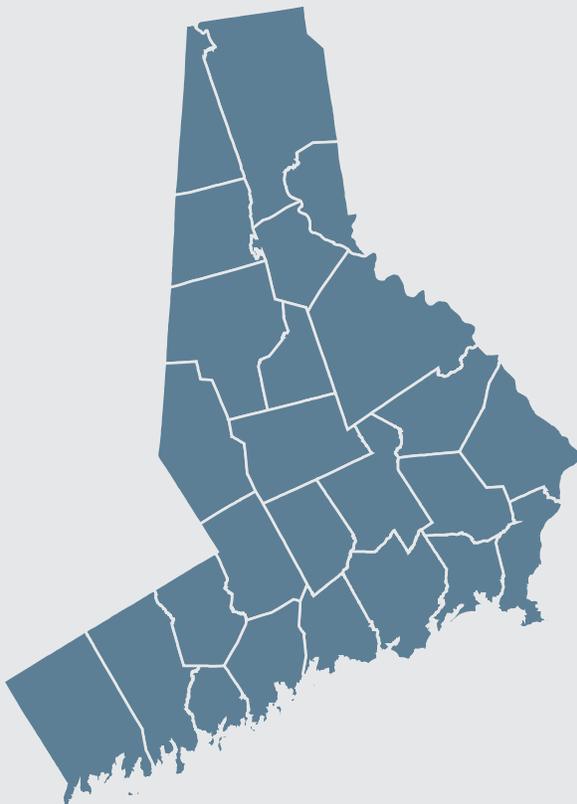


DRAFT

Southwest CT Climate Action Plan

Priority Climate
Action Plan for
Bridgeport-
Norwalk-Stamford
Metropolitan
Statistical Area



March 1, 2024



Acknowledgments

The Priority Climate Action Plan was created by the Connecticut Metropolitan Council of Governments (MetroCOG), the Western Connecticut Council of Governments (WestCOG), and their Consultant team, with advisory contributions from the Naugatuck Valley Council of Governments (for the City of Shelton) and the following contributors:

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Municipal Staff and key municipal operators and decision-makers were engaged to provide feedback on this plan and will continue to be invaluable for the development of the CCAP.

City of Bridgeport
City of Danbury
City of Norwalk
City of Shelton
City of Stamford
Greater Bridgeport Transit
Town of Bethel
Town of Bridgewater
Town of Brookfield
Town of Darien
Town of Easton
Town of Greenwich
Town of Fairfield
Town of Monroe
Town of New Canaan
Town of New Fairfield
Town of New Milford
Town of Newtown
Town of Redding
Town of Ridgefield

Town of Sherman
Town of Stratford
Town of Trumbull
Town of Weston
Town of Westport

Connecticut PCAP Coordination

Regular bi-weekly calls were held between the State of Connecticut and all the COGs across the state to coordinate in the creation of the State PCAP and the MSA PCAPs in Connecticut. Thank you to all our partners in ensuring these plans are as effective as possible across the state.

Regional Stakeholders

Alliance for Community Empowerment
Boys & Girls Club
Bridgeport Regional Energy Partnership (BREP)
Connecticut Equity and Environmental Advisory Council (CEEJAC, CT DEEP)
Downtown Special Services District
Groundwork Bridgeport
Freeman Center
GBT
Hall Neighborhood House
NRZs
Operation Fuel
PT Partners
Sacred Heart University
Trust for Public Land
United Way
University of Bridgeport
The Workplace
YMCA

Executive Summary



WHAT:

Climate action in Southwestern Connecticut is imperative to limit significant impacts of climate change and preserve the region for future generations.

This plan developed as a joint effort between the Connecticut Metropolitan Council of Governments (MetroCOG) and the Western Connecticut Council of Governments (WestCOG) identifies immediate actions in various sectors like **transportation, buildings, electric power, waste management, carbon reduction, sustainable development, and green economy.**

While these actions may not achieve complete carbon neutrality, they represent **vital initial strides towards reaching our overarching environmental objectives on our own.**



WHY:

Developed under the Inflation Reduction Act, the United States Environmental Protection Agency (US EPA)'s Climate Pollution Reduction Grant (CPRG) program provides aid to state, local governments, tribes and territories, and local planning groups to develop ambitious plans for reducing greenhouse gas emissions and other harmful air pollution. The goal of the CPRG program is to fund emissions reduction measures that will reduce the effects of climate change across the country—and at all levels of government.

The CPRG program is divided into two phases. The first phase funded planning work to identify sources of emissions, propose measures to reduce emissions, and develop a Priority Climate Action Plan (PCAP) and a Comprehensive Climate Action Plan (CCAP). The following document encompasses the PCAP and will directly feed into the development of the forthcoming Comprehensive Climate Action Plan (CCAP).



Photo from MetroCOG



HOW:

The Priority Climate Action Plan (PCAP) focuses on high-impact, short-term, and implementable climate actions which are a priority for Southwestern Connecticut. As projects seeking EPA implementation funding must be included in the Priority Climate Action Plan, the PCAP also sets the stage for competitive applications in the CPRG Implementation Grant Program (Phase 2).

The PCAP is comprised of the following sections:

1. Background of CPRG
2. Approach
3. Priority Measures
4. Implementation
5. Next Steps



WE NEED YOUR HELP:

The measures in this plan can only happen with the support and commitment from the community to take action. “Reduce”, “reuse,” and “recycle” are not just buzz words; they are actions that embody our collective commitment to a sustainable future. By embracing these principles, we will pave the way for a cleaner, greener, and healthy region that is thriving for generations to come.

Contents

Table of Contents

1. Project Overview	9
1.1. Background of CPRG	9
1.1.1. Climate Pollution Reduction Grant	9
1.1.2. Planning Grant Leads	10
1.2. Climate Action at the State Level	13
1.2.1. Connecticut Climate Action	13
1.2.2. Additional CPRG Plans	15
2. Approach	18
2.1. Plan Development	18
2.2. Engagement and Outreach	19
2.2.1. State and COG Coordination	19
2.2.2. Municipal Coordination	19
2.2.3. Public and Stakeholder Engagement	22
2.2.4. Community Survey	23
2.3. LIDAC Communities Background	31
2.3.1. Methodology	31
2.3.2. Identification of LIDAC Communities within the COGs	33
2.4. Workforce Planning Analysis	37
2.4.1. Related Industries	37

2.5. Southwestern Connecticut’s Critical Assets	39
2.5.1. Transportation	40
2.5.2. Waste and Hazardous Materials Facilities	42
2.6. Climate Change Vulnerability	43
2.6.1. What is a Vulnerability Index	43
2.6.2. Climate Change Vulnerability Index	44
2.6.3. Sea Level Rise	48
2.7. Greenhouse Gas Inventory	49
2.7.1. Greenhouse Gas Baseline Inventory	49
2.7.2. Co-Pollutant Baseline Inventory	52
3. Priority Measures	55
4. Next Steps, CCAP	137

List of Tables

Table 1. Demographics Comparison: MSA + Connecticut	12
Table 2. Municipal Engagement Summary	20
Table 3. Public and Stakeholder Engagement Summary	22
Table 4. Low Income and Disadvantaged Communities Census Tract Designation Breakdown	34
Table 5. Summary of LIDAC Hotspots	36
Table 6. GHG Emissions by Subsector	51
Table 7. Co-Pollutant Baseline Emissions Inventory for 2017	52
Table 8. Action Area Priority Measures	137

List of Appendices

Appendix A: Glossary

Appendix B: Additional Sustainability Programs in Connecticut

Appendix C: LIDAC Communities

Appendix D: LIDAC Communities Benefits/Disbenefits Categories

Appendix E: Assumptions for GHG Measures

Appendix F: Climate Action Funding Sources

Appendix G: Additional Comments from the Public

1. Project Overview

1.1. Background of CPRG

1.1.1. Climate Pollution Reduction Grant

The EPA's Climate Pollution Reduction Grant (CPRG) program is designed to provide \$5 billion to aid in the development of "ambitious plans for reducing greenhouse gas emissions and other harmful air pollution". Developed under the Inflation Reduction Act, the CPRG program is a lever aimed at reducing the effects of climate change across the country, and at all levels of government awarding grants to States, local government, tribes and territories, and other local planning groups.

The grant is divided in two overlapping phases, approximately \$250 million in non-competitive planning grants and approximately \$4.6 billion in competitive implementation grants. During the first phase, states, large metro areas, tribes and territories received \$1 to \$3 million each to develop climate actions plans that identify sources of emissions and propose reduction measures. The program requires two plans: the Priority Climate Action Plan and the Comprehensive Climate Action Plan. During the second phase, EPA will award competitive implementation grants to fund reduction measures identified in the plans.

Priority Climate Action Plan

The Priority Climate Action Plan (PCAP) is a first cut of measurable, high impact, and implementable climate actions which set the stage for applications in the CPRG Implementation Grant Program funding (Phase 2). The planning efforts and content of the PCAP will directly feed into the development of the Comprehensive Climate Action Plan (CCAP).

The PCAP includes a greenhouse gas (GHG) inventory developed by UMass, reduction measures, a review of the authority to implementing, additional complimentary funding sources, and a preliminary workforce planning analysis. In addition, a Low Income/Disadvantaged Communities (LIDAC) benefits analysis was to be conducted, which focuses on evaluating the benefits of impacts of measures to these communities within the planning region.

Comprehensive Climate Action Plan

The CCAP is the fully formed climate action plan which is more encompassing and to reflect the climate actions for all stakeholders in the Southwest Connecticut region. The development of the CCAP is an extension of the PCAP, but will be an expanded collection of climate actions, stakeholder engagement, GHG inventory, GHG estimations, LIDAC analyses, and a cost benefit analysis for the entire region.



Norwalk. Image from WestCOG Flickr.

1.1.2. Planning Grant Leads

The CPRG planning grant awarded to encompass the Bridgeport-Stamford-Norwalk Metropolitan Statistical Area² (MSA) is led by the Connecticut Metropolitan Council of Governments (MetroCOG) and supported by the Western Connecticut Council of Governments (WestCOG), hereafter “planning grant leads.” As two of the nine planning regions within the State of Connecticut, the pair covers the Bridgeport-Stamford-Norwalk MSA, more commonly Fairfield County, as the focus of the Priority and Comprehensive Climate Action Plans.

The MetroCOG Region is about 50 miles east of New York City and 150 miles west of Boston, Massachusetts. MetroCOG consists of six municipalities, the City of Bridgeport and the Towns of Easton, Fairfield, Monroe, Stratford, and Trumbull. Bridgeport, Fairfield, and Stratford are coastal communities, situated along Long Island Sound, while Easton, Monroe and Trumbull are inland communities. All six of these municipalities are represented within the Priority and Comprehensive Climate Action Plans.

The MetroCOG region is a densely populated area with the State of Connecticut’s largest community, the City of Bridgeport, at its urban core. The region’s population of over 325,000 people living within a planning area of 145-square-miles makes MetroCOG the most densely populated planning region in Connecticut³. MetroCOG’s coastal communities are more developed, while its inland communities are more rural.

The Western Connecticut, WestCOG, region encompasses the eighteen municipalities in southwestern Connecticut, including Bethel, Bridgewater, Brookfield, Danbury, Darien, Greenwich, New Canaan, New Fairfield, New Milford, Newtown, Norwalk, Redding, Ridgefield, Sherman, Stamford, Weston, Westport, and Wilton. It falls within the greater metropolitan area of New York City and encompasses an area of 532-square-miles with a population of over 610,000 residents⁴. The WestCOG region has both rural and developed suburban communities, spanning both coastline and forested areas bordering the vast state of New York.

Two of the WestCOG municipalities fall outside the MSA boundary. Bridgewater and New Milford were considered in the scope of this planning process. Also, although the town of Shelton is within the Naugatuck Valley Council of Governments (NVCOG) planning region, it is within the MSA border and is included in this plan’s scope.



Did you know?

The Bridgeport-Stamford-Norwalk MSA has the same border as Fairfield County. This border encompasses the entirety of MetroCOG, all but two municipalities within WestCOG, and one municipality from NVCOG.

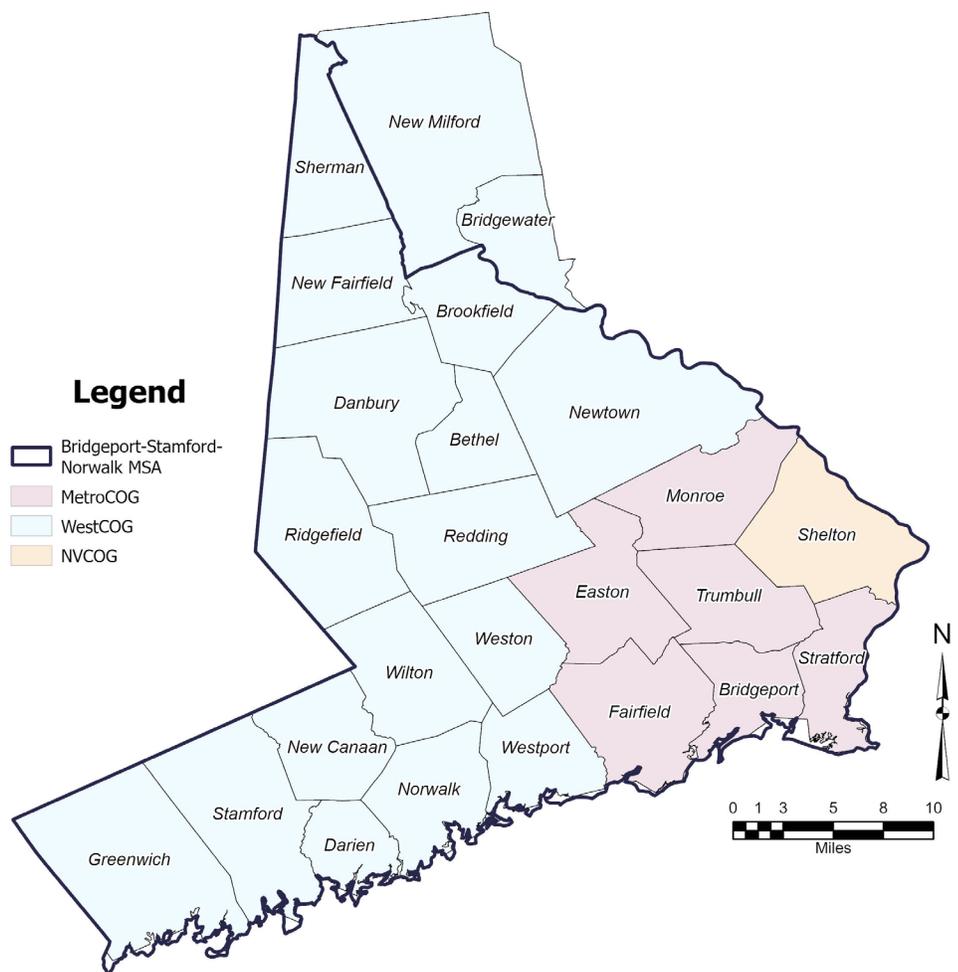


Figure 1. CTRG PCAP Plan Area.

Based on the ACS 2017-2021 5-Year estimate tables, the Bridgeport Stamford Norwalk MSA has a total population of 947,328. The population is about 73% white, 11% Black or African American, 5% Asian, and 19% Hispanic or Latino. The median age of the MSA is about 40 years old, with just over 75% being over the age of 18. For a comparison to the state and country please refer to the table below.

Table 1. Demographics Comparison: MSA + Connecticut

Category	Bridgeport-Stamford-Norwalk MSA	Connecticut
Population	947,328	3,594,478
White	73.5%	76.7%
Black or African American	11.3%	10.5%
American Indian or Alaskan Native	0.3%	0.3%
Asian	5.2%	4.4%
Two or More Races	2.8%	3.1%
Hispanic or Latino (of any race)	19.0%	15.4%
Median Age	40.2	40.8
Population 18 Years and Over	76.8%	78.8%
Population 65 Years and Over	14.9%	16.0%
Median Household Income (2017 Dollars)	\$89,773	\$73,781
Unemployment Rate	7.6%	7.2%

Source: US Census, ACS 2017-2021 5 Year Estimate Tables.



Photo from Greater Bridgeport Transit.

1.2. Climate Action at the State Level

1.2.1. Connecticut Climate Action

The State of Connecticut has been proactive in planning for future climate change and working toward reducing GHG emissions. Alongside all regional and municipal planning efforts, the state has also set up climate focused groups and initiatives that are aiding municipalities and residents in climate action related efforts. Some of the notable groups and initiatives being led statewide include the following:

GreenerGov CT. GreenerGov CT a Lead by Example initiative, established in 2019 was responsible for the very first set climate action goals for Connecticut state agencies to follow⁵. These ambitious GHG reduction measures and sustainability focused goals were formed as such for state agencies and local governments to conduct and reduce GHG emissions in their own respective governing areas, while also enabling interagency coordination and model initiatives for others to take climate change action.

Governor's Council on Climate Change. Originally established in 2015 and reestablished in 2019, the Governor's Council on Climate Change (GC3) includes members from state agencies, quasi-public agencies, businesses, local governments, and nonprofits⁶. The Council is tasked with monitoring and reporting on reduction strategies originally set forth in their inaugural report and to developing and implementing further adaptation strategies to assess and prepare for climate change impacts.

In 2021, Connecticut Executive Order No. 21-3⁷ built upon the original list of recommendations from the GC3 and called for an additional 23 measures that direct significant action be taken by state agencies to reduce carbon emissions. With a goal of 45% reduction in CO₂ levels by 2030, GC3 calls on industries, regions, and towns to further this possibility through enabling their own climate actions.

DEEP Climate Resilience Fund. Established through CT Executive Order 21-3 and actioned by Connecticut Department of Energy and Environmental Protection (DEEP), the DEEP Climate Resilience fund provides communities with grants for projects directly related to helping the community become more resilient⁸. The grant covers a variety of topic areas within the planning and project development phases. This fund comprises federal funding through the Infrastructure Investment and Jobs Act (IIJA) and the Inflation Reduction Act (IRA), which also funds the CPRG program.

Additional Programs. Descriptions of other established programs can be found in Appendix B.



Photo taken by MetroCOG



Photo taken by MetroCOG



Greater Bridgeport Transit. Photo taken by MetroCOG.



Photo taken by MetroCOG

1.2.2. Additional CPRG Plans

There are three additional CPRG grantees in Connecticut and one planning region grouped within a Massachusetts plan. The concurrent grantees in Connecticut and their scopes are as follows:

- A [Statewide plan](#) led by DEEP
- A [New Haven-Milford MSA](#) plan led by South Central Regional Council of Governments (SCRCOG) supported by the Naugatuck Valley Council of Governments (NVCOG)
- A [Hartford-East Hartford-Middletown MSA](#) plan led by Capitol Regional Council on Governments (CRCOG) supported by the Lower Connecticut River Valley Council on Governments (RiverCOG)

Lastly, Northeastern Connecticut Council of Governments (NECCOG) will be included within the Worcester MA-CT MSA plan led by the Central Massachusetts Regional Planning Commission (CMRPC).

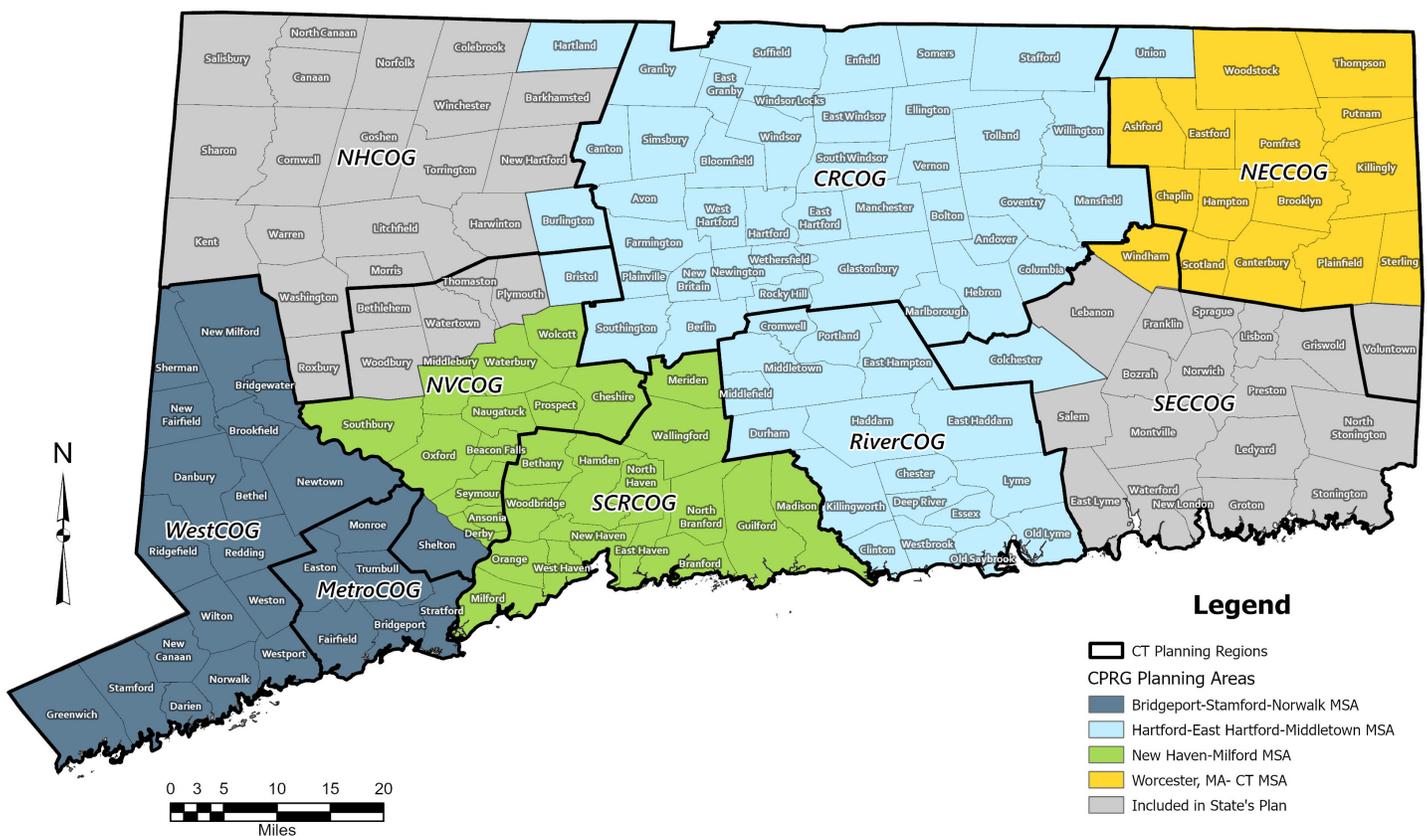


Figure 2. Additional CPRG Plans by Planning Region.

Who is Involved in Climate Action?



Municipal Staff



MetroCOG & WestCOG



The Public



Task Forces & Committees



Community Groups throughout the Region

Chapter Endnotes

1. [Climate Pollution Reduction Grants | EPA](#)
2. [US census.gov](#)
3. [Governance | MetroCOG](#)
4. [Adopted POCD, 2020-2030. | WestCOG](#)
5. [Connecticut GreenerGov](#)
6. [Governors Council on Climate Change | CT.gov](#)
7. [Executive Order 21-3 | CT.gov](#)
8. [DEEP Climate Resilience Fund | CT.gov](#)

**Click for more
information!**



2. Approach

2.1. Plan Development

Participating in the CPRG program and developing this PCAP have provided the planning leads with an opportunity to support climate action in their communities by gathering and engaging directly with stakeholders. The measures proposed in this plan were developed by leveraging existing efforts and identifying new opportunities to reduce emissions within local governments and communities.

The measures were developed using a four-step approach which included:



Identification of past and on-going climate action and resilience efforts within the COGs and communities.



Compilation of actions from community engagement (municipal meetings, public meetings, LIDAC community engagement, surveys) and research on best practices used in other communities.



Revision and prioritization of proposed measures.



Development of preliminary plans for implementing the measures.

This plan is organized into action areas, measures, and sub-measures. Each of the action areas in this plan has a list of measures, which can be interpreted as the overall approach for meeting GHG reduction targets. Within each of the 16 measures identified, accompanying sub-measures can be interpreted as actions, projects, or policies that can be implemented in the community or region to achieve the associated reduction target.



Photo from Greater Bridgeport Transit

2.2. Engagement and Outreach

Engaging community stakeholders was a vital step for developing this plan and its proposed priority reduction measures. The engagement strategy for the PCAP consisted of three tiers: State and COG coordination, Municipal Engagement, and Public and Stakeholder Engagement.

2.2.1. State and COG Coordination

State and COG coordination occurred bi-weekly, with additional meetings scheduled as needed to discuss specific topics. The timeframe included weekly meetings from Fall 2023 through February 2024. Active participants included WestCOG, MetroCOG, NVCOG, CRCOG, NWHCOG, SCRCOG, RiverCOG, and SCCOG. Participants routinely discussed their emerging priorities and shared their ideas. The Connecticut Department of Energy & Environmental Protection held regular coordination calls.

2.2.2. Municipal Coordination

Municipal coordination occurred in December 2023 and January 2024. This tier included a combination of in-person and virtual meetings designed to obtain input from municipal staff, chief elected officials, specific committees that are already in place (generally, those aligned with climate action and sustainability topics), and redevelopment agencies. The following table summarizes the dates and attendees.

Table 2. Municipal Engagement Summary

Date	COG Staff Attending	Municipal Audience	Purpose of Meeting
12/18/23	WestCOG	Greenwich, Stamford	Opportunity to learn about climate actions underway in the Stamford area and gather ideas from municipal staff.
12/18/23	WestCOG	Bethel, Danbury, Newtown	Opportunity to learn about climate actions underway in the Danbury area and gather ideas from municipal staff.
12/19/23	WestCOG	Norwalk, Ridgefield, Westport, Wilton	Opportunity to learn about climate actions underway in the Norwalk area and gather ideas from municipal staff and the Norwalk Redevelopment Agency.
12/19/23	MetroCOG	Fairfield	Opportunity to learn about climate actions underway in Fairfield and gather ideas from municipal staff.
12/19/23	MetroCOG	Stratford	Opportunity to learn about climate actions underway in Stratford and gather ideas from municipal staff.
12/19/23	MetroCOG	Easton, Monroe, Trumbull	Opportunity to learn about climate actions underway in the three towns and gather ideas from municipal staff.
12/19/23	MetroCOG	Bridgeport	Opportunity to learn about climate actions underway in Bridgeport and gather ideas from municipal staff.
1/2/24	MetroCOG and WestCOG	Darien, Wilton, and others	Additional opportunity for municipal staff and elected officials that were unable to attend previously or wishes to provide additional ideas.

Several common concerns were shared by municipalities throughout the region.

For the transportation action area, several municipalities brought up Complete Streets projects as important for enabling safe walking and biking instead of driving; creating a transportation alternative for “bringing residents downtown,” such as a trolley or shuttle service; and creating designated rest areas along I-95 and RT-15 for trucks to discourage them from driving through neighborhoods. On the topic of EVs, municipalities supported adding charging infrastructure in key locations and transitioning municipal fleets. There was broad support for transitioning school buses to electric,

however a common challenge shared among municipalities is that they do not own their school buses. For municipalities with LIDAC communities, the bus system was especially important, particularly expanding service and improving frequency and reliability.

For the Buildings action area, municipalities acknowledged that Residential Buildings contribute greatly to emissions in the region, but a barrier to performing envelope and systems retrofits may be apprehension to address weatherization due to health and safety barriers (e.g. mold, moisture control, etc.). This was particularly important for municipalities with LIDAC communities, in addition to ensuring that residential building improvements do not result in increased costs for tenants.

The municipalities were supportive of incentivizing solar in the Buildings action area, particularly for municipal buildings. However it also came up that many buildings will not be eligible for solar because of the condition of roofs or other structural reasons, so parking lots and other structures eligible for solar should also be considered. Several municipalities were interested in pursuing microgrids for Town campuses, where feasible. Several municipalities also mentioned that guidance on zoning and land use regulations for renewable energy would be helpful.

For municipalities with Industry, incentives targeted towards companies were discussed.

For the Waste action area, several municipalities discussed organic waste diversion, EV garbage trucks, and renewable energy at wastewater facilities. While municipalities raised the topic of additional Solid Waste facilities in the region, it was recognized that coordination with the State is needed to implement this action.

Finally, several municipalities discussed planting trees and forest management, land conservation, wetlands restoration, and green infrastructure.



Bridgeport Community Engagement Meeting, January 30, 2024. Photo taken by MetroCOG.

2.2.3. Public and Stakeholder Engagement

Public and stakeholder engagement included virtual opportunities for the general public and in-person workshops in the City of Bridgeport, where the highest number of LIDAC communities are located. The following table summarizes the dates and attendees. Public engagement also included two surveys (one for the region and one conducted by the City of Bridgeport for residents) and a stakeholder meeting for the Bridgeport Regional Energy Partnership (BREP) held on January 25, 2024. Local municipal staff and State representatives also attended these engagement events.

Table 3. Public and Stakeholder Engagement Summary

Dates	Description / Participants	Purpose
January and February 2024	MetroCOG/WestCOG public survey	Provide one uniform level of web-based participation for all residents and stakeholders in the region
	City of Bridgeport public survey	Provide a more in-depth level of web-based participation for residents and stakeholders in Bridgeport
1/25/24	Members of Bridgeport Regional Energy Partnership (BREP) and CT DEEP	Opportunity for BREP and their associates (such as DEEP staff) to provide input.
1/29/24	Residents from Westport and Norwalk	Opportunity for residents from WestCOG municipalities to provide input with a focus on Downtown
1/30/24	Residents from Bridgeport	Opportunity for residents from the entire City to provide input.
1/31/24	Residents from Bridgeport	Opportunity for residents from the entire City to provide input, with a focus on the East End.
2/1/24	Residents from Bridgeport	Opportunity for residents from the entire City to provide input, with a focus on the South End, Lower West End, and Black Rock.
2/3/24	Residents from Bridgeport	Opportunity for residents from the entire City to provide input, with a focus on the East Side.

Dates	Description / Participants	Purpose
2/7/24	Residents from municipalities, municipal staff, Ash Creek Conservation Association, and Aspetuck Land Trust	Opportunity for residents from MetroCOG municipalities to provide input on the proposed priority measures. Residents and representatives from WestCOG communities also attended.
2/7/24	Residents from municipalities, municipal staff, Wilton Go Green, and Green Village Initiative	Opportunity for residents from WestCOG municipalities to provide input on the proposed priority measures.

In addition to the three tiers described above, meetings were held with the Connecticut Equity and Environmental Justice Advisory Council (CEEJAC) (January 9, 2024) and the Connecticut Conference of Municipalities (CCM) (November 14, 2023) to allow for discussion focused on issues of concern. CEEJAC provided insight and ideas about enhancing public engagement in LIDAC communities, and CCM provided comments relative to high-level climate mitigation efforts in the State’s member municipalities.

2.2.4. Community Survey

A public survey was launched on January 3, 2024, and was open to all community members throughout the region until February 23, 2024. The survey included 38 ranking, multiple choice, and open-ended questions which considered participant demographics, opinion on incentive programs, perception on GHG reduction measure effectiveness, and allowed them to provide any additional comments.

The survey yielded a total of 150 responses from 18 different municipalities (Figure 3). Just over 11% of respondents represented a LIDAC from Bridgeport, Danbury, and Norwalk. A majority of respondents live in a single-family house (86%), own their residence (88%), and are currently employed (56.1%) (Figure 4). Other respondents live in multi-family housing, mobile homes, or another type of housing, with some renting these quarters. Approximately 25% of respondents are retired, the remaining individuals being students, stay-at-home caretakers, unemployed, or are classified in a different employment situation.

Let's Look at Who Responded

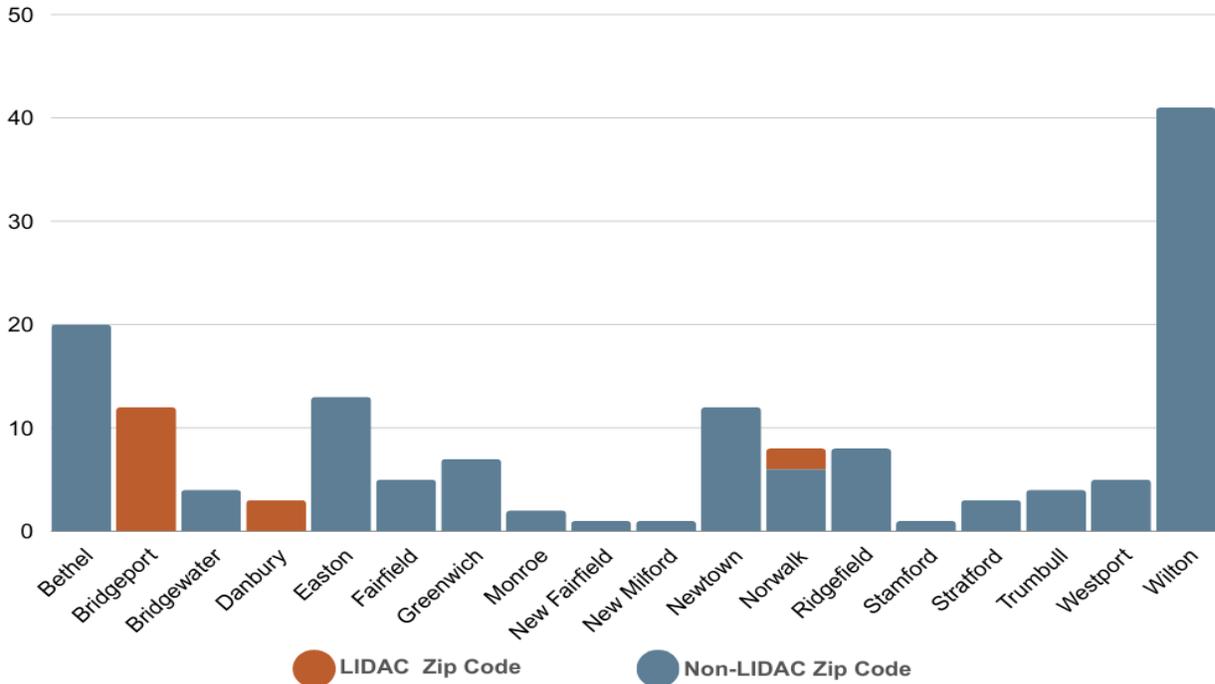


Figure 3. Community Engagement Survey Responses by Municipality.

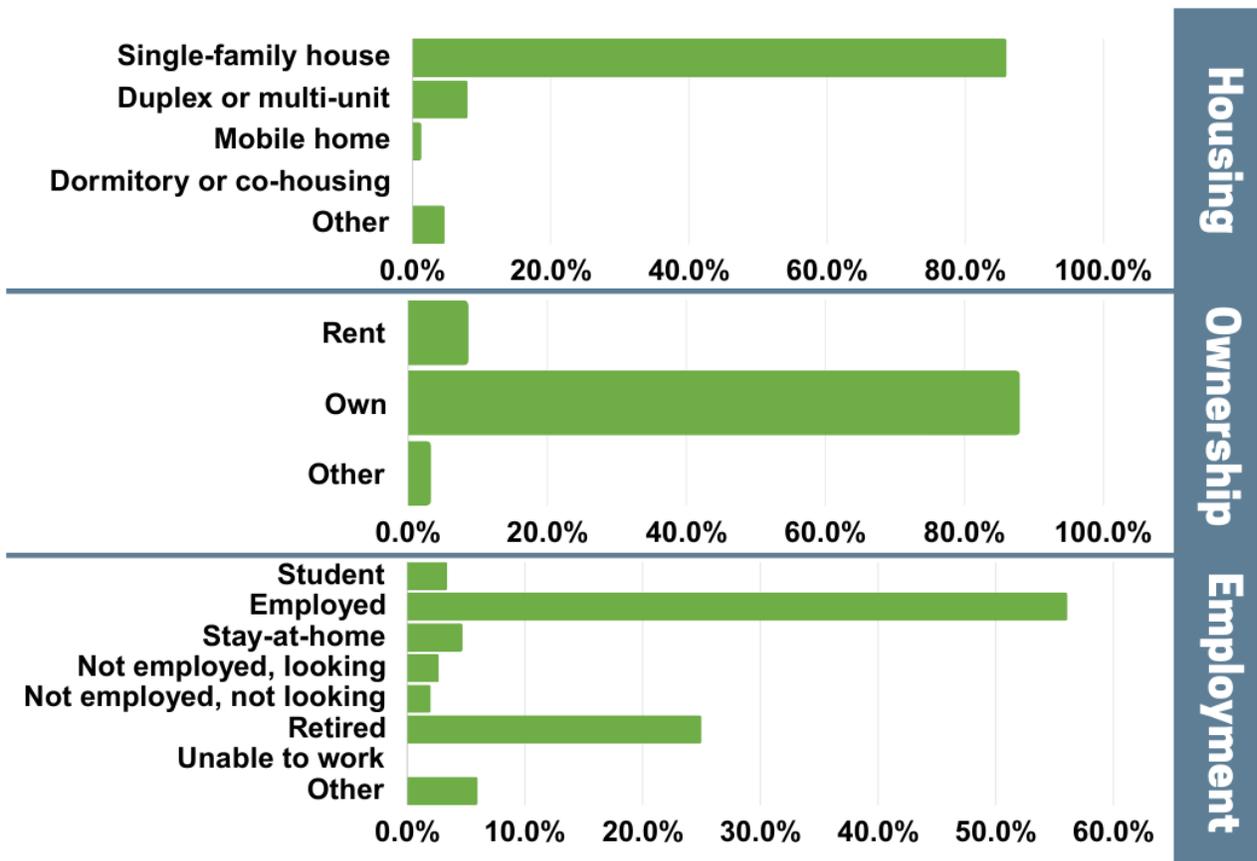


Figure 4. Survey Respondents Demographics.

Actions You've Taken in the Past Year to Reduce Emissions

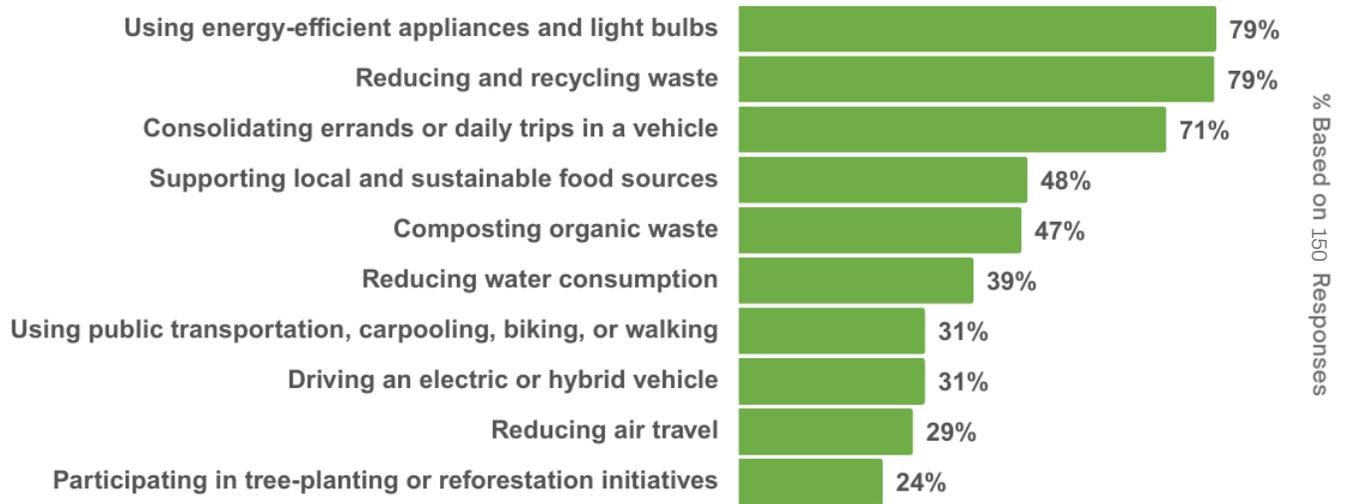


Figure 5. Actions taken by survey respondents to reduce GHG emissions.

WHAT PREVENTS YOU FROM FURTHERING EMISSIONS REDUCTIONS

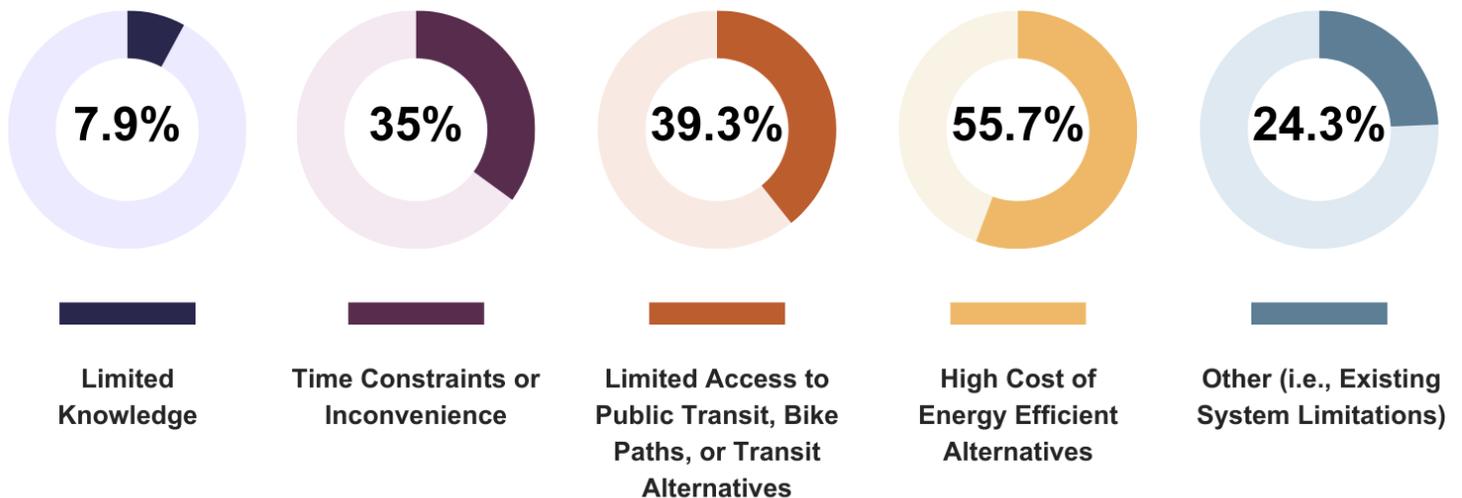


Figure 6. What prevents survey respondents from further reducing GHG Emissions.

Participants were asked to answer questions on their capacity to reduce emissions on their own terms. First, they were asked what actions they have taken in the past year to help reduce emissions. Over 70% of respondents indicated using energy-efficient appliances and lighting, reducing and recycling waste, and consolidating errands or daily vehicle trips (Figure 5). Some of the least applied actions include participating in tree-planting and reducing air travel. Next, participants were asked what prevents them from reducing emissions further. Over half agreed that barriers can be attributed to the high cost of energy efficient alternatives, with less than 8% attributing preventions to lack of knowledge (Figure 6). To gauge what might help participants with emissions reductions measures they were asked to rank how likely a new program or improvement would help increase their efforts (Figure 7). Just over 62% agreed credits or rebates would incentivize appliance replacement, about half of participants felt credits or rebates on solar or EV would help, and about 43% felt better transportation options would help reduce weekly car trips.

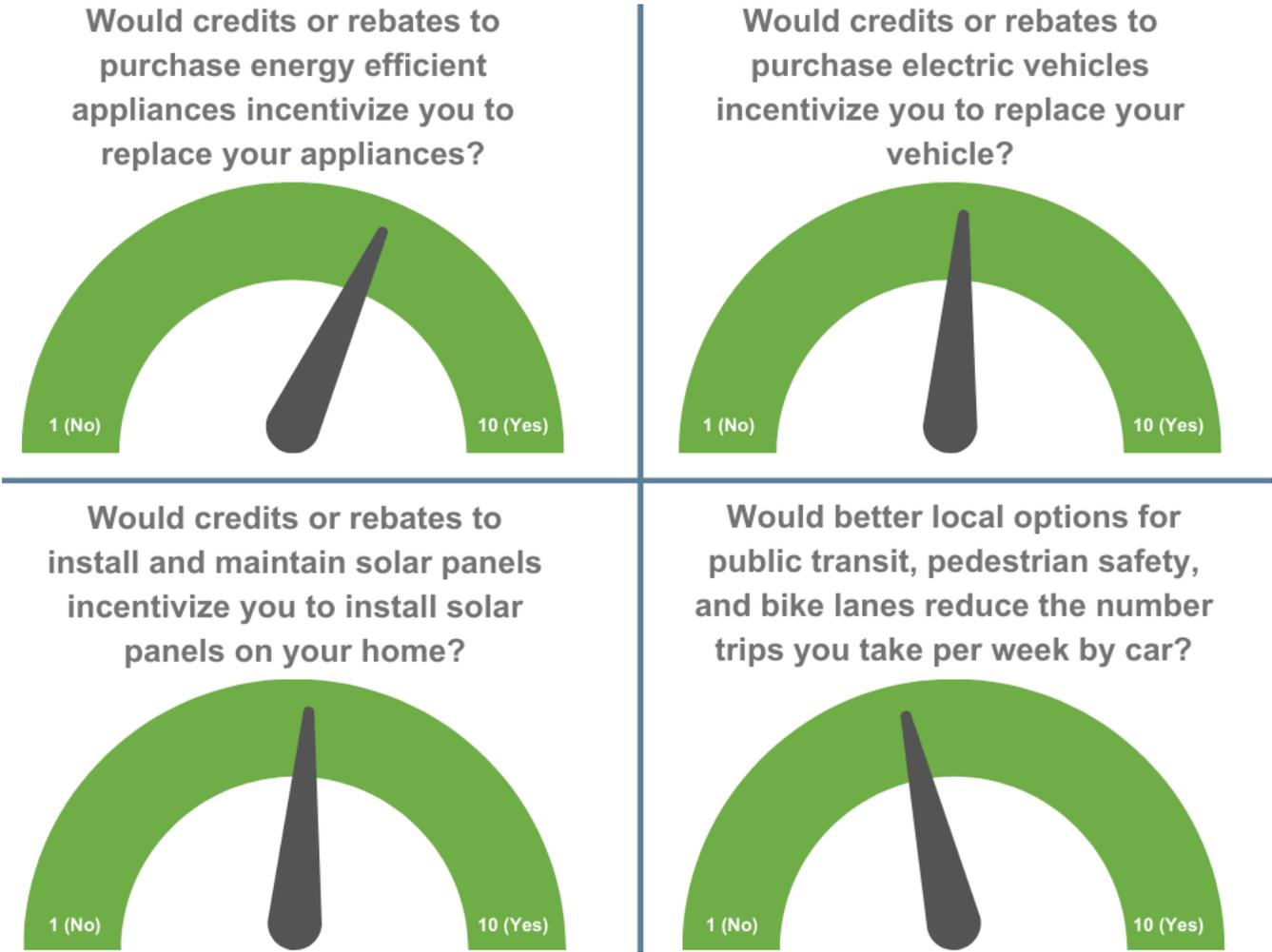


Figure 7. How likely are new programs to increase the respondents GHG emission reduction efforts?

Participants were then asked to rank GHG reduction measures based on what they felt was the most effective to the least effective measure for each of the seven sectors, including carbon removal. The final rankings for each of the sectors can be found below:

Transportation:

New or expanded transportation infrastructure - Projects that encourage transit-oriented development (e.g. update zoning codes) and improve public transit (infrastructure), micro-mobility, bicycle, and pedestrian infrastructure.

TRANSPORTATION

GHG reduction measures thought to be most effective and least effective

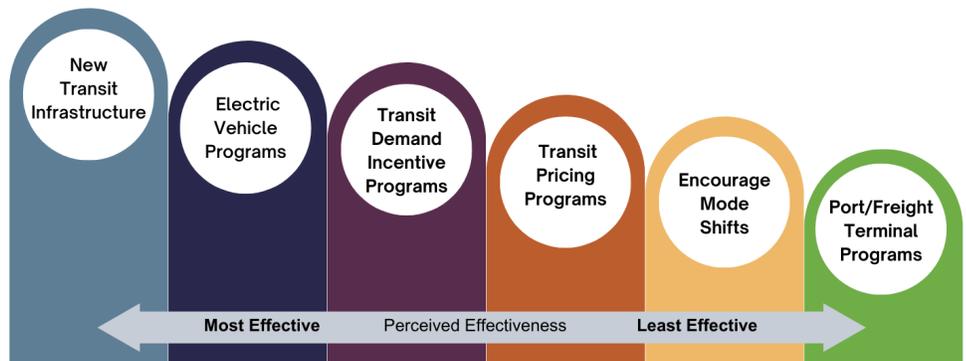


Figure 8. Most to least effective strategies for the Transportation action area.

Electricity Generation & Use:

Municipal Renewable Energy - Installation of renewable energy and energy storage systems on municipal facilities.

ELECTRICITY GENERATION & USE

GHG reduction measures thought to be most effective and least effective

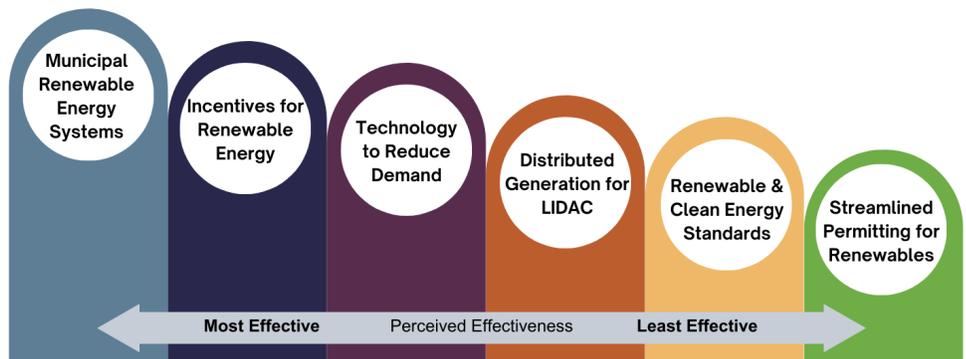


Figure 9. Most to least effective strategies for the Electricity Generation & Use action area.

Commercial and Residential Buildings:

Building Energy Codes - Adoption and implementation of the most up-to-date building energy codes or stretch codes for new commercial and residential buildings.

COMMERCIAL & RESIDENTIAL BUILDINGS

GHG reduction measures thought to be most effective and least effective

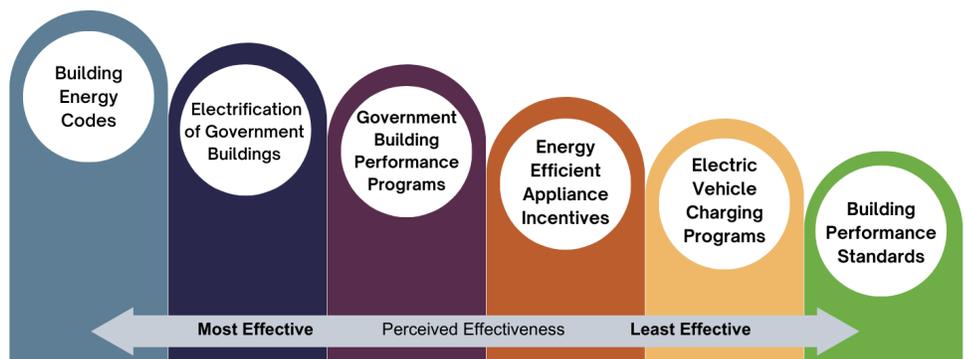


Figure 10. Most to least effective strategies for the buildings action area.

Waste & Material Management

Waste & Material Management: Waste Diversion - Programs and incentives to reduce or divert waste (including food and/or yard waste) through improved production practices, improved collection services, and increased reuse or recycling rates.

Industry: Industrial Facility - Standards addressing GHG emissions from industrial facilities and from energy production sectors, including emissions from industrial process heat and industrial processes.

Agricultural & Natural Lands

Fertilizer - Incentives for technologies and techniques that reduce nitrous oxide emissions from fertilizer application.

WASTE & MATERIAL MANAGEMENT

GHG reduction measures thought to be most effective and least effective

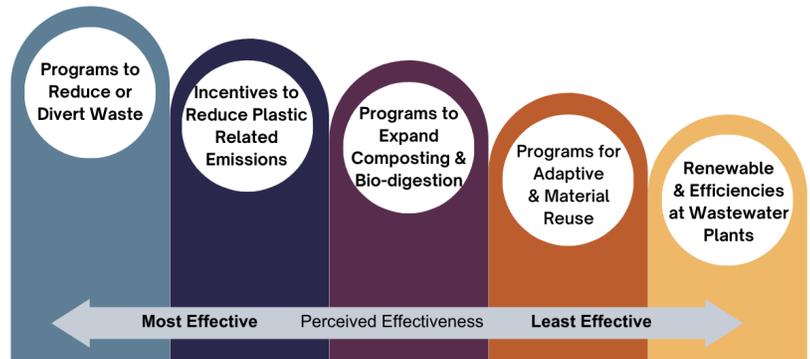


Figure 11. Most to least effective strategies for the Waste and Material Management action area.

INDUSTRY

GHG reduction measures thought to be most effective and least effective

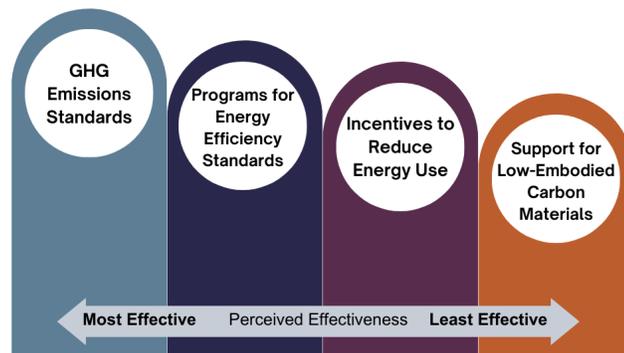


Figure 12. Most to least effective strategies for the industry action area.

AGRICULTURAL & NATURAL LANDS

GHG reduction measures thought to be most effective and least effective

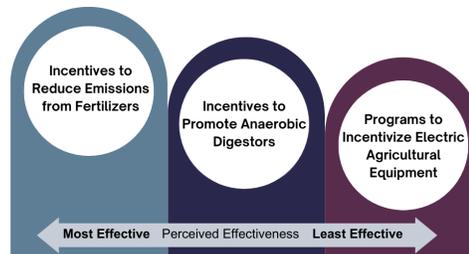


Figure 13. Most to least effective strategies for the Agriculture & Natural Lands action area.

CARBON REMOVAL

GHG reduction measures thought to be most effective and least effective

Carbon Removal:
Forest Management
- Policies to promote improved forest management to enhance carbon stocks on forested land.

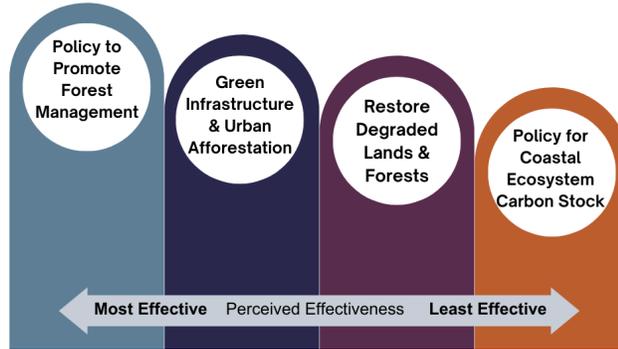


Figure 14. Most to least effective strategies for the Carbon Removal action area.

Which Benefits from Emission Reduction Projects are Most Important to you?

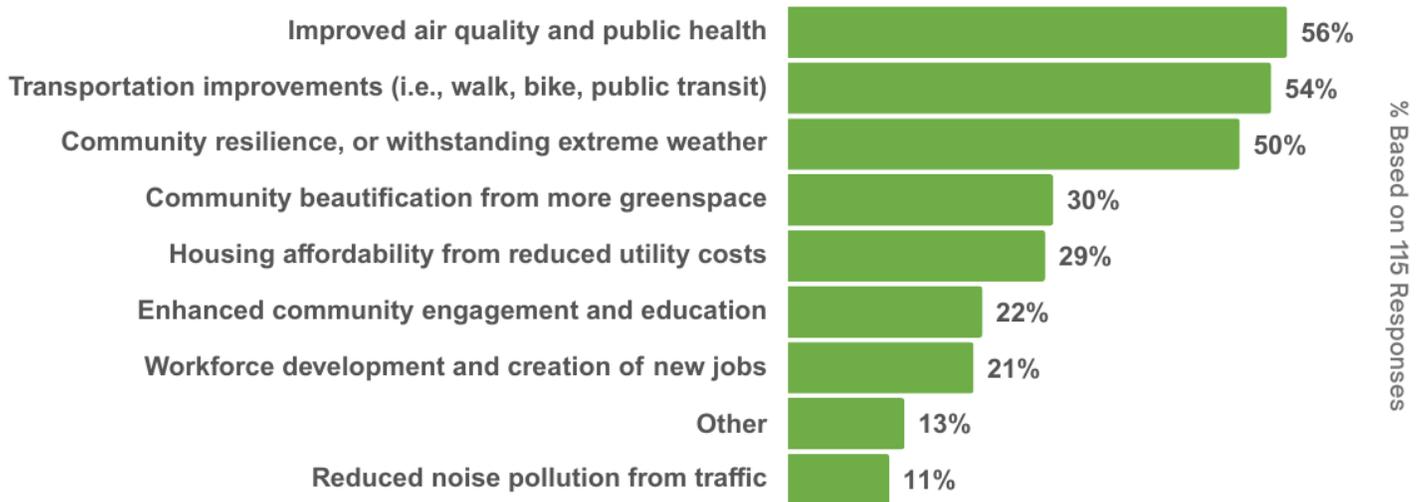


Figure 15. Emissions benefits most important to survey respondents.



Photo from Peralta Design/Steve Cartagena

2.3. LIDAC Communities Background

2.3.1. Methodology

An analysis of benefits for Low Income/Disadvantaged Communities (LIDAC) is a required component of the CPRG PCAP process. To carry out this analysis the EPA provided several tools to aid in identifying LIDAC communities within the MSA. LIDAC communities were identified using the Climate and Economic Justice Screening Tool (CEJST), Environmental Justice Screening and Mapping tool (EJScreen), and the EPA IRA Disadvantaged Communities map. The following describes the tools and processes used to identify LIDAC communities within Southwestern CT.

Climate and Economic Justice Screening Tool

The Climate and Economic Justice Screening Tool (CEJST) was developed under Executive Order 14008⁹. This tool is intended to help federal agencies better identify disadvantaged communities through the Justice40 initiative. The burden categories within this tool are climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, workforce development, and tribes. To determine whether a community is disadvantaged, the respective census tract must be “at or above the threshold for one or more environmental, climate, or other burdens, and at or above the threshold for an associated socioeconomic burden”¹⁰.

The environmental, climate, and other burdens include criteria such as expected population loss, wildfire risk, asthma, proximity to superfund site, poverty rates, and more. The socioeconomic burdens identified within the tool are specified as low income for all categories except workforce development, where the socioeconomic burden is specified as more than 10% of people aged 25 or older who education level is less than a high school diploma. Noted within the tool, census tracts that within tribal communities are considered disadvantaged communities.

The LIDAC communities designation threshold value for the environmental and climate burdens are tracts that meet the 90th percentile or greater for the specified burdens. For the low-income socioeconomic burden, tracts must be at or above the 65th percentile to meet the threshold.

To visualize these categories on maps (i.e. Figure 20), the layer was filtered to view the total Threshold Criteria exceeded, which is more generally explained as the number of burdens a census tract is facing. Using the tools “TC” field, standing for ‘Threshold Criteria’, the census tracts with a threshold criteria count exceeding 1 or more are demonstrated through a series of circles. The size of the circle is an indicator of the total number of threshold criteria exceeded and can be used as a symbol of the scale or degree of disadvantaged communities within an area.

Environmental Justice Screening and Mapping Tool

The Environmental Justice Screening Tool (EJScreen) was developed by the EPA to merge environmental and socioeconomic indicators from several sources into a single tool that provides a more user-friendly way to view and address concern areas throughout the country. The tool’s supplemental indices are designed to be used by states and municipalities for identifying the level of community vulnerability. The supplemental index is determined by combining a block group’s environmental factor and supplemental demographic indicator (an average of the block group’s low income, unemployment, limited English, less than high school education, and low life expectancy socioeconomic factors). The equation is below:



$$\text{Supplemental Index} = (\text{Environmental Indicator Percentile for Block Group}) \times (\text{Supplemental Demographic Index for Block Group})^{11}$$

EPA IRA Disadvantaged Communities

The EPA IRA Disadvantaged Communities layer is a combined dataset that includes information from both the CEJST and Supplemental Indices of EJ Screen¹². This layer was created by the Inflation Reduction Act and the Environment and Climate Justice program as a tool to provide technical and financial assistance to disadvantaged communities to carry out environment and climate justice related activities. The datasets are assigned at the census block group level and include the following parameters, as set by the EPA:

1. Any census tract that is indicated as disadvantaged by the CEJST dataset;
2. Any census block group that is at or above the 90th percentile for any of the EJScreen Supplemental Indices compared to nation or state;
3. And/or any geographic areas within Tribal Lands as identified in EJScreen.

Identification of LIDAC communities in the PCAP ensures that the communities at greater risk from the impacts of climate change are being engaged and collaborated with to ensure PCAP measures prioritize and support action in these communities in the future.

2.3.2. Identification of LIDAC Communities within the COGs

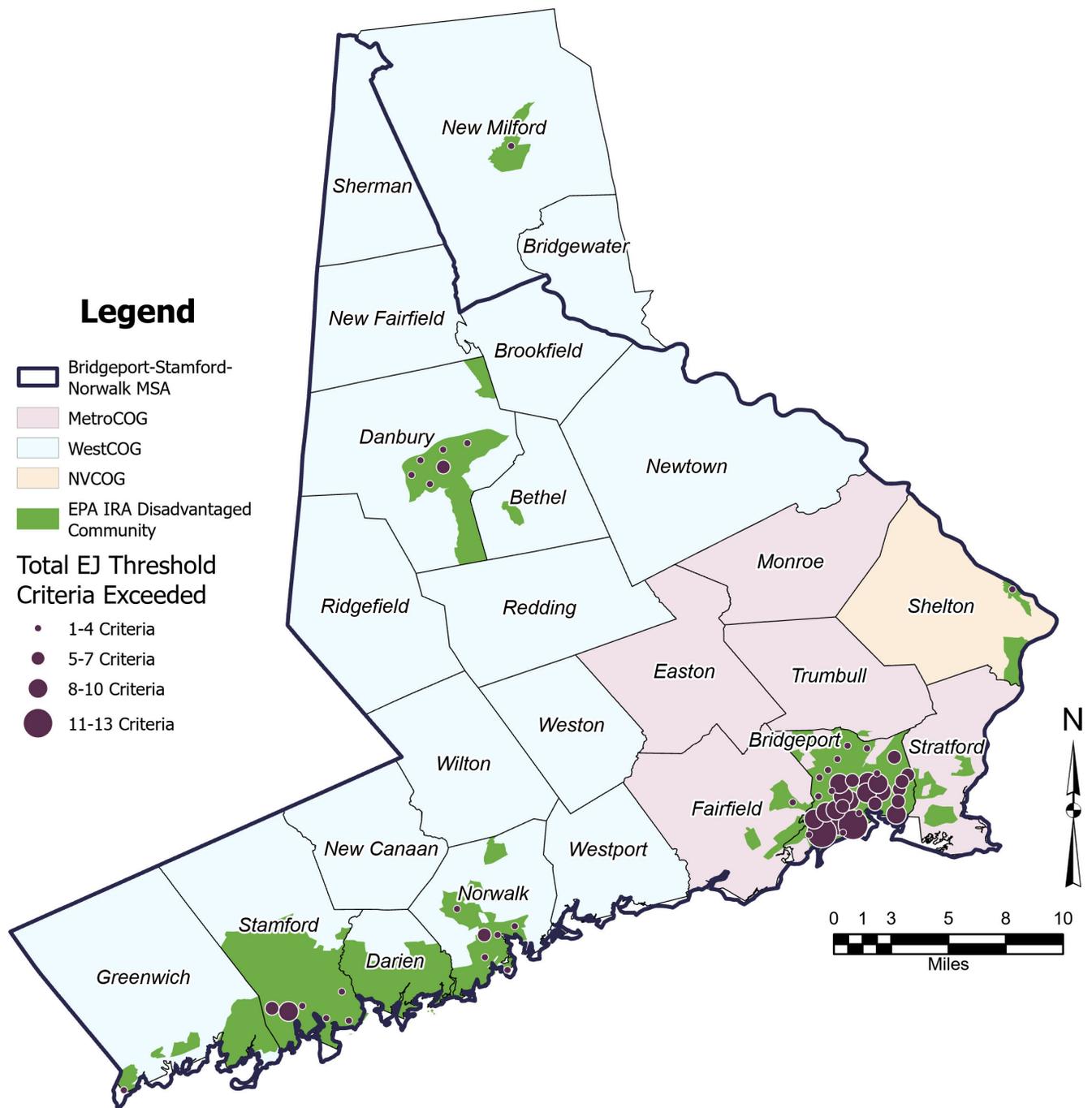


Figure 20. LIDAC Communities within Southwestern Connecticut.



Downtown Stamford, Image from WestCOG Flickr.

The greatest concentration of LIDAC communities in the county are within the City of Bridgeport, as seen in Figure 20. Using the CEJST and EPA tools, the City of Bridgeport has over 30 census tracts identified as LIDAC communities. The second highest LIDAC community presence is in the City of Stamford, where there are 33 EPA IRA Disadvantaged census tracts, and 6 census tracts meeting one or more of the CEJST threshold criteria. A breakdown of the number of census tracts designated as LIDAC communities within the MSA using the available tools is shown in Table 4.

Table 4. Low Income and Disadvantaged Communities Census Tract Designation Breakdown

Municipality	COG	Population¹	CEJST² (Number of Census Tracts meeting 1 or more Threshold Criteria)	EPA IRA Disadvantaged Community³ (Number of Census Tracts Designated)
Bethel	WestCOG	20,287	N/A	1
Bridgeport	MetroCOG	148,529	32	37
Danbury	WestCOG	86,197	7	12
Darien	WestCOG	21,485	N/A	4
Fairfield	MetroCOG	61,737	1	5
Greenwich	WestCOG	63,455	1	6
Monroe	MetroCOG	18,927	N/A	N/A
New Fairfield	WestCOG	13,640	N/A	N/A
New Milford	WestCOG	28,074	1	1
Norwalk	WestCOG	90,821	6	12

Municipality	COG	Population¹	CEJST² (Number of Census Tracts meeting 1 or more Threshold Criteria)	EPA IRA Disadvantaged Community³ (Number of Census Tracts Designated)
Ridgefield	WestCOG	25,053	N/A	N/A
Shelton	NVCOG	40,944	1	3
Stamford	WestCOG	134,820	6	33
Stratford	MetroCOG	52,360	N/A	4
TOTAL			55	118

1 ACS 2017-2021 5 Year Estimates, Connecticut Town Profiles by CTData Collaborative

2 Climate & Economic Justice Screening Tool

3 EPA IRA Disadvantaged Communities Mapping Tool

Bridgeport

Bridgeport is the largest city by population within the MSA and has 32 census tracts meeting the CEJST criteria threshold 1 or more times, and 37 census tracts designated as disadvantaged by the EPA IRA layer. Many of Bridgeport’s communities meet a greater number of threshold criteria than other communities within the MSA, resulting in additional indicators that will need to be considered when discussing priority actions and next steps.

According to the ACS 2017-2021 5-year estimate tables, Bridgeport’s population is estimated to be 18% white, 42% Hispanic or Latino, and 32% Black or African American, and 8% other. The median age is about 35 years old, with about 23% of the population being under the age of 18. The median household income within the city is \$50,597, with 23% of the population being below the national poverty level.



Why are the designated LIDAC Census Tracts different?

The EPA IRA tool is a combined dataset that includes information from two tools, CEJST and EJScreen.

Lack of access to a car and internet are common indicators a household is disadvantaged. Compared to the state of Connecticut (8%), the City of Bridgeport has more than twice as many households (19%) without access to a car. The City also has more households (13%) without access to internet compared to the State (8%). These two indicators should be considered greatly by municipalities seeking to address inequities. Moreover, improving internet access and mobility options for residents can enhance the local economy by reducing barriers to participating in workforce and community activities.

Stamford

Stamford is the second largest city within the MSA and is home to the

second largest number of LIDAC communities as designated by the CPRG planning tools. Stamford has 6 census tracts meeting 1 or more of the CJEST threshold criteria, and 33 census tracts that were designated under the EPA IRA Disadvantaged Communities tool.

According to the ACS 2017-2021 5-year estimate tables, the city of Stamford’s population is 49% white, 28% Hispanic or Latino, and 12% Black or African American, and 11% other. The median age is 38 years old, with 20% under the age of 18. The median household income in Stamford is \$99,791 with about 9% of the population below the national poverty level.

Norwalk

Norwalk is the third largest city in the MSA with a population of 90,821 people. Norwalk is home to 12 census tracts designated as LIDAC communities using the EPA IRA Disadvantaged Communities tool and 7 designated tracts meeting one or more of the threshold criteria for the CEJST tool.

Like Bridgeport and Stamford, Norwalk is a coastal community within Fairfield County. Norwalk’s population is 51% white, 29% Hispanic or Latino, 12% Black or African American, and 5% Asian. The median age is 40 years old, with about 20% of the population under the age of 18 years old. The median household income in Norwalk is \$91,434 with 10% of the population below the national poverty level.

Danbury

Danbury has a population of 86,197 people and is the fourth largest city in Fairfield County. Danbury is in the northern portion of Fairfield County along I-84. The city has 12 census tracts meeting the requirements of the EPA IRA Disadvantaged Community designation and 7 census tracts that meet one or more of the CEJST threshold criteria.

Danbury’s population is 51% white, 30% Hispanic or Latino, 8% Black or African American, and 4% Asian. The city’s median age is 40 years old and about 23% of the population is under the age of 18. Danbury’s median household income is \$74,600 and 11% of the population is below the national poverty level.

Additional mapping and information about the LIDAC community census tracts designated by each tool can be found in Appendix C.



Table 5. Summary of LIDAC Hotspots

Town	Median Income	Unemployment Rate
Bridgeport	\$50,957	5%
Danbury	\$74,600	4%
Norwalk	\$91,434	4%
Stamford	\$99,791	4%

ACS 2017-2021 5 Year Estimates, Connecticut Town Profiles by CTData Collaborative

2.4. Workforce Planning Analysis

As an integral piece of measuring the feasibility of implementation of the priority measures listed within this plan, workforce opportunities and challenges were considered during the measure development process. According to the Connecticut Department of Labor, market projections predict a 12% increase



Solar maintenance and repair training. Photo by Weston & Sampson.

in the total number of jobs across all industries in the state by the year 2030¹³. Although employment across all action areas is important, the goal of this plan is to reduce GHG emissions, so identifying gaps in the workforce and noting the need for special industry focus that will aid in creating more jobs for LIDAC communities in the implementation of these measures is important.

2.4.1. Related Industries

Aligning with the priority measures mentioned in this plan, there are four industries that stand out as related sectors for job creation in the Southwestern CT region. The four industries are described according to the US Bureau of Labor Statistics definitions¹⁴ below.

Utilities

The utilities industry includes all jobs within utility companies and services, those within the electric power generation, transmission, and distribution, and wastewater treatment sectors. The measures within this plan, such as increasing renewable electricity use, storage, and generation projects, or projects involving efficiency changes to wastewater treatment systems, would call for the creation of more clean energy focused jobs within the utilities sector. The CT Department of Labor predicts a growth of 7.9% by the year 2030, totaling almost 70 new jobs for Southwestern Connecticut within this industry.

Construction

The construction sector is comprised of several types of construction, but most importantly for this plan the construction of residential and commercial buildings. This could include jobs such as new construction, retrofits, maintenance, and repairs of buildings. Actions such as retrofitting municipal, residential, and commercial buildings would directly contribute to creating jobs within this sector. To further the goals of this plan, industry leaders can lean on established workforce development

programs and job boards to increase the number of construction workers coming from LIDAC communities. The CT Department of Labor predicts a growth of 12.4% by the year 2030, totaling almost 1,400 new construction industry jobs in Southwestern Connecticut.

Transportation and Warehousing

Transportation and Warehousing is the encompassing sector for all types of transportation, like the public transit and freight services mentioned in this plan. The actions within this plan involve workforce development programs to provide training of employees to properly operate new carbon free or less carbon intensive vehicles, such as electric public transit buses, low carbon freight vehicles, or alternative fuel school buses. The CT Department of Labor predicts a 31.2% increase in jobs by 2030, which is a numeric change of just over 2,200 jobs for this industry in Southwestern Connecticut.

Waste Management and Remediation Services

Waste Management and Remediation Services is a subsector of the 'Administrative and Support and Waste Management and Remediation Services' sector. The subsector encompasses all waste collection, waste treatment and disposal, and remediation and other waste management services. This subsector covers job creation from actions in this plan that involve waste services such as composting, recycling, and additional trash disposal strategies mentioned, as well as cleanup of contaminated buildings or lots such as brownfields or landfills. Actions within this plan that would create jobs in this sector are any involving the use of landfills or brownfields as redevelopment or electricity generation sites and any new waste management options in municipalities or across the region. The CT Department of labor predicts an 8.4% increase in jobs for the subsector by 2030, totaling about 113 jobs created for Southwestern Connecticut.



*Tremont Crossing Brownfields Remediation.
Photo by Weston & Sampson.*



*Wastewater Treatment Plant in Farmington
Photo by Weston & Sampson.*

2.5. Southwestern Connecticut's Critical Assets

Critical assets for communities, such as transportation and waste facilities play a vital role in the economic and social well-being of localities. The repurposing of existing energy assets, including coal, oil, and natural gas power facilities, is essential for addressing environmental impacts and reducing greenhouse gas emissions. The following section identifies critical assets within the region.



Figure 21. Critical Transportation Infrastructure in Southwestern Connecticut.



Bridgeport Harbor. Photo taken by MetroCOG.

2.5.1. Transportation



Ports

Bridgeport Harbor and Water Street Dock

One of three deep-water ports in Connecticut, Bridgeport Harbor is classified as a commercial harbor. Located within the harbor is Water Street Dock, a ferry terminal operated by the Bridgeport and Port Jefferson Steamboat Company which provides passenger and vehicle ferry service across Long Island Sound to Port Jefferson, NY.



Airports

Igor Sikorsky Memorial Airport

Located in Stratford, though owned by the City of Bridgeport, Sikorsky Memorial Airport is classified as a General Aviation airport. Sikorsky Memorial predominantly serves private and charter aircraft.

Danbury Airport

Located in Danbury, the Danbury Municipal Airport is just 3 miles southwest of the city center sitting on approximately 260 acres of property. The airport is managed by the City of Danbury and is classified as a public use airport.



Railroads

Metro North New Haven Line

Running parallel to the coast, the Metro-North railroad mainly facilitates the New Haven Line commuter rail service, connecting Grand Central Terminal in New York City, NY with New Haven, CT, with most of its length running through the county. Major transit terminals along the line are in Stamford and Bridgeport and local stations are in Greenwich, Cos Cob, Riverside, Old Greenwich, Noroton Heights, Darien, Rowayton, South Norwalk, East Norwalk, Westport, Greens Farms,

Southport, Fairfield, Fairfield Metro, and Stratford. Splitting off from the main New Haven Line are the New Canaan and Danbury Branches.

New Canaan Branch. The New Canaan Branch provides commuter rail service to stations in Glenbrook, Springdale, Talmadge Hill, and New Canaan. This branch also accommodates freight operations.

Danbury Branch. Metro-North commuter rail services the Danbury Branch at the Merrit 7, Wilton, Cannondale, Branchville, Redding, Bethel, and Danbury stations. This branch is also utilized by freight trains.

Amtrak

The New Haven Line is also utilized by through-running Amtrak intercity rail services and by freight operations, though the railroad is owned by MetroNorth and CTDOT. Metro North's Bridgeport Station is served by the Amtrak Northeast Regional and Vermonter lines and the Stamford Station by the Amtrak Northeast Regional, Vermonter, and Acela lines.



Major Highways

Interstate 84. I-84 is an interstate highway that runs across the state of Connecticut from New York through Danbury, Waterbury, Hartford, and Union and into Massachusetts. I-84 has junctions with Route 7 in Danbury, Route 8 in Waterbury and is a major interstate highway for commercial and commuter traffic.

Interstate 95. I-95 runs parallel to the coast through the county. The interstate provides connections along the eastern seaboard to New York City, New Haven, Providence, and Boston. The highway is a major throughfare for commercial and commuter traffic consisting of three lanes in each direction for most of its length in Fairfield County.

CT Route 7. Route 7 is a roadway running from I-95 in Norwalk, through the I-84 junction in Danbury and continues north to the border of Massachusetts and into Vermont. The roadway has two expressway stretches near the Norwalk and Danbury junctions.

CT Route 8. Route 8 is a north-south limited access expressway that runs through Shelton, Trumbull, and Stratford before connecting to I-95 in Bridgeport as Route 8-25. Route 8 runs north to provide connections to Waterbury and Western Massachusetts.

CT Route 15, Merritt Parkway. The Merritt Parkway is an inland, limited access expressway facilitating east-west traffic between New York City, NY and Hartford, CT. As a scenic parkway listed in the National Registry of Historic Places, Route 15 does not allow commercial and oversize vehicles, thus mainly serving commuter traffic.

CT Route 25. After splitting from Route 8 in Northern Bridgeport, Route 25 operates as a limited access expressway with three lanes in each direction until Northern Trumbull, from which point it becomes surface road with one lane of travel in each direction until its terminus in Brookfield.

2.5.2. Waste and Hazardous Materials Facilities

Waste and hazardous materials facilities are critical infrastructure which provide vital management and disposal of various types of waste. There are emissions created through the energy used to operate machinery to process waste, such as incineration. These systems can also affect nearby communities by causing decreased water quality, soil contamination, higher GHG emissions from ongoing operations, noxious fumes and toxic chemicals, and increased noise levels.

There are several waste and hazardous materials facilities located throughout the Southwestern CT region. Some examples of these facilities located around the dense LIDAC community population within Bridgeport include the Win Waste Incinerator and the Bridgeport Water Pollution Control Authority (WPCA).

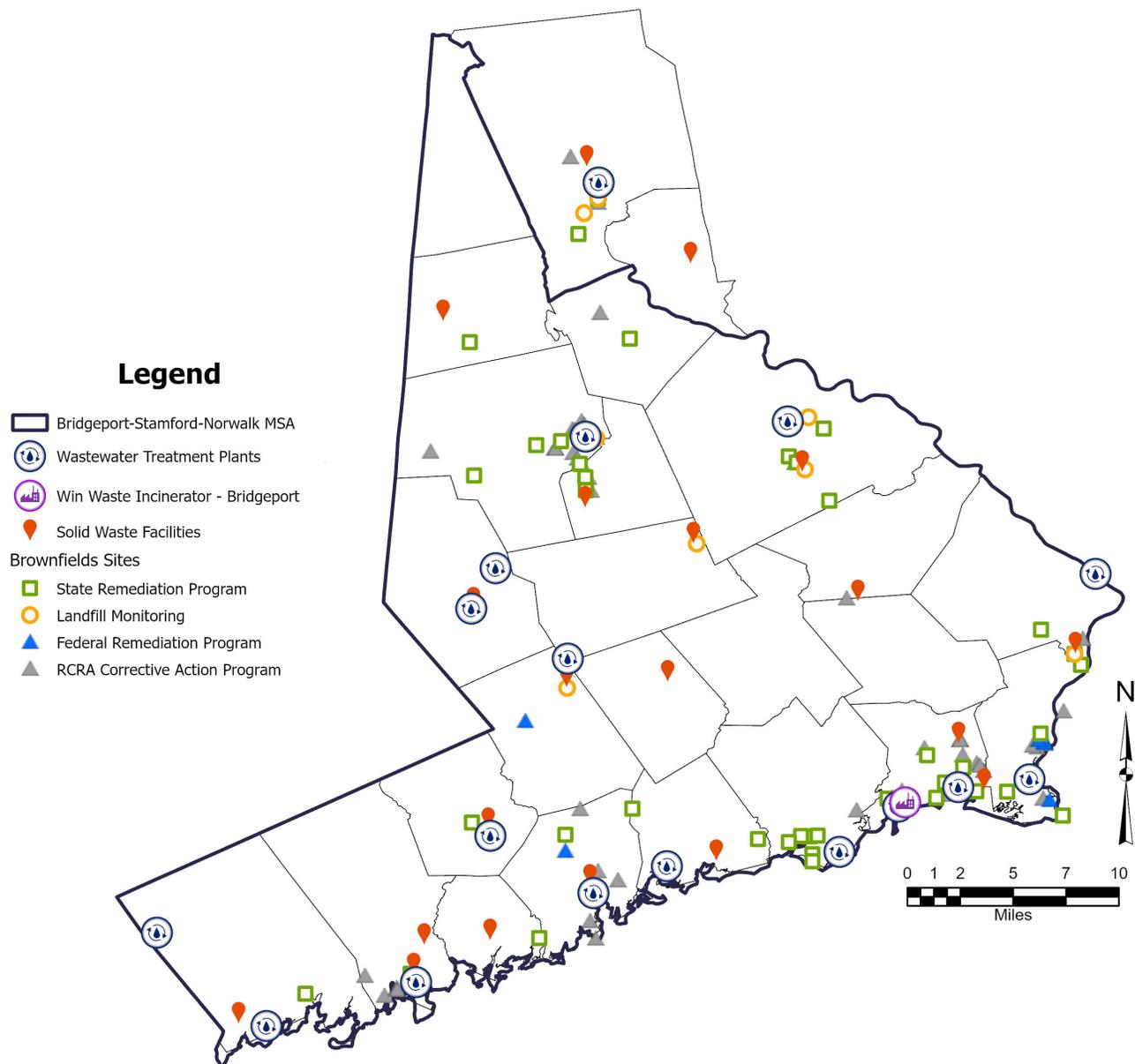


Figure 22. Critical Waste Infrastructure and Hazardous Sites in Southwestern Connecticut.



Bridgeport. Photo taken by Peralta Design/Steve Cartagena.

The Win Waste Incinerator, formerly known as the Wheelabrator Bridgeport Waste to Energy Plant is one of four remaining waste-to-energy incinerators¹⁵ left in Connecticut. Commissioned in 1988, the plant imports 737,000 tons of municipal solid waste annually, which is subsequently combusted to produce power. The incinerator generates 67 MW of energy, enough to power 83,000 surrounding households.

The City of Bridgeport WPCA operates two advanced secondary wastewater treatment plants. The West Side treatment plant is designed to process 30-million-gallons of water per day (MGD) and the East Side plant 10 MGD. The West Side facility is currently undergoing a multi-million-dollar upgrade, while many of the pumps currently feeding into the system are being renovated.

2.6. Climate Change Vulnerability

Climate risks and challenges can have a significant impact on vulnerable communities, such as LIDAC communities. These communities are already facing multiple factors that leave them at higher disadvantages than those in non-designated areas. These communities face the greatest threats to their physical and mental health, as well as their air, water, food, and shelter, due to factors such as where they live, their health, income, and limited access to information and resources. Climate change impacts, such as extreme heat, and catastrophic weather effects can exacerbate existing inequities, including environmental injustices due to historical patterns of development and disinvestment. LIDAC communities are disproportionately burdened by environmental damage, while simultaneously having less access to green spaces, trees, and other infrastructure to abate climate related health risks. It is essential climate-resilient solutions are developed through policies and actions that promote justice and fairness, meaningfully engage LIDAC communities throughout the planning process, and prioritize equity and inclusivity in decision-making.¹⁶

2.6.1. What is a Vulnerability Index

Climate Vulnerability Indices are tools used by planners to identify which communities face the greatest challenges from the impacts of a changing climate¹⁷. Vulnerability indices combine climate risks with social factors known to increase baseline vulnerability, including poverty, lack of vehicle access, housing conditions, and public health indicators such as air quality and access to essential

needs. As a result, vulnerability indices aid planners, policymakers, advocates, and organizations to better prepare for climate change impacts, including flooding and extreme heat, by allocating adaptation measures like green infrastructure and cooling centers to neighborhoods at a greater risk of adverse health outcomes during extreme weather events.

2.6.2. Climate Change Vulnerability Index

To assess climate change vulnerability within this plan, the Climate Change Vulnerability Index (CCVI)¹⁸ was used to identify areas of exposure to extreme weather events and indicators of populations at risk.

The Connecticut Institute for Resilience and Climate Adaptation (CIRCA) at the University of Connecticut (UConn) developed the Climate Change Vulnerability Index (CCVI) to better express community vulnerabilities to flood and heat related impacts of climate change. The CCVI methodology recognizes that sensitivity, exposure, and adaptive capacity are the three primary contributors to vulnerability.

The CCVI is a statewide gridded index that calculates vulnerability using an equation that incorporates a location's sensitivity, exposure, and adaptive capacity (Figure 23). Further information about the CCVI Tool methodology can be accessed at [Climate Change Vulnerability Index | Resilient Connecticut \(uconn.edu\)](https://climatechange.vulnerabilityindex.uconn.edu).

Over the last few years, the CCVI has been used to aid in making decisions for public investment and identifying potential climate resilience opportunity areas in Connecticut. To align with State recommended data, CCVI was used to help inform climate action for the CPRG planning process. Because demographic and socioeconomic factors contribute to the aggregated sensitivity and adaptive capacity scores, social vulnerability and environmental justice considerations are combined with physical exposure indicators such as flood zones, Sea Level Rise projections, impervious

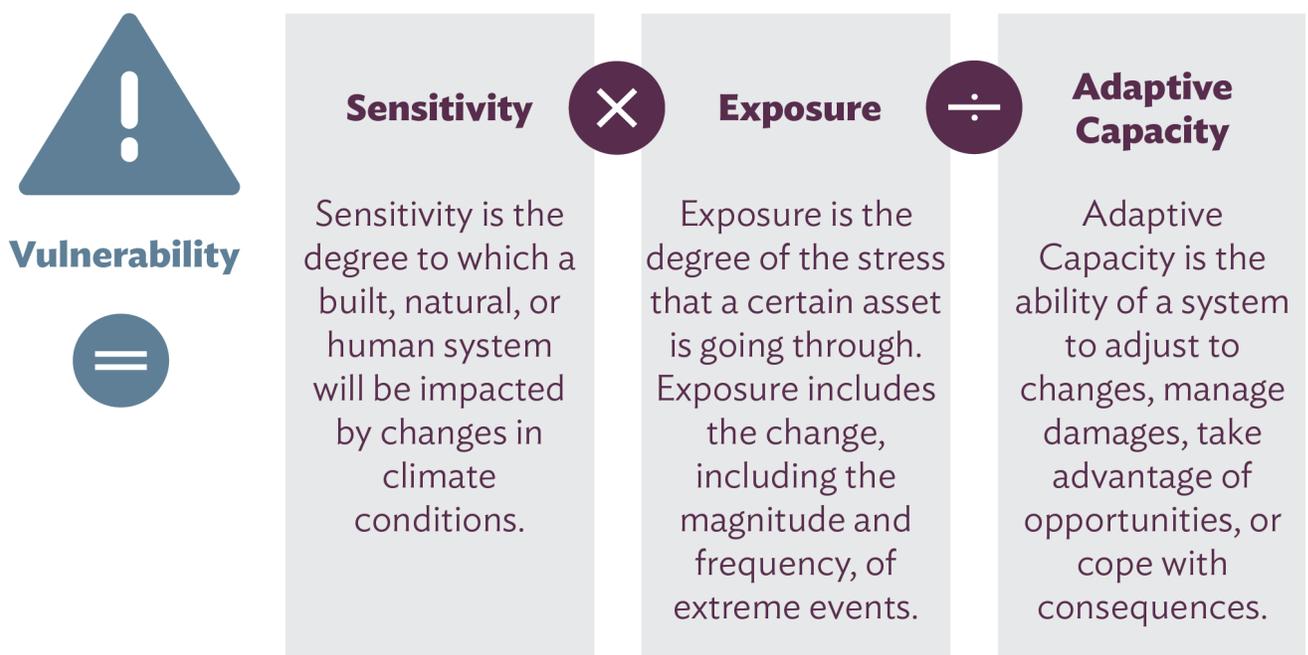


Figure 23. CCVI Vulnerability Equation (UConn CIRCA)

surfaces, and surface temperature to yield heat and flood vulnerability scores. This helps visualize which climate actions address community vulnerabilities. The climate hazards which have the greatest impact on Southwestern CT are extreme heat, high intensity precipitation events, and coastal flooding.

Extreme Heat

As climate change persists, the Northeast has experienced longer and more frequent extreme heat events during the summer months. The heat CCVI map, in Figure 24, shows areas throughout the region that, based on the above methodology, are more vulnerable to heat-related impacts because of climate change. The most vulnerable areas have the highest combined Sensitivity x Exposure scores and lowest Adaptive Capacity scores. Sensitivity is the degree to which a built, natural, or human system will be impacted by climate change; Exposure is the magnitude and frequency of climate events; and Adaptive Capacity is the ability of a system to cope with changes. For example, a neighborhood with a “Very High” Heat Vulnerability Score (shown in Figure X in dark red), may have a high proportion of residents with social sensitivities such as percent of households below the poverty level, have few community assets such as bus hubs, have several physical exposure risks such as a high density of impervious surfaces, and score relatively low in terms of adaptive capacity such as far distance to nearest community cooling center and healthcare facility in the event of an extreme weather event.

“Urban Heat Island Effect,” or the tendency for urbanized areas—where high concentrations of buildings, roads, and infrastructure absorb and emit heat—to experience higher temperatures than outlying areas¹⁹, directly contributes to heat related deaths and illnesses in vulnerable populations due to “higher daytime temperatures, reduced nighttime cooling effects, and higher air pollutions levels”²⁰. As shown using the CCVI tool and in Figure 24, many of the LIDAC community designated census tracts are located within dense heat vulnerability hotspot areas.

Flooding Exposure

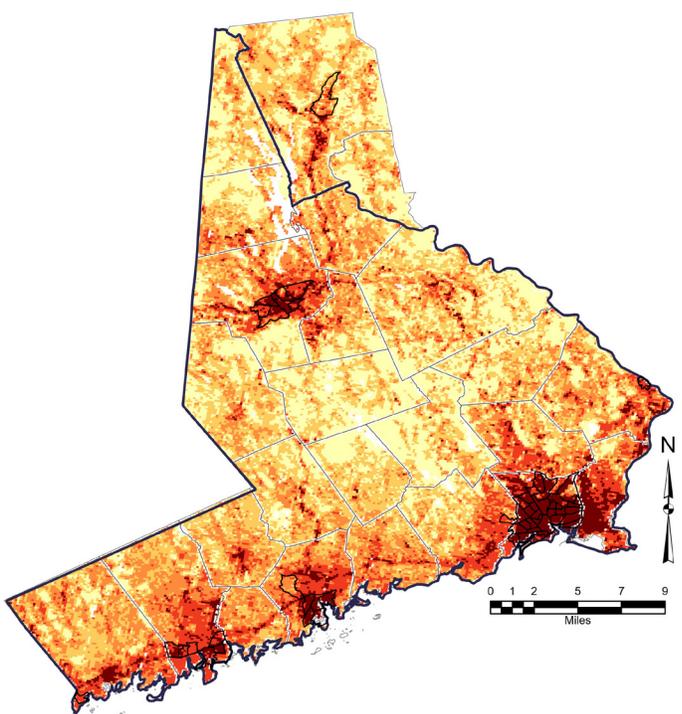
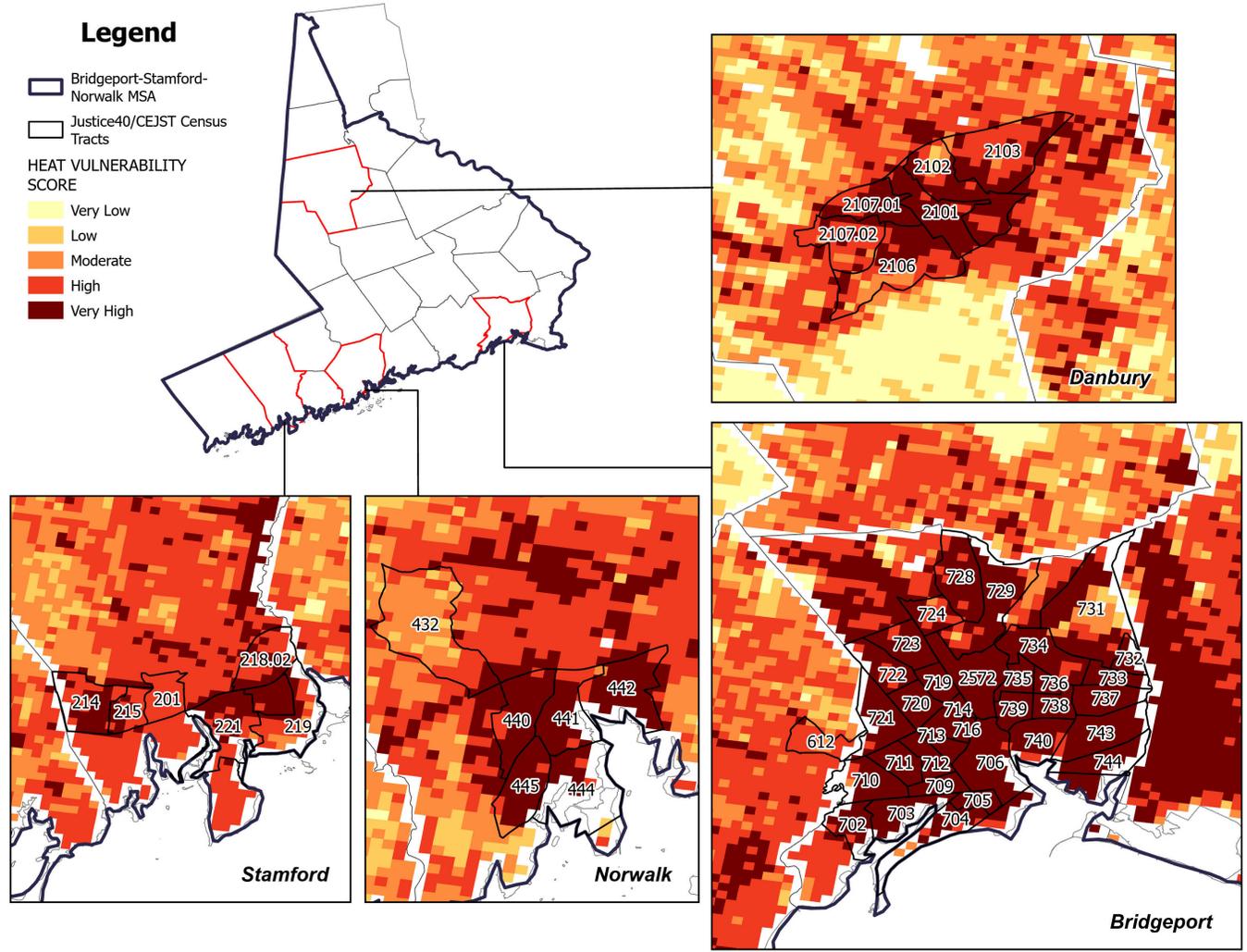
The flood CCVI map, in Figure 25, show areas throughout the region that, based on the above methodology, are more vulnerable to flood related impacts from climate change. This map shows both coastal and precipitation flooding. Like the heat map, the most vulnerable areas have the highest combined Sensitivity x Exposure scores and lowest Adaptive Capacity scores. For the flood map



Photo taken by MetroCOG.



Photo taken by MetroCOG.



i

Did you know? The CCVI tool has an additional advantage in the identification of potential climate-related measures. Specifically, it can help identify where co-benefits are prudent. For example, the heat CCVI mapping tool can help identify where urban forestry will provide shade to reduce urban heat island effect, while also addressing a portion of emissions resulting in improved air quality and general public health.

Figure 24. CCVI Heat Vulnerability Tool - Vulnerable LIDAC Community Census Tracts.

example, a neighborhood with a “Very High” Flood Vulnerability Score (shown in Figure 25 in dark blue), may have a high proportion of residents with social sensitivities such as percent of households below the poverty level, have few community assets such as bus hubs, have several physical exposure risks such as being in a flood zone and a history of elevation pooling, and score relatively low in terms of adaptive capacity such as Sewer Service Areas and proximity to shelter in the event of an extreme weather event. The flood CCVI mapping tool can help address flood vulnerabilities by identifying where green infrastructure can reduce flood exposure while also addressing a portion of emissions.

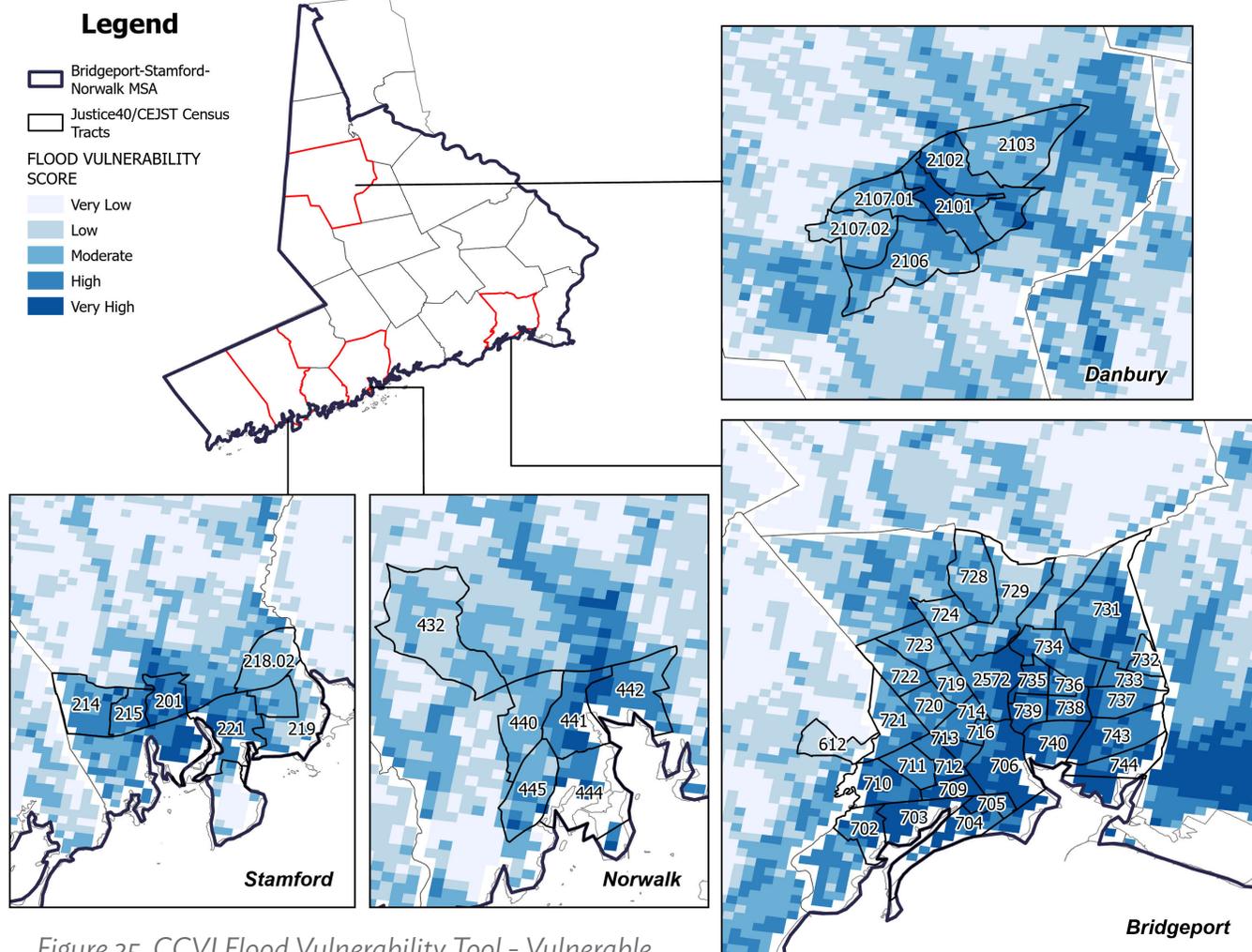
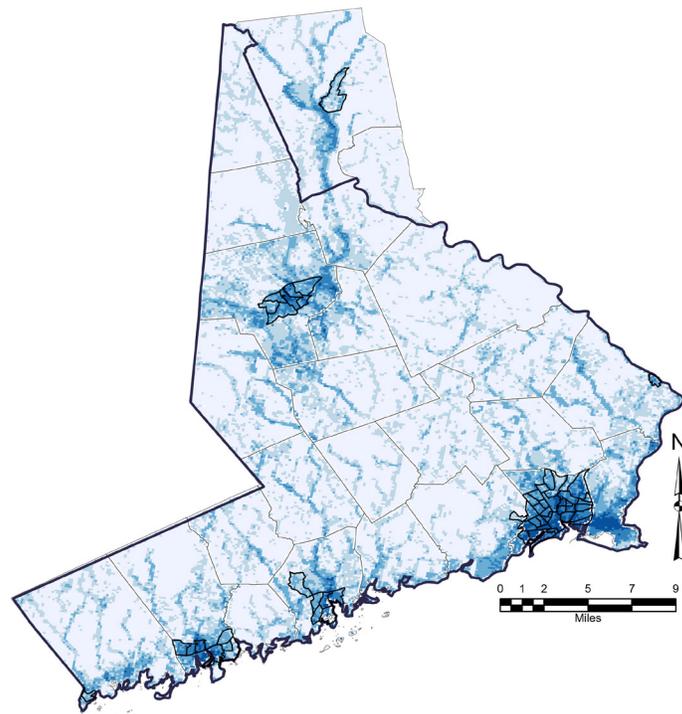


Figure 25. CCVI Flood Vulnerability Tool - Vulnerable LIDAC Community Census Tracts.

2.6.3. Sea Level Rise

With the worsening impacts of climate change, coastal communities are becoming more vulnerable to the impacts of sea level rise. With eight of the MSA's municipalities located along the Long Island Sound, these impacts will be felt in several neighborhoods and communities. These areas have been subject to more frequent and severe flood events, higher tides, and property damage during major storm events. The National Oceanic and Atmospheric Administration (NOAA) has projected sea level rise between 0 and 10 feet. Figure 8 illustrates that the difference in flood risk between a 6-foot and a 10-foot rise is minimal, indicating that these communities are likely to face vulnerability sooner than later. According to NOAA, current emissions will likely be responsible for a sea level rise of about 2 feet between 2020 and 2100 and if no action is taken additional levels between 3.5 and 7 feet are likely by the end of the century²¹.

These projections also highlight the potential risks to LIDAC communities along the coastline.

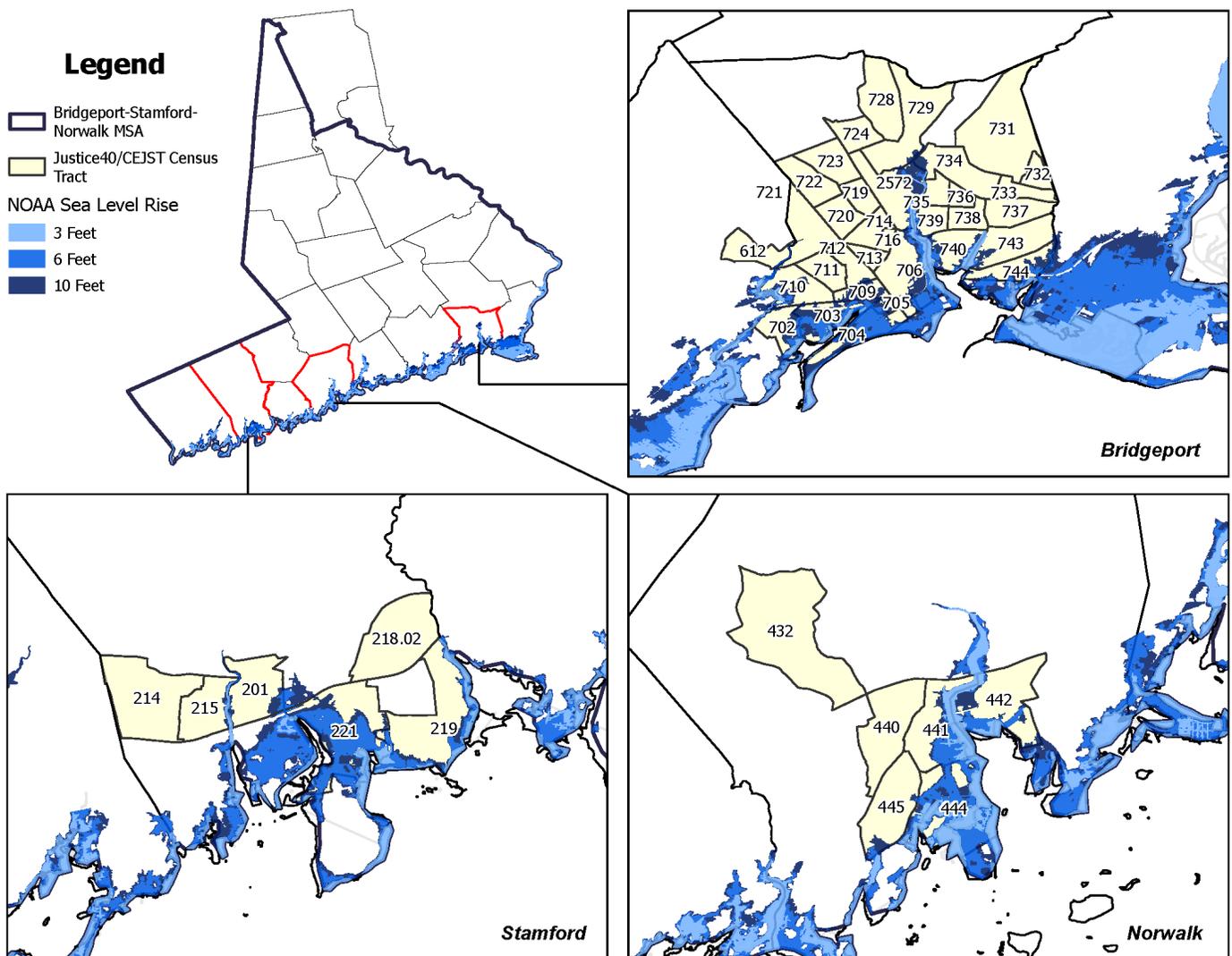


Figure 26. Sea Level Rise impacts to LIDAC communities along the MSA's coastline. Source: NOAA.

Disadvantaged census tracts in coastal flood zones generally lack the financial resources to mitigate and adapt to sea level rise, thus placing many properties at high risk for repetitive losses and future flood damage. However, compared to areas not designated a LIDAC community, these communities also have less capacity for protective measures. Coastal and inland flooding (rivers and streams) can result from rain, snow, and sea level rise. These types of flooding affect not only residential and commercial properties but also critical infrastructure such as roads, placing a heavier burden on municipalities without the capacity to elevate roads, raise homes, or relocate essential services before the next flood event²².

2.7. Greenhouse Gas Inventory

Carbon dioxide, methane, nitrous oxide, and fluorinated gases are considered greenhouse gases (GHGs). Although these gases are also released naturally, human-caused activities (i.e., burning fossil fuels to power buildings, vehicles, etc.) are responsible for almost all of the increase in GHG in the atmosphere in the past 150 years²³. Because greenhouse gas emissions trap heat, they greatly contributing to global warming. The rate at which GHG emissions are being produced has accelerated and is leading to long-term shifts in temperatures and weather patterns, resulting in climate impacts such as extreme heat, flooding, and sea level rise, as previously described.

2.7.1. Greenhouse Gas Baseline Inventory

To understand the MSA's contributions to climate change, a baseline greenhouse gas emissions inventory was conducted by the University of Massachusetts Amherst. This inventory identifies sources of emissions and applies a standardized methodology to quantify these sources in units of million metric tons of carbon dioxide equivalents (MMT CO_2e). The EPA's Local Greenhouse Gas Inventory Tool (LGGIT) and the State of Connecticut's GHG inventory (developed by DEEP) served as the foundation for the MSA-wide inventory. Stationary and mobile combustion of fossil fuels, and electricity consumption, make up most emissions associated with activities occurring in the region. These sources are further described in the Priority Measures section of this plan.



Norwalk, Photo from WestCOG Flickr.

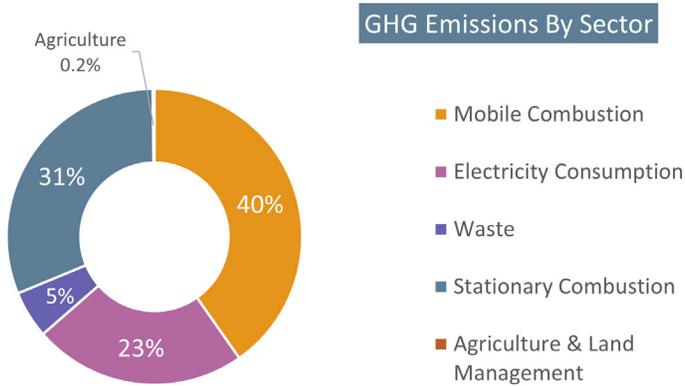


Figure 27. MSA GHG Emissions distribution by sector.

i

Southwestern CT contributes

7.4 million

metric tons of Carbon Dioxide Equivalents (MTCO₂e) annually.

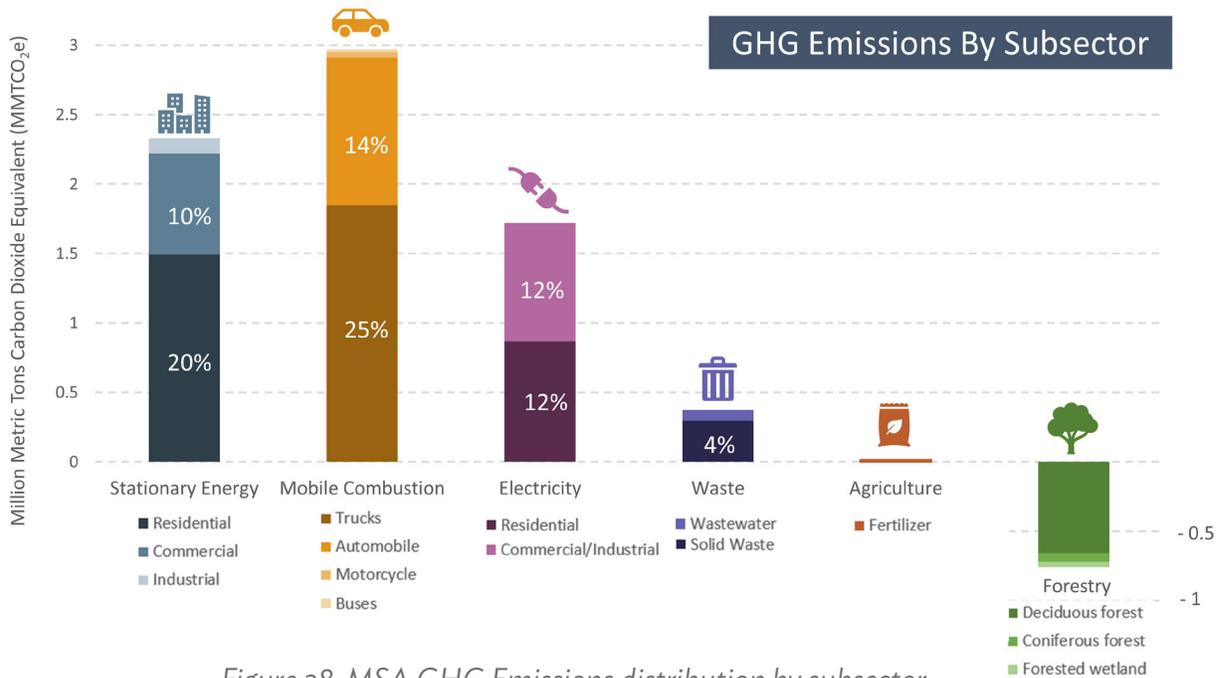


Figure 28. MSA GHG Emissions distribution by subsector.



Why is forestry negative? Trees and forested areas help to reduce carbon dioxide levels through a process called carbon sequestration. Carbon sequestration is “the process by which atmospheric carbon dioxide is taken up by trees, grasses, and other plants through photosynthesis and stored as carbon in biomass (trunks, branches, roots, and foliage)”²⁴. The resulting reduction of carbon dioxide from the atmosphere through these processes therefore leads to a reduction in the total GHG emissions.

Table 6. GHG Emissions by Subsector

Sector	Source	Emissions (MMCO ₂ e)	Percent of Total
Stationary Combustion	Residential	1.45	19.7%
	Commercial	0.73	9.9%
	Industrial	0.11	1.5%
Mobile Combustion	Automobile	1.06	14.4%
	Motorocyle	0.04	0.5%
	Trucks	1.85	25.1%
	Buses	0.02	0.3%
Electricity	Residential	0.87	11.7%
	Commercial/Industrial	0.85	11.6%
Waste	Solid Waste Landfills	0.30	4.0%
	Wastewater Treatment	0.08	1.1%
Agriculture and Land Management	Organic Fertilizer	< 0.001	< 0.01%
	Synthetic Fertilizer	0.014	< 0.01%
	Manure Fertilizer	< 0.001	< 0.01%
Forest Carbon Sequestration	Deciduous Forest	-0.64	-
	Coniferous Forest	-0.06	-
	Forested Wetland	-0.04	-
Total Gross Emissions		7.37	100%
Total Net Emissions		6.63	-

Note: Gross emissions refer to the total emissions from all activities. Net emissions are the total including necessary deductions such as activities that sequester or remove carbon from the atmosphere.

2.7.2. Co-Pollutant Baseline Inventory

Co-pollutants can be described as the accompanying reductions in Criteria Air Pollutant (CAP) and Hazardous Air Pollutant (HAP) sources from the principal reduction in GHG emissions. Quantifying CAPs and HAPs reductions shows a more holistic picture of the total air pollutants emitted by and consequently impacting Fairfield County.

To determine an estimate of the CAPs and HAPs emitted, data from the 2017²⁵ National Emissions Inventory (NEI) database was analyzed.²⁶ The general methodology for determining the quantity of CAP and HAP emissions in 2017 consisted of downloading MSA specific data and allocating a percentage of the co-pollutant emissions based on population. The following sectors were assessed for this inventory, as they relate to the sectors quantified in the GHG inventory methodology:

- Agriculture - Fertilizer Application
- Fuel Comb - Community/Institutional - Natural Gas
- Fuel Comb - Community/Institutional - Oil
- Fuel Comb - Electric Generation - Natural Gas
- Fuel Comb - Electric Generation - Oil
- Fuel Comb - Industrial Boilers, Internal Combustion Engines (ICEs) - Natural Gas
- Fuel Comb - Industrial Boilers, ICEs - Oil
- Fuel Comb - Residential - Natural Gas
- Fuel Comb - Residential - Oil
- Industrial Processes - Oil & Gas Production
- Mobile - Locomotives
- Mobile - Non-Road Equipment - Diesel
- Mobile - Non-Road Equipment - Gasoline
- Mobile - On-Road Diesel Heavy Duty Vehicles
- Mobile - On-Road Diesel Light Duty Vehicles
- Mobile - On-Road non-Diesel Heavy Duty Vehicles
- Mobile - On-Road non-Diesel Light Duty Vehicles
- Waste Disposal

Table 7. Co-Pollutant Baseline Emissions Inventory for 2017

Criteria Air Pollutants	Hazardous Air Pollutants
42,737 metric tons	1,691 metric tons



CAPs emissions estimated as part of this co-pollutants inventory include the following:

- **Ammonia**
- **Carbon Monoxide**
- **Elemental Carbon portion of PM_{2.5}-PRI**
- **Lead**
- **Organic Carbon portion of PM_{2.5}-PRI**
- **PM₁₀ Primary (Filt + Cond)**
- **PM_{2.5} Primary (Filt + Cond)**
- **Remaining PMFINE portion of PM_{2.5}-PRI**
- **Sulfur Dioxide**
- **Volatile Organic Compounds**

Over 150 HAPs were included in the quantification of HAP emissions in this inventory.

Chapter Endnotes

**Click for more
information!**



9. [Tackling the Climate Crisis at Home and Abroad | Federal Register](#)
10. [CEJST Technical Support Document | White House Council on Environmental Quality](#)
11. [EJScreen Technical Documentation | EPA](#)
12. [Inflation Reduction Act Disadvantaged Communities Map | US EPA](#)
13. [State of Connecticut Industry Projections 2030 | CT Department of Labor](#)
14. [Industries at a Glance | U.S. Bureau of Labor Statistics](#)
15. [Energy Recovery from the Combustion of Municipal Solid Waste \(MSW\) | US EPA](#)
16. [Environmental Justice and Climate Change Policies](#)
17. [The US Climate Change Vulnerability Index | Environmental Defense Fund](#)
18. [Climate Change Vulnerability Index | Resilient Connecticut \(uconn.edu\)](#)
19. [Learn About Heat Islands | US EPA](#)
20. [Heat Island Impacts | US EPA](#)
21. [2022 Sea Level Rise Technical Report | NOAA.gov](#)
22. [Community and Social Vulnerability | NOAA](#)
23. [Overview of Greenhouse Gases | EPA](#)

24. Carbon Sequestration | USDA

25. 2017 was selected for the PCAP as the baseline inventory year due to the readily available data for that year. During the CCAP process, a more recent year may be selected.

26. 2017 National Emissions Inventory Data | EPA

3. Priority Measures

In the face of escalating climate change impacts, the urgent need for effective climate action is increasingly apparent. Developing Plans for action—robust strategies to mitigate greenhouse gas emissions—is essential to safeguard our planet for future generations. Implementing these plans at the municipal and regional level encompasses mitigation, adaptation, and resilience-building efforts. The PCAP represents priority actions southwestern Connecticut can take to implement a regional climate action strategy, thus it is a first step towards a future that is both sustainable (capable of being maintained) and resilient (able to withstand and recover from climate conditions).

Through municipal engagement, analysis of the region’s primary GHG emissions sectors, and public feedback, seven “action areas” were identified as priorities for Southwest Connecticut: Transportation, Buildings, Electric Power, Waste and Materials Management, Carbon Sequestration and Natural Lands, Sustainable Growth, and Green Economy.

The 7 action areas in this plan further prioritize 16 measures that set the Southwest Connecticut region on a path to be carbon neutral. The municipalities and regional entities will not be able to accomplish or enact these changes alone as many of these efforts require state or federal action. Collectively, the priority measures represent the most important next steps for municipal and regional policies, programs, and strategies that can get started today

How to Read the Priority Measures

Within this section, each priority measure is formatted with its own three-part plan:

1. Overview of the Measure,
2. LIDAC Communities Benefits and Disbenefits Mitigation, and
3. Implementation Details.

The three-part plans are roadmaps to aid municipal leaders, community organizations, and residents understand the “why,” the “how,” as well as the “impacts” of each measure in order to contextualize what implementing each could look like in their community and in the region. The three-part plans include an overview description, a model of GHG reduction potential (informed by GHG Inventory Analysis, discussed in the previous section), and a list of actions required for implementing the measure at the municipal or regional level.

LIDAC Communities Benefits and Disbenefits Mitigation

This sub-section will include a brief description of how to implement the measure in a manner that considers the region's most vulnerable communities. Evaluating the burdens and vulnerabilities that LIDAC communities face alongside implementation actions is an important equity lens, which ensures measures with potential co-benefits in disadvantaged neighborhoods are prioritized. Utilizing this section, municipalities and local leaders can go a step further to ensure that each of these actions will benefit every community within the region and ensure that disproportionate negative impacts are avoided.

To understand the equity impacts of each, measures were evaluated based on the four most common burdens experienced by disadvantaged communities in the region:



Climate Resilience



Environmental Burdens



Cost Burdens



Workforce Development

Each category has a corresponding icon along with a brief description within the three-page measure plans. Accompanying the explanation of benefits and disbenefits to LIDAC communities within the region, an equitable considerations description is included for each measure. For more information on the categories, see Appendix D.

Implementation Details

Implementation Details are provided for each measure and include funding sources, entities with authority to implement, milestones, potential collaborators, and examples of completed projects across the region. The aim is to help municipalities and local leaders understand the level of effort and authority needed to implement each measure, while also providing example partners and projects that can foster collaborative partnerships across the region.

It is important to note that not every measure will include a funding source. If there is no funding source listed, it is possible that these projects could be implemented using CPRG Implementation Grant funding. If there is a funding source listed, it is possible these projects could use leverage this funding source to maximize impact of CPRG Implementation Grant Funding.



The Southwest CT Climate Action Plan prioritizes **7 action areas** supported by **16 key priority actions**

Transportation	1a	ELECTRIC VEHICLES: Promote the transition to electric or other low-carbon fuel for both private and public sector vehicles.
	1b	ACTIVE MOBILITY: Develop robust, reliable, and accessible mobility options to encourage and enable a shift from single occupancy vehicles towards zero emission modes such as walking and biking.
	1c	PUBLIC TRANSIT: Improve public transportation frequency and reliability; expand public transit options; and expand programs to reduce trips by car.
Residential & Commercial Buildings	2a	RESIDENTIAL AND COMMERCIAL BUILDING UPGRADES: Develop programs and resources that promote and aid the switch to energy efficient and renewable options for residential and commercial buildings.
	2b	MUNICIPAL BUILDING UPGRADES: Retrofit municipally owned buildings to improve energy efficiency and decrease reliance on fossil fuels.
	2c	LEGISLATIVE CHANGE: Advocate for state level legislation to empower municipalities to enforce more environmentally friendly building codes for commercial and residential properties.
	2d	CARBON REDUCTION PLAN REPORTING: Encourage municipal and commercial buildings to report carbon reduction plans.



Electric Power	3a	RENEWABLE ENERGY GENERATION, USE, AND STORAGE: Increase the generation, use, and storage capabilities of renewable energy throughout the region.
Materials & Waste	4a	MATERIALS MANAGEMENT: Promote a circular economy and the reduction of carbon through improved materials management and waste processing
	4b	WASTE REDUCTION: Improve residential and commercial waste diversion rates by implementing new or enhancing existing waste programs.
	4c	REDUCE WASTEWATER ENERGY USE: Reduce municipal wastewater treatment facility energy usage and emissions.
Carbon Capture	5a	CONSERVE LAND, WHILE PROMOTING SMART GROWTH: Enhance carbon sequestration across the region through expansion of land conservation.
	5c	EXPAND GREEN SPACE AND TREES: Enhance carbon sequestration across the region through expansion of trees and green space.
Sustainable Growth	6a	CLIMATE FRIENDLY LAND USE: Develop robust resources to enable municipalities to implement model climate friendly land use practices.
Green Economy	7a	GREEN WORKFORCE DEVELOPMENT: Increase workforce capacity in clean energy and net zero enabling sectors
	7b	EQUITABLE PROCUREMENT: Promote equitable procurement practices for municipal decarbonization projects.



Transportation - Action Area 1

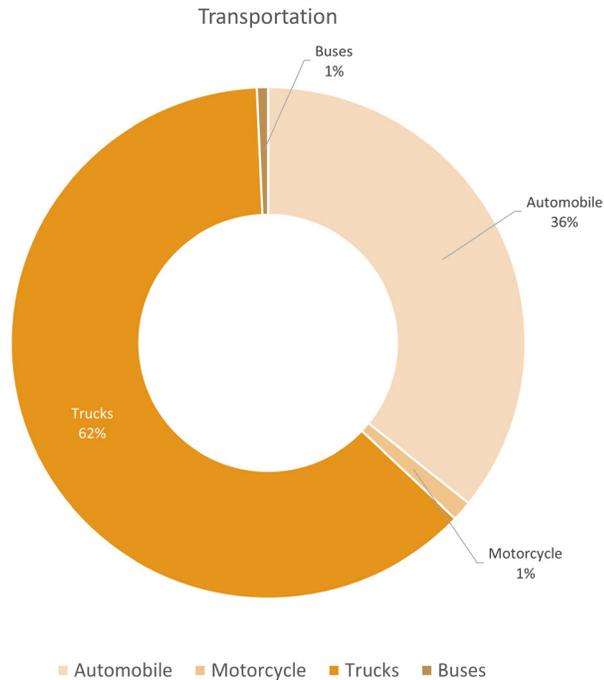


Figure 29. Transportation action area emissions breakdown.

Our society’s heavy reliance on cars has significantly contributed to environmental degradation. As a car-centric community, our dependence on vehicles has led to increased air pollution, greenhouse gas emissions, and urban sprawl. The continuous use of cars not only depletes fossil fuels contributing to climate change, but also negatively impacts the quality of the air we breathe and the overall health of our planet. Moreover, the infrastructure we build to prioritize car travel often favors infrastructure designed to move cars over public transportation and pedestrian-friendly spaces, leading to a lack of sustainable mobility options. To mitigate these detrimental effects, it is important for us to shift towards more eco-friendly modes of transportation and urban designs that prioritize walkability, active transportation options, and access to public transit—modes of travel that enhance our wellbeing and reduce our carbon footprint.

Transportation stands out as the largest contributor to greenhouse gas emissions in the MSA. Strategies aimed at reducing miles driven, decreasing the number of vehicles on roadways, and transitioning to electric vehicles (EVs) can significantly reduce greenhouse gas emissions. Passenger vehicles contribute 37% of sector emissions, while trucks and buses account for 63%. Overall, vehicle GHG emissions amount to nearly 3 MMTCO_{2e} annually.

Transitioning towards low-carbon and zero-carbon transportation modes like walking, cycling, and public transit, alongside adopting cleaner fuels and more efficient vehicles across the region will have multiple positive impacts for the region. The advantages of cleaner fuels and resilient public transportation options encompass improved recreational opportunities, enhanced public health, fuel and vehicle cost savings, and a substantial reduction in carbon emissions and air pollution.

Embracing clean mobility not only delivers environmental benefits, but also acts as a catalyst for job creation and industry diversification. As electric vehicle infrastructure is anticipated to grow in future

years, battery recycling, manufacturing facilities, and bike/scooter servicing centers will become more prevalent and impactful throughout the region. Developing adaptable systems and infrastructure, which meet community needs and are resilient to the impacts of climate change impacts, is pivotal for future-proofing the regional transportation network.

To facilitate reducing GHG emissions, it is imperative to acknowledge the challenges of transitioning from traditional combustion engines to renewable and electric propulsion systems present. To encourage and facilitate greater access and ownership of electric vehicles for personal and commercial use, the region will need to respond to the EV market as the technology becomes cheaper and more prevalent.

Measures to support action for transportation are:

- 1a - Electric Vehicles
- 1b - Active Mobility
- 1c - Public Transit



New Canaan Train Platform. Photo from WestCOG Flickr.



Bridgeport Transportation Center. Photo taken by Peralta Design/Steve Cartagena.



Existing Bridgeport EV Charging. Photo taken by MetroCOG.

Transportation

Measure 1a. Electric Vehicles

Promote the transition to electric or other low-carbon fuel for both private and public sector vehicles.

i Transitioning to electric vehicles (EVs) addresses environmental concerns by reducing our dependence on fossil fuels. EVs offer a sustainable alternative to traditional gasoline-powered vehicles, significantly lowering greenhouse gas emissions and improving air quality. This is a supplementary option as part of a broader transportation system which de-emphasizes cars. By embracing EVs, we can mitigate the impact of climate change and decrease pollution levels.

As heavy-duty vehicles make up a larger percentage of the region's emissions than light duty vehicles, a transition in this capacity to EVs is a priority. Because opportunities for such transitions fall outside of municipal and regional authority, collaborating with local, regional, and state entities will be essential. The region and localities can advocate at the state-level for additional programs and funding to support the transition of school buses, freight, public transit, and other heavy-duty vehicles to zero-carbon and low carbon propulsion systems.



Emissions reduction estimates reflect the electrification of 109,673 light duty vehicles. The number of vehicles is aligned with the state's target of electrifying 500,000 of the 2.5 million light duty vehicles on the road by 2030.²⁷ See Appendix E for a detailed explanation.



Implementation of this measure may include:

Municipal

- Site and instal municipally owned EV charging stations.
- Encourage public and private partnerships for siting EV charging stations and installations.
- Transition municipal fleets by moving to alternative fuel and low/zero-carbon vehicles, where possible. Consider hybrid vehicles if alternative fuel low/zero-carbon vehicles are not feasible.
- Maximize and target available funding for school bus electrification.

Regional

- Promote and incentivize the use of residential and commercial electric vehicles through rebate and finance incentives.
- Support public transit decarbonization, such as transitioning vehicles, equipment, and facilities to renewable and low/zero-carbon systems, where possible.
- Advocate for legislation to encourage freight companies to decarbonize their transportation fleets.

Transportation

Measure 1a. Electric Vehicles

Promote the transition to electric or other low-carbon fuel for both private and public sector vehicles.

LIDAC Communities Benefits & Disbenefit Mitigation



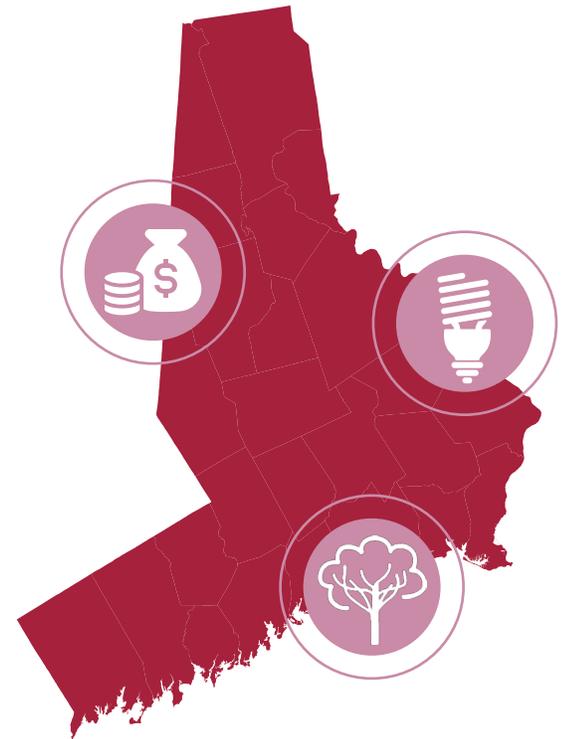
An increase in EVs throughout the region would reduce GHG emissions and improve air quality. The use of EVs in dense city centers reduces air and noise pollution.



Incentives for purchasing EVs will lower the cost to transition, improving access to this option for lower income households. Providing municipally owned EV charging stations with lower rates can promote electric vehicle ownership.



Accommodating large numbers of EVs will require installation of EV infrastructure, which will increase demand for additional technicians in the utilities and construction industries.



Equitable Implementation Considerations

In promoting EVs, equitably considering all populations will mean addressing barriers such as affordability, charging infrastructure availability, and education around the importance of switching from gas to electric. Focusing on initiatives that subsidize or incentivize EVs can make them more affordable to lower income consumers. The deployment of charging stations in LIDAC communities can also reduce barriers and increase accessibility, especially for renters and others without designated parking, driveways, or garages.

Transportation

Measure 1a. Electric Vehicles

Promote the transition to electric or other low-carbon fuel for both private and public sector vehicles.



Authority to Implement:

- Municipal departments have the authority to carry out
- Requires adoption by governing board or council
- State action required



Support:

- COG advocacy or technical support
- Additional partners



Key steps or milestones for implementation:

Municipalities have the authority to implement smaller scale EV projects, such as vehicle procurement and charging station installation. Commercial sector, freight, and public transit decarbonization projects require action by private entities, federal transit agencies, and additional partners. While municipalities can work to educate and advocate in these areas, they have limited control.



Possible Funding Sources:

- Local
- State
- Federal

Example Funding Sources

Clean School Bus Program, Diesel Emissions Reduction Act (DERA) Program (EPA), Alternative Fuel Infrastructure Tax Credit, CHEAPR, Low-No Bus Discretionary Program (FTA), Charging and Fueling Infrastructure Discretionary Program (FHWA), BIL Grants for Buses and Bus Facilities (FTA, Competitive and Formula), State of CT EV Charging Station Grants (VW Settlement), CT EV Charging Program. See Appendix F for additional information.

Transportation

Measure 1a. Electric Vehicles

Promote the transition to electric or other low-carbon fuel for both private and public sector vehicles.

Example Partners and Projects

- **Municipal Electric Vehicles, Town of Fairfield.** Utilizing federal American Rescue Plan funding, the Town purchased 6 new electric vehicles and chargers as part of its long-term municipal fleet transition.
- **Electric School Bus Toolkit Program, Fairfield County, CT.**²⁸ The toolkit was a six-week program designed to teach community members how to bring electric school buses to their towns.
- **Ridgefield EV Infrastructure Assessment, Town of Ridgefield.** Sustainable CT Infrastructure assessment for Ridgefield's current and future EV infrastructure, municipal fleets, and EV school buses.

Transportation

Measure 1b. Active Mobility

Develop robust, reliable, and accessible mobility options to encourage and enable a shift from single occupancy vehicles towards zero emission modes such as walking and biking.



By promoting active transportation methods, such as walking or biking, the negative impacts of a vehicle-centric system, including greenhouse gas emissions, air pollution, public health issues, and inefficient land use, can be reduced. Existing public transportation networks should also be considered when addressing bike and pedestrian infrastructure, as these are often used in combination to reduce passenger vehicle usage. Prioritizing community informed Complete Streets²⁹ projects and policies can enhance the transportation network at the corridor-level to create accessible, useful, and enjoyable for accessways for all users.



Emissions reduction estimates allocate half of the 5% reduction in vehicle miles traveled per year to this measure, based on the state goal for 2030, identified in the 1990- 2021 CT GHG Emissions Inventory.³⁰ The other half is allocated to Measure 1c. See Appendix E for a detailed explanation.



Implementation of this measure may include:

Municipal

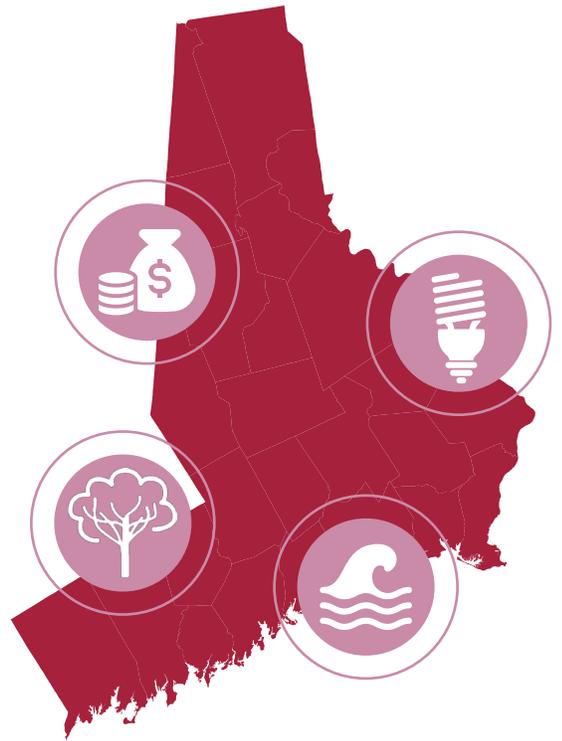
- Implement Complete Streets policies and projects.
- Enhance the safety, comfort, and connectivity of bike and pedestrian networks and infrastructure.
- Identify opportunities for active transportation in all neighborhoods.

Transportation

Measure 1b. Active Mobility

Develop robust, reliable, and accessible mobility options to encourage and enable a shift from single occupancy vehicles towards zero emission modes such as walking and biking.

LIDAC Communities Benefits & Disbenefit Mitigation



Safe modes of active mobility are important for the resilience of LIDAC communities who may not have cars and rely on safe routes and connectivity to access necessities before and following extreme events.



Vehicular traffic is a significant public health burden in LIDAC communities due to tailpipe and tire and brake wear air pollution, Increasing the safety and comfort of active transportation can enable mode shift away from single occupancy vehicles for short trips.



Retrofitting existing streets into Complete Streets will require several phases of construction work, producing municipal and construction jobs. Further, streets which welcome greater pedestrian and bicycle traffic experience greater sales and employment growth.³¹



Active mobility options such as walking, biking, and rolling are low cost forms of transportation. LIDAC communities generally experience low rates of car ownership, in part due to the high costs associated with purchasing, maintaining, and insuring a vehicle.



Equitable Implementation Considerations

Active mobility options are fundamental to creating accessible and inclusive urban environments. Ensuring that pedestrian and bicycle infrastructure is well maintained, safe, and fits the needs of communities can enhance alternative transportation options in areas that may be underserved by public transit.

Transportation

Measure 1b. Active Mobility

Develop robust, reliable, and accessible mobility options to encourage and enable a shift from single occupancy vehicles towards zero emission modes such as walking and biking.



Authority to Implement:

- Municipal departments have the authority to carry out
- Requires adoption by governing board or council
- State action required



Support:

- COG advocacy or technical support
- Additional partners



Key steps or milestones for implementation:

For implementation of active mobility projects on state owned roadways, state involvement is necessary.



Possible Funding Sources:

- Local
- State
- Federal

Example Funding Sources

Local Transportation Capital Improvement Plan (LOTICIP), Statewide Transportation Improvement Program (STIP), Safe Streets and Roads for All (SS4A), Transit Oriented Development (TOD) Planning, RAISE, Reconnecting Communities, Community Connectivity, Transportation Alternatives (TA) Program. See Appendix F for additional information.

Transportation

Measure 1b. Active Mobility

Develop robust, reliable, and accessible mobility options to encourage and enable a shift from single occupancy vehicles towards zero emission modes such as walking and biking.

Example Partners and Projects

- **Western Connecticut Regional Trail Bicycle and Pedestrian Planning.** The project will complete planning and engineering work for numerous sections of an approximately 55-mile multi-use trail between Norwalk, Wilton, Redding, Ridgefield, Danbury, Brookfield, and New Milford. The trail system will directly benefit underserved communities connecting urban and rural areas, shorelands and forest, and pedestrian and bicycle transportation to park, schools, and community centers.
- **Pequonnock River Trail Extension, City of Bridgeport, Towns of Monroe & Trumbull.** The city of Bridgeport and the Towns of Monroe and Trumbull have been collaborating on the implementation of the regional Pequonnock River Trail since 1992. The goal is to connect segments of existing trails to create a continuous greenway from Long Island Sound and Downtown Bridgeport, through Trumbull and Monroe, to the Newtown town line. Once completed, the Pequonnock River Trail (PRT) will extend approximately 16.2 miles.
- **Stratford Complete Streets, Town of Stratford.** As part of a comprehensive Complete Streets Plan, the Town of Stratford is reimagining Main Street as a multi-modal corridor that promotes and empowers active modes of transportation such as walking and cycling. With funding support from the State of Connecticut, the project is currently undergoing construction on Phase 1 of the plan.

Transportation

Measure 1c. Public Transit

Improve public transportation frequency and reliability; expand public transit options; and expand programs to reduce trips by car.

i Public transit is a vital part of accessible and equitable communities. For those who do not have access to personal vehicles, public transit provides a lifeline for accessible travel around the region. Improving the frequency and reliability of existing public transit, namely bus and train, while also filling service gaps by expanding the availability of micromobility options to community members are important to the success of a public transit system.

Additional actions such as promoting the existing Transportation Demand Management (TDM) programs for commuters and employers will further reduce GHG emissions associated with single occupancy vehicles by incentivizing carpooling, reduced fares and rebates, telecommuting, and public transportation use. Drive Less Connecticut, an annual campaign implemented by CTrides, is one example of an existing TDM program that challenges participants to reduce their transportation emissions.



Emissions reduction estimates allocate half of the 5% reduction in vehicle miles traveled per year to this measure, based on the state goal for 2030, identified in the 1990- 2021 CT GHG Emissions Inventory.³² The other half is allocated to Measure 1b. See Appendix E for a detailed explanation.



Implementation of this measure may include:

Municipal

- Promote and expand upon Transportation Demand Management Programs.

Regional

- Encourage micromobility opportunities throughout the region.
- Identify opportunities to support the creation of or enhance transit hubs and access to transit hubs.

Transportation

Measure 1c. Public Transit

Improve public transportation frequency and reliability; expand public transit options; and expand programs to reduce trips by car.

LIDAC Communities Benefits & Disbenefit Mitigation



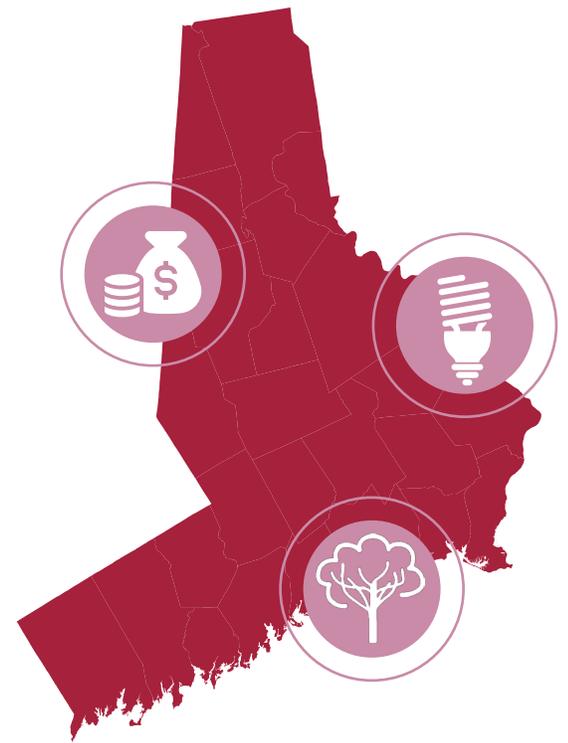
Encouraging mode shift can reduce the amount of GHG emissions from single occupancy vehicles.



Increasing transportation options across neighborhoods can reduce transportation costs for LIDAC communities by allowing historically underserved communities to move across the region and municipalities more easily.



Increasing public transit options connects LIDAC communities to additional job opportunities previously out of reach / can bring new customers to retail areas contributing to local economic growth.



Equitable Implementation Considerations

Enhancing public transportation frequency and reliability in LIDAC communities will improve service in areas that are inherently underserved or have limited mobility options. Initiatives focusing on expanding service coverage, reducing travel times, and providing affordable fare options will encourage increased ridership from all groups. Equitable improvements and increased ridership will encourage additional mode shift away from single occupancy vehicles and in turn reduce GHG emissions within LIDAC communities.

Transportation

Measure 1c. Public Transit

Improve public transportation frequency and reliability; expand public transit options; and expand programs to reduce trips by car.



Authority to Implement:

- Municipal departments have the authority to carry out
- Requires adoption by governing board or council
- State action required



Support:

- COG advocacy or technical support
- Additional partners



Key steps or milestones for implementation:

Municipalities can carry out some elements of this action, but likely require assistance from others such as established transit agencies, CTDOT, and state legislators to effectively develop strategies for improving these systems. The expansion of the geographic service areas for public transit agencies will create greater connections to regional destinations which can help facilitate a switch from single occupancy vehicular travel.³³



Possible Funding Sources:

- Local
- State
- Federal

Example Funding Sources

Carbon Reduction Strategy Plan (CTDOT) identifies CMAQ Projects as a funding priority for its FHWA funds, CTrides. See Appendix F for additional information.

Transportation

Measure 1c. Public Transit

Improve public transportation frequency and reliability; expand public transit options; and expand programs to reduce trips by car.

Example Partners and Projects

- **Regional Value Capture Feasibility Study for the New Canaan and Danbury Branch Lines of the Metro-North Railroad.** This study is utilizing existing and future land use, socioeconomic and transportation data as well as several rail transportation studies to determine the extent to which value capture techniques (i.e. a Tax-Increment Finance district) could be implemented to help finance rail infrastructure improvements on these Branch Lines. The study supports efforts by several of the communities along the Branch Lines to establish or further Transit-Oriented Development (TOD).
- **CTrides.**³⁴ CTrides is a service of CTDOT that helps commuters find alternative, greener ways to get to work or school and offers information and resources for travel options throughout Connecticut. CTrides develops carpools, vanpools, bus, train, biking/walking and telecommuting solutions.
- **Microtransit Pilot Program.**³⁵ Nine communities will be participating in a micro transit service pilot program, including transit agencies serving Trumbull, Norwalk, Stamford, and Shelton. The program helps to improve first- and last-mile connections by allowing residents to call on-demand service through an app on their phone.

Buildings - Action Area 2

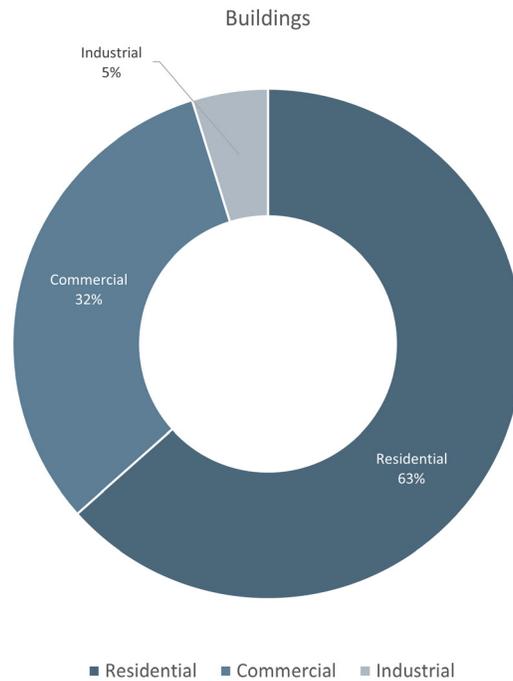


Figure 30. Buildings action area emissions breakdown.

Green buildings are essential for creating a more sustainable future. In the MSA, stationary energy from all types of buildings makes up about 30% of the region’s total GHG emissions. As residential and commercial buildings make up 95% of emissions in the buildings sector, priority action measures in the region should focus on these building types. The challenge lies in retrofitting existing buildings, especially older structures, which make up a significant portion of Connecticut’s building stock. Without actions to reduce carbon emissions and improve building efficiency, Connecticut risks continuing its trajectory towards a future with higher temperatures, increased sea levels, and more extreme weather events, necessitating immediate and comprehensive updates to ensure resilience against the impacts of climate change.

Proactively upgrading buildings (as opposed to waiting until critical systems fail or require replacing) is crucial. By focusing on areas like energy efficiency, water conservation, material use optimization, and indoor environmental quality enhancement, updating buildings to be “green” benefits both the environment and occupants by reducing energy consumption, environmental impact, and operational costs.

Municipally owned buildings present a significant opportunity for progress as they can serve as a beacon of change within a community. These buildings, owned by local governments, have the potential to lead by example and showcase sustainable practices, energy efficiency, and modern infrastructure. By implementing changes in these structures, municipalities can set the standard for environmental responsibility and innovation. Moreover, these buildings can act as the backbone of

the community, symbolizing a commitment to responsible resource use and communal progress. In addition to demonstrating change, municipalities can leverage several funding sources to support these initiatives, ensuring that the transformation of municipally owned buildings is not only impactful but also financially sustainable.

Measures to support action for buildings are:

- 2.a - Residential and Commercial Building Upgrades
- 2.b - Municipal Building Upgrades
- 2.c - Legislative Change
- 2.d - Carbon Reduction Plan Reporting



Stratford City Hall. Photo taken by Peralta Design/Steve Cartagena.



Easton Fire Station. Photo taken by Peralta Design/Steve Cartagena.



Bethel Community Center. Photo from WestCOG Flickr.



Bridgeport City Hall. Photo taken by Peralta Design/Steve Cartagena.

Buildings

Measure 2a. Residential and Commercial Building Upgrades

Develop programs and resources that promote and aid the switch to energy efficient and renewable options for residential and commercial buildings.



The development of residential and commercial education and installation campaigns can directly influence the ability of property owners to retrofit existing buildings by providing resources and assistance. This will help property owners navigate the process of identifying energy efficiency measures and fossil fuel alternatives, which once implemented, will reduce both utility costs and emissions.

The education and installation programs can encourage the use of energy audits to identify the most impactful energy conservation measures such as adding insulation, air sealing, upgrading windows and appliances, etc. These programs can further inform residents and businesses about their options for swapping existing fossil-fuel-reliant heating and cooling systems with efficient, all-electric systems. Efficient, all-electric systems may include heat pumps, geothermal systems, solar hot water, heat pump water heaters, etc. Partnering with trusted community groups and vendors can assist property owners to make these retrofits.

Education and Installation programs can also provide residents and businesses with information on rebates, incentives, and financing options to facilitate awareness of their eligibility for financial support. Technical assistance (e.g. filling out applications, navigating options) to bridge the gap between eligible applicants in the region and access to support is key to program success. Maximizing the reach of state and federal funding, particularly for those with limited or no awareness of available opportunities, is essential to equitably transition the building stock in the MSA.

Municipalities across the MSA can collaborate with local partners to develop context-sensitive Education and Installation programs and materials.

To enable further residential and commercial building action, municipalities can advocate for the State to expand and add new rebate and incentive programs.



Implementation of this measure may include:

Municipal

- Identify opportunities for and encourage adaptive reuse of aged and vacant building stock

Regional

- Develop education and installation support programs for energy efficient technologies.
- Maximize the utilization of existing energy efficiency programs.
- Advocate for the implementation of new rebate and incentive programs for net zero enabling technologies.

Buildings

Measure 2a. Residential and Commercial Building Upgrades

Develop programs and resources that promote and aid the switch to energy efficient and renewable options for residential and commercial buildings.



Emissions reduction estimates are based on a 10% reduction in residential and commercial electricity and natural gas usage, as well as a 36% increase in the rate of residential solar and heat pump installations per year, based on data from EnergizeCT and example projects in Massachusetts. See Appendix E for a more detailed explanation.

LIDAC Communities Benefits & Disbenefit Mitigation



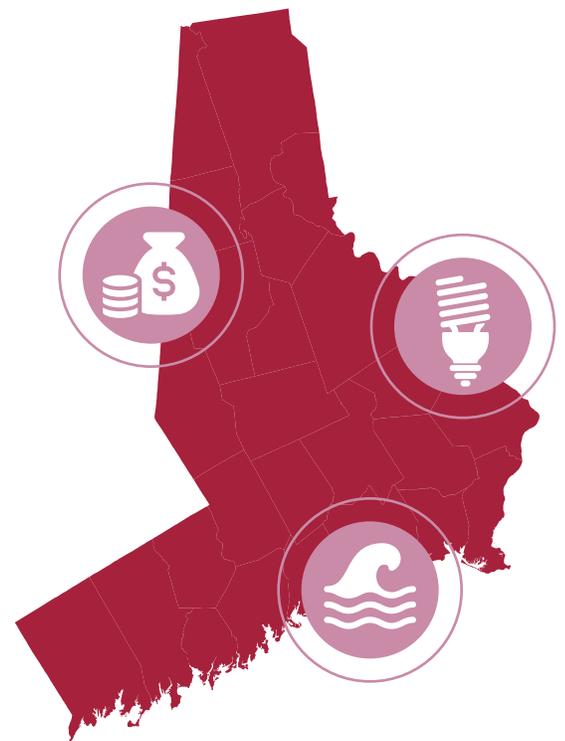
Energy-efficient buildings enhance passive survivability by reducing energy consumption, thus ensuring that essential functions can continue during power outages or emergencies.



Reduced utility costs, especially for renters, can be realized from improved energy efficiency. The program/campaign should be designed so that it minimizes the likelihood that property owners will pass costs onto tenants.



The need for installation and maintenance of building systems expands opportunities for skilled trades (as expanded energy efficiency assistance programs would require additional support staff in a variety of positions).



Buildings

Measure 2a. Residential and Commercial Building Upgrades

Develop programs and resources that promote and aid the switch to energy efficient and renewable options for residential and commercial buildings.



Equitable Implementation Considerations

LIDAC communities can benefit greatly from programs that provide education and financing opportunities to property owners, residents, and renters specifically. When implementing programs/campaigns, outreach and engagement of LIDAC communities should be prioritized to encourage their participation in several capacities, including in the early program design phase and identification of needs and barriers (e.g., rental units, upfront cost, etc.). The programs/campaigns should have low barriers for entry and educational resources should be accessible, including translation into languages commonly spoken in the region to ensure they are accessible to those with limited English proficiency.



Authority to Implement:

- Municipal departments have the authority to carry out
- Requires adoption by governing board or council
- State action required



Support:

- COG advocacy or technical support
- Additional partners



Key steps or milestones for implementation:

Municipalities can collaborate with COGs to develop resources and with trusted community groups to lead individual campaigns within their communities through existing pathways. Municipalities can also identify local case studies and adaptive reuse opportunities. Advocacy at the state level to expand existing programs will take further collaboration with financing institutions and utility companies. Southwestern CT can build upon existing collaborative partnerships, particularly those that were strengthened during the PCAP planning process, to successfully execute residential and commercial education and installation of net zero enabling technologies.

Buildings

Measure 2a. Residential and Commercial Building Upgrades

Develop programs and resources that promote and aid the switch to energy efficient and renewable options for residential and commercial buildings.



Possible Funding Sources:

- Local
- State
- Federal

Example Funding Sources

EnergizeCT, Home Energy Solutions Payment Plan, C-PACE, CT-Brownfield Area-Wide Revitalization Planning Grants, EPA Assessment, DECD Brownfield Municipal Grant Program, Targeted Loan Program. See Appendix F for additional information.

Example Partners and Projects

- **Energy Audit, Town of Fairfield.** Between 2010 and 2019, 21% of Fairfield homes received a professional energy audit, of which 22% redeemed a residential energy efficiency rebate; 37% of Fairfield businesses participated in one or more state energy efficiency programs³⁶.

Buildings

Measure 2b. Municipal Building Upgrades

Retrofit municipally owned buildings to improve energy efficiency and decrease reliance on fossil fuels.

i Retrofitting municipally owned buildings presents a proactive approach for municipalities to lead by example and diminish GHG emissions in the building sector. Municipalities oversee schools, city and town halls, wastewater treatment plants, and public works stations. Retrofitting these structures represents a significant step towards sector-wide impact.

A “retrofit” typically involves weatherizing, enhancing insulation, and installing energy efficient systems. Strengthening a building’s envelope (walls, windows, roof, and foundation) through these methods can reduce energy usage, which is especially important for older structures and can help match HVAC systems appropriately to the building’s use and size. The energy savings from these upgrades, coupled with the electrification of building heating and cooling systems will reduce emissions associated with municipal buildings.



Emissions reduction estimates were calculated based on a 10% reduction of average municipal building electricity, natural gas, and fuel oil usage. See Appendix E for a more detailed explanation.



Implementation of this measure may include:

Municipal

- Retrofit municipal buildings for energy efficiency conservation, and storage.
- Install clean energy HVAC systems such as heat pumps.

Regional

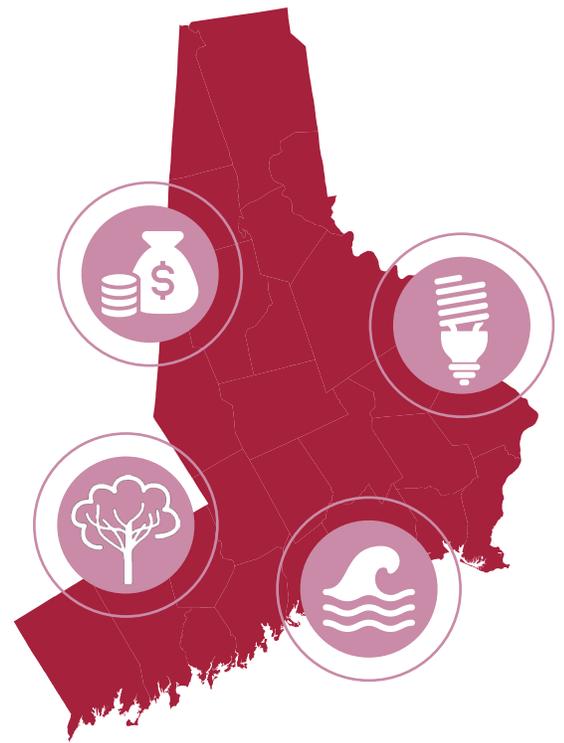
- Encourage municipalities to adopt higher standards for building envelopes for new municipally owned buildings.

Buildings

Measure 2b. Municipal Building Upgrades

Retrofit municipally owned buildings to improve energy efficiency and decrease reliance on fossil fuels.

LIDAC Communities Benefits & Disbenefit Mitigation



Renewable energy generation and storage at municipal buildings (also addressed in the Renewable Energy Measure) can ensure continued operations of school buildings that are often used as shelters during extreme weather events. Numerous public buildings in LIDAC communities currently lack adequate air conditioning systems, thus upgrades would improve resilience to extreme heat events.



After implementation, energy costs savings from municipal buildings could be used for wider community benefits, such as to subsidize clean energy retrofits for buildings within LIDAC community neighborhoods.



Retrofits will create work for technicians in the utilities and construction sectors, including electricians, plumbers, and HVAC mechanics. The skills needed for these jobs can be learned through existing workforce development programs, which can be expanded as needed to meet increased demand.



Improvements to both indoor and outdoor air quality (from the reduced fossil fuel use) is expected.

Equitable Implementation Considerations



Municipalities can prioritize retrofits across their building portfolio by prioritizing those used by LIDAC communities. Assets such as schools, libraries, and emergency shelters act as safe havens for many community members; sustainability and resiliency upgrades will ensure these critical community assets remain open and accessible.

Buildings

Measure 2b. Municipal Building Upgrades

Retrofit municipally owned buildings to improve energy efficiency and decrease reliance on fossil fuels.



Authority to Implement:

- Municipal departments have the authority to carry out
- Requires adoption by governing board or council
- State action required



Support:

- COG advocacy or technical support
- Additional partners



Key steps or milestones for implementation:

The costs associated with updating older buildings may be a constraint. Municipalities should consider staggering retrofits to allow such projects to fit within their budget. If municipalities seek additional financing and funding to carry out retrofits, the timeline to do so increases.



Possible Funding Sources:

- Local
- State
- Federal

Example Funding Sources

Energy Efficiency and Conservation Block Program (EECBG). See Appendix F for additional information.

Buildings

Measure 2b. Municipal Building Upgrades

Retrofit municipally owned buildings to improve energy efficiency and decrease reliance on fossil fuels.

Example Partners and Projects

- **Public School HVAC Upgrades. Town of Fairfield.** Currently ongoing, the Town of Fairfield is upgrading HVAC systems in four of its public schools, supported by funding through the State of Connecticut's HVAC Indoor Air Quality Grants Program.
- **Benchmarking and Tracking Energy Use in Municipal Buildings, Town of Ridgefield³⁷** Ridgefield received 5 points in their 2018 Sustainable CT Community Certification Report for benchmarking and tracking energy use in their municipal buildings.

Buildings

Measure 2c. Legislative Change

Advocate for state level legislation to empower municipalities to enforce more environmentally friendly building codes for commercial and residential properties.

i Building codes and building stretch codes play a crucial role in promoting green buildings nationwide. Stretch codes are “locally mandated codes or alternative compliance paths that are more aggressive than the current state or local energy code, resulting in new construction and renovated buildings that achieve higher energy savings.”³⁸ By effectuating a means for ensuring all new construction complies with the regulations and recommendations established at the state level, legislative change can significantly accelerate the transition towards net zero and reduce GHG emissions within the construction industry by enforcing greener standards for both commercial and residential buildings.

Choosing to adopt building stretch codes is a step municipalities can take to better align new development with their sustainability goals and priorities. The implementation of a stretch code would, as proposed in the state’s 2018 GHG emissions inventory recommendations, “give municipalities the ability to require all new and substantially renovated buildings over 40,000 square feet to demonstrate energy use per square foot at least ten percent below the requirements of the State Building Code”.³⁹ Stretch codes can also be developed for smaller residential buildings. As a result, stretch codes ensure new buildings do not significantly contribute to GHG emissions, foster innovation, drive sustainable practices, and empower communities to proactively contribute to a greener future.



Emissions reduction estimates reflect avoided emissions from new homes built to high energy efficiency standards. This calculation does not include commercial buildings. See Appendix E for a more detailed description of the calculation.



Implementation of this measure may include:

Regional

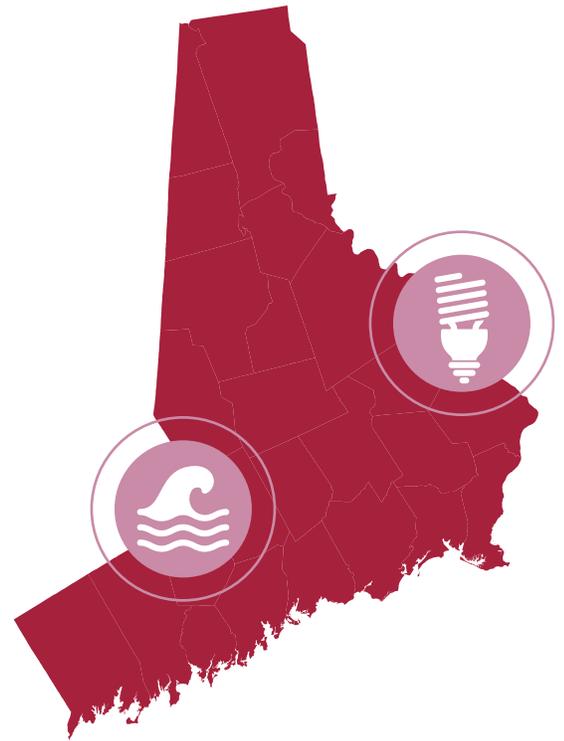
- Advocate for new energy efficient building codes using target reduction goals.
- Advocate for the authorization of locally adopted and implemented green building stretch codes.

Buildings

Measure 2c. Legislative Change

Advocate for state level legislation to empower municipalities to enforce more environmentally friendly building codes for commercial and residential properties.

LIDAC Communities Benefits & Disbenefit Mitigation



Enhanced building codes that incorporate sustainability goals can require new construction incorporate climate resilience design features, significantly boosting their ability to withstand the impacts of climate change. These regulations may also stipulate that adaptation measures extend beyond individual properties to encompass the entire neighborhood, fostering a more comprehensive climate resiliency approach.



Energy efficient residential properties can have lower utility costs because they can maintain livable temperatures for longer periods, reducing the need to use heating and cooling.



Equitable Implementation Considerations

Modifying building codes without also regulating rent prices may inadvertently hinder housing affordability, as stringent green regulations can increase building costs, which are often passed on to tenants in the form of rent increases. Providing builders with info on the lower lifecycle costs can serve as a tool for ensuring rents are not dramatically increased as a result of moderate upfront cost increases. A study of the Massachusetts stretch energy code changes determined that all buildings were expected to have lower life cycle costs, and only some building types to have small increases in construction costs. For example, large office buildings have upfront costs that are 4% to 4.6% lower and multifamily buildings have upfront costs that are no more than 2.9% higher, compared to the baseline buildings.⁴⁰ While there could be minimal upfront cost increases, it is likely more cost effective to building efficient, all-electric buildings from the start, than to retrofit later. Regardless, developers should strive to strike a balance between environmental responsibility and affordability, ensuring that lower-income families can afford housing in the neighborhood without being priced out.

Buildings

Measure 2c. Legislative Change

Advocate for state level legislation to empower municipalities to enforce more environmentally friendly building codes for commercial and residential properties.



Authority to Implement:

- Municipal departments have the authority to carry out
- Requires adoption by governing board or council
- State action required



Support:

- COG advocacy or technical support
- Additional partners



Key steps or milestones for implementation:

Providing municipalities the option to adopt stretch building codes requires legislative authorization at the state level. This action was included in the state's recommendations in the 2018 GHG Emissions Inventory and previously had interest at the state legislative level.⁴¹ ⁴² Continued advocacy across Fairfield County can help gain regional support.



Possible Funding Sources:

- Local
- State
- Federal

Example Funding Sources

IRA Assistance for the Adoption of the Latest (including Zero Building Energy) Codes. See Appendix F for additional information.

Buildings

Measure 2c. Legislative Change

Advocate for state level legislation to empower municipalities to enforce more environmentally friendly building codes for commercial and residential properties.

Example Partners and Projects

- **High Performance Building Standards, CT Department of Energy and Environmental Protection.**⁴³ DEEP is developing new high performance building standards that will help further the state's GHG reduction goals after the passing of CT Public Act 19-35.⁴⁴ The new standards will only apply to state facilities and school buildings.

Buildings

Measure 2d. Carbon Reduction Plan Reporting

Encourage municipal and commercial buildings to report carbon reduction plans.

i Carbon reduction plan reporting is a method that encourages building owners or commercial entities to create/report their own individual carbon reduction plans for their buildings. Through the reporting of these plans to municipalities, building owners can be held accountable in pursuing green and climate friendly actions that will help them meet their reduction goals. Municipalities can also utilize these carbon reduction plans to help inform future GHG reduction goals and targets regionwide.

As some of the largest emitters, companies and commercial businesses play a vital role in helping to achieve lower GHG emissions. Building owners or commercial entities that opt in to reporting their carbon reduction plans will be setting new municipal and regionwide standards, helping move the region towards a cleaner future. play a vital role in helping to achieve lower GHG emissions. By disclosing a carbon reduction plan and holding themselves accountable, companies and commercial businesses can serve as leaders, while bringing awareness to the need for additional businesses to create their own building-specific reduction targets and report their carbon reduction plans.



The calculation reflects a 1% reduction of commercial electricity and natural gas usage. While emissions reporting alone may not lead to significant reductions, required reporting or emissions limits could have greater potential. See Appendix E for a more detailed description of the calculation.



Implementation of this measure may include:

Municipal

- Public reporting of carbon reduction plans for municipally owned buildings.

Regional and Municipal

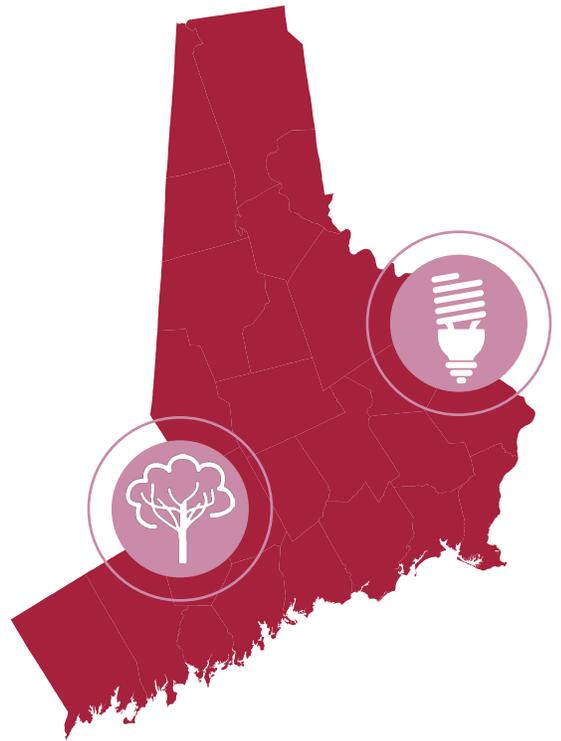
- Encourage individual businesses and commercial buildings to create reduction targets
- Encourage public reporting of carbon reduction plans of commercial buildings.

Buildings

Measure 2d. Carbon Reduction Plan Reporting

Encourage municipal and commercial buildings to report carbon reduction plans.

LIDAC Communities Benefits & Disbenefit Mitigation



If businesses in LIDAC communities participate in carbon reduction plan reporting and implement measures to reduce energy use (especially on-site combustion of fossil fuels), they can positively impact the air quality of the surrounding community and contribute to regionwide emissions reductions.



Participation in carbon reduction plan reporting for businesses in LIDAC communities can bolster support for implementation measures aimed at reducing building energy use. Reducing energy consumption to reach carbon reduction goals will also result in utility cost savings.



Equitable Implementation Considerations

A step municipalities can take to enhance community action and providing benefits to disadvantaged communities is encouraging businesses and building owners that are near or within LIDAC communities to report their carbon reduction plans. By utilizing carbon reduction plan reports to address disparities in access to resources and mitigate disproportionate effects on disadvantaged communities, policymakers and municipal decision-makers can further prioritize equity goals.

Buildings

Measure 2d. Carbon Reduction Plan Reporting

Encourage municipal and commercial buildings to report carbon reduction plans.



Authority to Implement:

- Municipal departments have the authority to carry out
- Requires adoption by governing board or council
- State action required



Support:

- COG advocacy or technical support
- Additional partners



Key steps or milestones for implementation:

Education and outreach about the voluntary program will need to be conducted and a template should be provided. If municipalities are interested in developing a reporting requirement following a period of voluntary reporting, additional authority to implement will be required.



Possible Funding Sources:

- Local
- State
- Federal

Example Funding Sources

No existing funding sources to support this measure have been identified.

Buildings

Measure 2d. Carbon Reduction Plan Reporting

Encourage municipal and commercial buildings to report carbon reduction plans.

Example Partners and Projects

- **Stamford Sustainability Scorecard. City of Stamford.**⁴⁵ Created through the Stamford 2015 Master Plan, the Sustainability Scorecard recognizes and scores achievement and best practices in creating sustainable housing and commercial spaces. It is a requirement for all larger development projects in Stamford per section 15.D of the zoning regulations.

Electric Power - Action Area 3

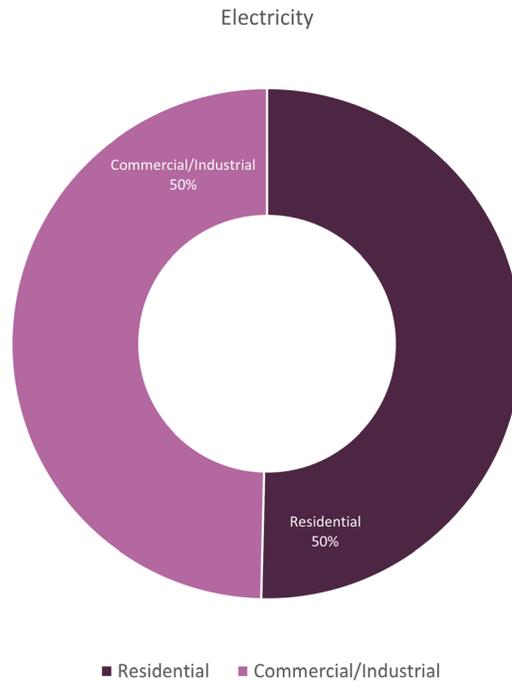


Figure 31. Electric Power action area emissions breakdown.

Reducing energy consumption and transitioning to renewable energy sources are crucial steps to combat climate change and ensure a sustainable future. By decreasing our reliance on fossil fuels and embracing renewable energy like solar, wind, and hydroelectric power, we can significantly reduce greenhouse gas emissions that contribute to global warming. This shift not only helps to mitigate the impacts of climate change but also promotes energy independence, reduces air pollution, and creates new job opportunities in the green energy sector. Embracing renewable energy sources is essential for protecting public health fostering a more resilient and sustainable energy system and preserving the environment for generations to come.

To meet these ambitions, reducing existing energy demands promoting renewable energy adoption, and improving energy system resilience is vital. Electric power makes up 24% of the total GHG emissions in the region, split equally amongst residential and commercial uses. Over time, as renewable sources of energy become more common and the electricity grid becomes more saturated with clean sources, the GHG emissions associated with electricity usage will decrease. Municipalities, residents, and businesses across the region have already begun this energy transformation, utilizing programs such as the CT Clean Energy Communities Program, and the Statewide Shared Clean Energy Facility Program. Continued incentives and programs for renewables can propel the region to become a leader in the clean energy movement and reduce fossil fuel consumption.

Learning opportunities that bring together regional stakeholders that have already implemented clean energy solutions, municipal leaders, and residents and businesses, can build support for the clean energy transition.

Measure to support action for electric power:

- 2a - Renewable Energy Generation, Use, and Storage



Rooftop Solar, Norwalk Maritime Aquarium. Photo from WestCOG Flickr.



Chatham MA Landfill Solar. Photo taken by Weston & Sampson.

Electric Power

Measure 3a. Renewable Energy Generation, Use, and Storage

Increase the generation, use, and storage capabilities of renewable energy throughout the region.



Increasing the use of renewable energy to the degree which is needed to meet net zero goals will require a variety of sources owned and operated by governments, utilities, businesses, and residents. Solar photovoltaic systems are one example of renewable energy that can be implemented across the MSA to improve the distributed energy generation of the region. Municipalities can install rooftops, canopy and ground mounted solar to support their own electricity usage and provide improved access to renewables for their communities. Residential and commercial property owners should also be encouraged to install solar through education and installation programs and campaigns (see Residential and Commercial Building Upgrades Measure).

Regional or inter-property microgrids can serve as small-scale energy sources, linking several municipal buildings or residences to form a resilient island that can operate independently of the grid. Renewable microgrids offer a cleaner and cheaper energy option for low-income neighborhoods and diminish communities' susceptibility to blackouts by providing separation from the grid and can be sourced with power locally.

Repurposing closed landfills, brownfield sites, or vacant lots for renewable energy generation presents an opportunity to create utility in plots that are less conducive to development. These underutilized areas, often with unique ownership structures, can serve as suitable locations for both large-scale and community-level renewable energy projects. Examples include solar, fuel cells, and landfill gas to energy systems.



Implementation of this measure may include:

Municipal

- Install solar on municipally owned properties.
- Encourage community solar projects to procure alternative energy options for residents.

Regional

- Install microgrids and/or fuel cells in key locations throughout the region to bolster local generation capabilities during disasters.
- Identify sites for energy generation/storage throughout the region, such as closed landfills or brownfields.

Electric Power

Measure 3a. Renewable Energy Generation, Use, and Storage

Increase the generation, use, and storage capabilities of renewable energy throughout the region.



Emissions reduction estimates are based on the state’s goal of deploying an additional 50 MW of solar and 10 MW of fuel cells each year through 2030.⁴⁶ The emissions calculation reflects the MSA’s portion of this (27%, based proportion of the population). For context, the MSA’s current capacity is 20.2 MW, which avoids an estimated 8,140 MTCO₂e/year, if assumed to be all solar. See Appendix E for a more detailed explanation.

LIDAC Communities Benefits & Disbenefit Mitigation



Independent energy generation and storage from solar or fuel cells can help power critical facilities that provide shelter and services to LIDAC communities during extreme weather events. Microgrids can increase local resilience to large scale power outages.



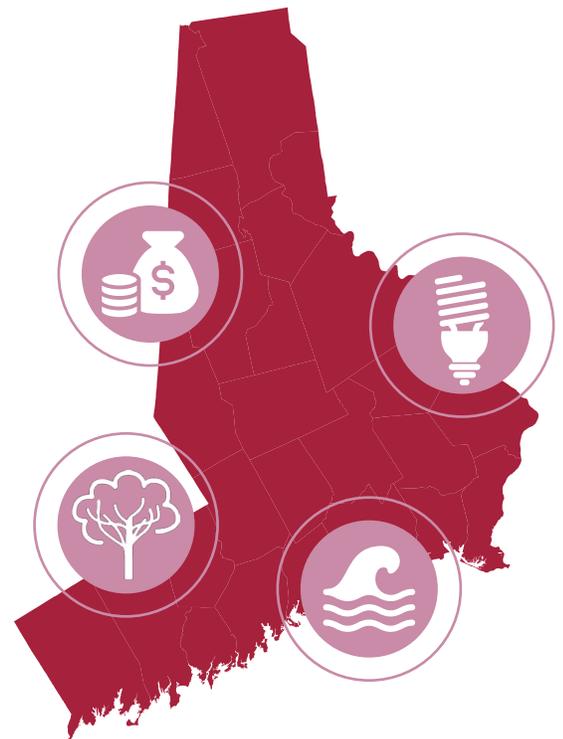
Fossil fuel-based energy production has historically been disproportionately located in LIDAC communities. Utilizing renewable energy sources to power residences in LIDAC communities can reduce reliance on—and eventually allow for—the retirement of polluting forms of energy generation.



By enabling greater renewable energy generation in and around LIDAC communities, more residents will be able to access lower cost energy options for their homes.



Increased demand for renewable energy infrastructure will require more technicians to install and maintain this technology. There are several development programs that provide training to LIDAC residents to learn the skills needed to join these industries.



Electric Power

Measure 3a. Renewable Energy Generation, Use, and Storage

Increase the generation, use, and storage capabilities of renewable energy throughout the region.



Equitable Implementation Considerations

Prioritizing the implementation of and access to renewable energy generation, use, and storage in marginalized or underserved areas where energy costs are disproportionately high can ensure that access to sustainable energy sources is equitable. Engaging LIDAC communities in the decision-making process, including which types of renewable energy to pursue and where sites for these sources should be located is one way municipalities can ensure the adoption of community-scale renewable energy realizes LIDAC community priorities.



Authority to Implement:

- Municipal departments have the authority to carry out
- Requires adoption by governing board or council
- State action required



Support:

- COG advocacy or technical support
- Additional partners



Key steps or milestones for implementation:

Depending on several factors such as the location of the site and scale of the action, this measure may require approval by several authorities. For example, for some installations Land Development Agreements to contractually coordinate the development of the project between the developer and the municipality may be needed.

Electric Power

Measure 3a. Renewable Energy Generation, Use, and Storage

Increase the generation, use, and storage capabilities of renewable energy throughout the region.



Possible Funding Sources:

- Local
- State
- Federal

Example Funding Sources

CT Clean Energy Communities Program, Green and Resilient Retrofit Program (HUD Properties), Statewide Shared Clean Energy Facility (SCEF) Program, Energy Storage Solutions. See Appendix F for additional information.

Example Partners and Projects

- **Staples Elementary Solar Array, Town of Easton.** In 2015, an array of 950 solar panels were installed at Samuel Staples Elementary School; solar now accounts for half of the school's electricity needs.
- **Bright Idea Grant, Town of Fairfield.** The Town of Fairfield earned a \$15,000 Grant from the Connecticut Energy Efficiency Fund (CEEF) for an energy monitoring system for Sullivan Independence Hall.
- **Greening Sherman, Town of Sherman.**⁴⁷ Greening Sherman is an online resource created through the Golden Bridge Project, which is comprised of a group of volunteers from the community. The site includes several resources on home energy, geothermal, solar and storage, and more. The website also includes several past presentations and lists of vendors and businesses in the clean energy space.
- **Public School Solar and Efficiency Upgrades, Town of Trumbull.** Completed in 2018, the Town has installed solar arrays at four schools: Frenchtown Elementary School, Madison Middle School, Hillcrest Middle School, and Trumbull High School.

Waste and Materials Management - Action Area 4

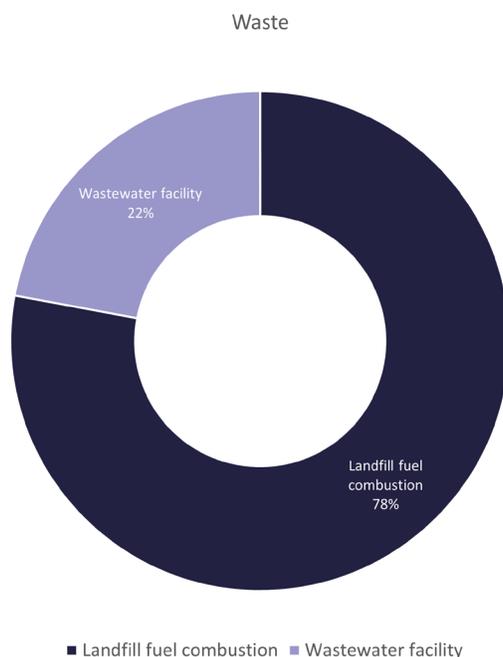


Figure 32. Waste and Materials Management action area emissions breakdown.

Greenhouse gas emissions associated with waste are a product of the material production process, the decomposition of waste, and the methods used to treat wastewater for health and safety reasons. Materials impact the environment throughout their “lifecycle”— material acquisition, manufacturing, production, use, reuse/maintenance, and disposal.⁴⁸ Embodied carbon encompasses emissions throughout a product’s life cycle, from extraction to end-of-life. At the end of the life cycle, many products end up in a landfill or waste incinerator. Methane emissions from landfills are a major source of anthropogenic methane emissions globally.

Additionally, wastewater treatment facilities contribute GHG emissions primarily through energy consumption and biological and physical treatment processes.

While waste may only make up 5% of the region’s total annual GHG emissions, it is one of the areas where the greatest progress can be made through behavioral and policy changes.

Diverting solid waste, through actions such as waste prevention, reuse, recycling, and composting, can reduce waste disposal associated emissions. Composting converts food and other organic waste into productive soils that can then be used to grow plants. Because composting also digests (breaks down) organic material that would otherwise be sent to a landfill—when implemented at-scale, it has the potential to greatly reduce the amount of methane produced⁴⁹.

While wastewater only makes up a small fraction of the region’s GHG emissions (1.1%), there are several opportunities to reduce energy use by wastewater treatment plants. Making operational changes, such as reducing inflow and infiltration, and energy efficiency improvements, this fraction of emissions can be reduced further.

Waste measures in this plan are within the municipal/regional jurisdiction. However additional State action will be needed to advance this action area.

Measures to support action for waste and materials management are:

- 4a - Materials Management
- 4b - Waste Reduction
- 4c - Reduce Wastewater Energy

Waste and Materials Management

Measure 4a. Materials Management

Promote a circular economy and the reduction of carbon through improved materials management and waste processing.

i The circular economy is a transformative concept focused on sustainability and resource efficiency. It revolves around the idea of keeping materials and products in use for as long as possible through practices like sharing, leasing, reusing, repairing, refurbishing, and recycling. This approach aims to eliminate waste and pollution while promoting the regeneration of nature. In a circular economy, products and materials are circulated at their highest value, breaking away from the traditional linear model of take-make-waste. By adopting circular principles, businesses can reduce their environmental impact, cut greenhouse gas emissions, and address global challenges like climate change and biodiversity loss. The transition to a circular economy requires a shift in how we design, produce, use, and dispose of goods, ultimately creating a more sustainable and resilient system that benefits both the environment and society.

Municipalities play a pivotal role in supporting sustainable materials management by implementing various strategies. One key approach is through educational programs for citizens, holding events, and advocating for policies. As an example, encouraging CT DOT to include specifications requiring the use of low embodied carbon and carbon negative materials⁵⁰ in repaving projects can reduce GHG emissions generated from roadway resurfacing.



Emissions reduction estimates are based on a reduction in waste associated with the efficient and more circular use of materials. See Appendix E for a detailed explanation.



Implementation of this measure may include:

Municipal

- Encourage circular economy (minimum waste/maximum value) materials management for new construction and major renovation projects.

Regional

- Advocate for low embodied carbon specifications for state transportation projects.
- Track manufacturing materials reuse and waste reduction.

Waste and Materials Management

Measure 4a. Materials Management

Promote a circular economy and the reduction of carbon through improved materials management and waste processing.

LIDAC Communities Benefits & Disbenefit Mitigation



Advocating for low-embodied carbon materials or the reuse of materials in roadway or building projects can directly reduce GHG emissions when used in LIDAC communities.



The use of materials that enhance the circular economy and lifecycle of a building will reduce GHG emissions while also making the building more resilient to future climate change effects.



Equitable Implementation Considerations

Creating opportunities for LIDAC communities to engage in circular economy processes whether through job creation, access to affordable and sustainable goods, and community-based recycling and reuse programs will address environmental inequalities. By integrating equity into the circular economy framework, we can foster a more just and resilient economic system that promotes social well-being while minimizing harmful environmental effects.

Waste and Materials Management

Measure 4a. Materials Management

Promote a circular economy and the reduction of carbon through improved materials management and waste processing.



Authority to Implement:

- Municipal departments have the authority to carry out
- Requires adoption by governing board or council
- State action required



Support:

- COG advocacy or technical support
- Additional partners



Key steps or milestones for implementation:

Educating the public on sustainable reuse and choice of materials will be important for implementation. Creating guidance for new development to be provided when permits are initiated.



Possible Funding Sources:

- Local
- State
- Federal

Example Funding Sources

No existing funding sources that may support this measure have been identified for this plan.

Waste and Materials Management

Measure 4a. Materials Management

Promote a circular economy and the reduction of carbon through improved materials management and waste processing.

Example Partners and Projects

- **Habitat for Humanity - Restore, Towns of Stratford⁵¹ and Danbury⁵².** Restore is a Habitat for Humanity operated thrift store that offers a selection of household furniture, appliances, and building materials such as windows, cabinets, doors, and plumbing fixtures. Shopping for used materials at restore both helps fund the construction of new homes and enables more reuse and recycle of building materials from renovations and demolitions.
- **Urban Miners LLC.⁵³** Urban Miners focuses on bringing wholesale and retail sales to customers directly from deconstruction and salvage sites. Urban Miners partners with area architects, builders, regional retail owners and businesses who are also committed to reducing waste stream volume.

Waste and Materials Management

Measure 4b. Waste Reduction

Improve residential and commercial waste diversion rates by implementing new or enhancing existing waste programs.

i Across the region, there are varying methods for waste disposal in addition to curbside trash and recycling. The highest GHG emission electricity source is incineration.⁵⁴ Several towns have begun pilots of their own small town run composting programs for food and yard waste but have found constraints when looking to expand into larger operations and more offerings. Expanding upon these opportunities to allow such programs to span regionally will help all residents and municipalities to divert solid waste in more impactful ways.

Other municipalities have reduced their solid waste generation through a combination of effective measures and additional programs (including Save Money and Reduce Trash (SMART)/pay-as-you-throw disposal, bulky/hazardous waste collection events, educational campaigns on proper waste and recycling techniques, and source separation) and trash limits through the distribution of standardized trash containers and various types of fees to fund the enhanced programs.



Emissions reduction estimates are based waste diversion goals identified in the state's 2016 Comprehensive Materials Management Strategy.⁵⁵ See Appendix E for a detailed explanation.



Implementation of this measure may include:

Municipal and Regional

- Expand organics and composting programs
- Improve solid waste management practices.

Waste and Materials Management

Measure 4b. Waste Reduction

Improve residential and commercial waste diversion rates by implementing new or enhancing existing waste programs.

LIDAC Communities Benefits & Disbenefit Mitigation



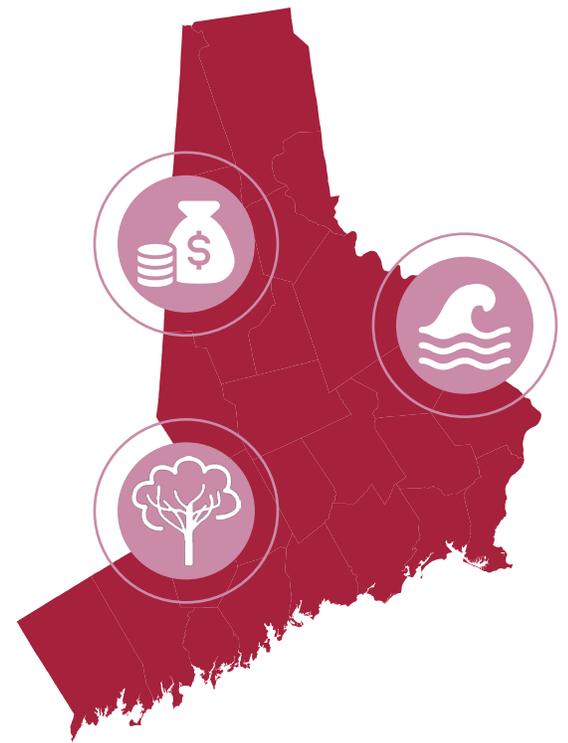
Regionwide partnerships and increasing the availability of easy waste disposal programs can potentially reduce the amount of illegal dumping and its linked pollution, GHG emissions, and health hazards in LIDAC neighborhoods and across municipalities.



Establishing regional or municipal wide waste management programs can help reduce costs or provide subsidies for LIDAC communities.



Additional waste disposal programs can create new job opportunities for LIDAC communities in the Waste Management industry.



Equitable Implementation Considerations

Collaborating with LIDAC communities in the decision making and program development processes will safeguard that these programs will benefit the communities that have been most negatively impacted by improper disposal of waste.

Waste and Materials Management

Measure 4b. Waste Reduction

Improve residential and commercial waste diversion rates by implementing new or enhancing existing waste programs.



Authority to Implement:

- Municipal departments have the authority to carry out
- Requires adoption by governing board or council
- State action required



Support:

- COG advocacy or technical support
- Additional partners



Key steps or milestones for implementation:

Depending on the type and size of the program and number of municipalities participating, agreements with waste collection providers and between municipalities will be needed. Support will be needed to encourage and educate communities on how to use these programs properly.



Possible Funding Sources:

- Local
- State
- Federal

Example Funding Sources

CT DEEP Regional Waste Authority Program, Sustainable Materials Management (SMM) Program, Urban Act Grant Program. See Appendix F for additional information.

Waste and Materials Management

Measure 4b. Waste Reduction

Improve residential and commercial waste diversion rates by implementing new or enhancing existing waste programs.

Example Partners and Projects

- **Organic Waste Diversion, Park City Compost & City of Bridgeport.**⁵⁶ Park City Compost is a non-profit, commercial scale, aerobic food scrap composting service. Starting in 2020 in the Black Rock neighborhood, the project has since been scaled to divert over 14 tons of wet food waste from incineration in the city of Bridgeport as a whole.
- **Recycling & Pick-up Programs, Town of Monroe.** Monroe offers several types of pickup programs for its residents such as motor oil, anti-freeze & batteries recycling, hazardous materials recycling, bulky waste pickup, and a Christmas tree pick-up.
- **Refill Not Landfill, Town of Westport.**⁵⁷ Residents in Westport have taken part in a reusable coffee cup program, bringing their own mugs and to go containers to local cafes to reduce waste from single-use cups.
- **Free Food Waste Composting Program, Town of Ridgefield**⁵⁸. Provided by the Ridgefield Action Committee for the Environment (RACE), Ridgefield residents can take part in the Solar ASP composting project by donating their food scraps. The project is creating a self-sustaining closed loop composting system to transform residential food waste into an end product for community and agricultural use.
- **Swap Shop, Town of New Canaan**⁵⁹. The Swap Shop is a Transfer Station program that holds working and unwanted items for residents to come and “shop”. Items such as small appliances, furniture, and more can be found at the “Swap Shop” and taken for free for the repurposing use by other transfer station pass holders to reduce waste consisting of usable goods.
- **Wilton Go Green, Town of Wilton**⁶⁰. Wilton Go Green is an online and community resource that helps to bring several sustainable initiatives, such as waste and recycling programs, plastic free campaigns, and more to Wilton residents.

Waste and Materials Management

Measure 4c. Reduce Wastewater Energy Use

Reduce municipal wastewater treatment facility energy usage and emissions.



According to the Department of Energy, wastewater operations can be one of the largest expenses for a municipality and improvements to energy reduction can result in environmental, economic, and social benefits.⁶¹

Due to the nature of constant energy use at wastewater treatment plants, municipalities could benefit from retrofitting facilities. Implementing advanced process control systems to monitor and adjust operations in real-time can help optimize energy usage. Upgrading to energy-efficient pumps and motors, as well as utilizing renewable energy sources such as solar or wind power, can further reduce the plant's carbon footprint. Moreover, improving overall plant efficiency through regular maintenance, leak detection, and heat recovery systems can contribute to significant energy savings in the long run. By implementing these measures, wastewater treatment plants can effectively reduce their energy consumption and environmental impact.

Other measures outside the plant can further reduce the volume of wastewater treated including retrofits such as combined sewer separation projects, the addition of green infrastructure, water reuse and infiltration and inflow reduction projects, and smart growth development. Improvements to residential and commercial water conservation through behavior changes and systematic changes (e.g., state water efficiency standards for fixtures and sprinklers) can also reduce the volume and lead to energy and emissions reductions.



Implementation of this measure may include:

Municipal and Regional

- Reduce inflow and infiltration through green infrastructure and other improvements.

Municipal

- Increasing wastewater facility energy efficiency.

Waste and Materials Management

Measure 4c. Reduce Wastewater Energy Use

Reduce municipal wastewater treatment facility energy usage and emissions.



Emissions reduction estimates reflect a 10% reduction in annual wastewater treatment facility electricity, natural gas, and fuel oil usage and that of the remaining electricity, 20% was generated with solar. See Appendix E for a detailed explanation.

LIDAC Communities Benefits & Disbenefit Mitigation



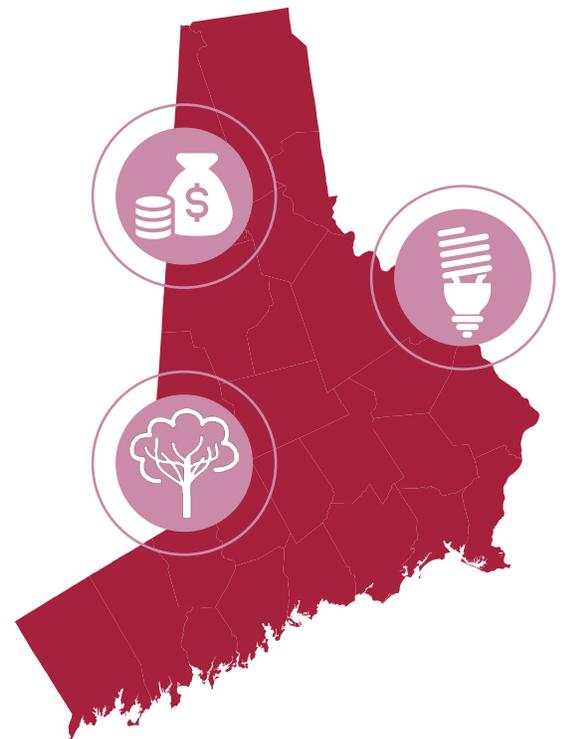
The switch to cleaner energy sources and green infrastructure can reduce emissions and pollutants that can affect LIDAC communities and additional communities who live close to the treatment plants.



Reduced energy costs following a wastewater treatment plant energy retrofit can allow the community to redirect saved costs to potential energy retrofits in LIDAC communities.



Retrofitting treatment plants will require the installation and maintenance of new infrastructure that can create jobs within the utilities and construction trades industry.



Waste and Materials Management

Measure 4c. Reduce Wastewater Energy Use

Reduce municipal wastewater treatment facility energy usage and emissions.



Equitable Implementation Considerations

Impacts associated with wastewater treatment facilities such as increased emissions and lower water quality directly impact populations that live within proximity such as LIDAC communities. Concerns regarding odor, noise, and other environmental burdens associated with these facilities should be gathered from communities to make an informed decision about how to address those concerns, reduce energy usage and implement sustainable infrastructure. These efforts can promote community sustainability and provide realized benefits to vulnerable populations in the area.



Authority to Implement:

- Municipal departments have the authority to carry out
- Requires adoption by governing board or council
- State action required



Support:

- COG advocacy or technical support
- Additional partners



Key steps or milestones for implementation:

This measure will require board approval from the Water Pollution Control Authority in each municipality as they oversee the wastewater treatment plants. Approval and/or permitting from regulatory agencies such as CTDEEP and the EPA may also be required for specific projects.

Waste and Materials Management

Measure 4c. Reduce Wastewater Energy Use

Reduce municipal wastewater treatment facility energy usage and emissions.



Possible Funding Sources:

- Local
- State
- Federal

Example Funding Sources

Clean Water State Revolving Loan Fund (CWSRLF). See Appendix F for additional information.

Example Partners and Projects

- **Wastewater Energy Management Toolkit, US Dept. of Energy.**⁶² The Wastewater Energy Management Toolkit is a collection of resources that enables wastewater facilities to learn and benefit from the work of DOE's Better Buildings Sustainable Wastewater Infrastructure of the Future (SWIFt) Accelerator. The resources provided support best practices and innovative approaches successfully used by wastewater facilities to establish and implement energy management and planning campaigns, and more to Wilton residents.

Carbon and Natural Lands - Action Area 5

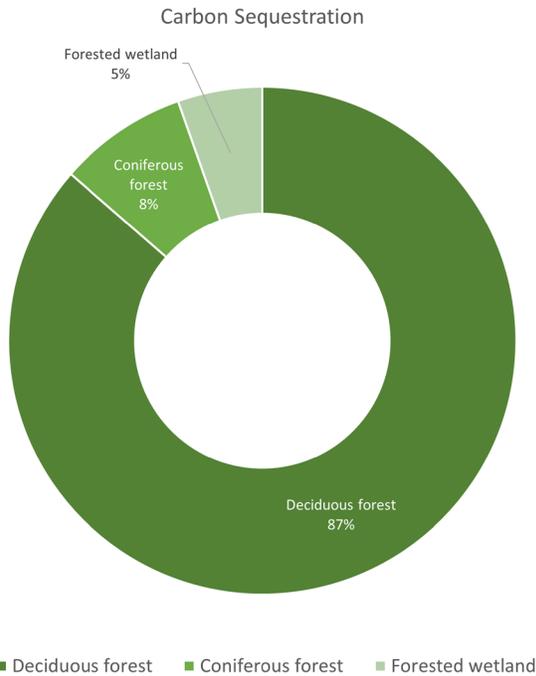


Figure 33. Carbon Sequestration action area emissions breakdown.

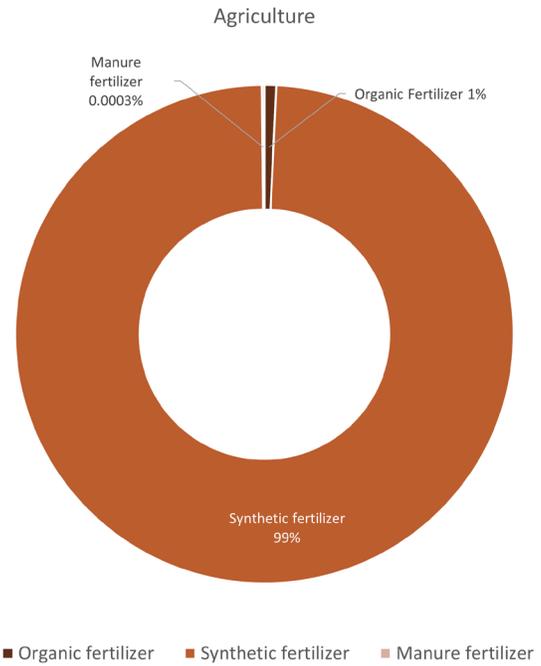


Figure 34. Agriculture and natural lands action area emissions breakdown.

Climate change is significantly impacting our natural lands in various ways. Ecosystems worldwide are already feeling the effects of climate change, leading to species losses, declines in ecosystem services, and measurable economic losses. These changes make ecosystems less resilient to stressors and can trigger cascading ecological transformations that are difficult to predict or stop. Furthermore, climate change is causing shifts in weather patterns, intensifying events like droughts, hurricanes, and flooding in Connecticut.

Protecting natural resources such as forests, water, and wetlands is a key part of climate adaptation and mitigation. Shade trees help to mitigate extreme heat and wetlands help to mitigate flooding from rainfall or storm events. Sequestering carbon dioxide by protecting natural resources and focusing on the expansion and planting of shade trees has the potential to reduce almost 1 MMCO₂e/year, the equivalent of almost double the waste and wastewater sector emissions for the region. The deciduous forest alone is responsible for 87% of carbon sequestration.

Preserving biodiversity and allowing systems to function naturally helps to maintain healthy ecosystems and prevent further acceleration of climate change while reducing GHG emissions and building resilience. When natural resources need to be managed, such as stormwater runoff, nature-based solutions that aim to protect and restore ecological systems should be used.

In a region with density as high as within the MSA and its neighboring counties, it is important to consider preserving natural lands as often as possible. Implementing concepts such as smart growth principles and protecting natural resources, when possible, will only help to ensure a future with reduced emissions and healthier communities in even the most populous areas.

Measures to support action for Carbon and Natural Lands are:

- 5a - Conserve Land and Promote Smart Growth
- 5b - Expand Green Space and Trees

Carbon and Natural Lands

Measure 5a. Conserve Land and Promote Smart Growth

Enhance carbon sequestration across the region through the expansion of land conservation.

i The act of conserving land is not directly an act of reducing GHG emissions, but it is a key step in protecting natural lands that are able to sequester a large amount of carbon naturally. The State of Connecticut estimated that by the end of 2022, they had protected more than 500,000 acres of land and open space.⁶³ Just shy of their 2023 goal, the accomplishment of this measure can help to protect the last 25% of land and open space. Although protection comes at the local and state levels, collaborating and creating partnerships to acquire land will expand the extent of land protected.

The protection of lands can also help municipalities focus on smart growth. Smart growth is defined by the EPA as an approach to development and conservation that makes communities stronger and more resilient to climate change.⁶⁴ While untouched natural resources are being protected, targeting population and development growth to remain in existing communities will be important. Focusing on limiting sprawl will allow more natural resources such as wetlands and forests to perform sequestering at their highest capacity, while allowing for development within already established areas towns and cities when needed.



The carbon sequestration estimate assumes an additional 200 acres of land is conserved. See Appendix E for a detailed explanation.



Implementation of this measure may include:

Regional and Municipal

- Support targeted land conservation and restoration opportunities.
- Collaborate with public and private conservation organizations to expand land conservation and restoration.
- Identify opportunities for Smart Growth across the region.

Carbon and Natural Lands

Measure 5a. Conserve Land and Promote Smart Growth

Enhance carbon sequestration across the region through the expansion of land conservation.

LIDAC Communities Benefits & Disbenefit Mitigation



Preserving natural lands can provide natural barriers during major storm events, acting as areas for water runoff during flood events, and potentially reducing damage to properties and buildings. Tree canopy can also help reduce the effects of extreme heat, especially in urban heat islands.



Limiting sprawl and focusing on smart growth opportunities can potentially reduce housing and transportation costs for LIDAC populations.



Conservation of forested areas improves their ability to preserve major carbon sinks that will reduce GHG emissions and provide better air quality to communities around it.



Equitable Implementation Considerations

Fostering relationships with nearby populations regarding the conservation of land in rural and underserved communities can help to address disparities and ensure the benefits are distributed fairly across these populations. Efforts should be made to mitigate potential negative impacts of conservation measures on vulnerable populations, such as displacement or loss of access to essential services.

Carbon and Natural Lands

Measure 5a. Conserve Land and Promote Smart Growth

Enhance carbon sequestration across the region through the expansion of land conservation.



Authority to Implement:

- Municipal departments have the authority to carry out
- Requires adoption by governing board or council
- State action required



Support:

- COG advocacy or technical support
- Additional partners



Key steps or milestones for implementation:

Land conservation can happen at all levels, but occurs most commonly within state agencies, municipalities, and non-profits. Community education and awareness about land conservation can be promoted by support from COG and additional partners across the region.



Possible Funding Sources:

- Local
- State
- Federal

Example Funding Sources

DEEP Land and Water Conservation Fund (LWCF). See Appendix F for additional information.

Carbon and Natural Lands

Measure 5a. Conserve Land and Promote Smart Growth

Enhance carbon sequestration across the region through the expansion of land conservation.

Example Partners and Projects

- **Pollinator Pathways & Community Gardens, City of Bridgeport.** The city has worked with local organizations to install native species friendly habitat across Bridgeport. There are Community Gardens in every neighborhood of the City of Bridgeport, operated by Green Village Initiative and independent gardeners.
- **Sustainable Development Program, City of Stamford.**⁶⁵ Stamford's Sustainable Development Program includes several sustainable and environmental focused objectives for the city. The objectives include conservation and protection of open space, protection of wetlands and environmental areas, preservation of water quality, and more protection and conservation of natural resources and areas.

Carbon and Natural Lands

Measure 5b. Expand Green Space and Trees

Enhance carbon sequestration across the region through the expansion of trees and green space.



Along with the benefits of reducing GHG emissions, trees also bring benefits of reducing air pollution leading to cleaner cities, increasing canopy cover in heat effected areas, and adding to the beautification of neighborhoods and communities.

Through research undertaken by the USDA Forest Service's Northern Research Stations focusing on restocking forests within the Northeast, there was a potential increase of almost 20% carbon sequestration capacity.⁶⁶ Studies done by the WHO, have also linked green spaces and trees as an indicator of both mental and physical health, reducing stress and at times leading to increased activity rates.⁶⁷

The expansion of trees and green spaces within this measure not only the increased reduction in GHG emissions, but also contribute to improvements in public health throughout the region and specifically in LIDAC communities that need these benefits the most.



Carbon sequestration estimates are based on the CT GHG Emissions Inventory (1990-2021) includes a goal of increasing urban tree canopy by 5% by 2040 in environmental justice neighborhoods.⁶⁸ It was assumed 2% could be attainable by 2030 and this increase was applied to the current carbon sequestration estimates for Bridgeport, Stamford, Norwalk, and Danbury. See Appendix E for a detailed explanation.



Implementation of this measure may include:

Municipal

- Create an inventory of existing trees and plant additional trees where needed.
- Improve planting and harvesting practices. If trees are removed from a forest at the right time, it can maximize the forest's carbon sequestration potential.
- Support projects that connect existing green spaces.

Carbon and Natural Lands

Measure 5b. Expand Green Space and Trees

Enhance carbon sequestration across the region through the expansion of trees and green space.

LIDAC Communities Benefits & Disbenefit Mitigation



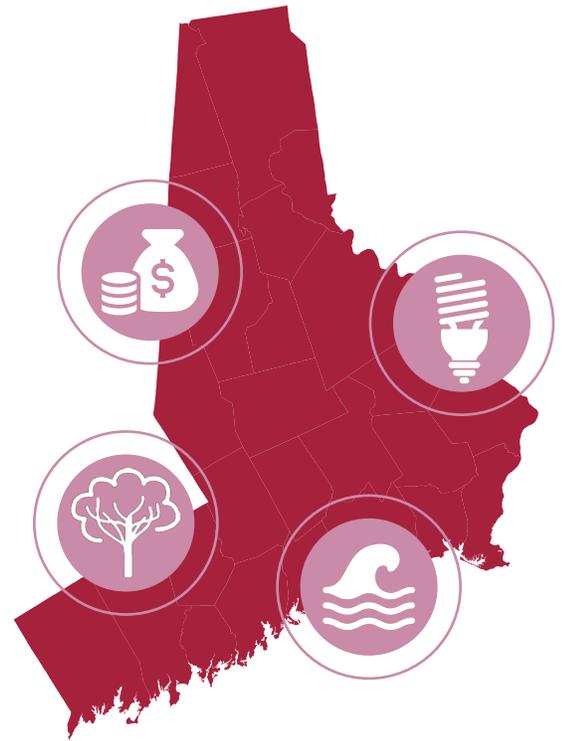
During more intense and frequent heat waves, mature trees can provide shaded areas for community members to use as cooling spaces. Trees can reduce runoff during major storm events and protect communities from additional pollutants infiltrating soils and nearby water bodies.



Additional trees planted in communities with LIDAC communities will directly impact air quality, beautify neighborhoods, and reduce the urban heat island effect, which can positively impact the physical and mental health of the population.



Tree canopy cover can help keep buildings cooler by providing shade which can reduce cost associated with running air conditioners.



Increased workforce opportunities for municipal public works/parks departments, arborists, and landscapers.



Equitable Implementation Considerations

Prioritizing planting trees in neighborhoods with limited green space, such as dense urban areas to address the effects of the urban heat island effect and poor air quality can also greatly enhance a community's sense of place. These neighborhoods are often historically disadvantaged communities and may experience multiple benefits from added green space. Initiatives that increase tree planting should consider the social and economic needs of local communities, including job creation, access to green infrastructure, improved air quality, and neighborhood beautification.

Carbon and Natural Lands

Measure 5b. Expand Green Space and Trees

Enhance carbon sequestration across the region through the expansion of trees and green space.



Authority to Implement:

- Municipal departments have the authority to carry out
- Requires adoption by governing board or council
- State action required



Support:

- COG advocacy or technical support
- Additional partners



Key steps or milestones for implementation:

Tree planting can be implemented at all levels, but most commonly at the local level. State action is likely to be required if the urban tree canopy falls within the state right-of-way.



Possible Funding Sources:

- Local
- State
- Federal

Example Funding Sources

Urban Forestry Equity Program, CT Recreational Trails Program. See Appendix F for additional information.

Carbon and Natural Lands

Measure 5b. Expand Green Space and Trees

Enhance carbon sequestration across the region through the expansion of trees and green space.

Example Partners and Projects

- **1,000 Trees for Trumbull, Town of Trumbull.** Trumbull Public Works and Parks and Recreation departments, the Trumbull Conservation Commission, and the Sustainable Trumbull Team are collaborating to plant 1,000 trees over 10 years to improve the quality of water and air for people and wildlife in Trumbull.
- **Urban Canopy, City of Bridgeport.** In collaboration with the Tree Warden, the department of Parks and Recreation, and local non-profit partners, the City of Bridgeport is involved in on-going tree inventories, maintenance, and expansion.
- **Greenwich Green + Clean Planting Projects, Town of Greenwich.**⁶⁹ Greenwich Green and Clean is a community group focused on creating a cleaner and more beautiful environment. The group organizes volunteer events such as community clean ups, invasive plant removals, tree plantings, greening traffic islands, and more.

Sustainable Growth - Action Area 6

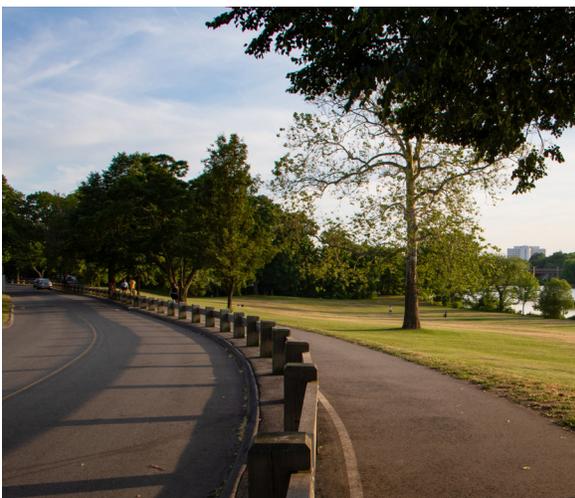
Urban sprawl has significantly contributed to climate change both directly and indirectly. The expansion of cities, characterized by low-density openness, single-land use, and an automobile-oriented infrastructure, has led to various environmental issues. The impact of urban sprawl on energy consumption, carbon emissions, and air pollution has been the subject of extensive research. Sprawling development increases energy consumption and exacerbates air pollution due to factors like automobile exhaust emissions. Additionally, urban sprawl destroys ecological environments, occupies cultivated land, damages wetlands, and contributes to air pollution.

Thoughtful community planning plays a critical role in combating climate change by fostering sustainable development and reducing carbon emissions. By strategically designing communities that prioritize energy efficiency, public transportation, green spaces, and renewable energy sources, the region can significantly mitigate the environmental impact of human activities. Implementing mixed land-use zoning, promoting walkability, and creating bike-friendly infrastructure not only reduce reliance on fossil fuels but also enhance the overall quality of life for residents. Additionally, incorporating green building standards and sustainable practices into urban planning can lead to lower energy consumption, decreased waste generation, and improved air quality, contributing to a healthier environment for both current and future generations.

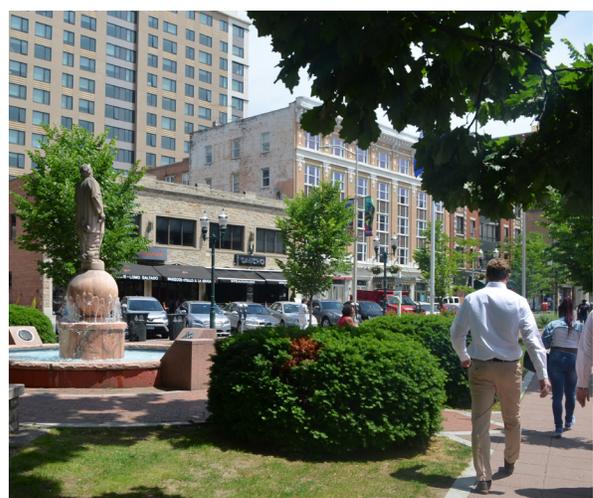
Furthermore, community planning that integrates climate resilience measures can help mitigate the effects of extreme weather events and rising sea levels associated with climate change. By incorporating green infrastructure like rain gardens, permeable pavements, and urban forests, communities can better manage stormwater runoff and reduce the risk of flooding. Because sustainable growth is closely related to land use, it coincides with several GHG emissions sectors, namely buildings, transportation, and carbon removal and natural lands.

Measures to support action for sustainable growth are:

- 6a - Climate Friendly Land Use



*Bridgeport. Photo taken by Peralta Design/
Steve Cartagena.*



Stamford. Photo from WestCOG Flickr.

Sustainable Growth

Measure 6a. Climate Friendly Land Use

Develop robust resources to enable municipalities to implement model climate friendly land use practices



Climate-friendly land use plays a pivotal role in addressing housing and climate justice issues by reshaping communities and promoting sustainability. Land use ordinances and practices, including subdivision and zoning regulations, engineering standards, and design guidelines impact where housing, schools, and parks are located, influencing accessibility and construction methods. In the United States, local codes historically have responded to local environmental impacts, such as flooding, congestion, and light and noise pollution, but have not addressed global challenges, such as climate change. Local governments may not produce many greenhouse gas emissions directly, but through their authority for land use, they can positively or negatively influence emission rates in housing, business, industry, agriculture, and in related sectors, such as transportation. Local government can effect change through land use by developing, adopting, and implementing zoning regulations and processes. Small, low-cost changes to local regulations and processes, multiplied across thousands and millions of development applications, can yield large cumulative decreases in emissions intensity and overall emissions.

Examples of climate friendly land use include Minneapolis' Green Zones⁷⁰ focusing on sustainable transitions and Boston's Coastal Flood Resilience Overlay District which works to protect persons and structures from the adverse effects of sea level rise and storm surge associated with climate change.⁷¹ These initiatives aim to mitigate environmental inequities, reduce greenhouse gas emissions, and promote sustainable urban development.



Implementation of this measure may include:

Municipal Development, adoption, and implementation of:

- Solar subdivision and zoning regulations
- Zoning regulations for distributed energy generation
- Zoning to support building and vehicle electrification
- Zoning for zero- and low-carbon housing
- Zoning and local ordinances for carbon sequestration
- Zoning to promote transportation alternatives
- Climate-friendly design guidelines
- Climate-friendly engineering standards
- Optimized review and approval processes for GHG reducing projects

Sustainable Growth

Measure 6a. Climate Friendly Land Use

Develop robust resources to enable municipalities to implement model climate friendly land use practices



Emissions reduction estimates reflect an increase in solar installations and reductions in vehicle miles traveled, as two examples of the areas where this measure could influence emissions reductions. The potential impact could be much greater depending on the scale at which this measure is implemented. See Appendix E for a detailed explanation.

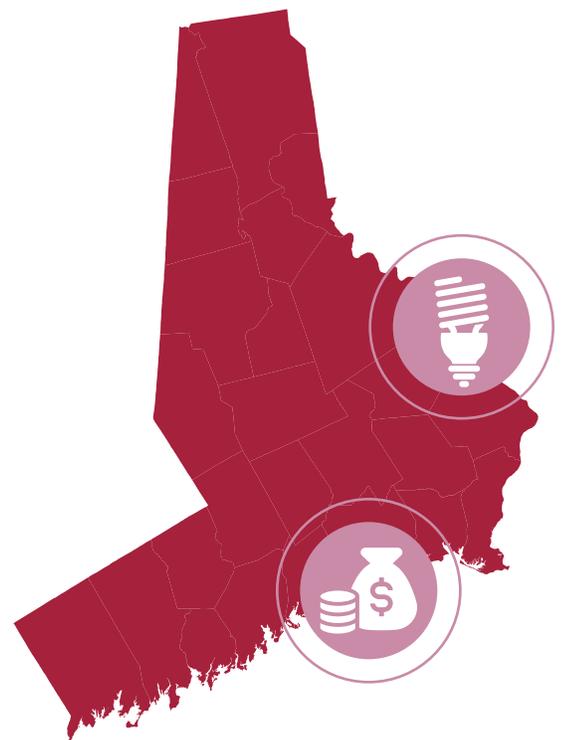
LIDAC Communities Benefits & Disbenefit Mitigation



Transit Oriented Development overlays and mixed-use zoning policies can bridge connections between residents in urban areas to additional job opportunities throughout the region.



Allowing for mixed-use zones paired with affordable housing policies can improve quality of life due to living in proximity to transportation and basic needs.



Sustainable Growth

Measure 6a. Climate Friendly Land Use

Develop robust resources to enable municipalities to implement model climate friendly land use practices



Equitable Implementation Considerations

Promoting fair land use strategies is essential to equitable implementation of zoning techniques. Initiatives that prioritize mixed-use developments that provide a range of housing options will benefit LIDAC communities by creating affordable housing located near essential services and public transportation. Climate friendly zoning techniques should also address barriers and unintended consequences such as high costs, adverse impacts, and subsequent displacement or gentrification.



Authority to Implement:

- Municipal departments have the authority to carry out
- Requires adoption by governing board or council
- State action required



Support:

- COG advocacy or technical support
- Additional partners



Key steps or milestones for implementation:

The proposed zoning changes require adoption from each respective municipalities Zoning Board of Approvals or Zoning Commissions. The municipal building departments may also have a hand in the approval or changes to the zoning code.

Sustainable Growth

Measure 6a. Climate Friendly Land Use

Develop robust resources to enable municipalities to implement model climate friendly land use practices



Possible Funding Sources:

- Local
- State
- Federal

Example Funding Sources

No existing funding sources that may support this measure have been identified for this plan.

Example Partners and Projects

- **Sustainable Streets, City of Norwalk.**⁷² Sustainable Streets is a campaign in Norwalk that is capitalizing on the city's decision to rewrite existing zoning regulations. The campaign's goal is to improve biking, walking, public transit, and housing options, while making the city a healthier, safer, and more affordable place to live. The campaign intends to push the development and incorporation of Complete Streets ideals, when possible, into the new zoning regulations.

Green Economy - Action Area 7

Climate change can have profound impacts on the economy, affecting various sectors and leading to significant economic losses. The National Climate Assessment highlighted that failure to reduce greenhouse gas emissions and adapt to climate change could disrupt the U.S. economy by damaging property, infrastructure, human health, and productivity. Sectors like agriculture, forestry, fisheries, and tourism are particularly vulnerable. Climate change can increase energy demand, stress water supplies, damage infrastructure globally, disrupt trade and supply chains, and lead to increased costs for raw materials and production. Extreme weather events can damage factories and infrastructure, while new regulations like carbon pricing can impact businesses financially. The economic consequences of climate change are substantial. Taking action to mitigate climate change is important to minimize these economic impacts and ensure a more sustainable future for the economy.

Green jobs are set to play a vital role in combating climate change by fostering sustainable practices across various industries. As the world transitions towards a greener economy, the demand for jobs in renewable energy, energy efficiency, sustainable agriculture, and environmental conservation is expected to rise significantly. These green jobs not only contribute to reducing greenhouse gas emissions but also promote innovation and economic growth. By investing in renewable energy sources like solar and wind power, improving energy efficiency in buildings, and implementing eco-friendly practices in agriculture, a new wave of employment opportunities will emerge. This shift towards green jobs not only addresses climate change but also creates a more resilient and environmentally conscious workforce for the future.

As the goals within this plan continue to develop, the creation of new green jobs will be required to implement the actions across the region.

Measures to support action for a green economy are:

- 7a - Green Workforce Development
- 7b - Equitable Procurement

Green Economy

Measure 7a. Green Workforce Development

Increase workforce capacity in clean energy and net zero enabling sectors.

i By investing in training programs, education, and skill development tailored to these sectors, we can equip individuals with the expertise needed to support the transition to renewable energy sources and technologies. This initiative not only creates job opportunities but also fosters innovation and economic growth in industries that are essential for achieving net-zero emissions. Moreover, a skilled workforce in clean energy can accelerate the deployment of renewable energy projects, improve energy efficiency, and contribute significantly to a greener future for generations to come.

A common barrier to implementing energy efficiency retrofits and other GHG reducing measures is a lack of skilled workers who can fix and maintain green buildings. By creating jobs and job training on these systems, it will help to reduce the cost of specialized labor and reduce mistakes by those working on unfamiliar conditions. As an example, EFA CT Workforce Program allows participants to gain certification through their Efficiency For All CT Green Jobs program.

 <p>GHG Emissions Reduction Potential</p>	<p>Indirect emissions reductions are anticipated.</p>
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Implementation of this measure may include:

Regional & Municipal

- Promote existing workforce development programs.
- Develop workforce development programs for green jobs.
- Work with the State to integrate clean energy trades training into technical high schools.

Municipal

- Encourage municipalities to expand climate-focused staff roles (e.g. Sustainability Coordinator)
- Incorporate climate related education in K-12 schools and adult education

Green Economy

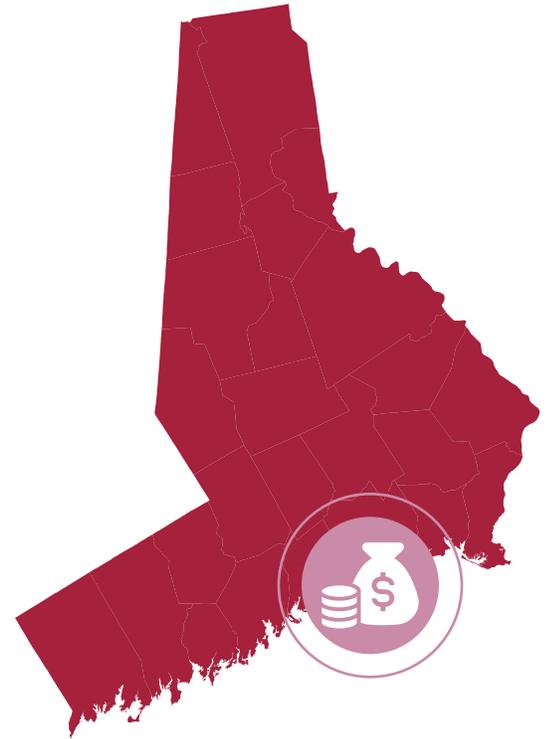
Measure 7a. Green Workforce Development

Increase workforce capacity in clean energy and net zero enabling sectors.

LIDAC Communities Benefits & Disbenefit Mitigation



By expanding upon existing workforce development programs and creating innovative programs with low barriers to entry, new high-quality jobs within these sectors will also be within reach for LIDAC communities.



Equitable Implementation Considerations

Equitable implementation considerations for workforce development in green jobs are paramount to ensure that the benefits of transitioning to a sustainably focused workforce are accessible to all individuals. This entails providing equitable access to training and educational opportunities for underrepresented communities, including women, minorities, low-income individuals, and those from disadvantaged backgrounds. Initiatives should focus on removing barriers to entry, such as cost, location, and educational prerequisites, while also offering support services like childcare and transportation assistance.

Green Economy

Measure 7a. Green Workforce Development

Increase workforce capacity in clean energy and net zero enabling sectors.



Authority to Implement:

- Municipal departments have the authority to carry out
- Requires adoption by governing board or council
- State action required



Support:

- COG advocacy or technical support
- Additional partners



Key steps or milestones for implementation:

Adding sustainable staff positions to municipal departments will have to be overseen by the municipality based on a capacity to hire. Promoting and advocating for workforce development programs can be overseen by partners and state offices.



Possible Funding Sources:

- Local
- State
- Federal

Example Funding Sources

No existing funding sources that may support this measure have been identified for this plan.

Green Economy

Measure 7a. Green Workforce Development

Increase workforce capacity in clean energy and net zero enabling sectors.

Example Partners and Projects

- **The Workplace, Inc., City of Bridgeport.** The Workplace is a workforce development agency based in Bridgeport. The agency offers an “EnvironmentalWorks” program focused on the assessment, cleanup, and revitalization of brownfields and other polluted sites. All programs offered are equal opportunity and focus on preparing individuals of all skill levels for employment in the field of their choice.
- **Governor’s Workforce Council, Connecticut.** The Connecticut Governor’s Workforce Council (GWC) is a state lead workforce development agency, serving as the “prime coordinator for businesses, educators, trainers, state agencies, state workforce boards, non-profits, and others”⁷³.
- **Efficiency for All⁷⁴, Windsor, CT.** Efficiency for All is a Connecticut based green jobs focused workforce training program. The program focuses on energy efficiency and developing workers who can go on to gain jobs in the energy sectors.
- **Connecticut Green Occupations, Connecticut.** Connecticut Green Occupations is an online resource provided by the Connecticut Department of Labor focused on green occupations and industries that are available within the state⁷⁵. The site serves as a hub for information related to environmentally sustainable jobs, renewable energy, and green initiatives that are available across the state of Connecticut.

Green Economy

Measure 7b. Equitable Procurement

Promote equitable procurement practices for municipal decarbonization projects.



Equitable procurement processes can support decarbonizing communities by fostering more sustainable practices and reducing carbon emissions. Public procurement can drive innovation towards low-carbon solutions by engaging diverse enterprises that are more likely to bring about radical changes compared to incumbents responsible for the current carbon footprint. By implementing equitable contracting and procurement policies, cities can ensure that underrepresented entrepreneurs, such as those owned by people of color and disadvantaged groups, have access to business opportunities, thus promoting inclusive economic development.

Procurement can influence emissions reduction across different GHG emissions accounting scopes. In Scope 1, companies can reduce emissions by selecting low-emission suppliers or transitioning to eco-friendly vehicles. In Scope 2, sourcing renewable energy and choosing suppliers with low-carbon electricity can make a difference. Additionally, in Scope 3, collaborating with suppliers to reduce emissions in their supply chains and promoting sustainable practices are essential steps.

To achieve sustainable procurement and decarbonization goals, setting clear sustainability targets, engaging suppliers, and fostering long-term partnerships are vital. Governments can leverage procurement as a climate innovation tool by prioritizing green technology development and uptake. As the measures within this plan are implemented, procuring local firms in an equitable manner to carry out the work can be a vital piece to developing a skilled workforce.



Implementation of this measure may include:

Municipal

- Prioritize local, diverse, and/or sustainable suppliers and vendors for municipal decarbonization practices.

Green Economy

Measure 7b. Equitable Procurement

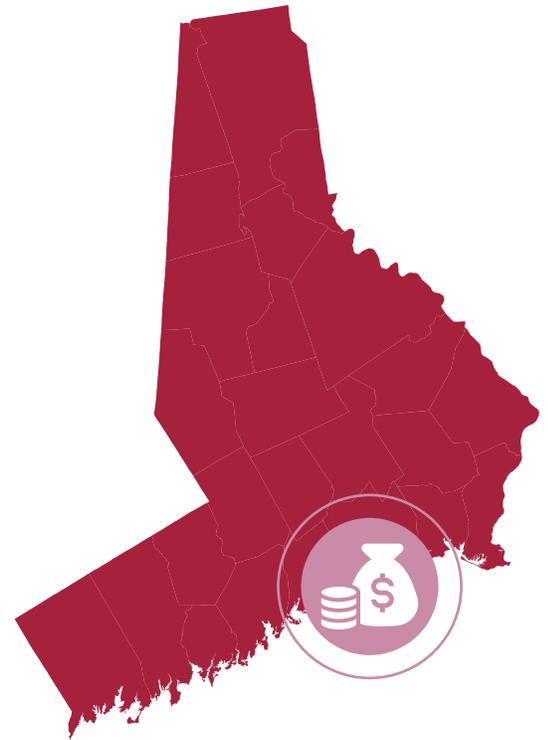
Promote equitable procurement practices for municipal decarbonization projects.

 <p>GHG Emissions Reduction Potential</p>	<p>Indirect emissions reductions are anticipated.</p>
---	--

LIDAC Communities Benefits & Disbenefit Mitigation



Procuring the workforce for municipal decarbonization projects directly from Minority Business Enterprises (MBE) and Disadvantaged Business Enterprises (DBE) sources will ensure that disadvantaged communities gain access to high quality jobs and will be build their resume in a manner that will help them win further work in the decarbonization field.



Equitable Implementation Considerations

Procuring workforce from MBE and DBE firms promotes economic equity and inclusion. Actively seeking out and providing opportunities to disadvantaged populations can help ensure that the economic benefits of decarbonization efforts are shared among all. Initiatives can include ensuring fair and transparent bidding processes, and providing support such as technical assistance and capacity-building programs to help MBE/DBE businesses compete effectively.

Green Economy

Measure 7b. Equitable Procurement

Promote equitable procurement practices for municipal decarbonization projects.



Authority to Implement:

- Municipal departments have the authority to carry out
- Requires adoption by governing board or council
- State action required



Support:

- COG advocacy or technical support
- Additional partners



Key steps or milestones for implementation:

Local departments would have to adopt regulations specifying the requirement of MBE or DBE firms on municipal projects. This is a common requirement of state requests for proposals and would extend the requirement into small scale municipal projects.



Possible Funding Sources:

- Local
- State
- Federal

Example Funding Sources

No existing funding sources that may support this measure have been identified for this plan.

Green Economy

Measure 7b. Equitable Procurement

Promote equitable procurement practices for municipal decarbonization projects.

Example Partners and Projects

- **Bridgeport Regional Business Council, City of Bridgeport.**⁷⁶ The Bridgeport Regional Business Council is partnered with the CT Department of Labor to provide Southwest CT with a manufacturing partnership to local schools and community organizations for coordinating and improving inclusiveness through the recruiting, hiring, training, and development systems.
- **Small and Minority Business Enterprise, City of Bridgeport.** The Small and Minority Business Enterprise Department works to support and promote the growth of small and minority-owned businesses within the city. The Department works closely with other city departments and agencies to ensure that small and minority-owned businesses have fair and equitable access to government contracts and procurement opportunities.

Chapter Endnotes

**Click for more
information!**



- [27. GC3 Recommendations 2018 | Governor's Council on Climate Change](#)
- [28. Fairfield EV Status | Live Green](#)
- [29. What are complete streets? | Smart Growth America](#)
- [30. 1990-2021 CT Greenhouse Gas Emissions Inventory | CT DEEP](#)
- [31. The Economic Benefits of Sustainable Streets | NYC DOT](#)
- [32. 1990-2021 CT Greenhouse Gas Emissions Inventory | CT DEEP](#)
- [33. Chapter 103a* Transit Districts | CT General Assembly](#)
- [34. CTrides](#)
- [35. Launch of Microtransit Pilot Program | CT.gov](#)
- [36. Fairfield Sustainability Plan 2020](#)
- [37. Ridgefield Certification Report | Sustainable CT](#)
- [38. Blueprint 2D: Building Performance Standards and Stretch Codes | Department of Energy](#)
- [39. 2018 CT Greenhouse Gas Emissions Inventory | CT DEEP](#)
- [40. Building Energy Code Straw Proposal 2022 | MA Department of Energy Resources](#)
- [41. 2018 Greenhouse Gas Emissions Inventory | CT DEEP](#)
- [42. Substitute for Raise H.B. No. 6572 | CT General Assembly](#)
- [43. High Performance Building Standards for State Agency and School Buildings | CT.gov](#)

- [44. An Act Concerning a Green Economy and Environmental Protection | CT General Assembly](#)
- [45. Stamford Sustainability Scorecard 2022 | StamfordCT.gov](#)
- [46. GC3 Recommendations 2018 | Governor's Council on Climate Change](#)
- [47. Greening Sherman](#)
- [48. Sustainable Materials Management Basics | EPA](#)
- [49. Composting | EPA](#)
- [50. Carbon Negative Building Materials | CarbonCredits.com](#)
- [51. ReStore | Habitat for Humanity of Coastal Fairfield County](#)
- [52. ReStore | Housatonic Habitat for Humanity](#)
- [53. Urban Miners](#)
- [54. Waste incinerators undermine clean energy goals | PLOS Climate](#)
- [55. Comprehensive Materials Management Strategy | CT DEEP](#)
- [56. Park City Compost Initiative](#)
- [57. Refill Not Landfill | Sustainable Westport](#)
- [58. HRRRA - Organics \(Food Scraps\) | Ridgefield](#)
- [59. Swap Shop - Planet New Canaan](#)
- [60. Wilton Go Green](#)
- [61. Wastewater Infrastructure | US Department of Energy](#)
- [62. Wastewater Energy Management Toolkit | Better Buildings Initiative](#)

[63. Open Space | CT.gov](#)

[64. About Smart Growth | EPA](#)

[65. Sustainable Development | StamfordCT.gov](#)

[66. Growing trees – and capturing carbon | US Forest Service USDA](#)

[67. Urban Green Spaces and Health | WHO](#)

[68. 1990-2021 CT Greenhouse Gas Emissions Inventory | CT DEEP](#)

[69. Greenwich Green & Clean](#)

[70. Green Zones | City of Minneapolis](#)

[71. Flood Resiliency Building Guidelines & Zoning Overlay District | Boston Planning & Development Agency](#)

[72. Sustainable Streets Norwalk](#)

[73. Governor's Workforce Council | CT.gov](#)

[74. Efficiency For All](#)

[75. Connecticut Green Jobs](#)

[76. Regional Sector Partnerships | CT Department of Labor](#)

4. Next Steps, CCAP

This plan is intended to be implemented through local governments (municipalities and COGs) along with their coalition partners. Broadly, the measures within this plan are united by the goal of providing the largest climate pollution reductions while serving LIDAC communities.

Table 8. Action Area Priority Measures

Action Area	Measure
Transportation	1a. ELECTRIC VEHICLES Promote the transition to electric or other low-carbon fuel for both private and public sector vehicles.
	1b. ACTIVE MOBILITY Develop robust, reliable, and accessible mobility options to encourage and enable a shift from single occupancy vehicles towards zero emission modes such as walking and biking.
	1c. PUBLIC TRANSIT Improve public transportation frequency and reliability; expand public transit options; and expand programs to reduce trips by car.
Residential and Commercial Buildings	2a. RESIDENTIAL AND COMMERCIAL BUILDING UPGRADES Develop programs and resources that promote and aid the switch to energy efficient and renewable options for residential and commercial buildings.
	2b. MUNICIPAL BUILDING UPGRADES Retrofit municipally owned buildings to improve energy efficiency and decrease reliance on fossil fuels.
	2c. LEGISLATIVE CHANGE Advocate for state level legislation to empower municipalities to enforce more environmentally friendly building codes for commercial and residential properties.
	2d. CARBON REDUCTION PLAN REPORTING Encourage municipal and commercial buildings to report carbon reduction plans.

Electric Power	<p>3a. RENEWABLE ENERGY GENERATION, USE, AND STORAGE Increase the generation, use, and storage capabilities of renewable energy throughout the region.</p>
Waste and Materials Materials	<p>4a. MATERIALS MANAGEMENT Promote a circular economy and the reduction of carbon through improved materials management and waste processing</p>
	<p>4b. WASTE REDUCTION Improve residential and commercial waste diversion rates by implementing new or enhancing existing waste programs.</p>
	<p>4c. REDUCE WASTEWATER ENERGY USE Reduce municipal wastewater treatment facility energy usage and emissions.</p>
Carbon Capture	<p>5a. CONSERVE LAND, WHILE PROMOTING SMART GROWTH Enhance carbon sequestration across the region through expansion of land conservation.</p>
	<p>5c. EXPAND GREEN SPACE AND TREES Enhance carbon sequestration across the region through expansion of trees and green space.</p>
Sustainable Growth	<p>6a. CLIMATE FRIENDLY LAND USE Develop robust resources to enable municipalities to implement model climate friendly land use practices.</p>
Green Economy	<p>7a. GREEN WORKFORCE DEVELOPMENT Increase workforce capacity in clean energy and net zero enabling sectors</p>
	<p>7b. EQUITABLE PROCUREMENT Promote equitable procurement practices for municipal decarbonization projects.</p>



Short-term, implementation-ready actions municipalities can take include:

- **Retrofitting municipally-owned buildings (see 2b for detailed explanation);**
- **Increase the use of municipal renewable energy (see 3a for detailed explanation); and**
- **Reduce municipal wastewater treatment facility energy usage and emissions (see 4c for detailed explanation).**



Short-term, implementation-ready actions COGs can take include:

- **Partnering with housing authorities to eliminate barriers to installing solar and storage solutions on municipally-owned affordable housing (see 3a for detailed explanation); and**
- **Developing resources for municipalities to use to guide and implement climate friendly land use practices (see 6a for detailed explanation).**

The Priority Climate Action Plan also serves as the foundation for project concepts to apply for EPA's Climate Pollution Reduction Grant Program Implementation Funds and other applicable grant funding sources. This plan is only a preliminary step in a two-part planning process to inform and aid municipalities in beginning to develop an understanding of what it might take to reach their GHG emission reduction goals. The second phase of EPA's Climate Pollution Reduction Grant Program planning, the upcoming CCAP process, is intended to further involve regional stakeholders to refine the measures and associated GHG reduction goals included here and progress upon them to make them a reality. Following the successful completion of this Priority Climate Action Plan, the planning leads next steps for the CPRG program involve a multifaceted approach to a Comprehensive Climate Action Plan (CCAP), which will expand on the measures included in the PCAP in furtherance of the region's efforts in reducing GHG emissions and combating climate change.

The second phase of EPA's Climate Pollution Reduction Grant Program planning, the upcoming CCAP process, is intended to further involve regional stakeholders to refine the measures and associated GHG reduction goals included herein and progress upon them to make them a reality.

Appendix A

Glossary

Climate Pollution Reduction Grant (CPRG)¹: The Climate Pollution Reduction Grants (CPRG) program provides \$5 billion in grants to states, local governments, tribes, and territories to develop and implement ambitious plans for reducing greenhouse gas emissions and other harmful air pollution.

Priority Climate Action Plan (PCAP)²: a narrative report that includes an analysis of GHG emissions (Inventory) and proposes a focused list of near-term, high-priority, and implementation-ready measures to reduce GHG pollution.

Comprehensive Climate Action Plan (CCAP)³: a narrative report that provides an overview of the grantees' significant GHG sources/sinks and sectors, establishes near-term and long-term GHG emission reduction goals, and provides strategies and identifies measures that address the highest priority sectors to help the grantees meet those goals.

Low Income / Disadvantaged Communities (LIDACs)⁴: An EPA designation using CEJST or EJScreen of communities with residents that have low incomes, limited access to resources, and disproportionate exposure to environmental or climate burdens.

Greenhouse gas (GHG) Inventory⁵: A list of emission sources and the associated emissions quantified using standardized methods.

Environmental Justice Screening Tool (EJScreen)⁶: EJScreen is an EPA's environmental justice mapping and screening tool that provides EPA with a nationally consistent dataset and approach for combining environmental and demographic socioeconomic indicators.

Climate and Economic Justice Screening Tool (CEJST)⁷: Established by Executive Order 14008, which directed the Council on Environmental Quality (CEQ) to develop a new tool for identifying communities that are "economically disadvantaged and overburdened by pollution and underinvestment in housing, transportation, water and wastewater infrastructure, and health care." The tool has an interactive map and uses datasets that are indicators of burdens in eight categories: climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development. The tool uses this information to identify communities that are experiencing these burdens. These are the communities that are disadvantaged because they are overburdened and underserved.

1. [Climate Pollution Reduction Grants | US EPA](#)

2. [Draft PCAP Guidance | EPA](#)

3. [Draft PCAP Guidance | EPA](#)

4. [LIDAC Technical Guidance - Final_2.pdf \(epa.gov\)](#)

5. [Draft PCAP Guidance | EPA](#)

6. [What is EJScreen? | EPA](#)

7. [Climate and Economic Justice Screening Tool | White House Council on Environmental Quality](#)

Inflation Reduction Act (IRA)⁸: The Inflation Reduction Act is a transformative law that is helping the United States meet its climate goals and strengthen energy security, investing in America to create good-paying jobs, reducing energy and health care costs for families, and make the tax code fairer.

Infrastructure Investment and Jobs Act (IIJA)⁹: The Infrastructure Investment and Jobs Act is a once-in-a-generation investment in our Nation's infrastructure and competitiveness. It will help rebuild America's roads, bridges, and rails; expand access to clean drinking water; work to ensure access to high-speed Internet throughout the Nation; tackle the climate crisis; advance environmental justice; and invest in communities that have too often been left behind. It will accomplish all of this while driving the creation of good-paying union jobs and growing the economy sustainably and equitably for decades to come.

Metropolitan Statistical Area (MSA)¹⁰: A census based term for metropolitan area with a core area containing a substantial population nucleus, together with adjacent communities having a high degree of economic and social integration with that core. MSAs contain at least one urbanized area of 50,000 or more in population, and one or more counties.

Municipality¹¹: A city, town, borough, county, parish, district, or other public body created by or pursuant to State law. Consistent with new Section 137(d)(1) of the Clean Air Act, a group of municipalities, such as a council of governments, may also be considered an eligible entity under this program in some cases, e.g., if the council of governments is a legal entity capable of receiving a Federal grant.

8. [FACT SHEET: Inflation Reduction Act | The White House](#)

9. [Executive Order on Implementation of the Infrastructure Investment and Jobs Act | The White House](#)

10. [CPRG FAQs | EPA](#)

11. [CPRG FAQs | EPA](#)

Appendix B

Additional Sustainability Programs in Connecticut

Sustainable CT

Sustainable Connecticut¹ is a statewide initiative aimed at promoting sustainability and resilience at the local level. Launched in 2018, the program provides resources, guidance, and recognition to municipalities that implement sustainable practices across various sectors, including environmental, economic, and social aspects.

The program offers a certification process where municipalities can earn various levels of points based on the scale of implementation of the actions within their communities. These actions cover areas such as local economy, equitable impacts, clean transportation, renewable and efficient energy systems, diverse housing, and more. Achieving at least 150 points from the designated list of actions, that municipality will be designated as a 'Climate Leader'.

Sustainable Connecticut encourages collaboration among municipalities, community organizations, businesses, and residents to address challenges and opportunities for sustainable development. By fostering innovation and best practices, the program aims to build more resilient communities that can thrive in the face of environmental, economic, and social changes.

Overall, Sustainable Connecticut serves as a comprehensive framework for advancing sustainability goals at the local level, ultimately contributing to the well-being of communities and the preservation of natural resources for future generations.

More information can be found at SustainableCT.org.

Energize CT

Energize Connecticut is an energy initiative for residents, local governments, and businesses within the state of Connecticut. The program was designed to encourage residents to make smart energy changes and choices in the future. This initiative is supported by CT DEEP, Eversource, The United Illuminating Company, Connecticut Natural Gas Corporation, Southern Connecticut Gas Company, The Connecticut Green Bank, and The Energy Efficiency Fund.

This program offers resources, rebates, incentives, and more to help customers understand all their options when it comes to choosing smart energy technology and receive monetary incentives in addition to lower energy bills that will result from making these changes.

Some of the popular programs offered through Energize CT are described below.

*Home Energy Solutions*². Home energy solutions is a program that offers an in-home energy performance assessment. This assessment will cover insulation, windows, appliances, and other energy saving solutions that may save your home from increased energy costs in the future.

1. [Sustainable CT](#)

2. [Energy Evaluations Single Family | EnergizeCT](#)

*Income Eligible Programs*³. This is a branch of the Home Energy Solutions program that offers a no cost energy assessment for qualifying individuals. This program is designed to reduce a barrier to entry for these assessments and allow for low-income individuals to participate and understand their energy saving solutions.

*Small Business Energy Advantage*⁴. This program allows small businesses to get a no cost, no obligation energy assessment of their space to understand future energy saving improvements to help these businesses save money overall.

*Municipal and Community Resources*⁵. This resource allows municipal leaders to understand types of resources available and to make smart choices for their communities.

*Rate Board*⁶. This resource helps residents and business compare energy rates from different suppliers within the state.

3. [Energy Evaluation Income-Eligible Details | EnergizeCT](#)

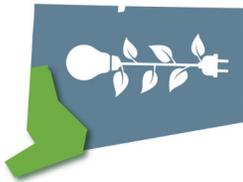
4. [Energy Evaluation Small Business Energy Advantage | EnergizeCT](#)

5. [Energy Resources for Local Government | EnergizeCT](#)

6. [Compare Energy Supplier Rates | EnergizeCT](#)

Appendix C

LIDAC Communities



Southwest CT Climate Action Plan



Legend

- Plan Area
- Bridgeport-Stamford-Norwalk MSA
- WestCOG
- MetroCOG
- NVCOG
- Connecticut EJ Block Groups
- EPA IRA Disadvantaged Community

Total EJ Threshold Criteria Exceeded

- 1-4 Criteria
- 5-7 Criteria
- 8-10 Criteria
- 11-13 Criteria

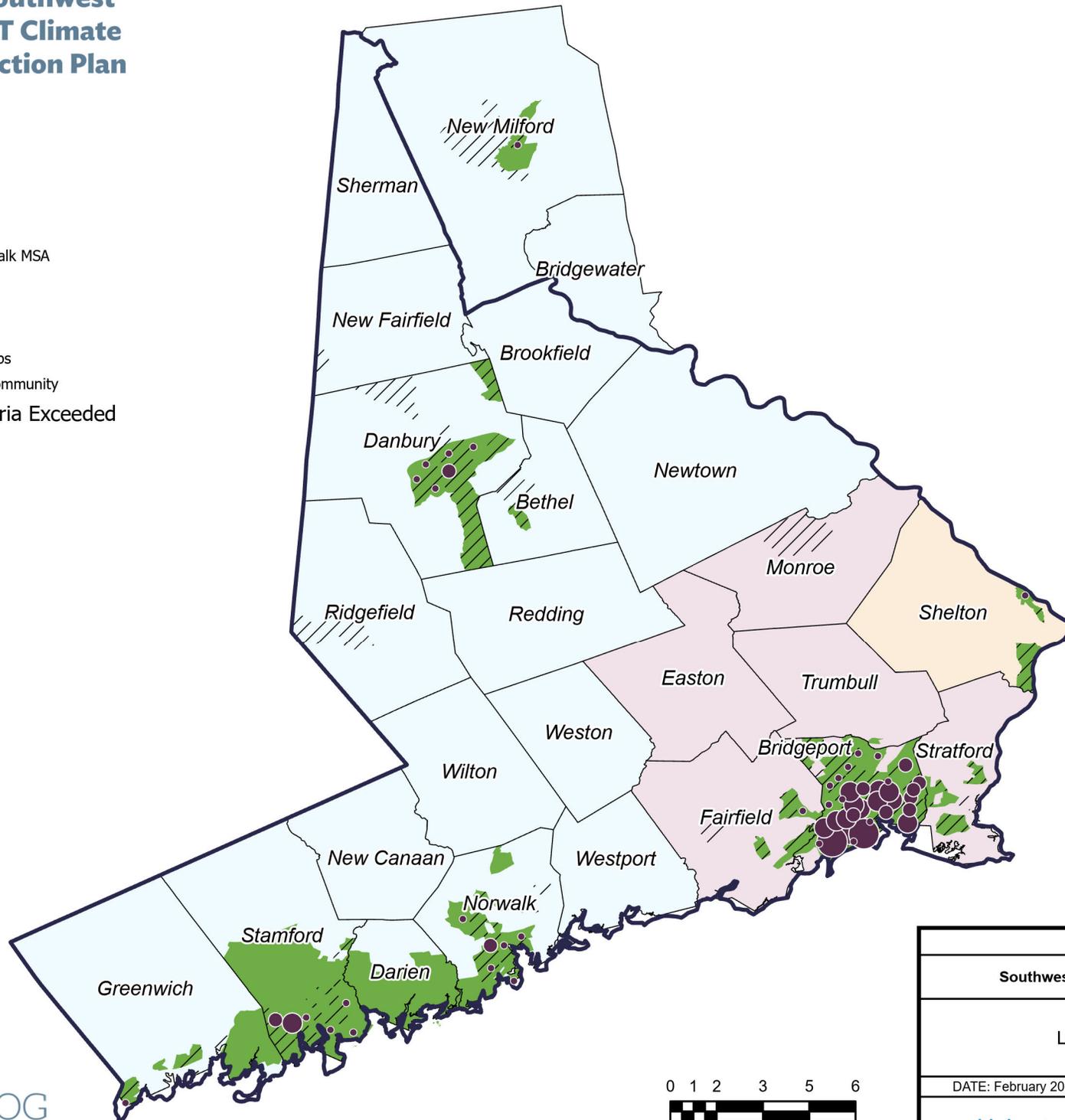


FIGURE 1	
Southwest CT Climate Action Plan	
LIDAC Analysis	
DATE: February 2024	SCALE: NOTED

Path: P:\CT\MetroCOG\033\3071A.ORG_POA\08-3181.DWG Communities_Maps\LIDAC_MetroCOG_MAPC.aprx Map: MetroCOG User: Brian Madison Saved: 2/22/2024 12:44 PM Created: 2/22/2024 2:05 PM

Town	COG	CEJST	EPA IRA Disadvantaged Community*
		(Number of Census Tracts meeting 1 or more Threshold Criteria)	(Number of Census Tracts Designated)
Bethel	WestCOG	N/A	1
Bridgeport	MetroCOG	32	37
Danbury	WestCOG	7	12
Darien	WestCOG	N/A	4
Fairfield	MetroCOG	1	5
Greenwich	WestCOG	1	6
Monroe	MetroCOG	N/A	N/A
New Fairfield	WestCOG	N/A	N/A
New Milford	WestCOG	1	1
Norwalk	WestCOG	6	12
Ridgefield	WestCOG	N/A	N/A
Shelton	NVCOG	1	3
Stamford	WestCOG	6	33
Stratford	MetroCOG	N/A	4
Total		55	118

*EPA IRA Disadvantage Community data is comprised of CEJST and EJSCREEN data sets.

Climate and Economic Justice Screening Tool (CEJST)					
Town	Census Tract	Population	Total Criteria Exceeded	Total Categories Exceeded	Categories
Bridgeport	Census Tract 719	4,949	8	4	Energy, Housing, Legacy Pollution, Workforce Development
	Census Tract 728	5,608	2	1	Workforce Development
	Census Tract 729	4,546	1	1	Workforce Development
	Census Tract 735	3,432	9	4	Energy, Housing, Legacy pollution, Workforce Development
	Census Tract 738	2,195	9	5	Energy, Health, Housing, Legacy Pollution, Workforce Development
	Census Tract 737	4,391	7	4	Energy, Housing, Legacy Pollution, Workforce Development
	Census Tract 739	3,872	8	4	Energy, Housing, Legacy Pollution, Workforce Development
	Census Tract 703	1,388	11	6	Climate Change, Energy, Health, Housing, Legacy pollution, Workforce Development
	Census Tract 710	3,446	9	6	Climate Change, Energy, Housing, Legacy Pollution, Water and Wastewater, Workforce Development
	Census Tract 711	4,939	9	4	Energy, Housing, Legacy Pollution, Workforce Development
	Census Tract 705	1,855	12	5	Energy, Housing, Legacy Pollution, Transportation, Workforce Development
	Census Tract 720	3,518	3	2	Housing, Workforce Development
	Census Tract 721	5,224	1	1	Workforce Development
	Census Tract 709	2,886	13	6	Energy, Health, Housing, Legacy Pollution, Transportation, Workforce Development
	Census Tract 712	5,508	9	4	Energy, Housing, Legacy pollution, Workforce Development
	Census Tract 732	2,695	7	3	Housing, Legacy Pollution, Workforce Development
	Census Tract 743	4,978	7	4	Energy, Housing, Legacy Pollution, Workforce Development
	Census Tract 713	2,699	7	5	Energy, Housing, Legacy Pollution, Transportation, Workforce Development
	Census Tract 716	2,607	10	6	Energy, Health, Housing, Legacy Pollution, Transportation, Workforce Development
	Census Tract 704	1,480	2	1	Workforce Development
	Census Tract 714	3,632	9	4	Energy, Housing, Transportation, Workforce Development
	Census Tract 723	5,630	1	1	Workforce Development
	Census Tract 733	3,568	7	4	Energy, Housing, Legacy Pollution, Workforce Development
	Census Tract 734	4,025	2	1	Workforce Development
	Census Tract 736	2,423	8	4	Energy, Housing, Legacy Pollution, Workforce Development
	Census Tract 744	4,536	8	6	Climate Change, Energy, Housing, Legacy Pollution, Transportation, Workforce Development
	Census Tract 724	3,023	3	2	Legacy Pollution, Workforce Development
	Census Tract 740	2,137	7	5	Energy, Housing, Legacy Pollution, Transportation, Workforce Development
	Census Tract 706	2,556	2	1	Workforce Development
	Census Tract 722	3,884	1	1	Workforce Development
Census Tract 731	6,074	6	4	Health, Housing, Legacy Pollution, Workforce Development	
Census Tract 702	3,880	3	1	Workforce Development	
Census Tract 2106	5,989	1	1	Workforce Development	

Danbury	Census Tract 2101	5,648	7	5	Climate Change, Housing, Legacy Pollution, Water and Wastewater, Workforce Development
	Census Tract 2103	5,845	1	1	Workforce Development
	Census Tract 2102	6,355	2	1	Workforce Development
	Census Tract 2107.01	5,840	4	3	Transportation, Water and Wastewater, Workforce Development
	Census Tract 2107.02	4,642	2	2	Transportation, Workforce Development
	Census Tract 2572	4,096	7	5	Energy, Housing, Legacy Pollution, Transportation, Workforce Development
Fairfield	Census Tract 612	2,504	1	1	Workforce Development
Greenwich	Census Tract 113	3,416	1	1	Workforce Development
New Milford	Census Tract 2531	3,425	1	1	Transportation
Norwalk	Census Tract 442	4,080	1	1	Workforce Development
	Census Tract 445	4,055	2	2	Housing, Workforce Development
	Census Tract 441	3,348	3	3	Climate Change, Housing, Workforce Development
	Census Tract 440	5,927	6	5	Housing, Legacy Pollution, Transportation, Water and Wastewater, Workforce Development
	Census Tract 432	3,206	1	1	Workforce Development
	Census Tract 444	4,018	3	2	Climate Change, Workforce Development
Shelton	Census Tract 1101	2,931	1	1	Workforce Development
Stamford	Census Tract 201	5,436	1	1	Workforce Development
	Census Tract 219	6,185	1	1	Workforce Development
	Census Tract 221	8,149	4	3	Housing, Transportation, Workforce Development
	Census Tract 215	6,470	8	5	Housing, Legacy Pollution, Transportation, Water and Wastewater, Workforce Development
	Census Tract 214	7,258	6	3	Housing, Legacy Pollution, Workforce Development
	Census Tract 218.02	5,267	1	1	Workforce Development

EPA IRA Disadvantaged Communities			
Town	Census Tracts		
Bethel	2002	N/A	N/A
Bridgeport	701	719	733
	702	720	734
	703	721	735
	704	722	736
	705	723	737
	706	724	738
	709	725	739
	710	726	740
	711	727	743
	712	728	744
	713	729	2572
	714	731	N/A
716	732	N/A	
Danbury	2101	2102.02	2106
	2101.01	2103	2107.01
	2101.02	2104.02	2107.02
	2102.01	2105.01	2114
Darien	302	304	N/A
	303	305	N/A
Fairfield	607	612	615
	610	614	N/A
Greenwich	105	109	111
	107	110	113
New Milford	2531	N/A	N/A
Norwalk	427	438	442
	430	439	444
	432	440	445
	434	441	446
Shelton	1101	1102.01	N/A
Stamford	216	213	218.01
	201.02	214	218.02
	201.03	214.01	219
	201	214.02	220
	205	215	221.01
	206	215.01	221
	208	215.02	222.01
	209	216.02	222
	210	217.01	222.02
	211	217	223
	212	217.02	224
Stratford	801	804	N/A
	802	808	N/A

Appendix D

LIDAC Communities
Benefits/Disbenefits
Categories

LIDAC Benefits/Disbenefits Criteria

The implementation of the measures set forth within the Priority Climate Action Plan can have multiple benefits and disbenefits to LIDACs populations. To mitigate the number of disbenefits and understand the benefits, each measure was evaluated based on four criteria that are often disproportionately impacting these communities. The four criteria are below.

Climate Risk

Sea level rise, flooding, severe storms, drought, and heat are all examples of climate risks that can have direct impacts on LIDAC populations. Because these neighborhoods experience limited financial resources, and poorly maintained, insufficient, and aged infrastructure, it is difficult to adequately safeguard buildings and roads from climate risks without outside investment and community buy in.

Considering and including LIDACs in climate risk preparedness planning, mitigation strategy development, and in measures that empower neighborhoods with climate ready preparedness can greatly benefit these communities. Focusing on identifying solutions that protect their mobility, access, property, health, and wellbeing can mitigate the disbenefits associated with climate risks.

Cost Burdens

The cost burden category is a combination of factors that influence affordability, including housing, energy, and transportation. Due to the prohibitive costs often associated with these categories, many families cannot afford their basic needs: shelter, heat, and transport.

High housing costs disproportionately affect LIDACs. As the only affordable housing is often rental housing in older buildings equipped with poorly maintained equipment such as out-of-date HVAC systems or energy-intensive lighting, low-income tenants may face burdensome energy costs wholly outside of their control. High housing costs in the city center can also lead some residents to move to nearby suburban or rural areas with limited public transportation availability. As a result, captive public transportation riders (such as those without access to a vehicle), may trade lower housing costs for long commute times and additional incurred costs.

The addition of measures and strategies that mitigate these costs can provide several benefits to LIDAC populations.

Environmental Burdens

Environmental burdens can be classified as activities that have a negative impact on or pose risks to the environment. Environmental burdens often accompany social vulnerabilities that affect the quality of life of LIDAC populations, such as pollution, water quality, and public health.

Due to many LIDAC populations living in areas that experience these vulnerabilities, associated environmental burdens will likely be exacerbated in these areas. For example, the urban heat island effect can be negatively correlated with both air pollution and public health as limited urban tree canopy contributes to surface temperature, air quality, and general health.

Due to the intertwined nature of the environmental burden categories these negative impacts can be compounded in disadvantaged communities. Prioritizing measures that reverse the effects of

multiple burdens is essential for mitigating these effects for communities that are living in already impacted environmental areas.

Workforce Development

Workforce development affects most of the LIDAC designated census tracts within the region. LIDAC populations tend to have lower employment rates and more barriers to employment than their non-LIDAC counterparts. Creating jobs and programs across sectors aimed at mitigating common workforce disbenefits was a common discussion point at the engagement sessions throughout the region.

In Connecticut, there are several workforce development offices and programs that are focused on adding more skilled workers into the green jobs field. To successfully implement the measures within, workers of all skill levels will be critical in all fields and will be essential to boost the green jobs field.

Prioritizing measures that capitalize on already established programs and create high-quality, stable, and well paid, job opportunities will have a positive impact on every LIDAC designated community within the region.

Appendix E

Assumptions for GHG Measures

Greenhouse Gas Reduction Measure Quantification Approach

The estimated greenhouse gas emissions (GHG) reductions were calculated for 14 of the 16 of the measures using a variety of publicly available data. All emissions reduction values are provided in units of metric tons of carbon dioxide equivalent per year (MTCO₂e/year), for the year that the measure is completed. Data sources include:

- Reports published by CT state departments
 - *Examples: 1990-2021 CT Greenhouse Gas Emissions Inventory, 2016 Comprehensive Materials Management Survey, etc.*
- Local examples of successful projects that have tracked metrics
 - *Example: Solarize MA campaign, etc.*
- Quantification tools developed by governments and utilities
 - *Examples: EPA Avoided Emissions and Generation Tool (AVERT), Connecticut Clean Heating and Cooling Calculator, etc.*

The emissions reduction calculations were calculated independently of the GHG Emissions Inventory because limited activity data used in the inventory was provided by UMass Amherst, the leading organization for the GHG emissions inventory. No single year was used for the baseline inventory so data from the most recent year available was used in most instances for the reduction calculations. Emissions factors used in the calculations were sourced from the EPA's 2023 Emissions Factors Hub.ⁱ

Emissions associated with electricity are expected to decrease over time as more renewable energy is included in the ISO New England grid mix. For measures related to electrification of buildings and vehicles, the increased electricity associated with the switch from fossil fuels to electric was included in most calculations. During the Comprehensive Climate Action Plan, additional emissions modeling will better estimate the changing electricity emissions factors.

A brief description of the key assumptions accompanies the values for each measure. Emissions reduction calculations are calculated per measure and should not be viewed as an aggregated amount due to potential for double counting emissions reductions and/or interactivity between measures.

TRANSPORTATION ACTION AREA

1a. Electric Vehicles

1a. GHG Emissions Reduction = 338,725 MTCO₂e/year

1a. Approach: The CT GHG Emissions Inventory (1990-2021) report estimates that of the 2.5 million gasoline light duty vehicles in CT, about 500,000 will need to be EVs by 2030 to meet emissions reduction targets (20%).ⁱⁱ This means that an estimated 109,673 vehicles in the MSA need to be electric by 2030,ⁱⁱⁱ which would decrease gasoline usage by 44 million gallons per year, resulting in a savings of 394,658 MTCO₂e per year. An increase in 267 million kWh would be required for charging, equivalent to 55,933 MTCO₂e based on today's grid, but this will decrease over time as the grid becomes saturated with more renewables.

1b & 1c. Active Mobility & Public Transit

1b & 1c. GHG Emissions Reduction = 74,141 MTCO_{2e}/year for EACH Measure

1b & 1c. Approach: The CT GHG Emissions Inventory (1990-2021) report includes a goal of reducing VMT by 5% by 2030 through increase in active transportation/complete streets, increase in transit frequency, increase in transit access, transit oriented development, and trip reduction programs.^{iv} The MSA is responsible for 7.1 billion VMT per year^v, so a 5% reduction would yield gasoline savings of 16.8 million gallons or 148,281 MTCO_{2e} per year. This value was split between the Active Mobility Measure and the Public Transportation Measures equally.

BUILDINGS ACTION AREA

2a. Residential & Commercial Building Upgrades

2a. GHG Emissions Reduction = 355,499 MTCO_{2e}/year

2a. Approach: The estimated reduction is based on reductions in residential and commercial energy usage, as well as increases in solar photovoltaic and heat pump installations in residential buildings for one year. The majority of emissions reductions are a result of a 10% reduction in residential and commercial electricity and natural gas usage from 2022 EnergizeCT reported data. As for solar, the current capacity of the region is 19,969 kW based on 2023 Installed Renewables Report from EnergizeCT. Based on the Massachusetts Solarize MA campaign where an average of 42.1 solar installations were contracted per municipality with an average capacity of 6.9 kW,^{vi} Fairfield County (and New Milford and Bridgewater) could increase solar capacity by 7,262 kW per year or 36.4% with a similar installation campaign. Applying the same percent increase for heat pump installations would increase the number of heat pumps installed per year from 3,978 to 5,426, based on 2023 Heat Pump Installations data from EnergizeCT.^{vii} Heat pump emissions savings per home are based on the conversion of a natural gas boiler to a ductless air source heat pump for a 2,0000 square foot home, using the Connecticut Clean Heating and Cooling Calculator.^{viii}

2c. Municipal Building Upgrades

2c. GHG Emissions Reduction = 62,307 MTCO_{2e}/year

2c. Approach: The estimated reduction was calculated using average building energy consumption data from 107 municipalities in Massachusetts, as a proxy for municipal data for Fairfield County (and New Milford and Bridgewater). This included electricity, natural gas, and fuel oil. If municipal building upgrades reduced energy usage by 10%, this could yield an estimated emissions savings on 62,307 MTCO_{2e}/year. This calculation may be updated in the Comprehensive Climate Action Plan, if data is available for the municipalities within the metropolitan statistical area (MSA).

2c. Legislative Change

2c. GHG Emissions Reduction = 4,402 MTCO₂e/year

2c. Approach: This measure pertains to buildings that have not yet been constructed and therefore quantifies avoided emissions from future development.

The new Massachusetts stretch code can be used as a guide for estimating the reductions from implementing new codes in Connecticut. To estimate the emissions reductions from the implementation of new codes, the Home Energy Rating System (HERS) score of the new codes can be compared with the HERS score of the current codes. The minimum HERS score is currently 55 in the Connecticut codes^x and 42 in the new Massachusetts stretch codes.^x If new stretch codes similar to the new Massachusetts codes were implemented in Connecticut, new homes constructed in Connecticut would be 13% more energy efficient. This energy efficiency value was multiplied by the estimated number of new homes to be constructed in the MSA each year and by the average energy requirement of the house that the HERS is based on, to obtain a value for the emissions reduced by this measure. The estimated number of new homes constructed in the MSA each year is an average of the building permits authorized in the MSA over the last five years.^{xi}

2d. Carbon Reduction Plan Reporting

2d. GHG Emissions Reduction = 18,447 MTCO₂e/year

2d. Approach: While emissions reductions associated with reporting are relatively low, this is an important early step in understanding emissions from individual businesses and organizations, and planning for how to reduce their emissions. If carbon reduction plan reporting inspires commercial entities to reduce electricity and natural gas consumption by even just 1%, the MSA would experience a reduction of 18,447 MTCO₂e/year, based on 2022 usage from EnergizeCT.^{xii} This method for quantification may be an overestimate because reporting and action to reduce emissions are not required.

ELECTRIC POWER ACTION AREA

3a. Renewable Energy Generation, Use, & Storage

3a. GHG Emissions Reduction = 11,289 MTCO₂e/year

3a. Approach: The Building a Low Carbon Future for Connecticut Report identifies that part of the efforts needed to reach a 66% reduction in the electric sector by 2030 include deploying least 50 megawatts per year of distributed solar and 10 megawatts per year of fuel cells.^{xiii} Based on the current eGRID emissions factor for New England and the amount of energy that will be produced from 50 MW of distributed solar and 10 MW of fuel cells, 41,833 MTCO₂e will be avoided each year. When allocating a portion of this to the MSA based on population (27%), this equates to 11,289 MTCO₂e/year. The cumulative emissions reductions by 2030 from continued expansion of renewables will yield considerable reductions.

WASTE & MATERIAL MANAGEMENT ACTION AREA

4a. Materials Management

4a. GHG Emissions Reduction = 579 MTCO₂e/year

4a. Approach: The UN Development Programme cites that through efficient and more circular use of materials, emissions can be reduced by 40% by 2050.^{xiv} This proportion of reduction would result in a 3.11% annual reduction in solid waste emissions, leading to 579 MT CO₂e reduced annually if the measure was successfully implemented, when applied to the waste generated within the MSA. Given that the GHG emissions inventory did not appear to wholly quantify emissions from incinerated waste, the region's primary disposal method, the Metropolitan Area Planning Council Community GHG Inventory tool^{xv} was used to calculate the emissions associated with the estimated 2021 waste generated by the MSA and disposed of via incineration. This tool uses emissions factors that may vary from the EPA Emissions Factor Hub.

4b. Waste Reduction

4b. GHG Emissions Reduction = 2,053 MTCO₂e/year

4b. Approach: Connecticut's 2016 Comprehensive Materials Management Strategy seeks to "closely align materials management policy and planning with the state's climate action priorities, including greenhouse gas mitigation through waste reduction and diversion from landfill, and ensuring that clean energy and greenhouse gas mitigation priorities are at the forefront of the transition to next-generation materials management technologies." The strategy identified a goal of 60% waste diversion by 2024.^{xvi}

Given that the GHG emissions inventory did not appear to wholly quantify emissions from incinerated waste, the region's primary disposal method, the Metropolitan Area Planning Council Community GHG Inventory tool was used to calculate the emissions reductions. It was determined that an estimated 49,990 tons of waste would need to be reduced within the MSA to meet the 60% reduction road, based on 2021 waste estimates. It was also assumed that 25% of the total calculated waste value (12,498 tons) would be diverted to composting and anaerobic digestion. This tool uses emissions factors that may vary from the EPA Emissions Factor Hub.

Limited waste data was publicly available for recent years from DEEP and data was not obtained directly from the agency within the compressed timeline. This calculation may be updated in the Comprehensive Climate Action Plan, if higher quality data can be obtained.

4c. Reduce Wastewater Energy Use

4c. GHG Emissions Reduction = 1,796 MTCO₂e/year

4c. Approach: Average wastewater treatment facility energy usage from 152 facilities in Massachusetts was used as a proxy and applied to the 17 wastewater treatment facilities in the MSA to calculate the total energy use associated with these buildings. The calculation includes a 10% reduction in wastewater treatment facility electricity, natural gas, and fuel oil and the emissions reduction from 20% of remaining electricity being generated with solar. This calculation may be updated in the Comprehensive Climate Action Plan, if data is available for the municipalities within the metropolitan statistical area (MSA).

CARBON & NATURAL LANDS ACTION AREA

5a. Conserve Land and Promote Smart Growth

5a. GHG Emissions Reduction = 563 MTCO₂e/year

5a. Approach: If an additional 200 acres of land in Fairfield County could be conserved, this would maintain carbon sequestration equal to 282 MTCO₂e/year, based on a sequestration rate of 2.82 MTCO₂e/acre/year from i-Tree estimates.^{xvii}

5b. Expand Green Space & Trees

5b. GHG Emissions Reduction = 2,079 MTCO₂e/year

5b. Approach: The CT GHG Emissions Inventory (1990-2021) report includes a goal of increasing urban tree canopy by 5% by 2040 in environmental justice neighborhoods.^{xviii} It was assumed 2% could be attainable by 2030 and this increase was applied to the current carbon sequestration estimates for Bridgeport, Stamford, Norwalk, and Danbury, yielding a decrease of 2,079 MTCO₂e per year from carbon sequestration. Carbon sequestration estimates for each community were calculated using the OurTree tool from i-Tree.^{xix}

SUSTAINABLE GROWTH ACTION AREA

6a. Climate Friendly Land Use

6a. GHG Emissions Reduction = 941 MTCO₂e/year

6a. Approach: An annual emissions reduction due to climate friendly land use was calculated based on two parameters: increased ease in residential solar installation, and reduction in parking minimums. With a 5% increase in kW from installed solar within the MSA in 2023, 2 GWh of rooftop solar PV total capacity was determined.^{xx} This translates to 493 MT CO₂e annual reductions in emissions. It was further estimated that there is a 10% decrease in household vehicle miles traveled (VMT) if parking is not guaranteed.^{xxi} When coupled with an average of 24.2 VMT currently driven daily per person^{xxii} and approximately 2.48 people per household in CT,^{xxiii} an estimated 447.8 MTCO₂e could be reduced annually. There are many other emissions sources that can be impacted by land use regulations and this calculation only represents a portion of possible emissions reductions.

GREEN ECONOMY ACTION AREA

7a. Green Workforce Development

7a. GHG Emissions Reduction = Not quantified, indirect emissions reductions

While workforce development related actions are crucial for implementing the other measures proposed in this plan, the emissions reductions associated with this measure are difficult to quantify as they are indirect reductions.

7b. Equitable Procurement

7b. GHG Emissions Reduction = Not quantified, indirect emissions reductions

Equitable and sustainable procurement has indirect GHG emissions reductions in the areas of embodied carbon, transportation emissions, and other scope three emissions sources.

ⁱ <https://www.epa.gov/climateleadership/ghg-emission-factors-hub>

ⁱⁱ <https://portal.ct.gov/-/media/DEEP/climatechange/publications/BuildingaLowCarbonFutureforCTGC3Recommendations.pdf.pdf>

ⁱⁱⁱ <https://portal.ct.gov/-/media/DEEP/air/mobile/CHEAPR/EV-Reg-Fact-Sheet.pdf>

^{iv} https://portal.ct.gov/-/media/DEEP/climatechange/1990-2021-GHG-Inventory/DEEP_GHG_Report_90-21_Final.pdf

^v From UMass Amherst, used in GHG inventory calculations

^{vi} <https://www.masscec.com/program/solarize-mass>

^{vii} https://www.ctenergydashboard.com/CEC/CEC_HeatPump.aspx

^{viii} <https://www.cesa.org/projects/building-decarbonization-and-clean-heating-cooling/chc-calculator/connecticut/>

^{ix} <https://portal.ct.gov/-/media/DAS/Office-of-State-Building-Inspector/2022-State-Codes/2022-CSBC-Final.pdf>

^x https://neep.org/sites/default/files/media-files/ma_residential_stretch_code_update_summary.pdf

^{xi} <https://www.census.gov/construction/bps/msamonthly.html>

^{xii} <https://www.ctenergydashboard.com/CEC/CECTownData.aspx>

^{xiii} <https://portal.ct.gov/-/media/DEEP/climatechange/publications/BuildingaLowCarbonFutureforCTGC3Recommendations.pdf.pdf>

^{xiv} <https://climatepromise.undp.org/news-and-stories/what-is-circular-economy-and-how-it-helps-fight-climate-change>

^{xv} <https://www.mapc.org/resource-library/community-ghg-inventory-resources/>

^{xvi} https://portal.ct.gov//media/DEEP/waste_management_and_disposal/Solid_Waste_Management_Plan/CMMSFinalAdoptedComprehensiveMaterialsManagementStrategy.pdf.pdf

^{xvii} https://www.itreetools.org/documents/113/Carbon_storage_and_seq_by_county_FIA.xlsx

^{xviii} https://portal.ct.gov/-/media/DEEP/climatechange/1990-2021-GHG-Inventory/DEEP_GHG_Report_90-21_Final.pdf

^{xix} <https://ourtrees.itreetools.org/#/report?longitude=-73.1894384&latitude=41.1792258>

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- xx https://www.ctenergydashboard.com/CEC/CEC_RenewableEnergy_ReportNew.aspx
- xxi <https://www.sciencedirect.com/science/article/abs/pii/S0967070X13000565?via%3Dihub>
- xxii <https://portal.ct.gov/-/media/DOT/documents/dpolicy/VMT-Reduction-Target.pdf>
- xxiii <https://www.census.gov/quickfacts/fact/table/CT,US/PST045223>

Appendix F

Climate Action Funding Sources

Program Name	Funding Type	Organization	Description	Link
Alternative Fuel Infrastructure Tax Credit	Federal	United States Department of Energy (DOE)	The Alternative Fuel Vehicle Refueling Property Credit is available for qualified AFV fueling property installed in qualified locations on or after January 1, 2023, and through December 31, 2032. Eligible property includes certain fueling equipment for natural gas, propane, hydrogen, electricity, E85, or biodiesel blends of at least 20% (B20+). Consumers who purchase qualified alternative fueling equipment for installation at their principal residence in qualified locations on or after January 1, 2023, and through December 31, 2032, may receive a tax credit of up to 30% of the cost, up to \$1,000. To be eligible, all qualified fueling equipment also must be installed in a population census tract that is a low-income community or not an urban area.	Alternative Fuels Data Center: Alternative Fuel Infrastructure Tax Credit (energy.gov)
BIL Grants for Buses and Bus Facilities (Competitive and Formula)	Federal	United States Department of Transportation (US DOT)	The Grants for Buses and Bus Facilities Competitive Program (49 U.S.C. 5339(b)) makes federal resources available to states and direct recipients to replace, rehabilitate and purchase buses and related equipment and to construct bus-related facilities, including technological changes or innovations to modify low or no emission vehicles or facilities. Funding is provided through formula allocations and competitive grants.	Grants for Buses and Bus Facilities Program FTA (dot.gov)
Charging and Fueling Infrastructure Discretionary Program (FHWA)	Federal	Federal Highway Administration (FHWA)	The Charging and Fueling Infrastructure Discretionary Grant Program (CFI Program) is a competitive grant program created to strategically deploy publicly accessible electric vehicle charging and alternative fueling infrastructure in the places people live and work in addition to along designated Alternative Fuel Corridors (AFCs). This program provides two funding categories of grants: (1) Community Charging and Fueling Grants (Community Program); and (2) Alternative Fuel Corridor Grants (Corridor Program). The Bipartisan Infrastructure Law provides \$2.5 billion over five years for this program to strategically deploy electric vehicle (EV) charging infrastructure and other alternative fueling infrastructure projects in urban and rural communities in publicly accessible locations, including downtown areas and local neighborhoods, particularly in underserved and disadvantaged communities.	CFI - Environment - FHWA (dot.gov)
Clean School Bus Program	Federal	United States Environmental Protection Agency (EPA)	With funding from the Bipartisan Infrastructure Law, the EPA's Clean School Bus (CSB) Program provides \$5 billion over five years (FY 2022-2026) to replace existing school buses with zero-emission and low-emission models. Under the Program's multiple grant and rebate funding opportunities to date, the EPA has awarded almost \$2 billion to fund approximately 5,000 school bus replacements at over 600 schools.	https://www.epa.gov/cleanschoolbus

Clean Water State Revolving Loan Fund (CWSRLF)	Federal	United States Environmental Protection Agency (EPA)	The Clean Water State Revolving Loan Fund (CWSRLF) is a financial assistance program established to provide low-cost financing for infrastructure projects aimed at improving water quality. Managed jointly by the EPA and individual states, the CWSRLF offers loans to local governments, municipalities, and other eligible entities to fund projects related to wastewater treatment, stormwater management, and other water pollution control initiatives. The primary objective of the CWSRLF is to support the construction, upgrade, or repair of water treatment facilities and related infrastructure.	Clean Water State Revolving Fund (CWSRF) US EPA
Diesel Emissions Reduction Act (DERA) Program	Federal	United States Environmental Protection Agency (EPA)	The Diesel Emissions Reduction Act (DERA) Program funds grants and rebates that protect human health and improve air quality by reducing harmful emissions from diesel engines. The DERA program awards national, state, and tribal areas grants, as well as school bus rebates for the switch to cleaner buses.	Diesel Emissions Reduction Act (DERA) Funding US EPA
Energy Efficiency and Conservation Block Program (EECBG)	Federal	United States Department of Energy (DOE)	The Energy Efficiency and Conservation Block Grant (EECBG) Program is a federal initiative designed to support state and local governments in their efforts to reduce energy consumption, improve energy efficiency, and foster sustainability within their communities. The EECBG Program provides financial assistance for a wide range of projects, including energy audits, retrofitting buildings for energy efficiency, implementing renewable energy systems, developing transportation strategies to reduce fuel consumption, and promoting public education and outreach on energy conservation.	Energy Efficiency and Conservation Block Grant Program Department of Energy
EPA's Brownfields Program	Federal	United States Environmental Protection Agency (EPA)	EPA's Brownfields Program collaborates with federal partners, state agencies, Tribal Nations and other EPA offices (e.g., Office of Superfund Remediation and Technology Innovation) to provide direct funding for a variety of brownfield-related activities.	https://www.epa.gov/brownfields/types-funding
IRA Assistance for the Adoption of the Latest and Zero Building Energy Codes	Federal	United States Department of Energy (DOE)	The IRA Assistance for the Adoption of the Latest and Zero Building Energy Codes is a government program aimed at supporting the implementation of cutting-edge energy codes in buildings. The initiative focuses on incentivizing the adoption of the most up-to-date and energy-efficient building codes, with the ultimate goal of promoting sustainable construction practices and reducing carbon emissions. Under this program, the government provides financial assistance, technical expertise, and resources to local authorities, builders, developers, and other stakeholders involved in the construction industry. This assistance may include grants, subsidies, or tax incentives to encourage compliance with the latest energy codes and standards.	Technical Assistance for the Adoption of Building Energy Codes Department of Energy

Low-No Bus Discretionary Program	Federal	Federal Transportation Administration (FTA)	The Low or No Emission (Low-No) Bus Discretionary Program, administered by the Federal Transit Administration (FTA), is a funding initiative aimed at supporting the deployment of buses and infrastructure that reduce emissions and promote environmental sustainability in public transportation systems across the United States. This competitive program provides funding to state and local governmental authorities for the purchase or lease of zero-emission and low-emission transit buses as well as acquisition, construction, and leasing of required supporting facilities. The program prioritizes projects that demonstrate innovation, cost-effectiveness, and a significant impact on reducing greenhouse gas emissions and improving air quality.	Low or No Emission Grant Program - 5339(c) FTA (dot.gov)
RAISE	Federal	United States Department of Transportation (US DOT)	RAISE is a discretionary grant program for investments in surface transportation infrastructure that will have a significant local or regional impact. RAISE Grant Funds were authorized under the Local and Regional Assistance Program in the Infrastructure Investment and Jobs Act, known as the Bipartisan Infrastructure Law (BIL). Capital and planning projects funded under this grant are including but not limited to, passenger and freight rail transportation projects, port infrastructure investments (including inland port infrastructure and land ports of entry), intermodal projects, or planning, preparation, or design of eligible surface transportation capital projects that will not result in construction with RAISE FY 2024 funding.	FY 2024 RAISE Application FAQs US Department of Transportation
Reconnecting Communities and Neighborhoods Grant Program	Federal	United States Department of Transportation (US DOT)	It is the first-ever Federal program dedicated to reconnecting communities that were previously cut off from economic opportunities by transportation infrastructure. Funding supports planning grants and capital construction grants, as well as technical assistance, to restore community connectivity through the removal, retrofit, mitigation, or replacement of eligible transportation infrastructure facilities. Eligible facilities include a highway, including a road, street, or parkway or other transportation facility, such as a rail line, that creates a barrier to community connectivity, including barriers to mobility, access, or economic development, due to high speeds, grade separations, or other design factors.	https://www.transportation.gov/grants/rcnprogram/about-rcp
Safe Streets and Roads for All (SS4A)	Federal	United States Department of Transportation (US DOT)	The Bipartisan Infrastructure Law (BIL) established the Safe Streets and Roads for All (SS4A) discretionary program with \$5 billion in appropriated funds over 5 years, 2022-2026. The SS4A program funds regional, local, and Tribal initiatives through grants to prevent roadway deaths and serious injuries. Over \$3 billion is still available for future funding rounds. The SS4A program supports the U.S. Department of Transportation's National Roadway Safety Strategy and our goal of zero roadway deaths using a Safe System Approach.	Safe Streets and Roads for All (SS4A) Grant Program US Department of Transportation

Transit Oriented Development (TOD) Planning	Federal	United States Department of Transportation (US DOT)	Planning studies funded through this program examine ways to develop affordable housing near transit, improve economic development and ridership potential, foster multimodal connectivity and accessibility, improve transit access for pedestrian and bicycle traffic, engage the private sector, identify infrastructure needs, and enable mixed-use development near transit stations.	Pilot Program for Transit-Oriented Development (TOD) Planning US Department of Transportation
Transportation Alternatives (TA) Program	Federal	Connecticut Department of Transportation (CT DOT) & the Federal Highway Administration (FHWA)	The TA Program offers a source of funds for addressing the needs of non-motorized transportation users. A primary focus of the State's program is safety, accessibility and connectivity. The federal FAST Act provides funding for TA projects under a set-aside from the Surface Transportation Block Grant (STBG) program, reference: FAST Act § 1109; 23 U.S.C. 133 (h). These set-aside funds include all projects and activities that were previously eligible under the Moving Ahead for Progress in the 21st Century (MAP-21) funding bill, encompassing a variety of smaller-scale transportation projects such as pedestrian and bicycle facilities, recreational trails, safe routes to schools projects, community improvements such as historic preservation and vegetation management, and environmental mitigation related to stormwater and habitat connectivity.	Highway DesignLocal RoadsTransportation Alternatives MultiUse Trail Program Trail Maintenance (ct.gov)
Carbon Reduction Strategy Program	State	Connecticut Department of Transportation (CT DOT)	In November 2021, President Biden signed the Bipartisan Infrastructure Law (BIL), also referred to as the Infrastructure Investment and Jobs Act (IIJA). This bill will apportion an estimated \$79.1 million to Connecticut over the course of 5 years (FY2022-FY2026) to reduce transportation emissions, defined as carbon dioxide (CO2) emissions from on-road highway sources. Each State is to coordinate with municipal planning organizations (MPOs) to develop a carbon reduction strategy (CRS) to identify and fund projects designed to reduce transportation emissions. The CRS must be updated at least once every 4 years.	Carbon Reduction Program
CHEAPR	State	Connecticut Department of Energy & Environmental Protection (DEEP)	The CHEAPR (Connecticut Hydrogen and Electric Automobile Purchase Rebate) program in Connecticut is a state initiative aimed at promoting the adoption of electric vehicles (EVs) and hydrogen fuel cell vehicles (FCVs). Through this program, residents and businesses in Connecticut are eligible to receive rebates upon purchasing or leasing eligible electric or hydrogen fuel cell vehicles. The amount of rebate varies depending on the type of vehicle and its battery capacity. Incentive amounts currently range from \$4,250 for an eligible new battery electric (BEV), \$2,250 for a plug-in hybrid electric (PHEV), and up to \$9,500 for a fuel cell electric vehicle (FCEV) when a Standard Rebate is combined with Rebate+ New for Rebate+ qualified individuals.	CHEAPR - Home (ct.gov)

CHEAPR+	State	Connecticut Department of Energy & Environmental Protection (DEEP)	<p>This is an income eligible version of the CHEAPR program offering additional incentive to low income individuals and families to remove the barrier to entry and promote the adoption of EVs in all communities. Eligibility criteria include Rebate+ qualifying individuals must meet one of these criteria:</p> <ol style="list-style-type: none"> 1. Have income less than 300% of the Federal Poverty Level (FPL). 2. Reside in an Environmental Justice (EJ) Community or Distressed Municipality 3. Participate in a qualifying state or federal income qualifying program 	CHEAPR - Rebate Plus (ct.gov)
Climate and Equity Grant Program	State	Connecticut Institute for Resilience and Climate Adaptation (CIRCA) & CT DEEP	<p>The Climate and Equity Grant Program in Connecticut is a state initiative aimed at addressing climate change impacts and promoting equity within communities. This program provides funding opportunities for various projects that increase the capacity of vulnerable communities to mitigate, plan for, and respond to climate change impacts. This funding supports the recommendations of the Governor's Council on Climate Change (GC3). The program prioritizes projects that benefit underserved and marginalized communities, ensuring that vulnerable populations have access to resources and opportunities to address climate-related challenges.</p>	https://circa.uconn.edu/environmental-justice/climate-and-equity-grant-program/#:~:text=In%20collaboration%20with%20CT%20Department,respond%20to%20climate%20change%20impacts.
Commercial Property Assessed Clean Energy (C-PACE)	State	Connecticut Green Bank	<p>The Commercial Property Assessed Clean Energy (C-PACE) program is a financing tool designed to help commercial property owners fund energy efficiency, renewable energy, and water conservation improvements for their properties. It allows property owners to obtain upfront funding for eligible projects, which they then repay through a special assessment on their property tax bill over an extended period, typically up to 20 or 25 years. C-PACE financing is typically available for a wide range of projects, including HVAC upgrades, lighting retrofits, solar panel installations, and more. Eligibility criteria includes manufacturing facilities, offices, retail establishments, houses of worship, nonprofits, and other buildings, nonresidential property or a multifamily property containing 5 units or more, must have a property tax identification number, provide evidence that the mortgage holder (or holders) on the property consents to the C-PACE.</p>	https://www.ctgreenbank.com/c-pace/
Community Connectivity Grant Program (CCGP)	State	Connecticut Department of Transportation (CT DOT)	<p>The goal of the Community Connectivity Program is to make conditions safer and more accommodating for pedestrians and bicyclists, thereby encouraging more people to use these healthy and environmentally sustainable modes of travel. The Community Connectivity Grant Program (CCGP) was developed to provide funding for targeted infrastructure improvements that are commonly identified through RSA's, or other transportation planning initiatives. The purpose of the CCGP is to provide funding directly to Municipalities to perform smaller scale infrastructure improvements that are aligned with the overall program goal. It should be noted that having completed an RSA is not a prerequisite to receiving funding under the CCGP.</p>	https://portal.ct.gov/DOT/PP_Intermodal/CTConnectivity/CT-Connectivity-CCGP

CT EV Charging	State	Connecticut Department of Energy and Environmental Protection (DEEP), Public Utilities Regulatory Authority (PURA)	This initiative involves installing EV charging stations at various locations such as public parking lots, workplaces, multi-unit dwellings, and other high-traffic areas. The program offers financial incentives and support to property owners and businesses interested in installing charging stations, thereby encouraging the growth of EV-friendly infrastructure statewide. By increasing the availability of charging options, the program seeks to reduce range anxiety, promote EV ownership, and contribute to the state's efforts to reduce greenhouse gas emissions and dependence on fossil fuels. Potential funding includes a per-site max rebate of \$40,000 for a level 2 charger at a multifamily building, public area, or workplace in an underserved community or a per-site max rebate of \$250,000 for a DCFC (direct current fast charger) at any property type in an underserved community.	https://portal.ct.gov/PURA/Electric/Office-of-Technical-and-Regulatory-Analysis/Clean-Energy/Programs/Electric-Vehicle-Charging-Program
CT Recreational Trails Program	State	Connecticut Department of Energy & Environmental Protection (DEEP)	Administered by CT DEEP, this program provides grants to local governments, non-profit organizations, and other eligible entities to develop, maintain, and improve trails for various recreational activities such as hiking, biking, horseback riding, and off-highway vehicle use. The program seeks to increase access to outdoor recreational opportunities while promoting the conservation and stewardship of natural resources. Projects funded through this program may include trail construction, rehabilitation, signage installation, accessibility improvements, acquisition of land or easements, and environmental mitigation efforts.	https://portal.ct.gov/DEEP/Outdoor-Recreation/Trails/CRT--Funding
Ctrides	State	CT DOT	CT Rides is a program dedicated to promoting sustainable transportation options for residents and commuters. The program provides resources, incentives, and support to residents/employees, and employers for choosing alternatives to driving alone, such as carpooling, vanpooling, biking, walking, and using public transportation. The program provides information on available transportation options, helps individuals and employers navigate transit systems, offers assistance with carpool and vanpool formation, and provides rewards for choosing eco-friendly commuting methods. Eligibility criteria includes carpooling and reduced fares incentives for public transit options within CT.	https://ctrides.com/
CT-Brownfield Area-Wide Revitalization Planning Grants	State	Connecticut Department of Economic and Community Development (DECD)	The Brownfield Area Wide Revitalization Planning Grants in Connecticut are initiatives aimed at revitalizing and redeveloping brownfield sites throughout the state. Brownfields are abandoned or underutilized properties with known or suspected environmental contamination, which often hinder economic development and pose environmental risks. The goal of this program is to help eligible applicants develop a comprehensive implementation plan for the remediation and redevelopment of neighborhoods, districts, corridors, downtowns, waterfront zones or other areas burdened with multiple brownfields. These grants provide funding to municipalities, regional planning agencies, and non-profit organizations to assess, plan, and prioritize redevelopment strategies for brownfield areas.	Brownfield Planning Grants (ct.gov)

Energize CT	State	Energy Efficient Fund, CT DEEP, CT Green Bank, Utilites	Energize Connecticut is a comprehensive energy efficiency program designed to help residents and businesses in Connecticut save energy, reduce costs, and promote sustainability. The program offers a range of services and incentives to support energy efficiency upgrades, renewable energy adoption, and conservation efforts. Through Energize Connecticut, participants can access resources such as energy audits, rebates, financing options, and technical assistance to make informed decisions about energy use in their homes or businesses. The program also provides education and outreach initiatives to raise awareness about energy conservation and promote environmentally friendly practices. Eligibility criteria includes any residential customer of Eversource, UI, CNG, or SCG depending on the program.	https://energizect.com/rebates-and-incentives
Energy Conservation Loan Program	State	Energize CT	Energy Conservation Loans finance energy conservation improvements for low- and moderate-income single-family (1-4 units) homeowners. Through this program, individuals can access low-interest loans to fund projects such as installing energy-efficient heating and cooling systems, improving insulation, upgrading lighting, and implementing renewable energy systems like solar panels. This program is funded by the Connecticut Department of Housing (CT DOH) and is administered by Capital for Change, Inc (C4C). This loan may be used to finance energy efficient home improvements up to \$25,000 at below-market interest rates. Zero-percent interest rate loans are available for higher-efficiency boilers and furnaces.	Financing Energy Conservation Loan EnergizeCT
Energy Storage Solutions	State	CT Greenbank	The Energy Storage Solutions program in Connecticut aims to promote the adoption and integration of energy storage technologies to enhance the reliability, resilience, and efficiency of the state's energy systems. This initiative, implemented by the Connecticut Green Bank, offers financial incentives and technical support to businesses, municipalities, and homeowners looking to deploy energy storage solutions. Through the program, participants can access funding for various energy storage projects, including battery storage systems, thermal storage, and pumped hydro storage. These solutions help reduce energy costs, mitigate grid constraints, and support the integration of renewable energy sources like solar and wind.	Energy Storage Solutions – A new energy storage program for Connecticut Eversource and UI customers (energystoragect.com)
Get SMARTE Connecticut: 2024 Energy Efficiency Grant	State	Connecticut Department of Economic and Community Development (DECD), supported by the U.S. Department of Energy (DOE)	The Get SMARTE (Smart Manufacturing Assessment and Access to Reduce Technology Emissions) program represents a strategic investment in the state's manufacturing sector's future. With \$2.6 million in funding the grant aims to incentivize individuals, businesses, and organizations to adopt sustainable practices that reduce energy consumption, lower utility costs, and minimize environmental impact. Through financial assistance and technical support, the grant facilitates the implementation of energy-efficient upgrades such as insulation, lighting improvements, HVAC system enhancements, and renewable energy installations.	https://www.ctgreenbank.com/home-solutions/smart-e-loans/

Green and Resilient Retrofit Program (GRRP)	State	United States Department of Housing and Urban Development (HUD)	The Green and Resilient Retrofit program is a comprehensive initiative aimed at enhancing the sustainability and resilience of existing infrastructure and buildings. GRRP provides funding for direct loans and grants to fund projects that improve energy or water efficiency, enhance indoor air quality or sustainability, implement the use of zero-emission electricity generation, low-emission building materials or processes, energy storage, or building electrification strategies, or address climate resilience, of eligible HUD-assisted multifamily properties. GRRP also provides funding to support benchmarking at assisted properties.	Green and Resilient Retrofit Program (GRRP) HUD.gov / U.S. Department of Housing and Urban Development (HUD)
Home Energy Solutions	State	Energize CT	The Home Energy Solutions program from Energize CT is designed to help homeowners improve the energy efficiency of their homes while reducing energy costs and environmental impact. Through this program, qualified technicians conduct comprehensive energy assessments of participating homes, identifying areas where energy is being wasted and providing recommendations for improvements. This program also offers a low income eligibility option to provide no cost program participation to low income families.	https://energizect.com/energy-evaluations/HES https://energizect.com/energy-evaluations/income-eligible-options
Land and Water Conservation Fund (CT DEEP)	State	Connecticut Department of Energy & Environmental Protection (CT DEEP)	The Land and Water Conservation Fund (LWCF) Grant Program is a federal initiative designed to support the conservation and protection of natural areas, wildlife habitats, and recreational opportunities throughout the United States. State and local governments, as well as federal agencies, can apply for LWCF grants to acquire land for conservation purposes, develop parks and recreational facilities, and implement conservation initiatives. The program prioritizes projects that enhance outdoor recreation opportunities, protect critical habitats, and promote environmental stewardship.	Land and Water Conservation Fund Grant Program (ct.gov)
Local Transportation Capital Improvement Plan (LOTICIP)	State	Connecticut Department of Transportation (CT DOT)	The Local Transportation Capital Improvement Program (LOTICIP) provides State funds to urbanized area municipal governments in lieu of Federal funds otherwise available through Federal transportation legislation. The LOTICIP is provided for in Section 74 of Public ACT 13-239.	Highway Design-Local Roads - LOTICIP (ct.gov)
Multifamily Loan Program	State	Energize CT	The Multifamily Loan Program is designed to incentivize property owners to invest in energy-efficient upgrades for multifamily buildings of five or more residential units. This program provides low-interest loans to help cover the costs of eligible improvements such as insulation, heating and cooling system upgrades, lighting upgrades, and energy-efficient appliances. By participating in this program, property owners can reduce their energy consumption, lower utility bills for tenants, and contribute to environmental sustainability.	Financing Multifamily Loan EnergizeCT

National Electrical Vehicle Infrastructure Formula Program (NEVI)	State	Connecticut Department of Transportation (CT DOT) & the Federal Highway Administration (FHWA)	This program will provide \$5 billion over five years for states to deploy direct current (DC) fast electric vehicle (EV) chargers along highway corridors. The NEVI Program provides formula funding to states to award grants to private, public, and nonprofit entities to build, own, maintain and operate chargers. Over the first five years of the NEVI Formula Program, Connecticut will receive approximately \$52 million in dedicated formula funding.	NEVI (ct.gov)
Conservation and Load Management (C&LM)	State	Connecticut Department of Energy & Environmental Protection (DEEP)	The Conservation and Load Management Plan (C&LM Plan) is an energy efficiency and demand management investment plan that develops programs and initiatives to help Connecticut residents and businesses become more energy efficient.	https://portal.ct.gov/DEEP/Energy/Conservation-and-Load-Management/Conservation-and-Load-Management
Regional Waste Authority Program	State	Connecticut Department of Energy & Environmental Protection (DEEP)	DEEP has announced the availability of \$1.5 million in state grant funding through the Sustainable Materials Management Grant Program to help municipalities and regional waste authorities evaluate interest and identify governance to form new or expand existing regional waste authorities and engage in planning activities for diversion programs and infrastructure development.	Regional Waste Authority Grant Program (ct.gov)
Residential Energy Preparation Services (REPS)	State	Connecticut Department of Energy & Environmental Protection (DEEP)	DEEP has launched a new program to remove health and safety barriers (asbestos, mold, knob-and-tube, etc.) to enable weatherization work for income-eligible households. Weatherization is the process of protecting a building from external elements such as wind and precipitation which in turn helps reduce energy consumption and optimize energy efficiency of the building. For many Connecticut households, weatherization is the key to maintaining comfortable living conditions while keeping energy bills low. However, too many households across the state are prevented from weatherizing their homes due to health and safety barriers.	https://portal.ct.gov/DEEP/Energy/Conservation-and-Load-Management/Weatherization-Barrier-Mitigation
Responsible Growth & Transit Oriented Development Grant Program (RGTOG)	State	Connecticut Office of Policy and Management (CT OPM)	The Responsible Growth & Transit-Oriented Development (TOD) Grant Program is an initiative aimed at fostering sustainable urban development by incentivizing responsible growth patterns and the creation of transit-friendly communities. This grant program provides funding to municipalities, developers, and community organizations to support projects that prioritize transit-oriented development principles. Eligible applicants include Connecticut municipalities and Regional Councils of Governments (COGs), although joint applications and collaborative partnerships with developers, non-profits, and other outside entities are generally encouraged.	https://portal.ct.gov/OPM/IGPP/Grants/RGTOD-Grant-Program/RGTOD-GRANTS-HOME-PAGE

State Energy Program	State	Connecticut Department of Energy & Environmental Protection (DEEP)	The State Energy Program, funded by a federal grant from the U.S. Department of Energy (DOE), plays a pivotal role in Connecticut's energy strategy. With an emphasis on promoting energy efficiency and security, alongside fostering environmentally friendly economic growth, this program dispenses approximately \$700,000 annually to projects that align with the state's Comprehensive Energy Strategy. The program's flexibility allows for a broad range of initiatives, from technological advancements in energy efficiency to projects enhancing the state's energy independence and environmental stewardship.	State Energy Program (ct.gov)
Statewide Shared Clean Energy Facility Program (SCEF)	State	Connecticut Department of Energy & Environmental Protection (DEEP)	The Statewide Shared Clean Energy Facility Program in Connecticut aims to promote the development of renewable energy resources across the state through a collaborative approach. Under this program, multiple entities or individuals can come together to finance, develop, and operate clean energy facilities, such as solar arrays or wind farms, at shared locations. Through collaboration and partners, the program seeks to increase access to clean energy while lowering costs for participants. Additionally, the program encourages community involvement and fosters partnerships between public and private entities to accelerate the transition to a sustainable energy future in Connecticut.	https://portal.ct.gov/DEEP/Energy/Shared-Clean-Energy-Facilities/Shared-Clean-Energy-Facilities
Statewide Transportation Improvement Program (STIP)	State	Connecticut Department of Transportation (CT DOT)	The draft STIP lists all highway and public transit projects proposed to be undertaken utilizing Federal Highway and Federal Transit Administration funding. The STIP encompasses various projects that CTDOT intends to pursue during the next four years and covers all towns within the State.	State Transportation Improvement Program (ct.gov)
Sustainable Materials Management Program	State	Connecticut Department of Energy & Environmental Protection (DEEP)	Grant funds available to help municipalities and regional waste authorities initiate and scale up Unit-Based Pricing and/ or food scraps collection programs, pursuant to Public Acts, Spec. Sess., June 2021, No. 21-2, § 308. Grant amounts vary based on scope and expected outcome of the project. Projects are selected by DEEP in alignment with goals of the Comprehensive Materials Management Strategy and the CT Coalition for Sustainable Materials Management	Sustainable Materials Management Grant Program (ct.gov)
Transit Oriented Development Fund	State	Connecticut Department of Economic and Community Development (DECD)	The Transit-Oriented Development Fund is a competitive grant program intended to provide funding to municipalities and Regional Councils of Governments (COGs) for transit-oriented development (TOD) projects and/or projects that demonstrate responsible growth. The \$15 million fund was created to promote development around station stops along the existing and proposed transit corridors. Projects eligible must be located within a half-mile of a station or stop along the CTfastrak, Hartford Line, Shore Line East or Metro-North's New Haven, New Canaan, Danbury and Waterbury lines, and include a residential component with a minimum percentage of affordable housing, based on the specific demographics of each site.	Transit-Oriented Development & Responsible Growth Grant Programs (ct.gov)

Urban Act Grant Program	State	Connecticut Department of Economic and Community Development (DECD)	The Urban Act Grant Program is a state-funded initiative aimed at fostering community development and economic revitalization in urban areas across Connecticut. Through this program, grants are provided to local governments, nonprofit organizations, and community groups to support a wide range of projects focused on infrastructure improvement, job creation, affordable housing, cultural enrichment, and small business development. The program seeks to address the unique challenges faced by urban communities, including poverty, unemployment, and deteriorating infrastructure, by providing financial assistance to initiatives that promote sustainable growth and enhance quality of life for residents.	Urban Act Grant Program
Urban Forestry Equity Grant Program	State	Connecticut Department of Energy & Environmental Protection (DEEP)	The Urban Forestry Equity Program in Connecticut aims to promote environmental justice and equity within urban areas by enhancing tree canopy coverage and green infrastructure. This program focuses on communities that have historically been underserved or marginalized. Through partnerships with local governments, community organizations, and volunteers, the program works to plant and maintain trees in urban neighborhoods, prioritize areas with lower tree canopy coverage and higher levels of pollution or socioeconomic vulnerability. Additionally, the program provides educational resources and training to empower residents to actively participate in tree planting and stewardship activities, fostering a sense of ownership and pride in their communities.	https://portal.ct.gov/DEEP/Forestry/Urban-Forestry/Grants/Urban-Forest-Equity-Grant-Program
VW Settlement Grants	State	Connecticut Department of Energy & Environmental Protection (DEEP)	The initiative is funded by the Volkswagen settlement, which allocated funds to states to mitigate the environmental impact of the company's violation of emissions standards. Through a series of three partial settlements, EPA resolved their civil enforcement case against VW. As a result of these partial settlements, Connecticut was allocated over \$55 million for use towards offsetting the excess NOx emissions caused by VW's actions through extensive mitigation projects, such as the implementation of light-duty EV charging infrastructure, to reduce NOx from a wide array of mobile sources.	VW Settlement - Home (ct.gov)
Weatherization Assistance Program	State	Energize CT	The Weatherization Assistance Program (WAP) offered by Energize CT is a valuable initiative aimed at helping low-income households in Connecticut improve the energy efficiency of their homes. Through this program, eligible individuals and families receive assistance in making their homes more energy-efficient, which ultimately leads to reduced energy consumption and lower utility bills. Must meet low income requirements to participate.	https://portal.ct.gov/DEEP/Energy/Weatherization/Weatherization-in-Connecticut

CT Clean Energy Communities Program 2.0	Local	CT Innovations	<p>The CT Clean Energy Communities Program, administered by CT Innovations, is a state initiative aimed at promoting energy efficiency and renewable energy adoption in municipalities across Connecticut. Through this program, participating towns and cities commit to implementing sustainable energy practices and reducing their carbon footprint. Municipalities earn points by undertaking various clean energy initiatives such as installing solar panels, upgrading municipal buildings for energy efficiency, promoting energy conservation measures, and engaging in community outreach and education on renewable energy topics. As municipalities accumulate points, they become eligible for grants and incentives to further invest in clean energy projects and initiatives.</p>	<p>Layout 1 (ct.gov)</p>
CT Energy Assistance Program	Local	Community Empowerment of Bridgeport, CAAWC Energy Assistance Program of Danbury	<p>The Connecticut Energy Assistance Program (CEAP) is a state-funded initiative designed to help low-income households in Connecticut with their energy bills. This program is managed by Alliance for Community Empowerment of Bridgeport or CAAWC Energy Assistance Program of Danbury. CEAP offers various benefits, including financial assistance for heating bills, weatherization services to improve energy efficiency and reduce energy costs, and crisis intervention for households facing heating emergencies. Eligibility for the program is based on factors such as income, household size, and energy expenses. By providing financial support and energy-saving services, CEAP helps alleviate the burden of energy costs on low-income households, promoting energy affordability and sustainability across Connecticut.</p>	<p>https://www.caanh.net/energy-assistance</p>
Home Energy Solutions Payment Plan (Micro Loans)	Local	Capital for Change	<p>The Home Energy Solutions Payment Plan from Capital for Change is a program designed to assist homeowners in improving the energy efficiency of their homes without facing upfront financial burdens. This program offers homeowners access to affordable financing options specifically tailored for energy-saving home improvements, such as insulation upgrades, HVAC system replacements, and installation of energy-efficient appliances. Additionally, the Home Energy Solutions Payment Plan may offer incentives or rebates for qualifying energy efficiency upgrades, further enhancing its affordability and attractiveness to homeowners looking to reduce their carbon footprint and save on energy costs.</p>	<p>https://www.capitalforchange.org/hes-micro-loan</p>
Landlord Loans	Local	Capital for Change	<p>Capital for Change offers Landlord Loans to property owners in Connecticut who are looking to make energy-efficient upgrades to their rental properties. These loans are designed to help landlords improve the energy efficiency of their buildings, reducing utility costs for both themselves and their tenants, while also promoting environmental sustainability. These loans provide competitive financing options and support for projects such as insulation, HVAC upgrades, window replacements, and more.</p>	<p>https://www.capitalforchange.org/landlord-loans</p>

Low Income Multi-Family Energy Loan	Local	Capital for Change	The Low Income Multi-Family Energy Loan offered by Capital for Change is a financial program designed to support energy efficiency improvements in multi-family residential properties serving low-income communities. This loan provides property owners with accessible financing options to undertake energy-efficient upgrades such as insulation, HVAC system improvements, lighting upgrades, and installation of renewable energy technologies. Eligibility criteria includes loan programs for developers with a minimum of 5 units, at least 60% affordable units, and priority consideration to "high impact properties".	https://www.capitalforchange.org/affordable-housing-loan-program
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Appendix G

Additional Comments from the Public

Google Form Public Comments on Final Measures

Comment

Timestamp

The SW CT Climate Action Plan must include plans for how we will help new/beginning farmers in our area tackle climate change and thrive. Agriculture, including urban agriculture, is a critical part of the climate change solution, but farm viability is being hugely impacted by high land prices, prohibitive zoning, a housing shortage for farm workers, and a lack of aggregate marketing opportunities. Please check out the New CT Farmer Alliance's policy priorities.

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