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SENT VIA ELECTRONIC MAIL

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November 25, 2025

Re: Improving UC Irvine's Climate Action and Adaptation Plan

Dear Mr. Deines:

We write to follow up on a series of Climate Action and Adaptation Planning workshops organized by UC Irvine Campus Planning and Sustainability in Fall 2025. The workshops were part of campus and UCI Health efforts to develop a Climate Action and Adaptation Plan (CAAP) to guide university greenhouse gas (GHG) emissions reduction, campus resilience, and alignment of operations with University of California (UC) sustainable practices policy and State of California commitments. The CAAP will update UC Irvine's 2016 Climate Action Plan (CAP). Since then, the university has made great strides. It has reduced GHG emissions by roughly 10,000 mtCO₂e annually, adopted deep energy efficiency programs such as on-site solar and all-electric new buildings, and participated in the UC Clean Power program, which provides 100% carbon free grid-imported power.

At the same time, UC Irvine's climate action planning with regards to adaptation and resilience would benefit from greater alignment with best practices according to **(1)** Engagement, Equity, and Justice; **(2)** People-based Policies; **(3)** Asset-based Policies; **(4)** Service-based Policies; **(5)** Co-Benefits; and **(6)** Implementation, Alignment, and Funding. Our recommendations focus on UC Irvine's "Climate Resiliency at UC Irvine" summary, a document that outlines existing and potential adaptation strategies and actions for UC Irvine's updated CAAP.¹ We also consider UC frameworks, policies, and information available via UCI Sustainability's Climate Action and Adaptation Plan website.² While our recommendations center on UC Irvine's adaptation and resilience actions, we point out where they may be applicable to mitigation as well.

¹ Cecilia Del Rivo, *Climate Resiliency at UC Irvine*, UC IRVINE (Oct. 2025).

² *Climate Action and Adaptation Plan*, UC IRVINE SUSTAINABILITY (2025), <https://sustainability.uci.edu/climate-action-and-adaptation-plan/>.

I. ENGAGEMENT, EQUITY, AND JUSTICE

UC Irvine’s 2016 Climate Action Plan (CAP) did not include considerations of equity or climate justice. Nor did it outline a framework to ensure that these concepts were incorporated into university climate action. UC Irvine’s CAAP should emphasize equity and justice throughout its creation, define important terms, choose among available equity frameworks, clearly outline the framework throughout the plan, and use it to make decisions, design policies, and enact CAAP strategies and actions. UC Irvine should ensure that all facets of university and Southern California regional populations are represented in working groups and advisory committees and include additional dimensions of vulnerability in its climate hazard analysis. For example, the University of California Riverside’s CAAP identified on- and off-campus groups, encouraged them to evaluate and prioritize actions, and through an iterative stakeholder engagement model ensured updated feedback during the CAAP development process.³ As with other university CAAPs, UC Irvine should ensure that there is an ongoing engagement process as part of CAAP implementation that allows for review of prioritization, gathering and analysis of performance measures, and design of additional policies as new issues arise. Engagement opportunities should consider accessibility concerns of UC Irvine and regional communities and provide corresponding assistance, such as physical access to in-person events and language access.

a. Definitions and Frameworks

The Climate Resiliency at UC Irvine document and UCI Sustainability’s website for the CAAP do not mention justice or equity with regards to climate adaptation. UCI Sustainability’s “Climate Action & Adaptation Plan” webpage mentions incorporating equity into decarbonization efforts, but does not define equity⁴ or justice,⁵ explain how equity is incorporated into planning efforts, or include a discussion of the role of equity in adaptation policy development. To improve the visibility of UC Irvine’s equity efforts through its CAAP, the plan and its accompanying website should include this information. This will allow for more helpful feedback by giving the public a better idea of how they are incorporating equity into their climate planning. UC Irvine’s website also lists members of its Working Group and provides a QR code to give feedback and locate members for an Advisory Committee to assist in CAAP implementation. Best practices for engagement include ensuring that the Working Group and Advisory Committee contain members representative of faculty, staff, and students across as many departments as possible and ensuring that disadvantaged communities and vulnerable populations are represented. For example, the Working Group and the Advisory Committee should include representation from people who work within or have experience with programs such as UCI’s Disability Services Center; Student Success Initiatives; Center for Black Cultures, Resources, and Research; DREAM Center; and Latinx Resource Center.⁶ This will ensure that the CAAP identifies and prioritizes issues that are important to all members of

³ *University of California Riverside Climate Action and Adaptation Plan Draft*, UC RIVERSIDE (Sep. 5, 2025), at 12, 26.

⁴ Equity can be defined as “the equal and fair distribution of opportunities, resources, and environments free from climate hazards and risks regardless of individual [or] group identify or background. *See Equity in Climate Planning: Trends and Best Practices for U.S. Local Governments*, ICLEI USA (2024), https://icleiusa.org/wp-content/uploads/2024/01/Equity-in-Climate-Planning_-Trends-and-Best-Practices-for-U.S.-Local-Governments.pdf.

⁵ California has an expansive definition of environmental justice, which includes the “fair treatment and meaningful involvement of people of all races, cultures, incomes, and national origins, with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies.” Cal. Gov. Code § 65040.12(e)(1) (2023). Justice in local planning should include considerations of distributive, procedural, recognitional, and restorative justice. *See e.g.*, DAVID SCHLOSBERG, *DEFINING ENVIRONMENTAL JUSTICE: THEORIES, MOVEMENTS, AND NATURE* (2007).

⁶ *See e.g.*, *Minority Thriving Campus*, UC IRVINE OFFICE OF UNDERGRADUATE ADMISSIONS, <https://www.admissions.uci.edu/discover/why-uci/diversity.php>.

the UC Irvine community and neighboring communities and improves equity during creation and implementation of the plan.

UC Irvine should employ an equity framework throughout the CAAP process. The University of California’s “A Framework for Incorporating Environmental & Climate Justice into Climate Action” (“UC Framework”) provides a natural starting point.⁷ The University of California’s Sustainable Practices Policy describes the UC Framework as central to integrating environmental justice into climate action.⁸ The Framework’s “Evaluation Questions for All Climate Actions” serves as a rubric for prioritizing equity and justice in climate action. Addressing each question ensures that “actions taken by the University of California are continuously evaluated for their impact on marginalized and disenfranchised communities that are often excluded from climate decisions.”⁹

- (1) What specific groups, on or off campuses, are directly and indirectly impacted by this climate action or policy proposal? Particularly think about marginalized groups and those historically not represented at the UC. Be as detailed as possible in brainstorming groups such as student commuters from South Los Angeles.
- (2) Who will benefit from and/or be burdened by this decision? Is this support or relief prioritized for the people and communities who need it the most and are already marginalized, lower income, disabled, communities of color?
- (3) What was the approach for engaging Black, Indigenous, and People of Color (BIPOC), and other underrepresented and marginalized groups, including people with disabilities and LGBTQIA communities, in reviewing this climate action? Particularly those mentioned in questions 1 & 2.
- (4) How could this climate action potentially ignore or worsen existing disparities or produce other unintended consequences on or off campuses? Please explain how you came to your answer and how you plan to remedy any disparities and unintended consequences.
- (5) How does this climate action proposal prioritize improvements, programs, and/or changes that address the needs of underrepresented and marginalized communities, on or off campuses? Please explain how you came to your answer.¹⁰

Importantly, the UC Framework notes that these questions “should be asked of all proposed climate actions.”¹¹ It is unclear from UCI Sustainability’s website or available resources whether UC Irvine has adopted an equity framework or how equity informed its process to date. If it has, Campus Planning and Sustainability should include this important information on its website as well as in the CAAP. If not, UC Irvine should integrate the UC Framework, in particular its evaluative questions, into the current planning process and continue its use during implementation, monitoring, evaluation, adaptive learning, and future updates.

b. Dimensions of Vulnerability

UC Irvine’s Climate Resiliency at UC Irvine document categorizes policies based on existing actions and future actions for implementation. This is important for understanding university amenities, infrastructure, and facilities in place to adapt to climate change and improve community resilience as well as for identifying important gaps. To improve UC Irvine’s adaptation strategy, the university should consider an additional framework to evaluate and classify existing and future actions

⁷ Karina Camacho & Gabrielle Ambayec, *A Framework for Incorporating Environmental & Climate Justice Into Climate Action*, UNIVERSITY OF CALIFORNIA (2022), https://www.ucop.edu/leading-on-climate/_files/uc-framework-for-ej-cj-in-climate-action_final-4.21.22.pdf.

⁸ *Policy of Sustainable Practices*, UNIVERSITY OF CALIFORNIA (April 10, 2024), <https://policy.ucop.edu/doc/3100155/SustainablePractices>, at 12.

⁹ *Id.*

¹⁰ *Id.*

¹¹ *Id.*

according to specific vulnerabilities of the university and region’s people, assets, and services. A climate change vulnerability assessment involves identifying climate impacts and “identifying the community assets that could be impacted by climate change, the severity of impacts, and the ability of the community to prepare for and reduce potential adverse impacts.”¹²

Climate change vulnerability assessment can improve UC Irvine’s ability to protect vulnerable groups from the impacts of climate change. For example, the City of Oxnard’s CAAP includes three dimensions of climate change vulnerability: exposure, sensitivity, and adaptive capacity.¹³ The City notes that including these dimensions are important, because “[t]he vulnerability of the population, facilities, and infrastructure also depends on a variety of factors, including their level of exposure to climate change hazards, their sensitivity to those hazards, and their ability to withstand the impacts (i.e., adaptive capacity).”¹⁴ Because climate hazards do not impact all populations and infrastructure equally, these dimensions guarantee that adaptation policies are attuned to the specific type and intensity of impacts faced by populations and infrastructure.

UC Irvine should adopt these dimensions of vulnerability and apply them to People, Assets, and Services for each relevant climate impact. This evaluative work will also support UC Irvine’s integration of the UC Framework for Environmental Justice and Climate Justice in Climate Action. For example, the UC Framework defines “Climate Action” as strengthening “resilience and adaptive capacity.”¹⁵ Evaluating adaptive capacity for each population and asset aligns with the University of California’s understanding of climate action. Furthermore, the Framework’s “Best Practices” for health impact assessment suggest including “environmental factors, such as exposure risks, as part of community health assessments” and notes that monitoring “climate vulnerability [...] is necessary to better understand the public health impacts of climate change and environmental shifts.”¹⁶ The Framework also calls for the use of data tools to “identify the frontline communities and vulnerable populations most impacted by climate change policy areas.”¹⁷ Evaluating exposure and sensitivity of populations and infrastructure fulfills these recommendations and better integrates equity into UC Irvine’s climate action planning.

At a minimum, before completing their final CAAP, UC Irvine should evaluate each adaptation action according to the above dimensions of vulnerability: exposure, sensitivity, and adaptive capacity. UC Irvine should also include a policy in its CAAP to complete a climate change vulnerability assessment according to the current state of the art prior to its next CAAP update. The UC Framework lists available data tools to inform vulnerability assessment, including Cal-Adapt, the Urban Heat Island Index for California, CalEnviroScreen, the Regional Opportunity Index, and the Healthy Places Index.¹⁸

In addition, California’s Fifth Climate Change Assessment, which will be published in 2026, provides detailed projections for the social impacts of climate change in Southern California according to people and communities that the State of California defines as vulnerable: “Vulnerable communities experience heightened risk and increased sensitivity to climate change and have less capacity and fewer resources to cope with, adapt to, and recover from climate impacts” as a result of

¹² See e.g., *Assessing Vulnerability*, SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS, https://maps.scag.ca.gov/climate/?page=page_3.

¹³ *Climate Action and Adaptation Plan*, CITY OF OXNARD (Dec. 7, 2022), at 4–10.

¹⁴ *Id.*

¹⁵ *Supra* n. 7, at 7.

¹⁶ *Id.* at 18.

¹⁷ *Id.* at 19.

¹⁸ *Id.*

physical, social, and other factors that “include but are not limited to race, class, ethnicity, gender, sexual orientation, national origin, income inequality, and disability.”¹⁹ Examples of vulnerability discussed in the Fifth Climate Change Assessment for Southern California that are relevant to UC Irvine students, staff, and neighboring communities include, among others:

- (1) Climate vulnerability according to race, gender, age, income, disability, housing, and health;
- (2) Interactive effects of climate-driven extreme events and race, gender, age, income, disability, housing, and health;
- (3) Extreme heat exposure burden and its distribution across Southern California;
- (4) Extreme heat, learning loss, and academic performance;
- (5) Extreme heat, energy burden, cooling strategies, access to care, and public health outcomes;
- (6) Exposure to wildfire smoke and respiratory and cardiovascular disease as well as long-term health impacts (including from ozone and wildfire-specific PM_{2.5} which is up to 10 times more harmful than PM_{2.5} from other sources);
- (7) Wildfires in the wildland-urban interface that can result in increased concentrations of hazardous air pollutants (e.g., lead) in ambient air;
- (8) Housing burden, housing precarity, and unhoused populations and recovery from wildfire and flood events;
- (9) Wildfire impacts on low-wage occupations (e.g., construction, maintenance) that depend on in-person labor (e.g., income loss, long-term economic instability) as well as the uninsured;
- (10) Limited mobility, dependence on medical equipment, and evacuation that increase the need for accessible evacuation plans and specialized support services;
- (11) Indoor air quality concerns such as elevated volatile organic compound (VOC) emissions from building materials and the need to better differentiate sources of indoor particulate matter and VOCs in a changing climate;
- (12) Reproductive health and maternal exposure to air concentrations of PM_{2.5}, NO₂, and ozone in a changing climate;
- (13) Children and exposure to air concentrations of PM_{2.5}, NO₂, and ozone in a changing climate;
- (14) Seniors and exposure to air concentrations of PM_{2.5}, NO₂, and ozone in a changing climate;
- (15) Outdoor and indoor worker vulnerability to PM_{2.5} and ozone in a changing climate;
- (16) Flooding and erosion (as well as compound flooding and erosion) and social and structural disadvantage; and
- (17) Compound flood risks (e.g., shallow and deep flooding) and social and structural disadvantage.

California’s Fifth Climate Change Assessment will offer a comprehensive framework for climate change vulnerability assessment and for asking of each climate action – as the UC Framework strongly encourages – how it will benefit or burden vulnerable populations, prioritize or address their needs, and reduce or worsen disparities.

II. PEOPLE-BASED POLICIES

The Climate Resiliency at UC Irvine document includes existing and potential adaptation actions that are applicable to university People, Assets, and Services.²⁰ This section evaluates how its people-based adaptation policies address the intersection of climate hazards and vulnerable populations, and where policies should be reconsidered or improved. The Climate Resiliency at UC Irvine document addresses people with limited mobility, outdoor workers, and the general UC Irvine population. It includes one policy related to linguistic accessibility.²¹ It also addresses the following hazards: severe weather events (generally), food insecurity, extreme heat, wildfire and smoke, and flooding. Gaps in UC Irvine’s people-based adaptation policies include: (1) protections for outdoor and indoor

¹⁹ ICARP *Climate Equity and Vulnerable Communities*, CALIFORNIA GOVERNOR’S OFFICE OF LAND USE AND CLIMATE INNOVATION (2025), <https://lci.ca.gov/climate/icarp/vulnerable-communities.html>.

²⁰ *Supra* n. 1.

²¹ *Id.* at 3.

workers; (2) policies tailored to populations with pre-existing medical conditions; (3) policies to assist off-campus students, staff, faculty, and communities; and (4) actions to assist socioeconomically disadvantaged members of the UC Irvine community.

a. Outdoor and Indoor Workers

California’s Office of Environmental Health Hazard Assessment notes that heat is the leading cause of weather-related death in the United States. Extreme heat is of particular concern to indoor and outdoor workers and “can occur during any season if the conditions are right, not only during heat waves.”²² Our understanding of extreme heat and its effects on the human body remains in its early stages of development, with newer findings showing that temperature change can be more determinative of potential injury than absolute temperature. The Climate Resiliency at UC Irvine document lists one existing action for protecting outdoor workers from heat illness through prevention training and facilitating cooling during extreme heat.²³ As part of updated CAAP actions, the document states that the university will “[e]xpand extreme weather protocols for outdoor workers and provide training on protocols, resources, and other measures workers can take to protect their health from extreme heat and wildfire smoke.”²⁴

To improve policies related to extreme weather events and workplace health, UC Irvine should strengthen their CAAP by incorporating Division of Occupational Safety and Health (Cal/OSHA) regulations and explaining its obligations to protect indoor as well as outdoor workers from extreme heat events.²⁵ In 2005, Cal/OSHA enacted regulations to protect outdoor workers from heat.²⁶ The rules include requirements for employers to provide drinking water and access to cool-down areas, encourage rest periods, and generate and implement high-heat and emergency response procedures, including through training and Heat Illness Prevention Plans.²⁷ On June 20, 2024, Cal/OSHA adopted a new rule regarding “Heat Illness Prevention in Indoor Places of Employment” that “establishes required safety measures for indoor workplaces to prevent worker exposure to risk of heat illness.”²⁸ Therefore, as of 2024, Cal/OSHA regulations for indoor and outdoor workers cover heat triggers applicable to indoor and outdoor work environments, access to water, shade, and cool-down areas, rest periods and high-heat procedures, and weather monitoring and training for supervisors, among other requirements.²⁹

Aligning UC Irvine standards, policies, and procedures for heat illness with Cal/OSHA rules is important to ensure that workers, supervisors, and the university writ large fully understand their rights and obligations. This includes a system to ensure compliance with safe work practices, a system for effective communication with supervisors, provisions that encourage workers to identify and report hazards and unsafe work conditions without fear of retaliation, and systems to investigate all work-related health and safety complaints and accidents, address and correct job hazards, and keep workers safe during investigations. UC Irvine can assume a leadership role in updating our

²² *Extreme Heat*, OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT (July 1, 2024), <https://oehha.ca.gov/climate-change/epic-2022/changes-climate/extreme-heat>.

²³ *Id.* at 2.

²⁴ *Id.* at 4.

²⁵ See *Overview: Working in Outdoor and Indoor Heat Environments*, OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION, <https://www.osha.gov/heat-exposure>.

²⁶ *Id.*

²⁷ *Id.*

²⁸ *Id.*

²⁹ *Cal/OSHA Heat Illness Prevention Guidance and Resources*, STATE OF CALIFORNIA DEPARTMENT OF INDUSTRIAL RELATIONS, <https://www.dir.ca.gov/dosh/heatillnessinfo.html>.

rapidly evolving understanding of heat-related illness that will potentially render existing regulations obsolete. For example, extreme, rapid changes in temperature can cause heat illness at as low as 70 degrees Fahrenheit, while heat regulations may only apply when temperatures reach a certain high, such as the 82 degrees Fahrenheit threshold for indoor workers. Better understanding heat risk is critical for crafting effective policies to protect both indoor and outdoor workers.

Other CAAPs in California have already incorporated Cal/OSHA standards by reference. For example, the City of Oxnard’s CAAP includes policies to “[p]romote enforcement of Cal/OSHA standards to protect against extreme heat” and “[e]nsure Cal/OSHA rules are known and enforced.”³⁰ Similarly, UC Irvine should strengthen its CAAP by providing details on specific measures that will be prioritized to “protect [worker] health from extreme heat and wildfire smoke.”³¹ This should include policies that provide air filters, shelters specifically for workers during extreme weather events, and “disseminat[ing] air masks to outdoor workers.”³² While general policy statements to expand worker protection are important, detailed policies will allow the UC Irvine community to provide constructive feedback on where adaptive measures fall short in addressing concerns related to indoor and outdoor workers. This is important given Cal/OSHA’s inability to adequately protect California workers. A recent audit of Cal/OSHA found “critical weaknesses” in the agency’s enforcement processes and staffing levels as well as outdated practices that limit its ability to prevent workplace injury.³³

b. Pre-Existing and Chronic Medical Conditions

The Climate Resiliency at UC Irvine document provides several tailored policies for outdoor workers and people with limited mobility. There are other potentially vulnerable populations within the UC Irvine community that are not addressed, including people with pre-existing and chronic medical conditions. People with medical conditions are more vulnerable to severe weather events and long-term issues such as extreme heat events, wildfire smoke, and air quality. The Climate Resiliency at UC Irvine document identifies one existing action related to air quality: “Continuous outdoor and indoor air quality monitoring are performed by [Environmental Health and Safety] for the duration of a wildfire event, until such a time when the event no longer poses a health impact to the UC Irvine community [...].”³⁴ Best practices for climate adaptation include increased measures for people with pre-existing and chronic medical conditions, such as asthma and cardiovascular disease, as well as air quality monitoring that extends beyond wildfire events.

Climate action planning can address vulnerabilities specific to people with pre-existing and chronic medical conditions by providing additional resources, conducting ongoing monitoring of air quality and heat, and raising awareness of these issues to vulnerable groups through outreach and engagement. For example, the City of Oxnard includes a policy to “[s]upport retrofits to public facilities and housing to improve indoor air quality.”³⁵ This policy ensures retrofits are prioritized for “families with health conditions exacerbated by air pollution,” along with other vulnerable groups.³⁶

³⁰ *Climate Action and Adaptation Plan*, CITY OF OXNARD (Dec. 7, 2022), at 4-15, 4-24.

³¹ *Supra* n. 1, at 4.

³² *Supra* n. 30, at 4-24.

³³ Karen F. Tynan & Robert C. Rodriguez, *California State Auditor Reports Critical Weaknesses in Cal/OSHA’s Processes*, OGLETREE DEAKINS (July 21, 2025), <https://ogletree.com/insights-resources/blog-posts/california-state-auditor-reports-critical-weaknesses-in-cal-oshas-processes/>.

³⁴ *Supra* n. 1, at 3.

³⁵ *Supra* n. 30, at 4-24.

³⁶ *Id.*

The City of Paramount’s CAP includes a policy to “[p]romote greater awareness of the impacts of extreme heat exposure on the most highly impacted populations, such as [...] those with chronic conditions.”³⁷ UC Irvine should consider including adaptation policies that ensure people with pre-existing and chronic medical conditions are protected from climate hazards, especially long-term air quality and extreme heat events, and prioritize these community members with outreach, awareness campaigns, and supplementary resources. UC Irvine should also ensure that it provides advanced filtration technologies and plans for more frequent HVAC filter replacements and system maintenance, as increased electrical loads and elevated levels of particulate matter infiltration into indoor environments stress those systems.

c. Socioeconomically Disadvantaged Populations

Socioeconomic conditions can impact the ability of students, staff, and faculty to respond to climate hazards, including wildfire, extreme heat, flooding, and other severe weather events. UC Irvine claims a reputation for being “unsurpassed at helping low-income, first-generation, and other nontraditional students thrive in college and beyond.”³⁸ The presence of a socioeconomically diverse population at UC Irvine should be carefully considered in climate action planning. Policies tailored to community members who are socioeconomically disadvantaged are crucial, as disadvantaged populations may have fewer financial resources to evacuate and recover from severe weather events. UC Irvine’s CAAP should address the university and region’s socioeconomically vulnerable populations with appropriate policies. For example, the City of Rialto focuses on identifying vulnerable populations and offering resources:

Vulnerable Population Registry. Develop a voluntary vulnerable population registry and subsequent priority list to help first responders better provide services and meet the needs of those most in need. [...]

Implementation Action 5.1d: Disaster Kits. Work with local places of worship and local non-profits, such as the Community Action Partnership of San Bernardino County, to create disaster kits for families in disadvantaged communities. This should include disaster supplies and guidance on how to collect and store important documents. [...]³⁹

UC Irvine policies to address vulnerable populations should be designed through extensive outreach and meaningful consideration and incorporation of feedback into CAAP strategies and actions. Examples include policies that address the concerns of vulnerable populations such as: (1) cooling expense as a share of household income; (2) unsafe indoor air quality and respiratory illness; (3) cool pavement and heat adaptation programs in communities vulnerable to heat; (4) cool roof installations to mitigate heat island effect; (5) tree canopy in disadvantaged communities; (6) cooling centers to provide immediate heat relief; (7) nature-based solutions such as drought-tolerant landscaping and stormwater capture; (8) landscape and site design guidelines that integrate cooling and resilience standards in new development; (9) updates to stormwater drainage infrastructure including green infrastructure that supports infiltration and stormwater recharge to reduce flood risk and increase water supply and quality; (10) planning for sediment-laden floods after extreme runoff and wildfire events; (11) water filtration systems, vegetation, and physical barriers to toxic sites; (12) structural hardening and vegetation management to reduce exposure and vulnerability to wildfire risk; (13) compliance with California requirements for ignition-resistant materials and preventing

³⁷ *City of Paramount Climate Action Plan*, CITY OF PARAMOUNT (July 2021), at 5-5.

³⁸ *Advancing the American Dream*, UCI MAGAZINE (Fall 2018), <https://news.uci.edu/magazines/articles/advancing-the-american-dream/>.

³⁹ *City of Rialto Climate Adaptation Plan*, CITY OF RIALTO (2021), at 77, 79.

embers from entering built structures to reduce the probability of structure loss; (14) maintaining fuel breaks, defensible space, and redundant road access for evacuation; (15) adopting strategies for improved soil health to support water storage and filtration; (16) vegetation that mitigates heat impacts and protects biodiversity; (17) transit options between campus and areas where UC Irvine community members live, work, train, and access childcare as well as subsidized GHG-friendly transit options; (18) additional emergency transit options; (19) enhanced air quality monitoring including real-time monitoring for ozone, PM_{2.5}, and hazardous air pollutants as well as public alerts during heat and high pollution events; (20) enhanced indoor ventilation and filtration systems; (21) sea level rise vulnerability assessment and adaptation pathways to manage multiple flood risks for the university and region; (22) emergency communications and service; and (23) recruitment of community health workers to provide education and resources.⁴⁰

d. Off-Campus Community Members

Off-campus community members, especially those who fall within one or more of the vulnerable populations discussed above, face climate hazards that are not addressed in the Climate Resiliency at UC Irvine document. One of the adaptive measures that UC Irvine should evaluate is the ability to assist off-campus community members during severe weather and extreme heat events. Currently, there are no maximum temperature or cooling requirements for rental units in most of California.⁴¹ In Fall 2024, 53% of UC Irvine undergraduates and 37% of graduate students lived off-campus.⁴² Faculty, staff, and students living off-campus in rental accommodations without air conditioning may struggle during extreme heat events. Off-campus community members will also face difficulties during severe weather events and emergency evacuations and are often unaware of local government protocols and procedures.

UC Irvine can address these concerns through its CAAP by providing outreach and resources where possible and collaborating with local and county-level partners. For example, the City of Irvine's CAAP includes the following policy: "Collaborate with local, regional, state, and federal partners to support social and economic resilience."⁴³ This policy states that the city will "[e]stablish relationships with [the Federal Emergency Management Agency] and [Centers for Disease Control and Prevention]," "[c]oordinate with surrounding municipalities," and "[c]oordinate with regional healthcare facilities" to prepare for extreme weather events and improve "evacuation and emergency management protocols."⁴⁴ UC Irvine should include a similar policy of coordination to ensure that off-campus members of UC Irvine are prepared for severe weather events by working with local governments and raising awareness of emergency procedures. UC Irvine should also consider creating and coordinating a "Know Your Neighbor Program" through which university community members can provide resources and check in on each other during extreme weather events.⁴⁵

⁴⁰ See e.g., "Strategy TR3a," *City of Paramount Climate Action Plan*, CITY OF PARAMOUNT (July 2021), at 4-50; see also *id.* at "Strategy CR1," 5-5.

⁴¹ See Nathan Solis, *What's the Cost to Cool Los Angeles? City Explores A Cooling Mandate for All Rental Units*, LOS ANGELES TIMES (June 3, 2023), <http://latimes.com/california/story/2023-06-03/los-angeles-explores-a-cooling-mandate-for-all-rental-units>.

⁴² See Erica Leal, *Home Away from Home*, UC IRVINE NEWS (June 27, 2025), <https://news.uci.edu/2025/06/27/home-away-from-home/>.

⁴³ *City of Irvine Climate Action and Adaptation Plan*, CITY OF IRVINE (Feb. 2023), at 78.

⁴⁴ *Id.*

⁴⁵ *City of Rialto Climate Adaptation Plan*, CITY OF RIALTO (2021), at 79.

III.ASSETS

This section evaluates how UC Irvine’s asset-based adaptation policies address the intersection of climate hazards and vulnerable infrastructure and where those policies could be improved. Two key suggestions include creating policies that consider additional climate hazards that are not mentioned in the Climate Resiliency at UC Irvine document and delineating specific infrastructure types to create tailored asset-related policies.

a. Additional Hazards

The Climate Resiliency at UC Irvine document addresses important hazards, including extreme heat, precipitation, flooding, and drought. However, it does not include policies related to other hazards, such as the intersection of sea level rise and landslides/liquefaction (failure of water-saturated soil). These hazards were identified in the City of Irvine’s CAAP and Vulnerability Assessment. The City of Irvine’s Vulnerability Assessment notes that “[w]hile Irvine is not considered a coastal community, their drainage infrastructure connects to the ocean.”⁴⁶ Because of this, future sea level rise could “impact future flooding in the city” by affecting drainage infrastructure.⁴⁷ The City of Irvine identified critical facilities and facilities of concern that could be affected by flooding exacerbated by sea level rise.⁴⁸ The Climate Resiliency at UC Irvine document lists two actions related to assets at risk of flooding, including UC Irvine’s Stormwater Plan and regular clearing of drains and catch basins prior to major storm events.⁴⁹ In its policies for CAAP implementation, it only includes one policy related to “rain/flood” that involves partnering with Irvine Ranch Water District on water reuse.⁵⁰ In order to fully address sea level rise, UC Irvine should include adaptation policies that identify critical facilities and facilities of concern that could be vulnerable to flooding due to sea level rise.

UC Irvine should also adopt policies that simultaneously address sea level rise as well as increases in precipitation and flooding. For example, the UC Carbon Neutrality Initiative’s “Design Guidance for Future Climate Realities” suggests completing a stress test to “assess system performance under future rainfall conditions.”⁵¹ The Design Guidance also calls for future rainfall analyses for storm drainage pipes, overland flood control devices, pumping and lift stations, and creeks, streams, and rivers.⁵² To conform itself to the Design Guidance, address sea level rise’s potential impacts on drainage infrastructure, and further consider the impact of increased precipitation on university assets, UC Irvine’s CAAP should include policies to: 1) identify critical facilities and facilities of concern, 2) conduct a “stress test” for such infrastructure, and 3) conduct future rainfall analyses on applicable stormwater and flood control devices.

Another related hazard addressed by the City of Irvine that is not discussed in the Climate Resiliency at UC Irvine document is landslides and liquefaction. The City of Irvine’s Vulnerability Assessment notes that more intense and frequent rainfall could “increase the future risk of liquefaction in Irvine.”⁵³ To address this issue, the city’s CAAP includes several policies to “[c]oordinate with local

⁴⁶ *City of Irvine Climate Action and Adaptation Plan, Appendix B: Vulnerability Assessment*, CITY OF IRVINE (Feb. 2023), <https://legacy.cityofirvine.org/civica/filebank/blobdownload.asp?BlobID=36279>, at 61.

⁴⁷ *Id.*

⁴⁸ *Id.* at 62.

⁴⁹ *Supra* n. 1, at 2–3.

⁵⁰ *See id.* at 6.

⁵¹ *Design Guidance for Future Climate Realities: Version 1.1*, UC CARBON NEUTRALITY INITIATIVE, at 7.

⁵² *See id.*

⁵³ *Supra* n. 46, at 71.

and regional partners to prepare and respond to liquefaction and landslide events,” “[e]ducate the community” about these events, and “[d]esign facilities to be resilient to liquefaction or landslide event[s].”⁵⁴ Based on its presence in the City of Irvine’s Vulnerability Assessment and CAAP policies, UC Irvine should identify UC Irvine facilities at risk of liquefaction and landslide and include policies to strengthen infrastructure and alert the community to the risks and resources available.

b. Categorizing Infrastructure

In addition to including policies that consider sea level rise and liquefaction/landslides, UC Irvine could improve its asset-related CAAP policies by distinguishing among different types of infrastructure and grouping policies accordingly. The Climate Resiliency at UC Irvine document includes a policy to “[i]dentify and prioritize upgrades to infrastructure and assets by mapping out the campus for critical buildings that need upgrades the most.”⁵⁵ However, identifying and classifying infrastructure should be conducted as part of the *initial* assessment to inform CAAP policies, whereby buildings are catalogued based on their use and exposure, as adaptation policies can differ markedly based on the purpose of infrastructure and its level of vulnerability to climate hazards. For example, a university may have residential buildings, critical infrastructure that supports the main functions of the university, and recreational and natural resource areas.

While identifying needed upgrades and “creat[ing] climate resilient infrastructure design guidelines” for new projects will assist in adaptation generally, identifying and categorizing buildings will improve the specificity of adaptation policies. For example, the City of Irvine’s Vulnerability Assessment categorizes facilities according to the following groups: city vital operations, city community centers, city resident services, and city recreation support.⁵⁶ Residential buildings may prioritize adaptation policies related to providing air conditioning to address extreme heat and air filters to improve indoor air quality. Recreational support infrastructure may prioritize policies related to drought and wildfire-resistant landscaping and proper drainage. Community center infrastructure, such as resilience hubs, may prioritize policies for emergency transportation, accessibility, and back-up generators.⁵⁷ Identifying which buildings require climate-related updates, the purpose of such buildings, and which climate impacts pose the greatest threat to each type of building will inform applicable adaptation policies. Infrastructure-specific adaptation priorities should be designed for natural and working lands (e.g., chaparral, conifers) and waters (wetlands and estuaries) as well as built systems (e.g., energy systems, roads, reservoirs, groundwater basins, surface water capture, flood management systems, and housing).

IV. SERVICES

This section evaluates how UC Irvine’s service-based adaptation policies address the intersection of climate hazards and the UC Irvine community, and where the policies could be improved. The Climate Resiliency at UC Irvine document identifies existing services of wildfire-related air quality monitoring, wildfire crisis communication, and mosquito removal activities.⁵⁸ It also identifies implementation actions to identify vulnerable research materials and supply chains, update extreme heat plans, expand refuge areas, create data backup plans, integrate climate resilience messaging into

⁵⁴ *Supra* n. 43, at 86.

⁵⁵ *Supra* n. 1, at 5.

⁵⁶ *Supra* n. 46, at 19.

⁵⁷ *City of Rialto Climate Adaptation Plan*, CITY OF RIALTO (2021), at 57.

⁵⁸ *Supra* n. 1, at 3.

curricula, establish a resilience funding strategy, and create a CAAP advisory working group.⁵⁹ These policies will help protect research and data, increase shelter availability, improve resilience funding and education, and increase community involvement in adaptation. The service-based adaptation policies should also discuss transportation, linguistic access, and emergency amenities.

a. Access: Transportation and Linguistic Resources

The Climate Resiliency at UC Irvine document includes a people-related policy identifying UC Irvine’s “Know Your Zone Evacuation Plan” that includes evacuation transportation for campus communities. However, its service-related policies do not discuss transportation resiliency and additional emergency transportation options.⁶⁰ Other CAAPs contain adaptation policies to improve transportation resilience, especially during emergency events. For example, the City of Santa Monica’s CAAP includes a policy to “Enhance Regional Transportation Resilience” that includes “protect[ing] critical entry and exit routes.”⁶¹ In addition to improving transportation readiness during emergency events, some CAAPs include policies to fortify transportation in anticipation of exacerbated climate impacts. The City of Irvine’s CAAP has a policy that requires “future transportation infrastructure projects consider current and future flood risk.”⁶² This ensures new transportation projects are designed to withstand existing and projected hazards, protecting them from protracted and acute climate events.

UC Irvine should improve its service-related adaptation efforts by creating policies to identify critical and vulnerable transportation routes and services and update and enhance these services. In addition, UC Irvine should improve its transportation evacuation actions by including a policy to “[c]oordinate with regional and local transportation and transit agencies to ensure continued access and movement in the event of an emergency.”⁶³ This will not only ensure a evacuation from UC Irvine’s campus to surrounding areas if necessary, but also assist in UC Irvine’s ability to account for and support off-campus students, staff, and faculty during emergencies.

The Climate Resiliency at UC Irvine document could also improve its service-related adaptation policies through increased linguistic accessibility. The document notes that UC Irvine’s public address system has capabilities to report evacuation messages in five languages.⁶⁴ This is a service that should be expanded across every element of UC Irvine’s climate-resilient planning. For example, UC Irvine’s CAAP should commit to translating all of its emergency and evacuation materials, such as the “Know Your Zone Evacuation Plan.”⁶⁵ UC Irvine should also enlist linguistically diverse students and staff to help with its climate action efforts. This would not only ensure important materials are translated but also give UC Irvine an opportunity to meet with students and staff and learn about other language accessibility issues and linguistically isolated communities on and off campus. UC Irvine should take a leadership role in ensuring that the scale and scope of language access requirements under laws passed decades ago are met or exceeded across campus and Southern California. For example, linguistic characteristics are considered as part of “ethnic group identification” under California Government Code Section 11135, which prohibits

⁵⁹ *See id.* at 6–7.

⁶⁰ *Id.* at 1.

⁶¹ *City of Santa Monica Climate Action & Adaptation Plan: A 2030 Community Plan to Reduce Carbon Emissions & Become Climate Resilient*, CITY OF SANTA MONICA (May 2019), at 45.

⁶² *Supra* n. 43, at 84.

⁶³ *Id.* at 80.

⁶⁴ *Supra* n. 1, at 3.

⁶⁵ *Id.* at 1.

discrimination by the state or a state agency on the basis of race, national origin, ethnic group identification, and other factors.⁶⁶

b. Emergency Services

UC Irvine’s service-related adaptation policies should include additional actions related to providing resources and fortifying facilities and amenities, especially during emergency events. UC Irvine could do so by strengthening its policies related to resilience hubs. The Climate Resiliency at UC Irvine document includes a service-related policy to “[e]xpand building spaces identified to be used a[s] formal refuge areas (for the campus and broader community).”⁶⁷ This policy can ensure that there are spaces available for UC Irvine neighboring communities during extreme weather events. To further strengthen these policies, UC Irvine should include policies to assess and implement recommended criteria for refuge areas. For example, the City of Rialto’s CAAP uses a “Cooling Center Assessment” to evaluate cooling centers for, among other criteria: air conditioning, ADA accessibility, seating, access to potable water, access to 911 services, proximity to public transport, back-up generators, communication services, and follow-up procedures for those in need of additional services.⁶⁸ Creating an adaptation policy to assess and implement these criteria for campus resilience hubs and refuge areas will ensure that emergency shelters are fully functional and accessible.

In addition to improving on-campus resiliency, UC Irvine should strengthen its efforts to protect off-campus community members and the region by enacting a policy to “[c]oordinate with regional utilities to enhance the preparedness, protection, and resilience of water, energy, and telecommunications infrastructure.”⁶⁹ This will help UC Irvine remain connected and coordinated with crucial regional services during emergency periods. UC Irvine could also create a policy to create and disseminate disaster kits.⁷⁰ This would provide emergency supplies to community members who are unable to fully respond to severe weather events.

V. CO-BENEFITS

In climate action planning, co-benefits are additional benefits to “individual households, businesses, and communities” that result from climate actions, including “social, economic, and environmental benefits” such as cleaner air, job creation, and public health benefits.⁷¹ Co-benefits are an important element of climate action, as they can be used to demonstrate the beneficial effects of climate action to the public, increase community buy-in, and assist in policy prioritization. UC Irvine’s 2016 CAP did not include a discussion of co-benefits. UC Irvine’s updated CAAP should 1) identify co-benefits that are important to the UC Irvine community, 2) quantify these co-benefits, and 3) release plan updates regarding how CAAP actions further co-benefits.

⁶⁶ California Government Code § 11135 provides that “No person in the State of California shall, on the basis of sex, race, color, religion, ancestry, national origin, ethnic group identification, age, mental disability, physical disability, medical condition, genetic information, marital status, or sexual orientation, be unlawfully denied full and equal access to the benefits of, or be unlawfully subjected to discrimination under, any program or activity that is conducted, operated, or administered by the state or by any state agency, is funded directly by the state, or receives any financial assistance from the state.” Cal. Gov’t Code § 11135(a).

⁶⁷ *Supra* n. 1, at 7.

⁶⁸ *Supra* n. 57, at 57.

⁶⁹ *Supra* n. 43, at 80.

⁷⁰ *Supra* n. 57, at 77.

⁷¹ *California Climate Investments Co-Benefit Assessment Methodologies*, CALIFORNIA AIR RESOURCES BOARD, <https://ww2.arb.ca.gov/resources/documents/cci-methodologies>.

Best practices for co-benefit assessment include choosing co-benefits that are measurable and important to the community, accurately quantifying co-benefits, and reporting co-benefits to the public. The California Air Resources Board (CARB) provides guidance on co-benefits, including assessment methodology for the following co-benefits: jobs, air pollutant emissions, travel cost savings, vehicle miles traveled, energy and fuel cost savings, water savings, soil health and conservation, health, community engagement, anti-displacement, and accelerated implementation of technology.⁷² Through the California Climate Investments Program, CARB also makes benefit assessment tools available to help agencies and project recipients monitor and report on project benefits.⁷³

UC Irvine should identify co-benefits that are important to the UC Irvine community through engagement and outreach. This could be included as part of the surveys and workshops used for overall CAAP outreach. Next, UC Irvine should identify which of these co-benefits can feasibly be measured and tracked based on available data, staff capacity, and resources. Then, UC Irvine should commit to releasing updates regarding co-benefit progress on a regular basis through CAAP updates or monitoring reports. Within the plan itself, co-benefits can be included alongside measures that produce them. For example, the City of Dallas's CAP includes twelve co-benefits related to mitigation as well as adaptation efforts: improved public health and well-being; cost savings; improved air quality; education, skills and training; improved access to employment and job creation; reduced inequality and poverty; reduced GHG emissions; increased natural resource conservation; improved water quality; reduced resource consumption; environmental stewardship; and reduced vulnerability.⁷⁴ The city then lists the co-benefits that potentially result from each strategy or action.⁷⁵ This demonstrates to the public how climate actions (e.g., resilience hubs), can lead to co-benefits (e.g., cost savings, reduced inequality, and improved public health).⁷⁶ When co-benefits cannot be adequately quantified, it is important to include them alongside policies in order to track the directionality of improvements from each climate action.

VI. IMPLEMENTATION, ALIGNMENT, AND FUNDING

The Climate Resiliency at UC Irvine document includes important implementation information, including responsible departments for each action as well as priority levels and time frames for policies. However, implementation could be improved by better aligning adaptation actions with existing plans and policies and identifying funding sources.

Currently, the City of Irvine is updating its Local Hazard Mitigation Plan (LHMP) to better prepare for disaster response and recovery.⁷⁷ Coordinating UC Irvine's CAAP with the City of Irvine's LHMP update will ensure that the university's emergency and evacuation services related to climate adaptation and resilience are aligned with the broader community's policies, services, and procedures. The City of Irvine is soliciting feedback to inform its LHMP.⁷⁸ UC Irvine should partner with the City of Irvine to create cross-referential actions and policies that improve transportation

⁷² *Id.*

⁷³ *California Climate Investments Quantification, Benefits, and Reporting Materials*, CALIFORNIA AIR RESOURCES BOARD, <https://ww2.arb.ca.gov/resources/documents/california-climate-investments-quantification-benefits-and-reporting-materials>.

⁷⁴ *Dallas Comprehensive Environmental and Climate Action Plan*, CITY OF DALLAS (May 2020), at 40.

⁷⁵ *Id.* at 51.

⁷⁶ *Id.* at 63.

⁷⁷ *2025 Local Hazard Mitigation Plan Update*, CITY OF IRVINE, <https://cityofirvine.org/2025-local-hazard-mitigation-plan-update>.

⁷⁸ *See id.*

and access to other emergency services between campus and city. Partnering with the City of Irvine on local hazard mitigation will also bolster UC Irvine’s ability to help off-campus residents during extreme weather events.

UC Irvine can improve alignment at the regional level by coordinating with Orange County and reviewing their CAP, which includes environmental justice, natural resources, and resilience policies.⁷⁹ The CAP also includes several policies that require partnering with “local educational institutions [...] to develop and offer training and certification programs in green industries, such as renewable energy, energy efficiency, sustainable construction, and environmental conservation for vulnerable communities.”⁸⁰ Updated CAP actions include a commitment to “coordinate with schools to use them as cooling centers.”⁸¹ UC Irvine should work with the County on these and other measures, or consider adopting similar policies in the university’s CAAP to further climate action alignment.

UC Irvine can also bring its adaptation policies into greater alignment with University of California policies, including the UC Sustainable Practices Policy and UC Irvine’s Decarbonization Study. Under the UC Sustainable Practices Policy, UC Irvine must “incorporate the University of California’s Framework for Incorporating Environmental & Climate Justice into Climate Action and its evaluations into climate action planning.”⁸² The UC Sustainable Practices Policy also encourages universities to “Explore partnerships with local agencies, including the Department of Energy’s Clean Cities program, on opportunities to improve sustainable transportation access to and around University facilities in addition to developing its own transportation programs.”⁸³ This objective can be achieved by creating and incorporating policies related to transportation as discussed above in the Services-related policies section.

UC Irvine can also harmonize its CAAP with other planning documents and policies through further engagement with the UC Irvine Campus Decarbonization Study.⁸⁴ While this study mostly discusses GHG emissions reduction and therefore applies to mitigation, the study also considered “reliability and resiliency” as part of its evaluative criteria for campus technologies and fuels.⁸⁵ For example, the study explains that “converting the [combined heat and power] plant to an electric generator” would support “backup power and resiliency” goals.⁸⁶ In order to do so, the CAAP could adopt policies that incorporate the suggested “next steps to determine the feasibility and economics” of these efforts.⁸⁷ These include hiring an engineering design firm, developing “a load shedding protocol to codify which buildings on campus would be served by the turbine in times of grid outages,” developing “testing protocols to ensure the combustion turbine is safe to operate when needed,” applying for modified air permits, and evaluating construction costs.⁸⁸

Finally, the Climate Resiliency at UC Irvine document mentions funding once through a policy to “[w]eave in a resilience funding strategy as an action to support financing of all other actions (e.g.,

⁷⁹ *Preliminary Climate Action Plan*, COUNTY OF ORANGE AND UNINCORPORATED COUNTIES (2024), at 55.

⁸⁰ *Id.* at 51.

⁸¹ *Id.* at B-14.

⁸² *Policy of Sustainable Practices*, UNIVERSITY OF CALIFORNIA (April 10, 2024), <https://policy.ucop.edu/doc/3100155/SustainablePractices>, at 12.

⁸³ *Id.* at 30.

⁸⁴ *UC Irvine Campus Decarbonization Study*, BLACK & VEATCH (Sep. 20, 2024).

⁸⁵ *Id.* at 16.

⁸⁶ *Id.* at 29.

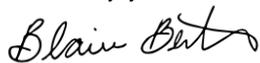
⁸⁷ *Id.*

⁸⁸ *Id.*

dedicated team to coordinate across departments and pursue grants).”⁸⁹ Best practices include locating specific funding sources for each adaptation action, where possible. For example, the City of Oxnard’s CAAP includes specific funding sources for each action as part of its implementation strategy.⁹⁰ Identifying funding during the CAAP development phase will ensure that adaptation strategies and actions are feasible, further implementation, and are responsive to gaps in fiscal strategy that are identified early in the planning process.

Through responsible application of climate adaptation principles, including clear and measurable goals, a robust factual base (including vulnerability analysis and risk exposure assessment), engagement with university and regional stakeholders, the design of actionable and feasible strategies and actions, and careful coordination and alignment with regional efforts and state commitments, UC Irvine’s CAAP can signal a level of ambition suitable for an R1 research university that is a leader in inclusive excellence and a vehicle for upward social mobility. We look forward to working with you to achieve these important goals.

Sincerely yours,



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⁸⁹ *Supra* n. 1, at 7.

⁹⁰ *Supra* n. 30, at 5-8.