

Recommendations for Addressing Equity in Hazard Mitigation Planning



Background Report for the San Mateo County Multijurisdictional Local Hazard Mitigation Plan 2021 Update



This report was prepared by the San Mateo County Office of Sustainability, Planning and Building, and the County Manager’s Office with support of the MJLHMP Core Planning Team.

Recommendations for Addressing Equity in Hazard Mitigation Planning

San Mateo County Multijurisdictional Local Hazard Mitigation Plan (MJLHMP) 2021 Update

Purpose Statement

San Mateo County is in the process of updating the 2016 Local Hazard Mitigation Plan, which is a regional and cross-jurisdictional effort to plan for the reduction of risk from natural and man-made disasters. Hazard mitigation planning seeks to protect life and property, prevent harm to communities and strengthen infrastructure so it can withstand hazards and climate impacts. The more effectively we plan to mitigate hazards now, the more we reduce impacts on our communities as well as our response and recovery time, increasing our resilience. Socially vulnerable communities are hit hardest during disasters and need the most support to recover (Jerolleman 2019). San Mateo County also faces new hazards, as the impacts of climate change place an increasing number of communities at risk and multi-hazard situations are further complicated by the COVID pandemic, requiring new strategies. The Federal Emergency Management Agency (FEMA) is increasingly encouraging jurisdictions to think through inequities in their areas and to support vulnerable communities through more equitable hazard mitigation planning guidance ([FEMA 2020](#)).

This report supports the County and Annex Partners by offering tools, actionable examples, and an overview of when and how to incorporate equity considerations throughout the process of updating the County's Multijurisdictional Local Hazard Mitigation Plan (MJLHMP) to better address risks to vulnerable populations. Furthermore, this report provides a roadmap to implement the MJLHMP's equity and community engagement principles, goals and objectives.

PART 1: Equity in the Context of Hazard Mitigation

There are many approaches to defining and evaluating equity, but at its core, equity is about everyone getting what we need to survive and thrive. According to the [World Health Organization](#) (WHO), *equity* is the absence of avoidable or remediable differences among groups of people, whether those groups are defined socially, economically, demographically, or geographically. It is also a process of addressing historic and current inequities to strive for greater equality. There is an extensive field of practice related to equity and planning processes, climate equity and disaster equity. There are increasing efforts focused on Hazard Mitigation and equity including efforts from [The Natural Hazards Center](#) at University of Colorado at Boulder, National Association for the Advancement of Colored People ([NAACP](#)), and the [Institute for Diversity and Inclusion in Emergency Management](#).

The Bay Area Climate Adaptation Network (BayCAN) Equity Working Group's [Equitable Adaptation Guide](#) (Salz et al. 2020) states that "*Equity* ensures fair outcomes, treatment, and opportunities for all people, ensuring everyone gets what they need to enjoy full, healthy lives. It is the process of reducing disparities that are systematically associated with social advantage/disadvantage." The first step to integrate equity into hazard mitigation is recognizing that disparities in health outcomes, inequities in living conditions, and lack of political power place many low income communities, people of color, people with disabilities, pregnant women, and historically disadvantaged people, among others, at greater risk of hazards and limits their capacity to adapt, respond and recover.



[FEMA's Guide to Expanding Mitigation](#) highlights how local governments can partner with communities to strive for equity in hazard mitigation, including the planning and project development process. The guide recommends taking a "Whole Community" approach and involving historically underserved populations in the planning and decision-making processes, and also recommends the inclusion of those with access and functional needs, businesses, faith-based and community organizations, nonprofit groups, schools, academia, media outlets, and all levels of government, including state, local, tribal, territorial, and federal partners that have a shared responsibility in emergency preparedness and mitigation.

When incorporating equity and inclusion approaches it is optimal to work with leaders of the groups that you are seeking to better include. Particularly with a highly structured planning process like the MJLHMP it is important to communicate that your jurisdiction is seeking to *increase* inclusion or *incorporate more* equitable approaches. Equity and inclusion can mean different things to communities and government entities, so it is important both to implement the most inclusive practices possible in your situation while not overpromising and disappointing your partners.

What is Social Vulnerability?

FEMA's National Risk Index defines *social vulnerability* as the susceptibility of social groups to the adverse impacts of hazards, including disproportionate death, injury, loss, or disruption of livelihood. In addition, FEMA's Guide to Expanding Mitigation adds that social vulnerability can influence an individual's or group's ability to prepare, respond, cope, or recover from an event.

They note that heightened vulnerability may be compounded by deficiencies in infrastructure and conclude that "While not predictive, understanding where populations have increased vulnerability and exposure to natural hazards can help emergency managers take actions to lessen impacts to these communities before an event or distribute needed recovery dollars after an event."

More locally, [Climate Ready SMC](#) defines *socially vulnerable communities* as "Populations with increased vulnerability to climate impacts due to existing inequities. Examples include people whose disabilities are not accommodated, people who live in more polluted neighborhoods and people whose race, religion or sexual orientation is targeted for discrimination."

San Mateo County Coastline



1.2 Understanding Social Vulnerability in Your Jurisdiction

Each jurisdiction (county, city or special district) either has or serves socially vulnerable populations. FEMA recognizes that the following populations may be disproportionately impacted by disasters:

- Underserved communities with a low socioeconomic status
- People of color
- Tribal and first nation communities
- Women
- Members of the LGBTQ+ community
- Individuals experiencing homelessness or displacement
- Rural communities
- Elderly and youth
- People with limited English proficiency
- Service workers and migrant laborers
- People with limited cognitive or physical abilities
- Institutionalized populations (in prisons and nursing homes)
- Renters

Social vulnerability exists in every part of San Mateo County, even in our most affluent and relatively homogenous communities. Below are some examples of how a member of a socially vulnerable group may face barriers, increased risks and unique challenges from hazards and disasters:



Examples of how social vulnerability increases risks from hazards

- Undocumented immigrants may not feel safe accessing shelters or relief, as was the case during the North Bay Fires. Transgender people may be refused shelter appropriate to their gender.
- Communities of color and/or transgender people may not feel safe seeking help from police.
- Members of the Muslim and/or Jewish community who follow strict prayer and dietary practices may not feel comfortable accessing shelters or emergency food supplies.
- Indigenous community members may feel that culturally essential areas or resources are not being prioritized for mitigation.
- Low-income people may not be able to afford air filtration devices, generators, air conditioners, or to replace spoiled food resulting from power outages.
- Informal workforce and outdoor workers may not be included if sheltering in place is necessary while they are working at an employer's work place or home.

Disruption of access to basic needs

- Transit dependent populations will need assistance to evacuate rapidly.
- Community members who depend on food from formal and informal food banks may not be able to access adequate food if a disaster or hazard disrupts food distribution.
- Community members may be unable to access their go to resources such as their faith community and community organizations with cultural, linguistic and accessibility competencies.

1.3 Sources of Social Vulnerability Data in San Mateo County and Nationwide

The [Community Vulnerability Index \(CVI\)](#) is an initiative of the County Manager's Office which aims to demonstrate the geographical distribution of the overall vulnerability of the residents of the county based on census tract level data (2010-2016) from United States Census Bureau's American Community. Indicators include:

- No Health Insurance Coverage
- Education – High School or Higher
- Supplemental Security Income
- Gross Rent as a Percentage of Income – Households Spending 35% or More
- Poverty
- Unemployment
- Disability



CREDIT: HALF MOON BAY REVIEW

Figure 1. List of helpful data mapping tools and resources related to social vulnerability:

CDC Social Vulnerability Index:

CDC Social Vulnerability Index (CDC SVI) uses 15 U.S. census variables to help local officials identify communities that may need support before, during, or after disasters. The census variables includes factors such as poverty, lack of vehicle access, and crowded housing. <https://www.atsfdr.cdc.gov/placeandhealth/svi/index.html>

Get Healthy San Mateo County:

<http://www.gethealthysmc.org/data>

California Healthy Places Index:

<https://healthyplacesindex.org/>

CCHVIz:

The Climate Change & Health Vulnerability Indicators for California provides tools to better understand people and places that are more susceptible to adverse health impacts associated with climate change, specifically extreme heat, wildfire, sea level rise, drought, and poor air quality.

CalEnviroScreen 3.0

A screening tool that identifies communities most affected by and vulnerable to the effects of sources of pollution & population-based disparities. Aggregates state-wide environmental, health, and socioeconomic information to produce scores for every census tract in the state. When overlaid with climate impact and hazards exposure data, can provide insight into built and environmental exposure factors that contribute to vulnerability.

San Mateo County Climate Ready Viewer:

<https://gis.smcgov.org/apps/climateready/>

APEN Mapping Resilience Report

The report contains a grid comparing 40 mapping frameworks and their indicators on pages 58 and 59.

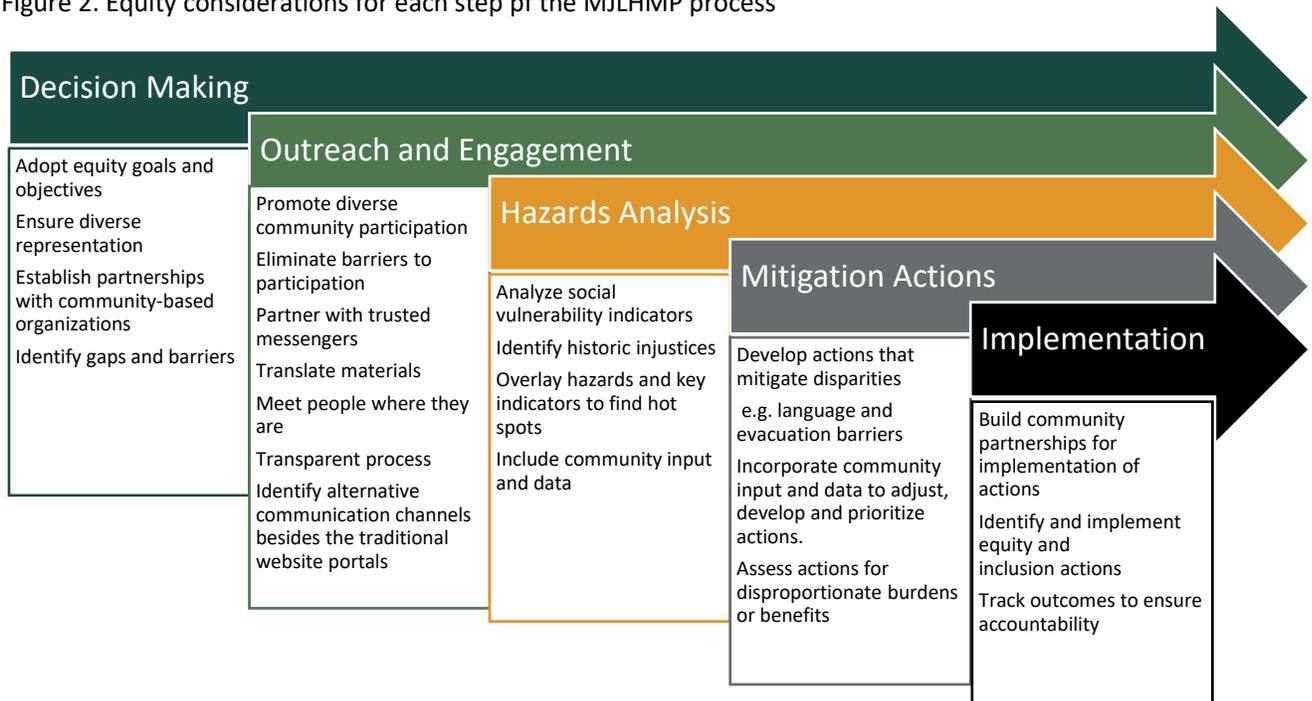


TIP: Look for data at the block group level to see more detailed local nuances such as this [SMC Community Affairs Census Map](#).

1.4 Framework to Integrate Equity into the MJLHMP Process

While San Mateo County does not yet have a comprehensive equity framework, the County has incorporated equity into the [SMC Recovery Initiative](#), the County’s response to COVID-19. In many ways, hazard mitigation strives to prevent impacts that response and recovery efforts address so much of the recovery framework is applicable to LHMP planning. The following framework was adapted from the Recovery Initiative for the use of planning partners to incorporate equity into the MJLHMP process.

Figure 2. Equity considerations for each step pf the MJLHMP process



Using an equity lens is new for most of us. It can be difficult to identify ways to operationalize equity in to a structured public planning process. The following grid provides detailed examples of equity considerations and recommended actions tailored for different aspects of the LHMP process.

Table 1. Examples of how to use an equity lens in hazard mitigation planning

Framework	Equity Considerations	Recommended Actions
Decision Making and Solutions: MJLHMP and Annex Pre-Planning and management	<ul style="list-style-type: none"> Who sits at the decision-making table? Are there systematic barriers to participation in the planning process? How will community and stakeholders be involved, and mutual communication be established? Scan for gaps – are needs of key socially vulnerable groups addressed? 	<ul style="list-style-type: none"> Establish equity principles and objectives to guide the MJLHMP process. Include community-based leaders on the MJLHMP Steering Committee including in plan development and review to identify gaps and opportunities for action. Establish partnerships with community-based organizations to inform process, identify actions, and foster mutual communication. Plan for integrating community feedback into plan update.

Accountability, Communication and Community Engagement	<ul style="list-style-type: none"> ○ How to include and deliver outcomes for those underrepresented in decision making or most affected by inequities? ○ How will we be accountable to the community from planning process throughout implementation? ○ <i>See guidelines on Part #2 of report</i> 	<ul style="list-style-type: none"> ✓ Use American Community Survey data and work with community-based organizations to identify who is in your community. ✓ Implement specific engagement for hard to reach, socially vulnerable and traditionally underserved populations. ✓ Implement mechanisms to report back to community members about how their input was addressed.
Understanding Data: Hazard analysis and risk assessment	<ul style="list-style-type: none"> ○ How does inequity increase the impact of the hazard or climate impact? ○ How will race, ethnicity, gender identity, income, languages spoken, disability, age, or medically sensitive people be affected by a disaster or climate impact? Are any of these groups concentrated in high risk areas? ○ Did we miss anything because we are not familiar with day to day life or what it is like to experience a disaster in a socially vulnerable community? ○ <i>See guidelines on Part #3 of the report and refer to Appendix A for details on the approach to be used by Tetra Tech for the MJLHMP 2021 update.</i> 	<ul style="list-style-type: none"> ✓ Engage with community stakeholders to identify socially vulnerable neighborhoods and population groups and assure that locally-relevant hazards, risks and social vulnerability are included in the analysis. ✓ Analyze social vulnerability, hazards and climate data together (required by SB379). ✓ Consider race, ethnicity, gender identity, income, languages spoken, disability, age, medically sensitive people, especially regarding the individual or group's ability to prepare for, survive and recover from a disaster or climate impact. ✓ Assess long-standing and multi-generational inequities, e.g. redlining, underinvestment, hazardous waste sites. ✓ Consider ways to measure cost of risks and hazards beyond property value, which undervalues the impact of asset loss to socially vulnerable communities.
Burdens and Benefits: Drafting mitigation measures and updating the plan	<ul style="list-style-type: none"> ○ Would low-income households or communities of color experience a disproportionate burden? Will affluent communities receive disproportionate benefit? ○ Have historical inequities led to more substantial infrastructure needs in some communities? ○ Will the proposed measures result in displacement of vulnerable community members? 	<ul style="list-style-type: none"> ✓ Evaluate past mitigation measures and adjust or add to them to be more equitable and address gaps and new risks affecting vulnerable populations. ✓ Incorporate previously developed community solutions when possible. ✓ Update approach to hazards which have increased in severity and are hitting socially vulnerable community members hard, such as fire, pandemic, heat, smoke related to wildfires, and power outages. ✓ Identify physical barriers and old/lack-of infrastructure in vulnerable and underserved communities. ✓ Involve community-based organizations in evaluation of benefits and burdens.
Next Steps: Throughout and at the end of the process	<ul style="list-style-type: none"> ○ How can barriers to inclusion be addressed so the process can be more thorough and inclusive now and in the future? 	<ul style="list-style-type: none"> ✓ Leverage existing and build new relationships with community leaders and stakeholders to support equity and inclusion efforts. ✓ Act responsively when equity considerations are identified.

PART 2: Using an Equity Lens for Hazard Mitigation Community Engagement

Effective outreach and community engagement increases buy-in and support for the MJLHMP process. [FEMA's Hazard Mitigation Planning Handbook](#) identifies these as key components of successful outreach:

SUCCESSFUL OUTREACH

- Informs and learns about hazards, climate impacts, local risk and social vulnerability
- Invites interested parties to contribute their views and ideas for mitigation
- Identifies conflicts and incorporates different perspectives and priorities early in the process
- Secures data an input that improves overall quality and accuracy of the plan
- Ensures transparency and builds trust
- Maximizes opportunities for implementation through greater consensus and acceptance
- Identifies and eliminates barriers to participation and assures hard to reach and traditionally underserved communities can access the process

Many planning processes traditionally have used a set of traditional engagement methods, including English-language surveys, workshops and presentations. These forms of engagement are often are hard to access for the general public and especially so for socially vulnerable communities. All cities in San Mateo County have populations that are hard to reach or who have difficulty accessing these engagement methods. Examples include residents that can't access online resources, older adults, youth, people with disabilities, residents with limited education or literacy, residents who face differential treatment due to their race, ethnicity, religion or other social characteristic, such as low income. Below are strategies to increase inclusivity and collect a more thorough set of input through accessibility and inclusion practices.



Trail Work at Memorial Park in San Mateo County

2.1 Hard to Reach Community Engagement Strategies

BUILD PARTNERSHIPS AND TRUST

- ☑ Attend existing community meetings and partner with local organizations and leaders.
- ☑ Reach out to colleagues in other departments or partner organizations that work with hard to reach communities more frequently such as parks and recreation, libraries, community centers and faith organizations.
- ☑ Be prepared for potential existing community frustrations; route community concerns unrelated to the MJLHMP to the appropriate parties.
- ☑ The San Mateo County Office of Sustainability can provide support to MJLHMP planning partners by being a resource for questions about equity and inclusion tools and approaches, and to facilitate connection to community organizations to strengthen capacity to engage hard to reach populations.
- ☑ Prioritize socially vulnerable communities in areas at high risk for hazards and climate impacts.
- ☑ Hire or provide resources to community-based organizations in your jurisdiction who have existing relationships to lead or support engagement efforts when possible. Collaboration between subject matter and community experts is an optimal way to tailor engagement methods and materials.



CULTURALLY APPROPRIATE COMMUNICATION

- ☑ Review material for accessible language and consider disability access. Will the terms mean the same thing they mean to topical specialists as they do to different types of audiences? Consider education level needed to access the information.
- ☑ Bridge from plan to real life community concerns by learning about key community issues in advance and then talking about the plan in terms that are resonant to the community. Community leaders or elected officials are familiar with community concerns and can assist you in framing communication.
- ☑ Provide locally, culturally, linguistically appropriate community engagement that will resonate with each hard to reach population in your community.
- ☑ Community members may not understand what we mean by hazard or climate impact, so give examples: “the plan seeks to prevent harm from fire, flood, earthquake, pandemic, etc.”
- ☑ Examples must be relevant to the audience or inclusive of the audience. Assume participants will include some that can’t afford to pay for insurance or other mitigation measures.

PART 3: Integrating Social Vulnerability into Hazards Analysis and Considerations for Mitigation Planning

It is important to understand which individuals, populations, and communities will be most impacted by a hazard in order to reduce risk and create equitable outcomes. The following section discusses the hazards that have the potential to affect San Mateo County and indicators of social vulnerability specific to each hazard. The hazards currently addressed in the [2016 San Mateo County LHMP](#) include Climate Change, Dam Failure, Drought, Earthquakes, Flood, Landslide, Severe Weather, Tsunami, Wildfire, and several Human-Caused Hazards. The 2021 San Mateo County LHMP will likely also include Health and Pandemics as well as Heat under the Extreme Weather hazard category.

Tetra Tech, the consultant providing support with the SMC MJLHMP update, has developed a detailed approach for integrating social vulnerability data into the hazard analysis, as explained in detail on Appendix A. San Mateo County planning partners are encouraged to choose this enhanced protocol for risk ranking that integrates social vulnerability data (Appendix A), which will also screen each mitigation action they identify for equity considerations. This approach was successfully utilized on the City of Portland's Hazard Mitigation Plan.

DEFINITIONS

“Hazard” is an event or physical condition that has the potential to cause fatalities, injuries, property damage, infrastructure damage, agricultural losses, damage to the environment, interruption of business, or other types of harm or loss (Cal OES 2018).

“Risk” is the potential for damage or loss created by the interaction of hazards with assets such as buildings, infrastructure, or natural and cultural resources (Cal OES 2018).

“Vulnerability” is the level of exposure of human life and property to damage from natural and human-made hazards. For buildings and other structures, “vulnerability” means susceptibility to damage given the inherent characteristics of a particular structure (Cal OES 2018).

3.1 Vulnerability Indicators Applicable to All Hazards:

- **Income:** Low income populations are often more exposed to nature disasters (Bousta et al. 2017) and have fewer financial resources to prepare and recover from disasters. Low-income neighborhoods also have compounding challenges such as higher impact of COVID (essential workers and density), historic underinvestment in infrastructure, zoning which allows or has allowed greater air, water and soil pollution or hazardous waste, greater likelihood of being in a flood zone, and a greater likelihood of being exposed to greater [heat impacts \(mid to South County\)](#).
- **Race and Ethnicity:** According to a literature review in the Journal Disasters (Fothergill et. al, 1999) “...racial and ethnic communities in the US are more vulnerable to natural disasters, due to factors such as language, housing patterns, building construction, community isolation and cultural insensitivities.”
- **Children and youth:** Youth are dependent on adults for many things and tend to be highly dependent on their phones.
- **Older adults:** Older adults may depend on paratransit and need electricity for medications and health devices.

- **People with disabilities:** Some people with disabilities require electrical power for devices that perform life and death functions such as assisting breathing.
- **People in poor health or with chronic diseases:** For example, the Environmental Protection Agency (EPA) has identified key populations [“sensitive”](#) to wildfire smoke including people with asthma and cardiovascular disease. People who require dialysis or insulin face post-disaster challenges.
- **Limited English proficiency or linguistic isolation:** Non-English speakers may not understand emergency alerts unless local authorities provide information/alerts in all locally spoken languages.
- **Pregnant women:** American College of Obstetricians and Gynecologists (ACOG) identifies continuation of prenatal care as a priority, including sites that are prepared to offer care post-disaster and communication to women in the third trimester ([ACOG 2010](#)).
- **Women:** According to ACOG, “Women involved in disasters are also at an increased risk for sexual assault and should be provided a safe and secure environment in evacuation shelters.” ([ACOG, 2010](#))
- **Lack of vehicle access/transit dependent:** Transit-dependent populations will require assistance during an evacuation and maybe unable to evacuate rapidly. Children, older adults, and people with a disability are more likely to be transit-dependent.
- **People who are unhoused:** Unhoused people face hazards and disasters without any protections, may not be able to access needed services and shelter, and may not receive alerts.
- **Undocumented immigrants:** Undocumented immigrants may not feel safe accessing shelters or relief.
- **Political disenfranchisement:** Consideration should be given to continuity of access to voting for those displaced by disaster or who lose their documentation in a disaster.
- **LGBTQI:** For example, transgender youth may face unique challenges and need tailored support in a disaster situation as documented by this [news report](#) (Compton 2017). Shelter infrastructure may be organized in a way that excludes or endangers transgender people.
- **Rural Communities:** Rural areas can face increased risks from older infrastructure and are less likely to receive recovery. Cost-benefit analyses can be biased in favor of densely populated areas ([Jerollman 2021](#)).
- **Unincorporated communities:** Areas with substandard infrastructure that have pockets of vulnerable Black Indigenous People of Color (BIPOC) communities in them.

Climate Change

Climate change will intensify the impacts of many of the other hazards listed below, and therefore shares the same indicators of vulnerability.

Dam Failure

In San Mateo County dam failures could impact already socially vulnerable communities [in some parts](#) of the County. Dam Failure is an uncontrolled release of impounded water due to structural deficiencies in a dam, which can be catastrophic to human life and property downstream. While no dam failures have previously occurred in San Mateo County, 13 of the 21 dams in the County could endanger lives and property in the case of a failure. While the entire population within a dam failure inundation zone is considered exposed and vulnerable, the most vulnerable include economically disadvantaged and the population over age 65 (San Mateo County 2016). Dams were designed to withstand expected levels of pressure from water; with increasing precipitation due to climate change could increase water pressure beyond planned tolerances ([New York Times, 2020](#)).

Drought

Drought is the cumulative impacts of several dry years on water users, which can include deficiencies in surface and subsurface water supplies, and effects on health, wellbeing, and quality of life. San Mateo County has experienced four significant droughts in the last 45 years, and droughts are likely to continue to occur in San Mateo County (San Mateo County 2016). Drought can lead to farmworker job loss ([Mcclurg 2015](#)), food insecurity ([Mbow 2017](#)), and can impact communities reliant on groundwater for drinking water.

Earthquakes

An earthquake is the shaking of the ground caused by an abrupt shift of rock along a fracture in the earth or a contact zone between tectonic plates. California is seismically active because it sits on the boundary between two of the earth's tectonic plates. The last significant seismic event recorded in the San Mateo vicinity, occurred in 1989 during the San Andreas Loma Prieta Earthquake. Two groups who are particularly vulnerable to earthquake hazards are low income households and people over 65 years of age ([San Mateo County 2016](#)).

Flood

A flood is the inundation of normally dry land resulting from the rising and overflowing of a body of water. Heavy rains are the most frequent cause of flooding within San Mateo County jurisdictions, although coastal jurisdictions may also undergo flooding as a result of high winds, high tides, storm surge, and tsunami events ([San Mateo County 2016](#)). Additional indicators of vulnerability to flooding include:

- Poor housing quality
- Lack of housing affordability
- Housing tenure
- Communities with industrial/hazardous sites
- Communities with older infrastructure
- Previously redlined communities
- Lack of green spaces and vegetation
- Increased impermeable surfaces
- Limited number of roadways

Landslide/Mass Movements

According to the U.S. Geological Survey (USGS), the term "landslide" includes a wide range of ground movement, such as rock falls, deep failure of slopes, and shallow debris flows. Landslides and mudslides can be initiated by storms, earthquakes, fires, or human modification of the land. Landslides have occurred regularly within San Mateo County and can pose a serious hazard to properties on or below hillsides. Landslides can result in the destruction of foundations, offset of roads, breaking of underground pipes, or overriding of downslope property and structures.

Severe Weather/Extreme Weather

Severe weather refers to any dangerous meteorological phenomena with the potential to cause damage, serious social disruption, or loss of human life. It includes atmospheric rivers, extreme heat, extreme cold, lightning sieges, poor air quality, among other events. Indicators of vulnerability to extreme heat include:

- Outdoor workers & farmworkers
- Residents living in older homes
- People who are unhoused
- People susceptible to health impacts from poor air quality
- Lack of air conditioning
- Deforestation and lack of green spaces and tree cover
- Lack of basic information on what to do during high heat days and smoky days
- Lack of community shelters or resiliency hubs for cooling and smoke relief
- Lack of a local or county/district emergency plan being in place
- Lack of access to affordable health care
- Paved surfaces and urban heat island effect

Tsunami

A Tsunami is a series of traveling ocean waves of extremely long wavelength, usually caused by displacement of the ocean floor and typically generated by seismic or volcanic activity or by underwater landslides. In the past California has been struck by several minor tsunamis and several major tsunamis and San Mateo County specifically has been struck by several minor tsunamis. The populations most vulnerable to the tsunami hazard are the elderly, disabled, and very young who reside or recreate near beaches, low-lying coastal areas, tidal flats, and stream or river deltas that empty into oceangoing waters. Visitors recreating in or around inundation areas would also be vulnerable, as they may not be as familiar with residents or appropriate responses to a tsunami or ways to reach higher ground.

Wildfire (& Air Quality)

A wildfire is any uncontrolled fire occurring on undeveloped land that requires fire suppression. The potential for significant damage to life and property exists in areas designated as wildland-urban interface (WUI) areas, where development is adjacent to densely vegetated areas. Based on risk factors for the County and past occurrences, it is highly likely that wildfires will continue to occur in San Mateo County. Additional indicators of vulnerability to wildfire include:

- Electricity-dependent populations
- People susceptible to health impacts of air pollution
- Poor housing quality
- Workers in the informal economy
- Lack of green spaces and vegetation
- Industry/hazardous site

Figure 3: Example of overlapping social and wildfire risks in San Mateo County. The image below shows a concentration of very low income (as defined by [US HUD](#) for SMC) households in gray within the boundary of the San Gregorio Large Fire Potential Scenario in pink based on [SMC Climate Ready modeling](#). Low income community members could encounter a variety of distinctive challenges in a fire scenario due to lack of funds to address both evacuation and basic needs.

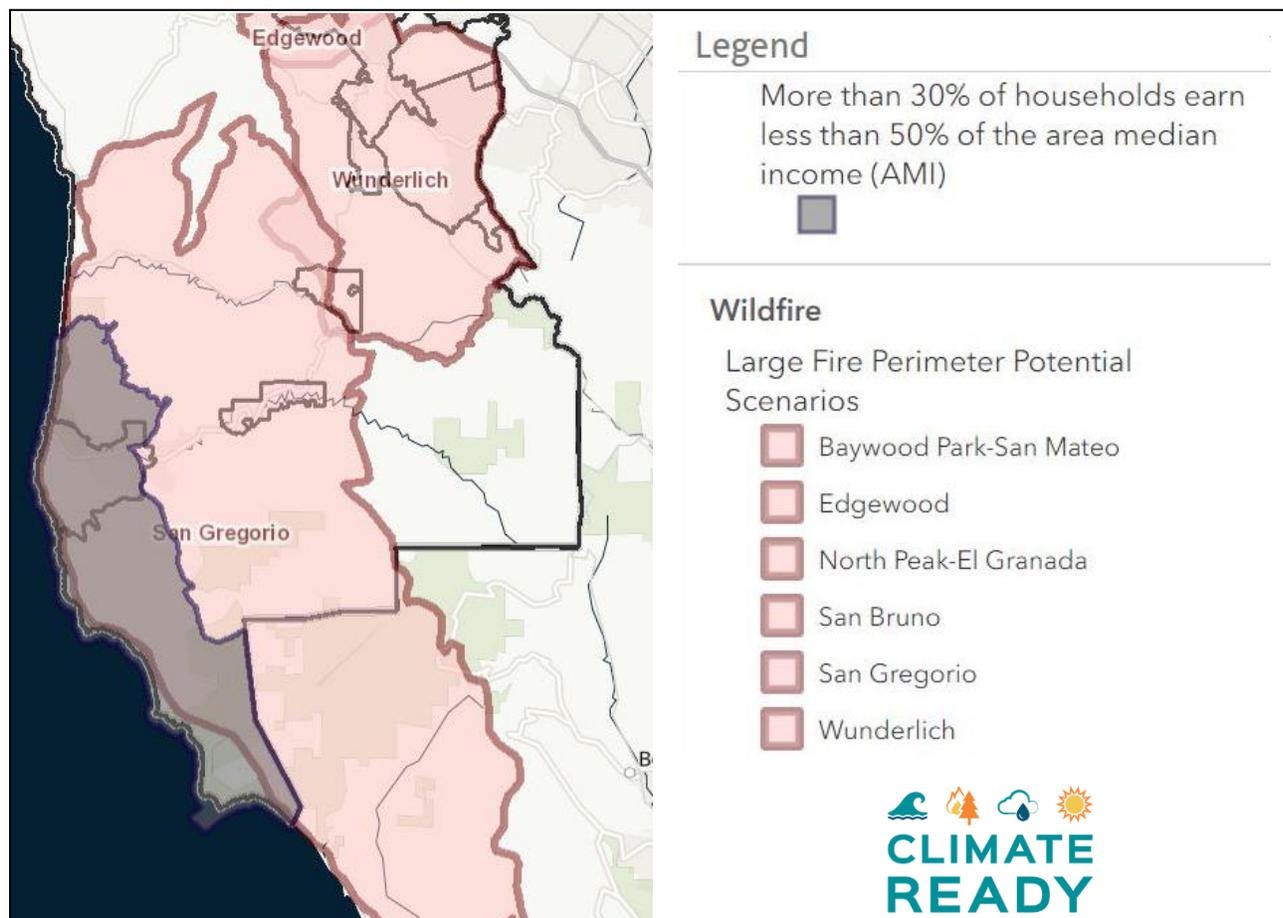
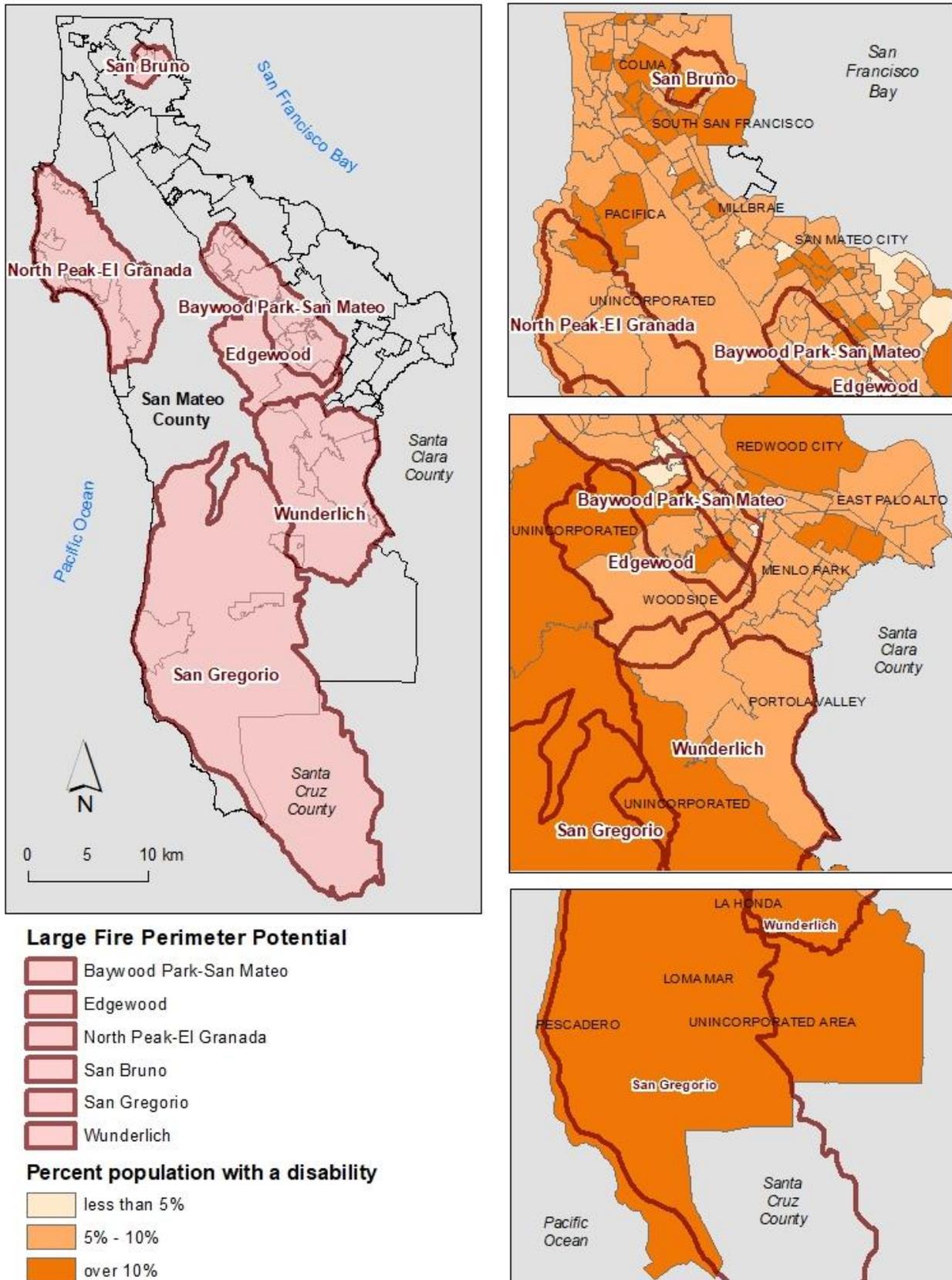


Figure 4: Example of overlapping wildfire risks, based on modelling from [Climate Ready SMC](#), and population with disabilities in San Mateo County, represented by the orange blocks.



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Appendix A. Recommendations for Incorporating an “Equity Lens” into the San Mateo County Multijurisdictional Hazard Mitigation Plan

The following information summarizes the options that Tetra Tech is recommending to the Core Planning Team (CPT) for the update to the San Mateo County Multijurisdictional Hazard Mitigation Plan, on how to integrate a social equity lens into the standard hazard mitigation planning process, without impacting the timeline. Before presenting these recommendations, the key points Tetra Tech would like to emphasize are:

- This is a multi-jurisdictional scope plan that included both municipal and special purpose district planning partners. While both are defined as “local governments” under the Disaster Mitigation Act of 2000, each has very different responsibilities and roles mitigating the impacts from hazards.
- Addressing social vulnerability is not a requirement for Local Hazard Mitigation Plans prescribed under 44CFR, section 201.6.
- There are distinct limitations regarding data available to assess social vulnerability in the context of what is required for a local hazard mitigation plan.

With these points in mind, the recommendations provided below have been separated into Standard elements and Optional elements. The standard elements are ways the plan can enhance acknowledging the concepts and principles of an “equity lens” without disrupting the standard protocols applied for risk ranking and action planning. The optional elements are enhancements that would impact the risk ranking and action planning protocols and would be considered “optional” by each planning partner based on their desire to utilize the equity lens concepts for this plan update. Tetra Tech feels very strongly that the only way for this process to not appear as being a forced directive from the County, is to give each planning partner the option to adopt the proposed protocols. The Overview of the recommendations are as follows:

Standard Elements

Regional Profile: Volume 1, Part 1, Chapter 4 of the plan provides a regional profile of the entire planning area broken down into the following sections:

- Historical Overview
- Major Past Hazard Events
- Physical Setting
- Development
- Demographics
- Economy

Recommendation: Following the “demographic” section of Chapter 4, create a new section titled “Social Vulnerability and Hazard Mitigation”. This section will be utilized to frame how the social vulnerability lens will be applied to this hazard mitigation plan update. This section should clearly outline the Planning Partnership’s understanding of social vulnerability, identify the metrics (indicators) that will be utilized to measure it, and identify the gaps in data that create challenges for inclusion in the mitigation planning process. This section of the plan will be very important as it will set the table for how social equity will be addressed by this plan. Where the equity lens will be applied and where it won’t. It will very clearly state the limitations in assessing social vulnerability based on the type of data available and how it can or cannot interface with standard best management practices for hazard mitigation planning risk assessment and ranking. It is also this section where we could attempt to address “historic injustices” in a qualitative, overarching manner, dependent upon data available to support this discussion.

Hazard Profiles: Volume 1, Part II, Chapters 7-17 of the plan are the risk assessment portions of the plan that will include a chapter for each identified hazard of concern. Note: that natural hazards will be fully assessed pursuant to the requirements of 44CFR, section 201.6, while other hazards of interest will be profiled, but not fully assessed. The profile for each hazard that is fully assessed is broken down as follows:

- General Background
- Hazard Profile
 - Past Events
 - Location
 - Frequency
 - Severity
 - Warning Time
 - Compounding Factors and Secondary Hazards
- **Exposure**
 - **Population**
 - Property
 - Critical Facilities and Infrastructure
 - Environment
- Vulnerability
 - Population
 - Property
 - Critical Facilities and Infrastructure
 - Environment
- Economic Impact
- Future Trends in Development
- Scenario
- Issues

Recommendation: Under the “Exposure” section for each fully assessed hazard profile, a new sub-section will be added titled “Social Vulnerability Indicators”. Under this section, the exposure by social vulnerability indicators will be discussed as it pertains to the extent and location of the hazard being profiled. Tetra Tech recommends utilizing the “Social Vulnerability” indicators defined by FEMA under its National Risk Indexing program (NRI)

<https://hazards.geoplatform.gov/portal/apps/MapSeries/index.html?appid=ddf915a24fb24dc8863eed96bc3345f8>

Social Vulnerability as defined under FEMA’s National Risk Index:

Social Vulnerability is the susceptibility of social groups to the adverse impacts of natural hazards, including disproportionate death, injury, loss, or disruption of livelihood.

The NRI data will be processed so that the risk indexing will be relative to San Mateo County and not based on the comparison to national averages. Please note that only NRI datasets will be utilized. There will be no creation of “hybrids” using local data.

The reasons for utilizing this data would be that it already has data available nationwide in a format suitable for hazard mitigation planning risk assessment. It is important to note that using an existing data set that has already been vetted and validated is ideal considering the expedited timeline for this process. We simply do not have the time to create and vet new social vulnerability indices. Please note that not all hazards have a clearly defined extent and location, so for those hazards that don’t, this discussion would focus on the indices for the entire planning area. This will be a spatial exercise utilizing best available data for each indicator identified.

No attempt will be made to quantify social vulnerability under the “vulnerability” section of each hazard profile. This will be due to the inconsistencies that would result from trying to intersect regional data (census tract or block level data) with the building specific, point-based data that is the basis for the vulnerability assessments for

the plan. This would be clearly explained in Chapter 6 of the plan that defined the methodologies applied for the risk assessment of the plan.

Public Outreach Strategy: The Public Outreach strategy for this plan update process should be framed with an equity lens, and strive to include the following elements that can be completed within the expedited timeline:

- Provide information in easy to digest form and ensure the understanding of information shared by the community at large
- Promote diverse community participation. This should be done through the identification of, and outreach to, trusted community-based organizations.
- Utilize trusted messengers: similar to above
- Translate outreach materials
- Meet people where they are
- Transparent process: We have included the Tt-produced graphic to show which step in the process we are in (added to website). The steering committee meetings will be open to the public, two resident surveys, and resident public meetings.
- Provide the public with links to other relevant websites that the County wants to promote.

Optional Elements

Risk Ranking: Volume 1, Part II, Chapter 19 of the plan currently has a risk ranking protocol that defines “risk” as Probability x Impact where impacts are defined as the impact on the people, property, economy and environment of a planning area. Metrics have been defined for each component that result in each hazard getting a risk score, so that the hazards that were fully assessed can be compared. Risk ranking in this plan takes place on 2 fronts. First, the hazards are ranked for the entire planning area using aggregate data from the risk assessment. Next, each planning partner will rank the risk for their specific jurisdiction utilizing risk assessment data specific to their jurisdiction.

Recommendation: As an optional element, Tetra Tech would recommend establishing 2 versions of the risk ranking protocol. One version would be the standard protocol that is currently being applied under the 2016 plan. The other, would enhance that protocol to include a social vulnerability element utilizing FEMA’s National Risk Index (NRI). So, for example:

- **Standard Protocol: Probability x (impacts on People + Property + Economy)**
- **Enhanced Protocol: Probability x {impacts on (People + NRI Social Vulnerability Rating) + Property + Economy}**

The enhanced protocol would need to be developed by Tetra Tech looking at appropriate weighting to the metrics (the NRI social vulnerability rating). The results for both approaches would be categorized as “high, medium or low”. The objective for this dual process would be for it to seamlessly integrate into the planning process without creating any delays in the process. It is important to note that having 2 options for ranking risk would create 2 different scoring regimes for the ranking of risk. However, as long as these metrics are clearly defined and protocols established, it should not lead to any confusion within the plan or the planning partnership.

Action Planning: Each planning partner is required to identify and prioritize at least 1 action that addresses each hazard that was ranked as “high” under the risk ranking protocol defined for the plan. This does not mean that the action plan is limited to only addressing high ranked hazards, it just means that it must at a minimum. For those planning partners that were covered under the 2016 plan, they must fully reconcile their actions from the

prior plan and determine which actions are to be carried over to this plan update. For each action, the jurisdiction must identify:

- The hazard(s) the action will address
- Whether the Action will address new or existing assets
- The lead agency responsible for implementation
- Any support agencies
- The objectives the action will meet
- The sources of funding for the action
- Timeline for completion

Recommendation: For those planning partners that chose the enhanced protocol for risk ranking, they will screen each action they identify for equity considerations that may result in a reframing of the action. This approach was utilized with success on the City of Portland's Hazard Mitigation Plan. Tetra Tech developed 2 tools to support this process: an equity screening review tool (*Table 1.0*) and an equity screening question matrix (*Table 2.0*). Both tools were applied by the departments in the development and framing of each action in the action plan.

Both tools could be adapted specifically to address the needs for the San Mateo County planning effort. It is important to note that this recommendation includes no changes to the prioritization of the action. Tetra Tech feels that the current prioritization protocol is adequate and is supportive of both options being proposed. For those partners that chose to use the Enhanced protocol, their action plan matrix would be expanded to include the identification of which "equity category" (Procedural, Distributive, or Structural) each action meets.

Table 1.0. Equity Screening Review Tool

	Procedural	Distributive	Structural
Programs/ Services	<p>How was the target audience included in the design of the program?</p> <p>What actions will be taken to ensure that services and programs are physically and programmatically accessible and inclusive?</p> <p>What are the criteria for participation or receipt of benefits?</p>	<p>Is the program or service designed to meet the needs of underserved and underrepresented communities? If not, what would need to be changed to ensure their equitable participation?</p> <p>How will program dollars be allocated to ensure inclusive and accessible service delivery?</p> <p>Does the cost structure of the program result in disparate use? /Does the fee structure of the service result in increased burdens for low-income communities?</p>	<p>Does this program/service create unintended consequences for communities that are underserved and underrepresented? How will they be mitigated?</p> <p>Is there an opportunity to extend additional benefits through this program/service that can help support the healing of past harms to communities?</p> <p>Does the program empower and build capacity of a community?</p>
Capital Investments	<p>What are the criteria for prioritizing projects and investments?</p> <p>Does the data and information used consider the demographic, geographic and real-world experience of residents and businesses in the area?</p> <p>If data gaps exist, what are you using to guide decisions?</p> <p>What process will be used to get input from the community?</p> <p>How will you reach underserved populations?</p>	<p>Will the investment provide improved safety, health, access, or opportunity for the communities who need it most?</p> <p>How will the underserved people who currently live and work in the area benefit from the investment?</p>	<p>What measures will be taken to mitigate the potential impacts of involuntary displacement in the project?</p> <p>How will business or employment opportunity created through the project be extended to communities of color, people with disabilities, and low-income people?</p> <p>How will community benefits be negotiated?</p>
Regulation	<p>Has analysis been done on the impacts to communities of color, people with disabilities, low-income populations, seniors, children, renters, and other historically underserved or excluded groups?</p> <p>How will impacted communities be able to learn about and understand changes with the regulation?</p> <p>How will the regulation be enforced?</p>	<p>Will the regulation provide improved safety, health, access, or opportunity for the communities who need it most?</p> <p>How will the regulation alleviate any cost-burden for those who are already in a position where it is difficult to pay?</p>	<p>Does the regulation create or inhibit opportunity for communities of color, people with disabilities, and low-income populations?</p> <p>Will enforcement disproportionately negatively affect low-income communities or communities of color?</p> <p>How will this be mitigated?</p>
Planning	<p>How will impacted communities be involved in the planning process?</p> <p>What measures will be taken to ensure the process is fair and inclusive?</p>	<p>How does the plan prioritize and address the needs of the most impacted or vulnerable in the community?</p> <p>Does the plan improve safety, health, access, or opportunity for the communities who need it most?</p> <p>How will resources shift to ensure equitable implementation of the plan?</p>	<p>What measures will be taken to mitigate the potential impacts of involuntary displacement?</p> <p>How will policies support community development?</p> <p>What support is needed to build the community's ownership and self-determination with the plan?</p>

- a. Procedural equity—ensuring that processes are fair and inclusive in the development and implementation of any program or policy
- b. Distributive equity—ensuring that resources or benefits and burdens of a policy or program are distributed fairly, prioritizing those with highest need first.
- c. Structural equity—a commitment and action to correct past harms and prevent future negative consequences by institutionalizing accountability and decision-making structures that aim to sustain positive outcomes

Source: BPS Presentation, Climate Action Plan and Equity: Connecting the Dots with the Community

Table 2.0. Equity Screening Question Matrix

Evaluation Question	Response
1. What issue/problem/risk is the action designed to address? And what are the expected benefits?	Issue: Benefits:
2. Who is the target audience/beneficiary for this action? Who is affected if no action is taken?	
3. How would you classify the mitigation action? (Programs/Service; Capital Investment; Regulation; Planning). Refer to questions in table above based on your answer to this question.	
4. Will any community groups be involved in the design/implementation of this action? (i.e. potential partners)	
5. Will this action reduce risk from natural hazards for the following groups? How?	
Communities of color	
Persons with disabilities and/or access and functional needs	
Households with limited English Proficiency	
Renters	
Economically disadvantaged families	
Seniors (age 65 or older)	
Children (under 15 years of age)	
6. How could this action benefit the following groups? Or How could this action be modified so that there are benefits?	
Communities of color	
Persons with disabilities and/or access and functional needs	
Households with limited English Proficiency	
Renters	
Economically disadvantaged families	
Seniors (age 65 or older)	
Children (under 15 years of age)	
7. How could this action burden/negatively impact/leave out the following groups, for example through communication, transportation, physical or programmatic barriers?	
Communities of color	
Persons with disabilities and/or access and functional needs	
Households with limited English Proficiency	
Renters	
Economically disadvantaged families	
Seniors (age 65 or older)	
Children (under 15 years of age)	
8. If you have identified burdens, barriers, or negative impacts, or opportunities for benefits please <u>revisit the action</u> to identify strategies to reduce or eliminate burdens or negative impacts; remove communication, transportation, physical or programmatic barriers; or enhance potential benefits.	
9. Have you identified a performance metric for evaluating progress on this action? How will you know when this action is complete? (please provide) Have you considered outcomes for communities of color, people with disabilities, low-income families, people with limited English proficiency, renters, seniors, and children?	