows deepened awareness of the conditions that may lead to a spark or ignition. The weather station servers are able to capture and record several weather and meteorological attributes, allowing forecasting scenarios and learning experiences from high-risk events. The presentation and visualization of this data through GIS monitoring applications will assist future risk models and fire prevention planning	Weather stations should have the ability to capture and interpret the information sent in real-time for operations that warrant mitigation measures.	With the proposed weather station at the top of the hill in addition to access to the PG&E weather stations, CPAU should have the ability to capture and interpret information sent in real time to inform operational fire risk mitigation decisions.		The addition of a weather station at the top of the hill in CPAU's Tier 2 foothills area may enhance their ability to capture real time weather information to subsequently inform its operational response to wildfire threat conditions. CPAU is currently in process to add a weather station at Montebello Reservoir which should be in place before the 2020 fire season.
Cameras with night vision mode capability atop of electrical structures	Visual inspections can be enhanced through the use of cameras with high definition and night vision capabilities. This measure improves response times in addressing risk incidents and de-energization	CPAU has facilities within HFTD that would benefit from additional visibility into the regions with greatest threat of ignition or fire spread. This may also be helpful in remote areas of the foothills.	The CPAU WMP does not contain any plans for night vision cameras		Night vision cameras in remote areas of the foothills may improve visual inspections in remote and difficult to access areas of the foothills.

Identified Practice Strategy	Mitigation Rationale	Palo Alto Applicability	Plan Elements	Determination	
System Hardening / Design & Construction					
Replacing bare wires with covered conductors	Covered wire is a well-demonstrated prevention method to sparks / ignitions during severe weather conditions. Several utilities are employing pilot programs of covered wire replacement of distribution lines, prioritizing HFTD for implementation.	CPAU has an applicable overhead distribution line within the HFTD that would benefit from additional hardening such as covered wire replacement for existing, legacy bare wire.	CPAU states that they are evaluating current construction practices for overhead distribution lines in HFTD and will identify and implement new practices. Engineering plans are being developed to rebuild the distribution line feeding the foothills area.		CPAU should include evaluation of covered wire and other resiliency measures in its upcoming rebuild of the Foothills distribution line and its new construction standards for high fire threat areas (activities 1 & 2 of Appendix F).
New or planned electrical lines (distribution and transmission) that are designed to withstand working loads under the stress above design standards to address high wind speeds	As new capital infrastructure plans are developed, it would be prudent to consider resilient design standards that can withstand sustained winds and gusts that occur during Red Flag Warning periods.	New line construction standards are taken into consideration in accordance with GO95.	CPAU states that they are evaluating current construction practices for overhead distribution lines in HFTD and will identify and implement new practices. The new standards will be developed in late 2019 through late 2020.		While under consideration as part of the overhead line rebuild and new construction standards, and in the “Proposed Activities to Reduce Risk or Improve Response” section of the WMP, the Plan does not provide any concrete details related to implementing design standards for high wind pole loading within the HFTD. Consideration of line design standards for high wind speed working loads would be prudent for the Foothills line rebuild.

Identified Practice Strategy	Mitigation Rationale	Palo Alto Applicability	Plan Elements	Determination	
Steel or composite poles swapped out for wood poles, at minimum, within the HFTD or fireproofing wooden poles (fire resistant material coating)	When considering pole replacement strategies, when applicable, composite or steel poles can reduce the risk that wood poles present. At minimum, fire retardant material can be coated to temporarily enhance the ability to prevent fire spread or impact the stability of the structure under fire threat.	While pole remediation activities exist, such as additional clearing, coring to test structural integrity, and coating mechanisms, when new poles are considered for high fire severity zones, more resilient designs should be a consideration.	CPAU states that they are evaluating current construction practices for overhead distribution lines in HFTD and will identify and implement new practices. No actionable details are provided related to fire resistant or steel poles		The plan does not provide any concrete details related to implementing design standards for steel poles or fire-retardant poles within the HFTD, although such measures are discussed as items to be considered as part of the in the "Proposed Activities to Reduce Risk or Improve Response" section of the WMP. Consideration of more fire resilient pole design for the Foothills line rebuild would be prudent.

Identified Practice Strategy	Mitigation Rationale	Palo Alto Applicability	Plan Elements	Determination	
Pole loading assessment and remediation	Carry out programs that address pole loading issues and inspections that would result in remediation to infrastructure.	CPAU must comply with PRC 4292 for pole clearing activities for vegetation risk and should also maintain awareness of the decay and structural integrity of aged or impacted poles within the service territory. General Order 165 is considered a “best practice by many public owned utilities. GO 165 Section III A (5) defines "Intrusive" inspection as one involving movement of soil, taking samples for analysis, and/or using more sophisticated diagnostic tools beyond visual inspections or instrument reading. Table 1 defines the inspection standard.	CPAU has a wood pole inspection and treatment program of all wood poles in the City on a 10-year cycle. Poles are identified for replacement are done so on a priority basis depending upon the level of deterioration. However, the document does not specify the details of the pole inspection program within the HFTD foothills. CPAU has practices that maintain pole clearing activities for vegetation risk and perform visual inspections for decay and structural integrity.		CPAU complies with PRC 4292 for managing vegetation risk CPAU could consider adding an intrusive wood pole inspection program to align with best practices.

Identified Practice Strategy	Mitigation Rationale	Palo Alto Applicability	Plan Elements	Determination	
Expulsion fuse device change out to current-limiting (non-expulsive) fuses	Traditional fuses pose a fire risk due to the ignited material that can be expelled. Best practices for mitigating this risk is to change out these fuses with non-expulsive fuses A protective device coordination study achieves an optimum balance between equipment protection and selective isolation that is consistent with the operating requirements of power systems.	High fire threat areas would benefit from the replacement of traditional fuses with ones that minimize sparks and arcs Electrical systems use fuses and circuit breakers to protect electrical equipment. Equipment failures and other anomalies may cause a short circuit. Risks are reduced within High Fire Threat Areas when a short circuit impacts only that portion of the system where the failure occurs.	CPAU indicates that fuses used within the High Fire Threat Area are "non-expulsion" type No reference is provided regarding the installation and/or replacement with non-expulsive lightning arrestors CPAU indicated that protective device coordination studies have been performed. However, no standard is referenced indicating the conditions by which the studies are refreshed.		CPAU indicates the use of non-expulsion type fuses within the designated High Fire Threat area. If applicable, it would be prudent for the design of the Foothills distribution line replacement to include non-expulsion lightning arrestors.
Tree attachment removals	This practice involves the removal of electrical infrastructure fastened to trees for infrastructural support but can be a source of ignition. The removal of these legacy devices may reduce electrical spark risk.	CPAU does not have any tree attachments for which to consider	CPAU does not have any tree attachments for which to consider		This mitigation strategy does not apply to CPAU's existing equipment
Vegetation Management					

Identified Practice Strategy	Mitigation Rationale	Palo Alto Applicability	Plan Elements	Determination	
Routine vegetation inspections in accordance with: Public Resources Code (PRC) 4292 & 4393, FAC 003-4, General Order (GO) 95 Rule 35 and Appendix E, and ANSI A300	State and federal compliance for vegetation management and inspection, as well as California Public Utilities Commission GO 95, which is accepted as industry standard amongst all utilities. (Community and investor owned).	PRC sections 4293 and 4293; FAC 003-4; GO 95 is required by the CPUC for investor owned utilities. As a publicly owned utility, CPAU meets the standards of PRC sections 4292, 4293 and the GO 95 Appendix E guidelines	Urban Forestry maintains nearly 66,000 trees within Palo Alto's urban and rural areas. The 2016 Foothills Fire Management Plan provides details on fire hazard assessment, regional evacuation routes, and wildland fire recommendations and mitigations. CPAU indicates meeting or exceeding the required vegetation management standards.		CPAU meets or exceeds the requirements for routine vegetation inspections and deploys industry best practices..
LiDAR Technology for vegetation management inspections	Where foot patrols or normal helicopter patrols are insufficient to evaluate the right-of-way (ROW) clearance, utilities use LiDAR technology to identify trees along the ROW border that can potentially contact with lines during high wind events.	LiDAR is demonstrated as an effective tool for transmission level inspection of dense vegetation within the corridor and adjacent to the easement area.	The foot patrols performed by CPAU are adequate for inspection of their distribution facilities. CPAU does not have transmission facilities		The foot patrols performed by CPAU are adequate for inspection of their distribution facilities

Identified Practice Strategy	Mitigation Rationale	Palo Alto Applicability	Plan Elements	Determination	
Hazardous tree/vegetation identification and removal protocols and programs	Recording and tagging trees that pose risks to adjacent electrical equipment or are dead/dying are considered prudent efforts for vegetation management practices	Within the foothills high fire risk area, danger trees could pose a greater potential to catch on fire or contribute to fire spread. Addressing, though identification and surveying, as well as implementing remediation activities will result in further wildfire risk reduction	Urban Forestry performs an evaluation of every tree that has the potential to strike an overhead facility if it were to fall. In severe cases, Urban Forestry will work with a land owner to remove a tree.		CPAU routinely identifies trees and removes them if they have potential of falling into lines.
Off-Cycle / Call-in vegetation removal or corrective work, especially during the fire season	Off-cycle practices of vegetation inspection and management	Within CPAU's service territory and particularly within the Foothills high fire risk area, impact trees could pose a greater potential to catch on fire or contribute to fire spread. Addressing, though identification and surveying, as well as implementing remediation activities will result in further wildfire risk reduction	Within the HFTD area, Urban Forestry performs an evaluation of every tree that has the potential to have branches strike, or the entire tree to fall into overhead facilities. Urban Forestry performs more frequent and detailed inspections of any of these trees and in severe cases, will work with the land owner to remove the tree.		CPAU performs increased evaluation of and management of vegetation within the HFTD. This is in line with industry practices
Emergency Response & Recovery					

Identified Practice Strategy	Mitigation Rationale	Palo Alto Applicability	Plan Elements	Determination	
Notify critical facilities and public safety partners, which may include first responders, incident origin law enforcement, acute health care facilities, essential service providers, related governing local and state agencies, adjacent jurisdictions, vulnerable populations, and the Independent System Operator (ISO) (for transmission level de-energization).	Following a sequence of events in contacting public safety partners and impacted community facilities will enable quicker response in reacting to an emergency event (such as a wildfire or de-energization). Utilities should describe their processes to notify critical facilities as it applies to their service territory and impacted communities as well as grid operators.	Notification practices targeting key stakeholders are crucial during emergency events such as storms and wildfires.	CPAU communications staff is working with the Office of Emergency Services (OES) to ensure stakeholders are notified of any impending Utility activities that will impact service in the foothills. CPAU uses their own communications channel to coordinate deenergization and restoration efforts with PG&E and AT&T but no details are provided. Critical care facilities (hospital, nursing homes, fire stations) on the distribution circuit feeding the Foothills are identified. CPAU will notify any critical care customers. No specific procedures for wildfire communications or a specific wildfires emergency action plan can be found on the City Emergency Operations Plan website.		The notification process to critical facilities and public safety partners is articulated in the WMP but could be expanded in detail once the PSPS procedures are established and adopted. It is recommended that the CPAU work with the EOC to establish response on communications protocols specific to the wildfires program that engages the whole community.

Identified Practice Strategy	Mitigation Rationale	Palo Alto Applicability	Plan Elements	Determination	
Incident Command Team / Emergency Operations frameworks in the event a de-energization event or wildfire incident occurs	Using the State Emergency Management System (SEMS) framework, which is determined on the Federal Emergency Management Agency (FEMA) structure for incident command protocols will ensure prepared and adequately trained staff to respond in effective communication manners as well as respond to risk events in a sequence of effective procedures	CPAU leverages the SEMS framework in designing emergency response protocols. A designated team or group of individuals should have the ability to relay information and make informed decisions during emergency response events.	As mandated by both SEMS and NIMS, the City utilizes the Incident Command System (ICS) to manage response activities in the field. The City of Palo Alto has an Emergency Operations Center is a single facility that, when activated, can support, communicate, coordinate, prioritize, document, guide policy, and manage information and resources. In addition to the EOC they have a MEOC support vehicle for Incident Command logistics support, Mobile Emergency Operations Center for Incident Command Post and 9-1-1 backup and Emergency Director's Command Vehicle, Utility Terrain Vehicle and 100% solar Mobile Department Operations Center. CPAU has the authority to shut off power due to fire threat conditions but this option will only be used in extraordinary circumstances. CPAU has developed a draft policy and protocol on identification of the fire threat condition that will dictate deenergization execution of PSPS, communication, and restoration.		The City of Palo Alto Office of Emergency Services has implemented the Incident Command structure and frameworks to enable a comprehensive, all hazard, risk-based emergency management An emergency management framework or emergency action plan specific to a deenergization event is in draft but is not yet complete. CPAU plans to finalize its PSPS policy and procedures in January 2020.

Identified Practice Strategy	Mitigation Rationale	Palo Alto Applicability	Plan Elements	Determination	
Coordination with stakeholder agencies/entities with routine meetings to discuss emergency preparedness needs and areas of improvement, etc.	Communicating with vested stakeholders during wildfire mitigation activities, PSPS events, and general strategy development will help drive efforts to better align with the risk profile of the utility's service and asset territory. These efforts should occur throughout the year and wildfire mitigation plan planning process	The City of Palo Alto works closely with the EOC and other City departments to assure effective communications and coordination	An on-going relationship has been established with the Santa Clara County Fire Safety Council (SCFSC). The City developed a 5-year stewardship agreement with the SCFSC to help implement the FFMP/CWPP. The SCFSC coordinates with CAL FIRE to reduce fuels in critical public areas and provides community outreach and education programs. The development and implementation of the FFMP involves and requires support from the Fire Department, Public Works Department, OES, Community Services, and CPUA. The group meets at least quarterly to strategize effective actions. A Community Emergency Response Team (CERT) program trains community members in basic disaster response skills such as small fire suppression, light search and rescue, and disaster medical operations. Using training from the classroom and exercises, CERT members can assist others in their neighborhood or workplace following an event when professional responders are not immediately available to help.		The City of Palo Alto and CPAU meet the best practice benchmark through the coordination efforts of the FFMP. The efforts could be extended to develop an emergency management plan specific to wildfire emergencies

Identified Practice Strategy	Mitigation Rationale	Palo Alto Applicability	Plan Elements	Determination	
De-Energization & Recloser Operations					
Disabling reclosers through blocking reclosing operations (distribution level) in the HFTD during the fire season and/or during Red Flag Warnings issued by the National Weather Service (or as fire risk potential designates)	Disabling reclosing reduces the number of potential ignition events during a fault condition	Reclosing operations should be defined within the Plan as per statute. Operational best practices align with having settings that align with fire potential weather conditions to prevent potential ignition	CPAU has adopted a practice of permanently disabling automatic reclosing on the two distribution line reclosers in the foothills area and on the circuit breaker at the substation. Both the reclosers are connected to ESC system for status and remote disconnection. Before the recloser is manually/remotely closed, CPAU staff will patrol the lines to identify the cause, repair the lines as needed, or ensure that the cause of the outage is no longer present		CPAU provides a protocol for line and substation recloser operations within the designated HFTD. CPAU has permanently disabled automatic reclosing on two line reclosers and one substation breaker.

Identified Practice Strategy	Mitigation Rationale	Palo Alto Applicability	Plan Elements	Determination	
Internal Operations and Inspection Practices					
Ground patrol as well as aerial inspection practices	Routine ground patrols are implicit practices in equipment and vegetation inspection protocols. Increasing the frequency, especially in the HFTD, presents as effective preventative measures and ensures the integrity of electrical equipment. Aerial inspections, by way of helicopters, will lead to greater coverage of the service territory and areas adjacent to required clearances	Ground patrols are a required strategy in ensuring safe and reliable delivery of electricity. When access concerns arise, aerial inspections provide better coverage in surveying and inspecting electrical equipment throughout the utility service territory	CPAU performs annual visual inspections of all overhead facilities within the HFTD. Inspections are completed prior to the historic fire season, typically June 1. Drought and other relevant conditions are monitored to determine if inspections should be completed in a shorter time frame. CPAU indicates the desire to seek the capability to use drones to inspect utility lines and vegetation. This is needed due to the inaccessibility of some portions of overhead lines.		CPAU performs annual visual inspections within the HTFD foothills. They are seeking to implement a drone inspection program if such technology is effective and within acceptable costs.
Wildfire Infrastructure Protection Teams	An internal team to help coordinate efforts to ensure the Plan is being followed as well as coordinating efforts to enhance the Plan's strategies and quality check that activities are being performed and tracked aligning with the Plan	An internal team to prepare and protect physical aspects of the electric system as well as ensure effective mitigation measures are carried out would be a prudent activity to pursue	CPAU works with other departments of the City to mitigate the threat of wildfires. Other cities departments are responsible for forestry, fire, rescue, emergency services and open spaces and parks. The City of Palo Alto Foothills Fire Management Plan addresses a broad range of integrated activities and captures the plans, accomplishments and costs related to fire hazard assessment, evacuation routes and fire hazard mitigation		As CPAU further develops its Wildfire Mitigation Plan, development of Wildfire Infrastructure Protection Teams should be considered.

Identified Practice Strategy	Mitigation Rationale	Palo Alto Applicability	Plan Elements	Determination	
Infrared corona scanning and high definition imagery technology for inspection practices along with visual inspections	Infrared and ultraviolet (Corona) light cameras are typically mounted to helicopters with special attention to splices, conductor connection/attachment points, and insulators for a detailed visual of electrical equipment	Infrared is an accepted practice that enables better awareness of the utility's equipment	CPAU uses infrared scanning of our facilities to detect problems before they reach the point of failure		The use of infrared scanning is appropriate for the nature of the CPAU distribution system.

5. RESULTS & DISCUSSION

Navigant concluded this assessment on November 22, 2019. Over the course of reviewing CPAU's WMP and supporting documentation, Navigant captured takeaways and findings that align the Plan with state laws and effective wildfire measure demonstration. CPAU's Plan appropriately responds to each of the required elements of PUC Section 8387, which is detailed in Appendix A. The following describes the assessment and resulting findings of the Plan's proposed and established mitigation measures as it applies to safe, reliable operation of all electric infrastructure and wildfire prevention and response.

Report Conclusions

After internal review of the latest version of the WMP and associated data collection products, Navigant concludes this Report with the following:

1. CPAU's WMP aligns appropriately with PUC Section 8387 and includes all required elements.[8]

2. CPAU's Plan is determined to be comprehensive as described throughout this Report.

[8] Following acceptance of this Report, CPAU will post the Report and results online for public view. The Report is scheduled for presentation to the City Council at a public meeting in December 2019. Accomplishing these follow-up tasks will meet all required statutory provisions up until presenting the final WMP to the City Council.

APPENDIX A. STATUTORY COMPLIANCE MATRIX

Required Statutory Element	Plan Section Reference(s)	CPAU Plan Elements *(Summarized)*	Meets Section Elements *(Determination)*
(a) Each local publicly owned electric utility and electrical cooperative shall construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of wildfire posed by those electrical lines and equipment.			
(b) (1) The local publicly owned electric utility or electrical cooperative shall, before January 1, 2020, prepare a wildfire mitigation plan. After January 1, 2020, a local publicly owned electric utility or electrical cooperative shall prepare a wildfire mitigation plan annually and shall submit the plan to the California Wildfire Safety Advisory Board on or before July 1 of that calendar year. Each local publicly owned electric utility and electrical cooperative shall update its plan annually and submit the update to the California Wildfire Safety Advisory Board by July 1 of each year. At least once every three years, the submission shall be a comprehensive revision of the plan.			
(2) The wildfire mitigation plan shall consider as necessary, at minimum, all of the following:			

(A) An accounting of the responsibilities of persons responsible for executing the plan.	Roles and Responsibilities – City of Palo Alto, Departments, pp. 7-9, Appendix D, and throughout	For each ongoing and proposed activity to mitigate wildfires in CPAU territory, the utility has identified the responsible staff that is managing and implementing the activity as well as the City Departments that it will coordinate with and the CPAU designee responsible for the overall execution and monitoring of the WMP. Appendix D to the WMP also includes an organization chart with each staff member's areas of responsibility related to wildfire mitigation. The chart also references the City's Incident Command Structure and identifies the areas of responsibility in the event of a PSPS.	Yes
(B) The objectives of the wildfire mitigation plan.	Objectives, p. 5	CPAU's WMP includes as a primary objective minimizing the probability that its system is a source of or contributor to ignition. The secondary goal of assessing industry practices to improve system resilience, reduce disruptions, and improve restoration times is also a valid objective. CPAU presents the final objective for minimizing unnecessary or ineffective action, but also considers revisions to existing actions or adding additional actions based on an ongoing assessment of risks and an evaluation of the effectiveness of the WMP. Other items that CPAU may want to include in the Objectives section: Reference or include the Public Utilities Code section 8387 (addressed on p. 10) and mitigation efforts for the Foothills High Fire Threat Area; Considerations for public health and safety; Safe operation of the electrical system under high wildfire risk conditions.	Yes
(C) A description of the preventive strategies and programs to be adopted by the local publicly owned electric utility or electrical cooperative to minimize the risk of its electrical lines and equipment causing catastrophic wildfires, including consideration of	Compliance, Proposed Activities to Reduce Risk or Improve Response pp. 9 -18, Appendix F	CPAU lists "COMPLETED TASKS", "ONGOING FIRE PREVENTION ACTIVITIES" and "PROPOSED ACTIVITIES TO REDUCE RISK OR IMPROVE RESPONSE" on Pages 9-18. The activities address several strategies and includes the information used to inform a decision to manually deenergize the system. Additionally, Appendix F lists several proposed activities to reduce	Yes

dynamic climate change risks.		CPAU's risk of igniting wildfires and their current status for taking on such tasks. CPAU addresses existing orders, codes and criteria which it meets. In future iterations, CPAU may consider assessing the effectiveness of existing regulations and criteria and identify any gaps between existing regulation and the identified actions in this WMP. CPAU should identify gaps as risks and address those gaps with a preventative strategy or additional protocols. Though Page 3 lists climate change as a Wildfire Risk Factor, there is no further mention of programs or strategies that will be used to consider dynamic climate change risk. CPAU may consider additional detail regarding its assessment and any projections of potential, future conditions due to dynamic climate change, including droughts, potential global or continental climate effect, or insect infestations in trees and the resultant increase in dead or weakened trees. Projections should be placed in the context of the Foothills Area of CPAU's service area being a High Fire Threat Area. Though unlikely, if none of these conditions impact CPAU's service territory, that can be stated as the result of an assessment.	
(D) A description of the metrics the local publicly owned electric utility or electrical cooperative plans to use to evaluate the wildfire mitigation plan's performance and the assumptions that underlie the use of those metrics.	**Mitigation Plan Review and Assessment Process pp. 21-22**	CPAU identifies that it monitors two metrics to evaluate the WMP's performance: a count of OUTAGES ON THE OVERHEAD SYSTEM IN THE HFTD and FIRE IGNITIONS. These metrics are defined further in the WMP, though Navigant suggests the WMP elaborate on the assumptions that underlie the metrics. CPAU may consider adding language that describes how it plans to use these metrics to evaluate the assumptions that underlie the use of those metrics, as the metrics will become the "previously identified metrics" used in the review of subsequent mitigation plans (see Part E, below).	**Yes**
(E) A discussion of how the application of previously identified metrics to previous wildfire mitigation plan performances has	**Mitigation Plan Review and Assessment Process pp. 21-22**	It is typical for a first-year plan to be void of the impact of previous metrics. However, CPAU's WMP notes CPAU has tracked outages and identified mitigation strategies based on an analysis of these outages. Going forward, outages in High	**Yes**

informed the wildfire mitigation plan.		Fire Threat Areas will also be evaluated to determine the effectiveness of the WMP and to modify it as appropriate.	
(F) Protocols for disabling reclosers and deenergizing portions of the electrical distribution system that consider the associated impacts on public safety, as well as protocols related to mitigating the public safety impacts of those protocols, including impacts on critical first responders and on health and communication infrastructure.	**Electric System Design/ Operation, pp. 13-15, Appendix F, Appendix G, also Appendix D**	CPAU disabled automatic reclosing capability for its two reclosers and one circuit-breaker in the Tier 2 high fire threat area. The WMP prescribes a patrol of the lines to identify the cause and ensure the cause of the outage is no longer present prior to re-energizing. Fuses are "non-expulsion"-type across the CPAU system as described in Electric System Design/Operation. CPAU recognizes de-energizing all or a portion of its system may be necessary, though the protocols for manual de-energization are in draft. CPAU has included the draft Deenergization policy and process in Appendix G of the WMP with identified individuals or groups holding decision authority by title (or titles) to address the decision-making process. The Plan also states that it is working with OES to develop a communication protocol to ensure stakeholders, customers/residents, and critical first responders are notified. While this process does describe at a high level how the utility intends to communicate with the community through the City Manager's Office, Office of Emergency Services, Police, Fire, 911 Dispatch, WGW Operations, Utilities Customer Service, and Utilities Communications, CPAU may want to consider more clearly defining how these communications will be provided and who within those organizations will be responsible for communicating with the community.	**Yes**

(G) Appropriate and feasible procedures for notifying a customer who may be impacted by the deenergizing of electrical lines. The procedures shall consider the need to notify, as a priority, critical first responders, health care facilities, and operators of telecommunications infrastructure.	**Deenergization, OES pp. 14, 18, 19, Appendix D, Appendix G**	The notification to customers is referenced in the statement "OES has procedures for communication with residents during emergencies". CPAU should consider including or summarizing the protocols for communications to customers, as well as prioritization of and communication with critical first responders, health care facilities and operators of telecommunications infrastructure, as required in paragraph G. CPAU communication protocols may include but should not depend upon notifications made by outside agencies or departments with whom CPAU is coordinating.	**Yes**
(H) Plans for vegetation management.	**Vegetation Management, Urban Forestry pp. 11, 16-17**	Details of tree trimming activities are adequate and include minimum distances and frequency of vegetation work, as well the additional inspection activities for High Fire Threat Areas. The WMP also references the Foothills Fire Management Plan – 2016 Update. CPAU may consider performing a review of the 2016 Management Plan to determine if updates are needed. If none, the WMP may state that the review determined the 2016 Management Plan remains viable based on an assessment.	**Yes**
(I) Plans for inspections of the local publicly owned electric utility's or electrical cooperative's electrical infrastructure.	**Electric System Inspection & Electric System Maintenance, p. 12**	The Electric System Inspections section describes inspections of electrical equipment as meeting or exceeding minimum inspection requirements provided in CPUC GOs, and generally discusses more frequent inspections in High Fire Threat areas. CPAU is considering including additional specific measures that might be taken pursuant to the GO or WMP that are above and beyond the GO as might be required to address risks specific to the High Fire Threat District.	**Yes**
(J) A list that identifies, describes, and prioritizes all wildfire risks, and drivers for those risks, throughout the local publicly owned electric utility's or electrical cooperative's service	**Wildfire Risk Factors, pp. 3-4, 10**	The WMP lists Wildfire Risk Factors and references risk throughout, though the WMP does not clearly delineate between risks and the associated risk drivers, other than in the list of Wildfire Risk Factors. CPAU will conduct a more thorough risk assessment in 2020 and is proposing	**Yes**

territory. The list shall include, but not be limited to, both of the following:		several additional measures to address and reduce risk throughout the WMP and the Appendices.	
(i) Risks and risk drivers associated with design, construction, operation, and maintenance of the local publicly owned electric utility's or electrical cooperative's equipment and facilities.	**Wildfire Risk Factors, pp. 3-4, 10**	The WMP lists Wildfire Risk Factors and references risk throughout, though the WMP does not clearly delineate between risks and the associated risk drivers, other than in the list of Wildfire Risk Factors. CPAU will conduct a more thorough risk assessment in 2020 and is proposing several additional measures to address and reduce risk throughout the WMP and the Appendices.	**Yes**
(ii) Particular risks and risk drivers associated with topographic and climatological risk factors throughout the different parts of the local publicly owned electric utility's or electrical cooperative's service territory.	**Wildfire Risk Factors, pp. 3-4**	The "Wildfire Risk Factors" section of the Plan describes CPAU's topography, geography, and system attributes as well as the impact of climate change and the associated risk. Additionally, the WMP identifies notes its system is largely a urban system with a limited area that traverses "open space" hilly or mountainous terrain, some of which is plagued by the "inaccessibility of some portions of the overhead lines.". CPAU will conduct a more thorough risk assessment in 2020 and is proposing several additional measures to address and reduce risk throughout the WMP and the Appendices. The risks posed by urban development, open spaces and inaccessibility should be identified along with the drivers of those risks and future projections in the future risk assessment.	**Yes**
(K) Identification of any geographic area in the local publicly owned electric utility's or electrical cooperative's service territory that is a higher wildfire threat than is identified in a commission fire threat map, and identification of where the commission should expand a high fire-threat district based on new information or changes to the environment.	**Wildfire Risk Factors, pp. 3-4, High Fire Threat Area Identification, p. 10, Appendix B, Appendix C**	The WMP adequately identifies the High Fire Threat Areas in Palo Alto. The threat map is included in the WMP.	**Yes**

(L) A methodology for identifying and presenting enterprise wide safety risk and wildfire-related risk.	**Compliance, Objectives, Roles and Responsibilities pp. 4-5, 7-9**	The Compliance and Objectives sections of the WMP generally describes a high-level mitigation strategy and identifies the goals of the WMP, though these sections may not constitute a "methodology". Further, the Roles and Responsibilities section identifies OES for communicating information externally. However, the WMP does not contain any description of how identified safety and wildfire-related risk is communicated or presented internally, across the CPAU enterprise. CPAU included information that CPAU previously (2011) hired a consultant to perform a Hazard Risk Assessment to assess natural and man-made internal hazard risks associated with all of CPAU's utility infrastructure (across all delivery streams). This assessment supports the enterprise-wide risk requirement. CPAU also notes in item 10 of Appendix F that it plans to conduct a risk assessment of wildfire in the foothills which is projected to be completed in July of 2020. This risk assessment should include a discussion of how enterprise-wide safety and wildfire related risks identified in this WMP and realized in real-time are presented and communicated across CPAU. This is in addition to external communications and notifications provided for coordination with other agencies.	**Yes**
(M) A statement of how the local publicly owned electric utility or electrical cooperative will restore service after a wildfire.	**Proposed Activities to Reduce Risk or Improve Response p. 15, Appendix G**	CPAU's statement that current practices and procedures for restoring service following wildfire are being assessed may not be sufficient. CPAU should consider specifically identifying a process, procedure, or protocols use to restored service following a wildfire. Also, though identifying process improvements or equipment replacements that might improve restoration time is an element of the WMP, this section of the WMP should be dedicated to the real-time restoration of service after a wildfire. The WMP adequately describes that activities to restore power will be coordinated with FIRE and would not occur until deemed safe by FIRE. Further, prior to restoring power, the WMP prescribes a complete visual inspection of the overhead electric lines by Utilities staff. Any CPAU system restoration effort should be based on a documented restoration plan, or switching procedures	**Yes**

		used to restore power, in any event. The WMP should reference existing restoration procedures and provide additional detail regarding any additional steps, actions, communications or decision-making in the restoration following a wildfire. For completeness, CPAU may also consider including the method(s) used to direct the visual assessment of facilities, how results are reported back, and the decision responsibility to move on, or not, with the restoration process based on those reports. CPAU may also consider referencing its coordination with other entities, such as would be required for any restoration effort or Emergency. Navigant suggests the WMP identify the NERC Transmission Operator and briefly describe the Transmission Operator's role and authority during system restoration and system Emergencies.	
(N) A description of the processes and procedures the local publicly owned electric utility or electrical cooperative shall use to do all of the following:			
(i) Monitor and audit the implementation of the wildfire mitigation plan.	**Compliance, Revision and Improvement Implementation Process, MITIGATION PLAN REVIEW AND ASSESSMENT PROCESS, Auditing pp. 4, 21-22, Appendix F**	CPAU identifies that it monitors two metrics to audit the implementation of the WMP: FIRE IGNITIONS and WIRES DOWN. CPAU also monitors tree permits, drought conditions, fire threats, and daily, emergent threats and hazards in the context of the WMP. The parties responsible for tracking each of these activities is noted in the WMP. CPAU may consider adding sources of information that feed the metrics. This may include a listing of notifications or alerts, vegetation inspection reports, equipment inspection reports, near misses or other tangible data that may increase visibility into the effectiveness of the WMP.	**Yes**
(ii) Identify any deficiencies in the wildfire mitigation plan or its implementation, and correct those deficiencies.	**Compliance, Revision and Improvement Implementation Process,**	The Audit section of the WMP could be expanded to summarize the plan monitoring and audit process, and include: The continual monitoring of the WMP and the effectiveness of its implementation;	**Yes**

	MITIGATION PLAN REVIEW AND ASSESSMENT PROCESS, Auditing pp. 4, 21-22, Appendix F	the WMP review schedule and process (annually, led by [dept.]); the process for correcting deficiencies in the WMP; the WMP should describe the process for developing a Corrective Action Plan, tracking implementation, and assessing the effectiveness of a change.	
(iii) Monitor and audit the effectiveness of electrical line and equipment inspections, including inspections performed by contractors, that are carried out under the plan, other applicable statutes, or commission rules.	**Compliance, Revision and Improvement Implementation Process, MITIGATION PLAN REVIEW AND ASSESSMENT PROCESS, Auditing pp. 4, 21-22, Appendix F**	The Review and Assessment Process section of the WMP states that each Department/personnel noted in the WMP is responsible for completing their assigned WMP activities and identifying and proposing changes to the WMP based on each activity's effectiveness. The WMP also states the person responsible for tracking the status of these activities will meet twice a year to monitor progress and identify mitigation actions. This section could be expanded to better summarize the plan's monitoring and audit process, and include verification of the documentation associated with equipment inspections, vegetation inspections, and regulatory reporting associated with CPUC GOs, Public Resources Codes, and other applicable statutes.	**Yes**
(3) The local publicly owned electric utility or electrical cooperative shall, on or before January 1, 2020, and not less than annually thereafter, present its wildfire mitigation plan in an appropriately noticed public meeting. The local publicly owned electric utility or electrical cooperative shall accept comments on its wildfire mitigation plan from the public, other local and state agencies, and interested parties, and shall verify that the wildfire mitigation plan complies with all applicable rules, regulations, and standards, as appropriate.		CPAU will present its WMP to the Board at a public meeting in December 2019.	**Yes**

(c) The local publicly owned electric utility or electrical cooperative shall contract with a qualified independent evaluator with experience in assessing the safe operation of electrical infrastructure to review and assess the comprehensiveness of its wildfire mitigation plan. The independent evaluator shall issue a report that shall be made available on the internet website of the local publicly owned electric utility or electrical cooperative, and shall present the report at a public meeting of the local publicly owned electric utility's or electrical cooperative's governing board.		CPAU contracted with Navigant Consulting, Inc. to perform an independent evaluation of its WMP. Qualifications are described in Section 1.	**Yes**