

CLIMATE ADAPTATION AND RESILIENCY GUIDANCE

Sustainable Transportation Equity Project (STEP) Applicants are encouraged to consider how projects can increase adaptability and build resilience to the specific impacts of climate change on the STEP Community over each project's lifetime.¹ STEP projects should build community resilience in preparation for both the direct and indirect impacts of climate change.

Adaptation: Adjustment in natural or human systems to a new or changing environment. Adaptation to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.²

Resiliency: The capacity of any entity—an individual, a community, an organization, or a natural system—to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience.²

Community Resilience: The ability of a community to mitigate harm and maintain an acceptable quality of life in the face of climate-induced stresses, which take different forms depending on that community's circumstances and location. An example of a direct impact of climate change is higher numbers of extreme heat days. An example of an indirect impact is the increased cost of fire insurance for homes built in high-wildfire risk areas. Community resilience can include but is not limited to the physical and psychological health of the population, social and economic equity and well-being of the community, effective risk communication, integration of organizations (governmental and nongovernmental) in planning, response, and recovery, and social connectedness for resource exchange, cohesion, response, and recovery.²

Climate risks and anticipated impacts of climate change on the STEP Community may include:

- Climate change risks and exposures within the STEP Community, such as extreme heat or precipitation, flooding, sea level rise, wildfire, drought, and air pollution.

¹ Defined by the Applicant based on project type. CARB provides default values for quantifiable project types in CARB Quantification Methodologies.

² <http://resources.ca.gov/docs/climate/safeguarding/update2018/safeguarding-california-plan-2018-update.pdf>

- Anticipated impacts of climate change risks and exposures on the built environment and economy, such as increased physical risk to public infrastructure and increased private insurance costs.

Based on the risks and anticipated impacts, Applicants may choose to pursue projects that:

- Lead to increased community resilience in the face of climate change
- Are designed to meet the future climate-impacted needs of community residents
- Increase the resiliency of investments (in particular, capital and infrastructure investments) to climate impacts

Community engagement on the potential impacts of climate change and the climate-related needs of community residents is an important aspect of developing projects that incorporate climate adaptation and resiliency. All climate adaptation and resiliency activities should incorporate community engagement early and often.

I. EXAMPLE PROJECTS

See the list below for examples of how projects funded by STEP may increase community resilience or help communities adapt to the impacts of climate change.

- Transportation plans that explicitly account for the impacts of climate change
- Shade structures, trees, and cooling centers at transit stops to provide relief from extreme heat
- Installation and maintenance of air conditioning on transit vehicles to provide relief from extreme heat
- Plans for vehicles to be used by emergency services in the case of a natural disaster
- Battery storage and microgrids to increase reliability in the case of a natural disaster and to reduce the risk of wildfires
- Use of zero-emission vehicles as distributed energy resources in the case of a natural disaster
- Land use and infrastructure plans that account for changes in building and travel patterns due to sea level rise and wildfire risk
- Transportation infrastructure risk assessments (particularly to prioritize most at-risk populations or critical transportation projects)
- Mobile applications or information networks to share information about transportation services with end users
- First responder training on how to use transportation services in the case of a natural disaster

II. RESOURCES

Information about climate change risks and exposures may be obtained using:

- Cal-Adapt.org, an online platform created by the California Energy Commission: <https://cal-adapt.org/>
- California Heat Assessment Tool (CHAT), a tool that allows users to explore and understand how extreme heat will impact specific communities across the state: <https://www.cal-heat.org/>
- USGS's Coastal Storm Modeling System (CoSMoS), which makes detailed predictions of storm-induced coastal flooding, erosion, and cliff failures over large geographic scales: https://www.usgs.gov/centers/pcmssc/science/coastal-storm-modeling-system-cosmos?qt-science_center_objects=0#qt-science_center_objects
- USGS's Hazard Exposure Reporting and Analytics (HERA), which links CoSMoS flood projects to sociodemographic, infrastructure, and other economic information: <https://www.usgs.gov/apps/hera/>
- California's Fourth Climate Change Assessment: <http://www.climateassessment.ca.gov/regions/>
- Using the results of a local or regional vulnerability assessment that includes the STEP Community
- Any other locally developed, down-scaled projection model such as projection models developed by consultants, community-based organizations, or government institutions

Information about the impact of climate change risks and exposures on the community, including vulnerable populations, may be obtained using:

- Climate Change and Health Profile Reports, created by the California Department of Public Health, which describe the impact of climate risks and exposures for vulnerable populations for each county: <https://www.cdph.ca.gov/Programs/OHE/Pages/ClimateHealthProfileReports.aspx>
- Climate Change and Health Vulnerability Indicators for California developed by the CalBRACE Project: <https://www.cdph.ca.gov/Programs/OHE/Pages/CC-Health-Vulnerability-Indicators.aspx>
- California Healthy Places Index: <https://healthyplacesindex.org/>
- Regional Opportunity Index developed by the UC Davis Center for Regional Change: <https://interact.regionalchange.ucdavis.edu/roi/>
- Adaptation Capability Advancement Toolkit: <http://arccacalifornia.org/adapt-ca/>
- Safeguarding California Plan: 2018 Update, created by the California Natural Resources Agency:

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<https://www.adaptationclearinghouse.org/resources/safeguarding-california-plan-2018-update.html>

- Defining Vulnerable Communities in the Context of Climate Adaptation:
http://opr.ca.gov/docs/20180723-Vulnerable_Communities.pdf