



Connecticut Department of Energy and Environmental Protection





Connecticut Climate Change Preparedness Plan

*Adaptation Strategies for Agriculture, Infrastructure, Natural
Resources and Public Health Climate Change Vulnerabilities*

*A Report by the Governor's Steering Committee on Climate Change (GSC)
Adaptation Subcommittee
2011 PRELIMINARY DRAFT- Do Not Cite or Quote*



Connecticut's Draft Climate Change Preparedness Plan

[View Draft Plan](#)

June 14, 2012

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Office of Planning and Program Development



Connecticut Department of Energy and Environmental Protection

Adaptation Subcommittee Charge –Part 2

- ❖ Public Act No. 08-98, An Act Concerning Connecticut Global Warming Solutions
 - ❖ Following the impacts report, completed in 2010
 - ❖ Strategies report makes, “...recommendations for changes to existing state and municipal programs, laws or regulations to enable municipalities and natural habitats to adapt to harmful climate change impacts and to mitigate such impacts.”
 - ❖ Four areas of focus for both impacts and strategies:
 - ❖ Agriculture, Infrastructure, Natural Resources, & Public Health



Developing Adaptation Strategies to Address the Impacts of a Changing Climate



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Building on the Climate Impact Report

- ❖ The Adaptation Subcommittee:
 - ❖ Agreed upon guiding principles
 - ❖ Identified areas of intersection across workgroups
 - ❖ Developed recommended strategies
- ❖ Compiled a preliminary draft Climate Change Preparedness Plan in 2011



Agreed Upon Guiding Principles for Adaptation Strategies

- ❖ Successful adaptation strategies will:
 - ❖ Affect multiple sectors of Connecticut society;
 - ❖ Have existing resources;
 - ❖ Have a positive cost to benefit ratio;
 - ❖ Have political support ;
 - ❖ Have identifiable leadership;
 - ❖ Retain the cultural values of Connecticut by empowering local communities;
 - ❖ Have defined timeline with achievable benchmarks;
 - ❖ Have detailed implementation plan;
 - ❖ Offer co-benefits for other non-climate management programs.



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- ❖ Water Quality and Quantity,
 - ❖ Education,
 - ❖ Ecosystem Services,
 - ❖ Buildings and
 - ❖ Transportation

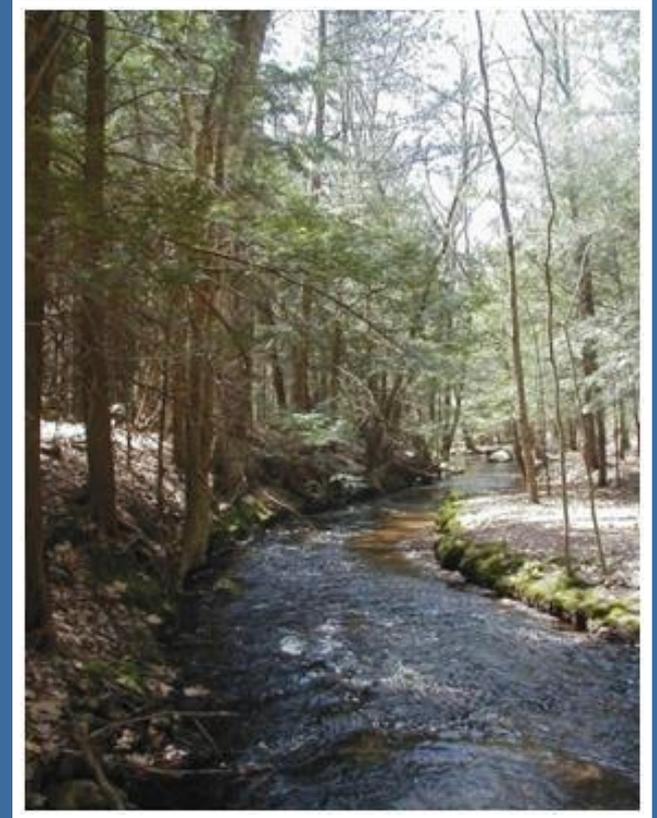
Common Climate Change Concerns of Connecticut (i.e., Intersections)



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Water Quality and Quantity

- ❖ Planning and Inventory
 - ❖ Broaden water use planning to include climate change projections
 - ❖ Adopt a water hierarchy that includes water conservation, capture and storage and water reuse, similar to the well known solid waste management 'reduce, reuse and recycle' hierarchy.
 - ❖ Assess current and future needs for potable water uses
 - ❖ Assess future needs for non-potable water uses
- ❖ Source Protection
 - ❖ Target headwaters for protection throughout the state
 - ❖ Encourage development practices that ensure water recharge



Water Quality and Quantity

- ❖ Conservation
 - ❖ Analyze the competing demands on Connecticut water quantity and quality statewide in a consistent and comprehensive manner and develop new approaches to ensure public health, agricultural sustainability, ecosystem health, while supporting multiple and conflicting needs.
 - ❖ Implement rate structures to accommodate long term system improvements and encourage conservation.
 - ❖ Examine opportunities for water conservation strategies within the building code, appliances and regulatory decisions
 - ❖ Target water conservation education towards specific consumer groups



Water Quality and Quantity

- ❖ Water Capture and Storage
 - ❖ Encourage sustainable water capture and storage by homeowners, municipalities, businesses, and industries, and the agriculture sector with incentive programs to supplement capture and storage infrastructure.
- ❖ Water Reuse
 - ❖ Develop water reuse guidelines for industry
- ❖ Water Inundation
 - ❖ Encourage adaptation strategies, including natural habitat conservation, LID BMPs, agriculture water BMPs and drinking water treatment standards that will ameliorate the effects of water inundation
- ❖ Wastewater Treatment Facilities
 - ❖ Assess the impact of climate change on wastewater treatment facilities, and encourage the development of facility-specific adaptation plans



Research and Education

- ❖ Develop educational campaigns for climate change adaptation awareness in Connecticut targeted at multiple sectors
- ❖ Identify champions for each adaptation strategy
- ❖ Identify research needs and disseminate current climate change adaptation research and technical resources to the appropriate stakeholders, and encourage future efforts through state grants.
- ❖ Identify and collaborate with educational partners.
- ❖ Include students (future stakeholders) in climate change programs



Ecosystem Services

- ❖ Identify and conserve ecosystem services vulnerable to climate change.
- ❖ Encourage land management behaviors that support ecosystem services.



Buildings and Transportation

- ❖ Buildings
 - ❖ Determine the critical public buildings, including public health facilities, schools and cultural/historic buildings that will be impacted by coastal and inland flooding, and recommend appropriate adaptation strategies that will not adversely impact natural resources.
 - ❖ Examine new opportunities for building usage considering projections for climate change.
- ❖ Transportation
 - ❖ Determine vulnerable transportation routes and transportation that adversely impact natural resources and human mobility needs under future climate change projections.



Regional Cooperation

- ❖ Continue to support regional cooperation on climate change adaptation through involvement in regional planning activities.



Agriculture



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Guidance for Agriculture Adaptation Strategies

- ❖ Create a vision for the future of Connecticut agriculture
- ❖ Create a framework for continued dialogue with the agricultural community to engage stakeholders in creating a shared vision for building resilience and sustainability in Connecticut agriculture
- ❖ Conserve ecosystem services for Connecticut agriculture
- ❖ Align policies and funding to support resilient agriculture in Connecticut
- ❖ Encourage new agricultural technology and infrastructure that minimizes additional greenhouse gas emissions and impacts to natural resources
- ❖ Provide integrated education and support to farmers and consumers to facilitate the implementation of agricultural adaptation strategies



Generally Accepted Practices

- ❖ Minimize water use across all agricultural sectors



Research, Monitoring and Education

- ❖ Provide for increased research, technology transfer and technical assistance to develop and disseminate adaptation strategies to producers and agriculture service providers



Legislation, Regulation and Funding

- ❖ Adopt policies that encourage a viable, local agriculture market
- ❖ Provide public funds needed to assist with agriculture infrastructure improvements
- ❖ Provide support for agriculture climate change adaptation education and research
- ❖ Minimize combined sewer overflows
- ❖ Protect critical soil landscapes



Infrastructure



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Informational Needs

- ❖ Research and detailed assessment to better understand climate change effects on infrastructure, and the ability to adapt to those changes;
- ❖ Exact locations, elevations and valuations of public and private infrastructure to allow more accurate and useful risk assessments;
- ❖ Updated flood and sea level maps that account for the effects of climate change and the projected time frame for those effects to support better risk assessment and, along with infrastructure location mapping (recommendation 2), provide potential and priorities for site-specific adaptive actions; and
- ❖ Ongoing monitoring of climatic conditions and sea level, and associated research on climate change effects, are essential to effective planning and adaptation.



Strategic Planning

- ❖ A spatial analysis of infrastructure locations, values and vulnerabilities
- ❖ An assessment of current infrastructure design standards
- ❖ An evaluation of infrastructure design that protects ecosystem services
- ❖ An evaluation of the timing, phasing and/or scheduling of adaptive actions
- ❖ Climate change adaptation activities should focus on three different stages of infrastructure development: 1) new development; 2) modification; and 3) replacement of infrastructure.
- ❖ Wherever possible, infrastructure adaptation strategies should identify ancillary effects and co-benefits of climate change adaptation actions, including opportunities for climate change mitigation.
- ❖ Outreach and public engagement will be an important aspect of each adaptation strategy.



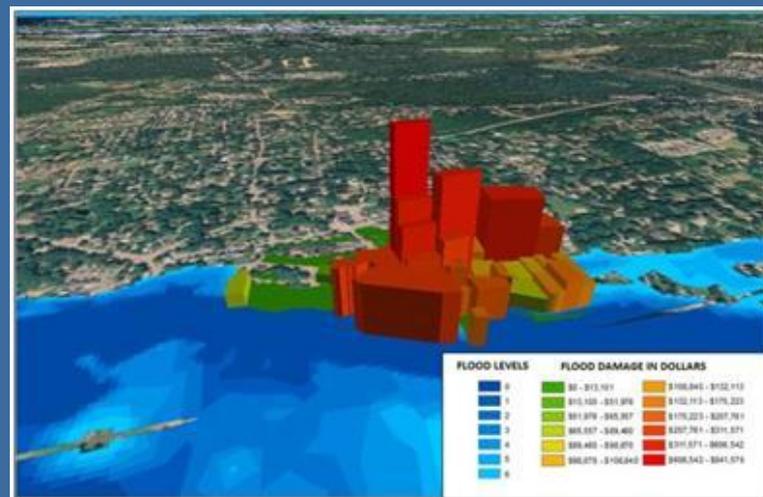
Best Management Practices

- ❖ Develop decision tools to evaluate replacement, modification, and design life for infrastructure



Research, Monitoring and Education

- ❖ Engage and educate private landowners to manage their lands to minimize risk from climate change
- ❖ Conduct research to understand effects of potential adaptation approaches and develop new, innovative approaches to support adaptive management.



Legislation, Regulation and Funding

- ❖ Implement new or modified policies that would encourage appropriate land use and reduce repetitive losses



Natural Resources



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Highest Priority Actions

- ❖ Acquire land and conservation easements to provide upslope “advancement zones” adjacent to tidal marshes.
- ❖ Perform a comprehensive modeling assessment of the extent of inland migration of tidal marshes essential to inform adaptation decisions.
- ❖ Acquire land and conservation easements in riparian areas adjacent to coldwater streams.
- ❖ Adopt regulations that provide stream flow levels necessary to ensure the resilience and ecological integrity of coldwater streams
- ❖ Increase active management of upland forests to improve regeneration, diversity and resilience
- ❖ Collaborate with other Northeast states and federal agencies to develop a coordinated regional adaptation approach for conservation of habitats and species at risk
- ❖ Advance connectivity among habitats



Best Management Practices

- ❖ Apply adaptive management procedures
- ❖ Increase active management of upland forests and reduce non-climatic stressors



Research, Monitoring and Education

- ❖ Advance regional research and modeling to guide conservation efforts
- ❖ Build public consensus for adaptation strategies through education and outreach
- ❖ Partner with educational institutions or organizations that conduct research
- ❖ Perform a comprehensive modeling assessment of the extent of inland migration of tidal marshes essential for directing adaptation actions



Legislation, Regulation and Funding

- ❖ Reevaluate Connecticut's Green Plan and open space grant programs to prioritize acquisition of land and conservation easements for habitats most at risk from climate change
- ❖ Acquire land and conservation easements to provide upslope "advancement zones" adjacent to tidal marshes
- ❖ Acquire land and conservation easements in riparian areas adjacent to coldwater streams
- ❖ Collaborate among state agencies, municipalities and non-profits within Connecticut to implement regulations and policies that promote and facilitate the conservation of habitats and species most at risk from climate change
- ❖ Collaborate with other states and federal agencies to develop a coordinated regional adaptation plan
- ❖ Further regulate the introduction and spread of invasive species
- ❖ Apply climate change projections to future stream flow regulations



Public Health



(CT Culture & Tourism)



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Best Management Practices

- ❖ Consider the public health needs of vulnerable populations in climate change adaptation planning
- ❖ Evaluate ozone non-attainment alert systems
- ❖ Evaluate current early extreme weather events warning system and emergency response plans
- ❖ Continue to develop and update all municipal emergency preparedness plans for extreme weather events
- ❖ Develop cooling station best management practices
- ❖ Develop criteria for school closings and outdoor play during extreme heat events



Research, Monitoring and Education

- ❖ Educate other sectors of state government about public health climate change impacts and adaption
- ❖ Educate local health department staff on climate change impacts
- ❖ Develop educational materials concerning poor air quality
- ❖ Continue to monitor health ailments caused by ozone non-attainment levels
- ❖ Assist local health departments with climate change adaptation
- ❖ Incorporate climate change preparedness strategies into public health education
- ❖ Develop a database of morbidity and mortality caused by climate change
- ❖ Intensify vector associated disease monitoring



Legislation, Regulation and Funding

- ❖ Develop legislation to allow regulatory agencies to respond to extreme heat conditions in occupational settings
- ❖ Continue to support funding to provide for adequate updates to municipal sewage infrastructure
- ❖ Support funding to provide for adequate updates to municipal water infrastructure



Release of Draft Report & Next Steps

- ❖ In April the draft posted on CTClimateChange.com for public comment
- ❖ We are gathering additional input:
 - ❖ Two storm panel report
 - ❖ State Vegetation Management Task Force
 - ❖ Shoreline Preservation Task Force
 - ❖ Connecticut's Comprehensive Energy Strategy
- ❖ Revise the draft and conduct final round of public meetings





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Submit your comments to:
DEEP.ClimatePreparedness@ct.gov



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