2024

Priority Climate Action Plan

GENESEE/ FINGER LAKES REGION

| Transportation | Buildings |

GENESEE/FINGER LAKES
Regional Planning Council

Credits and Acknowledgements

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Definitions and Acronyms

Definitions-

Adaptation - Adjustment or preparation of natural or human systems to a new or changing environment which moderates harm or exploits beneficial opportunities. (US EPA)

Adaptive Capacity - The ability of a system to adjust to climate change (including climate variability and extremes), to moderate potential damages, to take advantage of opportunities or to cope with the consequences. (US EPA)

Air Pollution – A mix of hazardous substances from both human-made and natural sources. (National Institute of Environmental Health Sciences)

Climate - The expected frequency of specific states of the atmosphere, ocean, and land including variables such as temperature (land, ocean, and atmosphere), salinity (oceans), soil moisture (land), wind speed and direction (atmosphere), current strength and direction (oceans). Climate encompasses the weather over different periods of time and also relates to mutual interactions between the components of the earth system (e.g., atmospheric composition, volcanic eruptions, changes in the earth's orbit around the sun, changes in the energy from the sun itself). (US Weather Service)

Climate Change - A significant variation of average weather conditions—say, conditions becoming warmer, wetter, or drier—over several decades or more. It's the longer-term trend that differentiates climate change from natural weather variability. (NDRC)

Environmental Justice - The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations, and policies. (US EPA)

Fossil Fuel - including coal, oil and natural gas -- are drilled or mined before being burned to produce electricity or refined for use as fuel. (US Department of Energy)

Greenhouse Gas - Gases that trap heat in the atmosphere are called greenhouse gases. (US EPA)

Heat Island Effect - Heat islands are urbanized areas that experience higher temperatures than outlying areas. Structures such as buildings, roads, and other infrastructure absorb and re-emit the sun's heat more than natural landscapes such as forests and water bodies. (US EPA)

Mitigation - Reducing emissions of and stabilizing the levels of heat-trapping greenhouse gases in the atmosphere. (NASA)

Resilience - A capability to anticipate, prepare for, respond to and recover from significant multi-hazard threats with minimum damage to social well-being, the economy and the environment. (US EPA)

Sustainability - Create and maintain the conditions under which humans and nature can exist in productive harmony to support present and future generations. (US EPA)

Vulnerability - The degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude and rate of climate variation to which a system is exposed, its sensitivity and its adaptive capacity. (US EPA)

Weather - defined as the state of the atmosphere at a given time and place, with respect to variables such as temperature, moisture, wind speed and direction, and barometric pressure (US Weather Service)

Acronyms-

AMI- Average Median Income
IRA- Inflation Reduction Act
CEC – Clean Energy Communities (A New York State Energy and Research Development Authority (NYSERDA) program)
CJWG- New York State's Climate Action Council's Climate Justice Working Group
CLCPA- The Climate Leadership and Community Protection Act
CPRG- Climate Pollution Reduction Grants
CSA – Climate Solutions Accelerator
CSC – Climate Smart Communities (A New York State Department of Environmental Conservation (NYSDEC) program)
DAC- Disadvantaged Communities
GFL- Genesee-Finger Lakes
GFLRPC - Genesee/Finger Lakes Regional Planning Council
GHG – Greenhouse gas
GTC – Genesee Transportation Council
IPCC - Intergovernmental Panel on Climate Change
LIDAC – Low income and disadvantaged communities
NYSDEC - New York State Department of Environmental Conservation
NYSERDA - New York State Energy and Research Development Authority
PCAP – Priority Climate Action Plan
Rochester MSA – Rochester Metropolitan Statistical Area
RTS – Regional Transit Service

1. Introduction

1.1 CPRG Overview

Funding for this Priority Climate Action Plan came from the Climate Pollution Reduction Grants (CPRG) program which 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. Authorized under Section 60114 of the Inflation Reduction Act (IRA), this two-phase program provides $250 million for noncompetitive planning grants, and approximately $4.6 billion for competitive implementation grants. On September 8, 2023, the Rochester, NY Metropolitan Statistical Area (MSA) lead by the Genesee/Finger Lakes Regional Planning Council (G/FLRPC) was awarded a CPRG Planning Grant.

The EPA takes seriously its responsibility to protect human health and the environment as we face increasingly more harmful impacts of climate change. The Genesee-Finger Lakes (G-FL) Region is experiencing more dangerous levels of flooding, drought, extreme heat, and other climate hazards. With these and other climate challenges comes an opportunity to invest in a cleaner economy that can spur innovation and economic growth while building more equitable, resilient communities.

The development of this Priority Climate Action Plan (PCAP or Plan) helps achieve three of the EPA's broad objectives:

1. Tackle damaging climate pollution while supporting the creation of good jobs and lowering energy costs for families.
2. Accelerate work to address environmental injustice and empower community-driven solutions in overburdened neighborhoods.
3. Deliver cleaner air by reducing harmful air pollution in places where people live, work, play, and go to school.

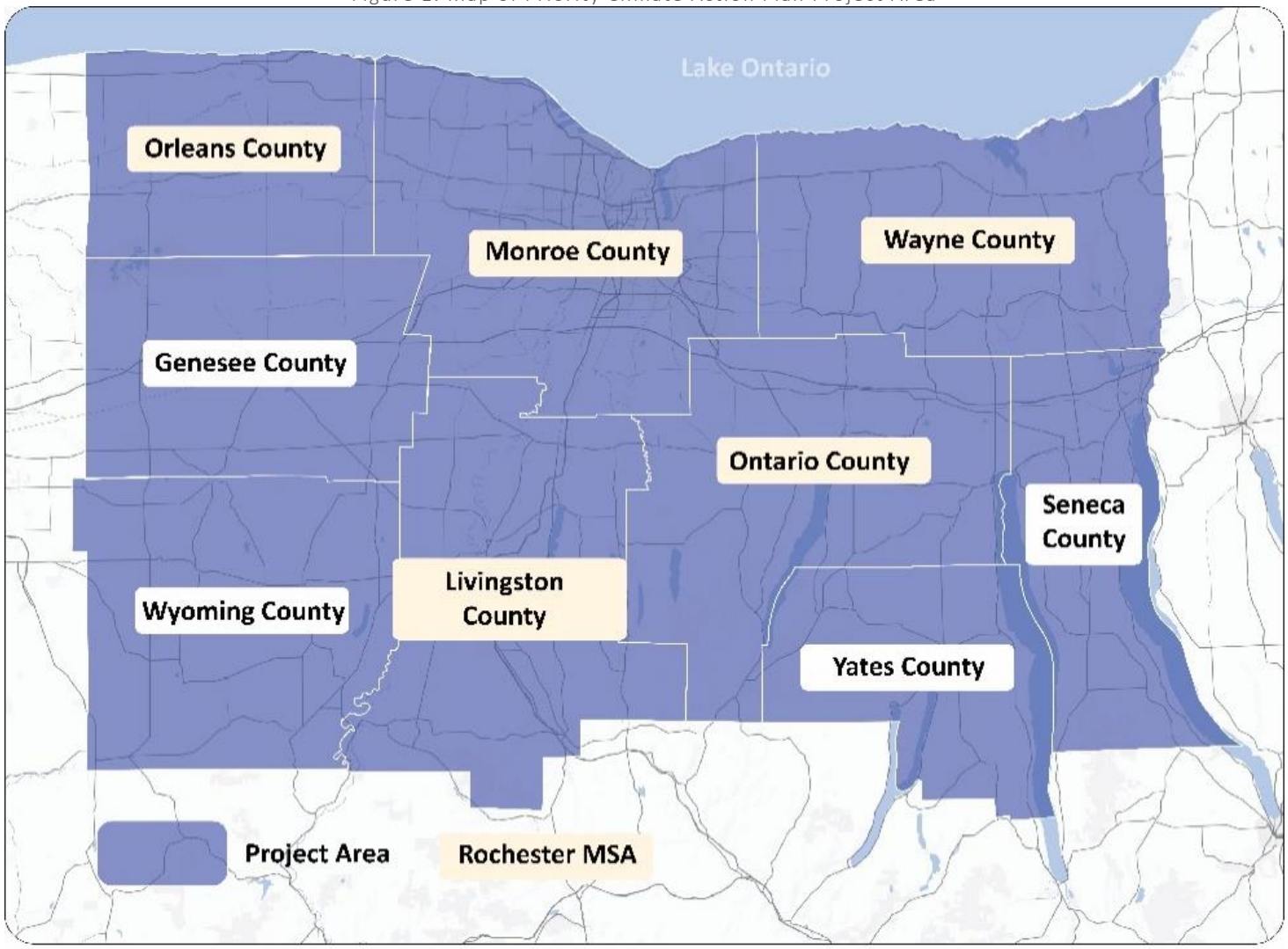
The PCAP will cover the six-county Rochester Metropolitan Statistical Area (Rochester MSA) and three surrounding counties. The PCAP will identify a strategy to decrease greenhouse gas emissions in municipal operations, the transportation sector, and the building and infrastructure sector within the project area, based on the 2010 Finger Lakes Greenhouse Gas Inventory completed by NYSERDA.

1.2 Project Area

The project area incorporates the nine-counties of the Genesee-Finger Lakes Region, including the Rochester MSA (Livingston, Monroe, Ontario, Orleans, Wayne, and Yates counties), and three neighboring counties Genesee, Wyoming, and Seneca. The project area is part of the Genesee-Finger Lakes Region which includes 188 municipalities in the nine-county project area. Eight of the nine counties covered in this PCAP participated in the Advisory committee and outreach efforts as outlined in Section 1.4. It is anticipated that Seneca County will fully participate in the Comprehensive Climate Action Plan process.

The project area stretches south from the shores of Lake Ontario to the low rolling hills of the Appalachian Highlands. This area is home to an abundance of natural resources, rich farmland, important centers of secondary education, industry, and tourism. The project area is home to about one-million residents, a population aging while becoming more diverse.

Figure 1: Map of Priority Climate Action Plan Project Area



Source: G/FLRPC

1.3 Primary Climate Action Plan Purpose

The Priority Climate Action Plan is a narrative report, that includes a focused list of near-term, high-priority, implementation ready measures to reduce GHG emissions and an analysis of GHG emissions reductions that would be achieved through implementation. The PCAP focuses on reducing GHG emissions from transportation, buildings and infrastructure, and municipally run sites, facilities, and operations. By identifying the different possible and probable climate threats that face the Region currently and, in the future, the greater metropolitan area can effectively prepare and increase the environmental capacity to combat these issues. The PCAP will identify strategies that will:

1. Improve sustainability, reduce GHG emissions, and strengthen environmental and economic resiliency of the Genesee-Finger Lakes Region;
2. Create goals, actions, and policies that are innovative and achievable for addressing mitigation and adaptation;
3. Advance NYSERDA's Clean Energy Communities (CEC) and NYSDEC's Climate Smart Communities (CSC) program alongside participating communities in the Region;
4. Build on recent sustainability successes in the Region; and
5. Create a plan that builds consensus and momentum to spur action and provides a clear path forward.

The GHG emissions inventory identified the largest sectors of emissions to determine priority focus areas. Each focus area includes a list of strategies and measures that will help to achieve the goals and reduction targets established during the climate action planning process. This priority plan will include a GHG inventory, GHG reduction measures in the priority sectors, a review of authority to implement the selected measures, a low-income and disadvantaged communities (LIDAC) benefits analysis, and a workforce analysis. The PCAP will draw from existing climate action or sustainability plans and statewide climate action and sustainability programs.

Priority Sectors

The purpose of the PCAP is to identify measures and actions that can support municipalities, industry leaders, and other stakeholders in the project area to reduce their GHG emissions. The PCAP focuses on three priority sectors: municipal operations, transportation, and buildings and infrastructure. These sectors were selected based on the 2010 Finger Lakes GHG Inventory; these sectors were identified as some of the largest emitters of GHG in the project area.

G/FLRPC has identified strategies with underlying measures that address reducing GHG emissions in the transportation and building sectors, as well as strategies and underlying measures that address economy wide GHG emissions. These strategies and measures include actions that municipalities can take to reduce their GHG emissions.

Municipal Operations

The PCAP will examine GHG emissions from municipally run sites, facilities, and operations and develop strategies to mitigate future GHG emissions. Municipal operations are calculated as part of the commercial building sector and account for approximately 1-3% of overall emissions. Municipal operations may be a small percentage of the total Regional emissions; however, they are important to consider due to role municipalities play as leaders in sustainable development.

Transportation

The PCAP will examine the emissions from on-road vehicle traffic occurring in the community. This sector includes the movement of people and

goods by cars, trucks, trains, ships, airplanes, and other vehicles. According to the EPA, most greenhouse gas emissions from transportation are carbon dioxide (CO_2) emissions resulting from the combustion of petroleum-based products, like gasoline and diesel fuel, in internal combustion engines.[1] The largest sources of transportation-related greenhouse gas emissions include passenger cars, medium- and heavy-duty trucks, and light-duty trucks. These sources account for over half of the emissions from the transportation sector in the project area. In the nine-county Genesee Finger Lakes Region transportation emissions account for 5,939,421 MTCO2e or about 37% of all GHG emissions. Transportation strategies and measures address both private and municipal fleet emissions.

Buildings and Infrastructure

The residential and commercial building sectors include all homes and commercial businesses (excluding municipal operations, agricultural and industrial activities). According to the EPA, greenhouse gas emissions from this sector come from direct emissions including fossil fuel combustion for heating and cooling needs, management of waste and wastewater, and leaks from refrigerants in homes and businesses, as well as indirect emissions that occur offsite but are associated with use of electricity by homes and businesses.[2] Commercial buildings account for 2,755,277 MTCO2e or about 17% of all GHG emissions, and residential buildings account for 3,893,424 MTCO2e or about 24% of all GHG emissions. Building strategies and measures address both private and municipal emissions.

1.4 Planning Process

The PCAP was completed under the direction of an Advisory Committee. The project team at Genesee/ Finger Lakes Regional Planning Council facilitated monthly meetings with the Committee. This group consisted of members from the Regional Transit Service (RTS), Genesee Transportation Council (GTC), the Climate Solutions Accelerator of the Genesee-Finger Lakes Region (CSA), NYSERDA's Finger Lakes Regional Clean Energy Hub (AMPED), the City of Rochester, and members from each of the counties (except for Seneca County) representative of various county departments. These monthly meetings with the Advisory Committee helped to refine the goals and vision of the PCAP, including setting measurable GHG emissions goals and identifying and analyzing objectives and strategies with the objective of identifying strategies and recommendations for the implementation of the PCAP. The Committee met four times during the PCAP process:

- October 30, 2023
- December 12, 2023
- January 8, 2024
- February 8, 2024

The project team met with each entity represented in the Advisory Committee to create a baseline assessment of existing projects and goals, as well as gauge priorities, opportunities, and barriers to accomplishing some of the proposed action items. With help from the Advisory Committee, the project team also opened a project submission portal for municipalities to support project development for the implementation grant. The survey opened on December 15, 2023, and continues to be open to collect any project ideas that may need funding outside of the CPRG implementation grant. This survey will continue to provide a sense of what types of climate action projects are already underway and the sectors of GHG emissions that would be impacted by the implementation of these projects. G/FLRPC received two project submissions via the portal and scheduled one-on-one meetings with communities that submitted project ideas.

On January 26, 2024, G/FLRPC met with the Rochester Housing Authority (RHA). This meeting

was held to coordinate the implementation of public housing projects in the Region. RHA serves more than 26,000 lower-income residents and program participants across five counties.

Plan Framework

The fundamental goal of the PCAP planning process is to identify and prioritize strategies and initiatives that will reduce GHG emissions in the Region as described below.

Regional Baseline

The project team reviewed the CSA's Genesee-FLX Climate Action Strategy, Monroe County's Climate Action Plan - Phase I for Governmental Operations, the City of Rochester Climate Action Plan, the 2013 Finger Lakes Regional Sustainability Plan, and the New York State Scoping Plan to develop a Regional baseline. This baseline helped the project team identify PCAP goals, priority sectors, programs and policies that can support Region-wide change.

Development of a GHG Inventory

With support from the Climate Action Associates the project team analyzed the NYSERDA 2010 Finger Lakes GHG Inventory. NYSERDA funded a series of GHG inventories for each of New York State's ten economic development Regions and was utilized as part of the PCAP process. The G-FL regional report contains emissions data from the following priority focus areas: transportation; buildings; and municipal operations.

Previous Engagement Efforts

Before engaging with the PCAP process, various stakeholders had previously engaged in climate action efforts. Some examples are public engagement efforts for the City of Rochester, Monroe County, and CSA's Genesee-FLX Climate Action Strategy processes. In addition, stakeholders have engaged with NYSERDA and DEC in sustainability efforts including the Clean Energy Communities and Climate Smart Communities program. There are also academic, industry-level and grassroots efforts that have approached climate action through education, engagement, and outreach.

Identify GHG Reduction Strategies and Measures

G/FLRPC held one-on-one Choose Initiatives meetings with each of the Advisory Committee organizations. The Choose Initiatives meetings served as an opportunity to go through climate actions and assess which ones our partners have engaged with and discuss future climate action goals and any potential projects to highlight for implementation During these meetings, we also discussed previous outreach efforts and pinpointed potential climate actions that should be bolstered in the Region. The strategies and measures discussed during these meetings and those previously identified during the Regional baseline analysis were prioritized.

Vision Statement

The Finger Lakes Region will work collaboratively to leverage its unique character and assets to improve the health and well-being of the Region through climate action. This will be achieved through collaboration, education, and engagement resulting in an equitable, vibrant, resilient, and healthy Region for current and future generations.

1.5 Why are We Climate Action Planning?

Climate action planning is a proactive, strategic effort to address growing concentrations of greenhouse gases in the atmosphere. Deliberate planning and adjustment of these activities and practices can greatly reduce the amount of greenhouse gases produced and generate numerous community benefits, such as lower utility costs and improved environmental and public health. Strategies and actions identified in the PCAP seek to reduce greenhouse gas emissions within transportation, buildings, and municipal operation sectors. If implemented, these actions will help reduce the Region's GHG emissions, enhance economic vitality, resilience, and viability as a healthy, livable city.

There are many benefits to climate action planning; climate action leads to economic opportunity and job growth, making the Region more attractive for businesses, largely in the sectors related to energy efficiency and the development of non-motorized transportation infrastructure. Figure 2: Benefits of Climate Action Planning is a non-exhaustive list of some of the benefits of climate action planning.

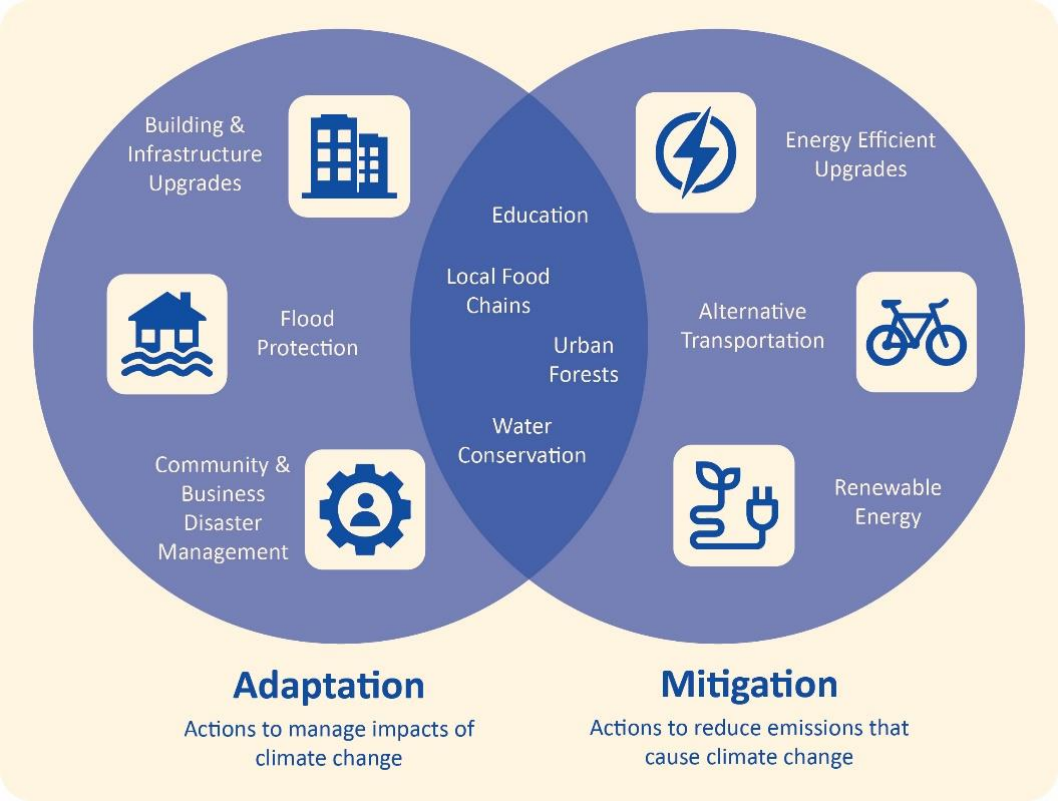
While there are many benefits to climate action, there are also costs of inaction that must be considered. These costs include increased utility expenses, reduced air quality due to ongoing fossil fuel combustion, the potential costs imposed by future carbon regulations, and the cost of ongoing dependence on fossil fuels.

Figure 2: Benefits of Climate Action Planning

Climate Mitigation vs. Adaptation

Addressing climate change requires an integrated approach that targets both its sources and impacts. We will need to utilize efforts that focus on reducing the sources of climate change (mitigation) and efforts that serve to prepare for and minimize harm from the impacts of climate change (adaptation). To navigate the challenges of climate change that face the Region both mitigation and adaptation measures will be crucial. Although mitigation and adaptation can often be separate planning efforts, it is important to consider both components within the overall process. Many initiatives that focus on climate mitigation and reducing GHG emissions include co-benefits for adaptation, and vice versa. This dynamic has contributed to the increasingly common approach of combining climate change mitigation and adaptation in the climate action planning process. This plan will address climate mitigation and examine opportunities for initiatives that provide adaptation benefits.

Figure 3: Adaptation vs. Mitigation in Climate Action Planning



Source: Adapted from Monroe County County-Wide Climate Action Plan

1.6 Regional Strengths, Weaknesses, Opportunities, and Threats

The Regional strengths, weaknesses, opportunities, and threats (SWOT) analysis helps the Region understand where we are now and what do we want our future to be by assessing the Region's unique assets and areas of competitive advantage. The SWOT analysis also identifies the internal or external factors that can keep a Region from realizing its potential. This process will help the Region identify concrete steps to harness the strengths and target the opportunities to better improve climate action.

The SWOT analysis was compiled from the Regional Comprehensive Economic Development

Strategy (CEDS) update in 2021 and from the PCAP Advisory Committee meeting in January 8, 2024 as they directly relate to climate action and resiliency in the Region. Relivent responses from the CEDS process and all responses from the PCAP Advisory Committee meeting are below.

Tables 1-4: Regional Climate Action SWOT Analysis

Table 1: Regional Strengths	
Strong connections and partnership counties, municipalities, and New York State	Quality of life – affordability, recreation, cultural opportunities
Collaboration across different sectors	Local agriculture
Access to abundant fresh water prime farmland soils	Diversified Regional economy
Willingness to try new things to combat climate change (innovation)	Education and workforce systems supporting career awareness, readiness, and parent outreach
There is a lot of climate action momentum already in the Region	An abundance of renewable energy
Participation in CSC and CEC programs, color your community green groups	Natural resiliency to natural disasters due to geographic location (climate refuge)

Table 2: Regional Weaknesses	
Job locations are not linked with existing transportation opportunities	Housing- lack of affordable housing
Lack of inter-Regional public transportation opportunities	Lack of community awareness around climate action
High energy prices	Aging infrastructure including housing and electrical grid
Gap between education programs and job skills needed	Lack of awareness about the quality of life in the Rochester MSA, G/FL Region
Lack of skilled workforce in climate related jobs	Wealth and health inequities
Poverty	Property tax burden

Table 3: Regional Opportunities	
Inter-Regional public transportation opportunities to connect economic development opportunities	Cost of living and affordable housing
Alternative energy initiatives- Grid relief and increase jobs in green technologies. Micro-grids	Education and awareness on individual responsibility and promoting the economic benefits of climate action and energy efficiency
Brownfield redevelopment	Education about the Rochester MSA as a place for climate refuges
Student and graduate retainment	Education and awareness on the things the Region is doing in climate action to attract more residents and businesses.
Technology training to fill the skills gap	Health benefits with climate actions
Opportunities for growth in the technology industry	Regional geography provides climate resilience, access to fresh water and recreation

Table 4: Regional Threats	
Competing land uses	Regional competitiveness
Loss of farmland to large scale solar and sprawl	Invasive species and pathogens
Investment/economic development elsewhere in the state/ country	Political polarization

2. Regional Snapshot

As with any planning process, understanding the demographic and economic trends is essential to making informed recommendations that more adequately address the Region's needs and more closely align with its vision for the future. This section highlights demographic and economic trends in the project area that may impact implementation of the PCAP.

2.1 Demographics

Population

The rate of population growth is a key factor used to generate projections for potential future greenhouse gas emissions. Growth can create more demand for energy and resources, which can in turn impact the greenhouse gas emissions produced within a community. Likewise, a decline in population can result in less demand for energy and resources. Fewer residents does not always translate to lower emissions, but the general trajectory of population growth can inform future projections and help prioritize future actions.

The Regional population, much like other Regions across the state, saw a slight population decline over the last 15 years, though the rate of decline has stabilized since 2010 as shown in Table 5 below. Historically, Monroe County has the largest population in the G-FL Region, while Yates County historically has had the smallest population. Livingston, Orleans, Seneca, Wayne, Wyoming, and Yates counties all saw a slight population drop between 2010 and 2020, with most of those counties seeing population peaks in 2000. Even with population declines in these counties, both the Rochester MSA and Genesee- Finger Lakes Region have seen steady population growth since 1960. During this thirty-year period the MSA has seen over a 30% population.

Table 5: Population for the Genesee Finger Lakes Region (1960-2020)

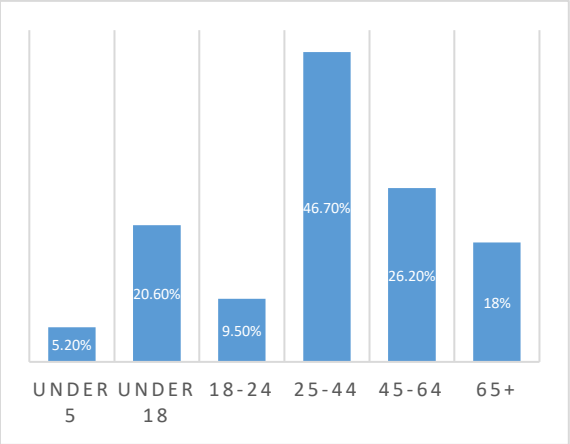
County	1960	1970	1980	1990	2000	2010	2020
Genesee	53,994	58,722	59,400	60,060	60,370	60,079	58,388
Livingston	44,053	55,041	57,006	62,372	64,328	65,393	61,834
Monroe	586,387	711,917	702,238	713,968	735,343	744,344	759,443
Ontario	68,070	78,849	88,909	95,101	100,224	107,931	112,458
Orleans	34,159	37,305	38,496	41,846	44,171	42,883	40,343
Seneca	31,984	35,083	33,733	33,683	33,342	35,251	33,814
Wayne	67,989	79,404	84,581	89,123	93,765	93,722	91,283
Wyoming	34,793	37,688	39,895	42,507	43,424	42,155	40,531
Yates	18,614	19,831	21,459	22,810	24,621	25,348	24,774
Project Area	940,043	1,113,890	1,125,717	1,161,470	1,199,588	1,217,106	1,222,868

Source: U.S. Census Bureau: 2021 5-Year ACS Data

Age

On average the residents of the project area are slightly older than the rest of New York State. The median age in the Region is 42, while the state median is 40. Monroe County has the lowest median age (39), and Wayne and Ontario Counties have the oldest median age (44). As shown in Figure 4 the largest population of project area residents are between 25-44 years old (46.7%). The Region also has a high population of residents under the age of 18 (20.6%), and over 65 (18%). Given the age distribution of residents in the project area, it will be important to consider the needs of young children and an aging population, particularly when developing climate action strategies that pertain to parks, schools, transportation, and housing.

Figure 4: Age Distribution in the Project Area



Source: U.S. Census Bureau: 2021 5-Year ACS Data

Diversity

ESRI's Diversity Index summarizes racial and ethnic diversity. The index shows the likelihood that two people chosen at random from the same area belong to different races or ethnic groups. The index ranges from 0 (no diversity) to 100 (complete diversity). The Diversity index of the project area is 49. 76% of the population is white, 11% is black, 3% is Asian, 7% is two or more races, and 3% is other races. Monroe County and the City of Rochester are the Region's most diverse areas with diversity index scores of 59 and 79, respectively. Yates County has the lowest diversity index score, with a score of 17.

Income and Poverty

The median household income of the G-FL Region is $63,734 which is lower than the NYS median household income of $79,557. The 2016 Poverty and Self-Sufficiency in the Nine-County Greater Rochester Area report estimated that nearly 38% of people in the nine-county Region have incomes that are not self-sufficient; 14.3% who are below the federal poverty level and an additional 23.4% described here as "near poor" (above the poverty level but below the self-sufficiency standard). This calculation provides additional evidence of the extent to which poverty (and near poverty) in our Region is highly concentrated.

Since 2014 poverty rates in New York State have surpassed the national average; approximately 14.3% of New Yorkers live in poverty. The poverty rate for the project area is the same as the State at 13.1% as shown in Table 6. Poverty rates varied slightly in the project area from 14% of Genesee County to 8.5% in Ontario County. Poverty rates are considerably higher and are concentrated in the City of Rochester at 31%, and around 20% in both Batavia and Geneva. There are also pockets of poverty in rural areas outside of cities, in Sodus, Lyons, Geneseo, Mount. Morris, parts of Penn Yan, and Naples.

Table 6: Poverty Status for the G-FL Region (2021)

County	Poverty Rate
Genesee	14.0%
Livingston	11.5%
Monroe	13.7%
Ontario	8.5%
Orleans	14.0%
Seneca	11.9%
Wayne	11.2%
Wyoming	9.2%
Yates	13.2%
Project Area	12.7%

Source: Census Bureau: 2021 5-Year ACS Data

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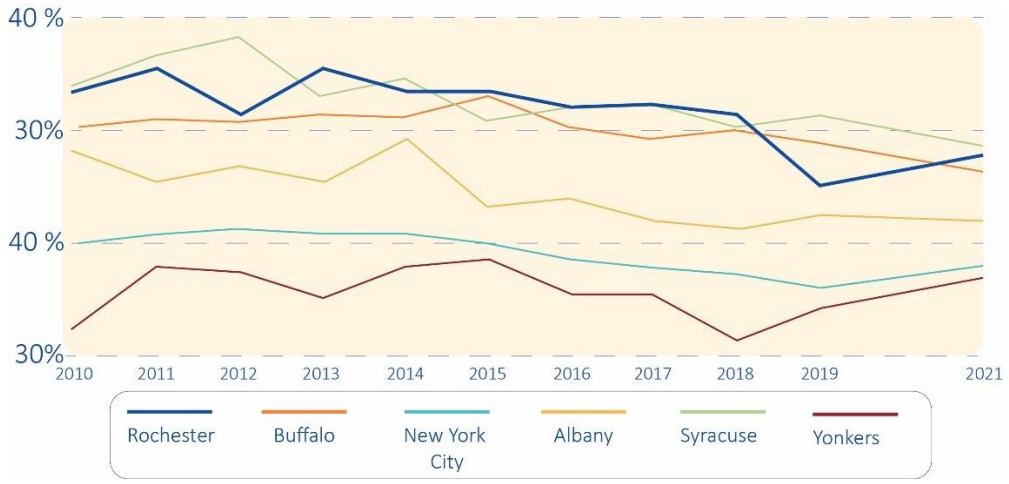
Poverty rates in the six largest cities in the State were significantly higher than the 2021 State average as shown in Figure 5 below. In Rochester and Syracuse, the poverty rate for individuals had been more than 30% since between 2010 and 2017. In Syracuse, Rochester, and Buffalo, one in four people were in poverty in 2021.

Figure 5: Share of Individuals Below Poverty Level, Large New York Cities (2010-2019 and 2021)



Source: Adapted from New Yorkers in Need, Poverty Trends 2022

Low Income & Disadvantaged Communities

Climate change is exacerbating existing inequalities and disproportionately impacting our most vulnerable community members. Those who have contributed least to causing the climate crisis will experience the most devastating impacts.

New York State's Climate Action Council's Climate Justice Working Group (CJWG) developed evaluation criteria to identify disadvantaged communities (DACs) for the purpose of ensuring that frontline and otherwise underserved communities benefit from the state's historic transition to cleaner, greener sources of energy, reduced pollution and cleaner air, and economic opportunities.

The CJWG identified 35% of the census tracts in the G-FL Region as disadvantaged communities and approximately a third of Region's residents face the risk of experiencing an outsized burden from. When including the income-eligibility criteria for the purposes of allocating clean energy and energy efficiency, the Genesee-Finger Lakes Region has approximately 45% of all households fit within the eligibility criteria; 29% within the designated census tracts and an additional 15% of income-eligible households. The Region has a significant population that should be given special consideration when implementing climate solutions. The state's designation shows that climate justice concerns extend across urban centers, suburban towns, and rural areas, each with its own unique needs, challenges, and assets ready to address climate change.

The census tracts identified as disadvantaged closely align with the federal designations for disadvantaged communities through the Climate and Economic Justice Screening Tool (CEJST) and the administrations Justice40 priorities. 27% of the Region's population was identified as living in a disadvantaged census tract. This CEJST tool points to indicators of burdens in eight categories: climate change, energy, health

health, housing, legacy pollution, transportation, water and wastewater, and workforce development. To qualify as disadvantaged at least one of the burden indicators must be above the 90th percentile. The Justice40 Initiative seeks to deliver 40% of the overall benefits of investments in climate, clean energy, and related areas to disadvantaged and low-income communities.

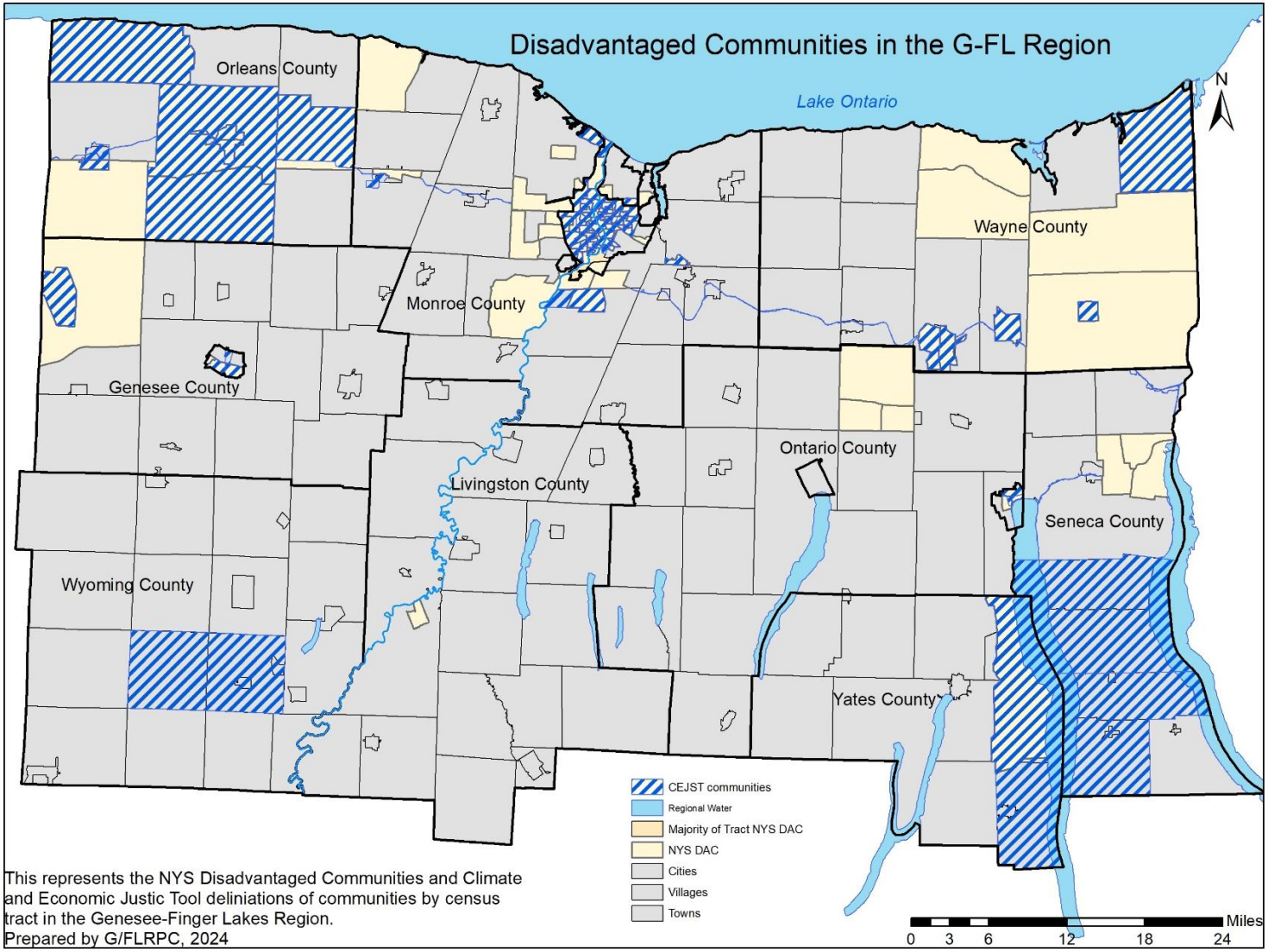
For a full detailed list of each census tract identified as disadvantaged communities please see Appendix A and Figure 6. To learn how G/FLRPC engaged with disadvantaged communities in the Region during the PCAP process, refer to Section 7.

Table 7: Disadvantaged Communities in the Project Area

County	Population in Federal DAC Census Tracts	# of Federal Census Tracts *	Population in State DAC Census Tracts	# of State DAC Census Tracts **
Genesee	7,837	4	11,153	4
Livingston	0	0	2,931	1
Monroe	263,082	67	236,555	81
Ontario	4,654	2	13,887	4
Orleans	26,297	6	18,198	5
Seneca	9,904	2	8,724	3
Wayne	18,960	5	32,160	8
Wyoming	2,856	1	0	0
Yates	6288	1	6,288	1
Project Area Total	367,626	88	329,896	107

Source: * EPA Environmental Justice Screening Tool – 2022
**NYS Disadvantaged Communities Criteria- 2022

Figure 6: Disadvantaged Communities in the G-FL Region



Source: G/FLRPC

Vulnerabilities Among Low Income and Disadvantaged Communities in the Genesee Finger Lakes Region

Climate change is exacerbating existing inequalities and disproportionately impacting our most vulnerable community members. Those who have contributed least to causing the climate crisis will experience the most devastating impacts. In the United States, low-income communities and communities of color are disproportionately impacted by environmental health hazards, including the impacts of climate change such as temperature extremes, severe storms, floods, and vector-borne illnesses. In the Genesee-Finger Lakes Region, groups that are particularly vulnerable to climate change include but are not limited to the following groups: [3]

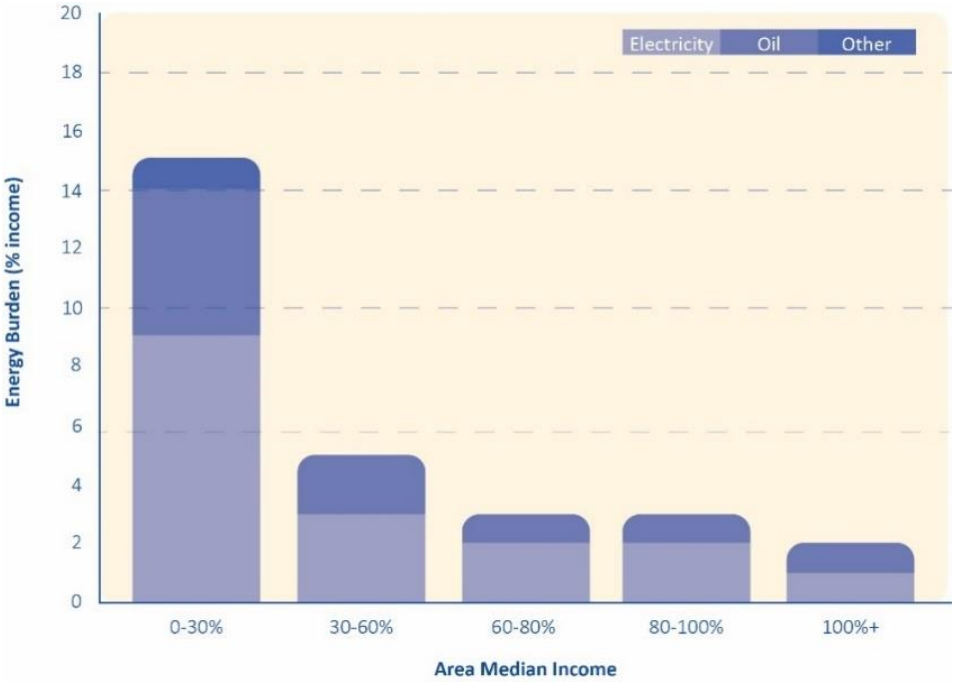
- Disabled- including the deaf community;
- Elderly;
- Children;
- Refugees, immigrants, and undocumented individuals;
- People with underlying health problems, including mental health; and
- Low-income populations.

Energy Burdened Households

Temperature extremes associated with climate change will increase the need for energy to heat and cool homes, exacerbating the already existing energy burden many in the Region face. Despite using less energy, the energy burden on lower income households tends to be high. Low-income households should not pay more than 6% of their income toward their energy needs. However, the national average energy burden for low-income households is 8.6%; three times higher than non-low-income households. This may force vulnerable individuals to choose between keeping the lights on, heating their homes, or buying other essentials, such as food or medicine. According to the LEAD Tool residents who make up between 0-30% of the area median income (AMI)spend about 15% of their income on energy costs. The energy burden drastically decreases as household income increases as shown in Figures 7 and 8. Within the Region an average of 3% of annual household income is spent on energy bills, and the average annual energy cost is $2,316 per year.[4]

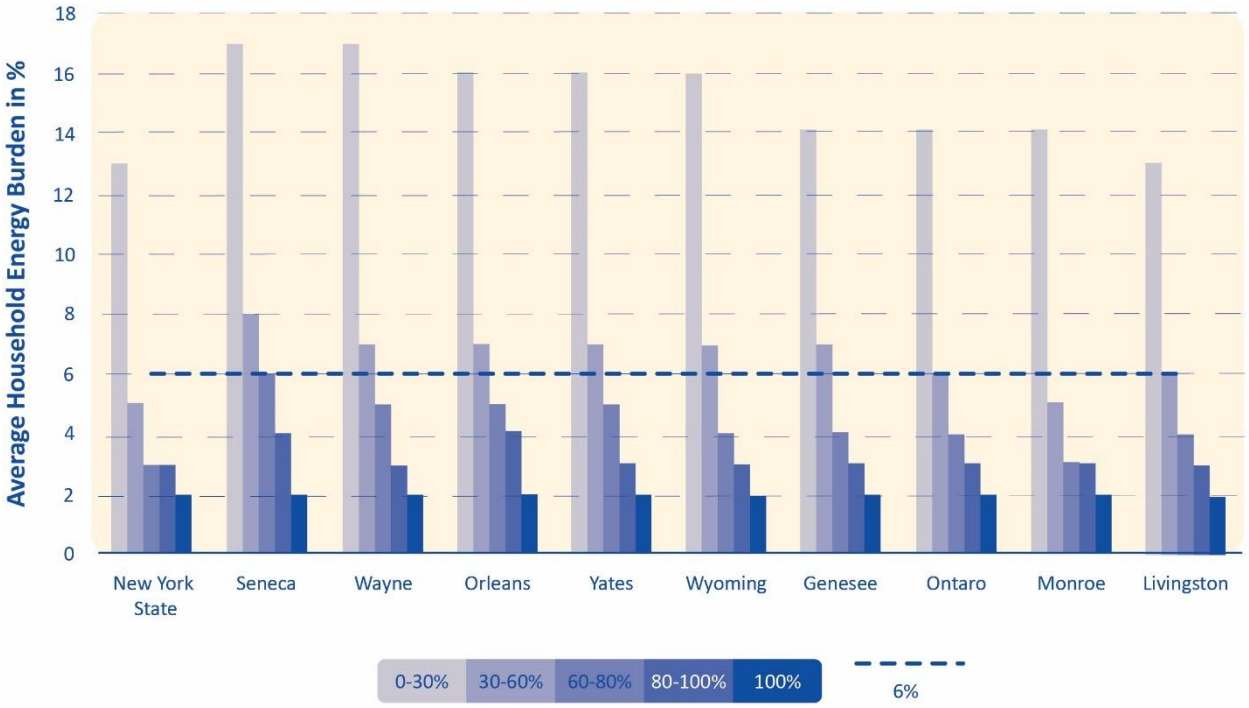
The energy cost burden can be high, especially in older, poorly insulated homes using inefficient heating systems. While there are financial incentives from utilities and state agencies to switch to electric heat pumps and to weatherize the home, it can be challenging for those living in rental units to access those incentives, and the time and paperwork involved can be tedious. Within the project area those who live in homes that were built before 1940 tend to spend a higher percentage of their income on energy costs, making them more energy burdened, and typically those who have lower incomes live in older homes.

Figure 7: Energy Burden for G-FL Region



Source: U.S. Department of Energy Office of Energy Efficiency & Renewable Energy

Figure 8: Average Household Energy Burden (2016-2020)



Source: U.S. Department of Energy Office of Energy Efficiency & Renewable Energy

Health Impacts

Everyone's health is at risk from the impacts of climate change; however, climate change can exacerbate existing health issues and lead to new health care concerns for low income and vulnerable residents. Households in the lowest income quintile already spend 34% of their income on health expenditures and this is anticipated to increase. [5] Approximately 4% of the population of the Region are uninsured, largely the poorest people (17.6% of Yates County and 13.3% of Wyoming County do not have health insurance; this may be due to the high Mennonite and Amish populations in these counties). Rising emissions are boosting healthcare costs by aggravating air quality, increasing respiratory issues, and causing more extreme weather events that result in injuries and worsen chronic conditions. These factors are amplifying the financial burden of healthcare. Nearly every health metric is worse among residents who are poor. According to the 2019 Common Ground Health study, in the Finger Lakes, most chronic health issues are much more prevalent among those with incomes under $20,000 per year. For example, instances of asthma are 239% higher.

Heat waves, and associated heat-related illnesses, are also increasing in the Region. These health impacts are disproportionately affecting the elderly and those without access to air conditioning or cooling centers. These health inequities cost the Region $1 billion per year in increased health care costs and loss of economic productivity. Health shocks and stresses could push more of our Region's most vulnerable Residents into poverty[6].

3. Climate Change and Local Impacts

Climate change poses multiple threats to the people and places of the Region, through temperature increases, extreme flooding, fluctuations in precipitation patterns, and increases in heat-related and vector-borne illnesses. While climate change will impact all residents of the Region, it will not impact everyone equally. According to the City of Rochester's Climate Vulnerability Assessment, climate change will disproportionately impact seniors/elderly, children, communities of color, low-income residents, renters, people without access to vehicles, disabled individuals, individuals without the ability to access resources in a crisis, individuals dealing with substance abuse, non-native English speakers, undocumented immigrants, refugees, visually/hearing impaired individuals, individuals with mental illness and farmworkers. Climate change impacts threaten to undermine the ecological, economic, and social vitality of the Region, and overall public health.

While climate change poses significant challenges, it also offers significant opportunities to reimagine our Region's future. Successfully mitigating and adapting to climate change will require rehabilitating our aging housing stock, reconceptualizing our transportation system, and modernizing the energy grid. These actions create jobs, stimulate our local economy, and make our neighborhoods cleaner, stronger, healthier, and more resilient.

3.1 Climate Science

Understanding climate change begins with understanding the difference between weather and climate. Weather refers to atmospheric conditions that occur locally over a short period of time, such as rain, snow, clouds, or wind. Climate, however, refers to Regional or global average patterns of temperature, humidity, and precipitation over longer time periods. Climate is influenced by the movement of heat and moisture by air and ocean currents, which can affect the temperatures, precipitation, humidity, soil moisture, surface water levels, groundwater levels, and even storm events of a particular Region.

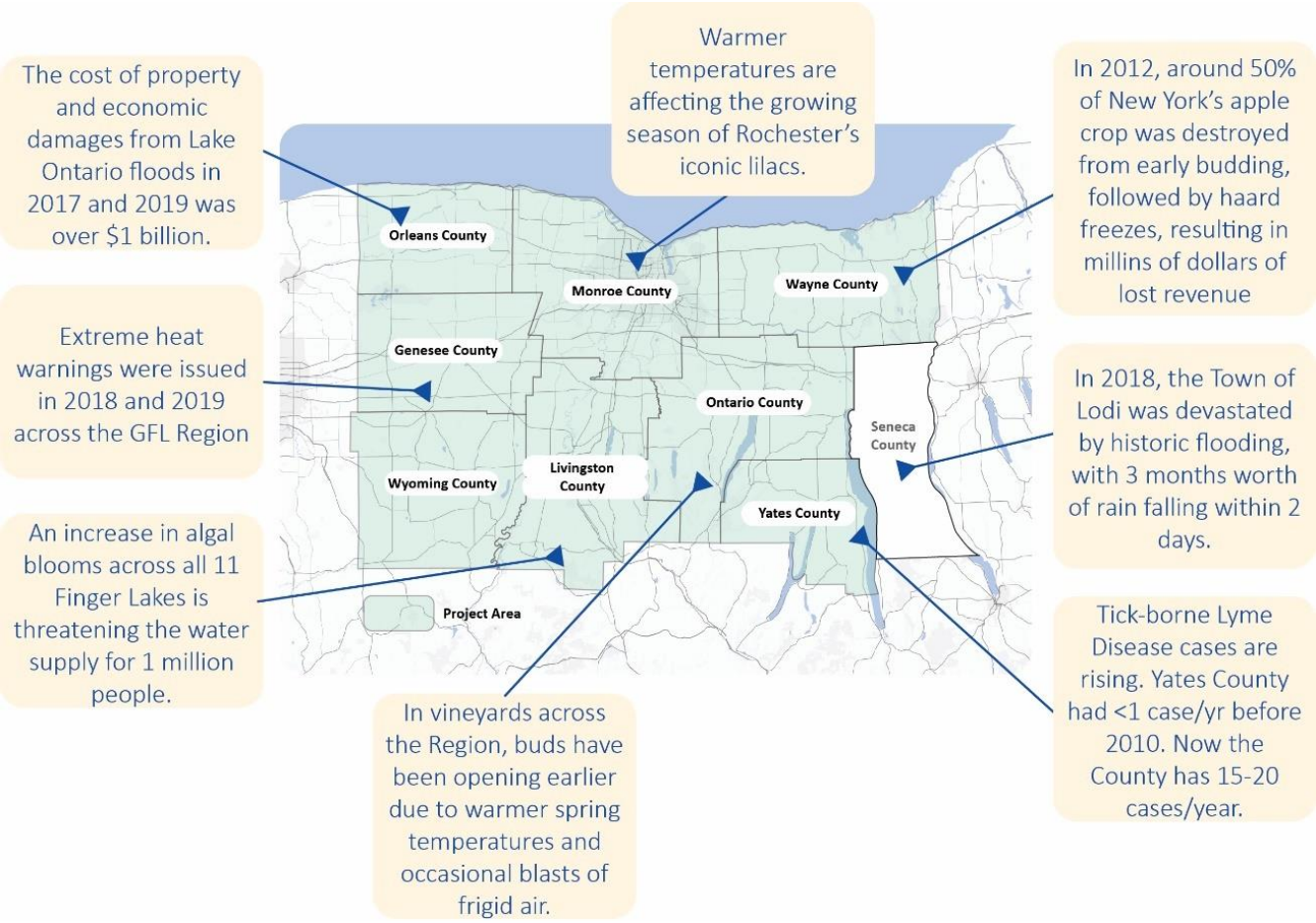
Climate change refers to long-term changes in the average weather patterns that define the Earth's global, Regional, and local climates. When we think of climate change, we think of the physical effects of climate change such as heatwaves, sea level rise, and heavy rainfall, and the impacts on communities and the environment, such as floods and droughts. While some climate change is influenced by naturally occurring changes in the earth's temperature; however, today's climate is changing much more rapidly because of greenhouse gas emissions released from burning fossil fuels, deforestation, wetland loss, and other human activities that are causing the Earth's average temperature to heat up much faster than it would naturally. The Intergovernmental Panel on Climate Change (IPCC) has stated that there is a greater than 95% chance that the rising global average temperatures are primarily due to human activities, driven by growing levels of GHGs in the atmosphere. It's estimated that GHG levels are 40% higher than they were during the preindustrial era, and emissions continue to accelerate.

3.2 Observed and Projected Climate Change in New York and the Finger Lakes Region

According to the New York's Responding to Climate Change in New York State (ClimAID) report (2011, 2014), and the Fifth National Climate Assessment (2023), DEC Observed and Projected Climate Change in NYS, a variety of climate change impacts have already been observed across the northeastern United States, New York State, and the Genesee- Finger Lakes

Region. Effects such as increased precipitation, more frequent and intense storm and flooding events, and increased shoreline erosion, and negative human health impacts are shown in Figure 9: Regional Negative Impacts from Climate Change which is adapted from the Climate Solution Accelerator's Genesee-FLX Climate Action Strategy. GHG emissions must rapidly and significantly be reduced and eventually eliminated to prevent the increasingly harmful impacts of climate change over the next several decades.

Figure 9: Regional Negative Impacts from Climate Change

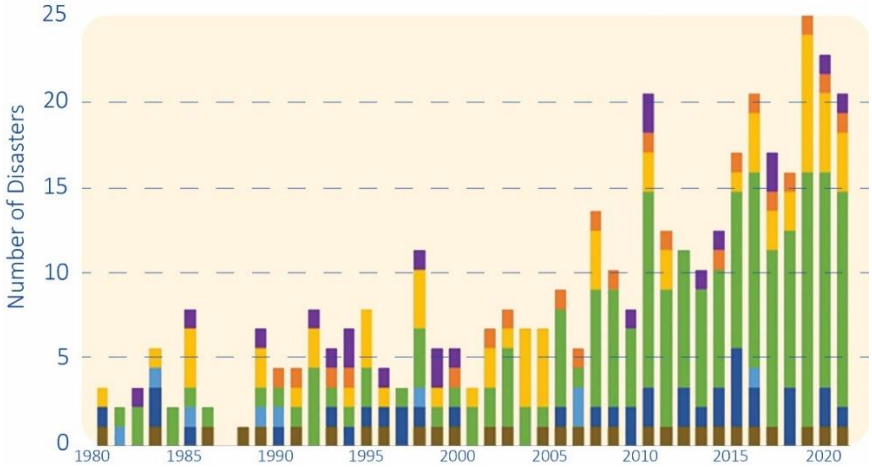


Source: Adapted from the CSA's Genesee-FLX Climate Action Strategy

The United States continues to be confronted with extreme weather, and the Genesee-Finger Lakes Region is no exception. Extreme weather events are becoming more frequent and more expensive. The number and cost of extreme weather events has dramatically increased over the last four decades as shown in Figure 10 below. According to the Fifth National Climate Assessment, in the 1980s, the country experienced, on average, one (inflation-adjusted) billion-dollar disaster every four months. Now, there is on average one every three weeks. Between 2018 and 2022, the U.S. experienced 89 billion-dollar events. Extreme events cost the U.S. close to $150 billion each year (this is a conservative estimate that does not account for loss of life, healthcare-related costs, or damages to ecosystem services). 2020 and 2021 had the two highest number of events on record.

The frequency and intensity of extreme weather events are expected to change state-wide. The ClimAID report provides projections of changes in the frequency of extreme cold, and the changes in frequency and intensity of extreme heat, and extreme rain. While total days of extreme cold (days below 32°F) are projected to decrease statewide, total days of extreme heat (days above 90°F) and the frequency and duration of heat waves are expected to increase in the coming decades. Extreme rain events (additional days with more than 1 inch) are also expected to increase. In addition to the projected increased frequency of heat- and rain-related extreme weather events, the intensity (duration) of these extreme weather events is also expected to increase statewide as shown in Table 8. Reduction in extreme cold also reduces winter die-offs of certain pests, such as ticks, which can contribute to increased incidences of vector-borne illnesses and ecosystem degradation.

Figure 10: Billion Dollar Disasters (1980-2020)



Source: Fifth National Climate Assessment

Table 8: Projected Changes to New York State Extreme Weather, 90th Percentile

Year*	Extreme Heat	Extreme Cold	Number of Heat Waves	Duration of Heat Waves	Extreme Rain
Baseline	0.3 to 18 days	71 to 193 days	0 to 2 / year	3 to 4 days	5 to 13 days
2020s	1.7 to 15	-18 to -11	0.2 to 3	0 to 1	1 to 3
2050s	9.7 to 44	-32 to -19	1 to 7	1 to 2	1 to 4
2080s	26.7 to 73	-37 to -22	3 to 8	2 to 5	2 to 5

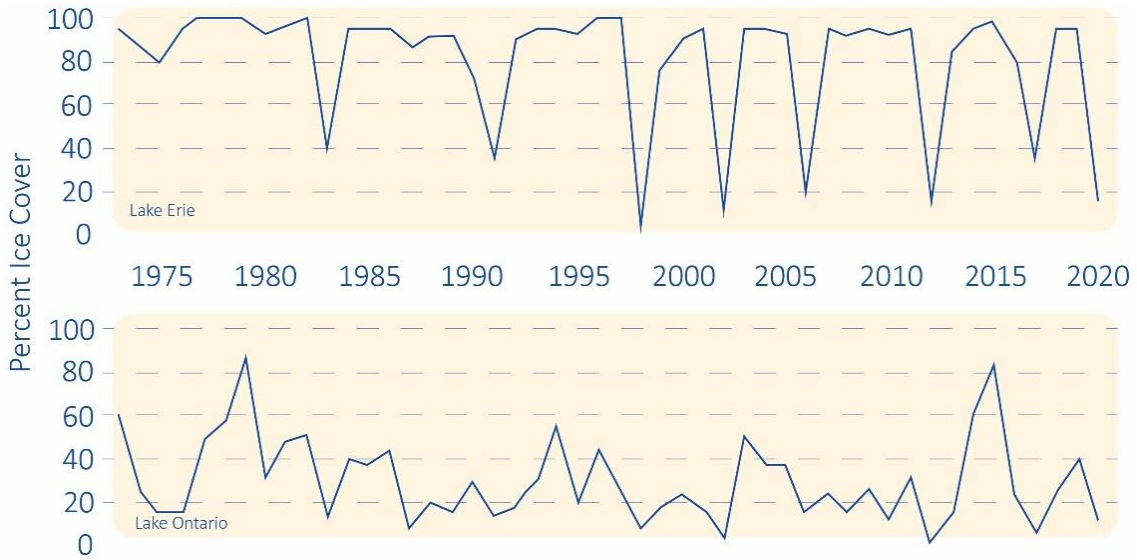
Source: Adapted from data NYS ClimAID report 2014

According to the 2022 NOAA State Climate Summary, since the beginning of the 20th century, temperatures in New York have risen almost 2.5°F, and temperatures in the 2000s have been higher than in any other historical period. The warming has been more pronounced during the winter months. In most recent years the NYS has seen some of the warmest winters on record. On Christmas day 2023, the recorded high at the Greater Rochester Airport was 57 degrees, which is more than 20 degrees warmer than average. The increase in winter temperatures has had an identifiable effect on the Great Lakes ice cover. Since 1998, there have been several years when Lakes Erie and Ontario were mostly ice-free. The maximum seasonal coverage of Great Lakes ice decreased at a rate of about 8% per decade from 1973–2008, amounting to a roughly 30% decrease in ice coverage as shown in Figure 11.[7]

Average annual temperature is projected to increase from baseline conditions (1971 to 2000). As shown in Table 9 temperatures are expected to increase across all Regions in the future. The most drastic increase is projected to occur in the Western New York and Great Lakes Region, the Southern Tier, the Tug Hill Plateau, and the Adirondack Mountains, with temperatures in the 2100s projected to be 13.8 to 13.9°F higher than baseline. Due to seasonal variations, summers are projected to become hotter, while winters will be warmer.

Urban areas within the Region and the State will be 1 to 7°F warmer in the daytime and 2 to 5°F warmer at night than the surrounding areas due to urban heat island effect. Extreme heat is further exacerbated by the lower surface albedo in urban areas, where structures (such as concrete buildings, parking lots, or roads) reemit heat to a higher degree than in outlying areas, increasing nighttime temperatures. The heat-trapping effects are often coupled with a lack of shade and cooling effects provided by tree cover and other green infrastructure causing greater concern for heat impacts and health risks.[8]

Figure 11: Annual Maximum Ice Cover for Lake Erie and Lake Ontario



Source: 2022 NOAA State Climate Summary

Table 9: Average Annual Temperature is Projections in NYS

Region	Mean Temperature				
	Baseline	2020s	2050s	2080s	2100s
Western New York, Great Lakes Region	47.7°F	+ 4.0°F	+ 7.3°F	+ 12.0°F	+ 13.8°F
Catskill Mountain and West Hudson River Valley	50.0°F	+ 3.5°F	+ 6.9°F	+ 10.7°F	+ 12.6°F
Southern Tier	47.5°F	+ 3.8°F	+ 7.1°F	+ 11.6°F	+ 13.8°F
New York City and Long Island	54.6°F	+ 3.2°F	+ 6.6°F	+ 10.3°F	+ 12.1°F
East Hudson and Mohawk River Valleys	47.6°F	+ 3.7°F	+ 7.1°F	+ 11.4°F	+ 13.6°F
Tug Hill Plateau	45.4°F	+ 3.9°F	+ 7.2°F	+ 11.8°F	+ 13.9°F
Adirondack Mountains	39.9°F	+ 3.8°F	+ 7.4°F	+ 11.8°F	+ 13.9°F

Source: Adapted from data NYS ClimAID report 2014

New York has recently experienced a large increase in the number of 2-inch extreme precipitation events. Spring flooding is more frequent within central and northern areas of New York due to the potential for rapid snowmelt and ice jams. Lake Ontario experiences flooding and erosion due to high water levels. Wet spring conditions contributed to record-high water levels and flooding in 2017 and 2019. Cleanup costs, infrastructure damage, and agricultural losses were in the millions of dollars. Between 1996 and 2017 the nine-county Region saw over $90 million in damages during 230 flooding events.[9]

Winter storms occur frequently across the Region which can produce snowfall, flood-producing rainfall, hurricane-force winds, and dangerous cold. As the climate has warmed, ice coverage on the Great Lakes has reduced. This decreasing trend in ice cover will lead to an increase in the number of lake-effect snow events due to greater moisture. Between November 17–19, 2014, a lake-effect snowstorm delivered more than 5 feet of snow just east of Buffalo. A second lake-effect event immediately followed between November 19–20, dropping as much as an additional 4 feet of snow; snowfall rates as high as 6 inches per hour were reported, with some areas receiving more than 3 feet of snow in less than 12 hours. In the longer term, lake-effect snows are likely to decrease as temperatures continue to rise, with the precipitation then falling as rain.

Ecosystems and Natural Resources in a Changing Climate

Climate change affects ecosystems at multiple levels, from the populations that make up ecosystems to the services they provide to communities, economies, and people. Changes in average precipitation and temperature, in frequency and severity of extreme weather, and in sea levels all will severely alter ecosystems and impact natural resources, both abruptly as well as gradually.

According to the Fourth National Climate Assessment, our rural and urban communities have distinct vulnerabilities to climate change. Rural and urban communities together are under increasing threat of climate change and the resulting impacts, and adaptation strategies reveal their interdependence and opportunities for successful climate resilience.

Changes in Species and Populations

As the climate changes, some species will adapt by changing their behavior, physical characteristics, or how their bodies function. Others will not be able to adapt. As a result, climate change could lead to expansions,

reductions, or extinctions of some populations of plants, animals, and other living organisms. These changes, in turn, can affect the overall biodiversity of a Region. Many North American plants and animals have been found to have moved roughly 36 feet to higher elevations every 10 years over the last several decades, due to rising average temperatures.[10] Shifts in precipitation patterns caused habitat alterations and movement as well. Reduced snow cover impacts winter survival, especially for species that depend on snow for insulation and protective habitat or seed development. The inclusion of these organisms within an ecosystem shapes the regional characteristic of our landscape and contributes to the cultural and economic prosperity of local businesses, recreation, and imports and exports.

Invasive species can exploit these dynamic changes, increasing the impact on the regional ecosystems. Freshwater ecosystems are particularly vulnerable to this. The warmer temperatures as well as new precipitation patterns are expected to result in the proliferation of insect populations, including mosquitoes, ticks, and aphids. Pests that would regularly die off during typically harsh cold New York winters are now better able to survive and thrive in New York. These pests will affect the health of trees and could compromise the health of New York's forests.

The growing pest population also may affect the public health of residents. The most reported tickborne disease in the state is Lyme disease. The number of reported tickborne disease cases has more than doubled from 2004-2016 (health.ny.gov). In addition, there have been newly introduced tickborne diseases identified in NYS, due to several factors, one being the warming climate in the State.[11]

Altered Ecosystem Services

Ecosystems provide a broad range of substantially and often economically important contributions to communities. These benefits range from material (e.g., energy sources or food production) and non-material (e.g., recreation), and contribute to the regulation of ecosystem processes. Climate change is having variable and increasing impacts on ecosystem services and benefits; from food production to clean water to carbon sequestration; and these changes in availability and quality of ecosystem services, combined with existing social inequities, have disproportionate impacts on certain communities.[12]

Urban Implications

Residents in urban areas face multiple climate hazards, including temperature extremes, episodes of poor air quality, and intense precipitation events that can lead to increased flooding on urban streams. These physical changes may lead to large numbers of evacuated and displaced populations and damaged infrastructure; sustaining communities may require significant investment and planning to provide emergency response efforts, a long-term commitment to rebuilding and adaptation, and support for relocation. Underrepresented communities, such as the poor, elderly, language-isolated, and recent immigrants, are more vulnerable due to their limited ability to prepare for and cope with extreme weather and climate events.[13]

In July 2023 torrential rains triggered severe flooding in Ontario County. Nearly 6 inches of rain fell in three hours, with 3.8 inches falling in a 45-minute period in the City of Canandaigua. Ontario County reported that over 400 emergency assistance calls were made for residents requesting fire, emergency medical, and law enforcement support after the storm; and some residents reported 4 to 5 feet of water in their homes.[14]

Rural Implications

The seasonality of the Northeast is central to the Region's sense of place and is an important driver of rural economies. Milder winters and earlier spring conditions are altering ecosystems and environments in ways that adversely impact tourism, farming, and forestry. The Region's rural industries and livelihoods are at risk from further changes to forests, wildlife, snowpack, and streamflow.

Unusual winter or early-spring warmth has caused plants to start growing and emerge from winter dormancy earlier in the spring. This causes plants to lose their tolerance to cold temperatures and at-risk damage. Early budbreak followed by hard freezes has led to widespread loss of fruit crops and reduced seasonal growth of native tree species. In the spring of 2012, a warm start to the season prompted the apple trees to blossom early, and a hard freeze shortly after damaged the blossoms, which resulted in apple production falling to nearly 30% of the average which led to great economic loss for the Region's fruit farmers.[15]

Since 2017, each of the eleven Finger Lakes has experienced at least one outbreak of toxic algae, and for most of the lakes it has become a regular, annual occurrence. They are most common in the summer and early fall, when warm temperatures, calm water, and plentiful sunlight make the water conditions ideal for cyanobacteria to grow. The increasing occurrence of algal blooms threatens the water supply for millions of people and livestock, impacting health, regional food supply, and recreational opportunities in the Region.[16]

4. Leveraging Past Investments

The intent of the PCAP is to integrate existing efforts into a framework for collaborative action. This process will advance the work already underway and provides guidance for those who have yet to undertake sustainability work. The Genesee-Finger Lakes Regional Priority Climate Action Plan builds off previous climate action plans, and previous climate initiatives happening across the State and the Region.

The PCAP process will also align with both New York State goals of resilience, equity, and economic growth. Investments that facilitate our Region's transition to a clean energy economy will advance these priorities, while also improving public health and wellness, reducing poverty and racial inequities, and creating resilient and sustainable communities.

4.1 Existing State Climate Initiatives

New York State has a long-standing track record of investing and planning for its residents' future. The State has long been engaged with climate related activities and initiatives that created a strong starting off point for the Region.

New York Climate Leadership and Community Protection Act

The Climate Leadership and Community Protection Act (Climate Act) was signed into law in July 2019 to address climate change and reach net zero emissions in New York State. The Climate Act sets the goals to reduce emissions to 40% below 1990 levels by 2030 and then to 85% below 1990 levels by 2050. The remaining 15% of emissions will be offset, such as by planting trees which take carbon dioxide out of the air, to reach net zero emissions. The Climate Act includes certain stipulations to direct no less than 35% of the program's benefits to historically disadvantaged communities.

New York State Scoping Plan

The Climate Act called for the creation of a Scoping Plan under the direction of a 22-member Climate Action Council (Council). The Scoping Plan was published in December 2022 and includes recommendations and actions to meet the Climate Act's goals and requirements, including actions to achieve a reduction in economywide greenhouse gas emissions. This Scoping Plan prioritizes Disadvantaged Communities and the creation of new job opportunities, supports healthier communities, and ensures that all New Yorkers will benefit from investments in the State's growing green economy.

Clean Energy Communities

New York State Energy Research and Development Authority's (NYSERDA) Clean Energy Communities (CEC) program provides grants, coordinator support, and a clear path forward to local governments that demonstrate leadership by completing NYSERDA-selected high-impact actions. Since the 2016 program launch, hundreds of local governments have completed high-impact actions through the program. Hundreds of local governments have earned the Clean Energy Community designation and in every Region of New York State, communities are implementing an exciting array of clean energy projects supported by grant awards. In many cases, local governments with no previous history of participation in NYSERDA programs are now deeply involved in clean energy and sustainability.

The program supports local government officials who want their communities to benefit from the new clean energy economy but struggle with tight budgets and limited staff. The program provides flexible grant funding with no local cost share, free coordinator support, and recognition for your community's leadership. The nine counties in the project area have seen great success in the CEC program-120 communities are participating, of which 70 are designated communities as shown in Table 10 below.

Table 10: Number of Clean Energy Communities (February 2024)

County	# of Participating Communities	# of Designated Communities	Total # of Communities
Genesee	5	4	9
Livingston	9	9	18
Monroe	7	17	24
Ontario	6	17	23
Orleans	2	6	8
Seneca	3	3	6
Wayne	10	8	18
Wyoming	1	4	5
Yates	7	2	9
Source: NYSERDA Clean Energy Communities			

Climate Smart Communities

The Climate Smart Communities (CSC) program began in 2009 as an interagency initiative of New York State. The program supports local governments in leading their communities to reduce greenhouse gas emissions, adapt to the effects of climate change, and thrive in a green economy. The benefits of participating include leadership recognition, free technical assistance, and access to grants. Local governments participate by signing a voluntary pledge and using the CSC framework to guide progress toward creating attractive, healthy, and equitable places to live, work, and play.

Communities benefit from the CSC program because they can receive funding for climate change mitigation and adaptation projects, cost reduction for clean vehicles and associated charging/fueling stations, and free technical assistance for clean energy and climate change initiatives from regional coordinators. When joining the CSC program communities make it goal to: build a climate-smart community, measure inventory emissions, set climate goals, create a climate action plan, decrease energy use, transition to clean and renewable energy, use climate-smart materials management, use climate-smart materials management, implement climate-smart land use, enhance community resilience to climate change, support a green innovation economy, inform and inspire the public, and engage in an evolving process of climate action. Several communities in the project area have seen success in the CSC program- 34 communities are participating, of which 11 are bronze certified communities as shown in Table 11.

Table 11: Number of Climate Smart Communities (February 2024)

County	# of Participating Communities	# of Certified Communities	Total # of Communities
Genesee	0	0	0
Livingston	2	0	2
Monroe	6	6	12
Ontario	9	3	12
Orleans	1	0	1
Seneca	1	1	2
Wayne	2	1	3
Wyoming	1	0	1
Yates	1	0	1
Source: DEC Climate Smart Communities			

4.2 Existing Regional Climate Initiatives

Climate Solutions Accelerator Genesee-FLX Climate Action Strategy (2021)

The Climate Solutions Accelerator of the Genesee-Finger Lakes Region published the Genesee-FLX Climate Action Strategy in 2021. The strategy moves beyond a singular focus on climate mitigation, adaptation, or resilience, focusing instead on actions that reduce greenhouse gas emissions and contribute substantially to improving quality of life, adaptability, and resilience of individuals and communities to the climate impacts we already experience and those to come. The Genesee-FLX Climate Action Strategy prioritizes climate action that addresses: Vehicle miles traveled; Energy efficiency; Building electrification; Soil health and agricultural waste management; Local food system; Electrical grid; and Economy- wide greenhouse gas reducing measures.

Finger Lakes Regional Sustainability Plan (2013)

In 2013, the Genesee/Finger Lakes Regional Planning Council completed a comprehensive Finger Lakes Regional Sustainability Plan that served as the roadmap for an emissions inventory and climate action strategy. The plan was focused on long-term sustainability efforts that will reduce greenhouse gas emissions and energy use. The plan highlights regional collaboration among stakeholders and is used to leverage investment in regionally significant sustainability projects.

Monroe County Climate Action Plan (Present)

In 2022, Monroe County completed Phase I of the Climate Action Plan focused on governmental operations. The purpose of this phase was to identify and prioritize goals, strategies and initiatives that will reduce GHG emissions from County-owned sites, facilities, and operations by 80% below the 2019 baseline by 2050. Monroe County developed a GHG inventory and developed GHG reduction goals, priority strategies, actions, policies, and programs to meet the reduction goals of all County-owned buildings and facilities, county vehicle fleets, expressway lights and signals, Pure Waters infrastructure, and solid waste and materials management.

Monroe County is currently working towards Phase II the Climate Action Plan which includes a community wide GHG inventory. The focus is being broadened to include GHG emission sources throughout the county including housing, private industry operations, transportation, and infrastructure. The GHG inventory helped Monroe County identify GHG reduction goals, priority strategies, actions, policies, and programs to meet those goals in all emission sources.

City or Rochester Climate Action Plan

The City of Rochester's Office of Energy and Sustainability has created a community-wide Climate Action Plan to provide a framework for sustainable projects and actions. The City's Climate Action Plan has a goal to reduce greenhouse gas emissions by 40% from 2010 levels by 2030. To achieve this goal, the plan outlines 35 implementation actions divided into five focus areas. The five focus areas revolve around residential, commercial, and industrial sectors. These include: Energy use and supply; Transportation; Waste and materials management; Clean water; and Land use.

5. Greenhouse Gas (GHG) Inventory

5.1 Purpose

A baseline GHG emissions inventory is an essential step to understand the extent to which the priority sectors of buildings, transportation, and municipal operations are contributing to overall regional emissions. The calculation of emissions by sector will help to identify which sectors have the largest impact and what potential reduction strategies should be targeted. By developing this preliminary understanding of existing conditions, the Region forms a solid foundation from which to develop strategies and measures that will support a reduction in GHG emissions.

The baseline year of 2010 is utilized to provide a basic understanding of the major sources of emissions within the Genesee-Finger Lakes Region and to provide a starting point for discussion on potential climate mitigation strategies and measures.

5.2 Methodology and Model

As part of developing regional sustainability plans, NYSERDA funded a series of contractors to prepare regional greenhouse gas inventories for each of New York State's ten economic development Regions. The baseline year for each of the inventory reports is 2010 and the 2010 Finger Lakes GHG Inventory report is broken down to the county level.

For the Priority Climate Action Plan this plan will utilize the existing 2010 Regional GHG emission inventory for the nine-county Region. This inventory is based on New York's 2015 Community and Regional GHG Guidance. Fossil fuel produces three greenhouse gases: CO_2, CH_4, and N_2O. Carbon dioxide (CO_2) typically represents 99% of the GHG footprint, with CH_4 and N_2O having minimal impact. Carbon dioxide (CO_2) emissions are the main concern, so other emissions across fuels and GHG types converted to a CO_2 equivalent and are reported as a single number. The Intergovernmental Panel on Climate Change (IPCC) Forth Assessment Report (AR4) calculates the CO_2 equivalent for each GHG. The Global Warming Potential (GWP) refers directly to the impact of 1 unit of each gas in the atmosphere compared to 1 unit of CO_2 as shown in Table 12 below.

Table 12: Global Warming Potential

Greenhouse Gas (GHG)	Global Warming Potential (GWP)
Carbon Dioxide (CO_2)	1
Methane (CH_4)	85
Nitrous Oxide (N_2O)	264

Source: Intergovernmental Panel on Climate Change Forth Assessment Report

5.3 GHG Inventory Results by Sector

In 2010, the Genesee Finger Lakes Region emitted 16,119,918 Metric Tons Carbon Dioxide Equivalent (MT CO2e) greenhouse gas emissions.

The residential and commercial building sectors make up for about 41% of all regional emissions, and transportation 37%. Municipal operations are calculated as part of commercial buildings and make up about 2% of the emissions in that sector as shown in Figure 12. Fossil fuels (mainly natural gas and gasoline) make up approximately 83% of all emissions across all the sectors in the Region as shown in Table 13.

Figure 12: 2010 GHG by Sector G-FL Region

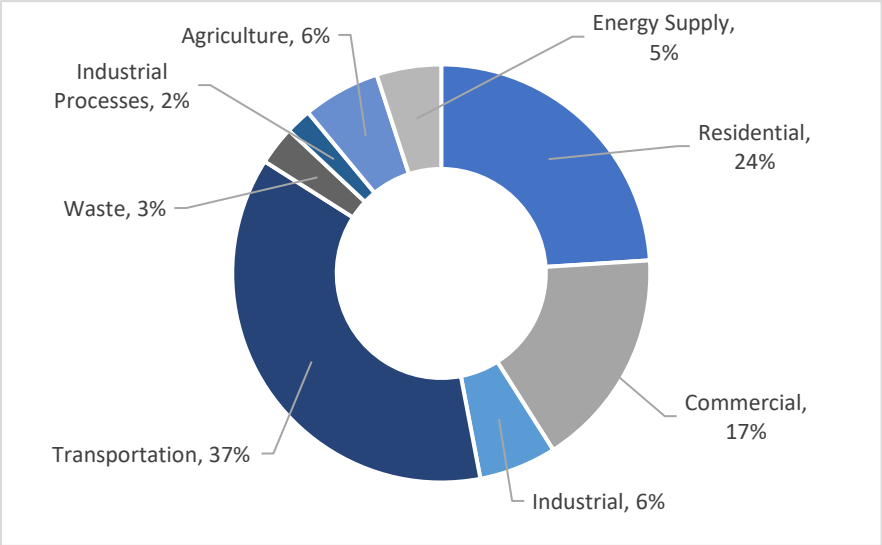


Table 13: GHG Emissions from Fossil Fuel Sources (MT CO2e)

Fossil Fuel Sources	GHG Emissions	Percentage
Natural Gas	4,946,244	37%
Gasoline	4,273,549	32%
Electricity	2,686,417	20%
Diesel	771,313	6%
Fuel Oils/Tank Oils	628,313	5%

Buildings Sector

The building sector includes emissions in all residential and commercial buildings. In the 2010 baseline year the building sector emitted approximately 6.6 million MT CO2e of GHG emissions: about 41% of all regional emissions. Residential buildings emitted approximately 3.9 million MT CO2e, with natural gas making up 63% of residential building energy consumption. Commercial buildings emitted approximately 2.7 million MT CO2e (after removing estimate emissions from municipal operations). Natural gas makes up approximately 58% of commercial building energy consumption.

Figure 13: 2010 Residential Energy Consumption

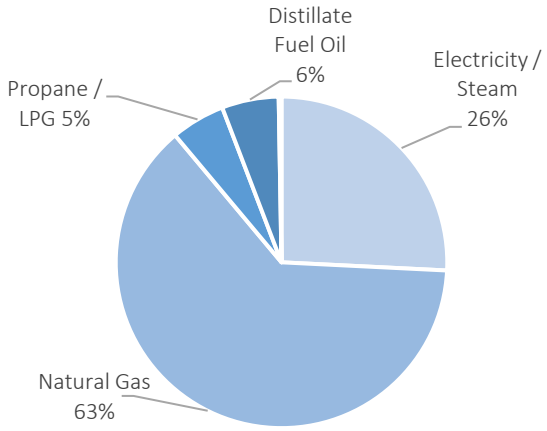
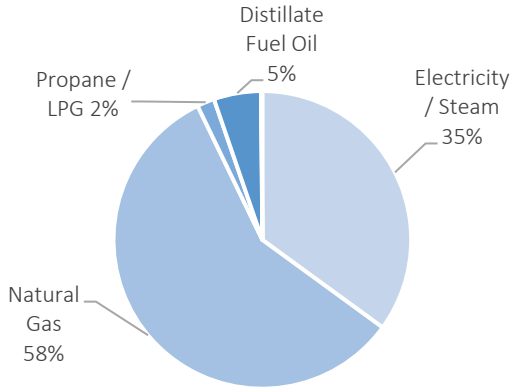


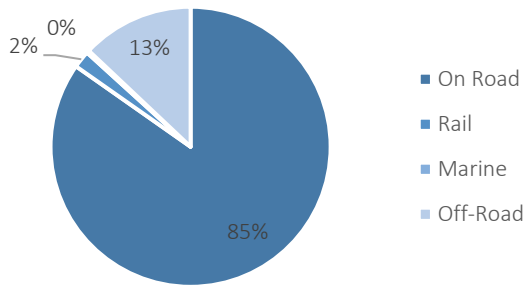
Figure 14: 2010 Commercial Energy Consumption



Transportation Sector

The transportation sector for this PCAP includes all emissions from the movement of people and goods from cars, trucks, trains, ships, airplanes, and other vehicles. In the 2010 baseline year transportation emitted 5.9 million MT CO2e. On-road vehicles made up 85% of all transportation related emissions, of which 85% is motor gasoline.

Figure 15: Transportation Sector Energy Consumption



Municipal Operations

Emissions from municipal operations made up only a minimal amount of the total emissions in the 2010 baseline year at approximately 55 thousand MT CO2e. This accounts for only 2% of all emissions produced in the Region.

5.3 GHG Inventory Results by County

The G-FL Region counties are diverse and strategies to reduce GHG emissions must be tailored for each county and municipality based on their unique emissions profile. Across the counties Monroe County has almost 9 million MT CO2e GHG emissions and accounts for over half of the Region's emissions. This is primarily because Monroe County has the Region's highest population and larger concentrations of commercial and industrial activities.

On the other hand, Yates and Orleans counties have some of the lowest populations in the Region and are the smallest emitters at approximately 360 thousand MT CO2e GHG

emissions and 426 thousand MT CO2e GHG emissions respectively. Both counties combined account for around 4% of the Regions total emissions.

Monroe County had the highest residential and commercial building emissions with a combined 4.4 million MT CO2e GHG emissions which is approximately 66% of all building emissions in the Region as shown in Table 14. Yates County on the other hand had the lowest residential and commercial building emissions with a combined 105 thousand MT CO2e GHG emissions which is approximately 1.6% of all building emissions in the Region. Outside of Monroe County commercial and residential building emissions combine for 2.3 million MT CO2e GHG emissions which is 34.3% of the Regions total building emissions, averaging 285 thousand MT CO2e GHG emissions in each county.

Monroe County had the highest transportation emissions with approximately 3 million MT CO2e GHG emissions during the 2010 baseline year. Monroe County emits 52% of all transportation emissions in the Region.

Yates County had the lowest transportation emissions with approximately 135 thousand MT CO2e GHG emissions. Yates County makes up approximately 2.3% of regional transportation emissions. Outside of Monroe County the other eight counties averaged 357 thousand MT CO2e in transportation related emissions.

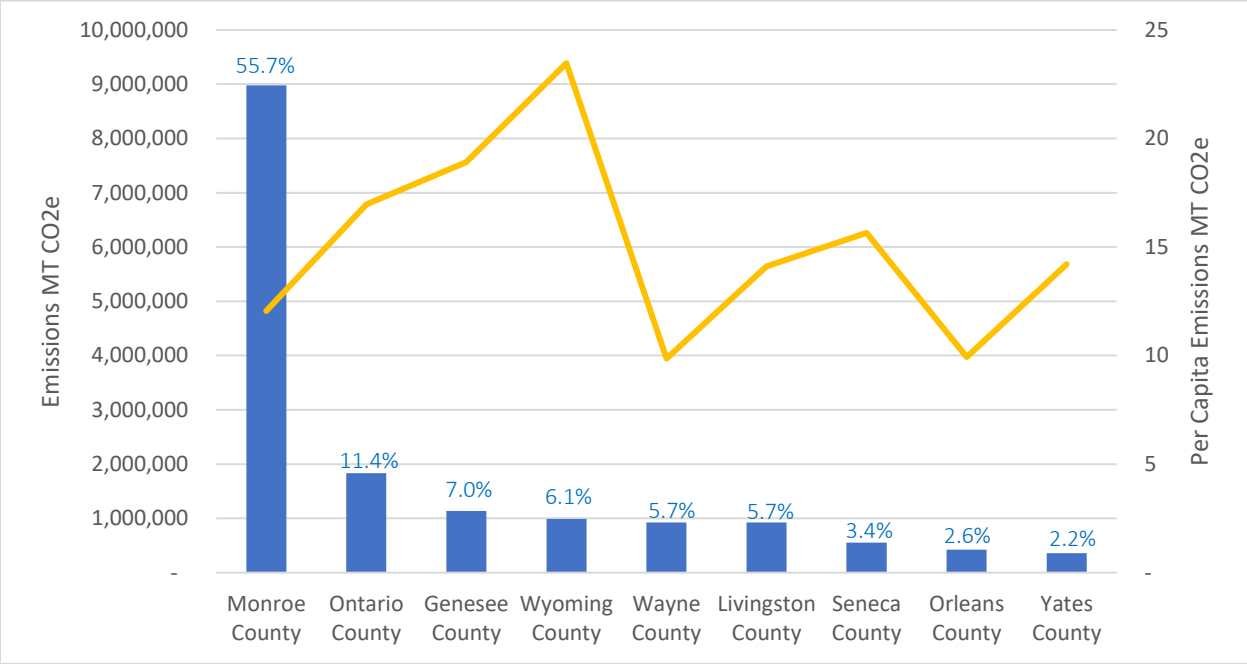
Regionally as shown in Figure 16, per-capita emissions are approximately 13.2 MT CO2e per person. Compared to the 2010 US average of 21.7 MTCDE / person. Part of this is due to New York's cleaner on average electricity than the rest of the country. Between counties it varies significantly from 9.9 MT CO2e per person in Wayne County and Orleans County to 23.5 MT CO2e per person in Wyoming County. While Monroe County had the highest greenhouse gas emissions total, they were below the Region wide per capita emissions consumption.

Table 14: County Emissions by Priority Sectors MTCO2e (2010)

County	Residential	Commercial	Transportation
Genesee	158,793	103,173	577,411
Livingston	180,866	91,923	414,215
Monroe	2,444,557	1,923,588	3,083,004
Ontario	352,110	276,719	703,616
Orleans	119,005	39,346	175,142
Seneca	106,855	58,874	263,772
Wayne	256,455	102,617	385,418
Wyoming	172,127	134,363	202,155
Yates	81,054	24,671	134,685

Per-capita emissions are approximately 13.2 MT CO2e per person, lower than the 2010 U.S. average.

Figure 16: Finger Lakes Regional GHG Emissions & Per Capita Emissions by County (2010)



6. GHG Reduction Strategies & Measures

To reduce the Regions GHG emissions in the short-term strategies and measures were geared to the priority sectors- transportation, buildings, and municipal operations. Reduction strategies and measures looked to accomplish the following goals:

- Reducing energy use
- Electrification of buildings and infrastructure
- Alternative fuels use
- Installation of local renewable energy sources
- Reducing vehicle miles traveled

The transportation and building and infrastructure sectors capture strategies and measures for public, private, and municipal operations. A third sector category was also created called Economy-wide. This sector captures strategies and measures that do not fit neatly into priority sectors and can impact municipal operations, transportation, and buildings sectors.

Strategies: *These explain what the PCPA aims to achieve to reduce greenhouse gas emissions.*

Measures: *These explain the steps or activities needed to achieve the strategies and reduce greenhouse gas emissions.*

Each section below will discuss each of the strategies and measures in more detail. The full list of strategies and measures is listed in Appendix C: GHG Reduction Measures and Benefits Analysis.

6.1 Municipal Operations

While municipal operations only account for about 2% of all GHG emissions in the Region, municipalities play a valuable leadership role in advocating for reducing greenhouse gas emissions and supporting sustainable development in their communities. The strategies and measures outlined in the transportation, building and economy–wide sector covers actions that municipalities can take to reduce their GHG emissions and reach their goals.

6.2 Transportation Strategies & Measures

The transportation sector emits 5.9 million MT CO2e, approximately 37% of all GHG emissions in the project areas. The strategies and measures will support the reduction of GHG emissions from transportation by increasing zero-emission fleets and reducing single occupancy vehicle ridership through expanding transportation choices.

STRATEGY #1: TRANSITION TO ZERO EMISSION VEHICLES AND EQUIPMENT FOR MUNICIPAL AND PRIVATE FLEETS.
A. Encourage municipalities and public fleets to complete fleet inventories, adopt fleet efficiency policies, and invest in zero-emissions light, medium, and heavy-duty fleets when technology is available.
B. Encourage residents, business's, transport industries, and private fleet operators to invest in zero emission light, medium, and heavy-duty Fleets when technology is available.
C. Transition non-road equipment to zero-emission, from small lawn equipment to offroad agriculture and construction equipment.
D. Transition school buses to zero emission
E. Expand EV charging infrastructure in municipal lots and private parking lots/garages at points of interest (centers of employment, schools, grocery stores etc.), and incentives residential charging.

F.	Expedite and standardize permitting for installation of alternative fuel and electric vehicle charging infrastructure.

STRATEGY #2: ENHANCE PUBLIC TRANSPORTATION SERVICES	
A.	Invest in zero-emissions transit vehicles using battery electric and hydrogen vehicles.
B.	Shift Single Occupancy Vehicle Trips to RGRTA Through Increased and Improved Services by funding projects and plans to improve enhance and expand RGRTA services, to shift trips using individual vehicles to lower-polluting modes and reduce single occupancy vehicle dependency.
C.	Support shared-mobility services to reduce VMT.
D.	Evaluate potential for BRT, light rail or fixed transit service serving major employers/destinations.
E.	Invest in an educational campaign to educate all road users of best practices for use of public transportation and alternatives modes of transportation. Establish a coalition to increase public transit ridership and service.

STRATEGY #3: EXPAND THE AVAILABILITY OF LOW-CARBON ACTIVE TRANSPORTATION ALTERNATIVES	
A.	Educate and reward residents for purchasing zero-emission vehicles, bike/walk, or take public transit.
B.	Work with large employers, municipalities, etc. to promote transportation demand management strategies to increase the share of employers who walk/bicycle or take public transportation to work to work.
C.	Continue to expand community wide bike network (including protected bike lanes), bike infrastructure networks, bike rental/share programs, regional trails, and close funding gaps.
D.	Encourage increased implementation of e-bikes, e-scooters and the support infrastructure through subsidies, discounts, or rebates to consumers for purchasing e-bikes and e-scooters. Introduce options for direct purchase or reimbursements to local governments and mobility operators to build and install charging infrastructure, including for mobility assistance devices, to encourage more use of these modes throughout the Region.

STRATEGY #4: PROMOTE SMART GROWTH AND MOBILITY-ORIENTED DEVELOPMENT TO REDUCE VEHICLE MILES TRAVELED (VMT)	
A.	Implement complete streets policies safe routes to school as well as integrate complete street standards into zoning and design standard language.
B.	Incentivize alternative modes & fuel vehicles by designating preferred parking in public parking facilities for alternative fuel vehicles, carpools, bike parking, etc.
C.	Institute a regional ADA compliant retrofit program.
D.	Incentivize mixed use/mixed income development in city, town, and village centers.
E.	Incentivize, then require through zoning and site review standards, green infrastructure considerations for public transportation, and bike and pedestrian circulation in development projects.

STRATEGY #5: ENHANCE PUBLIC SAFETY	
A.	Encourage replacing traffic lights with roundabouts where feasible to reduce time idling and improve traffic safety.
B.	Develop criteria for identifying potential candidate roadways for road diets and reduced speeds region-wide.

C.	Create low-emission zones (anti-idling) centered around environmental justice communities, school zones, pedestrian-centric areas, and transit stations.

6.3 Buildings & Infrastructure Strategies & Measures

The building sector emits 6.6 million MT CO2e, approximately 41% of all regional emissions. The strategies and measures will support the reduction of GHG emissions from buildings by advancing building decarbonization, and adopting building codes that encourage zero-emission buildings.

STRATEGY #1: ADVANCE THE DECARBONIZATION OF BUILDINGS AND INFRASTRUCTURE.	
A.	Transition to air-source and ground source heat pumps and heat pump water heaters in residents and business and use for new and renovative development.
B.	Implement air-source heat pumps and geothermal energy networks for municipal buildings, and pilot net-zero buildings.
C.	Explore a pilot program for geothermal energy networks on a community scale in new and for existing developments.
D.	Establish financing mechanisms for energy efficiency upgrades, and for heat pumps, for commercial and residential buildings with focus on LIDAC communities.
E.	Invest in energy management planning and projects to reduce energy use and lower GHG emissions at municipal facilities including benchmarking and organics waste diversion.
F.	Expand purchase of renewable electricity for municipal facilities and install renewable energy at facilities.
G.	Reduce the water and GHG emission of water and sewer infrastructure through efficiency upgrades and leakage emissions initiatives. *
** GHG emissions calculation is not included in benefits analysis*	

STRATEGY #2: ADOPT ZERO-EMISSION CODES AND STANDARDS.	
A.	Reduce Embodied Carbon from Building Construction by promoting localized construction materials, deconstruction, reuse of materials, and recycling and minimizing construction waste.
B.	Follow state-wide guidance and policies so that all newly constructed and renovated buildings to meet high performance building standards and equipment such as Leadership in Energy and Environmental Design (LEED) certification, ENERGY STAR, or net zero energy ready standard.
C.	Modify historic building standards in local buildings and zoning codes to allow for opportunities to increase energy efficiency in historical preservation districts. Educate planning boards and historic preservation groups on these updates.
D.	Adopt minimum energy efficiency standards for rental properties with the certificate of occupancy.

STRATEGY #3: PROMOTE PROGRAMS, PROVIDE TOOLS, AND ENCOURAGE STRATEGIES THAT REDUCE ENERGY EFFICIENCY.	
A.	Incentivize building envelope insulation efforts and energy efficient purchases by supporting investments in certified energy-efficient appliances, heating and cooling equipment, indoor and outdoor lighting, and building products to replace older less efficient equipment. Support programs for end-of-use energy efficiency measures such as building envelope insulating, mold abatement, asbestos removal, and hazard remediation in all existing buildings.
B.	Encourage and incentive resident and businesses to conduct energy audits promote the cost benefits of transitioning to renewable energy.

C.	Develop a region-wide strategy to expand solar everywhere, with an emphasis on low- and moderate-income households.
D.	Support municipalities for creating benchmarking and energy use disclosure laws for all buildings over 5,000 sq. ft.
E.	Provide gap funding to support pre-weatherization work for mold removal, panel upgrades, and other things that need to be done before energy efficiency upgrades are made.

STRATEGY #4: DEVELOP A RESILIENT ENERGY PORTFOLIO THROUGH DIVERSIFIED SOURCES AND LOCAL GENERATION.	
A.	Explore municipal and emergency operations resiliency and integration of battery storage and microgrid technologies for weather resistant operations.
B.	Target installation of renewable energy sources for new developments.
C.	Generate renewable energy with landfill gas and install solar on landfills.

6.4 Economy-Wide Strategies & Measures

Economy-wide GHG reduction strategies and measures are related to all sectors and GHG emitters. They are related to land-use, education, and workforce development programs that will support the reduction of GHG emissions across the Region. Many of these measures cannot be directly quantified but their impact on reaching the Region's and State's goals are paramount.

STRATEGY #1: BUILD CITIZEN SUPPORT FOR CLIMATE ACTION.	
A.	Provide community-wide education on rebates and incentives related to grant funding for climate-related improvements.
B.	Provide information businesses, and residents converting to renewable energy sources.
C.	Create a recurring community climate public forum for region-wide sustainability goals.
D.	Support community organizations serving underrepresented populations to assist with accessibility of affordable clean energy and energy efficiency improvements.
E.	Support the increased participation in the Color Your Community and Color Your Organization Green groups.

STRATEGY #2: BUILD MUNICIPAL CAPACITY FOR CLIMATE ACTION.	
A.	Increase the participation for local municipalities to pursue CSC/CEC certification and begin implementing action items.
B.	Develop a region-wide or sector-based green bank for loans, credit enhancements, and creation of new grant financing methods to scale up energy efficiency and renewables to strengthen the green regenerative economy.
C.	Take advantage of state and federal finance mechanisms for carbon reducing programs and implementation projects.
D.	Create a GHG inventory dashboard for municipalities.

STRATEGY #3: CREATE HEALTHY AND SUSTAINABLE COMMUNITIES.	
A.	Consistently train local boards and officials in site plan and regulatory review that promotes more sustainable site design and development.
B.	Encourage redevelopment of areas targeted for infill that are within public transit or walkable neighborhoods.

C.	Incorporate GHG reduction and sustainability measures into local and regional level planning documents, such as comprehensive plans, stormwater management plans, farmland and agricultural protection plans, watershed management plans, Comprehensive Economic Development Strategy, etc.
D.	Modernize zoning policies to allow multi-family units to be built on single family lots and increasing mixed-use development zoned areas to create more walkable areas.
E.	Plan for the future by providing assistance to local governments to develop plans and edit codes to encourage infill, compact development, transit-oriented and transit- supportive development, and new paved trails throughout the region. Plan for and support nonvehicular infrastructure investments in road projects that add, or enhance the safety of, pedestrian and bicycle infrastructure.

STRATEGY #4: SUPPORT CLEAN ENERGY POLICY AND GROWTH.	
A.	Develop models and toolkits for zoning and development of renewable energy sources.
B.	Work with utility companies to conduct a study to determine existing and future electric grid demand capacity.
C.	Municipalities in the MSA to advocate for utilities to develop large-scale renewable energy generation to supply clean electricity to the region.

STRATEGY #5: EXPAND AND FUND EDUCATIONAL PROGRAMMING THAT SUPPORTS THE GROWTH OF THE GREEN ECONOMY.	
A.	Provide workforce development services to connect community members with jobs in energy efficiency fields
B.	Partner with educational institutions that have training programs that support and attract labor force and industries using green technologies.
C.	Advocate/coordinate for a clean energy workforce development training center that targets marginalized communities.
D.	Develop opportunities for workforce development in zero emission infrastructure and vehicle maintenance.
E.	Use building demonstration sites as locations for community education and outreach.

6.5 Review of Authority to Implement Measures & Strategies

In general, there are actions outside of the Region's jurisdiction, such as those implemented by the state and federal government, or by large industries decarbonizing supply chains of products brought to the Region. Local actions within the Region's jurisdiction include those by municipalities, other public authorities, and by local businesses and industries.

New York State's Municipal Home Rule Law authorizes counties to adopt local laws on the subject but limits the effectiveness of any such county local law to the area of the county outside of any city, village, or town. In general, the PCAP measures consider actions are implemented locally. See Appendix C: GHG Reduction Measures and Benefits Analysis. This identifies for each measure more specifically which local entity type will lead implementation.

7. Benefits Analysis

The PCAP is primarily geared toward reducing GHG emissions and building community resilience to climate change impacts within the Region. Equity-focused implementation of the PCAP will also result in numerous environmental, economic, and social "co-benefits" beyond climate mitigation and adaptation. Potential for co-benefits such as improvements to local air quality and water supply, increases in local green jobs, cost savings, public health improvements, and improved mobility options, can help the Region make equity-centered decisions about how it prioritizes implementation of the measures in the PCAP.

Co-benefits identified in this PCAP include benefits to renters (e.g., energy cost savings), improved equity, air pollution prevention, benefits to health and well-being, increased reliability of critical infrastructure and services, community prioritization, job development, and resource preservation.

7.1 PCAP GHG Benefits

Sector measures are consensus-developed high-level containers that represent local and regional climate action underway and planned throughout the Region. The PCAP reports GHG reduction benefits expected by 2030, according to realistic assumptions of progress based on local trends. Assumptions for 2050 reflect the Region's planned commitment to meet New York's statewide goals reduce emission by 80% by 2050. Although the PCAP baseline inventory is from 2010, benefits presented are considered additional to the 2020-2030 period.

PCAP GHG benefits are the direct result of local and regional actions of reducing consumption, decarbonizing building stock, enacting efficient land use practices, and installing local renewable energy generation.

Table 15: PCAP GHG Benefits Summary (MTCO2e)

Sectors	Strategies	Measures	By 2030	by 2050
Buildings & Infrastructure	4	19	1,152,920	5,104,570
Transportation	5	23	733,105	3,499,014
Economy-Wide	5	22	706,108	1,551,857
Total	14	64	2,592,133	10,155,441

2010 Baseline GHG Emissions: 16.1 Million MTCDE

16% Reduction by 2030: 2.6 Million MTCDE

63% Reduction by 2025: 10.1 Million MTCDE

7.2 Low Income & Disadvantaged Communities' Benefits Analysis

The impacts of climate change are not felt equally, and some populations are at higher risk than others. Low-income communities and communities of color are often already overburdened with poor environmental conditions and are disproportionately affected by, and less resilient to, the health impacts of climate change. Across all climate risks, children, older adults, low-income communities, communities of color, and those experiencing discrimination are disproportionately affected by extreme weather and climate events, partially because they are often excluded in the planning processes.[17]

The Genesee-Finger Lakes Region is home to 1.2 million people and according to New York States Climate Justice Working Group and the EPA's EJScreen there are a combined 112 census tracts designed as disadvantaged, representing 30% of the population. In general, disadvantaged areas are clustered primarily in urban communities and in some rural towns. Climate action creates benefits within disadvantaged communities by reducing fossil fuels use in households and reduce direct exposure criteria air pollution and toxic pollutions. In addition, residents in disadvantaged communities tend to spend more on energy relative to total income than other areas and implementation of PCAP measures will reduce wasteful energy use and save residents money. The PCAP measures on electrification readiness in LIDAC building stock will enhance the communities and the value of properties and will help communities redirect ongoing investments in fossil fuel replacements to energy saving heat pumps.

Table 16: LIDAC-Focused Benefits (MTCO2e)

Benefits Snapshot	Value
GHG Savings (MTCDE/year)	30%
CAP exposure avoided (tons)	769,541
HAPs exposure avoided (lbs.)	4,865
Energy Savings (MMBTU*)	47,336
Energy Cost Savings ($)	10,771,353
Jobs created	TBD
Leverage Investment	TBD
*MMBTU - Million British Thermal Unit	

Engagement with Low Income and Disadvantaged Communities

As required by the Climate Leadership and Community Protection Act (CLCPA), State agencies, authorities, and entities are to direct a minimum of 40% of the benefits of clean energy place-spending to Disadvantaged Communities. There is already a concerted effort in the Region to engage with New York State sustainability programing and DAC. G/FLRPC focuses attention to encourage participation in both the Clean Energy Communities and Climate Smart Communities programs.

The Clean Energy Communities (CEC) program supports local government officials to participate and benefit from the clean energy economy. With the release of the latest version of the CEC program in December 2023, the focus on outreach and support to DACs has escalated substantially. Outreach has taken many different forms; and has included emails and eblasts, phone calls, webinars, physical mailings, training

offerings, Local Government Workshop, direct meetings with communities, and word of mouth from communities who have had a positive experience participating. While all the DACs in the Region may not be actively participating in the CEC Program, the outreach conducted has made all the DACs in the Region aware of the program and the resources/support available. The DACs who are engaging in the program have seen their efforts rewarded through reduced utility costs and grant funding.

From January 2021 until December 2023, the Region was awarded $710,000 in match-free grant funding. As a result of targeted outreach and support, $300,000 (42%) of the $710,000 awarded was earned by DACs in our Region, including The City of Rochester, The City of Canandaigua, The City of Geneva, The Town of Henrietta, The Village of Sodus, The Town of Albion, The Village of Albion, The Village of Mount Morris, and the Town of Gates. These communities have used the funding earned through the CEC Program to complete clean energy projects, including a variety of building upgrades, the purchase of electric vehicles, installing charging stations, conducting energy audits on municipal facilities, and purchasing electric landscaping equipment.

The Climate Smart Communities (CSC) program helps local governments reduce greenhouse gas emissions and adapt to a changing climate. The program offers grants, rebates for electric vehicles, and free technical assistance. By participating in the CSC program municipalities score better on some state funding grant applications that fund resilience and adaptation; cost savings for both municipal operations and residents; improve air quality from switching to clean energy; create healthier, more walkable centers; and are investing in an economy that supports sustainability and green businesses. Over the last several years G/FLRPC has engaged with many DACs to help them achieve CSC certification and realize these benefits. Disadvantaged communities in the Region have received bronze certification through substantial support and engagement from G/FLRPC. These include the City of Rochester, Village of Sodus, City of Geneva, and the Town of Henrietta.

The Climate Solutions Accelerator of the Finger Lakes Region supports the Heat Smart NY program. Other regional stakeholders across the region are also helping support these efforts by continuously engaging with disadvantaged communities to combat climate change.

7.3 Workforce Planning

The clean and renewable energy sector is an important component of the regional economy; 2.5% of all jobs are within this sector. The Region is also home to numerous innovation assets that support and will contribute to the growth of this sector. They include but are not limited to:

- Golisano Institute for Sustainability at RIT offers world-class sustainability and clean energy R&D.
- The Battery Prototyping Center at RIT focuses on the development of emerging energy storage technologies.
- Center for Energy & Environment at the UR focuses on developing carbon-neutral technology and investigating climate change.
- Kodak Cell Assembly Center streamlines the development of advanced batteries for coating, assembling, and testing.
- DNV Best Test & Commercialization Center helps companies develop and commercialize emerging technologies.
- Li-Cycle is a Canadian-based lithium-ion battery resource recovery company that aggregates and refines spent lithium-ion batteries.

The 2022 Finger Lakes Workforce Development Strategy outlined three themes that represent challenges and opportunities for the Region to address and capitalize on while growing our

green economy workforce. The following themes emerged from interviews with local clean and renewable energy sector employers.

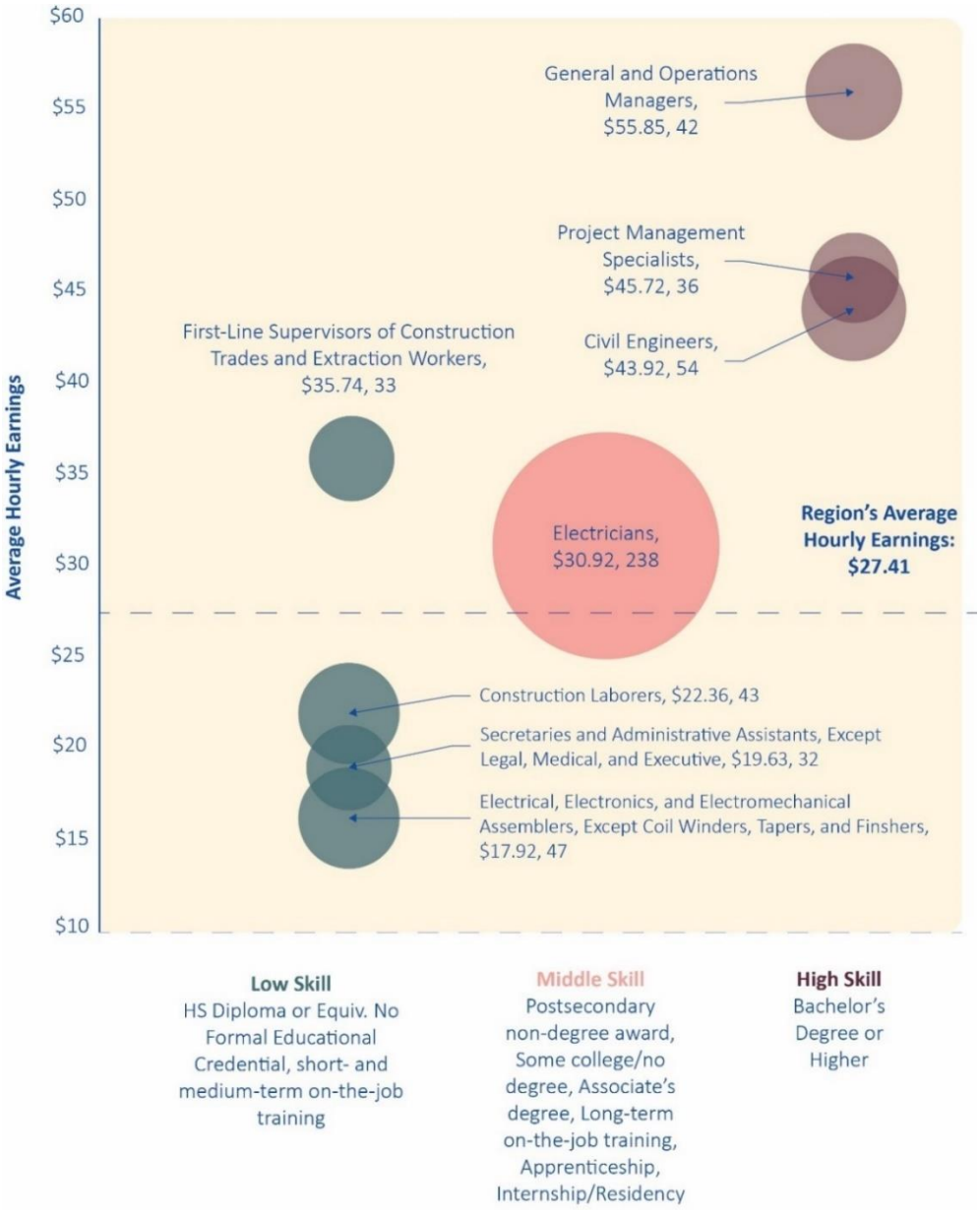
Not enough electricians- Data suggests that the renewable energy cluster is in significant need of electricians to fill critical positions, estimating there is an annual demand for 240 electricians through 2032. Additional formal training, on the job, and apprenticeship programs are needed to expand the pathway and address the needs of the renewable energy cluster.

Entrepreneurial people wanted- Employers noted that they are looking for people who have an entrepreneurial mindset to join their team. There are a lot of startup companies in this space, and technologies change quickly, so people who are adaptable problem solvers are highly sought after.

Lack of awareness- Many employers noted that the regional labor force and future labor force are not aware of career opportunities for entry level and advancement within the clean and renewable energy sector. Additional communication about opportunities for careers in this sector is needed.

There is a significant gap in in-demand skills within the clean and renewable energy sector. There are 57 skills categories where employer demand exceeds worker supply, based on online job postings and worker profiles. The top specialized skills gaps include auditing, accounting, billing, and selling techniques. The top qualifications gaps include OSHA, security clearance, Master of Business Administration, software development, and Certified Public Accountant; while to the top common skill gaps include communications, problem solving, operations, management, and planning. There are eight occupations in the clean energy sector that have the highest skills gaps as represented in Figure 17 below. These eight occupations account for 34.2% of the total gaps anticipated in this cluster.

Figure 17: Top Gap Occupations: Clean & Renewable Energy



Source: Finger Lakes Workforce Development Strategy

To sustainably grow this sector in the Region there will need to be growth in initiatives to better inform the public about career opportunities in the sector, attract workers with an entrepreneurial mindset, and fill top gap occupations. The sector will need to strategically market the unique entrepreneurial opportunities within the sector to attract more people into careers within the industry. Immersive opportunities that create memorable "wow" experiences will help attract the next generation of the clean and renewable energy workforce. The Region will need to expand training for occupations in demand such as electricians and HVAC installers, as well as upskilling employees with digital training.

8. Funding Availability

There are a wide range of available federal funding opportunities which would support the implementation of PCAP measures.

8.1 Federal Funding Availability

The most severe harms from climate change fall disproportionately on communities with low incomes and communities of color who are least able to prepare for, and recover from, heat waves, poor air quality, flooding, and other impacts. The Infrastructure Investments and Jobs Act (IIJA) and the Inflation Reduction Act (IRA) provide an opportunity to reverse this damage.

The IIJA is a five-year commitment of $1.2 trillion by the federal government to repair, retool, and develop new infrastructure. A central tenant of the IIJA is to create a strong, sustainable, and innovative economy with a focus on transportation, clean energy, and broadband. The funding is to be distributed through over 350 programs across 16 federal departments through both competitive and formula processes. The IRA aims to curb inflation by reducing the deficit, lowering prescription drug prices, and investing in domestic energy production while promoting clean energy. The IRA will raise $738 billion in tax revenue and is estimated to distribute nearly $400 billion for investments in energy and climate action through three main funding channels: (1) the clean energy tax credits that can be claimed by individuals, homeowners, and business owners for shifts to clean energy sources and technologies, (2) competitive grants to support shifts to clean energy solutions – with a particular focus on low-income and disadvantaged communities, and (3) a loan authority granted to federal departments for clean energy projects.

For a full list of all relevant IIJA and IRA programs please see Appendix D.

8.2 NYS Funding Availability

New York State's nation-leading climate agenda is the most aggressive climate and clean energy initiative in the nation, calling for an orderly and just transition to clean energy that creates jobs and continues fostering a green economy. New York State has a variety of funding sources that can be used to reduce GHG emissions across the state.

New York State Energy Research and Development Authority (NYSERDA)

NYSERDA works to promote energy efficiency, renewable energy, and emissions reduction across New York's economy and energy system. NYSERDA supports clean energy and technologies, and a is working to advance equity and inclusivity, jobs and economic development, public health, and community resilience through a variety of funding sources.

Several opportunities available through NYSERDA include the following:

Workforce Development and Training- $170 million in funding is available to support clean energy workforce development and training.

Multifamily Buildings Low-Carbon Pathways Program- This program offers flexible packages of incentivized energy upgrades that bring deep energy savings to major building systems. This guided path of building upgrades can help you achieve your sustainability goals. Each of the upgrade packages includes detailed guidance for each building system and a set of required upgrades, along with additional recommended upgrades to achieve even deeper energy savings and incentives to major building systems.

Truck Voucher Incentive Program-The New York Truck Voucher Incentive Program helps make it easier for fleets to adopt zero-emission vehicle technologies while removing the oldest, dirtiest diesel engines from New York roads. The program provides vouchers, or discounts for Class 4-8

trucks, transit buses, paratransit shuttle buses, school buses, and port cargo handling equipment.

For a full list of NYSERDA's funding opportunities visit:
https://www.nyserda.ny.gov/All-Programs

New York State Department of Environmental Conservation (DEC)

The NYS DEC looks to conserve, improve, and protect New York's natural resources and environment and to prevent, abate and control water, land, and air pollution, to enhance the health, safety and welfare of the people of the state and their overall economic and social well-being. DEC's goal is to achieve this mission through the simultaneous pursuit of environmental quality, public health, economic prosperity, and social well-being, including environmental justice and the empowerment of individuals to participate in environmental decisions that affect their lives. The DEC funds the following program:

Climate Smart Communities- The Climate Smart Communities (CSC) Grant program was established in 2016 to provide 50/50 matching grants to cities, towns, villages, and counties of the State of New York for eligible climate change mitigation, adaptation, and planning and assessment projects. Funds are available for two broad project categories - implementation and certification. The first project category supports implementation projects related to the reduction of greenhouse gas emissions (mainly outside the power sector) and climate change adaptation. The second supports planning and assessment projects aligned with Climate Smart Communities certification actions. Applications are accepted through the Consolidated Funding Application; the next round is anticipated to open in Q3 2024.

For a full list of New York State funding opportunities visit:
https://extapps.dec.ny.gov/fs/docs/spreadsheets/NYSFundingFinder.xlsx

9. Next Steps

The Priority Climate Action Plan is designed to lay out the policies and the programs necessary for the Genesee-Finger Lakes Region to reduce GHG emissions in three priority sectors: municipal operations, transportation, and buildings. The PCAP laid the groundwork for future action to be taken in the Region.

The next step for the Region as part of the EPA's Climate Pollution Reduction Grant is to look at GHG emissions in a more comprehensive way and produce a Comprehensive Climate Action Plan.

Comprehensive Climate Action Plan

The next deliverable for the EPA is the Comprehensive Climate Action Plan (CCAP) which is due two years from the date of the award of the grant. The CCAP will touch on **all** significant GHG emitting sources and sectors in the Region including:

- Electricity production;
- Industry;
- Waste and recycling;
- Agriculture;
- Land use and forestry;
- Transportation; and
- Commercial and residential buildings

The CCAP will include an update of the GHG inventory and will build off the priority implementation measures to establish near-term and long-term GHG reduction goals, and strategies for all sectors. Going forward, the Region will support the adoption of new policies, and incentives that implement the strategies and recommendations form the PCAP and CCAP.

Future Engagement

The CCAP process will include more robust engagement opportunities for the residents, decision makers, and businesses in the Region. The future public engagement approach is as follows:

- **Public Workshops:** Interactive and engaging workshops will provide opportunities to inform the public of the project and solicit community feedback during the planning process. These workshops will explain how public input will be collected, address any challenges, identify Smart Growth strategies, and help identify a full suite of implementation measures to meet the GHG reduction targets.
- **Public Survey:** The public survey will allow people to give in-depth answers to questions and voice their ideas and concerns about the project and allow for flexibility for community members to provide feedback on their own timelines. The survey will be available on the project website and as a hard copy at municipal offices.
- **Pop-Up Events:** Pop-up events at community events can be an ad-hoc way to promote upcoming engagement events and increase public awareness of the CCAP to a broad range of community members. Typically, pop-up events can happen at farmers markets, open houses, festivals, or fairs. Communication materials should be used at these pop-up events.
- **Target Demographics Workshops:** It will be essential to create targeted outreach strategies for the Region's most vulnerable and historically underrepresented populations, including but not limited to racial and ethnic minorities, youth population, disabled persons, low-income residents, as well as federal and New York State identified disadvantaged communities. We will work with each county and the Climate Action Planning Committee to identify these populations and methods to meaningfully connect with and engage these communities.
- **Focus Groups and Stakeholder Meetings:** Stakeholder meetings will allow us to delve further into specific topic areas, emissions sectors, and action items with

municipal decision-makers, businesses sectors, environmental groups, youth groups, other local interest groups, and community partners. It is anticipated that these meetings will be held later in the planning process to identify and discuss CCAP goals, actions, and Smart Growth strategies with key stakeholders and potential community partners who may have an active role in implementation.

Municipal Partner meetings will provide an opportunity to hear from municipal leaders about their community goals and ongoing projects. These meetings will also explain how the CCAP will identify near-term, high-priority and implementation-ready measures that will reduce GHG emissions in government operations and buildings. These meetings will occur ongoing during the CCAP process.

All engagement activities will be posted on the project website: www.engage.gflrpc.org

Monitoring

Successful implementation of the PCAP and CCAP strategies requires monitoring and reporting on the results of our efforts and a robust public process. Reporting requirements provide transparency and public access to information and awareness of where improvements can be made in our emissions reduction activities. Information ranging from annual greenhouse gas emissions to how well the policies implemented are working to meet the GHG emission limits will be released in a range of reports.

Reporting is critical to track how the Region is meeting the GHG emission reduction goals; and the Region will measure, track, and report on the investments, benefits, and positive outcomes for Disadvantaged Communities.

Relating to future steps towards climate action, specifically related to GHG emissions and inventories, our recommendations are as follows:

- Perform a GHG Inventory and update with the latest data every 5-10 years starting in 2025.
- Utilize the data and analysis presented in this report to inform a formal climate action plan, including a GHG Inventory update in 2025, 2030, 2040, 2050 and so on.
- Utilize this report's findings to prioritize projects and actions that will impact the sectors or sources that have the largest opportunity for emissions reductions. a. For example, spearhead an initiative that targets reducing emissions within the Department of Public Works and their vehicle emissions, or target resident behaviors such as energy savings in the wintertime which would directly impact stationary emissions.

End Notes

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