# Connecticut Community-Level Climate Change Resiliency Assessment & Prioritization Plan

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Prepared for: CT Governor's Council on Climate Change Equity and Environmental Justice Working Group

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This plan was developed by Yale School of Public Health MPH student Ian Reilly under the direction and supervision of Mark Mitchell, MD, MPH, FACPM, the former director of the Hartford Health Department and current Associate Professor of Climate Change, Energy, and Environmental Health Equity at George Mason University. Photo provided by Ian Reilly and Anna D. Baker, MPH.

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## **Background**

#### **Purpose Statement:**

The purpose of the *Connecticut Community-Level Climate Change Resiliency Assessment & Prioritization Plan* is to provide guidance to municipalities on how to identify, prioritize, and plan to address the most likely and the highest risk climate threats in the region. This document is intended to complement existing technical and planning guidelines, and to fill a gap in guidance on how to specifically engage and center Connecticut's environmental justice communities and other vulnerable populations in resiliency planning processes.

In 1993, CT DEEP enacted its *Environmental Equity Policy*, which states that, "...no segment of the population should, because of its racial or economic makeup, bear a disproportionate share of the risks and consequences of environmental pollution or be denied equal access to environmental benefits." In recent decades, environmental justice movements have increasingly recognized the connections between environmental justice and climate change: as climate change exacerbates existing inequities, those populations historically and presently most burdened by pollution are also those who will be most impacted by sea level rise, extreme heat, greenhouse gas emissions, and other climate threats. These residents have firsthand knowledge of the climate threats they face, and can offer important insights into the work they may already be doing to adapt and make their communities more resilient.

This plan outlines steps local planners can take to identify and reach out to local climate-vulnerable populations and actively include these populations in climate change resiliency planning processes. The steps are intended to establish a baseline for what should be included in a local resilience plan, and to help communities develop a list of actions that address the needs of the most vulnerable community members through equity-driven planning processes. Communities can then prioritize and categorize the most cost-effective solutions. The process outlined in this document should also help to build public support for funding and implementation of the priority solutions.

#### How to Use this Document:

This document should be used by the planning committee designated to be the municipality's or community's Climate Change Resiliency Oversight Team (see below) as a resource for assessing their communities' specific vulnerabilities to current and future climate change threats. The document provides suggestions on organizations and people who can help to identify physical/infrastructure vulnerabilities and to identify the populations that are most vulnerable to climate change in the local community.

This document sets up the foundation for climate change resilience planning by laying out the steps to identify and engage with populations of concern, explaining how to incorporate their input into the planning process, and how to make the most of the resources available in and to the community. This document also provides guidance on community evacuation planning and can be used to

supplement the Climate Ready Communities <u>guide</u> or other climate adaptation guides that provide detailed directions on resilience planning in the community.

This resource first guides its users on how to establish a Climate Change Resiliency Oversight Team, also referred to as Oversight Team, and then provides details on 8 steps to be followed in the planning process. The 8 steps of the climate resiliency planning process are outlined in Table I, including the team(s) responsible for step completion. Along with the Oversight Team, the table includes the Community Assessment and Prioritization Team, referred to as the CAP Team. More details on each team are described in future sections.

Table I: 8 Steps of the Climate Resiliency	Planning Process
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Step #	Step	Team Responsible
1	Scope the Resiliency Assessment and Prioritization Plan Parameters	Oversight Team & Identified Community Leaders
2	Identify Exposure to Potential Climate Change Threats	Oversight Team (CAP Team to review)
3	Assess the Community's Vulnerabilities	Oversight Team (CAP Team to Review)
4	Establish the Community Assessment and Prioritization Team (CAP Team)	Oversight Team
5	CAP Team Meetings	CAP Team
6	Prioritization Process	Oversight Team & CAP Team
7	Draft a Community Climate Change Resilience Plan	Oversight Team
8	Finalize and Circulate the Resiliency Assessment	Oversight Team with Community Leaders

### Pre-Planning Work

### Establish or Assign a Climate Change Resiliency Oversight Team

Before beginning the planning process to build climate change resilience in your community, you will need to designate a team responsible for overseeing the planning process. Their role will be to propose the process, identify and contact potential participants in the process, and collect and assemble background information on climate change effects in the local community. Community leaders, government representatives, and representatives of impacted populations will be part of the Oversight Team and participate in the broader planning and prioritization process. This can be a newly formed committee or a responsibility for a pre-existing group and may depend on the size and needs of the community.

Sustainable CT has helpful guidelines for assembling an Oversight Team on their <u>website</u> (under the Sustainability Team section). In general, this document recommends the Oversight Team consist of at least 3 volunteer or paid leaders of the community, represent the community's diversity, and include representatives from highly impacted groups, local nonprofits, and at least one elected local official or a municipal staff member. The Oversight Team should strive to include leaders from groups already working on actions related to climate change, environmental justice, and racial justice in the community. A guideline would be between 5-10 members total for the Oversight Team. If community members do not have paid jobs that include climate change resilience planning you should consider obtaining funds to pay them to provide meaningful guidance and community engagement.

# **Steps for Resiliency Assessment and Priority Planning**

### 1) Scope the Resiliency Assessment and Prioritization Plan Parameters

The **Oversight Team** should begin by developing the scope of the resilience assessment and prioritization plan. The scope will determine 1) the geographic range of the actions (i.e., what are the boundaries of the community where resilience planning is taking place) and may be based on natural barriers like mountains or rivers or based on the municipality's defined boundaries such as city lines or streets maps, 2) the people and resources needed to make the planning process happen, including funding, partnerships, and timeline. Detailed direction on scoping can be found in the **Climate Ready Communities** guide.

An important part of scoping climate threats is identifying the climate threats the community is most vulnerable to as parameters to planning (e.g. Bridgeport is threatened by coastal flooding while Hartford is not, so Hartford should not focus on adapting to coastal flooding threats). Guidance on identifying specific climate threats faced by the community is detailed in the next step.

### 2) Identify Exposure to Potential Climate Change Threats

#### **Connecticut Climate Threats**

The next step in building climate change resilience is to understand what climate change is and become familiarized with its impacts. Climate change is an elaborate issue that threatens a collection of complex, interconnected, and self-reinforcing effects. These include, but are not limited to, rising sea levels, extreme heat, severe weather, air pollution, inland and coastal flooding, and the changing distribution of tick- or mosquito-transmitted diseases, such as Eastern Equine Encephalitis, Zika, and Chikungunya. These and several other dangers pose serious risks to the health and safety of Connecticut residents. The **Oversight Team** will work to research climate change and its current and potential threats, which it will later communicate to the **Community Assessment and Prioritization** (CAP) Team (discussed in Step 4). By building community knowledge of climate change and its likely local impacts, you will be better prepared to plan for and build resilience against its various current and anticipated hazards.

Listed here are Federal government and Connecticut state resources to provide the Oversight Team with a foundational knowledge of the threats climate change poses to Connecticut:

- Center for Disease Control and Prevention (CDC) Climate and Health Northeast Health Impacts <u>web page</u>
- National Oceanic and Atmospheric Administration (NOAA) climate reports
- National Aeronautic and Space Administration (NASA) global climate change website
- Environmental Protection Agency (EPA) climate change web page
- CT Department of Energy and Environmental Protection climate change web page
- CT Governor's Council on Climate Change (GC3) web page

CT Institute for Resilience and Climate Adaptation CIRCA website

#### Community- / Municipality-Level Climate Change Threats

Once the **Oversight Team** has become familiarized with general climate change impacts, it will be necessary to narrow down the specific threats that the community faces. Start by identifying the disasters and weather events that the community has historically been exposed to, utilizing all resources the Oversight Team has access to, including information from local government officials and reports. This information may be accessible through the city or town hall. All declared disasters in CT since 1954 can be found on the Federal Emergency Management Agency (FEMA) website.

#### Example questions the Oversight Team should answer may include:

- Has our community historically experienced heat waves, flooding, severe wind damage from storms, or any other natural disasters?
- Did these events impact any of the community's important infrastructure like roads, bridges, or electrical power?
- What were the short-term impacts? If any, what are the long-term or lasting impacts on the community? (list them)
- How many people were impacted?
- Were there areas of the community or residents affected more than other areas?
- Are these impacts expected to increase with climate change?
- Are there other new impacts expected?

Information from government officials and reports may not be sufficient to answer all of these questions and it will be important to supplement official reports with knowledge and experiences from the community, being certain to include input from vulnerable groups and the community groups that represent them. Input from the community will be garnered by engaging with the **CAP Team** (detailed in Step 4).

Once the **Oversight Team** has identified the disasters and severe weather patterns the community has historically been exposed to, it should generate a table like the one below (**Table II**). This table allows the **Oversight Team** to organize climate change-related incidents by both the predicted severity their impact will have on the community as well as the likelihood of the incident occurring in a given year based on past frequency and future projections, and it will aid the **Oversight Team** in prioritizing climate resilience actions. It is important to keep in mind while constructing this table that climate change threatens to increase both the severity and frequency of many natural disasters and severe weather patterns.

	Low Likelihood of Occurring	High Likelihood of Occurring
High Impact		
Low Impact		

**Table II**: Tool for prioritizing the urgency of addressing different climate threats within the community. This tool is used to track the severity of a particular climate change-related incident based on the level of impact it would have on the community, as well as estimate the likelihood of the event occurring in any given year.

## 3) Assess the Community's Vulnerabilities

There are multiple layers that contribute to a community's vulnerability to climate change threats, including the geographic location of the community, structural integrity and placement of key infrastructure, and population demographics. Each of these components impact how vulnerable the community is to climate change and each must be addressed in order to build equity-centered climate resilience. This section will provide an overview of populations of concern, followed by sections describing environmentally exposed populations, vulnerable institutions, and critical infrastructure. The **Oversight team**, utilizing its knowledge of climate change impacts (from Step 1), will follow the guidelines laid out in **Appendix 1: Populations of Concern, Appendix 2: Environmentally Exposed Populations, Appendix 3: Vulnerable Institutions,** and **Appendix 4: Critical Infrastructure** to identify these climate change vulnerabilities in the community and engage with the community leaders and community groups that represent them.

### 4) Establish the Community Assessment and Prioritization Team

The **Community Assessment and Prioritization (CAP) Team** will be assembled by the **Oversight Team** and will be a larger group composed of community engagement group members, partners, and representatives of vulnerable populations in the community. The **Oversight Team** must ensure it contacts all community engagement groups identified in the community about the community's intention to develop a climate change resiliency assessment and prioritization plan to maximize participation/membership in the **CAP Team**. The **CAP Team** will include community leaders and community engagement groups identified in the assessment of community vulnerabilities.

In order to educate the newly formed **CAP Team** on climate change and the threats it poses to the community, as well as trade community information, the **Oversight Team** will need to work with the **CAP Team** to plan meetings that both teams can attend. The **Oversight Team** will need to communicate with the **CAP Team** to determine when, where, and how often to hold these meetings, as well as what resources will be needed to facilitate the meetings. In order to ensure the team is hearing from the representatives of the community's vulnerable populations, the **Oversight Team** and **CAP Team** should consider when planning their combined meetings:

• What times and days will facilitate the most participation?

- Are you missing input from team members that work night shifts vs day shifts? How will you adjust for this?
- Will people need childcare in order to attend?
- Do people need transportation?
- Will food be provided?
- What locations are geographically most convenient for attendees? Are these spaces safe and comfortable for attendees?
- Are there any other barriers to attendance?

The **CAP Team** should aim to have at least 2 representatives of each vulnerable population. Depending on the size and distribution of these populations in the community it may be necessary to bring in population representatives from outside the community (e.g. members of organizations representing disability rights).

In the first meeting between the **Oversight Team** and the **CAP Team**, the **Oversight Team** will communicate what is expected from members of the **CAP Team**, including their responsibilities, the timeline of the resiliency assessment and prioritization plan, and their participation in scheduled meetings. When recruiting members for the **CAP Team**, it is important the **Oversight Team** stresses that the involvement of individuals and organizations, especially those representing populations of concern, is critical to ensuring that the final resiliency assessment and prioritization plan protects vulnerable community members and promotes equity. In order for this plan to be successful in supporting all members of the community, their involvement with the **CAP Team** is necessary now and throughout every step of the planning process.

In this meeting, it may also be beneficial to identify potential partners that could aid in the community's climate resiliency building process. Building climate change resilience is a complex and comprehensive task, so the **CAP Team** and **Oversight Team** should work together to identify partners that can help the community achieve its goals through staffing, expertise, or funding resources. These include other municipal committees, non-profits, community engagement groups, and stakeholders that are familiar with different aspects of resilience planning and/or promoting equity in the community. If there are groups in the community or greater surrounding area that are already supporting climate adaptation measures (e.g. <u>Sustainable CT</u>) or promoting equity and equality among vulnerable populations (e.g. <u>NAACP CT</u>) it will be helpful to have them represented on the **CAP Team** to gain their insight, especially if they are already working on projects in the community. The **Oversight Team** and **CAP Team** may also choose to discuss the option of collaborating with other communities also building climate resilience. Partnerships increase participation among a variety of stakeholders, and by including their input and unique expertise you improve the chances of successful climate change resilience planning.

The **Oversight Team** will make time at the meeting to share all the information it gathered about climate change threats in the community and community vulnerabilities. The **Oversight Team** will dedicate adequate time to clarifying key climate change terminology (e.g. greenhouse gases, resilience

plan, adaptation, mitigation) with **CAP Team** members as well as what makes certain populations more vulnerable to climate change, and the specific climate threats the community faces. Together, the teams will review the climate change and weather scenarios which the **Oversight Team** identified in its research (in Step 2) as posing the greatest risks to the community, including:

- Wind storms
- Heavy rain and flooding
- Heat waves
- Hurricanes and tropical storms

The **CAP Team** is also encouraged to supplement the **Oversight Team's** research on climate change impacts in the community with its own knowledge and experience.

The **Oversight team** will inform the **CAP Team** of the effects these scenarios can have on the community and its infrastructure (e.g. flooded or otherwise impassable roads, power outages, flooded basements, damage to homes and property). Once current and future climate threats in the community and community vulnerabilities are thoroughly discussed and understood as a group, it is suggested that the **Oversight Team** end the meeting with questions for the **CAP Team** to think about before the next meeting. This will give them an opportunity to process the information they were given at the meeting and see the vulnerabilities in their community through this new lens. Questions the **Oversight Team** may choose for the **CAP Team** to consider may include:

- Are there roads in the community that flood during heavy rains?
- Are there parts of the community that are more prone to power outages?
- If any of the climate events we talked about occurred in the community, do you or the populations you represent have a plan? Do they know what to do or where to go?
- Does the community or municipality alert you when these events happen? How? Are they consistent and thorough?
- Are there groups in the community that tend to experience worse health and/or financial outcomes during these events?

Having seen the community through the lens of their expanded climate change knowledge, in a following meeting the **CAP Team** should also be asked to review the **Oversight Team's** exhaustive list of vulnerable populations and be allowed to suggest additions or changes, as well as help in identifying where these populations are located in the community, how to contact them, any barriers to communication, and each group's specific climate threats.

Going forward, the **CAP Team** will schedule its own regular meetings where it will 1) review the climate threats that have been determined by the **Oversight Team** to ensure agreement with what the community is currently experiencing or expecting, 2) brainstorm on the effects of climate change that the community is currently seeing or expected to see, 3) brainstorm potential mitigation and adaptation actions to address the expected climate threats, cross-examining their possible impacts for or against

equity and justice, and 4) prioritize potential actions once they are categorized by the climate change resiliency **Oversight Team** in a separate meeting.

### 5) CAP Team Meetings

After the **Oversight Team** has created an exhaustive list of the community's climate vulnerable populations, institutions, and infrastructure, established points of contact with their representative groups, informed them of the community's intention to make a climate change resiliency plan, and established the **CAP Team**, the **CAP Team** should schedule its own regular meetings. These meetings will only be for **CAP Team** members, since at this point initial meetings between the **Oversight Team** and **CAP Team** will have concluded and all **CAP Team** members should be informed of the specific current and future climate change threats that face the community. As the **CAP Team** is composed of trusted community leaders and members of community engagement groups, representing the diversity of the community, it will be primarily responsible for discussing and prioritizing the needs of the community. This section details the content that should be covered in **CAP Team** meetings as they prepare to address community issues and concerns as well as propose potential solutions.

The **CAP Team** will discuss the community's current and future climate threats and then propose a list of solutions to community-specific, climate vulnerability issues that it would like to see addressed in this plan. The **CAP Team** will likely identify several areas of concern in the community, however, the team should aim to agree on 10-15 primary issues. If more than 15 issues are identified, the **CAP Team** will first determine if any of the issues are similar enough to be acceptably lumped together. If lumping does not sufficiently reduce the number of issues, the **CAP Team** will vote and retain the top 15 issues. Voting will take place even if it is not needed to narrow down the list of issues. Results of voting will be kept for informational purposes to inform the Oversight Team of which issues are of most value/concern to the community. The "dotmocracy" method is advised for voting on issues (detailed in Step 6).

The **CAP Team** should then draft a list of 30-50 potential solutions to these issues. Team members should consider solutions that are co-beneficial to existing environmental justices or equity challenges faced in the community. The team should also be critical of solutions that may have a potential to cause harm to the community, especially already vulnerable populations. Potential solutions can be drafted by allowing team members to make proposals on solutions they would like to see addressed in the final plan. Proposals should verbally provide a 2-3 sentence description of the solution and its pros and cons for the community and/or resilience planning efforts. Each proposer will also briefly field any questions. During the proposal process, it may be appropriate to lump solutions together if they are acceptably similar. This proposal process is intended to not be overly time consuming, while also ensuring that all team members understand each proposed solution. The CAP Team's list of potential solutions will later be categorized by the **Oversight Team** and then voted on by the **CAP Team**, detailed in the following section.

The **CAP Team** will also need to identify potential barriers to the climate resilience assessment and prioritization efforts as well as solutions to overcome these barriers. Barriers may present in the form of conflicting political beliefs, lack of community awareness, or funding and staffing limitations throughout the planning and implementation process. Understanding and planning for these barriers early on will increase the chance of successful climate resilience efforts. Here are some useful ways to overcome community hesitation around climate change resilience efforts:

- Choose climate resilience solutions that address other community goals, mitigating potential opposition to those actions (e.g. improving housing quality bolsters climate resilience and promotes equity, and in turn reduces insurance rates for those homes).
- Start with solutions that are highly visible and can definitively be accomplished, providing tangible evidence of the community's commitment to combating climate change.

The **CAP Team** will need to determine how the general community will be made aware of the final prioritization plan and if they will need to be provided climate change education. This will involve brainstorming the best ways to trade information with the community and how to access and engage in community communication channels.

### 6) Prioritization Process

In a standalone meeting, the **Oversight Team** will review the full list of solutions drafted by the **CAP Team** and categorize them based on ease and cost of implementing/addressing. The categorization process will be primarily resource-dependent, and questions they will need to consider will include:

- Can this solution be addressed using existing resources or will new resources need to be acquired from outside sources (e.g. state and federal grants)?
- Will funding and resources be difficult to acquire?
- Does the expertise necessary to address this solution exist within the community?
- Will this require political backing?

Each community **Oversight Team** will have a different method for categorizing solutions, but the general concept is to establish which solutions will be difficult/costly to implement as well as identify solutions that would require minimal funding and resources to implement. The categorized list will be given to the **CAP Team**, who will vote on which solutions they would like to see prioritized for the community.

The **CAP Team** will hold a meeting to vote on the newly categorized solutions they would like to see prioritized in the final plan. The prioritization process of solutions involves voting by the people present followed by a review of the voting results. The actual voting is a democratic process often called "<u>dotmocracy</u>." This involves giving everyone a set number of votes (dots), usually between 3-5, depending on the size of the group. Dots tend to be stickers that individuals post on a communal voting board. If the meeting must be held virtually due to public health concerns, the "dotmocracy" method can be adjusted but still used, including use of the Zoom "annotate" feature to create an on-screen voting board.

The **CAP Team** will vote twice, once for the difficult/costly solutions and again for the minimal resource solutions. The results of the vote will be given to the **Oversight Team** and will be used to identify the solutions the **CAP Team** values most for the community.

### 7) Draft a Community Climate Change Resilience Plan

The **Oversight Team** should now understand 1) the climate change impacts that threaten the community, 2) the community's vulnerable populations and contact information as well as vulnerable infrastructure and where to find it 3) the scope of the community's climate change resilience plan and what resources will be needed for planning processes, and 4) community-informed priorities for the climate change resilience planning efforts. A successful plan will incorporate the input the **Oversight Team** received from the **CAP Team** and will reflect the needs of the whole community.

The **Oversight Team** will use the results of the **CAP Team's** vote on solutions and choose the top 3-5 most voted for difficult/costly priority solutions to include in the plan as the communities top climate resilience priorities. The exact number of priorities the **Oversight Team** chooses to include will depend on estimated funding resources, staffing capacity, and the level of community engagement and support for the implementation process. The **Oversight Team** will include a ranked list of all minimal resource solutions as many of these may be able to be addressed in the later implementation process. Keep in mind that resilience plans that try to do too much and underestimate the necessary resources are prone to fail.

#### The final Climate Resiliency Assessment and Prioritization Plan should include:

- 1. An assessment of the community's climate threats
- 2. A statement of the climate vulnerabilities of the jurisdiction
- 3. A list of all proposed solutions, which 3-5 difficult/costly solutions were prioritized, and a ranked list of all minimal resource solutions
- 4. An assessment of the community's vulnerabilities and plans for distributing it around the community in order to spread climate awareness and allow community members to work on building their individual-level resilience
- 5. Guidance on how the resilience plan will be assessed and how often
- 6. Guidance and a timeline for implementing the plan
- 7. Guidance for hardening local evacuation plans against climate change, including resources for locating other critical municipal or institutional plans

#### Tips for successful resiliency planning:

- 1) The community's resilience planning efforts must be reflected in all levels of government, avoiding conflicting policies
- Collaborate with the efforts of community members and their representatives, municipal committees, and other stakeholders in the community whenever possible, encouraging maximum community participation in the planning and implementation process
- 3) Build political will for climate adaptation in the community, obtaining support from trusted local political leaders
- 4) Keep the public aware of the resilience plan and what is happening with it, drafting reports tracking planning progress that are free and accessible to the community in all forms of public participation, physically and virtually.
- 5) Define the budget and staffing needs early, allocating resources carefully and deliberately within the expected timeline of the planning and implementation process

[Adapted from Barriers and Drivers of Planning for Climate Change Adaptation Across Three Levels of Government in Canada (Oulahen et al. 2018)]

### 8) Finalize and Circulate the Resiliency Assessment

The drafted Climate Change Resilience Assessment and Prioritization Plan should be circulated to key leaders on the **Oversight Team** and **CAP Team**, who will aid in disseminating it to community groups and residents of the community. The final plan must be publicized and made free and accessible to the community in all forms of public participation, physically and virtually.

The planning teams should hold at least one additional combined **CAP Team/Oversight Team** meeting to review the assessment after the community has had the opportunity to review it. The group should incorporate any feedback, as appropriate, and then finalize the plan.

The community can now be advised by the priority solutions included in the final plan and begin efforts to plan for the later implementation process. The final plan will also inform the general community of the threats they face from climate change and provide them the opportunity to build individual-level resilience. The plan should be revised and updated as needed on a regular schedule. Updated plans should include the version number and date of the most recent update.

The following resources may be helpful for the implementation process (not laid out in this document):

- Sustainable CT
- <u>CT GC3 Financing Adaptation Working Group</u>
- EcoAdapt
- <u>Climate Ready Communities</u>

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# - APPENDIX 1-Populations of Concern

Populations of concern are vulnerable groups that will experience disproportionate risks to their health and safety associated with climate change (link). These groups may experience social and economic stressors that are made worse by climate change and increase their vulnerability to its impacts. The priority of climate change resiliency planning should be to protect and assist populations with the least capacity to adapt to it on their own. The Oversight Team should aim to become familiar with who the different vulnerable populations in their community are, where they are located, and what climate impacts they are most vulnerable to. **Table III** provides a list of commonly identified populations of concern as well as resources on how to identify them in the community.

In order to engage with vulnerable groups in the community, the Oversight Team is advised to identify and reach out to the local leaders and community engagement groups that represent these groups. Begin by reaching out to community groups which the municipality has worked with before and has established mutual trust. If members of the Oversight Team are members of any community engagement groups, this may be a helpful place to start. The Oversight Team should ask its existing connections to help in identifying other organizations (religious, nonprofits, charities, etc.) that serve or represent the community's vulnerable populations. The goal is to create a web of organizations and individuals who understand the needs and vulnerabilities of the entire community, especially those most at risk to climate change impacts.

In addition to identifying community groups through municipal and Oversight Team connections, the Oversight Team can conduct anonymous surveys of community leaders, looking for consistent names/organizations in individuals' responses. A survey template can be found in **Appendix 5** of this document. The method of distributing and collecting these surveys should be determined by the Oversight Team with input from community organizations and local leaders they have previously identified. The Oversight Team may choose to use one or a combination of the following methods:

- Conducting surveys in a heavily trafficked area of the community (e.g. town hall, community centers, malls, farmer's markets)
- Posting an electronic survey on the social media pages of community groups and businesses (e.g. Facebook page of a local newspaper or charity)
- Distribute the survey during town meetings

Populations of Concern	Vulnerability	Resources to Identify Vulnerable People in the Community
Communities of Color	<ul> <li>Structural racism</li> <li>Decreased access to information services and</li> </ul>	<ul> <li>Ethnic social organizations</li> <li>Ethnic religious organizations</li> <li>Ethnic Media (e.g. radio stations &amp; Newspapers)</li> </ul>

#### Table III: Populations of Concern

	<ul> <li>resources</li> <li>Racial/ethnic health disparities</li> <li>Risks to cultural heritage practices and traditions</li> <li>Cultural and language barriers</li> <li>Inadequate community or housing infrastructure</li> <li>Multiple and cumulative exposures to environmental threats</li> <li>Multiple and cumulative exposure to other vulnerabilities</li> <li>Distrust of the system</li> </ul>	<ul> <li>Civil Rights Organizations (e.g. NAACP &amp; Urban League)</li> <li>CT DEEP Office</li> <li><u>US Census</u></li> <li>EPA EJScreen Mapping Tool</li> <li>State Map (in development by DEEP CIRCA)</li> <li>Mayor's City/Town Hall</li> <li>Local Health Department</li> <li>Local School District</li> <li>Neighboring Tribal Governments</li> </ul>
Immigrant/ Migrant Communities	<ul> <li>Limited English proficiency</li> <li>(Perceived and actual) Inability to access state/federal resources due to legal status</li> <li>Fear of deportation preventing access to critical institutions</li> <li>More likely to be low income</li> <li>Delayed/mixed response to emergencies due to communication barriers</li> <li>Discrimination, leading to psychosocial stress and social and economic barriers</li> </ul>	<ul> <li>All of the above, as well as:</li> <li>Catholic Charities</li> <li>Integrated Refugee &amp; Immigrant Services</li> <li>Legal Services*</li> </ul>
Limited English Proficiency Groups	<ul> <li>Delayed/mixed response to emergencies due to communication barriers</li> </ul>	<ul> <li>All of the above</li> </ul>
Low-income Communities	<ul> <li>Limited access to transportation</li> <li>Impaired evacuation capabilities</li> <li>Inadequate infrastructure</li> </ul>	<ul> <li>Varying definition (poverty level, 2x poverty level, 4x poverty level)</li> <li>EPA EJScreen Mapping Tool</li> <li>Census Bureau QuickFacts Mapping Tool</li> <li>School District Free and Reduced Price Lunch Program</li> <li>SNAP Food Assistance Program</li> <li>Local Social Service Agencies</li> <li>Trailer Parks</li> <li>Low Income/ state or federally subsidized Housing</li> </ul>
Elderly (65 years and older)	<ul> <li>Weaker immune systems</li> <li>Chronic/ pre-existing conditions that increase health risks</li> <li>Reduced mobility</li> <li>Medications may increase vulnerability to heat-related illness</li> </ul>	<ul> <li>EPA EJScreen Mapping tool</li> <li>Census Bureau QuickFacts Mapping Tool</li> <li>Local Social Service Agencies</li> <li>Area Agency on Aging (AAA)</li> <li>Senior Centers</li> <li>Senior Housing</li> <li>Assisted Living/Senior Nursing Facilities</li> <li>"Community Choices"</li> </ul>
Young Children (under 5 years)	<ul> <li>Breathe more air and drink more water by body weight</li> <li>Immune systems and organs not fully developed</li> <li>More time spent outside</li> </ul>	<ul> <li>EPA EJScreen Mapping tool</li> <li>Census Bureau QuickFacts Mapping Tool</li> <li>Local daycares and day homes (licenced by state Dept of Public Health)</li> <li>Headstart</li> </ul>

	Highly dependent on adults	<ul> <li>Local Health Dept. (vaccination records, birth certificates)</li> </ul>
Homeless	<ul> <li>Health disparities</li> <li>Poorly controlled chronic diseases</li> <li>Uncertain shelter</li> </ul>	<ul> <li>Local Social Service Agencies</li> <li>Local Charities</li> <li>Local Police Dept</li> <li>Local religious institutions</li> <li>Food pantries/ soup kitchens</li> <li>Local shelters</li> </ul>
Physically/ Mentally Disabilities	<ul> <li>Reduced capacity to respond to disasters</li> <li>Heavily reliant on medical infrastructure and personnel</li> <li>Reduced mobility impeding evacuation</li> <li>Medications may increase vulnerability to heat-related illness</li> </ul>	<ul> <li>School districts</li> <li>Care Institutions (e.g. hospitals, nursing facilities</li> <li>Alcohol/ substance abuse treatment or rehabilitation centers</li> <li>Police Dept.</li> <li>"Community Choices"</li> <li>Disability Rights CT (DRCT)</li> </ul>

### - APPENDIX 2 -Environmentally Exposed Populations

Environmentally exposed populations are groups that will experience increased risk to their health, safety, and wellbeing from climate change based on factors not necessarily related to race/ethnicity or socioeconomic status, such as their occupation or the location or infrastructural quality of their home or workplace. It is important to understand that while there may be overlap between populations of concern and environmentally exposed populations, they differ in their capacity to cope with and adapt to climate change stressors. For example, a low-income family living in a floodplain does not have the same resources to adapt or evacuate as a higher-income family that is vulnerable to storms and floods because they own a home on the coast. However, environmentally exposed populations continue to experience elevated risks to their health and security from climate change and are incentivized to help in addressing it.

The Oversight Team should start by identifying environmentally exposed groups in the community. **Table IV** provides a list of commonly identified environmentally exposed populations as well as resources on how to identify them in the community. After coming up with a list of these groups in the community, the Oversight Team should contact their representatives and identify points of contact with each organization. Similar to populations of concern, the goal of connecting with representatives of environmentally exposed populations is to create a network of groups and individuals who best understand the needs and vulnerabilities of the populations they serve in the community. These groups will not only have important insight into their populations, but also know of other organizations that the Oversight Team should contact.

Environmental Exposures	Vulnerability	Resources to Identify Environmentally Exposed People in the Community
Outdoor Workers	• Outdoor occupations put workers at risk of exposure to climate change-related impacts (e.g. flooding, extreme heat, severe storms, and vector borne disease)	<ul> <li>Occupations vulnerable to climate change-related hazards include:         <ul> <li>Emergency responders,</li> <li>Outdoor laborers,</li> <li>Construction workers,</li> <li>Utility workers, and</li> <li>Farmers</li> </ul> </li> <li>Contact local labor union</li> </ul>
Flood Zones	<ul> <li>Communities and businesses located in flood zones are at greater risk of experiencing negative respiratory health outcomes due to presence of mold and mildew</li> <li>Flood events also place individuals at risk of acute injury, drowning, and</li> </ul>	<ul> <li>FEMA Flood Map Service Center website</li> </ul>

#### Table IV: Environmentally Exposed Populations

	<ul> <li>death</li> <li>Ability to evacuate may be compromised and residents may become isolated from emergency services</li> </ul>	
Substandard Housing	<ul> <li>Difficult to keep cool in warm conditions, increasing risk of heat-related illness</li> <li>Not structurally sound</li> <li>Unable to protect against rain, flooding, and wind</li> </ul>	<ul> <li>Town Housing Department</li> <li>Building Inspectors</li> <li>Abandoned buildings that may periodically be occupied by the unsheltered</li> </ul>
Urbanized Areas	<ul> <li>Heat island effect</li> <li>Increased risk of flash flooding</li> <li>High percentage of impervious surfaces</li> </ul>	<ul> <li>US census definition: Areas with populations greater than 50,000 people</li> </ul>
Close proximity to shoreline	<ul> <li>Highly susceptible to storm surges and flooding</li> <li>Humidity raises the perceived temperatures and makes it harder to cool the body</li> </ul>	<ul> <li>UCONN CT ECO Mapping tool</li> <li>Past hurricane surge inundation information shows floods zones under varying hurricane severity</li> </ul>
Rural Communities	<ul> <li>Climate change causes more mild winters and larger tick populations, increasing the risk of exposure to vector borne diseases (e.g. Lyme disease)</li> <li>Warmer temperatures make CT more habitable to insects carrying other diseases, including:         <ul> <li>Zika</li> <li>Malaria</li> <li>West Nile Virus</li> </ul> </li> </ul>	<ul> <li>List of rural towns can be found at CT State Office of Rural Health website</li> <li>US Census definition: areas with populations less than 2,500 people</li> </ul>

### - APPENDIX 3 -Vulnerable Institutions

Vulnerable institutions are the institutions and the community members they serve that experience increased risk from climate change impacts. These institutions play vital roles in the community, ranging from childcare to health care to housing management. Many of these institutions directly serve the community's most vulnerable populations, so the climate change threats they experience impact the populations who do not have the capacity to navigate them. These institutions are community vulnerabilities because of the populations they serve as well as because of how heavily many community members rely on them. Climate change-related effects that impact these institutions may have wide ranging effects on the community.

The Oversight Team should work to identify these institutions in their community, which populations rely on them, and what climate change impacts they are most vulnerable to. **Table V** provides a list of commonly identified vulnerable institutions, their vulnerabilities, and resources on how to identify them in the community. Next, the Oversight Team should reach out to representatives of these institutions and establish points of contact. The Oversight Team should inform them of the community's intention to build climate change resilience and find out if they have any current plans to build resilience against climate change and if those plans are consistent with other state and local plans.

Vulnerable Institutions	Vulnerability	Resources to Identify Institutions Serving More Vulnerable People in the Community
Daycare	<ul> <li>Young children are highly dependent on caretakers</li> <li>High child to adult ratio and children spending more time outdoors increases the risk of exposure to climate related health harms (e.g. heat)</li> <li>Early exposure to climate change-related stressors increases risk of long term adverse mental health outcomes</li> </ul>	<ul> <li><u>211 Childcare</u> website, can locate daycares by town</li> <li>Local Health Department</li> </ul>
Schools	<ul> <li>Elevated classroom temperatures negatively impact academic performance</li> <li>Children experience increased risk of heat-related illness</li> <li>Children are highly dependent on adults</li> </ul>	<ul> <li>List of CT schools can be found on the <u>CT Data website</u></li> <li>Local Health Department</li> </ul>
Homeless Shelters	Shelters may not be equipped to	<ul> <li>List of homeless shelters by town</li> </ul>

#### Table V: Vulnerable Institutions

	<ul> <li>handle increased occupancy needs as more homeless seek shelter from harsh outdoor conditions</li> <li>Elevated levels of people living with preexisting medical conditions and substance abuse disorders, increasing risk of negative health outcomes if transportation and emergency medical infrastructure is compromised by severe weather/flooding</li> </ul>	<ul> <li>can be found at the <u>homeless</u> <u>shelters directory CT website</u></li> <li>Map available on <u>211 CT website</u> by searching "homeless"</li> </ul>
Hospitals	<ul> <li>Patient health may be impacted by climate change-related disasters through several pathways, including:         <ul> <li>power outages,</li> <li>flooding and washed out roads that disrupt the medication and medical equipment delivery network, and</li> <li>psychological stress</li> </ul> </li> <li>Climate change-related disasters may impact patient health by pushing hospitals over capacity, delaying patient care</li> </ul>	<ul> <li><u>Official USA website, CT State</u></li> <li>Local Health Department</li> </ul>
Mental Hospitals	<ul> <li>Patients mental health may be negatively impacted by climate change-related psychological stress</li> <li>Many medications used to treat mental health disorders may increase the risk of heat related illness, making mental institutions especially vulnerable to power outages</li> </ul>	<ul> <li>Local Health Department</li> </ul>
Substance Rehab centers	<ul> <li>Patients are especially vulnerable to disruptions in the care delivery system, increasing chances of relapse, greater substance use, and risk of substance use-related mortality</li> </ul>	<ul> <li>Local Health Department</li> </ul>
Prisons	<ul> <li>Rising temperatures increases the risk of heat related illness and mortality in facilities that are often poorly ventilated/air conditioned</li> <li>Increased frequency of extreme weather events may require changes to existing emergency plans</li> <li>Mental health disorders are widespread in prisons, climate change may worsen mental health outcomes</li> </ul>	List and interactive map can be found on <u>CT State Department of</u> <u>Correction website</u>
Nursing Homes	<ul> <li>The elderly are at significant risk of poor health outcomes and mortality as a result of prolonged exposure to high temperatures</li> <li>Care for residents with compromised immune systems, making them</li> </ul>	<ul> <li>List and interactive map can be found at <u>CAHCF/CCAL website</u></li> </ul>

	especially vulnerable to infectious disease (e.g. waterborne diseases associated with flooding)	
Senior Housing	<ul> <li>Same vulnerabilities as nursing homes, but residents are more independent</li> </ul>	• Housing around CT can be found on the Residential Options for Older Adults page of the <u>211 CT website</u> and following the links to the interactive map

### - APPENDIX 4 -Critical Infrastructure

Critical infrastructure are the systems that are critical to the health, safety, and overall function of the community. These are systems that serve the whole of the community which would have serious impacts if they were damaged, inaccessible, or incapacitated in any way.

Critical infrastructure comprises the systems that are responsible for ensuring the community has its most crucial needs met, which include safe drinking water, heat, means for travel and evacuation, and electricity. Climate change can impact these systems in several ways: storms and rising sea levels may cause floods that submerge low-lying roads and isolate areas in the community, high winds and the resulting debris can knock out power lines, and severe storms may damage cellular service towers. Damage to these infrastructure impede community members' ability to evacuate or request help, and so, also hinder emergency responders' ability to act. It is crucial that these systems be hardened against the effects of climate change so that the community's most important resources do not become its greatest vulnerabilities.

The Oversight Team should aim to identify the critical infrastructure that serves their community and identify the agencies and businesses that are responsible for maintaining them. **Table VI** provides a list of critical systems as well as examples that can be found in the community. The Oversight Team should then reach out to these bodies, inform them of the community's intention to build climate change resilience, establish points of contact, and find out if they currently have plans to harden their infrastructure against the effects of climate change and if those plans are consistent with other state and local plans.

Critical Infrastructure	Examples of Critical Infrastructure
Transportation System	<ul> <li>Roads</li> <li>Railways</li> <li>Bridges</li> <li>Airports</li> <li>School Buses</li> <li>Transit Buses</li> </ul>
Electric System	<ul><li>Power Lines</li><li>Power Stations</li><li>Substations</li></ul>
Communication Systems	<ul> <li>Radio Station Towers</li> <li>Television Station Towers and Cables</li> <li>Cellular/Internet Towers</li> <li>Areas of community access to technology and devices</li> </ul>
Emergency Response Systems	<ul><li>Police Stations</li><li>Fire Stations</li></ul>

#### Table VI: Critical Infrastructure

	<ul> <li>Ambulance Bays</li> <li>Emergency Communications (Satellite telephones)</li> </ul>
Healthcare Systems	<ul> <li>Hospitals</li> <li>Nursing Facilities</li> <li>Assisted-Living Facilities</li> <li>Mental Institutions</li> </ul>
Water and Sewage Systems	<ul> <li>Water Treatment Facilities</li> <li>Sewage Treatment Facilities</li> <li>Storm Systems</li> </ul>
Food Systems	<ul> <li>Grocery Stores</li> <li>Food Markets</li> <li>Emergency Food Reserves</li> </ul>

## - APPENDIX 5 -Template Survey to Identify Community Leaders

- 1. Who are the community leaders in the community? Please list 3-5 names.
- 2. Are there religious leaders in the community? Who are they? Please list 3-5 names.
- 3. Are there major events held in the community? Who hosts/sponsors them? Please list 3-5 sponsors.
- 4. Do you attend any public meetings? What public meetings do you want to attend on a regular basis in the community? Please list up to 3-5.
- 5. What location do you go to get valuable information about the community?
- 6. What are the neighborhood/community organizations that are most active in the community?

Other than friends and family:

- 7. If someone needs help with (translation, advice, support, recommending a school, finding a job, housing) who would they go to? Please list 3-5 names.
- 8. Who do you rely on to provide information about the community? Where would you go to get it? (organizations, newspaper, radio, social media websites [Twitter, Facebook])
- 9. Who would you trust to represent the community?
- 10. Who do you rely on to get things done in the community?

### - APPENDIX 6 -Community Disaster / Evacuation Planning

An important piece of building climate resilience in the community is hardening the evacuation plans and infrastructure against climate change. The community needs to have evacuation plans that are accessible and responsive to all community members, especially those that are most vulnerable, which the Oversight Team will have determined from the assessment of community vulnerabilities. Vulnerable groups may include the physically or intellectually disabled, elderly, limited English proficiency groups, or the institutionalized, including individuals incarcerated, hospital patients, and residents of senior and assisted nursing facilities. These groups', as well as other groups identified in the community's vulnerability assessment, ability to evacuate or receive evacuation communications is inhibited. Equitable climate resilience plans will support the development of evacuation plans that work for all community members and their unique needs in the face of worsening climate threats.

The community must establish clear criteria that determines when evacuation is necessary. This includes having guidelines on how and when the community will be informed when it is time to evacuate. Communications must be in the appropriate languages for the community. Evacuation orders should be delivered with as much notice as possible once the appropriate community body becomes aware of a threat. If the Oversight Team identifies a population with limited English proficiency, it will need to identify the best method to reach this population. Community evacuation messaging should be delivered in appropriate languages and through trusted outlets, including:

- town halls, emergency television or radio broadcasts,
- alert text messaging,
- reverse 911 calls,
- and emergency lights and sirens.

Having clear, consistent evacuation criteria will help community members have an expectation of what they need to prepare for and when. In addition to developing evacuation plans the community must develop contingency plans for those who cannot or will not evacuate.

The community needs to have infrastructure ready and plans for evacuation, and community members must be made aware of all services they have access to. Questions the Oversight Team should answer include:

- Does the community have emergency shelters? Do they have enough capacity to secure the safety of all residents that may need to use them?
- Are there plans for more emergency shelters?
- Are these shelters capable of withstanding worsening climate impacts?

- Do the shelters have linguistically appropriate services?
- Are residents aware of these services?

It is critical that there is consistency between institutions and levels of government to avoid conflicting policies. This can lead to confusion and hamper the effectiveness of evacuation measures. Community institutions should have evacuation plans that are consistent with local plans, which in turn must be consistent with state and regional plans. The community should create a resource that lists all critical emergency and evacuation plans for the community. This list should include where to find the plan, who is responsible in each organization or committee for maintaining that plan, and their contact information. This document should include:

- Evacuation/emergency plans for vulnerable institutions (e.g. hospitals, schools, daycares, nursing care facilities)
- Local and state evacuation/emergency plans (e.g. transportation routes, shelter in place orders)
- Emergency plans for critical infrastructure (e.g. emergency transportation)
- Other plans related to climate adaptation and resilience building (e.g. State Plan of Conservation and Development, Hazard Mitigation Plan)

Community residents and community leaders should be made aware of this document and be informed of all updates to evacuation procedures.