



Taking Action on **Climate Change and** **Building a More Resilient** **Connecticut for All**

GC3 Governor's Council
on Climate Change

Phase 1 Report: Near-Term Actions
January 2021



Table of Contents

Members of the Governor’s Council on Climate Change (GC3)	3
GC3 Working Group Members	4
GC3 Background and Process	11
Executive Order No. 3	11
The Equity Lens	12
A Phased GC3 Process	13
Structure of the GC3	13
The GC3 and GC3 Subcommittees	14
The Working Groups	15
The GC3 Phase 1 Report: Near Term Actions	18
The Equity Lens: Equity and Environmental Justice Working Group and Core Concepts	19
Equity & Environmental Justice: Core Concepts	21
The Impacts of Climate Change in Connecticut	28
Recommendations of the Governor’s Council on Climate Change for Near-Term Action	31
Equity & Environmental Justice	31
Progress on Mitigation Strategies	32
<i>Cross Sector</i>	34
<i>Buildings</i>	35
<i>Electricity</i>	36
<i>Non energy</i>	37
<i>Transportation</i>	38
Working and Natural Lands	40
<i>Forests</i>	40
<i>Wetlands</i>	41
<i>Rivers</i>	42
<i>Agriculture and Soils</i>	44
Infrastructure and Land Use	47
Public Health & Safety	47
Financing & Funding Adaptation & Resilience	50
Science & Technology	53
Appendix 1. List of Acronyms and Definitions	54
Acronyms	54
Definitions	55
End Notes	56



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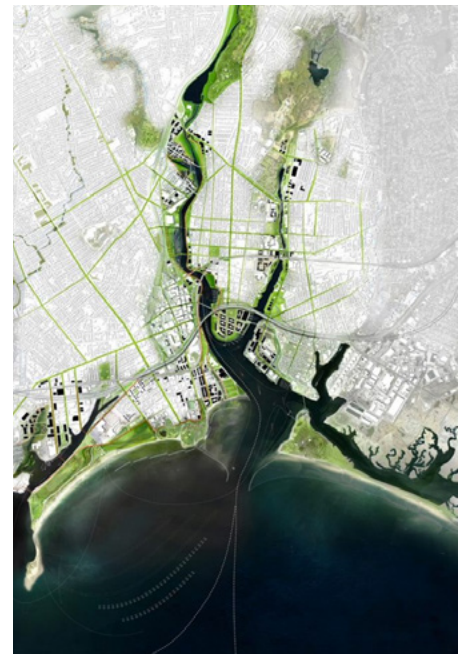
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The Equity and Environmental Justice: Core Concepts section of this report was excerpted from the Equity and Environmental Justice Working Group report prepared by the Working Group co-chaired by Marianne Engelman-Lado, Yale University and Vermont Law School and Lee Cruz, The Community Foundation for Greater New Haven and subgroup chairs, Mark Mitchell, George Mason University, Sena Wazer, University of Connecticut, Alex Rodriguez, Connecticut League of Conservation Voters, and Brenda Watson, Operation Fuel.

The Impacts of Climate Change section of this report was excerpted from the Science & Technology Working Group report prepared by the Working Group co-chaired by James O'Donnell, University of Connecticut and Susan Masino, Trinity College.

GC3 Background and Process

Executive Order No. 3.

On September 3, 2019, Governor Lamont issued Executive Order No. 3.¹ The Executive Order rejuvenated the Governor’s Council on Climate Change (GC3) and expanded its scope and responsibilities to include both mitigation of carbon emissions and climate change adaptation and resilience as follows: “the Council shall monitor and report on the state’s progress on the implementation of carbon mitigation strategies, as well as on the development and implementation of adaptation strategies to assess and prepare for the impacts of climate change in areas such as infrastructure, agriculture, natural resources and public health.”

Mitigation is defined as reducing emissions of and stabilizing the levels of heat-trapping greenhouse gases (GHG) in the atmosphere. Mitigation is imperative to prevent the worst effects of climate change from happening. However, climate change has already altered Connecticut’s environment and we will experience the changes projected by the year 2050 (see following section on climate impacts in Connecticut) even with mitigation. We must adapt and become more resilient to that new normal for our state. Although the GC3 did not adopt any single definition of adaptation and resilience, definitions were provided during public outreach to help inform the public’s understanding of these concepts. In those events adaptation was defined as the adjustment in natural or human systems in anticipation of or response to a changing environment in a way that effectively uses beneficial opportunities or reduces negative effects and resilience as the ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions.²

Executive Order 3 has two main objectives, the first on mitigation and the second on adaptation and resilience as follows:

Objective 1. Monitor and report on the state’s implementation of the greenhouse gas emissions (GHG) reduction strategies set forth in the previous Governor’s Council on Climate Change under the Malloy administration in their December 2018 report, *Building a Low Carbon Future for Connecticut*¹. The mitigation objective called for:

- evaluating opportunities for equitably distributing the costs and benefits of implementing the recommended GHG mitigation strategies, specifically addressing any disproportionate impact on environmental justice communities;
- assessing and describing how GHG reduction strategies are being integrated into existing and new state agency planning efforts;
- evaluating the efficacy of existing and proposed policies and regulations aimed at reducing GHG emissions; and
- identifying new and emerging GHG mitigation strategies that maximize climate change adaptation and resiliency.

¹ <https://portal.ct.gov/-/media/Office-of-the-Governor/Executive-Orders/Lamont-Executive-Orders/Executive-Order-No-3.pdf%20rel=>

² <https://obamawhitehouse.archives.gov/the-press-office/2013/11/01/executive-order-prEPAring-united-states-impacts-climate-change>

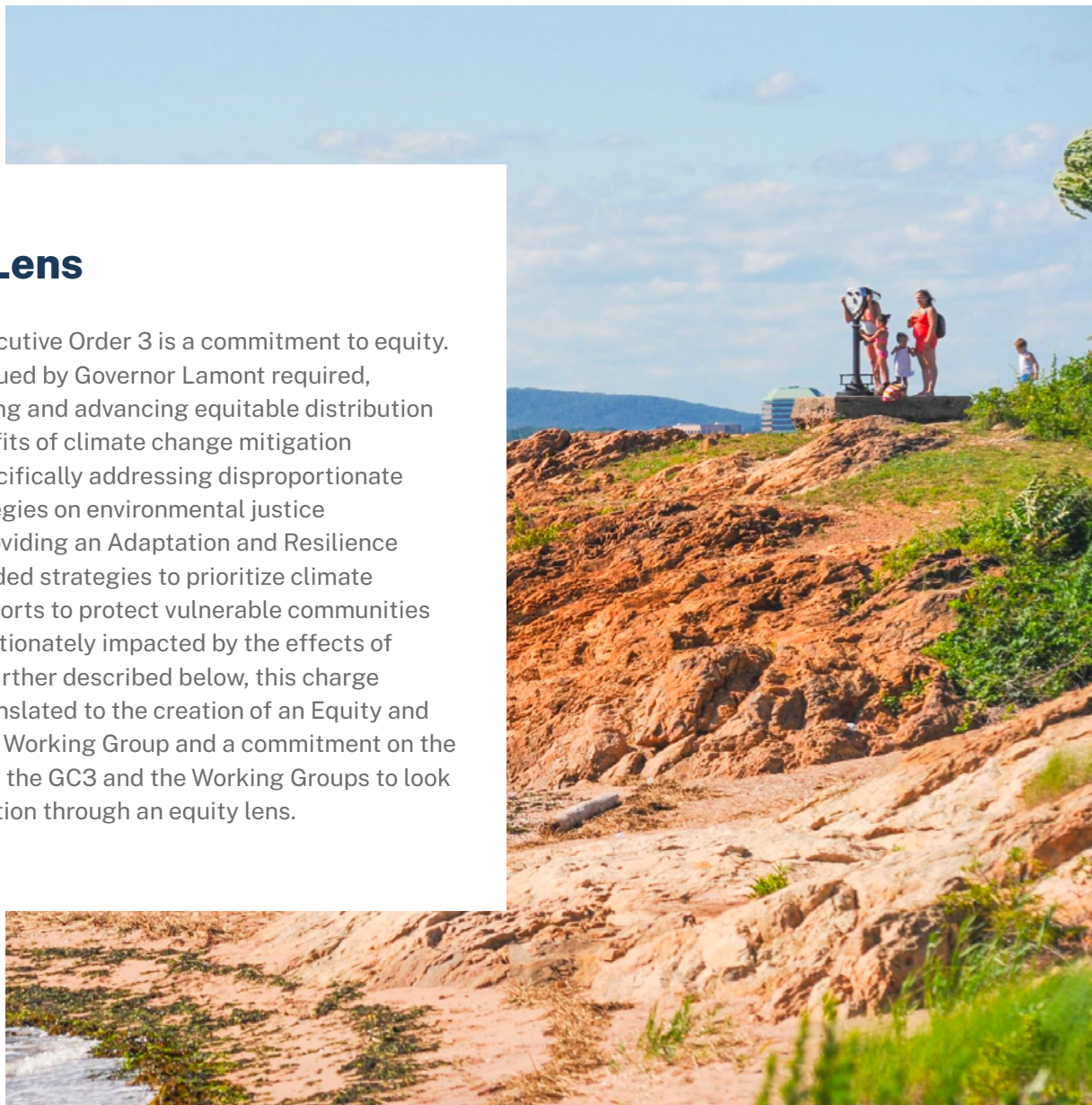
Objective 2. Develop a statewide Adaptation and Resilience Plan for Connecticut that encompasses the most current and locally-scaled scientific information and analysis available with respect to the effects of climate change and provide updated recommendations for adapting to and improving the state’s resilience to such changes in areas such as infrastructure, agriculture, natural resources, and public health. Those recommendations were to include:

- a review and assessment of the recommendations in the *2011 Climate Change Adaptation and Preparedness Plan*ⁱⁱ;
- recommendations and proposals for funding sources and financing mechanism to advance investment in recommended strategies;
- recommended strategies to prioritize climate change adaptation efforts to protect vulnerable communities that may be disproportionately impacted by the effects of climate change; and
- recommendations aligning with municipal and regional adaptation efforts.

Objective 2 also called for establishing a framework for which state agencies shall compile and maintain an inventory of vulnerable assets and operations and for each state agency represented on the Council to report to the Council on the alignment of climate change adaptation strategies incorporated into their relevant planning processes and documents.

The Equity Lens

Embedded within Executive Order 3 is a commitment to equity. Executive Order 3, issued by Governor Lamont required, “prioritizing, integrating and advancing equitable distribution of the costs and benefits of climate change mitigation planning policies, specifically addressing disproportionate impacts of such strategies on environmental justice communities,” and providing an Adaptation and Resilience Plan with “recommended strategies to prioritize climate change adaptation efforts to protect vulnerable communities that may be disproportionately impacted by the effects of climate change.” As further described below, this charge from the Governor translated to the creation of an Equity and Environmental Justice Working Group and a commitment on the part of all members of the GC3 and the Working Groups to look at every recommendation through an equity lens.



A Phased GC3 Process

The Executive Order included two deadlines: by January 15, 2021, the first report on the progress on mitigation strategies and the Adaptation and Resilience Plan should be complete and by December 31, 2021, the report from state agencies on the adaptation strategies. Continued reporting on implementation of the mitigation strategies was also called for annually.

In order to meet these two deadlines, the GC3 process was split into a Phase 1 and Phase 2 reporting process. The Phase 1 report due by January 15, 2021, would include an initial list of recommendations to be implemented or to continue implementation in 2021 or early 2022. The Phase 2 report, due by December 31, 2021, would include longer-term recommendations to begin implementation in 2022 or later and updates or progress towards any of the recommendations included in the Phase 1 report. The framework for the inventory of vulnerable assets and operations and the report from state agencies on adaptation strategies in their planning processes required under Objective 2 would also be included in the Phase 2 report.

The Phase 1 and Phase 2 process was adopted in part to address the disruption of the COVID-19 pandemic that came just a few months into the GC3 deliberations process.

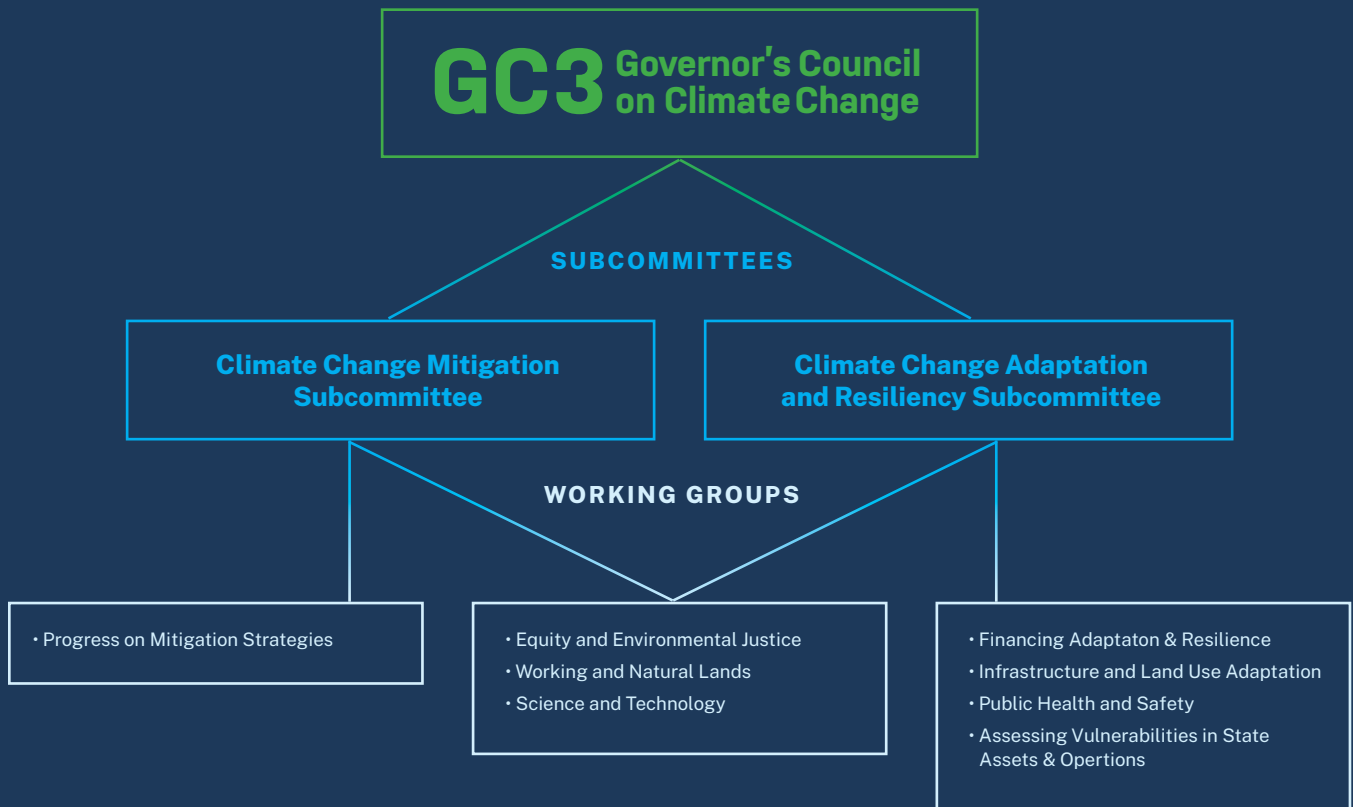
On March 20, 2020, Governor Lamont declared the Stay Safe. Stay Home. order,³ which brought the entire GC3 process online. Although the GC3 pushed forward, even under the incredibly difficult circumstances of the pandemic, a robust public engagement process that had been planned with in person meetings in environmental justice neighborhoods was postponed indefinitely while the virus made it unsafe to meet in person. By allowing for ongoing input into the recommendations on both mitigation and adaptation and resilience throughout 2021, the public participation process will be reimagined for the current situation and will continue to inform the 2021 reports.

³ <https://portal.ct.gov/-/media/Office-of-the-Governor/Executive-Orders/Lamont-Executive-Orders/Executive-Order-No-7H.pdf>

Structure of the GC3

The GC3 includes 23 members appointed by the Governor. Their names are listed in the acknowledgments of this report. As directed by Executive Order 3, two Subcommittees were formed as well as Working Groups to accomplish the work of the GC3. The Climate Change Mitigation Subcommittee and Climate Change Adaptation and Resiliency Subcommittee were drawn from the 23 appointed members of the GC3. Seven Working Groups were also created, based on thematic areas, to report to the two subcommittees. The Working Groups were composed of GC3 members and other participants designated by Commissioner Dykes as the GC3 Chair.

The joint Working Groups, reporting to both the Mitigation and Adaptation and Resilience Subcommittees, are Equity and Environmental Justice, Science and Technology as well as Working and Natural Lands. The Funding and Financing Adaptation and Resilience, Infrastructure and Land Use, and Public Health and Safety Working Groups reported to the Adaptation & Resilience Subcommittee and the Progress on Mitigation Strategies Working Group reported to the Mitigation Subcommittee. The Assessing Vulnerabilities in State Assets & Operations Working Group will convene and meet in 2021 as part of the GC3 Phase 2 process.



The GC3 and GC3 Subcommittees

On October 24, 2019, a request for public input was issued to inform the formation and scope of the Mitigation and Adaptation and Resilience Subcommittees and the Working Groups. Public comments were accepted and reviewed. Following this initial scoping process, the non-state agency members of the GC3 were appointed and all 23 members of the GC3 were convened on December 11, 2019 to review their scope and charge.

Following that first meeting of the GC3, the work of the GC3 largely moved into the Working Groups (see below). The GC3 met periodically to review the progress and status of the Working Groups on March 9, 2020 and July 15, 2020. Following the completion of the Working Group reports, the GC3 Subcommittees met to review the Working Group reports and to prepare an initial list of recommendations to put forward to the full GC3. Adaptation and Resilience met on December 7 and 15 and Mitigation met on December 14. The GC3 met for the last time in 2020 on December 18, 2020 to review the full list of recommendations to be included in the draft Phase 1 GC3 report.

The Working Groups



The bulk of the work of the GC3 occurred during the deliberations of the Working Groups. Each Working Group met frequently from January 2020 through October/November 2020 to scope out their work, learn from presentations from their members and invited speakers, and finally to develop recommendations in each of their topic areas, with a focus on meeting both their charge to address climate change and evaluate each recommendation through an equity lens. The activities of each Working Group are briefly summarized below, but each Working Group provided extensive and detailed **reports** that more fully capture their process, findings and recommendations.

THE EQUITY AND ENVIRONMENTAL JUSTICE WORKING GROUP (EEJ)

The Equity and Environmental Justice Working Group (EEJ) was charged with developing a plan and guidelines for engaging diverse stakeholders in the process and working with other working groups to evaluate recommended strategies through an equity lens. Four EEJ subcommittees (specifically, Public Participation, Environmental and Climate Justice Mapping Tool, Mitigation, and the Equity, Environmental Justice & Adaptation (EEJA) Subcommittees) provided feedback on an expedited basis to other GC3 working groups and developed recommendations for progress on mitigation and adaptation strategies.

[Equity & Environmental Justice Working Group 2020 Final Report →](#)

THE PROGRESS ON MITIGATION STRATEGIES WORKING GROUP

The Progress On Mitigation Strategies Working Group reviewed and evaluated progress on implementing the recommendations outlined in the 2018 GC3 report, Building a Low Carbon Future for Connecticut: Achieving a 45% GHG Reduction by 2030.⁴ They assessed how recommended strategies were integrated into existing and new policy planning efforts, evaluated the efficacy of existing and proposed policies at reducing GHG emissions, and prioritized the equitable distribution of costs and benefits of climate change mitigation. For practical purposes, the Working Group was further subdivided into the Buildings, Electricity, Transportation, Cross-sector, and Non-Energy Sectors.

[Progress on Mitigation Strategies Working Group 2020 Final Report →](#)

THE WORKING AND NATURAL LANDS WORKING GROUP

The Working and Natural Lands Working Group evaluated the role of nature-based solutions (e.g., scaling up the preservation and restoration of forests and coastal wetlands, green and natural infrastructure, agricultural lands) in climate change mitigation and adaptation and how to best incorporate the economic, social, and environmental co-benefits of these solutions into Connecticut's climate change planning strategies. The Working and Natural Lands Working Group decided to further subdivide into the Forests, Wetlands, Rivers, and Agriculture and Soils Subgroups during their deliberations and each provided a separate report and recommendations.

Working and Natural Lands: [Forests Subgroup → Wetlands Subgroup → Rivers Subgroup →](#) and [Agriculture and Soils Subgroup →](#) 2020 Final Reports

THE SCIENCE & TECHNOLOGY WORKING GROUP

The Science & Technology Working Group provided scientific and technical support to the Climate Change Adaptation and Resiliency Subcommittee and Working Groups and assisted with translating climate modeling and data into actionable, downscaled information that can be incorporated into adaptation and resiliency planning processes. They provided a summary of climate impacts in Connecticut in the area of sea level rise, precipitation, temperature and storms as well as providing research recommendations and a discussion on integration across physical, social and engineering disciplines related to the impacts of climate change.

[Science & Technology Working Group 2020 Final Report →](#)

⁴<https://portal.ct.gov/-/media/DEEP/climatechange/publications/BuildingaLowCarbonFutureforCTGC3Recommendationspdf.pdf>

THE INFRASTRUCTURE AND LAND USE ADAPTATION WORKING GROUP

The Infrastructure and Land Use Adaptation Working Group provided recommendations for adapting our state's infrastructure in the areas of transportation, utilities and buildings and integrating climate change into land use planning and policies.

[Infrastructure and Land Use Adaptation Working Group 2020 Final Report →](#)

THE PUBLIC HEALTH AND SAFETY ADAPTATION WORKING GROUP

The Public Health and Safety Adaptation Working Group provided recommendations to address the health and safety impacts of climate change in the areas of air quality, vector-borne diseases, extreme events, water-borne illnesses, nutrition, food security & food safety, and mental health and well-being.

[Public Health and Safety Adaptation Working Group 2020 Final Report →](#)

THE FINANCING AND FUNDING ADAPTATION AND RESILIENCE WORKING GROUP

The Financing and Funding Adaptation and Resilience Working Group identified innovative and practical options to finance and fund climate adaptation and mechanisms to scale investment in the broad spectrum of climate resilience strategies and solutions. Additionally, they identified barriers to financing in this space, discussed their findings on the impacts of climate change on the financial sector, determined the unique financing needs of nature-based solutions with a focus on environmental justice communities, and provided a table of available state and federal funding sources.

[Financing and Funding Adaptation and Resilience Working Group 2020 Final Report →](#)

Following several months of input from collaborative meetings and the work of hundreds of Working Group members, each Working Group submitted a Draft Report that was subject to a public review period from September 22, 2020 to October 21, 2020. During the public review period, a series of six public forums were held to present the findings and recommendations of each of the Working Groups and to provide an interactive opportunity to solicit feedback from the public.

In addition to feedback received during the public forums, hundreds of written comments on the GC3 Draft Reports were submitted by the public and reviewed by the Working Groups. After the close of the public comment period each Working Group revised their reports and submitted Final Reports available to view on the [GC3 Working Group Report webpage](#) where the compiled public comments can also be found.

The GC3 Phase 1 Report: Near Term Actions

The Working Group reports contained dozens of recommendations, each with many sub-recommendations and options for action. All of the Working Group reports' content and recommendations were reviewed by the members of the GC3 Subcommittees, who developed a list of recommendations to move forward to the GC3 for their consideration. This report contains the recommendations put forward by the GC3 for "near-term actions" that should begin to be implemented by the Governor in 2021 or early 2022.

This list of recommendations is informed by the Working Groups and in most cases largely pulls directly from the language drafted by the Working Groups, but language may also differ from the Working Group recommendations to reflect the consensus of all of the members of the GC3 and to bring forward those recommendations that are most urgent or that can be acted upon expediently by the Governor. These recommendations will be put out for a 14-day public review period where the public will have the opportunity to provide written public comment. Following any final revisions in response to comments, the recommendations will be presented to the Governor, with the Working Group reports appended, to inform state policy and activities in the next 12-18 months.



The Equity Lens: Equity and Environmental Justice Working Group and Core Concepts



In order to ensure a truly effective response to climate change, the GC3 process must prioritize equity and environmental justice at every step.

Executive Order 3 required “prioritizing, integrating and advancing equitable distribution of the costs and benefits of climate change mitigation planning policies, specifically addressing disproportionate impacts of such strategies on environmental justice communities,” and providing an Adaptation and Resilience Plan with “recommended strategies to prioritize climate change adaptation efforts to protect vulnerable communities that may be disproportionately impacted by the effects of climate change.” To that end, in 2020 the GC3 created an Equity and Environmental Justice (EEJ) Working Group and charged them with developing a plan and guidelines for engaging diverse stakeholders in the process and working with the other Working Groups to evaluate recommended strategies through an equity lens.

The COVID-19 pandemic imposed significant restrictions on public participation efforts during the 2020 GC3 process, but with some adaptation, the GC3 was able to continue to incorporate equity and environmental justice in the planning process. A major component in procuring necessary public engagement was the efforts of the EEJ Working Group. At the beginning of the GC3 process, in February, the Working Group, in addition to DEEP staff, began outreach to representatives from environmental justice communities across Connecticut to ensure public participation in the GC3 process and also developed public participation guidelines for all of the Working Groups to follow. When COVID-19 drove the process online, the EEJ Working Group met to modify their guidance to fit an online format for the public meetings. Additionally, they met to review the draft recommendations from the Working Groups, prior to their release for public comment, to provide feedback to improve how well those recommendations met the Governor’s charge in this area. While doing all of this work the EEJ Working Group was also able to launch a weekly

webinar series on environmental and climate justice to inform participants involved in the GC3 process as well as the general public. The weekly webinars began in September with a presentation by Sharon Lewis of the Connecticut Coalition for Environmental Justice on the “History of Environmental Justice and Racial Policies in Connecticut.” Throughout their eleven-week run, the webinars were well-attended with audiences of 100+ participants. The EEJ Working Group also developed their own set of recommendations included in the Council’s list of recommendations.

As further described below in the excerpted Equity and Environmental Justice: Core Concepts section of the 2020 report of the Equity and Environmental Justice Working Group,⁵ “The principles of equity mandate that race, national origin, socio-economic status, religion, gender, gender identify, disabilities, sexuality, or other facets of identity must not inhibit a person’s access to resources, including basic necessities such as safe shelter, water, food, heat, and light, as well as opportunities for safe employment to support oneself and one’s family, equal access to community supports such as public education, public transportation, healthcare and mental health care.” Throughout the planning process, all of the GC3 Working Groups strived to apply this concept of the equity lens when drafting and finalizing their recommendations. The GC3 has been committed to prioritizing and addressing equity and environmental justice especially due to unforeseen circumstances such as the pandemic, the murders of George Floyd and Breonna Taylor, and the subsequent protests for racial justice across the United States.



⁵ https://portal.ct.gov/-/media/DEEP/climatechange/GC3/GC3-working-group-reports/GC3_Equity_EJ_Final_Report_111320.pdf

⁶ https://portal.ct.gov/-/media/DEEP/climatechange/GC3/GC3-working-group-reports/GC3_Equity_EJ_Final_Report_111320.pdf

The following discussion on core concepts of equity and environmental justice is taken verbatim from the 2020 report of the Equity and Environmental Justice Working Group⁶. It informed the 2020 GC3 process and will continue to inform the planning process in 2021 and ongoing implementation of recommendations from the GC3.

Equity & Environmental Justice: Core Concepts



Background

A clear understanding of equity is necessary to carry out the mandate of Executive Order 3, which requires that the GC3 prioritize equity and environmental justice. To launch its work, the EEJ discussed the concept of equity, explored ways to apply that concept to issues of climate change, and articulated examples of climate equity in practice. In 2020, after experiencing racial disparities in the prevalence and fatalities related to the coronavirus pandemic, equity requires a clear-sighted analysis of the role of race, income levels, and other factors and systems that contribute to inequalities.

What is equity?

A commitment to equity starts by recognizing that disparities in health outcomes, inequities in living conditions, and lack of political power place many communities of color, including Black, Indigenous, Latinx, Americans, immigrants, other People of Color (“BIPOC”), low-income communities, people with disabilities, and other historically disadvantaged people at greater risk and limit the capacity of their communities to adapt to climate change.

The principles of equity mandate that race, national origin, socio-economic status, religion, gender identity, gender, disabilities, sexuality, or other facets of identity must not inhibit a person’s access to resources, including basic necessities such as safe shelter, water, food, heat, and light, as well as opportunities for safe employment to support oneself and one’s family, equal access to community supports such as public education, public transportation, healthcare and mental health care. Climate change also poses a risk to future generations, who are unable to participate in decision-making today. Equitable planning includes core concepts of distributive and procedural justice: it considers existing disparities and provides communities with meaningful opportunities to participate in the policy processes meant to further climate justice and mitigate environmental racism. It requires that community perspectives and viewpoints be considered in adaptation and mitigation decision-making and planning.

How does equity relate to climate change? The Centrality of Equity and Environmental Justice to Climate Action

Perhaps at no time in recent memory have the relative vulnerabilities of communities been so apparent, given disparities in illness and death resulting from COVID on the basis of race, ethnicity, occupational status, residence in detention and other congregate residential settings, and other indicia of vulnerability.⁷ Issues of equity must also be understood to be central to climate change mitigation and adaptation. Failing to listen to environmental justice communities raises the likelihood of missing key strategies and risks exacerbating inequalities in Connecticut. As the Intergovernmental Panel on Climate Change has written:

Differences in vulnerability and exposure arise from non-climatic factors and from multidimensional inequalities often produced by uneven development processes... These differences shape differential risks from climate change... People who are socially, economically, culturally, politically, institutionally, or otherwise marginalized are especially vulnerable to climate change and also to some adaptation and mitigation responses... This heightened vulnerability is rarely due to a single cause. Rather, it is the product of intersecting social processes that result in inequalities in socioeconomic status and income, as well as in exposure. Such social processes include, for example discrimination the basis of gender, class, ethnicity, age, and disability.⁸

Together with the Public Health and Safety Working Group, EEJ thus identifies the centrality of indicators of vulnerability to develop mitigation and adaptation strategies and evaluate their success.⁹



⁷ See, e.g., Center for Disease Control (CDC), Health Equity Considerations and Racial and Ethnic Minority Groups (2019), <https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/race-ethnicity.html>.

⁸ Intergovernmental Panel on Climate Change, “Climate Change 2014: Impacts, Adaptation, and Vulnerability: Summary for Policymakers” (2014), 6, https://www.ipcc.ch/site/assets/uploads/2018/02/ar5_wgII_spm_en.pdf (assessments of confidence and citations omitted); see also American Public Health Association, “Climate Changes Health: Vulnerable Populations,” <https://www.apha.org/topics-and-issues/climate-change/vulnerable-populations> (describing vulnerability, climate effects, and health threats to children, older adults, communities of color, and low-income communities, and describing other vulnerable communities as including pregnant women, immigrant groups with limited English proficiency, indigenous peoples, people with disabilities, vulnerable occupational groups, and people with pre-existing or chronic medical conditions).



Indeed, climate change poses the greatest threat to those communities that are the least responsible – particularly BIPOC communities and low-income populations. These communities already experience disparities in health outcomes, inequities in living conditions, and a profound lack of political power. Such disparities place low-income communities and many communities of color at greater risk and limit their capacity to adapt. Conversely, those who have contributed the most to climate change are better positioned to protect themselves from its impacts. These inequities are the result of historical injustices rooted in race, class, and political representation here in Connecticut and across the country. As the effects of climate change mount, so does the urgency of addressing these challenges equitably.

Equitable approaches to policy planning start by focusing on current and historical disparities across communities and populations.¹⁰ Equitable policies prioritize the well-being of the most vulnerable community members. Equitable approaches to policy planning and implementation recognize that communities should have a role in creating plans that affect their well-being, values and community perspectives and viewpoints. Moreover, programs that are developed and roll out for an expedited or limited period of time often end up inequitably distributed because it takes time for information to reach communities, time for residents to respond, and time to overcome other barriers to participation. Equity requires acknowledgement that people with more privilege are often able to respond more quickly. Finally, to advance equity, consultation with communities must be iterative and political representatives and the government should be accountable for advancing equity.

⁹ As discussed below, EEJ strongly recommends initial and sustained investment in a mapping tool that will provide a visual representation of the relative vulnerabilities of Connecticut’s communities to climate change and inform planning and implementation at statewide and hyperlocal levels. See English, et al., “Environmental Health Indicators of Climate Change for the United States: Findings from the State Environmental Health Indicator Collaborative,” *Environmental Health Perspectives* (Nov. 2019), 1673, <https://ehp.niehs.nih.gov/doi/pdf/10.1289/ehp.0900708> (“To develop public health adaptation strategies, evaluate their success, and project the impacts of climate change on human health, indicators of vulnerability and preparedness, along with accurate surveillance data (usually generated by state and federal environmental and health agencies) on climate-sensitive health outcomes, are urgently needed.”).

¹⁰ For principles of climate justice, see, e.g., Mary Robinson Foundation, *Principles of Climate Justice*, <https://www.mrfcj.org/principles-of-climate-justice/>; Equitable & Just Climate National Climate Platform (2019), <https://ajustclimate.org/>; Foster, et al., “New York City Panel on Climate Change 2019 Report, Chapter 6: Community-Based Assessment of Adaptation and Equity,” *Annals of the New York Academy of Sciences*, (2019), https://www.researchgate.net/publication/331793205_New_York_City_Panel_on_Climate_Change_2019_Report_Chapter_6_Community-Based_Assessments_of_Adaptation_and_Equity, 40 (finding that a framework for equitable adaptation for climate change requires incorporation of distributional, contextual, and procedural equity in adaptation planning, and consideration of the distribution of social vulnerability to climate change, among other things).

While there is no single one-size-fits-all definition or exclusive list of the characteristics of more vulnerable communities or populations, the concept of vulnerability to climate change as used in this report reflects literature on the social determinants of health, which are conditions in which people are born, grow, live, work, and age, as well as the interrelated social and economic structures and systems, that shape conditions.¹¹ The social determinants of health include demographic factors, such socioeconomic status, racial discrimination, disability, and education levels, aspects of the physical environment, such as proximity to environmental hazards, and health status, for example.¹²

A commitment to equity starts by recognizing that disparities in health outcomes, inequities in living conditions, and lack of political power place many communities of color, including Black, Indigenous, and other People of Color (“BIPOC”), low-income communities, people with disabilities, pregnant women, and other historically disadvantaged people at greater risk and limit the capacity of their communities to adapt to climate change. The principles of equity mandate that race, national origin, socio-economic status, religion, gender, gender identity, disability, sexuality, or other facets of identity do not affect a person’s access to resources. These resources include necessities such as safe shelter, water, food, heat, and light, as well as opportunities for safe employment to support oneself and one’s family and equal access to community supports such as public education, public transportation, healthcare and mental health care. Climate change also poses a risk to future generations, who are unable to participate in decision-making today. Equitable planning includes core concepts of distributive and procedural justice: it considers existing disparities and provides communities with meaningful opportunities to participate in the policy processes meant to further climate justice and mitigate environmental racism. It requires that community perspectives and viewpoints be considered in adaptation and mitigation decision-making and planning.



¹¹ See generally Center for Disease Control and Prevention, NCHHSTP Social Determinants of Health, available at: <https://www.cdc.gov/nchhstp/socialdeterminants/index.html> (citation omitted).

¹² See World Health Organization, Social Determinants of Health, available at https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1.

What are the core concepts of equity?

The following chart provides more detail on the core concepts of distributive, procedural, contextual and corrective equity:

DISTRIBUTIVE EQUITY

Equitable mitigation and adaptation strategies take into account the distribution of environmental and climate-related burdens and place the most vulnerable communities at the forefront of any potential benefits a policy might create. Distributive equity starts by recognizing those disparities in health outcomes, inequities in living conditions, and lack of political power place low-income communities, BIPOC communities, and people with disabilities, and other historically disadvantaged communities at greater risk. Distributive equity strategies target resources to adaptation and mitigation strategies affecting the most vulnerable communities and populations and provide them with work opportunities and quality-of-life benefits.

PROCEDURAL EQUITY (OR EQUITABLE PLANNING AND IMPLEMENTATION)

Equitable mitigation and adaptation strategies must be planned in partnership with low-income communities and communities of color. The 1991 **Principles of Environmental Justice**, developed by members of the Environmental Justice Movement, include “the right to participate as equal partners at every level of decision-making, including needs assessment, planning, implementation, enforcement, and evaluation.” Equitable planning and implementation require that communities have a meaningful opportunity to participate. Policy makers must collaborate with communities to learn about their perspectives so that solutions meet community needs. Equitable planning focuses on the local level and ensures that local communities have the opportunity to provide input on policies that directly affect them.

CONTEXTUAL EQUITY

Equitable mitigation and adaptation strategies take into account that low-income communities, BIPOC communities, and people with disabilities, among others, are often more vulnerable to climate change, and the development of mitigation and adaptation strategies at statewide and local levels must take into account these disparities.

CORRECTIVE EQUITY

Equitable mitigation and adaptation strategies would provide communities with clear processes to hold the state accountable to its commitments to pursue equity.

Are there examples of equitable policies and approaches?

Solar Energy: An equitable approach to solar would include community solar projects that benefit all residents, including residents of low-income housing and public housing. An example of this could be promoting Virtual Net-Metering for renters and homeowners who are unable to install home solar electric systems.

Tax Policy: Tax funds or ratepayer resources should not be allocated to high-income communities or businesses, while those same resources are denied to low income communities and BIPOC-owned businesses.

Transportation: The expansion of infrastructure for personal electric vehicles (EVs) that can only be purchased by affluent households, whereas expanded public transportation is accessible to all communities and lowers carbon emissions. The former should not be prioritized over the latter.

Green Industry: An equitable approach to green industry development would include a workforce development component, to strengthen the capacity of low-income communities and communities of color to participate. of distributive, procedural, contextual and corrective equity:

Are there basic principles to apply to the work of the GC3?

Some of the key principles that flow from an equity lens include:

- All aspects of the GC3 process must be transparent to the public, accessible to a diverse range of community members, including people who are economically disadvantaged, BIPOC, and people with disabilities, and inclusive, offering opportunities for meaningful participation. As discussed in greater detail below, meaningful participation in the GC3 should include the following:
 - Treating the community as equal partners, allowing communities to have a meaningful say in decisions affecting their future;
 - Making it easy for communities to offer input, recognizing and respecting the other demands on people's time and resources;
 - Considering existing inequalities, reviewing community needs and identifying which communities are the most at-risk to climate change.
 - Plans must assess cumulative impacts in order to understand which communities are already overburdened and thus most vulnerable to climate change.
- The goals of any just climate action plan include should include racial and economic justice.
- The benefits of a just transition must be distributed equitably.
- Policies should prioritize the most vulnerable communities by targeting resources to vulnerable communities first and then expanding statewide.
- Costs should be equitably distributed.
- No community should be left behind; any plan must include pollution reduction in legacy communities, benefits at the community level, access to affordable energy, health monitoring, infrastructure that can withstand floods and storms, accessible housing for people who have been displaced, maintaining and protecting water resources.
- The GC3 should ensure that community members have mechanisms for monitoring policy planning and implementation and to offer questions and input.

More Detail on Components of Equity

Distributive Equity: Placing the most vulnerable communities at the forefront of any potential benefits a policy might create; ensuring that the distribution of the benefits and burdens of climate change mitigation and adaptation are equitably distributed.

Equitable sharing of environmental impacts by a community can be achieved by ensuring no one subset of people or socio-economic group bears a heavier burden. Equitable environmental policies and laws strive to ensure that no one group or community bears a larger, unfair share of harmful effects from pollution or environmental hazards. These policies and laws should aspire to offer support to more vulnerable communities, as measured by the social determinants of health, and ensure that they do not accidentally bear an unfair share of the cost of the work, which must occur.

Connecticut's climate mitigation and adaptation strategies should ensure that benefits and burdens are fairly allocated and focus on benefitting low-income communities, BIPOC communities, people with disabilities and low-income populations in rural Connecticut, among other vulnerable communities.

Procedural Equity: Planning in partnership with low-income communities and BIPOC communities.

An equitable approach to climate change mitigation and adaptation requires the government to meaningfully partner with low-income communities and BIPOC communities. The state must co-produce its plans with those communities. Far too often, low-income communities and communities of color are not at the table to advocate for their needs. As other jurisdictions have found, partnership with overburdened communities has led to specific mitigation and adaptation strategies that are successful.

Contextual Equity: Assessing the vulnerabilities of communities across connecticut to climate change, due to the legacy of racial and income inequality and other factors.

Connecticut has an unfortunate expanding affordability gap. When it comes to energy and transportation, for example, the state's low-income population is stuck in a state of disparity with over 400,000 households unable to pay their electric bills and keep their heat on. Low-income communities are busy struggling to survive and often work more than one job, or have other pressing responsibilities. Many low-income families are dealing with serious medical issues, housing displacement, or lack of safe affordable housing, and are impacted by general lack of resources.

Each community faces a different combination of climate and other vulnerabilities. It is critical to identify special patterns of vulnerability to provide guidance on strategies that will work and on indicators that can be used to measure vulnerability and performance over time.

Corrective Equity: Providing communities with clear processes to hold the state accountable to its commitments to pursue equity.

Because vulnerable communities often lack traditional forms of economic resources and political influence, the state must create processes that allow those communities to hold public leaders accountable. Equitable climate mitigation and adaptation strategies would consist of clear processes that (a) allow the state to check on its progress towards its goals and (b) allow communities to hold the state accountable.



The Impacts of Climate Change in Connecticut

Sea Level Rise, Precipitation, Temperature, and Storms

“Science and everyday life cannot and should not be separated.”

– Rosalind Franklin, Ph.D. (1920-1958)

In 2013 the Intergovernmental Panel on Climate Change (IPCC) concluded it is “extremely likely”¹³ the central cause of observed warming of the climate system was the increase in the concentration of greenhouse gases (GHG) in the atmosphere due to anthropogenic emissions. International treaties such as the Paris Agreement address these climate-related impacts through a concerted effort to mitigate international GHG emissions. By establishing the 2002 Governor’s Steering Committee on Climate Change and the subsequent 2015 Governor’s Council on Climate Change (Executive Order No. 46), Connecticut has been a leader for similar efforts in the United States.

In September of 2019, Governor Ned Lamont issued Executive Order No. 3, re-establishing the Governor’s Council on Climate Change (GC3) and committing Connecticut to a 45% reduction in GHG emissions below 2001 levels by 2030. The report called for evaluating current and locally-scaled scientific information and analysis of the effects of climate change. While the previous 2018 GC3 report focused on planning for sea-level rise, this report expands upon that effort to include the impacts of precipitation and temperature patterns. The current report also recognizes that cultural change and coordinated, equitable actions are needed to address systemic problems: climate-motivated policies must assess and prioritize community lifelines like food, water, and natural systems, and must protect public health -including mental health.



Scientific knowledge and technical measurement capabilities evolve rapidly. Evidence-based actions will ensure that we steward the natural, cultural, and historic resources that support a high quality of life and a healthy economic future across the urban, suburban, and rural areas in Connecticut. Drawing from the recent body of research reports that review the state of the science¹⁴ and observed temperature and precipitation patterns,¹⁵ as well as consensus within the GC3 Science and Technology Working Group, the council is adopting the following findings and recommendations regarding the impact of climate change on sea-level, temperature, and precipitation in Connecticut:

1. There is high confidence in projected changes through the mid-century. Projected changes after the mid-century will depend on mitigation actions taken in Connecticut and globally. Since our understanding of the processes that determine climate is advancing rapidly, and data is being continuously collected, we recommend a comprehensive review of projections be undertaken by the State at five-year intervals as outlined below.
2. Mean sea level in Long Island Sound could be up to 20 inches above the National Tidal Datum Epoch (1983-2001) by 2050 (O’Donnell, 2018). This projection is not sensitive to future trends in carbon dioxide emissions.

¹³ IPCC, 2013: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 1535 pp. Note: “extremely likely” corresponds to greater than 95% probability.

¹⁴ O’Donnell, J. (2019). Sea Level Rise in Connecticut. CIRCA Report. <https://circa.uconn.edu/wp-content/uploads/sites/1618/2019/10/Sea-Level-Rise-Connecticut-Final-Report-Feb-2019.pdf>

¹⁵ Seth, A., G. Wang, C. Kirchhoff, K. Lombardo, S. Stephenson, R. Anyahand J. Wu (2019). Connecticut Physical Climate Science Assessment Report (PCSAR): Observed trends and projections of temperature and precipitation. CIRCA Report. <https://circa.uconn.edu/wp-content/uploads/sites/1618/2019/11/CTPCSAR-Aug2019.pdf>

3. Changes in mean sea level will significantly impact the frequency of flooding along the Connecticut coast, but the flood zone will not expand much in most areas. With 20 inches of sea-level rise, coastal flood risk could increase by a factor of 5 to 10 with no change in storm conditions. High water levels, like occurred during Superstorm Sandy, would then be expected every 5 to 10 years.
4. Sea level rise will continue after 2050. Recent simulations indicate that the mean sea level could be up to 80 inches higher by 2100 if CO2 emissions are not reduced soon.
5. Average temperatures in Connecticut could increase by 5°F (2.7°C) by 2050 compared to the 1970-1999 baseline. Connecticut's temperature has already risen more than the global average in part because temperature changes tend to increase in middle and high latitudes (towards polar regions). Consequently, a 2 °C target for global average temperature would result in a higher temperature (than 2 °C) in Connecticut.
6. All indices of hot weather are expected to shift toward more frequent and higher temperature events. For example, by mid-century, the number of days per year with temperatures above 90 °F (32 °C) could increase. Statewide, from 1970 to 1999, the average number of days was 5, and this is projected to increase to an average of 25 days between 2040-2069. (Note that specific locations and specific years will show more days with extreme temperatures than statewide and long-term averages). The number of days with frost could decrease from 124 to 85.
7. Temperature projections after mid-century are sensitive to policy choices on carbon dioxide emissions. Coordinated mitigation now means it is more likely that the temperature will stabilize after 2050. If not, warming is likely to accelerate.
8. Drought risk is also expected to increase. The probability of unusual events (extremely low annual and summer water availability, and extremely high 1-day and 5-day precipitation) are projected to increase by a factor of between 2 and 4 by mid-century.
9. Though it is unclear whether the frequency or intensity of extratropical storms in Connecticut will change, they will likely bring more precipitation. In general, warmer temperatures will result in less snow and more rain, but increased humidity will yield high snowfall events when temperatures permit.
10. Projection of changes in the frequency of tropical cyclones in a warmer climate are uncertain. However, they will likely have stronger winds and more precipitation. Since 1980 there has been an increase in the frequency of hurricanes in category three or greater.

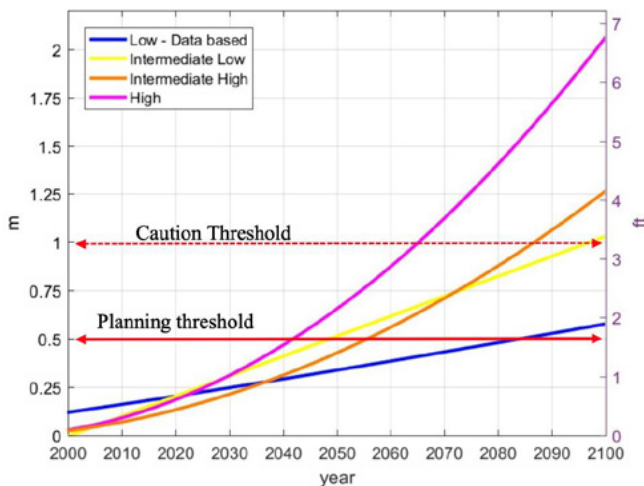


Figure 3. Sea-level Rise Scenarios for Connecticut. O'Donnell, J. 2019.

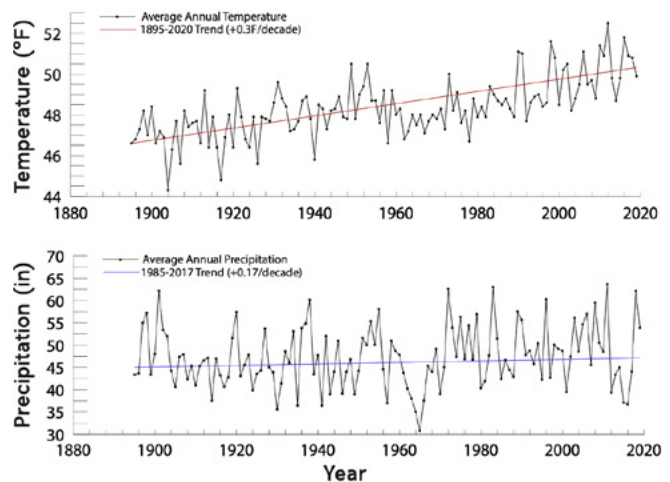


Figure 4. Average annual temperature and precipitation in Connecticut. Seth et al., 2019 (as adapted by CIRCA fact sheet).

Recommendations of the Governor's Council on Climate Change for Near-Term Action to begin to be implemented in 2021 and early 2022



Equity & Environmental Justice¹⁶

- 1. Develop and identify funding for a community engagement strategy to inform the 2021 GC3 planning process and implementation**, including support in the form of grants for partnering community-based, non-governmental organizations to design the community engagement process, receive training, and co-develop recommendations to ensure meaningful input and equitable approaches to mitigation and adaptation. Both public and private funding should be pursued.
- 2. Develop, launch, maintain, and use a statewide environmental mapping tool that provides a visual representation of the spatial distribution of environmental and climate health vulnerabilities across Connecticut**, taking into account the social determinants of health and utilizing indicators. Make recommendations for how the statewide environmental mapping tool could be codified and utilized in existing state programs, including the distribution of grant and bond funding. Launch a public-private interagency effort as part of the 2021 phase of the GC3 to develop the tool.
- 3. Prioritize mitigation strategies in vulnerable communities**, including low- and moderate-income communities, and ensure access to mitigation approaches, such as clean energy, for low- and moderate-income communities.

¹⁶ All recommendations are organized by the GC3 topic areas as mandated by Executive Order 3 and Working Groups of the same names. Recommendations where there was significant overlap in subject matter may have been consolidated. Where recommendations were consolidated across topic areas, the recommendation contains a note where it was cross-listed.

4. Establish Connecticut community resilience program. The program would advance community engagement and provide technical assistance to municipalities and Councils of Governments on resilience actions across the state, address both short-term and long-term impacts of climate change, bring together all relevant planning documents and facilitate dialogue amongst vulnerable populations, state, regional and local stakeholders, and prioritize vulnerable populations. Focus of this engagement would be on more resilient development, land use and building practices, and building construction standards. Funding for this program should be apportioned using a system that ensures more resources for municipalities where vulnerable population reside and where plans have been developed specifically to address the needs of the identified vulnerable population. (cross-listed with Infrastructure and Land Use)



Progress on Mitigation Strategies

CROSS-SECTOR

5. Expand consumer education and awareness efforts to increase the uptake of zero- and low- carbon technology measures.

- a. Enhance outreach efforts to increase the uptake of zero- and low- carbon technology measures. Use social media campaigns, webinars, case studies, testimonials, and customer-engagement platforms with a focus on environmental justice communities, to highlight on-line resources and engage stakeholders.
- b. Conduct outreach on climate action plan. Public participation should be focused on selection of criteria important to the community and coordinated with the definition of an environmental justice (EJ) index. Consider the incorporation of co-benefits to EJ communities in regulatory and agency decisions. Coordinate a sustained outreach effort with key non-profit and neighborhood organizations to develop an effective communication plan to clearly link climate actions to the quality-of-life issues important to disadvantaged and EJ communities. Consider the creation of civic infrastructure to enable communities to better advocate for their interests.

6. Strengthen alignment between state decision-making and greenhouse gas (GHG) emissions-reduction goals.

- a. Encourage energy-focused partnerships between regional councils of government and their member municipalities, NGOs and universities to enable and align quantitative measurement of progress in reduction of GHG emissions, using a state-wide standard tool. Consider publication of comparable town-by-town emissions reports on state website to engender accountability and friendly competition while speeding overall progress.

BUILDINGS

7. Accelerate adoption of building thermal energy conservation improvements through protection of energy efficiency funds; addressing health, safety, and legal issues that are barriers to efficiency upgrades; proactively using building codes; improving the process of evaluating energy-efficiency cost-effectiveness; improving coordination of building performance programs; and engaging municipalities as allies in all efforts.

- a. Prioritize building envelope improvements and expand access to thermal energy -efficiency measures through innovative financing options for all income levels and higher incentives for customers with low income and businesses located in environmental justice communities, as is ongoing through the Conservation and Load Management (C&LM) Planⁱⁱⁱ and the Comprehensive Energy Strategy (CES)^{iv}.
- b. Protect ratepayer efficiency and clean energy funds, to be used for their statutorily-authorized purpose. Energy efficiency funds collected on utility ratepayer bills and through the Regional Greenhouse Gas Initiative (RGGI) are to be utilized for building energy efficiency improvements. Similarly, ratepayer funds that support clean energy and efficiency programs of the Connecticut Green Bank should be used to achieve their intended purpose. These funds are instrumental for reducing air pollution and greenhouse gas (GHG) emissions, and lowering electric bills and supporting clean energy jobs.
- c. Improve the ability of efficiency programs to overcome health, safety, and legal issues that are barriers to efficiency upgrades. Continue focused engagement with partners in housing and public health through the Energy Efficiency Board to identify state- and municipal-level best practices regarding strategies to overcome issues that are barriers to energy-efficiency upgrades and adopt those that are appropriate for Connecticut. Fully utilize the Weatherization Assistance Program (WAP) funding as allowed for this purpose. Evaluate current programs for effectiveness and institute enhancements to address unmet needs in the low- and moderate-income community. Identify clear pathways for renters to follow in all programs. (cross-listed with Infrastructure and Land Use)
- d. Proactively use building codes to accelerate energy efficiency. The State should continue to keep pace with adopting the International Energy Conservation Code (IECC) and consider strategies to further enhance opportunities to improve energy efficiency through high-performance and stretch codes and construction and renovation practices.
- e. Make energy-efficiency cost-effectiveness testing consistent with public policy goals and align the cost-effectiveness test with the National Standard Practice Manual.
- f. Consider strategies to better coordinate building performance programs within the State to reduce GHG emissions from buildings. Strategies could include opportunities to scale up deep energy retrofits of existing building stock and engaging on a pilot basis with the Department of Energy's Grid Interactive Pilot program, which uses smart-building controls to align operation and pricing with low-GHG energy.
- g. Engage municipalities as allies. Consider the creation of energy development zones to promote energy-efficiency policies targeted toward low- and moderate-income neighborhoods. Partner with municipalities and community organizations to overcome barriers to program participation and improve program delivery. Address heat island effects by encouraging the use of nature-based solutions, cool roofs and pavement, and thermal breaks. Engage partners to incentivize uptake of new clean energy technology and efficiency measures. Encourage municipal government to adopt lead by example approach which the state is taking under Executive Order 1 with their buildings.

8. Expand consumer education and awareness efforts to increase uptake of zero- and low-carbon technology.

- a. Evaluate opportunities to increase visibility of Energize CT resources with a focus on improving communications for low- and moderate-income communities.
- b. Review a full suite of outreach strategies with the goal of enhancing outreach efforts. Such strategies include using social media campaigns, webinars, case studies, testimonials, and customer-engagement platforms.
- c. Increase training of real-estate industry professionals on integrating U.S. Department of Energy Home Energy Scores and information on energy efficiency, renewables, and resiliency into real-estate transactions processes.
- d. Help building owners pursue a holistic and strategic approach to improve building performance. Better coordination of analysis of building performance, advice to owners regarding available technical and financial options, exploration of potential complementary actions, and guidance for owners through an iterative process to make energy improvements as time, resources, and the owner's needs, could improve overall outcomes of programs to enhance building performance.

9. Transition building fossil fuel thermal loads to efficient renewable thermal technologies.

- a. Develop sustainable funding mechanisms to incentivize replacement of fossil fuel space and water heating with efficient renewable thermal technologies (RTT). Rebate programs are available through the Energy Efficiency Fund paid for by fees on natural gas and electric utility bills and Regional Greenhouse Gas Initiative (RGGI) funds. Further enhancements include requiring delivered-fuels companies to contribute to the Energy Efficiency Fund. This requirement would reduce the cross-subsidization of delivered fossil fuels by electric ratepayers and make more money available for RTT deployment.
- b. Incentivize installation of renewable thermal technologies in new construction. Incentives for RTTs for new residential, commercial, and industrial buildings are available through the Residential New Construction program and Energy Conscious Blueprint program. Program updates will be rolled out with the next code adoption to drive the new-construction marketplace toward zero-energy buildings with low operational Energy Use Intensity ratings. New program offerings will support integrated design and whole-building energy modeling at the feasibility phase and will offer incentives to customers who incorporate energy-reduction strategies through post occupancy.
- c. Develop a strategic plan for transitioning from fossil fuels to renewable thermal technology. In the upcoming Comprehensive Energy Strategy (CES), the State should investigate opportunities to align planning for the gas distribution system with the Global Warming Solutions Act (GWSA).

10. Improve training and technical capacity of workforce for renewable thermal technology installations

and standards. Such an expansion could include working with Home Energy Services (HES) contractors to identify current and expected job needs, creating a fast track for critical work skills, and allocating funds to help contractors train new workers. There may also be an opportunity to leverage the Office of Workforce Strategy.

ELECTRICITY

11. Commit at least 50 megawatts of demand reduction per year to the ISO- New England forward capacity market through reducing electricity consumption; transitioning to a focus on demand response; utilizing energy storage; and doing all of the above with a broader equity lens.

- a. Reduce electricity consumption by 1-2 million megawatt hours by replacing existing inefficient electric-resistance space- and water-heating equipment with high-efficiency renewable thermal technology.
- b. Assess distribution of Conservation and Load Management (C&LM) program funds with a broader equity lens. In August 2020, the Department of Energy and Environmental Protection (DEEP) initiated an Equitable Energy Efficiency proceeding to define equity in the context of the state's energy-efficiency and load-management programs and to expand participation of individuals in underserved communities. The scope of the proceeding will include an exploration of new metrics (beyond income) to evaluate the distribution of program dollars.
- c. Plan for the transition of the electric efficiency programs in the Conservation and Load Management (C&LM) Plan from reliance on lighting savings to a focus on demand response. The C&LM programs have historically relied significantly on savings from efficient lighting. Market transformation is underway as a result of federal lighting standards and efficiency program rebates. In addition to thermal envelope improvements to offset the load impacts of electric heat pumps, the C&LM programs must shift their focus to active demand response, to encourage customers to engage with a more modern grid and improve affordability and resilience.
- d. Utilize energy storage as a peak demand reduction and load flexibility strategy. Energy storage is becoming a key strategy to shift electricity demand and increase system resiliency. Numerous storage solutions are available, including batteries and pumped hydro, which can mitigate the intermittency challenges of zero-carbon resources like wind and solar power. DEEP and Public Utilities Regulatory Authority (PURA) are investigating the value associated with battery storage in a Value of Distributed Energy Resources study that is now under way.

12. Achieve at least 66 percent zero-carbon electricity generation by 2030 through continued deployment of renewable energy sources and improved transmission and storage deployment, while creating green jobs to grow local economies.

- a. Meet the Renewable Portfolio Standard (RPS) target of 40 percent Class I renewable energy sources by 2030, with an aim to reduce the carbon intensity of the RPS to achieve its decarbonization goals. Owners of renewable-electricity generation projects receive one renewable energy certificate (REC) for every megawatt-hour of electricity they produce. Those RECs are traded in a regional market for state RPS compliance. Connecticut establishes required annual REC percentages from three classes of renewable energy resources.
- b. Ensure a transparent and predictable compensation framework to maintain at least the historical annual average 40-90 megawatts of residential behind-the-meter renewable energy resources. As retail electricity rates continue to rise, Connecticut must develop a transparent and consistent compensation structure for behind-the-meter renewable-energy generation to enable future renewable deployment. The compensation structure implemented should be consistent and easy to understand, and it should ensure a reasonable rate of return for customers and project developers, incentivizing deployment of distributed-generation sources to facilitate grid decarbonization.
- c. Continue implementing a shared clean energy program deploying at least 25 megawatts per year, with a focus on low- and moderate-income customers. In December 2019, Public Utilities Regulatory Authority (PURA) approved the Shared Clean Energy Facilities (SCEF) program. The SCEF program will seek new or incremental Class I renewable generation projects of 100-4,000 kW for a 20-year tariff term. Up to 25 MW of eligible projects will be chosen through competitive bidding each year for six years. As the SCEF program evolves, it is important to support energy equity and relieve energy burden for vulnerable populations.

- d. Continue to deploy at least 50 megawatts per year of larger distributed solar and 10 megawatts per year of distributed fuel cells. Since 2012, Connecticut utilities have been required to procure Class 1 RECs under 15-year contracts through an annual auction under the Low and Zero Emission Renewable Energy Credit (LREC/ZREC) Program. Given the program's success, Public Act 19-35 extended the program by \$8 million per year through 2021. The successor procurement begins in 2022, with 50 MW per year for ZREC resources and 10 MW per year for LREC resources.
- e. Maintain in-state zero-carbon nuclear generation and develop a long-term strategy to achieve a 100% Zero Carbon electric supply for Connecticut by 2040. Connecticut must retain zero-carbon nuclear power as it develops a transition plan to replace nuclear with zero-carbon renewables. A transition plan must consider the costs of nuclear retirement borne by ratepayers, the diverse mix of replacement energy sources, and economic, environmental, health, and social impacts of replacement. When planning the transition away from nuclear, economic and job impacts must be considered.
- f. Establish clear targets for off-shore wind procurement — in concert with Integrated Resource Planning recommendations and in balance with other renewable energy sources — to foster its significant potential to help meet Connecticut's zero-carbon goals. Consider strategies to improve the state's off-shore wind programs, including protecting endangered species and engaging in wildlife habitat monitoring before, during, and after construction and developing a workforce development plan for "green jobs" in the areas where new electricity infrastructure will be built.
- g. Optimize grid management strategies to reduce carbon emissions. Increased demand for electricity, coupled with proliferation of renewable and distributed sources of generation that operate differently than traditional fossil-fuel-combustion power plants, and will require new grid resources to ensure reliable and efficient delivery of zero-carbon electricity.
- h. Identify transmission constraints and evaluate the need for new transmission infrastructure required to support a zero-carbon electric grid. Examine whether transmission expansion is needed to support achieving a zero-carbon emissions electricity grid and include an evaluation of regional cooperation on grid planning. Given that development of high-voltage transmission lines typically requires acquisition of land, a study should be conducted that examines the environmental impact of building new transmission as one component to determine its benefit.
- i. Increase adoption of smart-management technologies to optimize flexibility of distributed energy resources. Grid modernization is important to better accommodate zero-energy and low-carbon generation sources and increase system safety, reliability, security, and resiliency in a cost-effective manner. It enables two-way communications between consumers and grid operators and facilitates bi-directional flows of energy to reduce peak demand and integrate distributed energy resources. This becomes even more important as buildings and transportation electrify with efficient and "smart" technologies and more distributed-energy resources come online.
- j. Research and identify opportunities to integrate battery storage and distributed renewable energy technologies to reduce and displace carbon emissions. Connecticut has taken steps to encourage adoption of energy-storage solutions. The 2019-2021 Conservation and Load Management (C&LM) Plan allows Eversource and United Illuminating to incentivize storage in demand-response programs. Additionally, PURA Docket 17-12-03 includes a request for proposals for storage-incentive programs.
- k. Reduce petroleum use by power plants needed to serve winter peak demand. The State should consider the health impacts (along with cost and carbon emissions) of using oil to meet electricity demand and evaluate expansion of a winter demand response program.

NON-ENERGY

13. Implement the short-lived climate pollutant reduction strategies outlined in the U.S. Climate Alliance Short-Lived Climate Pollutant Challenge to Action Roadmap^v.

- a. Develop regulations to reduce methane emissions from natural gas distribution. The Public Utilities Regulatory Authority (PURA) recently issued proposed regulations on a uniform natural gas leak classification, including a classification for an “Environmentally Significant Grade 3 leak” and established requirements for reclassifying leaks, reported leak response times, leak repair and reevaluation timeframes, reporting requirements, and more stringent limits on the number of unrepaired Grade 2 and 3 leaks at the end of each year.
- b. Monitor federal policy on potential regulations for hydrofluorocarbons that set achievable timelines for a transition to climate-friendly, hydrofluorocarbon (HFC)-free technologies and HFC substitutes in refrigerators, air-conditioning equipment, and vehicle air-conditioning systems.
- c. Explore efforts to reduce methane emissions from agriculture, including considering incorporating methane emissions reductions into funding criteria for agricultural programs and improving predictability of revenue streams for renewable natural gas.

14. Incorporate climate change mitigation in Plans of Conservation and Development (POCD)^{vi}.

State-funded actions should be implemented consistent with State POCD policies, while also considering what greenhouse gas mitigation goals and actions should be integrated into the State POCD. The State should define commonly used terminology, such as “sustainable,” and develop standards for determining an action’s consistency with the state POCD and for addressing points of inconsistency to ensure a more uniform approach that facilitates reporting and data tracking across towns and state agencies.

15. Promote responsible and just materials management. Consider implementing the recommendations of the Connecticut Coalition for Sustainable Materials Management (CCSMM)^{vii} to address both the climate impacts of waste generation and environmental justice concerns. A strategy to address these issues could include the following:

- a. Waste management goals should be set to minimize the residues sent for final disposal rather than based on diversion rates.
- b. Financial incentives should be provided to encourage manufacturers to process recovered materials into new products in support of a more circular economy.
- c. A disposal tax based on an estimate of the greenhouse gas (GHG) emissions of the final disposal process to fund incentives for a more sustainable waste management system.
- d. Develop a strategy designed to separate organics from municipal solid waste, increase quantity and quality of recyclables, and reduce residues sent for final disposal (waste-to-energy facility or landfill).
- e. Mandate or incentivize diversion of organic materials from the disposal stream.
- f. Create markets to support organics diversion.
- g. Develop and implement food rescue and recovery programs.
- h. Accelerate development of infrastructure to utilize diverted organic material.

TRANSPORTATION

16. Maintain increasing fuel economy and low- and zero-emission standards. Improving fuel economy can contribute to greenhouse gas (GHG) emissions reduction in the transportation sector. Vehicle emissions account for the bulk of Connecticut's transportation emissions and disproportionately affect low- and moderate-income communities due to the density of traffic in or near these areas. Implementing this recommendation should include the following actions:

- a. Maintain adherence to Corporate Average Fuel Economy and GHG emission standards mid-term review 2016 final determination.
- b. Maintain adherence to California low-emissions and zero-emission vehicle requirements.
- c. Establish emissions standards for medium- and heavy-duty vehicles, including school buses.

17. Expand electric vehicle (EV) charging network to ensure consumer confidence and reduce range anxiety.

- a. Revise zoning regulations and building codes to require: (a) a minimum number of zero emission vehicles (ZEV) parking spaces for new construction in both multi-unit dwellings and commercial properties; and (b) all new residential construction to be EV-ready.
- b. Prohibit homeowner associations, condominium associations, and landlords from restricting homeowners, condominium owners, and lessees with assigned parking spaces from installing charging equipment and associated metering equipment when certain conditions are met.
- c. Provide incentives to property owners of existing multi-unit dwellings and to homeowners' associations to add charging stations.
- d. Develop educational programs for business owners, commercial property owners, and residents; overnight charging opportunities for people without garages; and dedicated ZEV parking with EV charging at municipal offices.
- e. Post Alternative Fuel Corridor signage on the Federal Highway Administration's designated corridors in Connecticut to let drivers know about available charging and to encourage installation of additional charging stations.

18. Develop a State fleet transportation Lead by Example program that sets annual emissions-reduction targets and enables increasing adoption of zero-emission vehicles. The state should actively seek opportunities to reduce the overall number of vehicles in the fleet; increase state employees' use of transit and active transportation; increase the number of zero emission vehicles (ZEV) in the state government's light-duty vehicle fleet, incorporating criteria prioritizing replacement of fleet vehicles operating in low- and moderate-income communities and environmental justice communities; and continue meeting the accessibility needs of passengers and drivers with mobility impairment, until the ZEV market expands to include vehicle models that can provide the needed accommodations.

19. Update the Electric Vehicle Roadmap^{viii} that established specific zero emission vehicle (ZEV) targets that align with the zero emission vehicle memorandum of understanding (ZEV MOU) and the 2030 target. Establishing a timeline of annual targets that can help assess whether the state is on track to meet its long-term commitment. Meeting the 2025 commitment in the ZEV MOU will require increasing the number of ZEVs by roughly 60% each year. Assuming that commitment is met, reaching the 2030 target will require adding an average of another 75,000 new ZEVs annually beginning in 2026.

20. Advance initiatives that eliminate vehicle miles traveled (VMT) growth by 2030. Implementing transit-oriented development (TOD), supporting alternative transportation options for single-occupant vehicle driving, exploring a mileage-based user fee, improving transit options for state employees, and advancing opportunities to reduce VMT all support this recommendation.

- a. Implement TOD projects and support walkable, mixed-use, and sustainable urban and suburban development in areas served by transit.
- b. Encourage, incentivize, and support alternative modes and active transportation that reduce single-occupant vehicle driving.
- c. Remove the legislative barrier to exploration of a mileage-based user fee.
- d. Transit benefit, parking cash-out, and telecommuting for state employees.
- e. Advance opportunities to reduce VMT by incorporating strategies to reduce VMT and rural sprawl in long-range state and regional transportation plans; disincentivizing sprawl to inhibit land uses that increase VMT; and including goals for revitalizing transit and transit ridership (a critical strategy for reducing VMT) in COVID-19 recovery plans.
- f. Support easy and affordable access to broadband to support efficient and effective telecommuting.

21. Develop sustainable funding for transportation electrification and transit infrastructure.

- a. Implement the multi-state cap-and-invest Transportation and Climate Initiative program (TCI-P) that will set a limit on transportation sector emissions and reinvest program proceeds in measures that reduce emissions; provide benefits to citizens, especially low- and moderate-income communities; protect existing transportation funding; generate sufficient additional funding to support transportation infrastructure and operation; and mitigate costs to consumers.
- b. Continue and expand surveys and public engagement on the Transportation and Climate Initiative program throughout 2021, including intentional outreach to rural communities and low-income communities.

22. Advance initiatives that increase adoption of zero-emission medium- and heavy-duty vehicles.

- a. Continue to implement the joint memorandum of understanding (MOU) Connecticut signed in July 2020 with 14 other states and the District of Columbia, committing to work collaboratively to accelerate the market for zero-emission medium- and heavy-duty vehicles, including large pickup trucks and vans, delivery trucks, box trucks, school and transit buses, and long-haul delivery trucks (big-rigs). The goal is to ensure that 100 percent of sales of new medium- and heavy-duty vehicle are zero emission vehicles (ZEV) by 2050, with an interim target of 30 percent ZEV sales by 2030.
- b. Establish statewide goals for zero-emission medium- and heavy-duty trucks and school transportation. Meeting this goal by prioritizing large urban districts will enhance the equity benefits of this recommendation. To achieve an ambitious goal for zero-emission school transportation, school district fleet managers and/or operations and finance directors should be mandated to review their contracts with service providers and establish a plan for transitioning to electric school buses, working with the utilities, and taking advantage of grants where possible.

23. Reduce emissions from freight transportation. Consider including the following recommendations in the Connecticut Statewide Freight Plan^{ix} in its next update in 2021/2022.

- a. Address greenhouse gas emissions in state-level freight planning.
- b. Seek opportunities to shift freight from trucks to rail and ports.
- c. Consider co-benefit of expansion of waste reduction and recycling programs that will also reduce waste-stream freight.



Working and Natural Lands

24. Evaluate usable models to reliably monitor and report on negative carbon emissions related to working and natural lands, including, but not limited to models developed by federal, state, academic, and nonprofit partners including efforts of the U.S. Climate Alliance as part of considering a negative carbon emissions strategy alongside reported emissions for the building, energy, and transportation sectors. (cross-listed with Science and Technology, Progress on Mitigation Strategies)

25. Evaluate approaches and best practices for siting of renewable and non-renewable energy infrastructure to avoid loss of forests, farmland and other sensitive lands. As Connecticut deploys large-scale solar projects, it is important that this development does not supersede other climate change mitigation strategies, including the carbon sequestration and storage potential of natural and working lands. The state should encourage developers to site their projects on brownfields, rooftops, parking lots, and other developed spaces. (cross-listed with Progress on Mitigation Strategies)

FORESTS

26. Explore option of statewide “no-net-loss of forest” policy. Engage with stakeholders regarding the “no-net-loss of forest” policy to evaluate its feasibility, needed resources, and associated programs to maximize mitigation potential. Consideration should be given to the following actions as part of the evaluation of this policy: avoid forest conversion; protect healthy, intact, and resilient forests; offset all planned or permitted forest losses; provide incentives for stewardship, forest retention, and forest resiliency; and protect urban forests, build more parks, and plant more trees.

27. Increase adaptation and resilience of Connecticut’s forests through keeping forests as forests and supported actions to maintain un-fragmented forests.

- a. Support keeping forests as forests and evaluate mechanisms to achieve this goal, such as encouraging private landowners to protect forestland through easements, ecosystem payment mechanisms, and strong markets for local forest products.
- b. Support and enhance statewide, regional, and local actions that align to maintain un-fragmented forests within and across political boundaries with emphasis on connections to waterways and wetlands, core forests, and wildlife habitat linkages, including continuing work under the Coalition of New England Governors and Eastern Canadian Premiers on resolution 40-3, Resolution on Ecological Connectivity, Adaptation to Climate Change, and Biodiversity Conservation.

28. Increase mitigation of greenhouse gases in Connecticut's forests through sequestration and storage of carbon.

- a. Evaluate feasibility of a goal of permanent protection of at least 50% of core forests greater than 250 acres by 2040 and identify resources that would be needed to achieve that goal.
- b. Consider actions to increase statewide forest cover from 59% to over 60% by 2040.
- c. Pursue opportunities to improve guidelines for vegetation management utilized by electric utilities, Department of Transportation, and public works within available resources.
- d. Evaluate how to improve forestry practices in Connecticut's working forests by following scientific principles including the emerging body of knowledge on how to manage forests for resilience and to store and sequester carbon.

29. Protect vulnerable communities from climate change. Support urban forestry and community interest in tree planting and maintenance, parks, and/or community gardens in densely populated areas. Support these climate solutions that could meet multiple needs such as protecting against extreme heat events and increasing health outcomes, employment, and entrepreneurial opportunities and that address the Social Determinants of Health. Consider the creation of a Youth Conservation Corps to help community-based groups with implementation and support existing youth outreach efforts.

30. Protect forests with a changing climate through state and federal land acquisition, stewardship and protection programs and research for adaptive management.

- a. Consider reevaluation of Connecticut's Green Plan^x and open space grant programs to prioritize acquisition of land and conservation easements for habitats with the most climate resilience benefits.
- b. Support federal funding programs that support habitat stewardship and protection such as the Recovering America's Wildlife Act, and others.
- c. Evaluate research opportunities for adaptive management for ecosystems vulnerable to climate change.

31. Identify funding, programs, and resources needed for implementation of recommendations.

- a. Incorporate more specific climate-related criteria into selection of projects/level of funding. These include the Open Space and Watershed Land Acquisition Grant Program (OSWA), the Recreation and Natural Heritage Trust Program (RNHT), and the Recreational Trails Program (RTP).
- b. Preserve fully authorized funding for the Community Investment Act (CIA) and support state authorization allowing municipalities to adopt a buyer's real estate conveyance fee to fund resilience and other community environmental projects. (cross-listed with Financing & Funding Adaptation & Resilience).
- c. Evaluate strengthening the Urban Green and Community Garden Program to include Urban Forest Improvement Projects.

WETLANDS

32. Protect and enhance the ecosystem services value of wetlands using sound science and adaptive management strategies by incorporating new and emerging science and technologies, identifying and conserving ecosystems vulnerable to climate change, monitoring climate impacts, and developing habitat suitability models.

- a. Encourage land and ocean management behaviors that support ecosystem services by incorporating new and emerging science and technologies, such as sediment additions to marshes, low impact development, green infrastructure, living shorelines, conservation and other nature-based adaptations.

- b. Conserve identified ecosystem services vulnerable to climate change. Identifying and preserving future inland advancement zones would help create future protective storm buffers for coastal communities while providing the co-benefit of preserving an ecologically important habitat and protect Long Island Sound from pollutants.
- c. Continue monitoring and assessment of impacts of climate change on wetlands and near coastal waters and update management tools and strategies.
- d. Work with partners to develop a habitat suitability model for restoring inland and coastal wetlands, identifying areas which provide the greatest increase in ecosystem benefits when protected or restored.

33. Communicate the value of wetlands to Connecticut home and business owners through engagement on climate resilience efforts, including through natural hazard mitigation planning, education on better management of private lands, and utilizing nature-based strategies for addressing water inundation.

- a. Include nature-based solutions as part of the state Natural Hazard Mitigation Plan (NHMP)^{xi} and encourage municipalities and Councils of Governments to include this approach in local NHMPs.
- b. Engage with partners to educate and assist private landowners and developers in the management of their lands to minimize impacts to wetlands and reduce risk from climate change.
- c. Prioritize nature-based adaptation strategies that will ameliorate the effects of water inundation, including natural habitat conservation, Low Impact Development (LID) Best Management Practices (BMPs), agriculture water BMPs, and drinking water treatment standards. (cross-listed Science and Technology)

34. Further develop policies that encourage protections for wetlands under a changing climate, including integrating the latest climate science into stormwater and floodplain management and prioritizing acquisition of land at risk from climate change.

- a. Evaluate how to integrate the newest rainfall data modeling into stormwater models and management tools and ensure coastal floodplain planning is informed by the state's sea level rise scenarios.
- b. Prioritize acquisition of land and conservation easements for ecosystem services most at risk from climate change, leveraging Connecticut's Green Plan^{xii} and open space grant programs.

RIVERS

35. Protect the future ecosystem services value of inland waters under a changing climate, including prioritizing resilient river networks, prioritizing land acquisition, utilizing nature-based solutions, and including climate resilience in watershed-based planning.

- a. Develop the scope for a science-driven process for identifying and prioritizing river networks that will likely maintain diversity and functional integrity, even under shifts due to climate change, and protect the ecosystem services of inland waters.
- b. Formalize continuation of land acquisition that will protect high-quality waters.
- c. Promote urban forestry and expansion of urban green spaces, including protection and/or re-establishment of riparian corridors, including daylighting rivers in urban areas, and creation and expansion of public open spaces that incorporate nature-based solutions, low impact development, and green infrastructure.

d. Expand water quality focus of watershed-based planning to also consider related flooding and climate resilience issues and solutions.

36. Re-establish free-flowing character and connectivity of inland waters and hydrological connectivity by exploring programs to eliminate physical barriers in streams, encouraging nature-based adaptive restoration and solutions, and incorporating culverts into hazard mitigation planning.

- a. Explore programs that will eliminate physical barriers to stream connectivity. As part of a program the following should be considered: identifying resources to remove barriers; assessing impacts of road crossing designs; engaging partners to develop educational content on dam removal; and identifying, assessing and prioritizing known barriers in the state, the removal of which would lower flood risk and allow for stream and habitat connectivity and promote resilient ecosystems.
- b. Encourage nature-based adaptive restoration approaches for rivers, floodplains, and estuaries and encourage the utilization of nature-based adaptation approaches over hard armoring techniques. Engage partners for education, outreach, and technical training in these areas and establish priority projects for implementation through the development of project pipelines.
- c. Incorporate high-priority culverts into hazard mitigation planning and leverage federal funding sources for project implementation.

37. Create safe, equitable opportunities for people of diverse backgrounds to access and enjoy water resources through strengthening grants; enhancing programs that better engage and inform underserved communities and improve their access to freshwater resources; and improving staff training and diversity.

- a. Strengthen Open Space and Watershed Land Acquisition grants, Recreation and Natural Heritage Trust Program, Section 319 nonpoint source grants access opportunities for vulnerable communities.
- b. Enhance programs that will help outdoor recreation, natural resource partners, and municipalities engage with diverse communities. Engage external stakeholders to evaluate program impact for underserved and vulnerable communities.
- c. Enhance accessibility of information and signage for all communities. Better utilize technology for improved communication beyond English language signage.
- d. Enhance level of comfort with freshwater resource activities (e.g. paddling and fishing instruction, etc.) especially for underserved populations.
- e. Explore partnerships to identify opportunities for outdoor swimming lessons.
- f. Enhance state agency staff training and staffing in promoting equity, inclusion, and diversity, including for access, recreation, and safety issues around inland waters.
- g. Increase recruitment of more diverse staff for positions within environmental conservation and environmental quality sectors and explore additional resources for environmental justice and public outreach in the area of environmental education to support both internal and external needs for guidance, information and programming.

38. Promote demand-side water conservation and water reuse by reducing transmission losses and developing educational programming.

- a. Review opportunities to reduce transmission losses by expanding leak detection and maintenance programs.

- b. Work with partners to develop educational programming and outreach to educate the public as to where their drinking water comes from, the connection between a healthy environment and clean drinking water.

39. Explore water rights options that protect fish and wildlife through supporting their needs in decision-making, educating about the role of fishing and boating in the economy, and focusing planning and funding on conservation for cold water streams and rivers.

- a. Support fish, wildlife, and ecological needs when balancing economic and social needs in decision-making processes.
- b. Share analysis that fishing and boating are Connecticut's top contributor to the outdoor recreation economy.
- c. Focus state land conservation plans and funding on conservation lands around cold water streams and resilient river systems.

40. Encourage protection for inland waters through further development of policies, education/outreach, research, and funding opportunities that encourage protections for inland waters.

- a. Engage partners to develop training on green infrastructure and nature-based solutions for public works and other municipal staff.
- b. Enhance education, outreach, and research through goal-setting, incentivizing participation, and providing training and data management for monitoring and research projects that can detect climate change impacts on inland waters.
- c. Provide opportunities for coordination and data sharing among individuals participating in citizen monitoring.
- d. Develop educational campaigns for climate change adaptation awareness targeted at multiple sectors.
- e. Explore opportunities to improve and expand citizen participation in monitoring, including schools, non-profits, and others.
- f. Support opportunities to best utilize federal funding for wastewater infrastructure and wastewater solutions.
- g. Support continued funding for the Clean Water Fund.
- h. Maintain high standards for Combined Sewer Overflow (CSO) reduction in CSO communities.

AGRICULTURE AND SOILS

41. Reduce conversion of Prime and Important Farmland Soils, active agricultural land, forest land, and other soil landscapes that provide critical ecosystem functions and values/ goods and services such as groundwater recharge/discharge, protection of headwaters of cold-water streams, public water supply watersheds, floodplains and riparian areas, wetlands and wetland hydrology, support special habitats and migration corridors for species. According to American Farmland Trust's Farms Under Threat: State of the State from from 2001-2016, 23,000 acres of Connecticut's farmland were developed or compromised, the 6th highest percentage in the nation. Baselines of kinds of farm acreage goals should be established, and goals for reduced conversion, and protection established.

- a. Work towards accelerating and streamlining Farmland and Open Space and Watershed Land Acquisition Grant programs with a goal of closing in two years or less and doubling the number of easements closed within four years. Evaluate grant programs criteria needed to achieve these goals, while including equity, adaptation, mitigation, and resiliency elements.

- b. Maintain funding for the farmland preservation program through both the Community Investment Act (CIA) dollars and lump sum bonding and prioritize utilizing the federal “buy-protect-sell” and state “buy-protect-farm” programs and Community Farms Program to expedite farmland preservation process, create farmland access opportunities for the next generation of farmers, and protect smaller farms in more urban and suburban communities ; and support state authorization allowing municipalities to adopt a buyer’s real estate conveyance fee.
- c. Disincentivize location of solar projects on farmland. Incentivize multiple-use projects that allow for solar and agricultural production to co-exist on the same footprint when there are no other prudent and feasible alternatives, and as needed, as part of the farm business and/or succession plan. Maintaining soil health needs to be a critical component of the planning and installation of solar arrays.

42. Increase the adoption of on-farm energy production and reduce on farm energy usage through enhancing energy efficiency, renewable energy production, and renewable natural gas from anaerobic digestion, and composting.

- a. Enhance energy efficiency programs available to farms. Explore renewable energy production opportunities.
- b. Investigate successful models of funding and technical assistance to allow new and innovate farm energy technology.
- c. Identify barriers, risk, and unexpected costs for farms seeking to implement on-farm energy projects.
- d. Continue support for Energize Connecticut programs where farms can receive assistance in retrofitting their inefficient equipment with high energy measures.
- e. Establish a process in which the State may direct the electric distribution companies to enter into long-term agreements to purchase power or renewable natural gas from anaerobic digestion facilities, including policies and incentives to enable on-farm anaerobic digesters.

43. Strengthen land use planning tools for agriculture through a more regional approach and updating and streamlining zoning.

- a. Take a more regional planning approach to supporting and planning for Connecticut agriculture. In Connecticut, land use planning is conducted at the local municipal level. 169 sets of land use regulations have a direct impact on the growth and sustainability of Connecticut farms. Consider adoption of Regional Agricultural Councils such as the Lower CT River Valley Regional Agriculture Council that can take a more regional approach to supporting and planning for Connecticut agriculture.
- b. Reflecting the current industry trends, municipalities should consider eliminating minimum acreages for farms in municipal zoning regulations.
- c. Municipalities should streamline their planning and zoning rules and regulations and techniques to prevent farmland loss, protect special soil landscapes and improve soil health and water management, utilizing available technical assistance, including the 2020 American Farmland Trust’s and the Connecticut Department of Agriculture’s Planning for Agriculture and Conservation Options for Connecticut Farmland guides.

44. Improve soil health practices on all landscapes and off farms through technical assistance and training, education and outreach, and leveraging federal funding.

- a. Work with partner universities and the Connecticut Agricultural Experiment Station to provide technical assistance on tillage practices/equipment, soil health practices, grazing/forage

management, lawn and landscaping practices, and controlled environment agriculture. Increase training, technical assistance, and outreach on the programs, tools, techniques, and applied research needed to implement mitigation and adaptation practices. Virtual training should be an important component.

- b. Conduct outreach and education on the importance of soil health practices, and the value of soil's contributions to mitigation, adaptation, and resiliency.
- c. Raise awareness of the critical need for a strong soil science curriculum for agriculture and environmental science, particularly in the area of carbon sequestration and storage, and the role of soils in adaptation and resiliency strategies on all landscapes.
- d. Leverage federal funding through the United States Department of Agriculture (USDA) Natural Resource Conservation Service Regional Conservation Partnership Program (NRCS RCPP) and Conservation Innovation Grants (CIG) to accelerate protection and management of parcels in public water supply areas, important habitats, flood prone areas, and recharge and discharge areas.

45. Build a sustainable and equitable food system through support for urban agriculture and strengthening state grant programs.

- a. Support planning for urban agriculture initiatives including urban agriculture master plans at the local level.
- b. Develop capacity for an urban agriculture program at the Connecticut Dept. of Agriculture, including coordination with the Connecticut Department of Energy and Environmental Protection Urban Greens and Community Gardens program to develop complementary policies, funding, and assistance.

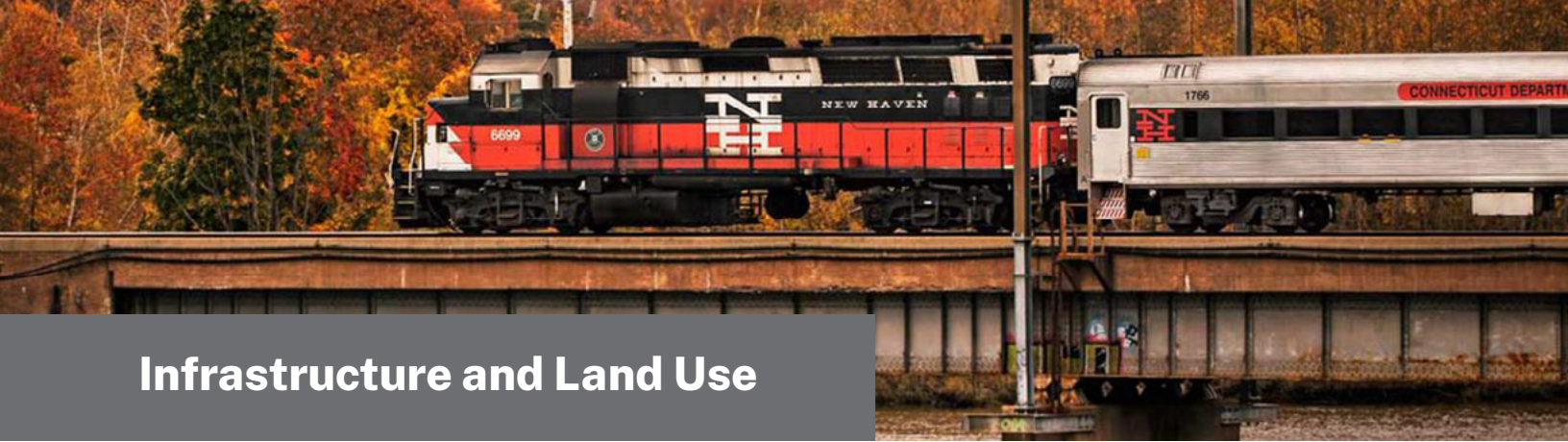
46. Prepare farms for climate change by improving use of federal and state programs and better engaging and supporting socially disadvantaged producers, including Black, Indigenous, and people of color (BIPOC).

- a. Increase knowledge of federal and state programs including risk management and crop insurance tools.
- b. Increase support and outreach to the growing number of socially disadvantaged farmers and producers, including BIPOC, throughout Connecticut to better understand how climate change is directly impacting this sector of producers and work collaboratively to develop solutions.

47. Sustain environmental and soil health by working with partners to improve research to develop additional weather stations, prediction models and practices for water management, including excesses, droughts, storage, and use.

48. Address coastal acidification with a focus on impacts to the shell-fishing industry by developing research and monitoring and joining the International Association to Combat Ocean Acidification.

- a. Join the International Association to Combat Ocean Acidification (OA Alliance) and commit to furthering the five goals identified in the Alliance's Call to Action: 1) Advance scientific understanding; 2) Reduce causes of OA; 3) Build adaptation and resiliency; 4) Expand public awareness; and 5) Build sustained international support. (cross-listed with Science and Technology)
- b. Evaluate approaches to research, monitor, and address coastal acidification impacts to natural resources including shellfish, crustaceans, and fish, including a monitoring system for water quality parameters critical to the shell-fishing industry in real-time to forecast potentially high-risk events. (cross-listed with Science and Technology and Public Health and Safety)

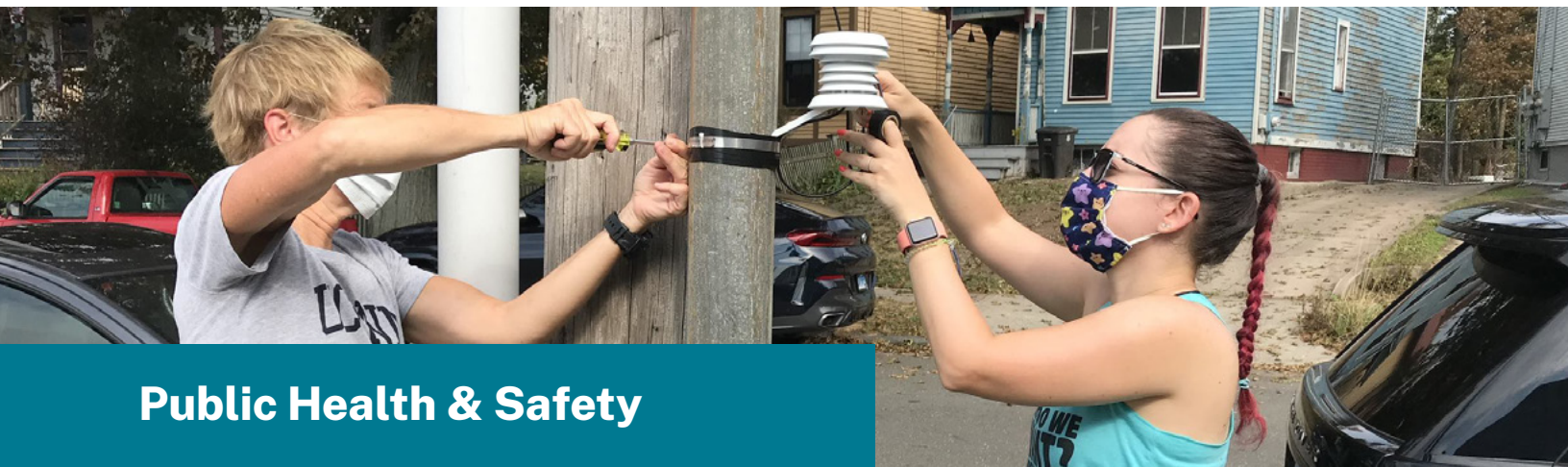


Infrastructure and Land Use

49. Develop a governance structure to facilitate oversight, implementation of strategies and actions pertaining to climate adaptation and resiliency. Governance structure may include interagency, Councils of Governments, municipal, and other stakeholder participation.

50. Advance priority planning tasks related to resilient infrastructure in Connecticut, including evacuation route planning, vulnerability assessments, identifying communities isolated during floods, identifying best available science for updating standards and guidelines, and proposals for maintaining resilience structures.

- a. Standardize and regulate local evacuation route planning and vulnerability assessment throughout the state.
- b. Phase and/or prioritize vulnerability assessments of publicly funded transit (bus and rail) facilities, as funding and resources become available.
- c. Identify geographically isolated communities due to limited ingress/egress resulting from coastal and inland flooding events using 2050 SLR, storm surge and inland flooding predictions.
- d. Identify best available science for updating standards and guidelines used in transportation and other engineering design; including sources of sufficient confidence, specificity, acceptance and scale for CT/northeast region.
- e. Consider proposals to address needs related to ownership, operation and maintenance of resilience structures.



Public Health & Safety

51. Develop a coordination framework for public health and safety priorities with a focus on the intersection of health equity and climate impacts, including addressing heat-related exposure, response and illnesses; ozone and allergen monitoring and impacts; food security; and needs of mental health populations in disaster response.

- a. Develop guidance for schools, day cares, and youth sports teams for prevention of heat-related illness and death.
- b. Address heat exposure and prevent heat-related illnesses at outdoor worksites and at indoor facilities where potential heat-related hazards may exist.
- c. Establish evidence-based standards for local heat and air quality response plans.
- d. Protect low-income residents and renters, particularly those in government supported housing, from indoor heat exposure.
- e. Evaluate ozone alert education efforts.
- f. Increase airborne allergen monitoring.
- g. Estimate the impacts of climate change on 2030 and 2050 ozone levels in Connecticut and identify potential effects on the health of Connecticut residents.
- h. Develop state and regional food security action plans to mitigate the risk of climate change and extreme weather events on the food system.
- i. Establish best practices for disaster case managers for addressing needs of mental health populations in disaster response.

52. Prepare Connecticut for vector-borne diseases expected to increase with a changing climate through improved state coordination, strengthened monitoring, improved modeling, developing prevention and management guidelines, and vector control and management.

- a. Strengthen monitoring and surveillance of vector populations and associated vector-borne diseases.
- b. Assess and project the impacts of climate change on ticks, mosquitoes, and vertebrate hosts using mathematical models.
- c. Develop vector-borne disease prevention and management guidelines for schools, outdoor recreation, and homes.
- d. Evaluate vector control strategies and ensure support for implementing sustainable vector management programs.
- e. Monitor insecticide and antimicrobial resistance in vector populations and vector-borne pathogens.

53. Prepare public and private drinking water systems for climate impacts, including utilizing geographic information systems (GIS); developing guidelines for drought management, engaging in planning and vulnerability assessments; tracking impacts; and incorporating resilience into laws, policies, and regulations.

- a. Develop water conservation measures and communication guidelines to manage droughts.
- b. Develop a GIS database and framework for continued updates to capture critical facilities to identify which public water systems (PWS) they are served by and which critical facilities are served by their own PWS.
- c. Update planning guidelines, drought triggers, and drought response protocols at least once per decade.
- d. Develop emergency interconnections between PWSs to ensure that multiple sources and interconnections are available for mutually beneficial sharing of water during emergencies.
- e. Use source water protection and the Drinking Water Quality Management Plans to encourage resiliency and increase funding and support for investments in watershed protection.

- f. Develop a statewide GIS database and framework for continued updates that identifies the location of private wells and decentralized sewage disposal systems.
- g. Track harmful or potentially harmful cyanobacteria algal bloom data in Connecticut and provide technical assistance to community water suppliers to address and prevent these events.
- h. Assess the vulnerability of public recreational freshwater and marine beaches to impacts from climate change and prioritize adaptation options to reduce vulnerability.
- i. Develop an energy audit program for water systems (Water and Wastewater) to increase energy efficiency and reduce greenhouse gas emissions across the water industry.
- j. Identify and improve wells that are located within a flood zone to increase resilience and reduce risk of flooding.
- k. Incorporate resiliency into the consideration of new laws, regulations, and policies and promote greater education of PWS about the importance of resiliency, specifically:
 - i. Regulate the construction of public water supply wells in flood zones.
 - ii. Develop guidance for local land use commissions on revising regulations to make well construction in flood zones more stringent.
 - iii. Incorporate a resiliency metric into the sanitary surveys through the small system CAT (“scorecard”) and monitor results over time.
 - iv. Update the water supply planning regulations to require assessment of the potential impacts of climate change (changing rainfall patterns, flooding, sea level rise, drought management) on the water system as part of Water Supply Plan updates.

54. Plan for the emergencies related to the impacts of climate change and ensure the incorporation of vulnerable populations into those planning processes. While Connecticut has an ongoing natural hazard preparedness planning process, these recommendations specifically target how to better coordinate and incorporate the needs of vulnerable populations.

- a. Create and maintain a statewide inventory of redundant back-up power services at critical facilities statewide and buildings where institutionalized vulnerable populations reside and establish a long-term funding mechanism for new systems and repairs.
- b. Enhance support for communication and outreach programs to educate residents about all aspects of preparedness, response and recovery for extreme weather events; include emphasis on communication strategies for vulnerable and Spanish-speaking populations.
- c. Coordinate state and regional access and functional needs (AFN) emergency preparedness and response to ensure safe and equitable access to communication and evacuation services and of medical care during natural disasters.
- d. Complete the draft State Evacuation Response Framework.
- e. Develop emergency interconnections between public water systems to ensure that multiple sources and interconnections are available for mutually beneficial sharing of water during emergencies.
- f. Establish best practices for disaster case managers for addressing needs of mental health populations in disaster response.



Financing & Funding Adaptation & Resilience

55. Build the governance structure and inter-agency coordination necessary to allow for effective and efficient financing and funding. Funding alone does not result in implementable projects. We need a government that leads and facilitates the development of projects at the state, regional and municipal scale and prioritizes the protection of vulnerable communities.

- a. Develop and implement a no less than 40% equity funding and/or benefit commitment for vulnerable communities that are disproportionately impacted by the effects of climate change. Create an inventory of all state resiliency programs and investments with funding source and identify recommended federal programs for consideration that will deliver benefits to disadvantaged communities disproportionately affected by climate change, economic and racial inequality, and environmental pollution. Develop a methodology for measuring and tracking expenditures and/or benefits for equity, in line with a commitment to ensure 40% equity commitment for project spend and/or benefits on adaptation and resilience projects and programs in vulnerable communities. The State should seek public-private partnerships to develop participatory design processes for advancing project development in vulnerable communities.
- b. Develop a resilience project pipeline for state and federal funding opportunities. Be prepared to take advantage of state and federal funding opportunities by inventorying existing resilience infrastructure, and develop a project pipeline of “shovel ready” resilience and adaptation projects that are engineered and prepared for permit application and emergency funding. This mix of projects should meet the equity project balance commitment, include a mixture of nature-based and gray infrastructure project solutions, and should plan for projects for near, mid and long-term project implementation.
- c. Develop a plan to incorporate resilience into existing state investment programs, including development of a climate resilience and disaster preparedness standards and climate risk rating. Evaluate opportunities to incorporate resilience into housing rehabilitation and resilience programs; tax credit programs (New Market Tax Credit, Opportunity Zones, P.A. 490, 4% Low-Income Housing Tax Credit); state assistance for economic development; and building codes and standards.
- d. Enhance municipal authority to undertake resilience projects. A municipal resilience authority would include the ability to pay for projects using borrowed or granted funds; to assess fees; and to construct, operate, and maintain resilience projects, including green infrastructure and nature-based solutions. At the municipal level resilience authority could be granted through updating the Flood and Erosion Control Board statutes. Options for enhancing the state’s ability to act as a backstop to municipal resilience authority and improve upon the existing inventory of state-owned and operated resilience infrastructure should be further explored. (cross-listed with Infrastructure and Land Use)

56. Identify and generate revenue sources to pay for resilience projects and programs. Adaptation and resilience projects and programs savings come in the form of avoided losses making it fundamentally more difficult to fund the financing of loans or bonds for these projects with financial losses avoided or savings from lower costs of insurance. In order to finance projects, it is necessary to establish other revenue sources for the funds that will save the state and municipalities dollars in avoided loss, while maintaining or improving bond ratings. Below are short-term recommendations for state funding. Sustained, robust funding is required to accelerate community resilience progress, stay ahead of associated climate threats and protect our most vulnerable neighbors from accelerating heat, health and flooding threats.

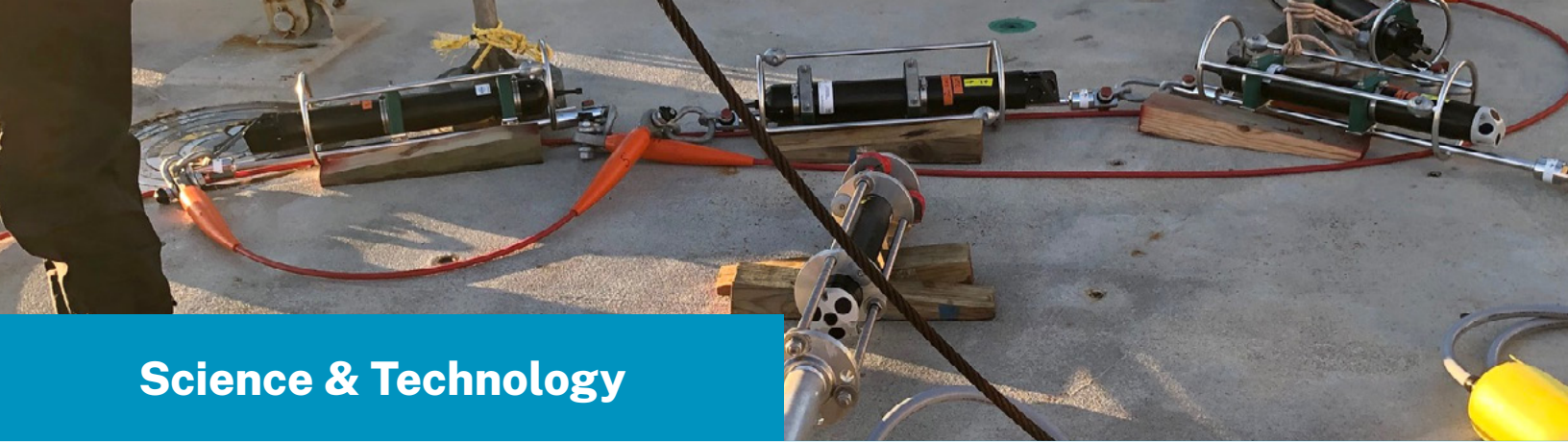
- a. *Utilize available state general obligation bonds, including the expanded microgrid and resilience grant program, to fund adaptation and resilience programs and projects.* These funds should be available to fund any feasibility analysis or design and engineering required to jump-start a “project pipeline” mix of “green” and “gray” resilience projects and to leverage federal project construction matching grants to complete priority projects. Project selection shall be consistent with the equity funding commitment and criteria. Any funding program should account for resources needed to ensure compliance with state or federal program requirements; attract a wide talent pool and best projects by authorizing municipalities, non-profits and academic institutions to apply; and enable grant recipients to receive technical assistance.
- b. *Create guidance to use Tax Increment Financing (TIF) Districts for resilience.* Existing TIF authority allows municipalities to assess fees based on property assessments. The revenue generated from TIF districts may be used
- c. *Support state authorization allowing all municipalities to create stormwater authorities.* Expanding the current pilot to allow all municipalities to create municipal stormwater authorities would reduce stormwater pollution and flooding, and help municipalities afford green infrastructure and resiliency investments. This funding could leverage additional state and federal funding sources. (cross-listed: Infrastructure and Land Use & Working and Natural Lands)
- d. *Support state authorization allowing municipalities to adopt a buyer’s real estate conveyance fee to fund resilience and other community environmental projects.* The authorizing legislation would allow, not require, municipalities to adopt a small and limited buyer’s convenience fee (up to 1% of the value of any real estate transaction valued at \$150,000 or greater) on the transfer of real estate. This dedicated fee could be used by municipalities to fund municipal land conservation, stewardship, climate mitigation, resilience and adaptation strategies, and other community environmental projects. The legislation would be structured to ensure that the program does not undermine the development of affordable housing in the participating municipalities.
- e. *Evaluate the creation of a state-level climate change and coastal resiliency reserve fund that would be managed by the Treasurer of the State of Connecticut.* The coastal resiliency reserve fund would allow the Office of the Treasury to manage municipal coastal resilience fund investments authorized by PA 19-77 on behalf of the municipalities.
- f. *Support the creation of Property Assessed Resiliency as part of Commercial Property Assessed Clean Energy (C-PACE).* C-PACE is an innovative financing solution from the Connecticut Green Bank (“Green Bank”) that makes clean energy improvements to properties safe, accessible, and affordable. The recommendation of Property Assessed Resiliency would be included within and expand the purview of the C-PACE public policy to include resiliency as a qualifying commercial real property measure.

57. Support the creation of an Environmental Infrastructure Bank in Connecticut. The creation of an Environmental Infrastructure Bank would be included within and expand the purview of the Connecticut Green Bank to include “environmental infrastructure” as an area of investment. The policy would enable the Green Bank to use its existing bonding authority to finance environmental infrastructure projects, and provide low-cost financing and credit enhancement mechanisms for projects and technologies.

58. Convene Connecticut’s community foundation and philanthropic leaders on addressing climate change. Convene an intensive workshop to address investing in community capacity building, and annual climate adaptation training of environmental justice organizations with the goal of establishing an ongoing partnering relationship and working group among the stakeholders.

59. Leverage Connecticut’s leadership in the insurance industry to promote the increased uptake of insurance as a tool to address climate risk while convening the industry on carbon neutral investment policies. Reducing or removing barriers in closing the gap in risk mitigation from losses resulting from severe weather events will support financing greater resilience in the face of the potential impacts of climate change. As the home of Hartford, the “Insurance Capital of the World” Connecticut is uniquely situated to address these challenges going forward.

- a. *Build outreach and capacity and tracking for the increased uptake of flood insurance.* Flood insurance is an adaptation and resilience tool that is underutilized in Connecticut. Not only does flood insurance provide a means to recover from flood damage, but it also sets up a structure to incentivize behaviors that lower the risk of flooding such as elevating homes or reducing community flood risk. Savings on flood insurance can be used as a financing mechanism to pay for adaptation and resilience measures.
- b. *Convene the insurance industry on carbon neutral investment policies and promote and grow the catastrophe bond market.* Hold a conference with the insurance industry and state regulators to identify different strategies where the industry can assist states in reducing reliance on fossil fuels, as well as understanding how insurers can assist in mitigating the impacts of climate change on property, including increasing disclosure of climate-related risk and identifying alternative methods to protect communities through Catastrophe (CAT) Bonds and other risk transfer vehicles.



Science & Technology

60. Support climate science for Connecticut. Propose a process to review advances in climate science projections and data for Connecticut and to track climate change impacts on its communities. The process should include but not be limited to determining report intervals (e.g. every 5 or 10 years for projections / every 1-2 years for impacts), scope (including identifying indices and multi-solving opportunities), impacts on under-served communities, institutional roles, partners, and funding. The GC3 report contains both sea level rise planning scenarios and projected climate impacts for Connecticut in the areas of temperature, precipitation and storms. Connecticut’s climate has already been impacted and will continue to be impacted by climate change. Effective decision-making will require tracking the advancements in climate science and the coordination of data acquisition to track impacts. Additionally, this information must be shared and utilized on the ground, and therefore, the proposed process should also include:

- a. Identify climate change and adaptation research needs, and the dissemination of current climate change adaptation research and technical resources to the appropriate stakeholders.
- b. Select and establish pilot region(s) to quantify and demonstrate site-specific co-benefits of comprehensive climate resilience planning that is proactive and risk-based.

61. Support climate science education. Develop an inclusive Connecticut-based training strategy for climate science and impacts for formal and informal educators. This will help them be effective communicators of climate science, climate change impacts, and resilience strategies. The program should reach audiences from K-12 school systems, current, and future teachers, municipal leaders, and diverse community groups.

Appendix 1. List of Acronyms and Definitions

ACRONYMNS

AFN - Access and Functional Needs	LID -Low Impact Development
BIPOC -Black, Indigenous, and People of Color	LREC -Low Emission Renewable Energy Credit
BMPs -Best Management Practices	MOU -Memorandum of Understanding
CAT Bonds -Catastrophe Bonds	MW -Megawatt
CCSMM -Connecticut Coalition for Sustainable Materials Management	NGO -Non-governmental Organization
CES -Comprehensive Energy Strategy	NHMP -Natural Hazard Mitigation Plan
CIA -Community Investment Act	NRCS RCPP -Natural Resource Conservation Service Regional Conservation Partnership Program
CIG -Conservation Innovation Grants	OA -Ocean Acidification
CIRCA -Connecticut Institute for Resilience & Climate Adaptation	OSWA -Open Space and Watershed Land Acquisition Grant Program
C&LM -Conservation and Load Management	PA -Public Act
CO2 -Carbon Dioxide	POCD -Plans of Conservation of Development
C-PACE -Commercial Property Assessed Clean Energy	PURA -Public Utilities Regulatory Authority
CSO -Combined Sewer Overflow	PWS -Public Water Systems
DEEP -Connecticut Department of Energy and Environmental Protection	REC -Renewable Energy Certificate
EEJ -Equity and Environmental Justice	RGGI -Regional Greenhouse Gas Initiative
EEJA -Equity, Environmental Justice & Adaptation	RNHT -Recreation and Natural Heritage Trust Program
EV -Electric Vehicle	RPS -Renewable Portfolio Standard
GC3 -Governor's Council on Climate Change	RTP -Recreational Trails Program
GHG -Greenhouse Gas	RTT -Renewable Thermal Technologies
GIS -Geographic Information System	SCEF -Shared Clean Energy Facilities
GWSA -Global Warming Solutions Act	SLR -Sea-Level Rise
HES -Home Energy Services	TIF -Tax Increment Financing
HFC -Hydrofluorocarbon	TOD -Transit-Oriented Development
IECC -International Energy Conservation Code	USDA -United States Department of Agriculture
IPCC - Intergovernmental Panel on Climate Change	VMT -Vehicle Miles Traveled
ISO -New England-Independent System Operator	WAP -U.S. Department of Energy Weatherization Assistance Program
K-12 : Kindergarten through 12th grade	ZEV -Zero Emission Vehicles
kW -Kilowatt	ZERC -Zero Emission Renewable Energy Credit

DEFINITIONS

Connecticut Green Bank: The first state green bank in the nation. Established by the Connecticut General Assembly to work with private-sector investors to create low-cost, long-term sustainable financing for clean energy

Environmentally significant leak: PURA-defined threshold for prioritizing mitigation of natural gas leaks.
Fuel thermal loads: The amount of heating and cooling energy required to keep a building's temperature in an acceptable range.

Hydrofluorocarbon (HFC): Common chemical refrigerant that has extremely high global warming potential.

ISO- New England: an independent, non-profit Regional Transmission Organization responsible for keeping electricity flowing across the six New England states and ensuring that the region has reliable, competitively priced wholesale electricity.

Peak Demand: The maximum electric load during a specified period of time. Connecticut's peak load occurs between noon and 8:00 pm on weekdays.

Renewable Thermal Technology: Technologies that harness renewable energy sources (e.g., heat from sunlight) to provide heating and cooling services.

Weatherization Assistance Program: Federal program, administered by Connecticut, that provides weatherization improvements and upgrades to homes to improve energy efficiency and reduce energy costs for low-income households.

PHOTO CREDITS

- p.1. Cover, Left. Several wind turbines. Credit: Stock photo. Cover, Right. A bioswale in New Haven, CT. Credit: Yale Urban Resources Initiative.
- p.3. Screen shot of GC3 January 15, 2021 remote meeting on the Zoom platform.
- p.4. Resilient Bridgeport planning meeting. Credit: Resilient Bridgeport
- p.6. An offshore wind turbine. Credit: Stock photo.
- p.8. Resilient Connecticut Annual Summit in November 2019. Credit: UConn Connecticut Institute for Resilience and Climate Adaptation.
- p.9. Resilient Bridgeport Project Map Drawing. Credit: Resilient Bridgeport
- p.12. A group of people looking through a scenic viewer. Credit: Connecticut Office of Tourism
- p.18. The Meriden Green. Credit: Milone & MacBroom, Inc.
- p.19. Public participation at a Resilient Bridgeport Community Meeting. Credit: Resilient Bridgeport
- p.20. Public participation meeting of the GC3 in New Haven, CT in February 2020. Credit: Green Eco Warriors
- p.21. Urban tree planting program in New Haven. Credit: Yale Urban Resources Initiative.
- p.22. Connecticut's last coal-fired power plant, Bridgeport Harbor Station. Credit: Stock photo.
- p.23. Children participating in a Resilient Bridgeport Community Meeting. Credit: Resilient Bridgeport.
- p.24. Child's drawing of features they want to see incorporated into a stormwater park in the South End of Bridgeport at a Resilient Bridgeport Community Meeting. Credit: Resilient Bridgeport.
- p.28. Coastal flooding and waves from Hurricane Irene in 2011. Credit: Department of Energy and Environmental Protection.
- p.29. Flooding on Beachland Avenue in Milford, Connecticut. Credit: Department of Energy and Environmental Protection.
- p.31. A group of Bridgeport teenagers joined design team members and cycling activists for a bike ride along the Pequonnock River during the CityMaking Scale It Up! event as part of community planning activities for the Resilient Bridgeport ReBuild by Design program. Credit: Resilient Bridgeport.
- p.32. A person installing solar panels on a rooftop. Credit: Connecticut Green Bank.
- p.40. Connecticut River Valley. Credit: Connecticut Office of Tourism.
- p.47. Top. The New Haven Metro North rail line and train. Credit: Connecticut Office of Tourism.
- p.47. Bottom. Scientists from the University of Connecticut install heat sensors in New Haven, CT in summer 2020 to better understand heat island effects in the city, wearing face coverings in compliance with COVID-19 safety protocols. Credit: UConn Connecticut Institute for Resilience and Climate Adaptation.
- p.50. Reef balls in Stratford, CT as part of the living shoreline project there to reestablish a marsh and protect the shoreline from erosion. Credit: Sacred Heart University.
- p.53. Instruments ready to be deployed to take measurements in Long Island Sound. Credit: UConn Connecticut Institute for Resilience and Climate Adaptation.

END NOTES

- ⁱ <https://portal.ct.gov/-/media/DEEP/climatechange/publications/BuildingaLowCarbonFutureforCTGC3Recommendationspdf.pdf>
- ⁱⁱ <https://portal.ct.gov/-/media/DEEP/climatechange/ConnecticutClimatePreparednessPlan2011pdf.pdf>
- ⁱⁱⁱ <https://portal.ct.gov/DEEP/Energy/Conservation-and-Load-Management/Conservation-and-Load-Management>
- ^{iv} <https://portal.ct.gov/-/media/DEEP/energy/CES/2018ComprehensiveEnergyStrategypdf.pdf>
- ^v https://static1.squarespace.com/static/5a4cfbfe18b27d4da21c9361/t/5b9a9cc1758d466394325454/1536859334343/USCA+SLCP+Roadmap_final+Sept2018.pdf
- ^{vi} <https://portal.ct.gov/OPM/IGPP-MAIN/Responsible-Growth/Conservation-and-Development-Policies-Plan/2018-2023-POCD-Update>
- ^{vii} https://portal.ct.gov/-/media/DEEP/waste_management_and_disposal/CCSMM/CCSMM-Options-Menu-Dec-2020.pdf
- ^{viii} [http://www.dpuc.state.ct.us/DEEPenergy.nsf/c6c6d525f7cdd1168525797d0047c5bf/f7ed4932eec438d0852585520001c81b/\\$FILE/EV%20Roadmap%20for%20Connecticut.pdf](http://www.dpuc.state.ct.us/DEEPenergy.nsf/c6c6d525f7cdd1168525797d0047c5bf/f7ed4932eec438d0852585520001c81b/$FILE/EV%20Roadmap%20for%20Connecticut.pdf)
- ^{ix} https://portal.ct.gov/-/media/DOT/FASTLANE/Freight_Plan/CTDOTFreightPlanFinal111617pdf.pdf?la=en
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