

## AHSC Tips: Climate Adaptation & Community Resiliency

The Climate Adaptation & Community Resiliency section is focused on assessing the impacts of climate and environmental hazards in the area around the Affordable Housing Development and how the Applicant factors these risks and stressors into project design. The Climate Adaptation Assessment Matrix includes recommended data sources that forecast climate impacts (heat, precipitation variability, wildfire, and sea-level rise) or document existing stressors (air pollution) that contribute to the vulnerability of the development's occupants to future and current conditions. These stressors often relate to each other, applicants are encouraged to approach these in a holistic way.

**The Climate Adaptation & Community Resiliency section is worth a maximum of 5 points, and is completed by filling out the [Climate Adaptation Assessment Matrix \(Matrix\)](#). This tip sheet serves as extra guidance to filling out the Matrix, but does not replace instructions on the Matrix, itself. Therefore, Climate Resolve recommends familiarizing yourself with the Matrix first, and using this tip sheet, [video demo](#), and [webpage](#) for reference.**

While the Climate Adaptation and Community Resilience section is completed by filling out the Matrix, the Matrix is not the only section of the AHSC application that touches on climate-related topics. The [AHSC Round 7 Narrative Prompts](#) document lists additional prompts for each narrative section of the AHSC application, including climate-related questions in the Collaboration and Planning section (4 points) and the Equity and Transformation section (3 points).

See page 3 of the [AHSC Round 7 Narrative Rubric](#) to learn how to maximize scoring on the Matrix, and pages 4-6 for guidance on the additional narrative sections related to climate adaptation.

**The Climate Resolve team is willing and ready to help you use any of these resources, and can provide feedback on the Matrix and the climate-related narrative sections!**

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**STEP 1 - IDENTIFY CLIMATE AND AIR POLLUTION RISKS:** On the instructions tab of the Matrix, you will be asked to choose between using *provided sources (orange tabs)* that assess general climate impacts, or *localized data (green tabs)* and report out in Table 1.

For *provided sources (orange tabs)*, here are the tools that will be used:

- [Cal-Adapt Local Climate Change Snapshot Tool](#)
- [California Heat Assessment Tool](#)
- [USDHS FEMA 100-Year Flood Zones Tool](#)
- [California Fire Hazard Severity Zones \(FHSZ\) Tool](#)

- [Cal-Adapt Sea Level Rise - Coastal Inundation Tool](#)
- [CalEnviroScreen 4.0](#) (Air Pollution Impact)
- [US EPA's MyMap Tool](#) (Air Pollution Sources)

A more in-depth visual guide on how to use the tools required to fill out the Matrix is available via [YouTube video](#), which includes time-stamped instructional sections for each section of the Matrix.

For *localized data (green tabs)*:

- If available, ask your project team municipal partners for local climate vulnerability assessments created by the city, county, regional council of government (COG), or metropolitan planning organization (MPO) to reference instead of the SGC-provided tools. You can also search for local climate vulnerability assessments on the [Adaptation Clearinghouse](#).

Sometimes local climate vulnerability assessments can provide more granular data on climate, pollution, and public health impacts, but if none are available, using the tools in the *provided sources (orange tabs)* should be the approach used to fill out the Matrix.

**STEP 2 - DESCRIBE DESIGN STRATEGIES TO ADDRESS CLIMATE IMPACTS:** In the Matrix, the prompts in Table 2 and 3 will ask applicants to address how the risks posed from climate change and other environmental exposures will be reduced by strategies listed in the Climate Adaptation Assessment Matrix. The prompts will also ask how the Project will reduce the health risks of climate change and other environmental exposures including extreme heat, wildfires and smoke, air pollution from vehicle emissions, and more. Example adaptation measures are already given in the Matrix, and you will answer “Yes” or “No” to respond if the project is doing the measure. The table below provides resources on what measures and designs can reduce health risks of climate change and air pollution.

Potential designs to address climate impacts	What does it address?
<b>Trees:</b> Trees provide shade for pedestrian pathways, hold moisture when it rains, and when placed strategically can decrease the amount of energy needed to cool and heat buildings.	Heat, Precipitation Change
<b>Overall building design and temperature regulation:</b> Massing and orientation modifications to buildings can increase ventilation, enhance insulation, provide passive cooling, and reduce grid demand. Passive temperature regulation measures include insulation beyond building code and window films. Active temperature regulation features include things like air conditioning and heat pumps.	Heat, Wildfire
<b>Shade structures and awnings:</b> Solar panels over parking spaces and bike racks, canopies over tot lots and playgrounds, and awnings over entry ways provide shade that protect people from heat.	Heat
<b>Cool roofs:</b> Materials reflect sun rays back into the atmosphere and keep buildings up to 20 percent cooler than traditional roof shingles. Additionally, there are GHG reduction benefits if combined with rooftop solar.	Heat

<b>Green roofs:</b> Layers of plants growing on rooftops reduce urban heat island, capture water, and cool buildings by providing vegetation.	Heat, Precipitation Change
<b>Community cooling centers:</b> Provide an air-conditioned common area for people to rest and recover during periods of extreme heat.	Heat
<b>Bus shelters:</b> Shade protects riders from the heat as they wait for transit.	Heat
<b>Water features and hydration stations:</b> Drinking fountains, swimming pools, and splash pads keep residents hydrated, and the community cool during extreme heat events.	Heat
<b>Cool pavement:</b> Reflective paving materials are designed to reflect solar energy and stay cooler than traditional pavements.	Heat
<b>Green and natural infrastructure:</b> Permeable land cover, soil improvements, watersheds, riparian buffers, wetlands, and floodplains have multiple climate benefits. Vegetation provides evaporative cooling to help with extreme heat, and can help to manage stormwater.	Heat, Precipitation Change, Sea Level Rise and Inland Flooding
<b>Native, drought-tolerant vegetation:</b> Plantings save water resources, support biodiversity, and are natural pollinators.	Precipitation Change
<b>Water conservation mechanisms:</b> Indoor/outdoor appliances, fixtures, and measures can save water.	Precipitation Change
<b>Rainwater capture and infiltration systems:</b> Systems capture water, conserve energy, reduce flooding, and prevent stormwater runoff.	Precipitation Change, Sea Level Rise and Inland Flooding
<b>Coastal adaptation to sea level rise:</b> Building solid barriers, protecting or reestablishing shoreline ecosystems, enhancing aquifer recharge, and reducing saltwater intrusion can mitigate the flooding impacts in a vulnerable region.	Sea Level Rise and Inland Flooding
<b>Fuel management work:</b> Creating defensible space and maintaining a low fuel profile can greatly reduce the risk of fire.	Wildfire
<b>Wildfire rehabilitation work:</b> Controlling soil erosion through mulching, maintaining tree health through pest management, and using other ecosystem treatments can help forests recover after wildfires.	Wildfire
<b>Fire hazard prevention work:</b> Using fire-resistant building materials and designs, such as noncombustible roofs, noncombustible siding, fire sprinklers, and double-pane windows, can protect housing from fires.	Wildfire

The following designs or actions can have a negative impact on climate resilience. If possible, these should be *avoided*, but if not, they can be mitigated using the strategies listed above for the relevant climate impacts.

Potential negative outcomes to avoid or mitigate	What does it affect?
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<b>Replacing agricultural lands or natural land cover:</b> Replacing green space with hardscape increases the urban heat island effect and reduces stormwater management benefits of permeable surfaces.	Heat and Extreme Precipitation
<b>Changing permeable surfaces to paved surfaces:</b> Reduces the potential for stormwater to enter the groundwater supply.	Precipitation Change
<b>Project increasing water use:</b> The project should not create a significant new demand on local water supplies.	Drought
<b>Project developing buildings or structures in floodplains:</b> Areas prone to flooding will be subject to greater risk in the future and should be avoided for new development.	Sea Level Rise and Inland Flooding
<b>Project involves new construction in a high priority landscape for reducing or preventing wildfire threats:</b> Buffer zones are a strategy to make the wildland-urban interface less risky by eliminating contact in high risk areas.	Wildfire

**STEP 3 - DESCRIBE DESIGN STRATEGIES TO ADDRESS AIR POLLUTION:** In addition to designing for climate impacts like heat, precipitation change, wildfire, and sea level rise/inland flooding, it is imperative that projects address air pollution by either reducing exposure to existing pollution and/or mitigating future pollution. Many communities, especially those that are disadvantaged, deal with air pollution from freeways, heavily used traffic corridors, and nearby industry. Historical land use decisions have sited residential communities near these pollution sources without consideration of the major health impacts, such as worsening of asthma and respiratory diseases. AHSC presents an opportunity to support public health goals, reduce GHG emissions, and overall reduce local air pollution and its harmful effects through the design of buildings and transit corridors.

As with the other climate impact tabs, describe how air pollution impacts are taken into consideration in the design of the proposed project. The table below provides resources on example strategies. Note, these strategies are limited by the many factors that may influence their effectiveness, ranging from local meteorology, topography, human use, maintenance, etc. See the [Matrix](#) for more specific adaptive measure prompts regarding air pollution.

Potential designs to address air pollution	How does it address air pollution?
<b>Air filtration system:</b> MERV 14 or higher	MERV-14 air filtration devices installed on an HVAC air intake system can remove 80-90 percent of indoor particulate matter. An important component is also maintenance, so we recommend identifying who will replace the MERV filters and ensuring that personnel can be trained and will conduct regular inspections.
<b>Speed reduction mechanisms:</b> Roundabouts, curb extensions, and crossing improvements	These features can reduce stop-and-go driving and hard accelerations and thereby reduce air pollution emissions rates. Studies show that roundabouts can reduce localized pollutant concentrations compared to intersections with stop and signal control by 20 percent

	or more.
<b>Speed limit reductions on high-speed roadways to &lt;55 mph:</b> Speed limit signage	Generally, speed limit reductions on high-speed roadways can reduce tailpipe emission rates up to 30 percent, depending on the change in speed, the pollutant measured or modeled, and roadway characteristics.
<b>Building and street design along corridors:</b> Street frontage design elements like edges and corners, as well as open and wider spaces, that help break up building mass	Corridors characterized by buildings with varying shapes, heights, and open spaces encourage air flow and benefit from better pollutant dispersion and air quality. Additionally, wider sidewalks, bicycle lanes, and dedicated transit lanes can have similar benefits.
<b>Solid barriers separating housing and other sensitive land uses:</b> Sound walls near a freeway or high-volume corridor	Studies have found that solid barriers reduce pollution concentrations between 10 percent to 50 percent compared to no barrier being juxtaposed to a freeway or high-volume roadways.
<b>Trees and Vegetation:</b> Plantings and landscaping to create a pollutant barrier between sensitive land uses and emission source	Studies show trees and vegetation assist in turbulence and dispersion of up to 22 percent of near-roadway pollution when strategically planted to mimic a solid barrier. Reduction in pollution is greater when vegetation barriers are thick, with full coverage from the ground to the top of the canopy. Maximum benefits have been shown to occur when trees and vegetation are combined with solid barriers as pollutants can escape through gaps in foliage or travel around edges.

The Air Pollution Matrix tab has an additional question on communications to residents (row 29). The AHSC threshold requirement in Section 106 (a)(26) of the program guidelines says that the “application must demonstrate that outreach and education on reducing potential health impacts of air pollution will be provided to residents of Affordable Housing Developments.” A few places to gather resources for outreach and education are below:

- CA Department of Public Health, [Air Quality \(AQS\) Section](#)
- California Air Resources Board, [Indoor Air Quality & Personal Exposure Assessment Program](#)
- California Air Resources Board, [CA Air Districts List](#)
- Coalition for Clean Air, [Community Learning Enhances Air Resources \(CLEAR\) Program](#) and [Air Quality Monitoring Network](#)
- EPA, [Air Quality Index Webpage](#)
- Center for Disease Control, [Air Pollution, Air Quality & Asthma Infographics](#)

**STEP 5 - SUMMARY OF ADAPTIVE MEASURES:** After finding the local climate data and describing the adaptive measures your project will include, the last step in the Matrix is to explain in 3-4 sentences why the selected adaptive measures (for each climate impact) were chosen and how they meet the adaptation needs of your project region. If applicable, note how the adaptive measures connect to other climate risk categories (tabs). In Table 3 of each tab, you will need to make the case for how your selected adaptive measures are helping residents of your project area adapt to the impacts they face.

For this section, we encourage you to list how residents would be vulnerable to climate impacts *without* your adaptive measures to help emphasize the importance of your project and its contribution to community and climate resilience.

**STEP 6 - INTEGRATING CLIMATE ADAPTATION & COMMUNITY RESILIENCE INTO SUPPLEMENTAL AHSC NARRATIVE PROMPTS (ADDITIONAL POINTS):** While the Climate Adaptation and Community Resilience section (5 points) is completed by filling out the Matrix, as described above, the Matrix is not the only section of the AHSC application that touches on climate-related topics. The [AHSC Round 7 Narrative Prompts](#) document lists additional prompts for each narrative section of the AHSC application, including climate-related questions in the Collaboration and Planning section (4 points) and the Equity and Transformation section (3 points).

To maximize your score on these additional sections, we recommend closely following the guidelines outlined on pages 4-6 in the linked [AHSC Round 7 Narrative Rubric](#). Below, we pinpoint the climate-related prompts that Climate Resolve can help review.

- **On page 4 of the [Narrative Prompt](#), you are asked to describe how the AHSC project implements components of certain plans, such as a Climate Adaptation Plan, Climate Action Plan, or General Plan.**
  - **Scoring:** To score full points on this prompt, include all requested information listed at the top of page 4 of the [Narrative Rubric](#).
- **On page 6 of the [Narrative Prompt](#), you are asked how equity was considered in how the Project selected climate adaptation and community resiliency measures.**
  - **Scoring:** To score full points on this prompt, include all requested information listed on page 5 of the [Narrative Rubric](#). Be sure to touch on as many of the listed categories as you can: outreach and feedback, project partners, climate adaptation and community resilience , and improving health outcomes.
- **On page 6 of the [Narrative Prompt](#), you are asked to describe how your project goes beyond baseline AHSC requirements by piloting new or innovative approaches or policies, leveraging existing resources in a new way, or by shaping future projects in the nearby communities.**
  - **Scoring:** To score full points on this prompt, include all requested information listed at the top of page 6 of the [Narrative Rubric](#).

**CONCLUSION:** By identifying climate risks, inputting climate information into the Matrix, describing strategies to address climate impacts, relating the AHSC project to the city's climate planning efforts, and describing strategies for equity and transformation, your AHSC project will be more competitive for selection and be more resilient to climate change.