

ADAPTIVE CAPACITY ASSESSMENT

October 2021

Los Angeles County Department of Regional Planning

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I. Introduction

Los Angeles County residents are experiencing increasing climate-related hazards. By 2050 wildfire, floods, and extreme heat will increase in frequency and severity. As our communities grow, we must develop strategies to adapt to our changing climate and create plans for building community resilience. The purpose of the Adaptive Capacity Assessment (ACA) is to survey how residents in unincorporated communities of Los Angeles County are presently coping with three climate hazards: wildfire, extreme heat, and flooding. Using survey data, the ACA will help inform policy development for climate adaptation in the Los Angeles County General Plan Safety Element.

Adaptive capacity, in this context, is the ability for communities and individuals to implement strategies to avoid, mitigate, adjust to, or cope with impacts from hazards due to climate change. In its constituent parts, adaptive capacity is based on the concepts of *adaptation*, which describes a responsive change or process to become better suited to the environment, and *capacity*, which describes the ability and resources available for change. This ACA focuses on how communities are currently responding to climate emergencies and what challenges and opportunities exist for future policy implementation.

Utilizing feedback, surveys, and workshops with communities countywide, the ACA looks at what strategies people are currently employing to cope with climate hazards, what is working, where there are needs for additional investment, and what suite of policies and programs would be most beneficial for a diverse range of communities and individuals. The responses in the ACA survey provide a general profile of many different communities' current and near-term ability to cope with and adapt to climate hazards. Results from the ACA should provide insight into how a menu of solutions can be developed for current and future plans and programs. However, the possible solutions identified in the ACA are not all encompassing. Future feedback from communities will be gathered as programs are developed to implement policies.

The ACA works in connection with the OurCounty Sustainability Plan, the Los Angeles County Climate Vulnerability Assessment (CVA), and the Safety Element update. The OurCounty Sustainability Plan sets a vision for making communities "healthier, more equitable, economically stronger, and better prepared for the future." Action 28A of the OurCounty Sustainability Plan calls for, "a countywide climate vulnerability assessment that addresses social vulnerability and use it to guide priorities for investments in public health preparedness, emergency preparedness and response planning, and community resiliency."

The CVA report summarizes social and physical infrastructure vulnerabilities and provides general regionwide adaptation recommendations. Social vulnerability identifies populations more susceptible than others based upon their sensitivity or exposure to climate change, while physical vulnerability is the susceptibility and limitations of physical infrastructure in the face of climate change. The accompanying CVA mapping tool allows analysis of community level vulnerabilities. The ACA provides sample information on adaptive capacity at the individual and household scale, which serves as an important measure of public readiness and as feedback on past and current

adaptation policies. The survey responses reflect individual experiences and represent an individual household's ability to adapt to climate hazards. The ACA data represents a small sample of county residents whose responses provide an aspect of ground-truthing for implementation of existing climate hazard implementation policies. The ACA bridges individual capacity for adaptation with the CVA's regionwide vulnerability assessment. Together these documents provide input on where climate risks are highest, where the most vulnerable communities are located, and what policies may be implemented to address climate hazards and protect communities most effectively.

II. Methods

Framework

ACA surveys were hosted on the internet and made available to residents countywide. The intent of the ACA survey was to broadly understand the challenges and opportunities for residents facing climate hazards. Several questions were included in the surveys to further identify correlations in the data based on several factors including geography, age, income, disability, and housing status. Responses were grouped into four primary areas: North County; East County; West County; and the Santa Monica Mountains. These different geographies and social factors result in different climate risks and different capacities for adaptation based on a variety of factors related to social vulnerability.

Among the various climate hazards that communities are currently facing, wildfire, extreme heat, and floods were selected as the basis for the ACA surveys as a result of the recent hazard severity and the scale of impacts. Los Angeles County has a long history with each of these hazards and it is expected that by 2050 an increase in the frequency, severity, and duration of heat waves, wildfires, and flooding will significantly affect Los Angeles County communities.

This survey does not address the capacity for highly vulnerable and underrepresented populations including people without internet access, people experiencing homelessness, and people who are otherwise exposed to climate hazards such as outdoor workers. The takeaways from this assessment should be understood as individual respondents' perception of their individual ability for adaptation and not as a representation of the county as a whole.

Methodology

A total of 768 responses were collected: Extreme Heat (n=315); Wildfire (n=316); and Flood (n=137). The surveys were available in English, Spanish and Chinese. This convenience sample resulted in responses collected throughout Los Angeles County, with the highest proportion of responses from the Antelope Valley (44%), the Santa Monica Mountains (26%), and San Gabriel Valley (12%).

The online survey was launched on May 23, 2020 and closed on October 28, 2020. Each survey had about 20 questions: Extreme Heat (19), Wildfire (21), and Flood (19). Most questions in the

survey were similar across all three climate hazards. The survey posed a series of multiple-choice questions, one ranking question, and four open-ended questions.

Respondents were asked how many times they experienced the climate hazard, how they have adapted to the climate impact, and which adaptation strategies they would consider adopting in the next 1-3 years. The ranking question asked respondents to rank four long-term solutions from most to least effective.

Four open-ended questions followed associated multiple-choice question. The first asked respondents what are the reasons why some adaptation strategies may not be effective. The second asked respondents to recommend adaptation strategies that would work for their community. The third question -- which appeared only for the Wildfire and Flood Surveys -- asked respondents for reasons why they may not evacuate during an emergency. The fourth question asked for ways to reach out to other community members who may not be aware of the climate hazard. Demographic information such as age, gender, income, renter or homeowner status, and zip code were also collected.

Each survey was tailored to the climate hazard. General questions, questions specific to the climate hazard, and questions on associated secondary impacts were included in the surveys. The Extreme Heat and Wildfire surveys included two additional questions about adaptations to public safety power shutoffs (PSPSs); no equivalent questions appeared in the Flood survey. Similarly, questions on whether residents would evacuate and their reasons for staying were included in the Wildfire and Flood survey but excluded from the Extreme Heat survey. Likewise, Wildfire and Flood surveys included questions about whether respondents lived in a fire hazard severity zone, or a designated flood zone, but as there is no equivalent for Extreme Heat and so was excluded. The question of "have you ever experienced" a climate emergency was adjusted to "how many times each year" for Extreme Heat because the onset of this climate hazard is slow and seasonal.

The average time respondents spent completing the surveys were: Extreme Heat (9 min), Wildfire (14 min), and Flood (6 min). As it was not possible from excluding respondents who lived in incorporated cities to participate, the sample contained residents from both cities and unincorporated areas. Respondents were asked to enter their ZIP code, however, so findings could later be parsed by geographic area.

Measuring Adaptive Capacity

Adaptive capacity, the ability for a community to cope with climate stressors, is difficult to measure because it is idiosyncratic to specific communities and may not be assessed like other resilience measures such as sensitivity and exposure that may be calculated with the support of existing data. Furthermore, there is no set standard to measure adaptive capacity which leaves the measure difficult to compare among communities. Yet adaptive capacity provides useful information because it provides sample information on how a community is currently coping with stressors and provides a baseline upon which to measure effectiveness of future interventions to increase a community's overall resilience.

III. Results

Extreme Heat

According to the 2021 Los Angeles County Climate Vulnerability Assessment, it is estimated that by mid-century there is projected to be a tenfold increase in the frequency, severity, and duration of extreme heat events. Communities throughout Los Angeles County will face increased heat exposure, with the most pronounced increase in temperatures expected to be in the Santa Clarita, San Fernando, and Antelope Valleys. Rising temperatures and heatwaves have already directly affected communities, and the ACA survey asked respondents to characterize how they have responded to recent high-temperature days, and how they will adapt to future heatwaves.

Impact

This study found that 94% of all respondents have experienced temperatures above 90 degrees Fahrenheit at least once each year.

Adaptation Strategies

Survey respondents reported that the most common ways to adapt to extreme heat were by using water to cool down, such as by drinking more water, going to the community pool, and taking baths (31%), and using an air conditioner to cool a room (25%). Only 11% have taken steps to retrofit homes by adding insulation or installing air conditioning and only 10% reported planting trees. Additionally, only 10% sought out shade when outdoors.

Short-Term Future Adaptation

In the next 1 to 3 years, respondents favored purchasing energy efficient appliances (17%), and receiving rebates or discounts to retrofit their homes (17%) as strategies to increase their capacity to adapt to Extreme Heat. Slightly fewer respondents chose purchase air conditioning (14%), insulating their homes (14%), and installing a cool roof (13%).

Barriers

The most commonly perceived barrier to adapting to extreme heat was the cost of retrofits, not having permission to retrofit because of renter status, and large electricity bills for using an air conditioner during a heat wave. In certain areas such as the San Gabriel Valley, not knowing where cooling centers were located was also reported as a barrier.

"I am a renter, not a homeowner, so I am not the one making these sorts of decisions for my apartment building. We are not even allowed to have a window AC unit as per our lease."

- Respondent, East County

Policy Feedback

To overcome these barriers, respondents suggest local governments should provide grants to help retrofit costs, pass policies that allow renters to install air conditioning, plant more trees while also setting aside maintenance funds to maximize the survival of existing trees. Respondents

reported that existing trees in their community were removed because they had become too large for the spaces where they were planted, or because they were dead or dying and had become a hazard. Respondents also suggested requiring commercial developments to install overhead shade structures over parking lots so parked cars will not become so hot they become difficult to operate. Lastly, respondents suggested installing shade at transit stops and increasing neighborhood green spaces to cool the surrounding neighborhood.

Due to increased demand for energy and risks of wildfire during extreme heat events, utility companies are now instituting PSPSs. When extreme heat events and PSPSs co-occur, the combination can create additional challenges for entire communities who rely on air conditioning units and other mechanical cooling devices. As heat rises and the demand for energy increases, electrical brownouts (when high electricity demand is near or above a utility's production capacity and the flow of electricity is reduced) and a PSPS may be initiated to prevent widespread blackouts (when electrical service stops entirely) which would leave residents with fewer options for cooling.

"It has always been hot! The summers were well over 100 in the summer when I was a child in the '60s. The difference is the power grid has not been maintained and updated when additional homes were built so we now have brown and black outs."

- Respondent, North County

Long-Term Opportunities for Adaptation

For long-term adaptations to extreme heat, respondents ranked increasing tree canopy highest. The second choice was to install shade structures in public spaces. The least favored choice was to create more cooling centers. In terms of reasons why these adaptations may not work, respondents noted the time lag between planting a tree and it maturing to provide shade may be too long to provide much-needed respite from heat now.

Wildfire

Recent wildfires, including the Woolsey Fire and Bobcat Fire, have shown that the occurrence of larger, more destructive wildfires will become more frequent in local communities. As risks to homes, natural environments, and infrastructure mount, residents have had to confront major challenges to keep their families and communities safe. Several of the communities surveyed have experienced fire losses firsthand, and ACA survey asked respondents to provide insight into the effectiveness of their individual wildfire adaptation efforts and perspectives on future policy implementation.

Impact

This study found that 60% of all respondents have experienced at least one wildfire emergency, and nearly 50% of all respondents have experienced two or more.

Adaptation Strategies

The two most reported ways to adapt to wildfire were by clearing vegetation around the home (29%) and developing an evacuation plan (26%). Only 12% have taken steps to retrofit homes to lower the risk of ignition, and very few respondents (5%) participate in local wildfire preparedness groups. Also, few respondents (5%) have considered finding a new place to live where the fire risk is lower citing their either cost or their attachment to place.

Short-Term Future Adaptation Strategies

In the next 1 to 3 years, respondents would consider evacuating early (22%), as well as continuing to clear vegetation around the home (21%) to adapt to wildfire. Slightly fewer respondents plan on retrofitting their homes (13%).

Respondents were asked whether they would evacuate in a wildfire event. Sixty percent of respondents reported they would evacuate either before or when a voluntary evacuation order is issued, while a quarter of respondents reported they would evacuate only when a mandatory evacuation order is issued. Thirteen percent of respondents reported they will not leave their home during a wildfire event. Of those who stay, many state that the reason for staying is to defend their homes, a responsibility they consider belongs to the homeowner.

Barriers to Adaptation

The most common perceived barriers to adapting to wildfire across all regions were the cost of retrofits and animals under their care. Respondents reported the cost of retrofits to be prohibitive on fixed incomes and described the logistical challenges of evacuating both large and small animals. Respondents reported staying behind to protect their homes and animals during wildfire events.

Geography was associated with specific challenges in adapting to wildfire. In the Santa Monica Mountains, the Antelope Valley, and the Santa Clarita Valley, respondents pointed to living near adjacent national forest lands and other natural lands as a wildfire risk. In addition, respondents from the Santa Monica Mountains and the San Gabriel Valley noted that communities located in the hills often have only one evacuation route. Were a bottleneck to occur on this route, residents who are evacuating could also be further exposed to wildfire hazards while they are in their cars en-route to safety.

Wildfire risk increases under high wind and dry conditions. Under these same conditions, utility companies are now instituting PSPSs to reduce the risk of wildfires ignited by powerlines. When wildfire emergencies and PSPSs co-occur, the combination can create additional challenges for residents who rely on cell towers for updates on the wildfire event. PSPSs can also be especially disruptive to residents who rely on electricity to pump drinking water from wells, to keep medications cool, or to power life-saving medical devices.

When asked how they adapt to PSPSs, 60% of respondents reported doing nothing and waiting until power is restored. Only 14% are not affected because they possess either a backup generator or have access to an alternative power source. When asked what challenges they face during a PSPS, nearly half (48%) reported they have no way to receive news or call for help.

“[I] cannot afford to install a generator and if the power is off the well and pressure are off and I don't have reliable water pressure to do anything about flushing toilets, taking a shower or enabling the interior sprinkler system in the house should a fire break out.”

– Respondent, North County

Policy Feedback

For overall long-term adaptations to wildfire, respondents ranked discouraging further development in High Fire Hazard Severity Zones first. The second choice was to decrease reliance on the electrical grid by creating local microgrids. The least favored choices were the creation of a buy-out program and to require retrofits of existing homes. Respondents noted that mandatory retrofits of existing homes could unintentionally harm residents who have fixed incomes.

Respondents see the limits to adaptation due to the high cost of retrofits, non-compliant neighbors who do not clear brush, and the inherent dangers of living in an area with limited evacuation options. To overcome these barriers, respondents suggest local governments should provide grants to help costs associated with clearing vegetation and retrofits, improve enforcement of mandatory vegetation clearance, and increase public education about vegetation management and firewise retrofits.

Long-Term Opportunities for Adaptation

Respondents from the Santa Monica Mountains also suggested increasing public education on the topic of fire mitigation to increase residential compliance with vegetation management. In the Antelope Valley and the Santa Clarita Valley, respondents suggested limiting development in High Fire Hazard Severity Zones. In both areas, respondents suggested encouraging residents to install backup water supplies for use in defending their homes.

Flooding

With changing climate and weather patterns, rainfall events and flooding will become more prevalent, particularly in low-lying coastal areas and communities near mountain foothills. With steep watershed drainages, particularly from the San Gabriel Mountains into the Los Angeles Basin, Los Angeles County has had a long history of catastrophic flooding. Massive flood control projects have come to define much of urban Los Angeles, but the effects of climate change, wildfire, and drought have increased the risks of flooding and mudslides throughout the county. Due to the significant potential impacts of coastal and inland flooding, the ACA survey asked respondents to characterize if and how they have implemented adaptation strategies, and what their expectations are for future policy measures.

Impact

This study found that only 36% of all respondents have experienced at least one flood emergency. Less than half the number of respondents participated in the Flood survey (n=137) when compared to the Extreme Heat and Wildfire surveys.

Adaptation Strategies

Nearly half of the respondents (48%) have not taken any steps to adapt to flooding, although a small proportion have a flood evacuation plan (14%). Even fewer belong to a community emergency response group (10%) or have flood insurance (10%). However, some respondents have retrofitted their home (15%) to redirect water and mudflow away from the home by installing downspouts, drains, and building retaining walls.

Short-Term Future Adaptation Strategies

In the next 1 to 3 years, about equal proportions of respondents would consider developing an evacuation plan (25%) and finding ways to reduce stormwater runoff (22%).

Barriers to Adaptation

The most common perceived barriers to adapting to flood was not knowing whether one lives in an area at risk of flooding. As one respondent noted, this lack of awareness may expose communities to harm. While flood control infrastructure has successfully protected communities from flood for decades, these protective measures may fail.

"I live in a mobile home so I rent the space and have no say on what can be done to make it safer."

- Respondent, East County

Considering the projected increase of extreme precipitation from climate change, knowing whether a community is located in a designated flood hazard area and/or reliant on flood control measures for protection becomes increasingly salient. Not surprisingly along with lack of awareness of flood risk, respondents reported lack of knowledge about how to retrofit a home against flood.

Policy Feedback

Among respondents who are aware of flood risk, the management of water bodies and open space was highlighted to decrease community flood risk. Respondents described how debris from past fires such as the Station Fire collected in water bodies, reducing their capacity to hold water. This, in turn, increases the risk of flooding to adjacent lakeside communities. To mitigate flood risk, respondents suggested dredging the lakes as a preventive measure. Alongside these measures, respondents also suggested designating recreational areas, where feasible, that can also serve as retention and groundwater recharge areas during flood events.

Respondents also suggest providing public education to residents in flood-prone areas about the perils of hardening or channeling creeks, and inappropriate grading and siting of developments because these upstream alterations can result in flooding and mudslides downstream. Respondents also suggested raising awareness about how to evacuate safely by identifying bridges and streets that may be at risk of collapsing or flooding during extreme precipitation events.

“Retrofitting a home in a flood hazard area would be hugely expensive. Who knows if a flood will occur above “base flood elevation” and will that change over time?”

- Respondent, North County

Long-Term Opportunities for Adaptation

For overall long-term adaptations to flood, respondents ranked discouraging further development in flood-prone areas first. The second and third choice were to restore floodplains and to install permeable paving along streets. The least favored choices were mandatory retrofits of existing homes.

Respondents see limits to adaptation in the cost of retrofits, uphill neighbors who may grade improperly and increase the risk of mudflows, and living in a rural area with limited flood infrastructure. To overcome these barriers, respondents suggest local governments should dredge post-fire debris from waterbodies including creeks, install bioswales to slow water runoff and increase groundwater capture, prepare for flood emergencies, and increase public education around not altering existing water flow areas that will cause flooding and mudslides downstream.

IV. Conclusion

Summary of Findings

Key themes have emerged from the nearly 800 survey responses received for this assessment. In each of the hazard areas, respondents often promoted robust educational programming and community engagement related to hazard adaptation, resilience, and preparation. Respondents were well-informed about the risks and mitigation options but voiced a need for better communication and coordination between agencies and communities, updated information regarding policies and programs, and increased awareness within communities and between neighbors.

Across the three hazard areas, respondents consistently indicated that costs and the ability to make changes to their homes were the primary challenges for adaptation. The most common barrier to adapting to hazards is the cost burdens associated with new equipment and modifications to existing structures. Retrofitting homes for floods, fires, and extreme heat was seen as too costly for many respondents, regardless of income. Additional investment in homes is seen as difficult for elderly who are on fixed incomes and do not see high immediate return and

for renters who are not incentivized or allowed to invest additional resources in their home. Many respondents indicated that they rent their home and are unable to make changes to the property.

As expected, in each hazard area there were key differences between geographical areas and communities. Some of these differences included receptiveness to buy out programs and requiring retrofits of existing homes. This indicates that future adaptation programming will need to be tailored to the community that it is serving and that the stakeholder engagement process will be critical for program success.

There were areas of opportunity that respondents expressed interest in. Based on some of the challenges due to cost and lack of training, many respondents indicated that providing grant programs and incentives would be useful to increase participation in home retrofitting.

Cross-cutting themes in all three surveys reveal the limits of adapting on an individual level, suggesting opportunities for the County to act to fill the gap in community scale adaptive capacity. Providing training and grants to incentivize retrofits for existing developments, while passing ordinances to all developments be climate-ready are ways Los Angeles County can help mitigate against climate change.

V. Appendix

Extreme Heat Survey

The Los Angeles County Department of Regional Planning is asking for feedback to help us develop policies to reduce potential harm from extreme heat.

1. An extreme heat emergency is a period of high heat with temperatures above 90°F. Have you ever experienced an extreme heat emergency? If so, about how many times each year?
 - a. Once
 - b. Twice
 - c. More than twice
 - d. Never

2. How do you obtain notifications and information about extreme heat days? (select all that apply)
 - a. Word of mouth
 - b. Internet news
 - c. TV news
 - d. Radio
 - e. Social media

3. What have you changed in your lifestyle to adapt to extreme heat? (select all that apply)
 - a. Adjusted personal behavior (stay indoors, drink water)
 - b. Used an air conditioner
 - c. Visited a cooling center, mall, library, or other place with air conditioning
 - d. Found an outdoor space with overhead shade
 - e. Retrofitted the home (insulation, dual pane windows)
 - f. Planted trees to provide shade
 - g. None

4. Which of the following adaptation strategies for extreme heat would you consider in the next 1-3 years? (select all that apply)
 - a. Air conditioning
 - b. Insulate buildings / dual pane windows
 - c. Cool roofs
 - d. Rebates / discounts for retrofits to insulate home
 - e. Energy efficient appliances
 - f. Consultant provides free advice on how to retrofit home to reduce electrical bill
 - g. None

5. What are reasons the other strategies may not work for you?

6. During a heat emergency, if you do not plan to leave your home, what are your reasons for staying?
7. Rank the following long-term adaptation strategies to help your community stay cool from MOST to LEAST effective, with 1 being most effective and 3 being least effective.
 - a. Increase tree canopy cover in your community (residents provide water)
 - b. Cooling centers / other places with air conditioning
 - c. Install shade structures that protect pedestrians from the sun on streets and in public spaces
8. Can you recommend additional adaptation strategies for extreme heat that would work for your community?
9. During heat waves, high electricity use may cause power blackouts. What do you do in response to power blackouts? (select one)
 - a. I don't do anything. I use non-electrical devices during this time, and wait for the power to come back on
 - b. It doesn't affect me because I have a backup generator or I have my own power source
 - c. I leave the house and drive to a friend's or family member's house where electricity is available
10. When a power blackout happens, what are some challenges you may face? (select all that apply)
 - a. I rely on a medical device that requires power
 - b. I have no way to receive news or information
 - c. I have no way to call for help
 - d. I live in a remote area where help is far away
11. Do you have a disability that may affect your ability to get to an air-conditioned place during an extreme heat emergency?
 - a. No
 - b. Yes
 - c. Prefer not to say
12. What are challenges you encounter with extreme heat not covered in the previous questions? (select all that apply)
 - a. Don't know where cooling centers are located
 - b. Lack transportation to cooling centers
 - c. Home retrofit costs are too high
 - d. No shade trees because there is no space
 - e. Existing shade trees were removed because they became a hazard

- f. None
13. What are some ways to reach out to community members who may not be aware of risks from extreme heat?
14. What is your zip code?
15. What is your age?
- a. 18-24
 - b. 25-34
 - c. 35-44
 - d. 45-54
 - e. 55-64
 - f. 65-74
 - g. 75 or older
16. What is your gender?
- a. Female
 - b. Male
17. Are you a renter or homeowner?
- a. Renter
 - b. Homeowner
18. My income last year was:
- a. Under \$12,500
 - b. Between \$12,500 and \$19,999
 - c. Between \$20,000 and \$29,999
 - d. Between \$30,000 and \$49,999
 - e. Between \$50,000 and \$74,999
 - f. Between \$75,000 and \$99,999
 - g. Between \$100,000 and \$150,000
 - h. Over \$150,000
 - i. Prefer not to say
19. To get updates about the Los Angeles County Safety Element, provide us your email address:

Wildfire Survey

The Los Angeles County Department of Regional Planning is asking for feedback to help us develop policies to reduce potential harm from wildfires.

1. Have you ever experienced a wildfire emergency? If so, how many times?
 - a. Once
 - b. Twice
 - c. More than twice
 - d. Never

2. How do you obtain notifications and information during a wildfire emergency? (select all that apply)
 - a. Word of mouth
 - b. Internet news
 - c. TV news
 - d. Radio
 - e. Social media

3. Do you live or work in a Very High Fire Hazard Severity Zone?
 - a. No
 - b. Yes
 - c. I don't know if I live or work in a Very High Fire Hazard Severity Zone.
 - d. I don't know what a Very High Fire Hazard Severity Zone is.

4. What have you changed in your lifestyle to adapt to wildfire? (select all that apply)
 - a. Joined a wildfire safety group
 - b. Clearing vegetation around home (defensible space)
 - c. Retrofitted home to lower risk of burning
 - d. Evacuation plan
 - e. Considered moving to a less wildfire-prone area
 - f. None

5. Which of the following adaptation strategies for wildfire would you consider adopting in the next 1-3 years? (select all that apply)
 - a. Early evacuation
 - b. Shelter in place
 - c. Retrofitting home with less flammable materials
 - d. Clearing vegetation around home (defensible space)
 - e. Finding a secondary egress route
 - f. Find a new place to live where the fire risk is lower
 - g. None

6. What are reasons the other strategies may not work for you?

7. In a wildfire event, when do you plan to evacuate?
 - a. As soon as possible, without the need for an ordered evacuation
 - b. When a voluntary evacuation order is issued
 - c. When a mandatory evacuation order is issued
 - d. I do not leave

8. If you are not planning to leave, what are your reasons for staying?

9. Rank the following long-term wildfire adaptation strategies from MOST to LEAST effective, with 1 being most effective and 4 being least effective
 - a. Discourage further development in or close to undeveloped wildlands
 - b. Develop buyout programs for areas at greatest risk for wildfire so residents can relocate
 - c. Decrease reliance on the electrical grid (establish microgrids)
 - d. Require retrofits of existing homes built before 2008 to meet stronger fire safety standards

10. Can you recommend additional adaptation strategies for wildfire that would work for your community?

11. For public safety, utility companies may turn off electricity when high winds and dry conditions are forecasted. What do you do in response to a power shutoff? (select one)
 - a. I don't do anything. I use non-electrical devices during this time, and wait for the power to come back on
 - b. It doesn't affect me because I have a backup generator, or I have my own power source
 - c. I leave the house and drive to a friend's or family member's house where electricity is available

12. In the case of a power shutoff, what are some challenges you may face? (select all that apply)
 - a. I rely on a medical device that requires power
 - b. I have no way to receive news or information
 - c. I have no way to call for help
 - d. I live in a remote area where help is far away

13. Do you have a disability that may affect your ability to evacuate during a wildfire emergency?
 - a. No
 - b. Yes
 - c. Prefer not to say

14. What are challenges you encounter with wildfire not covered in the previous questions? (select all that apply)

- a. Lack funds for brush clearance
 - b. Don't know how to retrofit home against wildfire
 - c. Home retrofit costs are too high
 - d. Don't have permission to retrofit the home
 - e. Don't know where emergency shelters are located
 - f. None
15. What are some ways to reach out to community members who may not be aware of wildfire risks?
16. What is your zip code?
17. What is your age?
- a. 18-24
 - b. 25-34
 - c. 35-44
 - d. 45-54
 - e. 55-64
 - f. 65-74
 - g. 75 or older
18. What is your gender?
- a. Female
 - b. Male
19. Are you a renter or homeowner?
- a. Renter
 - b. Homeowner
20. My income last year was:
- a. Under \$12,500
 - b. Between \$12,500 and \$19,999
 - c. Between \$20,000 and \$29,000
 - d. Between \$30,000 and \$49,999
 - e. Between \$50,000 and \$74,999
 - f. Between \$75,000 and \$99,999
 - g. Between \$100,000 and \$150,000
 - h. Over \$150,000
 - i. Prefer not to say
21. To get updates about the Los Angeles County Safety Element, provide us your email address:

Flood Survey

The Los Angeles County Department of Regional Planning is asking for feedback to help us develop policies to reduce potential harm from flooding.

1. Have you ever experienced a flood emergency? If so, how many times?
 - a. Once
 - b. Twice
 - c. More than twice
 - d. Never

2. How do you obtain notifications and information during a flood emergency? (select all that apply)
 - a. Word of mouth
 - b. Internet news
 - c. TV news
 - d. Radio
 - e. Social media

3. Do you live or work in a designated flood zone?
 - a. No
 - b. Yes
 - c. I don't know if I live in a designated flood zone
 - d. I don't know what a designated flood zone is

4. What have you changed in your lifestyle to adapt to flooding? (select all that apply)
 - a. Joined a Community Emergency Response Team
 - b. Bought flood insurance
 - c. Elevated the house
 - d. Evacuation plan
 - e. Considered moving to a less flood-prone area
 - f. None

5. Which of the following adaptation strategies for flooding would you consider adopting in the next 1-3 years? (select all that apply)
 - a. Evacuation Plan
 - b. Reduce stormwater runoff
 - c. Elevate house
 - d. Restore floodplains
 - e. Participate in a buyout program / relocate
 - f. None

6. What are reasons why the other strategies may not work for you?

7. In a flood emergency, when do you plan to evacuate?
 - a. As soon as possible, without the need for an ordered evacuation

- b. When a voluntary evacuation order is issued
 - c. When a mandatory evacuation order is issued
 - d. I do not leave
8. If you are not planning to leave, what are your reasons for staying?
9. Rank the following long-term adaptation strategies from MOST to LEAST effective to lower risks from flooding, with 1 being most effective and 4 being least effective.
- a. Discourage further development in flood hazard areas
 - b. Require retrofits of existing homes above base flood elevation
 - c. Restore floodplains
 - d. Install permeable paving in streets and public spaces
10. Can you recommend additional adaptation strategies for flooding that would work for your community?
11. Do you have a disability that may affect your ability to evacuate during a flood emergency?
- a. No
 - b. Yes
 - c. Prefer not to say
12. What are challenges you encounter with flooding not covered in previous questions?
(select all that apply)
- a. Don't know where shelters are located
 - b. Don't know how to retrofit home against flooding
 - c. Home retrofit costs too high
 - d. Don't have permission to retrofit the home
 - e. None
13. What are some ways to reach out to community members who may not be aware of flood risks?
14. What is your zip code?
15. What is your age?
- a. 18-24
 - b. 25-34
 - c. 35-44
 - d. 45-54
 - e. 55-64
 - f. 65-74
 - g. 75 or older

16. What is your gender?

- a. Female
- b. Male

17. Are you a renter or homeowner?

- a. Renter
- b. Homeowner

18. My income last year was:

- a. Under \$12,500
- b. Between \$12,500 and \$19,999
- c. Between \$20,000 and \$29,999
- d. Between \$30,000 and \$49,999
- e. Between \$50,000 and \$74,999
- f. Between \$75,000 and \$99,999
- g. Between \$100,000 and \$150,000
- h. Over \$150,000
- i. Prefer not to say

19. To get updates about the Los Angeles County Safety Element, provide us your email address: