

Regional Resilience Baseline Assessment

Prepared for the State of Connecticut LTER Region 4
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Front and Back Cover:

A view of the Norwich City Hall.

(https://en.wikipedia.org/wiki/Norwich,_Connecticut)

Prepared by

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LTER Region 4 encompasses all of eastern Connecticut and includes 40 municipalities with long-standing ties to New England's maritime, manufacturing and farming traditions. Outside of the midsize urban centers of New London-Waterford-Groton and Norwich, much of the region is made up of small suburban and rural communities. The region's entertainment venues, including two tribally-owned and operated casinos, arts and cultural institutions and natural areas serve as an important attraction for visitors. Interviews conducted by GRI researchers identified a shared commitment for supporting and sustaining the vibrant small town centers and high-quality public education systems, as well as ensuring a range of affordable housing opportunities which make these communities both attractive and welcoming to young families from diverse backgrounds. An unanticipated outcome of the COVID-19 pandemic is that it has generated an influx of new residents and rising average property values in these towns as some former urban residents in New York City and Boston have sought out rural and coastal settings from which to work from home.

Instances of poverty, food insecurity, healthcare access, and a shortage of affordable housing can be found in many of the region's communities. Furthermore, the loss of jobs so heavily concentrated in the hospitality and entertainment industries has been especially devastating for the related small businesses and the many low-income households in the region. At the same time, there is a pressing need to scale opportunities for workforce training to take advantage of the job opportunities of industries such as submarine shipbuilding, the healthcare sector, and offshore wind generation that are expected to see continued growth in the region. Overall, the challenge for economic development planners will be to match these new employment opportunities with the community members who have lost their lower-wage, less-skilled jobs during the COVID-19 emergency.

Beginning in October 2020, GRI conducted 32 interviews with local government leaders, industry representatives, business owners, healthcare system managers, educators, infrastructure managers, social service providers, and civic and community organizations across Region 4. These interviews highlighted longstanding challenges of poverty as well as gaps in social services available to support residents, particularly in the small urban centers and the rural communities of Region 4. Overall, interviewees spoke to the need for focused efforts for addressing the distinctive resilience challenges that small cities and rural communities face in eastern Connecticut. Five overarching findings relevant to regional economic resilience emerged:

Finding 1: Region 4's urban communities are poised to capitalize on General Dynamics Electric Boat's planned expansion to attract additional supporting business, as well as the expected expansion of blue economy, biotechnology and healthcare businesses.

Finding 2: The rural character of the majority of Region 4's municipalities and the associated gaps in information and transportation infrastructures present special challenges for the region's many socio-economically vulnerable residents in gaining access to economic and educational opportunities, social services, and healthcare.

Finding 3: When the COVID-19 eviction protections expire, there is a significant risk of displacing families from their homes in Region 4.

Finding 4: Main Street business (i.e., small to medium local businesses), particularly those businesses that are owned or serve vulnerable populations or locales, have suffered the most serious damage in the pandemic, making a focus on recovery of this business strata critical to the region's long-term economic recovery.

Finding 5: Loss of jobs in the hospitality and entertainment sectors presents a serious risk of long-term unemployment for working-age adults across Region 4 in the absence of targeted recovery supports for

advanced skills workforce training to meet the demands of the industries that are poised for growth.

These findings, along with the underlying data that informs them, provide a baseline for guiding the economic recovery efforts for Region 4 while also achieving long-term economic development goals. Importantly, to achieve a successful and sustainable resilient outcome, all five must be addressed concurrently. This will require sustaining the exceptional level of collaboration and cooperation which Region 4 stakeholders have demonstrated since the start of the pandemic.

To be clear, this report is but a preliminary step in supporting the creation of a comprehensive regional strategy for resilient economic recovery and development following the COVID-19 pandemic. It represents the first stage of a detailed regional analysis guided by the GRI Integrated Resilience Enhancement Solutions (I-RES). Over a period of 120 days, GRI has mobilized a team of researchers to conduct a high-level assessment of the existing conditions that have been exacerbated by the pandemic within all five of Connecticut's LTER regions. This initial basic analysis provides the underpinning that can be used by the Regional Recovery Steering Committees (RRSCs) and associated Councils of Governments for completion of detailed regional strategies using GRI's Resilience Analysis Toolkit and guidance. The report that follows provides a baseline analysis that:

- Synthesizes resilience indicator data that is informed by community interviews, so as to highlight the critical community functions that have been most impacted by the COVID-19 emergency and which need urgent attention;
- Explicitly includes an examination of equity issues revealed by data and interviews provided by representatives of underrepresented communities at the regional and community level;
- Leverages existing priorities identified by the State's Economic Development Districts, Councils of Governments, Chambers of Commerce, and local governments to guide considerations for economic recovery planning at the regional level, and
- Shares consideration for action that can guide the economic recovery and resilience-building efforts by key stakeholders at the state, regional, and municipal levels, and by corporate, not-for-profit, and philanthropic leaders.

The significant stakeholder engagement undertaken for the preparation of this report has accomplished something else that is important to the success of economic recovery efforts: It has helped to strengthen collaborations around a shared recognition that the COVID-19 emergency provides an opportunity to bounce forward in ways that address longstanding economic development challenges.

The following are a summary of the considerations that should frame the creation of strategies and actions to ensure equitable and resilient economic recovery and development in Region 4:

- In order to realize benefits of the planned expansion of several major employers in Region 4, consideration should be given to policies, strategies, and investments that maintain and enhance the area's attractiveness to new and established small businesses.
- Development plans which help sustain the family-friendly "village" feel of many of Region 4's municipalities, to include rehabilitating "Main Street" town and urban centers, will be important to attracting and retaining residents.
- Social service assistance programs will be more responsive to the urgent needs of people impacted by the COVID-19 emergency if they are able to offer a "no wrong door" service delivery model that can address in an integrated way, health, housing, food assistance, education, transportation and employment support. Additionally, providers of social assistance should be provided with greater flexibility to presume eligibility when requests for assistance are made so as to ensure a timely and

comprehensive response to urgent needs.

- Targeted food assistance programs for rural residents, immigrants and communities of color should be prioritized to address food insecurity which is expected to be a persistent challenge in many Region 4 communities.
- The digital divide (both in terms of access and user competencies) remains a barrier to equitable and resilient recovery and growth -- for workers from disadvantaged populations and for small businesses' adaptability, sustainability, and survivability, particularly for those operated by or serving disadvantaged populations.
- The centrality of childcare to a vibrant and efficient workforce has been made clear during this COVID-19 crisis, there is a need to invest in safe and affordable childcare options for families across the Region.
- The public education system will need to be adequately resourced to provide additional support for vulnerable students across Region 4 to include summer school opportunities. It is particularly important to provide extra assistance to graduating high school students seeking employment opportunities and/or continuing on with higher education.
- In responding to the mental health stresses of the COVID-19 pandemic, support for community healthcare providers and mental health services should be prioritized as a cornerstone for regional recovery.
- Local and regional recovery strategies should plan for the medium-term stability of impoverished, low-income, and ALICE families that maintains them in their current housing until the COVID-19 pandemic recovery process is largely accomplished.
- Local and regional recovery strategies should plan for the medium-term stability of small landlords whose income has been restricted by pandemic-caused tenant inability to pay rent and the eviction moratorium.
- Recovery strategies should take full advantage of the First Draw and Second Draw Paycheck Protection Program (PPP) loans and the SBA's COVID-19 Economic Injury Disaster Loans (EIDL). Mobilizing outreach efforts and application support should prioritize efforts to reach minority-owned or language-challenged small businesses.
- Recovery and long-term economic development strategies will be more successful if they include provisions for technical and/or financial assistance that can assist small businesses in pivoting from traditional business models to emerging models that may be more heavily reliant on such things as on-line order processing, alternative delivery systems, and on-line payment applications.
- Workforce retraining plans that support the re-directing of workers to new careers will need to be adapted to support the lower-skilled workers who have been most dramatically impacted by the COVID-19 emergency.
- Consider targeted support to sustain Region 4's agriculture and fisheries sectors, which are at the heart of social and economic life in many of the region's small communities.
- Regional recovery and development plans should emphasize training programs that address the need for skills in demand by the manufacturing, shipbuilding, construction, and healthcare sectors.
- Consideration should be given to targeting recovery funds to invest in ongoing regional collaborations among institutions of higher education with the private sector so that they can more directly support

the career pathways that will best sustain a successful regional economy.

- Regional recovery necessitates improvements in the availability and access to transit services that improved the ability of residents of Region 4 to connect with employment training opportunities, their places of work, and support access to health and other social services.

The ongoing COVID-19 crisis has validated the focused efforts by leaders at all levels to work collaboratively. The State of Connecticut is facing the risk of a significant budget deficit in coming years which makes it critical to aggressively pursue new sources of federal funding and private investment. Funders will be seeking scalable and impactful projects that address long-standing equity issues, increase inclusivity in economic development, and build long-term resilience. The newly established Regional Recovery Steering Committees (RRSCs) are playing an important role in bridging the efforts of State-level economic development planners, the regional Councils of Governments (COGs), and municipal efforts, so as to enable the most effective community engagement and prioritization of requests for funding.

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Regional Resilience Baseline Assessment

Introduction

Purpose of Report

The Global Resilience Institute's (GRI) Integrated Resilience Enhancement Solution (I-RES) is a research methodology designed to provide public, private, and community stakeholders with information, insights, and analysis that can guide a strategic and highly integrated approach to undertaking economic recovery. The overall objective is to position communities to bounce forward as opposed to simply bouncing back from the COVID-19 emergency. The extended public health crisis along with the economic upheaval associated with this pandemic has highlighted the extent to which longstanding social and income inequities have caused disproportionately adverse effects on Connecticut's most vulnerable populations. If those inequities are not adequately addressed as a part of the state's current recovery efforts, they will become even more pronounced when future disasters, pandemics or other disruptions occur.

In collaboration with a variety of CT emergency management and economic development stakeholders, the I-RES process has been applied to the State of Connecticut to develop resilience baselines for the five Long Term Economic Recovery (LTER) Regions under work funded by the Coronavirus Aid, Relief, and Economic Security (CARES) Act. This report is derived from work undertaken over a 120-day period beginning in September 2020. It has been prepared to support the state of Connecticut's long-term economic recovery process by identifying the core regional challenges and the best opportunities for directing limited resources and undertaking efforts that will leverage each region's unique regional characteristics and strengths.

The I-RES methodology deployed by the GRI research team is tailored to identify system interdependencies and broad areas of convergence where the most favorable resilience, sustainability, and equity outcomes are most likely to be achieved. By doing this, the region and the state are better positioned to apply for federal disaster assistance that requires documentation of how resilience, sustainability, and equity outcomes will be achieved as a condition for successfully securing federal recovery support.

GRI's assessment examines the conditions within each LTER region which can be used to attract federal assistance and investment in resilience-building efforts. This report provides a baseline analysis that:

1. Synthesizes resilience indicator data that is informed by community interviews, so as to highlight the critical community functions that have been most impacted by the COVID-19 emergency and which need urgent attention;

2. Explicitly includes an examination of equity issues revealed by data and interviews provided by representatives of underrepresented communities at the regional and community levels;
3. Leverages existing priorities identified by the State's Economic Development Districts, Councils of Governments, Chambers of Commerce, and local governments to guide considerations for economic recovery planning at the regional level, and
4. Shares consideration for action that can guide the economic recovery and resilience-building efforts by key stakeholders at the state, regional, and municipal levels, and by corporate, not-for-profit, and philanthropic leaders.

Evaluating Community Resilience

GRI's I-RES takes a functional approach to evaluating a community's needs and strengths pertaining to resilience-building. People and organizations receive benefits and services by residing in a chosen community with a functioning government, cultural attractiveness, and robust social and economic activities. By adopting a functional approach, it becomes possible to evaluate how the community's resilience, or a lack thereof, impacts the day-to-day lives of those who live in it. This is done by synthesizing the quantitative and qualitative data on a broad range of functions that are elemental to a community's resilience. The data is collected from both publicly available databases as well as by direct questioning of key stakeholders through community engagement. It is not a detailed system, or systems-of-systems approach. Such approaches, while critical to experts, are not how communities and their leaders and citizens plan, work, and live. In day-to-day life, people are affected by the functions (i.e., services) provided by their community, from energy and transportation to arts, education, and recreation. The I-RES approach provides an understanding of how resilience strengths and needs manifest themselves in the delivery of these functions under normal conditions and suggests how changes to these functions represented by investment and development may positively or negatively affect the community's resilience. The I-RES does this by assessing three core elements of a community: physical infrastructure, social dynamics, and economic conditions. It examines how community functions are interrelated and interdependent and how these functional connections impact one another, including key points of convergence where resilience factors are reinforcing one another, thus identifying the largest overall opportunities for impact. Such resilience-building also requires solutions at multiple scales, from the individual and family levels to regional levels and beyond.

A. Regional Context

1. Regional Background

For the purposes of this report, LTER Region 4 closely aligned to the Department of Emergency Management and Homeland Security (DEMHS) Region 4 with the exception that the Town of Coventry requested to belong to LTER Region 3. LTER Region 4 encompasses land from three counties (Windham, Tolland, and New London), and is aligned closest to the two Councils of Governments (COG): the Northeastern Connecticut COG and the Southeastern Connecticut COG. There are 40 municipalities in the Region and a total population of approximately 419,547.¹ 15 of the Region’s municipalities are in Windham County, 4 municipalities are in Tolland County, and 21 municipalities are in New London County. While County boundaries are generally not significant in Connecticut from an economic development planning perspective, some of the business and economic data collected by the federal government are only available at the county scale; county designations may also play a role in the allocation of federal funds.^a



Figure 1: LTER Region 4 comprises 40 municipalities.

a. Data used throughout this report comes from publicly available sources and are aggregated at various organizational levels. Unemployment and DECD grant data presented in the Economic Environment section are reported at the municipal scale for unemployment and DECD Grant data, Employment and Wage by Industry data are reported according to Labor Market Area. Business revenue and closure data are reported at the county scale. Throughout the report, analysis of demographics, household incomes, industries sectors, food insecurity, housing, education, healthcare, transportation, language use and internet connectivity is based on data that are aggregated at the levels of census tracts, municipalities, and counties. Where data are reported at the county level, it is because this is the finest spatial resolution at which the data are currently available. As the counties referenced in this report contribute a different number of municipalities to the LTER Region, their individual relevance to the overall picture of the Region should be considered by readers.

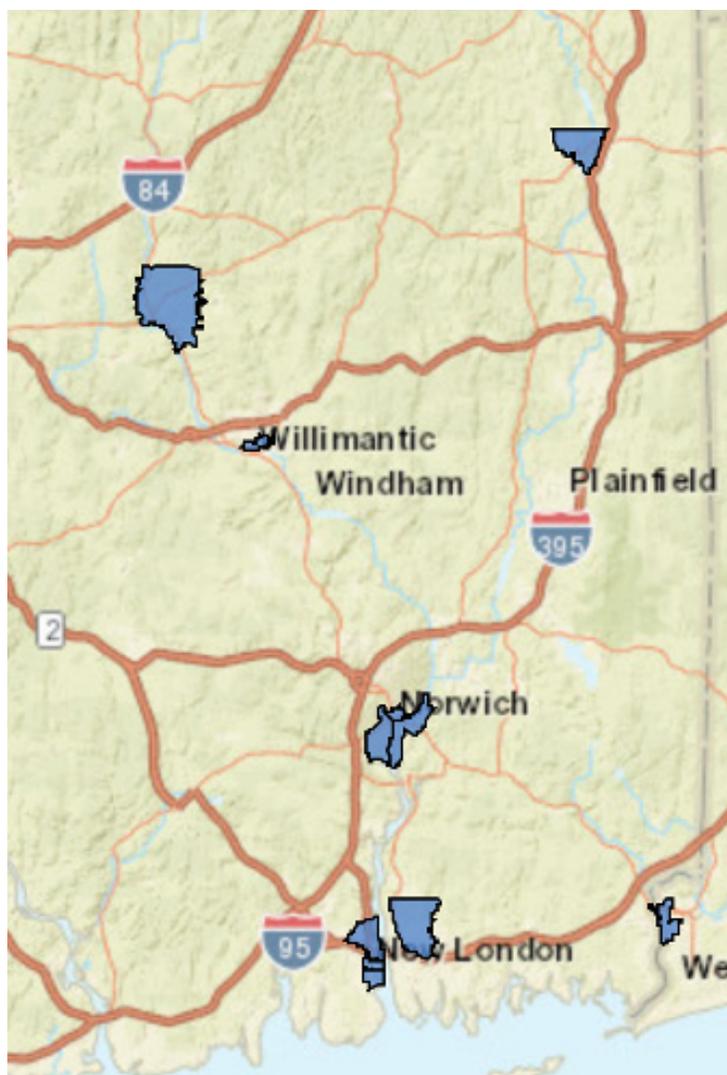


Figure 2: Opportunity Zones in Region 4. (Source: OpportunityDb The Opportunity Zone Database. Opportunity Zone Map)

Much of Region 4's land is forested with development focused along the auxiliary Interstate Highway 395 that runs north to Massachusetts and along the coast.² Northeastern Connecticut is the most rural portion of the State. There are a few small urban districts that were formed from the Region's history of hosting water-powered manufacturing and mill village development.³ Compared to other regions in the State, Region 4 lacks large population centers, and for this reason the northeast area is referred to as "the quiet corner" of Connecticut. Southeastern Connecticut is home to a few large business campuses for the defense and pharmaceutical industries, and two casinos. Norwich is the Region's largest city with a population of 39,567.⁴ Additionally, many of Region 4's towns, specifically those in the northeast corner, are relatively small in population size. Census tracts designated as an Opportunity Zone are located in the municipalities of Putnam, Mansfield, Norwich, Groton, New London, and Willimantic.⁵ Private investment projects in these census tracts can be eligible for considerable capital gains tax advantages, a feature that incentivizes investment for development in economically disadvantaged communities.⁶

2. Population Dynamics:

Region 4's population is most concentrated in its southernmost cities and towns, including New London, Groton, and Norwich (See Figure

3). These three communities make up roughly 24% of the Region's total population.⁷ In addition to being one of the most densely populated communities within the Region, New London is also the most racially diverse: 15% of residents are Black or African American (alone), 2.4% of residents are Asian (alone), and 33% of residents are Hispanic or Latino.⁸ Notably, New London County reports the highest percentage of residents over the age of 65 compared to the other counties in Region 4 (See Figure 4).

In examining the median household incomes for census tracts across each municipality (See Figure 5) Salem and Columbia emerge as some of the highest income communities. In contrast, census tracts in New London, Groton, Norwich, Mansfield, and Windham represent some of the lowest income communities. While Colchester, East Lyme, Salem, and Waterford report census tracts with median household incomes more than 100% over the state average, several other tracts in the Region report median household incomes well below the state average.⁹ Over the past several years, median household incomes have been on the rise in Region 4 as a whole, with Tolland County typically reporting higher median incomes than Windham County, New London County, and State and national averages.¹⁰

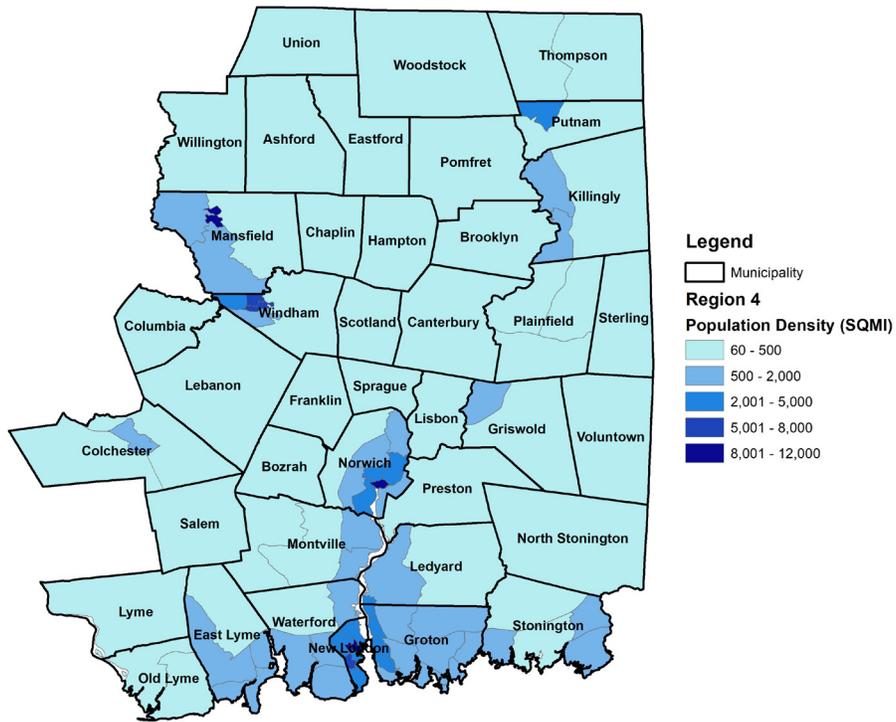


Figure 3: Population Density by Census Tract. (Source: U.S. Census Bureau 2018 American Community Survey 5-year Estimates)

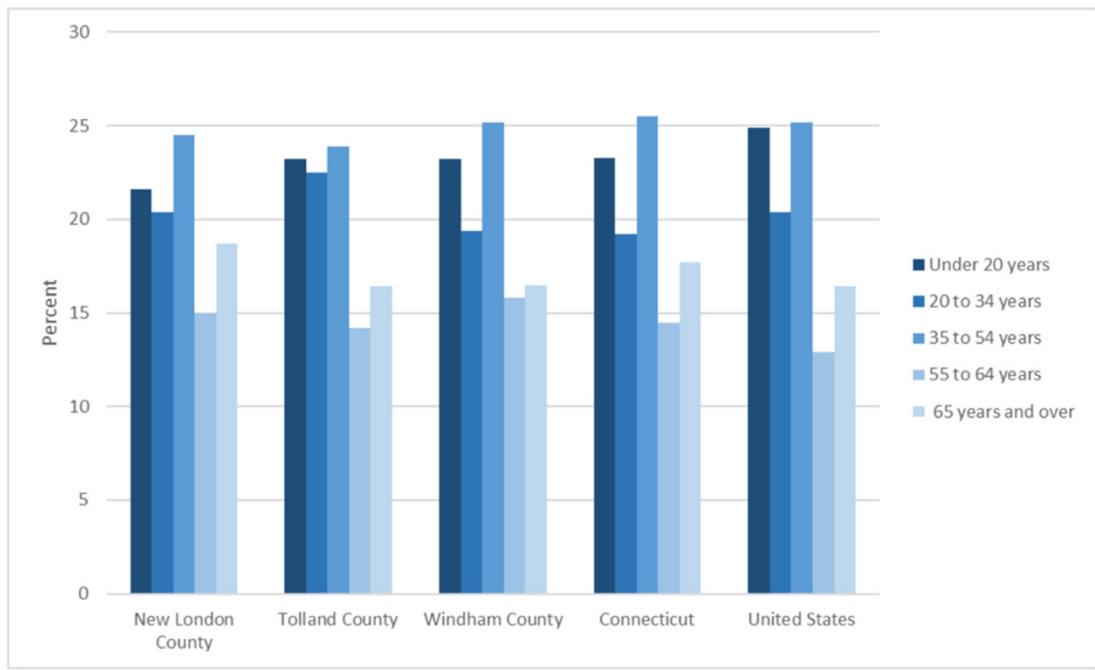


Figure 4: Population Age Distribution. (Source: U.S. Census Bureau American Community Survey 1-Year Estimates)

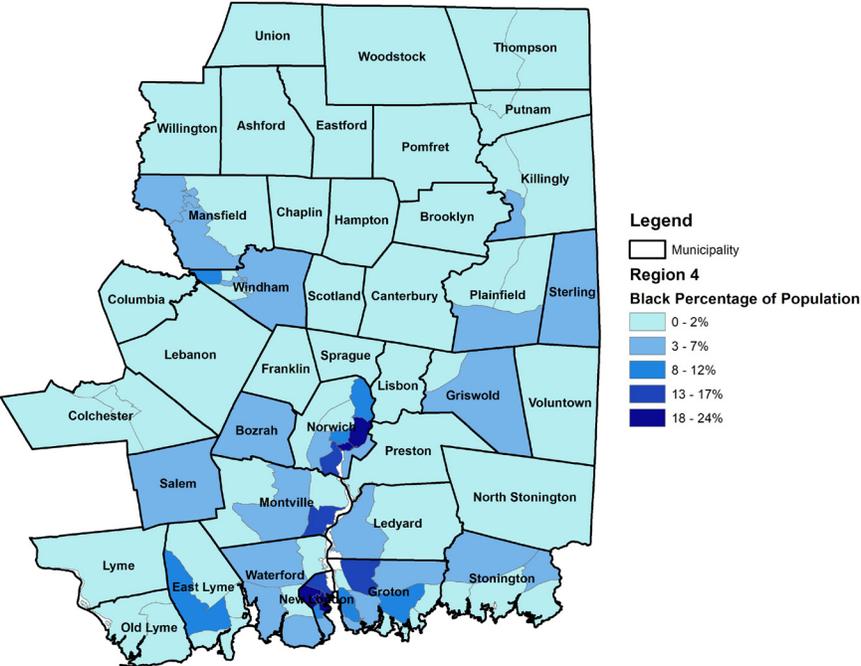


Figure 5: Distribution of Black Residents in Region 4. Note that percentage Black population data should be considered in comparison with population density data (Figure 3). (Source: U.S. Census Bureau 2018 American Community Survey 5-year Estimates)

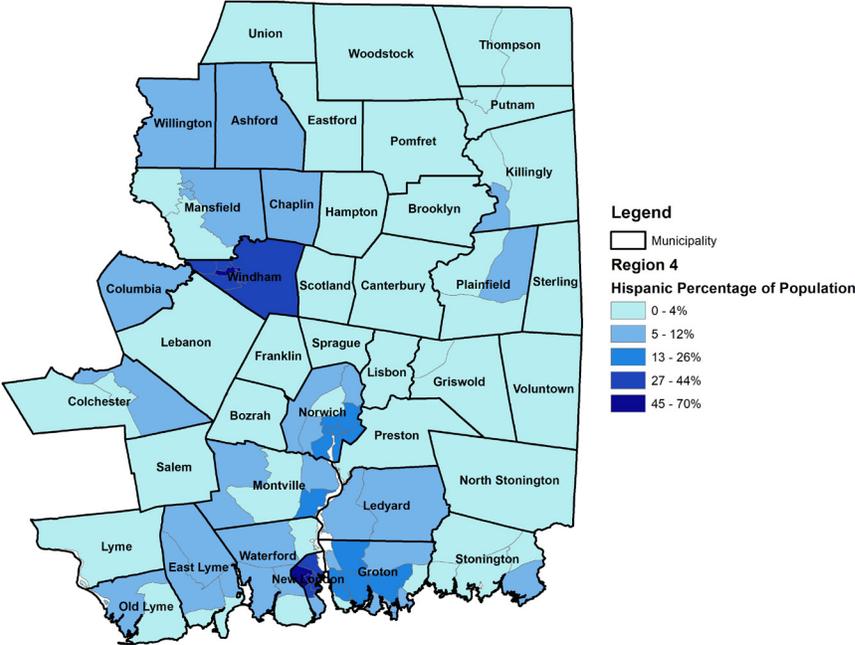


Figure 6: Distribution of Hispanic Residents in Region 4. Note that percentage Hispanic population data should be considered in comparison with population density data (Figure 3). (Source: U.S. Census Bureau 2018 American Community Survey 5-year Estimates)

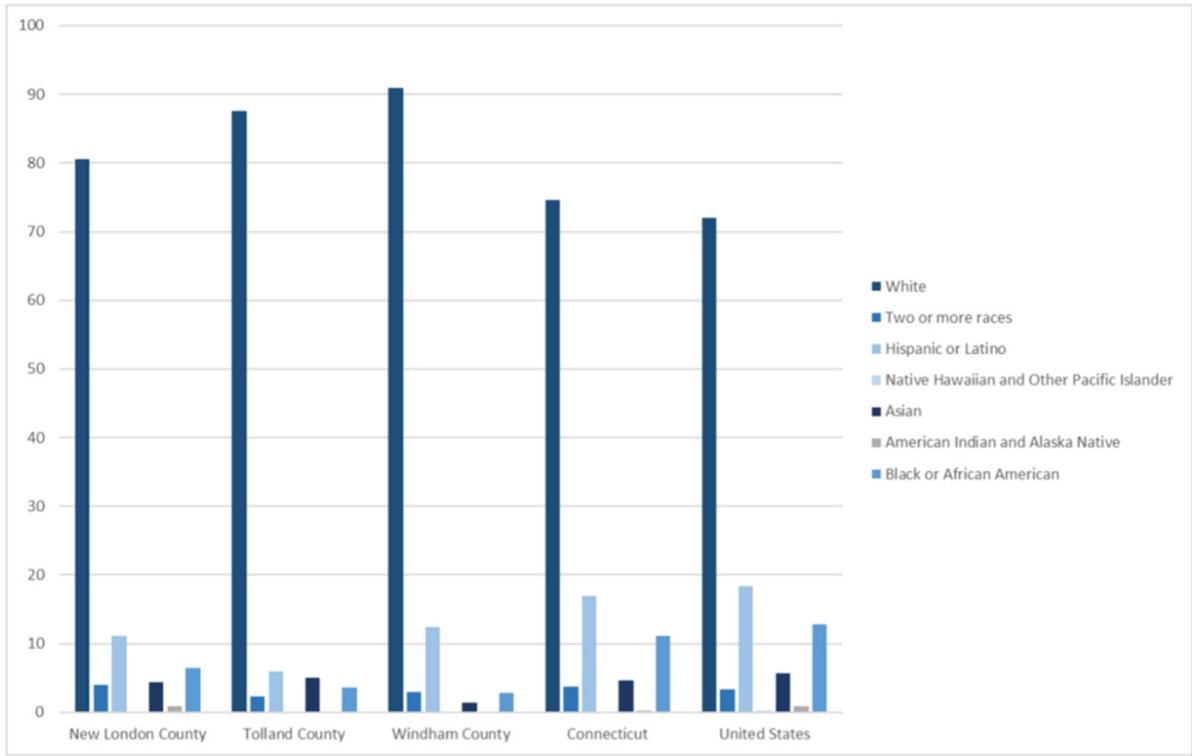


Figure 7: Population by Race. (Source: U.S. Census Bureau 2018 American Community Survey 5-year Estimates)

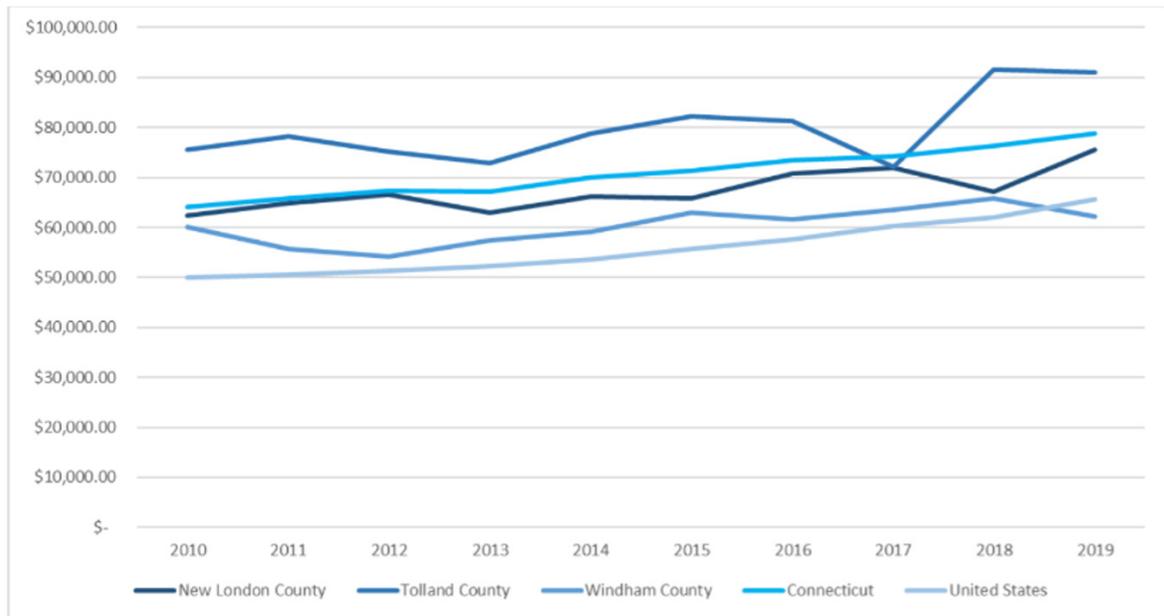


Figure 8: Median Household Income Over Time. (Source: U.S. Census Bureau. American Community Survey 1-Year Estimates)

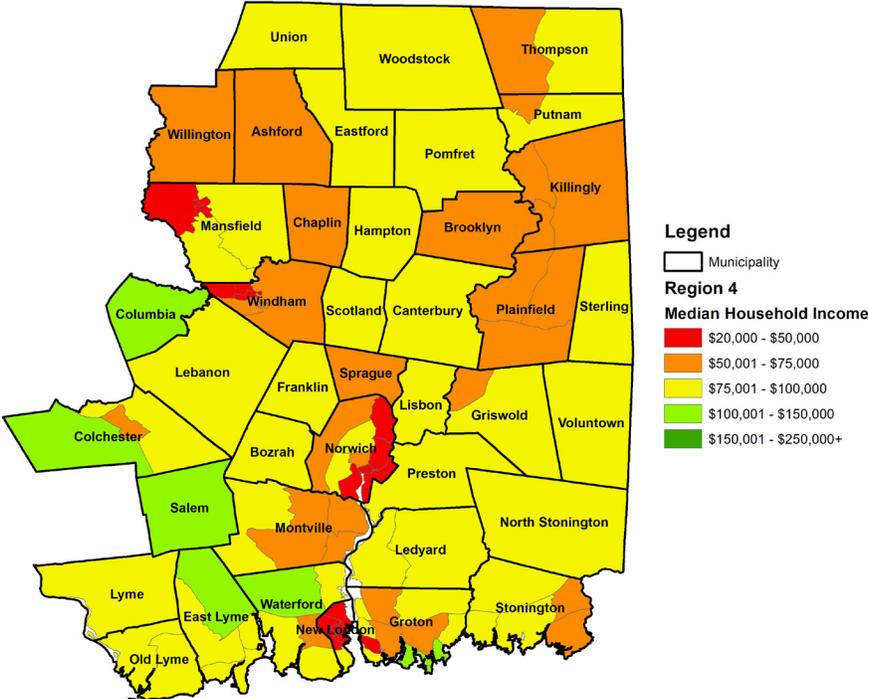


Figure 9: Median Household Income. (Source: U.S. Census Bureau 2018 American Community Survey 5-year Estimates)

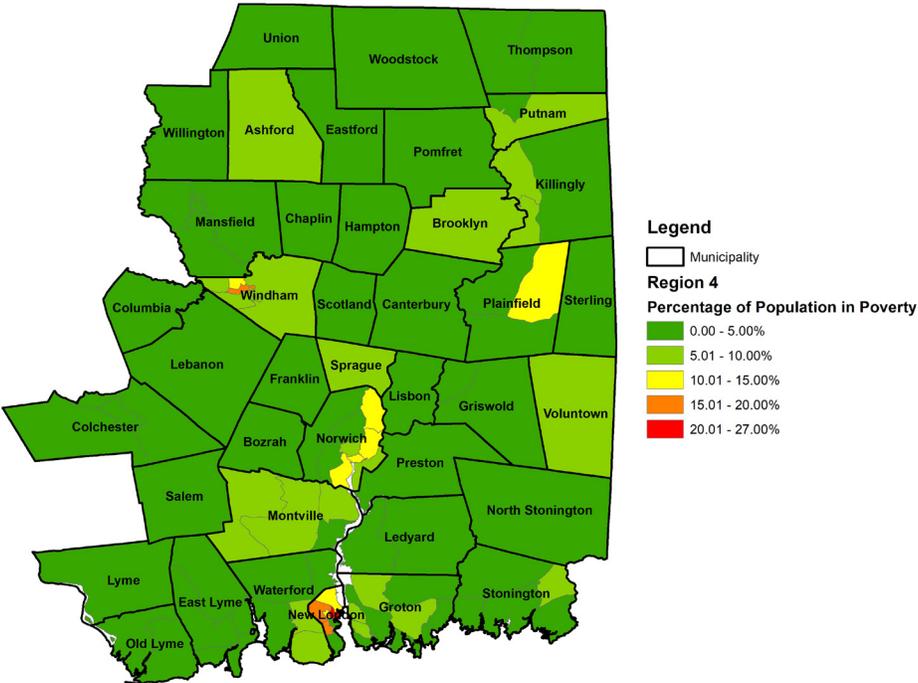


Figure 10: Poverty Rate by Census Tract. (Source: U.S. Census Bureau 2018 American Community Survey 5-year Estimates)

3. Regional Economic Drivers:

Analysis by the Northeastern Connecticut Council of Governments (NECCOG) identifies the following as the key industries with the most jobs: Education and Health (36.2%), Trade/Transportation/Utilities (24.4%), Manufacturing (13.5%), Leisure/Hospitality (8.5%), and Professional/Business (5.6%).¹¹ The Southeastern Connecticut Council of Governments reports that its top industry clusters are rooted in the Tourism, Healthcare and Defense industries.¹² On the county level, Tolland's top five industries by employment are Educational services, and health care and social assistance (29%), Manufacturing (11%), Retail (9%), Finance and insurance, and real estate and rental and leasing (9%) and Arts, entertainment, and recreation and accommodation and food services.¹³ New London's top five industries are Educational services, and health care and social assistance (24%), Arts, entertainment, and recreation, and accommodation and food services (15%), Manufacturing (13%), Retail Trade (11%), and Professional, scientific, and management, and administrative and waste management services (8%). Lastly, Windham's top industries are Educational services, and health care and social assistance (27%), Manufacturing (13%), Retail (12%), Arts, entertainment, and recreation, and accommodation and food services (10%) and Construction (6%).

The two casinos located in Region 4 also generate significant revenue and employment for the regional economy. In 2018, the Mohegan Sun Casino and Resort reported \$1 billion in net revenue and \$1.5 million contributions to the state's general fund.^{14 15} The Mohegan Sun Casino employs some 8,000 people.¹⁶ For the same year, the Foxwoods Casino reported \$828 million in revenue and a \$1.2 million contribution to the state's general fund. Both casinos are important economic anchors for their communities and for the state at-large.

The Region also hosts General Dynamics' Electric Boat, a premier submarine manufacturer for the U.S. Navy. Electric Boat has spurred several manufacturing partnerships in the Region, such as the Eastern Advanced Manufacturing Alliance (EAMA) that coalesces 56 manufacturing employers in the area.¹⁷ EAMA has also prompted the development of the Eastern Connecticut Manufacturing Pipeline Initiative Program to stimulate local workforce development to support the industry.

Another important industry that is expected to grow in the coming years is healthcare. The healthcare services sector remains vital to the regional economy given the Region's aging population, particularly in the northeast corner. The region's hospitals are major employers: Day Kimball Hospital in Putnam (\$118 million in annual operating revenue and 654 full-time employees), Windham Hospital in Willimantic (444 full-time employees), Backus Hospital in Norwich (\$316 million in annual operating revenue and 1,406 full-time employees), and Lawrence + Memorial Hospital in New London (\$352 million in annual operating revenue and 1,692 full-time employees).¹⁸

Institutions of higher education also function as a significant contributor to the regional economy. The University of Connecticut, the State's largest university (32,027 students), has its main campus in Mansfield.¹⁹ Other colleges and universities in the Region include Eastern Connecticut State University (5,362 students), Three Rivers Community College (4,245 students), Connecticut College (1,865 students), Quinebaug Valley Community College (1,559 students), United States Coast Guard Academy (986 students), and Mitchell College (677 students).²⁰ The students who attend these institutions contribute directly to the economy by their patronage of local businesses.

B. Economic Environment

The resilience implications of the Region's economic environment can be understood by looking at the type of industries providing the employment, the regions' level of employment/unemployment, and the state of larger business and commercial activity present in the Region. Data for employment by industry sector is gathered according to defined Labor Market Areas (LMAs) which are not precisely congruent with Region 4 as it is defined in this report. Two Labor Market Areas (LMA), Norwich-New London-Westerly (Norwich) LMA and Danielson-NE LMA, cover most of Region 4's land and its key population centers.²¹ For these reasons, the following discussion will focus on these LMAs in order to provide the most accurate analysis of regional employment dynamics. However, unemployment averages over the past year (by town/city) include all municipalities within the Region.

1. Region 4 LMA Employment Averages

Pre-COVID-19 Sector Employment

Based on Department of Labor data, Region 4's employment trends prior to the pandemic reported total non-farm employment of 157,000 and a strong reliance on Service-Providing Industries for its job base (Figure 11).

	2019 – October		
Industry Sector	Danielson-NE	Norwich-New London- Westerly	% OF TOTAL NONFARM EMPLOYMENT (Combined)
TOTAL NONFARM EMPLOYMENT	27,600	129,400	100.0%
TOTAL PRIVATE	23,900	99,300	78.5%
GOVERNMENT	3,700	30,100	21.5%
Federal Government	200	2,900	2.0%
State Government	800	3,700	2.9%
Local Government	2,700	23,500	16.7%

Industry Sectors			
GOODS PRODUCING INDUSTRIES	6,400	22,000	18.1%
MANUFACTURING	5,500	17,700	14.8%
PRIVATE SERVICE PROVIDING	17,500	77,300	60.4%
TRADE, TRANSPORTATION, AND UTILITIES	6,300	21,900	18.0%
INFORMATION	100	1,300	0.9%
FINANCIAL ACTIVITIES	600	2,800	2.2%
PROFESSIONAL AND BUSINESS SERVICES	1,500	9,200	6.8%
EDUCATION AND HEALTH SERVICES	5,500	21,200	17.0%
Healthcare and Social Assistance	0	18,400	11.7%
LEISURE AND HOSPITALITY	2,600	17,400	12.7%
Accommodation and Food Services	0	14,800	9.4%
OTHER SERVICES	900	3,500	2.8%

Figure 11: Region 4 LMAs (Danielson-NE, Norwich-New London-Westerly) October 2019 employment averages. Note – Table excludes Hartford LMA. (Source: Connecticut Department of Labor (CT DOL) – Current Employment Statistics (CES). Historical Employment Statistics – 1990 to Present. (Accessed December 2020)

Figure 11 demonstrates a few noteworthy dynamics regarding the employment landscape of Region 4, as observed before the start of the pandemic. First, a significant portion of nonfarm employment (21.5%) was in government, and of this percent, 16.7% was within local government.²² However, it must be noted that a large number of employees classified under Local Government are workers engaged by tribal-owned casinos. Second, employment, and the economy at-large, in the Region is strongly rooted in the goods-producing industries (18.1% of the LMA employment was in this area), strongly influenced by the presence of General Dynamics Electric Boat. Although this percent is smaller than employment in service producing industries, it is relatively high as compared to other areas. This is significant because many service-based businesses (such as leisure and hospitality) have been hit hardest by the pandemic's economic conditions, suggesting that Region 4 may have headed into the pandemic with a more stable employment diversity (due to the higher proportion of stable, goods-producing employment) than other areas.

Change in Region 4 LMA Workers Employed

As a whole, private service providing industries lost approximately 6,900 jobs for this period, with leisure and hospitality employment accounting for 3,300 of these losses.²³ Local government was another sector where heavy job losses were recorded for this period (loss of 4,700 jobs across both LMAs), and government employment as a whole (including state and federal) losing 5,000 jobs. No industry sector posted positive employment numbers for this period, and only Financial Activities and Federal Government

recorded zero losses in employment. The manufacturing sector lost approximately 500 jobs during this period, however the larger sector of goods producing industries recorded positive numbers in other sectors, resulting in a net loss of 300 jobs.

	Variation (in %) October 2019- October 2020 Total Employment		
INDUSTRY	Danielson-NE	Norwich-New London-Westerly	COMBINED
TOTAL NONFARM EMPLOYMENT	-4.7%	-9.12%	-8.3%
TOTAL PRIVATE	-4.6%	-7.1%	-6.6%
GOVERNMENT	-5.4%	-16.0%	-14.8%
Federal Government	0.0%	0.0%	0.0%
State Government	-12.5%	-5.4%	-6.7%
Local Government	-3.7%	-19.6%	-18.0%
Industry Sectors			
GOODS PRODUCING	-3.1%	-0.5%	-1.1%
MANUFACTURING	-3.6%	-1.7%	-2.2%
PRIVATE SERVICE PROVIDING	-5.1%	-8.9%	-8.2%
TRADE, TRANSPORTATION, AND UTILITIES	-4.8%	-2.7%	-3.2%
INFORMATION	0.0%	-7.7%	-7.1%
FINANCIAL ACTIVITIES	0.0%	0.0%	0.0%
PROFESSIONAL AND BUSINESS SERVICES	-6.7%	-4.4%	-4.7%
EDUCATION AND HEALTH SERVICES	-1.8%	-12.3%	-10.1%
HEALTH CARE AND SOCIAL ASSISTANCE	Data N.A.	-5.4%	-5.4%*
LEISURE AND HOSPITALITY	-11.5%	-17.2%	-16.5%
Accommodation and Food Services	Data N.A.	-18.2%	-18.2%*
OTHER SERVICES	-11.1%	-5.7%	-6.8%

**Combined % variations for these values only includes Norwich LMA due to lack of available data from the Danielson-NE LMA.*

Figure 12: Change in Workers Employed (individual and combined) for 2 LMAs within Region 4, October 2019-October 2020. (Source: Connecticut Department of Labor (CT DOL) – Current Employment Statistics (CES). Historical Employment Statistics – 1990 to Present. (Accessed December 2020)

Additional Impacts from Employment Changes

The two LMAs within Region 4 have different population numbers, population densities, and total non-farm employment, which leads to variations in job losses for the period of October 2019-October 2020. The Norwich LMA, encompassing the majority of large population centers in the Region, experienced higher percentage and absolute job losses for this period. The combined employment loss (total non-farm) across the two LMAs was 13,100 jobs, of which the Norwich LMA accounted for 90.1% of all losses.²⁴ Consistent with state-wide employment trends for this period, service providing sectors including Education and Health Services and Leisure and Hospitality experienced some of the highest job attrition rates across the region. While the average quarterly wage for all industries from the two LMAs for Q2 2020 was \$14,481, wages for workers in these three industries was significantly lower:²⁵

- Arts, Entertainment, and Recreation: Average Q2 2020 wage \$7,713, 47% less than regional average for this period.
- Accommodation and Food Services: Average Q2 2020 wage \$5,601, 61% less than regional average for this period.
- Other Services: Average Q2 2020 wage \$9,135, 37% less than regional average for this period.

Since October 2020, a second wave of increasing COVID-19 case rates in Connecticut and associated public health measures to slow the spread of the virus have resulted in continued negative impacts for Connecticut's employment rate.²⁶ For the week ending December 5th, 2020, Connecticut state-level data recorded a 31% increase (unadjusted) in the number of initial claims filed as compared to the previous week, indicating a significant rise in newly unemployed workers across the state.²⁷ Data through December and into early January 2021 indicate that unemployment claims are on the rise again as the pandemic continues. These state and national trends are concerning developments for regional economies, particularly with the temporary conclusion of Connecticut's Extended Benefits period on December 12th, 2020, increasing the risk levels for unemployed workers across the state. Although the CARES Act Extension has provided a new Federal Pandemic Unemployment Compensation (FPUC) allocation of \$300 per week up till the program end date (March 13th, 2021), the brief period between the conclusion of the first extended benefits (mid-December) and the resumption in mid-January has likely added to the financial burdens on individuals and families that have been heavily dependent on unemployment benefits due to loss of livelihood.²⁸

2. Region 4 Unemployment

The COVID-19 crisis's economic impacts have been detrimental for communities across Region 4, as demonstrated by the surging unemployment rates reported in August 2020, which was more than 2 months after the first round of restrictions on commercial activities were partially or completely lifted. GRI utilized January 2020 unemployment rates across all municipalities within Region 4 as a benchmark figure to compare against August and October unemployment numbers for 2020. For all municipalities assessed in Region 4, February 2020 unemployment rates closely follow January 2020 unemployment rates. Because several industry sectors in the Region, including Accommodation and Food Services, experienced some early disruptions in operations as a result of the pandemic, January 2020 data is used as a benchmark for pre-pandemic employment data.

Across Connecticut and the nation, pandemic-related job losses have disproportionately impacted women, racial minorities, and workers who have less than a high school education.²⁹ Detailed weekly data for initial and continued unemployment filed according to workforce investment area and age, education level, race and other demographic characteristics is available from the Connecticut Department of Labor. It is

important to note that the State of Connecticut only processes unemployment claims filed by workers who are employed within the State. Connecticut Department of Labor (DOL) unemployment claims records do not account for unemployment claims filed by workers who are employed out-of-state, and also does not include the unemployed self-employed or those who are ineligible for the State's unemployment system, including federal workers and religious workers.³⁰

GRI's analysis of the impacts of the COVID crisis on employment is based upon Local Area Unemployment Statistics (LAUS) monthly employment, unemployment, and labor force data.³¹ The unemployment rate and labor force estimates are based on a household survey and measure the work status of the civilian noninstitutional population 16 years old and over residing in Connecticut.³²

Throughout the pandemic, Connecticut's unemployment rate has been underestimated due to low response rate and misinterpretation of survey questions during the collection of data for the September Current Population Survey (CPS) which is the foundation of the statistical model used to determine all states' unemployment rates.³³ The effect of the CPS misclassification for Connecticut's LAUS unemployment rate has declined since April, 2020 and is now estimated to be in line with the misclassification at the national level.³⁴ Regional unemployment estimates are best understood in the context of their relative rates by municipality and by sector and their movement over several months rather than observed changes in a single month's value.

Pre-COVID 19 Unemployment Rates

Before the COVID-19 pandemic, Region 4's (January 2020) average unemployment rate of 4.5% was not significantly different than the state-wide average of 4.4%.³⁵ Across the state, January 2020 unemployment numbers for the other LTER Regions were heavily linked to population size, with larger population centers recording significantly higher unemployment rates as compared to smaller communities (within the same Region). However, Region 4's unemployment numbers for this period did not adhere to this trend, with no significant differences in unemployment rate between larger and smaller municipalities. Pre-pandemic unemployment rates were unevenly dispersed across the Region, with Windham (6.1%) and New London (5.8%) reporting the highest rates for this period. Lyme (3.1%) and Pomfret (3.4%) recorded the lowest unemployment rates for January 2020. The five largest population centers differed by +0.4 points compared to the regional mean, while the five smallest communities came -0.4 points under. This small variation is a trend unique to Region 4, as the other LTER Regions showed significantly greater differences in unemployment rates between larger and smaller communities. Again, this can be partially explained by the absence of larger population centers and Region 4's average population (per municipality) being 50.06% lower than the statewide average.

Across the Region, there were three major clusters of high unemployment in January 2020:³⁶

- Norwich Cluster (Norwich, Sprague, Lisbon, Preston, Franklin, Bozrah, Montville, Ledyard) – 4.6%
- New London Cluster (New London, Groton, Waterford) – 4.4%
- Northeast Cluster (Union, Woodstock, Thompson, Putnam, Killingly) – 4.6%

The unemployment averages listed above are another example of Region 4 differing from population-unemployment dynamics observed across the rest of Connecticut. Typically, large population centers yield higher unemployment rates, even when population size is taken into account. However, the Northeast Cluster, with the lowest average population amongst the three identified clusters (8,960 residents) and a lower population than the regional average, recorded the highest unemployment rate for this period.³⁷ These statistics indicate that unemployment trends in Region 4 are reflective of its unique rural characteristics.

Covid-19 Impact on Employment`

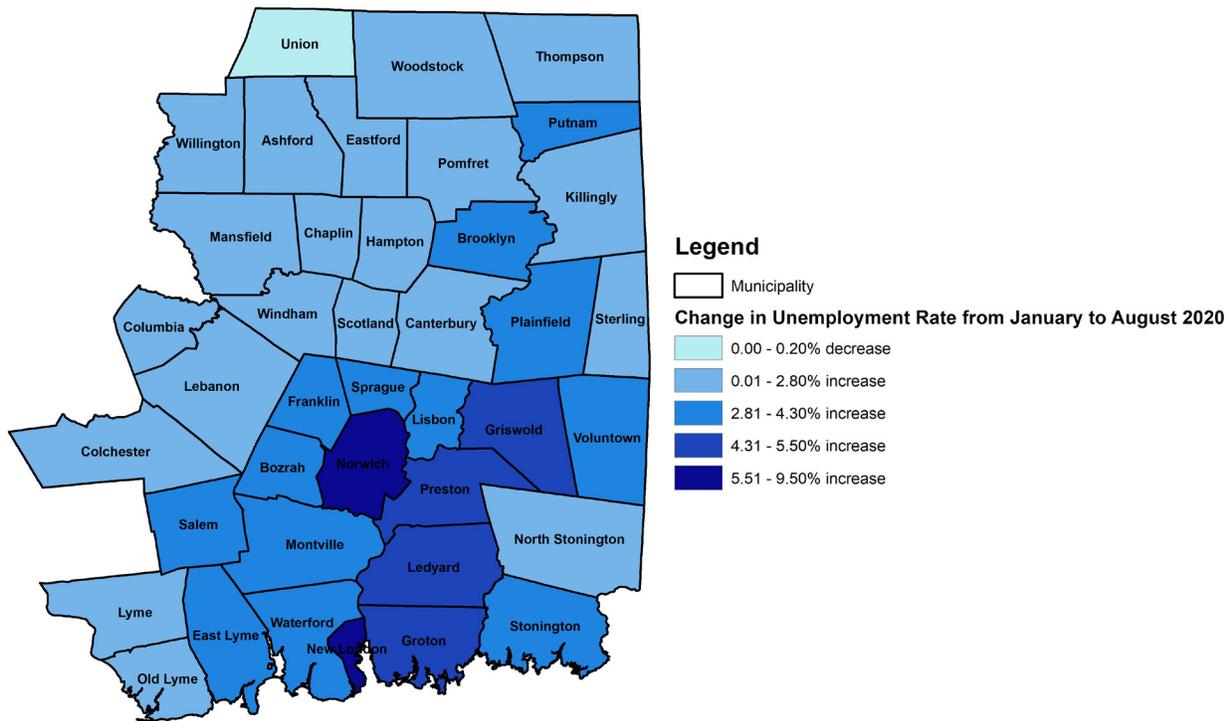


Figure 13: Change in Unemployment Rate from January to August. (Source: Connecticut Department of Labor. Local Area Unemployment Statistics Program. September 2020)

After the first round of commercial activity restrictions and other shutdowns necessitated by the ongoing public health crisis, Region 4’s communities recorded drastic increases in unemployment figures. Region 4’s unemployment rate changes can be examined along with population density in order to understand recent trends. At the end of August 2020, the average unemployment rate across all municipalities in Region 4 was 8.5%.³⁸ This reflects a total increase of 4.0 percentage points from January 2020 and an increase that is slightly higher than the state-wide average increase of 3.7% for the same period. Consistent with the other DEMHS regions, Region 4 recorded significantly greater increases in unemployment for larger population centers as compared to smaller communities. This can be observed in Figure 16, where New London and Norwich, two of the Region’s largest cities, demonstrate the most severe increases unemployment over the first 6 months of the pandemic. Moreover, the five largest cities in Region 4 experienced an average increase in unemployment of 5.5 percentage points, resulting in an average unemployment rate of 10.4% for August 2020. In contrast, the 5 smallest municipalities recorded an average increase of just 1.4% for the same period. This trend is consistent with the previously described uneven distribution of unemployment rates across the region; major population centers which are home to lower-income residents and have a higher concentration of workers in service and hospitality industries have faced the most severe impacts from the COVID-19 pandemic. The variation in population size between municipalities across region 4 is high, as the average population of the five largest communities (30,822 residents) is 19 times larger than the average population for the five smallest communities (1,613 residents). Due to the higher proportion of service and hospitality workers in urban centers, larger municipalities are anticipated to report disproportionately higher unemployment rates due to the continued effects of the pandemic on these vulnerable industry sectors.

New London and Norwich recorded the highest increases in unemployment for the January-August period (7.8 and 9.5 percentage points respectively), while Windham recorded a 2.4 percentage point increase only, despite having the highest unemployment rate (6.1%) amongst all Region 4 municipalities for January 2020.³⁹ The municipality of Mansfield, home to the University of Connecticut, was a notable exception to the state-wide trend of large population centers recording major increases in unemployment for this period, with an increase of just 0.1 percentage points. The three previously identified geographic unemployment clusters recorded higher unemployment increases as compared to the regional average increase, primarily due to the presence of one or more major population centers within each cluster. The Northeast cluster experienced the lowest increase across all clusters (2.8 percentage points). The two other clusters recorded a 6.8 and 5.6 percentage point increase (Norwich Cluster and New London Cluster, respectively) for the communities included under them. The New London-Groton-Waterford cluster recorded the highest average rise in unemployment, surpassing the mean for the five largest municipalities for Region 4.

2020 Unemployment Rate for Region 4 Municipalities

	TOWN	January	August	October	December
Largest Municipalities	Windham	6.1	8.6	6.2	10.8
	Mansfield	4.5	4.7	3.1	5.4
	New London	5.8	13.6	10.5	12.3
	Groton	3.7	8.6	6.0	7.5
	Norwich	4.9	14.4	9.5	11.1
	MEAN	4.9	10.4	7.2	9.5
Smallest Municipalities	Union	4.2	4.0	2.0	6.0
	Scotland	4.4	5.6	3.8	7.4
	Eastford	3.9	5.4	3.9	4.6
	Hampton	3.9	4.8	3.4	6.0
	Franklin	4.0	7.3	3.7	6.9
	MEAN	4.1	5.6	3.5	6.2
Norwich Cluster	MEAN	4.6	11.5	7.6	9.4
New London Cluster	MEAN	4.4	10.1	7.3	8.9
Northeast Cluster	MEAN	4.6	7.4	5.4	7.2
Region 4	MEAN	4.5	8.5	5.9	7.9
State-Wide	MEAN	4.4	8.2	5.8	7.5

Figure 14: Change in Unemployment Rate (in %) for Municipalities across Region 4. (Source: Connecticut Department of Labor. Local Area Unemployment Statistics Program. January 2021)

By October 2020, Region 4 had gained significant momentum in its economic recovery, as restrictions on commercial and personal activities were completely or partially lifted across the state. In the 2-month period between August and October 2020, Region 4 reported an average reduction of 2.4 percentage points in unemployment.⁴⁰ The average unemployment rate across the region (5.9%) was higher than the state-wide average (5.8%) for October 2020, indicating that the region’s economic recovery has slightly lagged in comparison to the other LTER regions of Connecticut. The smallest communities (by population) performed exceptionally well in unemployment, as the average unemployment rate for October 2020 was 0.6 percentage points lower than January 2020 levels, with Eastford being the only community to record the same rate (3.9%) for both October and January in this group, with the other 4 small municipalities recording unemployment rates lower than January 2020 figures. The largest 5 municipalities also recorded reductions in average unemployment (3.1 percentage points) for this period, resulting in an average of 7.2% for the month of October 2020. Having previously recorded a high unemployment rate for January 2020 (4.6%) amongst the three identified clusters, the Northeast cluster experienced the lowest rise in average unemployment (increase of 0.8 percentage points) for the January-October period. In comparison, the Norwich (increase of 3.0 percentage points) and New London (increase of 2.9 percentage points) recorded significant increases to average unemployment rate for this period.

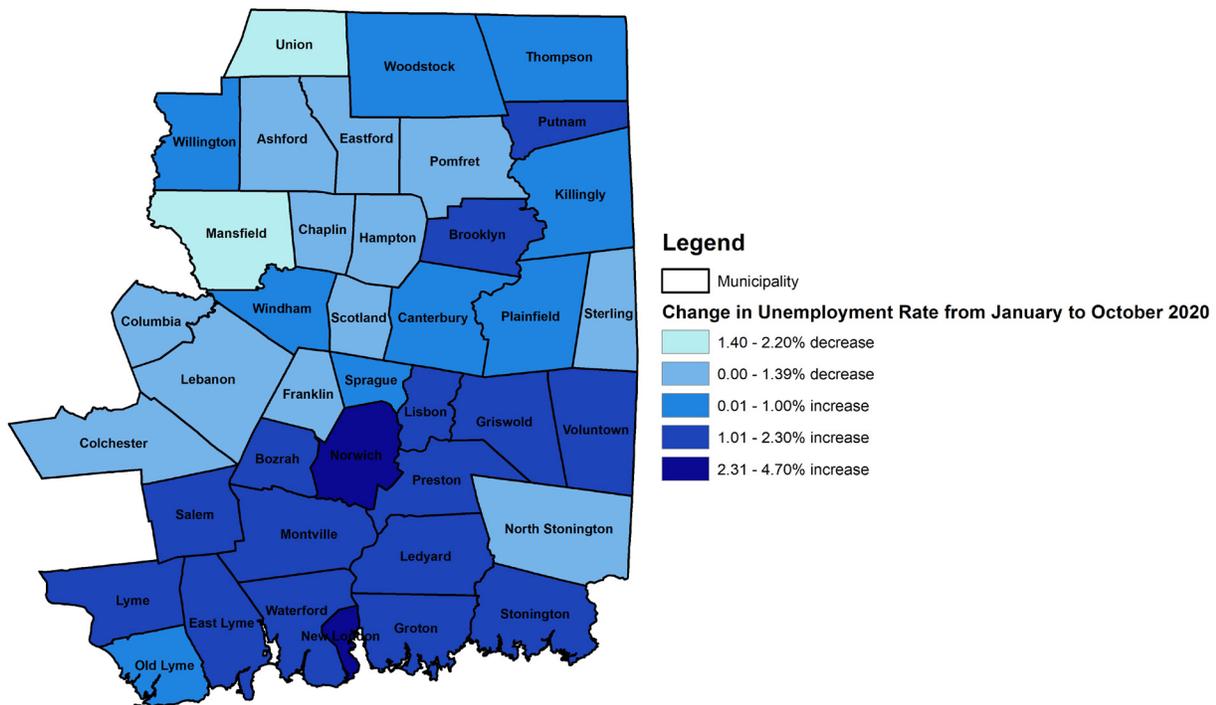


Figure 15: Change in Unemployment Rate from January to October 2020 (Source: Connecticut Department of Labor. Local Area Unemployment Statistics Program. January 2021)

The recovery in employment experienced an abrupt reversal during the October-December 2020 period, with average Region 4 unemployment rate increasing by 2.0 points (as compared to a state-wide increase of 1.7 points).⁴¹ New London recorded the highest unemployment rate for December at 12.3%, followed by Norwich (11.1%) and Windham (10.8%). Eastford (4.6%) and Pomfret (4.9%) recorded the lowest unemployment rates across all Region 4 municipalities. All 3 geographical clusters experienced unemployment increases for this period, with the Norwich (+1.9 points) and New London (+1.6 points)

Clusters recording the high December unemployment rates at 9.4% and 8.9% respectively. In contrast, the Northeast cluster was significantly lower with an average unemployment rate of 7.2% for December, however it did experience a large increase of 1.8 points over the Oct-Dec period. Every single municipality across the region recorded an increase in unemployment for this period, with Windham (+4.5 points), Bozrah (+4.2 points), and Union (+4.0 points) recording the highest increases. Eastford and Lyme (+0.6 points) and Stonington (+0.8 points) recorded the lowest increases.

Increases to Unemployment Rate Across Calendar Year 2020

	TOWN	Variance (Jan-Aug)	Variance (Aug - Oct)	Variance (Oct-Dec)	Variance (Jan-Dec)
Largest Municipalities	Windham	2.5	-2.3	4.5	4.7
	Mansfield	0.1	-1.6	2.3	0.9
	New London	7.8	-3.1	1.8	6.5
	Groton	4.9	-2.6	1.5	3.9
	Norwich	9.5	-4.9	1.6	6.2
	MEAN	5.5	-3.1	2.2	4.6
Smallest Municipalities	Union	-0.2	-2.0	4.0	1.8
	Scotland	1.1	-1.8	3.6	2.9
	Eastford	1.5	-1.5	0.7	0.7
	Hampton	0.9	-1.3	2.5	2.1
	Franklin	3.3	-3.6	3.2	2.9
	MEAN	1.5	-2.1	2.7	2.1
Norwich Cluster	MEAN	6.8	-3.9	1.9	4.8
New London Cluster	MEAN	5.6	-2.8	1.6	4.4
Northeast Cluster	MEAN	2.8	-2.0	1.8	2.6
Region 4	MEAN	4.0	-2.6	2.0	3.4
State-Wide	MEAN	3.7	-2.4	1.7	3.1

Figure 16: Variance in Unemployment Rate (in %) for Municipalities across Region 4. Source: Connecticut Department of Labor. Local Area Unemployment Statistics Program. January 2020)

Note – Table lists changes to unemployment rate across various Region 4 municipalities and clusters across CY20. Positive values correspond to net increase in unemployment for listed column period.

Color Legend - Values in Red indicate undesirable unemployment rate variance worse than the Region 4 average for the same period. Values in Green indicate desirable unemployment rate variance better than the Region 4 average for the same period. Values in Black indicate identical unemployment rate variance to Region 4 average for the same period.

Region 4’s average unemployment rate for the month of December 2020 was 7.9%, which marked a significant increase from the benchmark figure of January 2020 (4.5%).⁴² The two major population centers of Norwich (+6.2 points) and New London (+6.5 points) ended the calendar year at 11.1% and 12.3% unemployment, respectively. Across the region, the 5 largest (by population) municipalities recorded an increase of 4.6 points over the calendar year, which was significantly larger than the 2.1-point increase recorded by the 5 smallest municipalities over the same period. Eastford (+0.7 points) and Mansfield (+0.9 points) recorded the lowest increases, and Mansfield continued to be an exception to the state-wide trend of large unemployment increases over the calendar year being recorded by the largest population centers within each LTER region. The higher populated Norwich and New London clusters finished the year with increases of 4.8 and 4.4 points respectively, while the lower populated Northeast cluster experienced a lower increase of 2.6 points. Across Region 4, no municipality finished the calendar year at a lower unemployment rate as compared to January 2020. Additionally, the Region’s higher unemployment rate than state-wide average for December 2020 (+0.4 points) and higher increase over the Jan-Dec period (higher by 0.3 points) indicate that the current pandemic’s detrimental economic effects have had a disproportionate impact on this Region.⁴³

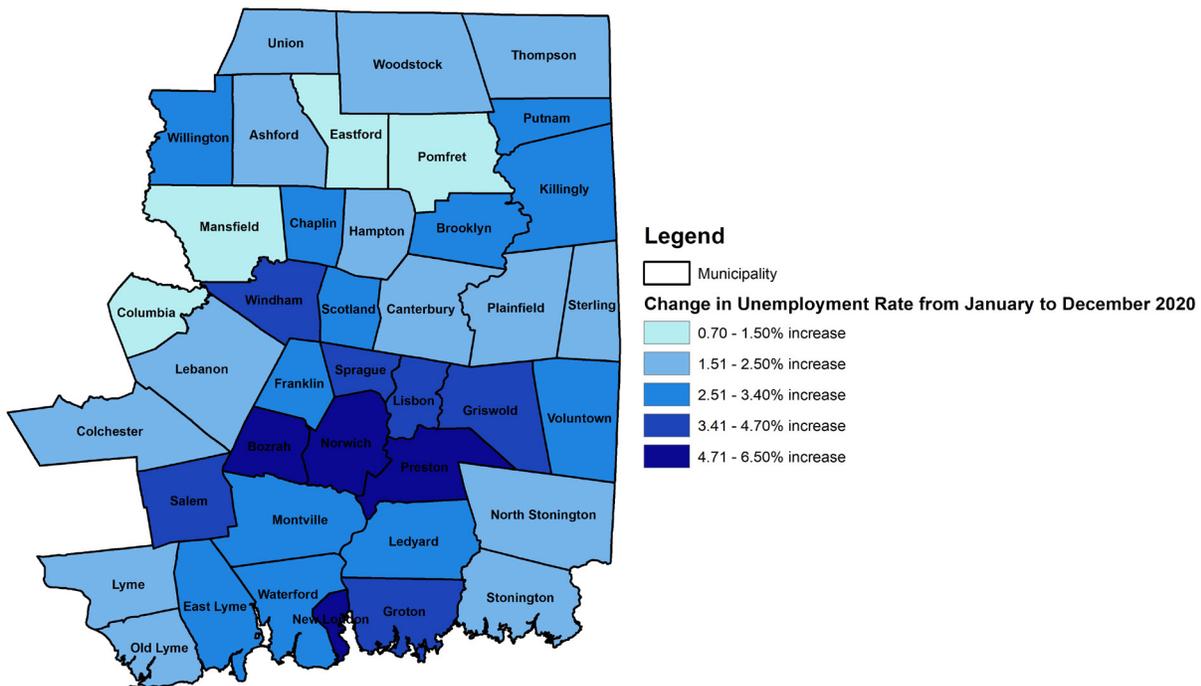


Figure 17: Change in Unemployment from January to December. Source: Connecticut Department of Labor. Local Area Unemployment Statistics Program. January 2021)

3. Impacts on Businesses and Commercial Activities

Through the assistance of the Office of Policy and Management and the Department of Economic Community Development, GRI acquired a preliminary breakdown of the total applications received under the CT Cares Small Business Grant Program. There was a considerable demand amongst small business owners for this \$5,000 grant, with approximately 18,000 applications received by DECD (state-wide).⁴⁴ Due to dataset inconsistencies and the necessary elimination of some applications due to missing/incomplete information, the following analysis does not include every single application filed under the grant program.

DECD CT Cares Grant Program Applicant Data for Region 4

Industry Sector	Region 4 Applications	% of Region 4 Applications	% of Statewide Applications from Region 4
Accommodation and Food Services	182	14.4%	9.3%
Agriculture, Forestry, Fishing, and Hunting	36	2.8%	24.0%
Arts, Entertainment, and Recreation	121	9.6%	9.0%
Construction	68	5.4%	5.8%
Educational Services	28	2.2%	5.1%
Finance and Insurance	21	1.7%	6.9%
Healthcare and Social Assistance	84	6.6%	7.1%
Information	9	0.7%	5.5%
Manufacturing	44	3.5%	9.5%
Other	194	15.3%	6.6%
Other Services	182	14.4%	6.8%
Professional, Scientific, and Technical Services	77	6.1%	6.1%
Real Estate, Rental, and Leasing	63	5.0%	8.9%
Retail Trade	124	9.8%	9.3%
Transportation and Warehousing	11	0.9%	3.1%
Utilities	4	0.3%	22.2%
Wholesale Trade	17	1.3%	4.8%
Total	1265	100.0%	7.5%

Figure 18: DECD CT Cares Grant Program Applicant data for Region 4. Note - Table does not include complete application data due to missing/incorrect location entries. (Source: Office of Policy and Management/Department of Economic Community Development)

Small businesses registered under the category of Accommodation and Food Services formed the largest proportion of grant applications, indicating the high level of financial distress experienced in this sector. Other service providing sectors (Arts, Entertainment, and Recreation, Other Services, Retail Trade) also accounted for large proportions of the applicant pool from Region 4.⁴⁵ Interviews with key stakeholders from these industry sectors revealed multiple factors contributing towards the trend of increasing financial distress for small businesses throughout Region 4 in recent months:

- **Rising COVID-19 cases:** As case numbers and fatalities have risen during the winter months, restaurants and other service establishments have fallen under Phase 2 restrictions, creating operational difficulties and reduced revenue streams.
- **Equipment and Renovation Costs:** New guidelines regarding airflow and ventilation standards have placed burdens on businesses to update facilities, which has increased the expenditures incurred as a direct result of the pandemic. With significantly decreased revenue streams and the direct loss of revenue due to temporary closures to renovate facilities, small businesses have faced additional financial burdens.
- **Inability for summer consumer traffic to offset seasonal declines for the winter period:** Event-hosting businesses, restaurants, and other hospitality-related businesses have traditionally relied on higher foot traffic during the summer months to carry them through the slower winter season. However, the pandemic necessitated lockdowns during the summer of 2020 have left small businesses without their higher summer revenues to fall back on.
- **Shifts in consumer behavior:** As individuals and commercial entities adopt remote work and social events, hospitality businesses have experienced increased rates of cancellations for events across 2021. While stakeholders expect bookings to rise for 2022 and beyond, most small businesses expect to temporarily or permanently close due to lack of sustainable revenue over 2020 and the first half of 2021.

DECD estimates that amongst all applicants under the CT Cares Grant, there was an average of three full time employees for each small business.⁴⁶ Using this figure, a conservative estimate can be created of approximately 1,797 employees in Region 4 who are working under small businesses classified under Accommodation and Food Services, Arts, Entertainment and Recreation, Retail Trade, and Other Services.⁴⁷ While this number only forms a small proportion of the 143,900 total jobs under nonfarm employment across the two Region 4 LMAs, wage data about workers in these industries is an area of concern. With approximately 600 small businesses classified under these four sectors applying for assistance, the data indicates that they are all meeting the minimum threshold of a 20% loss in revenue for January-September 2020 as compared to prior year numbers. The continuation of financial distress for businesses belonging to these industry sectors increases the risk level of further layoffs and permanent business closures, which has the potential to affect employees who were earning significantly lower quarterly wages as compared to other industries and regional average wages. The continuation of economic distress for small businesses is further displayed through data published by Womply and the Opportunity Insights Economic Tracker. The following graph outlines the total revenues for small businesses in Windham and New London Counties (which comprise the majority of Region 4's geography).



Figure 19: Percent Change in Small Business Revenue, indexed to January 4th, 2020 and seasonally adjusted. Top Graph – New London County. Bottom Graph – Windham County. (Source: Data published by Womply and Opportunity Insights (Accessed January 2021))

As of December 9th, 2020, small business revenues in New London and Windham Counties were experiencing 42% and 40.4% (respectively) reduction as compared to pre-pandemic numbers. Despite the initial recovery during the period of June-August, which resulted in a positive uptick in revenue for these counties, there has been a second period of revenue reductions towards the third quarter of 2020. The key difference is that New London County businesses recovered at a much slower pace during the summer months, as total revenues for June and July were at approximately 30% less than the January benchmark. Revenue recovery for New London County businesses achieved its highest number in September, when small business revenue was only 15.1% lower than January benchmarks. Following this peak, revenues have steadily dropped through the time period of currently available data. In contrast, Windham County small businesses recovered at a faster rate, achieving revenue numbers that approximated pre-pandemic benchmarks during the June-July period. However, these numbers experienced a sharp drop-off following the month of August and recorded highly similar revenue numbers as New London County by the first

week of December 2020. Despite the differences in trendlines, the aforementioned factors affecting small business viability have had similar effects on revenue by the month of December across both counties. This reduction in revenues holds the potential to negatively affect business viability, as shown by the following Figure:

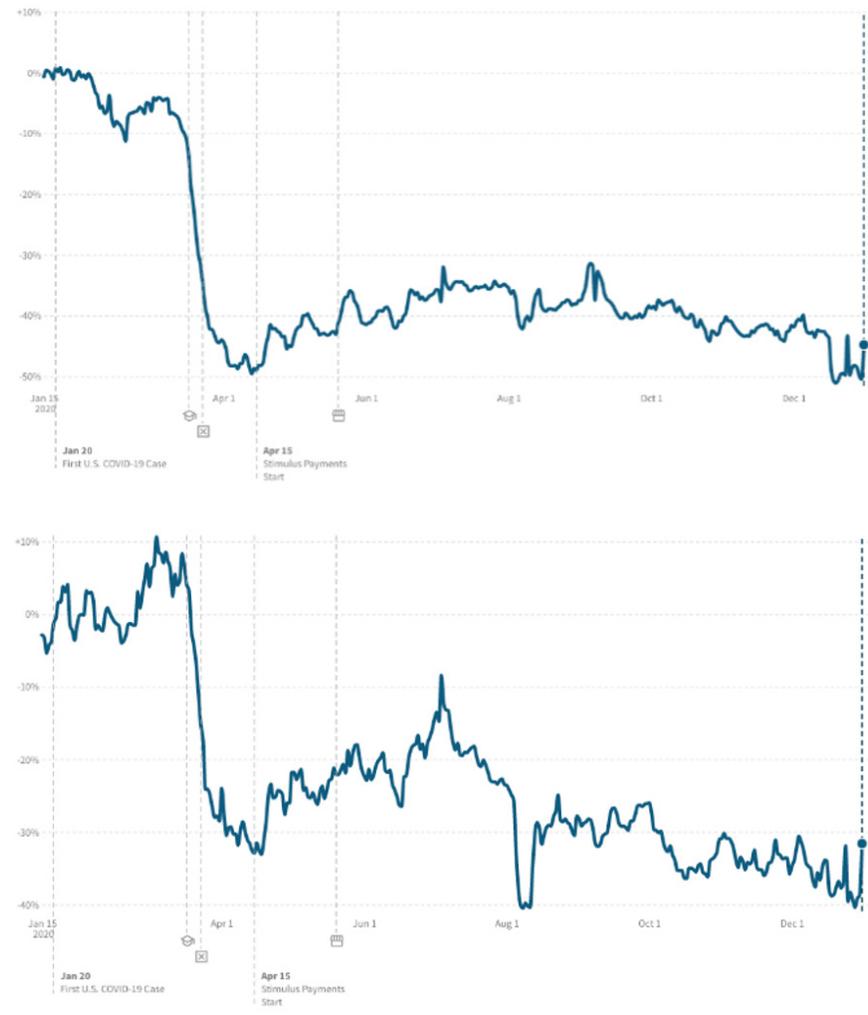


Figure 20: Percent Change in Small Businesses Open, indexed to January 2020 and seasonally adjusted. Top Graph – New London County. Bottom Graph – Windham County. (Source: Data published by Affinity Solutions and Opportunity Insights (Accessed January 2021))

New London County experienced a 42.6% decrease in the number of small businesses open as compared to January 2020, while Windham County performed better at a 35.5% decrease in number of small businesses open in December 2020. In particular, the post-August 2020 period is the area of concern, where the initial recovery from the pandemic-necessitated lockdown has been negated, with business closures approaching the levels recorded during the initial month of the pandemic (April). The large numbers of grant applications towards the end of 2020, combined with opening/revenue data, indicates that a second round of targeted funding through loan or grant programs is needed to assist businesses in surviving through the first half of 2021.

C. Resilience Landscape

1. Public Services

Early Learning and Public K-12 Education

Stakeholders in Region 4 emphasized dispersed poverty and a lack of transportation as the extreme barriers to educational attainment in rural towns throughout the region. Interviewees shared that the poverty issues in rural towns can be as severe as they are in many of Connecticut's larger cities. However, the poverty experienced in rural towns is less visible since it is not concentrated in impoverished neighborhoods. Similarly, the lack of public transportation options throughout the region (and consequent dependency on access to a personal vehicle for mobility) presents a barrier to food security, job access, childcare, and social service access – all of which are the factors that reinforce existing disparities in educational attainment. While there is bus service to and from school for students, comprehensive transit service for all residents is not available. Interviewees from Plainfield Public Schools shared that the number of students receiving free and reduced lunch rate has increased from 26% to 57% over the past two years as a result of the worsening economic conditions.

As both public and private educational institutions in rural municipalities saw a drop in enrollment due to the pandemic, the crisis also increased the need for social assistance. Thames Valley Council for Community Action is a private, nonprofit corporation that provides social services and educational development programs to families in Region 4. Stakeholders from the organization shared that the pandemic has made it more challenging to engage with families and students, as many parents are now unemployed or fear putting their kids at a health risk by sending them to school. For early childhood development programs, providing a cohesive experience to the participating students has been challenging because young children are not yet able to use computers and work in a remote setting. In Plainfield Public Schools, even for students who are able to use computers, the district struggled to provide chrome books and internet for the large portion of families who do not have them readily available. The school system is now covering students' internet fees and has provided chrome books to approximately 40 of the roughly 80 families in the district's pre-school programs.

Higher Education

Similar to public schools in the region, higher education institutions were forced to quickly shift to online learning in March 2020 and have struggled to maintain their normal operations and engagement during the fall semester. This shift is especially important for Region 4, which hosts the main campus for the University of Connecticut in Mansfield which is typically home to 32,000 students. These students, along with visiting parents, fuel the local economy. Community organizations rely heavily on student volunteers in performing their mission. When students operate remotely, college towns suffer.

Some of the ways that higher education has adapted to the pandemic can be observed through the operations of Connecticut College, a small, private higher education institution located in New London.⁴⁸ Prior to the pandemic, the college experienced two years of record enrollment rates. However, as classes moved to fully remote in March and some form of remote learning continued into the fall semester, new class enrollment decreased from 509 to 430 students.⁴⁹ The decline in enrollment combined with increased spending on testing and resources to comply with public health safety measures has led to a \$10 million decrease in the school’s budget, despite finishing FY20 with a balanced budget.⁵⁰ Connecticut College spent \$1.5 million on testing during the fall semester, an expense that is not reimbursable and will require difficult cuts in other areas to compensate for it.⁵¹ For many higher education institutions throughout the State, the high tuition costs already limit the ability for students to enroll without taking on onerous student loans. It will be a challenge for private colleges and universities to overcome lost revenue due to the pandemic while also attempting to make the cost of education more affordable for future students.

Workforce Development

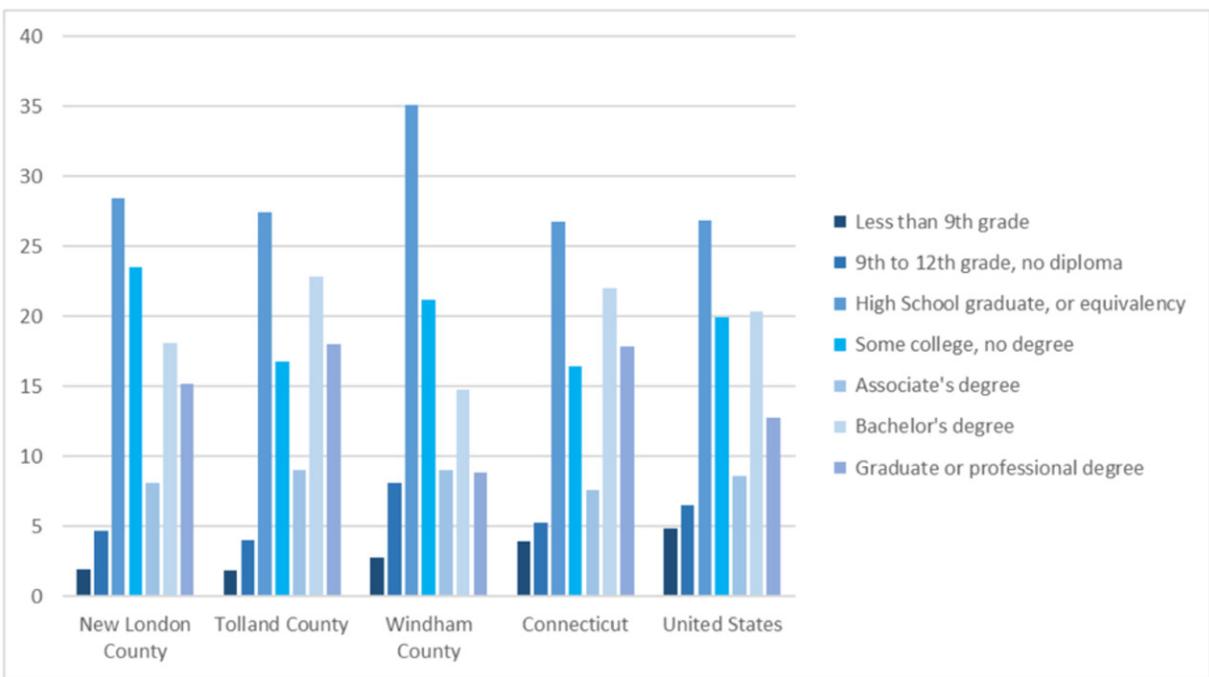


Figure 21: Educational Attainment Distribution across Population 25 years and Over. (Source: U.S. Census Bureau 2019 American Community Survey)

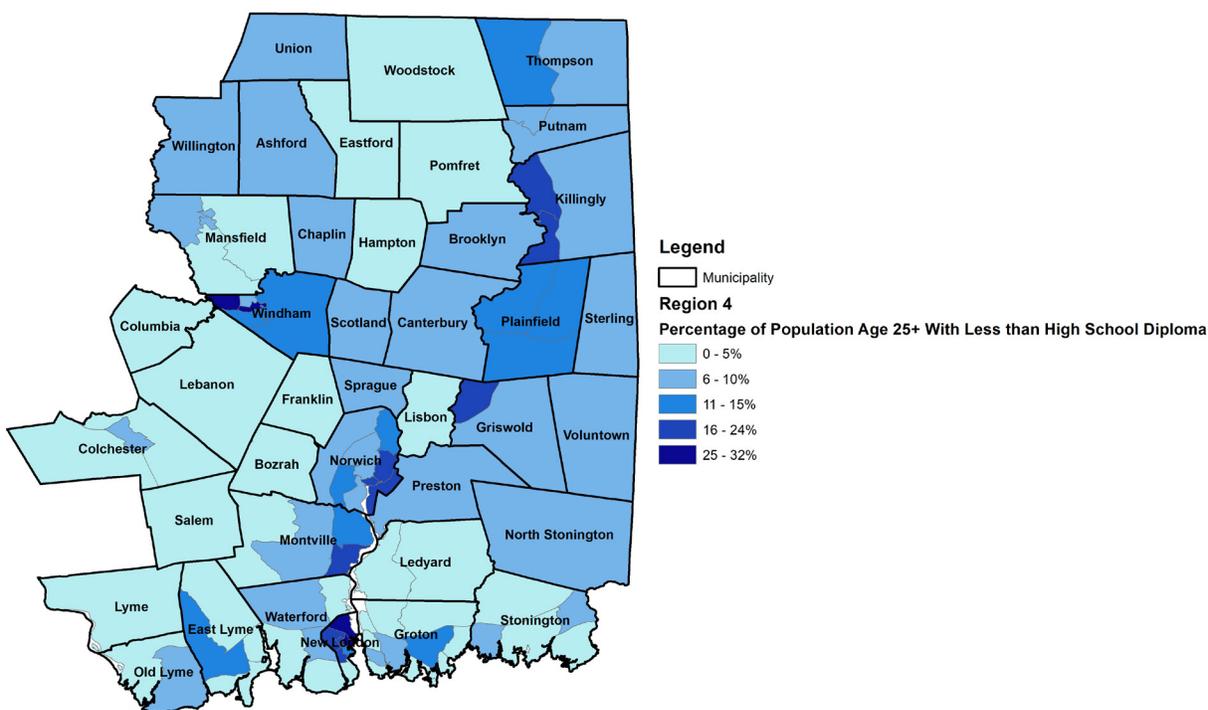


Figure 22: Percentage of Population Aged 25 and above With Less than High School Diploma. (Source: U.S. Census Bureau 2018 American Community Survey 5-year Estimates)

Region 4 is home to a significant number of manufacturing workforce opportunities, many centered around General Dynamics Electric Boat which is headquartered in Groton. The Northeastern Connecticut Council of Governments (NECCOG) notes that skilled workers in the manufacturing sector (both of durable and non-durable goods) plays a central role in the region's employment profile.⁵² In addition to manufacturing industry, the healthcare industry provides employment for a significant number of residents in northeastern Connecticut with healthcare and related fields make up roughly a quarter of regional employment. Now more than ever, as unemployment levels have risen throughout the pandemic, the regional and local workforce development agencies' initiatives to get people reintegrated into the workforce are vital to the Region's economic recovery. With established job centers, training programs, and resources, Region 4 has several assets to address the need for manufacturing workers and continue its investment in the healthcare industry.

The Eastern Advanced Manufacturing Alliance (EAMA), a nonprofit consortium of 56 employers in the region, is an important driver of manufacturing opportunities for the existing and prospective workforce in the field. EAMA works in partnership with Quinebaug Valley Community College (QVCC) and Three Rivers Community College (TRCC) to offer college credit and non-credit programs that address the evolving needs of manufacturing professionals.⁵³ The Eastern Connecticut Workforce Investment Board (EWIB) is another organization that is well integrated into its manufacturing community, with curricula established in 15 high schools throughout the Region.⁵⁴ EWIB's Eastern Connecticut Manufacturing Pipeline Initiative equips high school graduates and people seeking employment opportunities in manufacturing with the skills necessary to work in the manufacturing industry. This no-cost program offers unemployed and under-employed individuals training to be ready for employment and matches them directly with the hiring opportunities of regional manufacturers, including General Dynamics Electric Boat. The board's youth manufacturing training programs have been popular with students and places the participants in jobs upon graduation.

For prospective trainees who are no longer attending high school, stakeholders interviewed by GRI researchers highlighted the value of having stipends and other financial incentives to facilitate recruitment into workforce training programs. The pandemic has made it more challenging for the unemployed to participate in training programs. Stepped-up support services for transportation, childcare, and tuition fees are increasingly a prerequisite to enrollments in the workforce development programs that have been established throughout Region 4.

Childcare

Adequate childcare availability for working families is essential to the viability of businesses in every sector. As the pandemic has forced many schools to move to remote learning and restricted the operations of childcare centers, parents who cannot work from home have been left struggling to find adequate childcare options. At the same time, childcare programs are seeing low enrollment as many other families keep their children home. This has made it challenging for these programs to remain open and available to those who need them. Early in the pandemic, the state stepped in to pay for childcare enrollment in state-funded programs, allowing them to continue running almost near normal.⁵⁵ Still many families were not able to use these state-funded childcare options because of transportation issues or because they decided not to send their children based on their concerns about the risk of COVID exposure. Similarly, engagement with stakeholders revealed that childcare programs in wealthy suburban communities and privately-funded programs have also been able to remain open and functioning with little need for assistance. However, there is a stark divide in experience as large urban communities across the state are struggling to afford and utilize adequate childcare services. In cities such as Hartford and New Britain, many families are out of work and can no longer afford even the copay associated with a childcare program. This challenge is one that has only been exacerbated by the pandemic – in previous years it is estimated that 94% of parents of color in Connecticut could not afford full-time infant childcare.⁵⁶ Anecdotally, a stakeholder noted that many low-income workers who are designated as essential workers and are required to work outside their homes are having to pay more out-of-pocket to send their children to childcare because they can no longer turn to grandparents to provide care. Low-income and essential workers are also more likely to work non-traditional hours and face a longer commute to work, leaving them with fewer childcare center options. It will be important to address the barriers to childcare as businesses and schools look to reopen moving forward.

Retaining childcare professionals in an economic crisis such as the COVID-19 pandemic is another element crucial to accelerate overall economic recovery. In Region 4, a stakeholder noted that a real challenge to offering more reliable childcare programs is whether the service providers will be able to find staff to run their operations. Historically, childcare positions in the Region were attractive to many who were seeking a pathway to other teaching opportunities. Now with the COVID crisis and the associated teacher shortage, childcare programs are having a difficult time attracting entry-level teachers. Some of the reasons mentioned for the diminished level of interest in childcare services job opportunities include the need to stay home to take care of their own children, a lack of safe and affordable transportation options, and a fear of the virus. This is a vicious cycle where for every individual teacher that who is unable to go to work, many more students are displaced, leaving parents with few alternative childcare options.

Transportation Services

Public transportation services in Eastern Connecticut have seen a significant drop in ridership. Many residents in Region 4 who formerly utilized public transportation services frequently have reduced or entirely discontinued their use of public transportation due to job losses in low-paying casino and restaurant jobs as well as concerns about virus exposure risk. Moreover, the Northeastern Connecticut Council of Governments estimates that the usage of elderly transportation services has dropped 80% in 2020, which can be attributed to concern about the spread of the virus.⁵⁷

Region 4 residents are serviced by 15 bus routes operated by the Southeast Area Transit District, six bus routes operated by Windham Region, Shoreline East commuter rail, and Amtrak connections in New London and Mystic (Groton/Stonington).⁵⁸⁵⁹ Funding for these services has been put in jeopardy by the pandemic’s economic conditions. The Southeast Area Transit District stopped collecting bus fares during the pandemic, but then resumed collection in October as most services were restored to their pre-pandemic level. Interviewed stakeholders from the District stated that when CARES Act funding runs out, they will be reliant on state and local funding to just maintain existing services with little prospect for the pre-COVID hoped-for expansion in services for area residents. Likewise, the rail system in the region is largely underfunded and does not run often enough to support workers who commute to New York City and Boston. The current losses in revenue present a challenge to future improvement and expansion plans. Interviewees from outside the transportation sector often listed the lack of widespread transportation services in the region as a significant barrier to education, food security, healthcare and social service accessibility, indicating there is a strong need to close the gap in transportation funding and provide increased services moving forward.

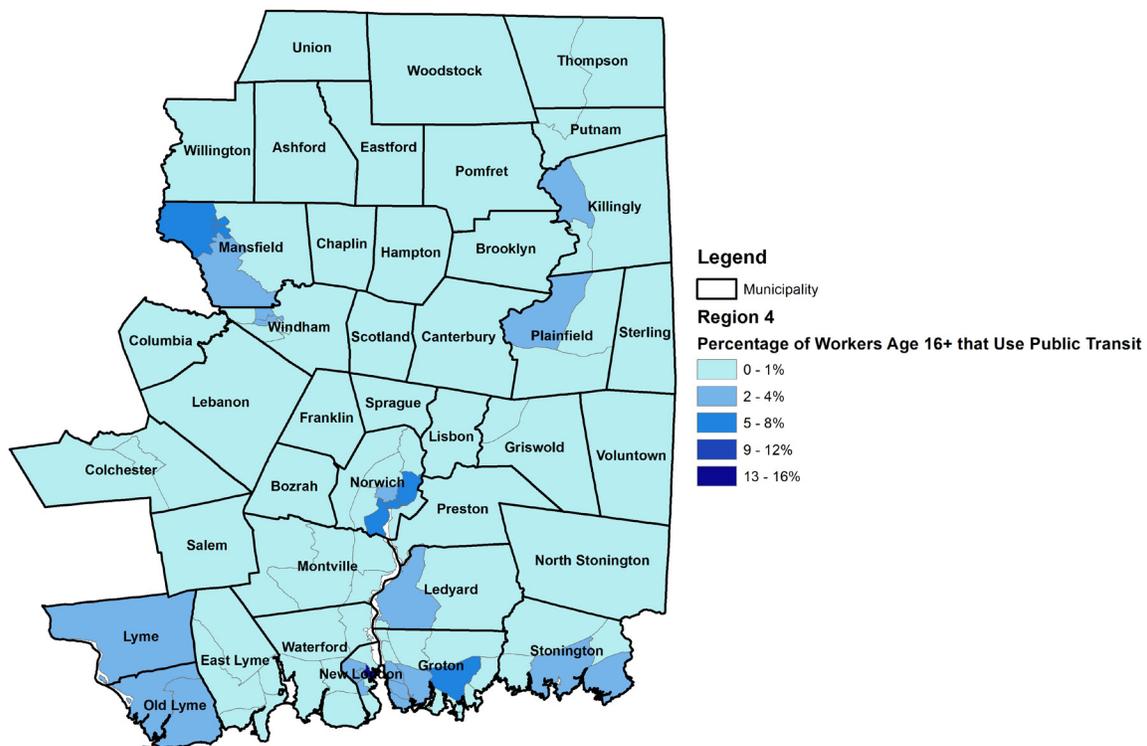


Figure 23: Percentage of Workers Age 16 and Up that Use Public Transit to Get to Work. (Source: U.S. Census Bureau 2018 American Community Survey 5-year Estimates)

Arts and Cultural Institutions

Art and cultural institutions in Region 4 have struggled to remain open throughout the COVID-19 pandemic. Engagement with the Southeastern Connecticut Cultural Coalition revealed that BIPOC- owned small businesses (Black/Indigenous/People of Color) have been the most impacted by closures and face challenges when it comes to accessing existing financial assistance opportunities. Art institutions are also working to develop creative solutions to address their inability to host in-person gatherings such as a livestream music studio and outdoor social distanced pop-up dinners. The Garde Arts Center, a theater in New London, has been closed since March 13, 2020. Stakeholders expressed concern that when arts

and culture organizations are not able to operate at full capacity, it has cascading impacts throughout the community, as these institutions play an important role in attracting residents to local restaurants and businesses.

Arts and cultural institutions face unique challenges when it comes to moving to an online platform and accessing grant opportunities. Many towns in Eastern Connecticut are rural and have aging infrastructure systems, contributing to a general sense of isolation from opportunities to adapt business models and attract potential new revenue streams. While there is a grant program from the State of Connecticut specifically for artists, many individual business owners have no prior experience applying for grants and are in need of assistance interpreting the guidelines and a general training on how to apply.

2. Social Services

Housing Services

The inevitable end of the eviction moratorium is of paramount concern for communities in Region 4. Stakeholders report that they have already gotten a “glimpse” of what they can expect to see when evictions are permitted, and they anticipate that all available resources will be overwhelmed with the surge in individuals and families who will need financial support to secure new housing. Although the moratorium is currently preventing many potential evictions, families who have not been paying rent are accruing the payments of the past months, meaning they will owe a lump sum unless otherwise negotiated with their landlord. Currently, non-profit organizations are providing aid and counseling for those who are struggling to secure housing; one such organization has expended over \$14 million providing assistance.⁶⁰ 23% of calls from Windham and New London Counties to 211 in the last year were regarding housing assistance, making housing the most common concern for callers. Of these calls, 51% were seeking shelter (9% of this need was reported as unmet), and 18% were seeking assistance with rent payments (more than 50% of this need was reported as unmet).⁶¹ Relative to other counties, New London County has the third highest rate of housing and shelter related calls in Connecticut.

As seen in Figure 24, areas in Groton, New London, Norwich, Windham and Mansfield are communities where there are relatively higher percentages of renter-occupied units, indicating that these areas are likely to be among the most severely impacted communities when evictions are permitted. Before the pandemic, a considerable number of renters reported being cost-burdened, meaning they spend more than 30% of their income on rent payments. In Windham County, 52.5% of renters are burdened, in New London County 48.6% of renters are burdened, and in Tolland County 50.6% of renters are burdened.⁶² While these numbers are fairly comparable to the State and national averages (52.3% and 50.2%, respectively), they indicate pre-existing vulnerable economic conditions for renters that have worsened due to the pandemic. Effective economic recovery will address the underlying conditions which led to significant housing insecurity in addition to the more recent wave of instability.

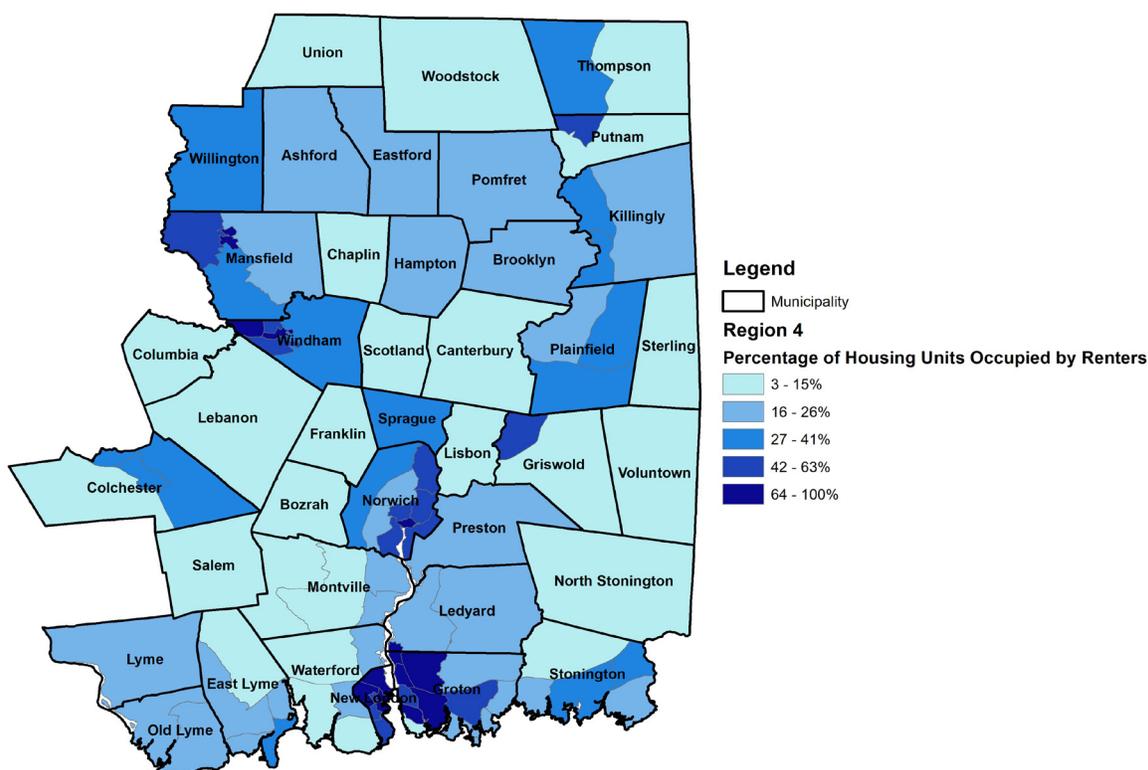


Figure 24: Percentage of Housing Units Occupied by Renters. (Source: U.S. Census Bureau 2018 American Community Survey 5-year Estimates)

Food Security Services

As Region 4 encompasses many of Connecticut's most rural communities, local food security is largely tied to transportation access. Non-profit organizations and networks, such as food pantries, often serve a consistent group of individuals and families who face difficulty affording groceries on a regular basis. Those who are serviced by these organizations are often dependent on personal vehicle access in order to pick up their groceries. In other cases, those who do not have access to a vehicle (because they cannot afford a car or the related expenses such as insurance, registration, or fuel) depend on routine engagement with schools or senior centers for food supply and meal distribution. Social distancing and other restrictions have prompted social service providers to adjust their operations, causing some to worry that their usual clients are not able to access their services at the same level they did prior to the pandemic. For example, though schools still operate programs to provide free meals for children, parents or guardians must come to the school to pick the meals up. This has introduced barriers, such as when work and class schedules conflict with meal pick-up times, or when consistent transportation to distribution sites is unavailable. As seen in Figure 25, many census tracts in the Region are situated in places where supermarkets are not easily accessible without some form of transportation. Moreover, stakeholders emphasized that food insecurity can present a significant challenge for outlying municipalities which are prone to being overlooked due to their relatively low population density.

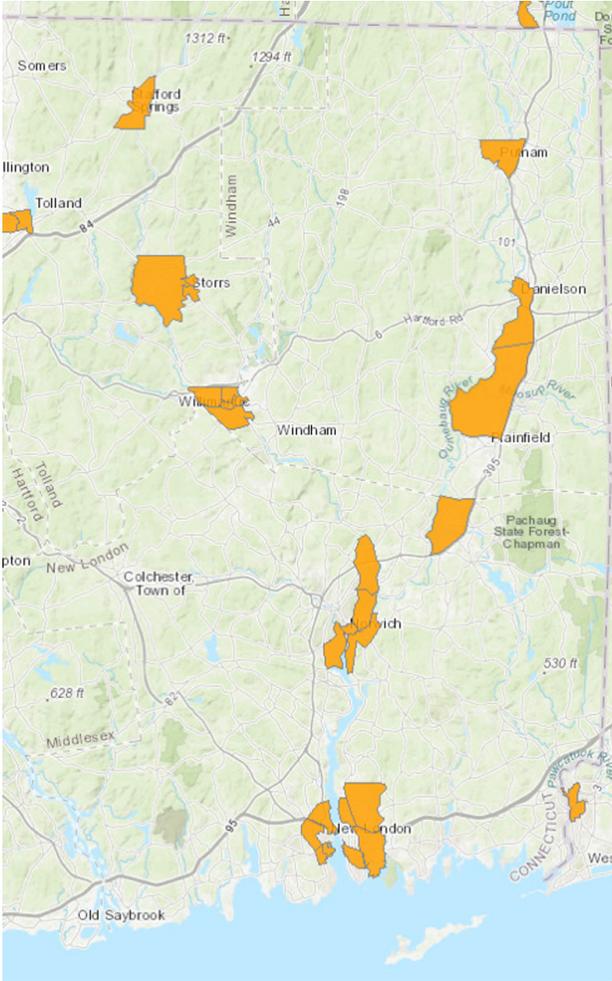


Figure 25: Low-income census tracts where a significant number or share of residents is more than 1/2 mile (urban) or 10 miles (rural) from the nearest supermarket. (Source: USDA Economic Research Service. Food Access Research Atlas)

As seen in Figure 26, census tracts with the highest rates of SNAP Assistance are concentrated in the urban areas of Groton, New London, Norwich and Windham, and also in several of the more rural towns towards the Northeast corner of the state. This is indicative of populations which have been struggling with food insecurity for extended periods of time, predating the pandemic. Figure 27 illustrates the severity of food insecurity in Region 4 as a whole. Many of the towns in the area report more than 14.9% of their residents are food insecure-- a concentration of food insecurity that is more severe than in any other LTER region. Each of these maps demonstrate great need and highlight the importance of prioritizing the vulnerable areas when developing strategies to alleviate food insecurity and creating conditions for a successful economy recovery. Moreover, this need has continued to increase in recent months. Stakeholders have noted that as food donations to regional food pantries have decreased in the fall and winter of 2020, the demand for food assistance has surged, effectively widening the gap between the need of the community and the resources available for addressing it.

Societal Challenges and Impacts on Inequities

Stakeholders interviewed in Region 4 shared that current economic conditions have exposed the chronic shortfall in adequate infrastructure and resources for them to assist the area's most vulnerable populations. This is of particular cause for concern because residents who fell into the ALICE (Asset-Limited, Income-Constrained, Employed)

category before the pandemic have slipped into a more severe state of poverty in recent months. In New London alone, approximately 33% of the population was unable to afford basic necessities before the pandemic, and stakeholders estimate that this number has dramatically increased in New London and other vulnerable communities across the Region.⁶³ Non-profit organizations emphasized that while housing assistance programs were put in place quickly and yielded positive results for their communities, securing financial assistance for medications and food has been their most challenging need to meet. Moreover, members of the community are struggling to afford their medications, impacting their physical and mental health. This is demonstrated by the 212% surge in instances where the area's mobile crisis team has responded to mental health crises in the area.⁶⁴ In order to ensure existing and future assistance programs are able to reach some of the most vulnerable populations in Region 4, organizations will need to continue their work with local community and faith-based organizations in order to access undocumented residents or others for whom English is not a first language. This priority is most relevant in the communities of New London, Waterford, Groton, Montville, Norwich, Windham and Willington (as seen in Figure 28).

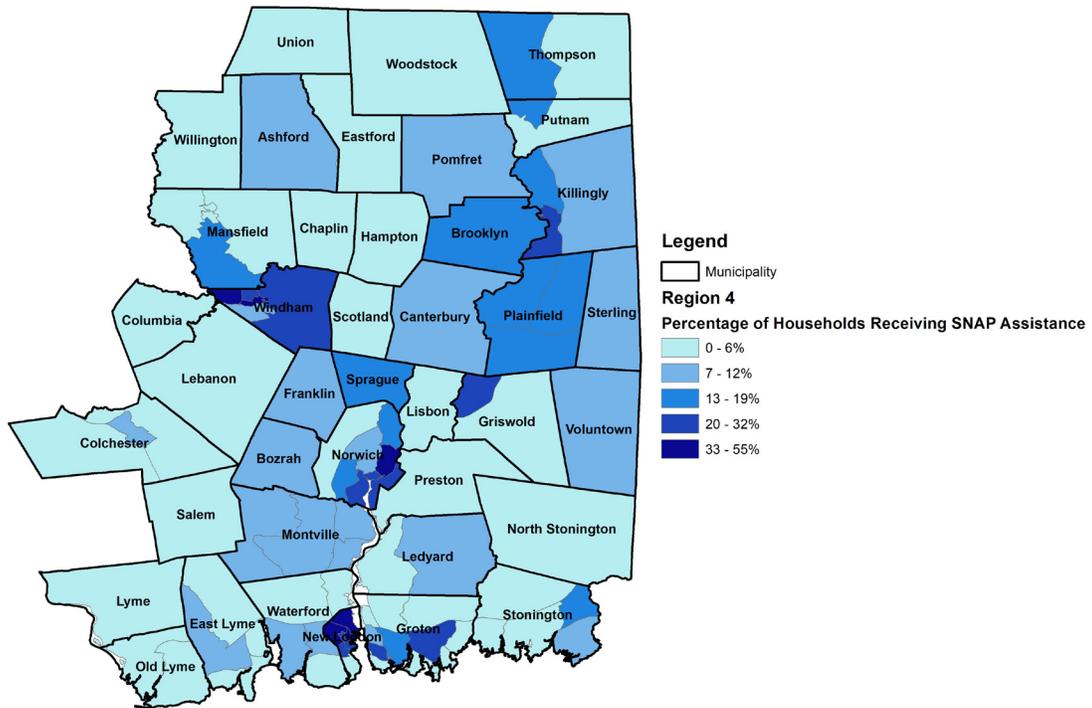


Figure 26: Percentage of Households Receiving SNAP Assistance by Census Tract. (Source: U.S. Census Bureau 2018 American Community Survey 5-year Estimates)

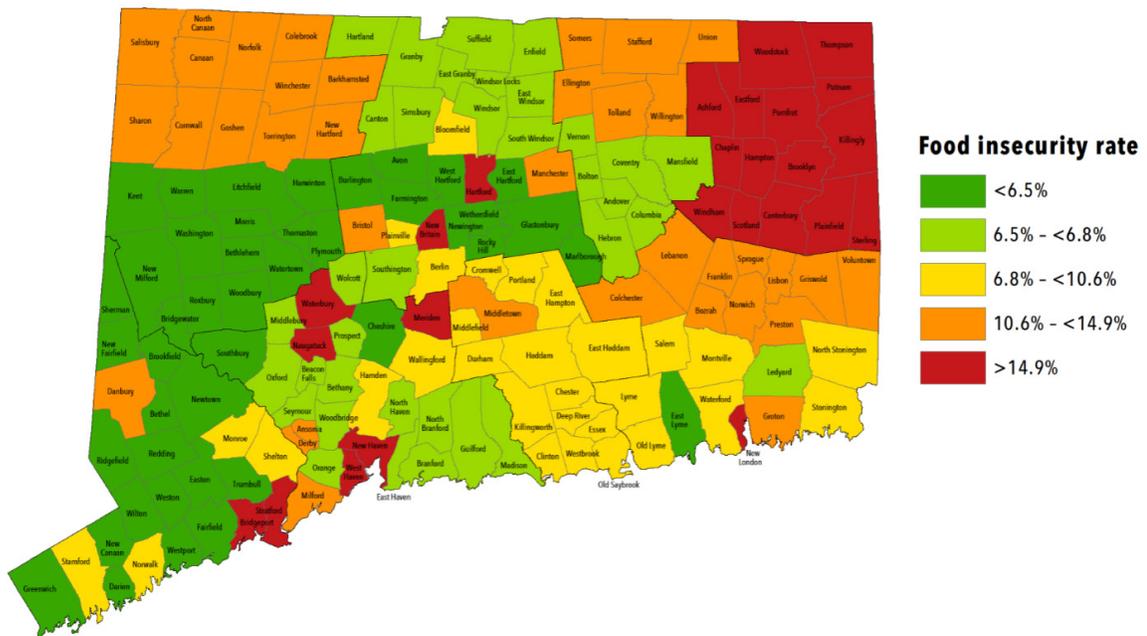


Figure 27: Statewide Food Insecurity. (Zwicker Center for Food and Resource Policy. (2019). Food Insecurity and Obesity Incidence Across Connecticut)

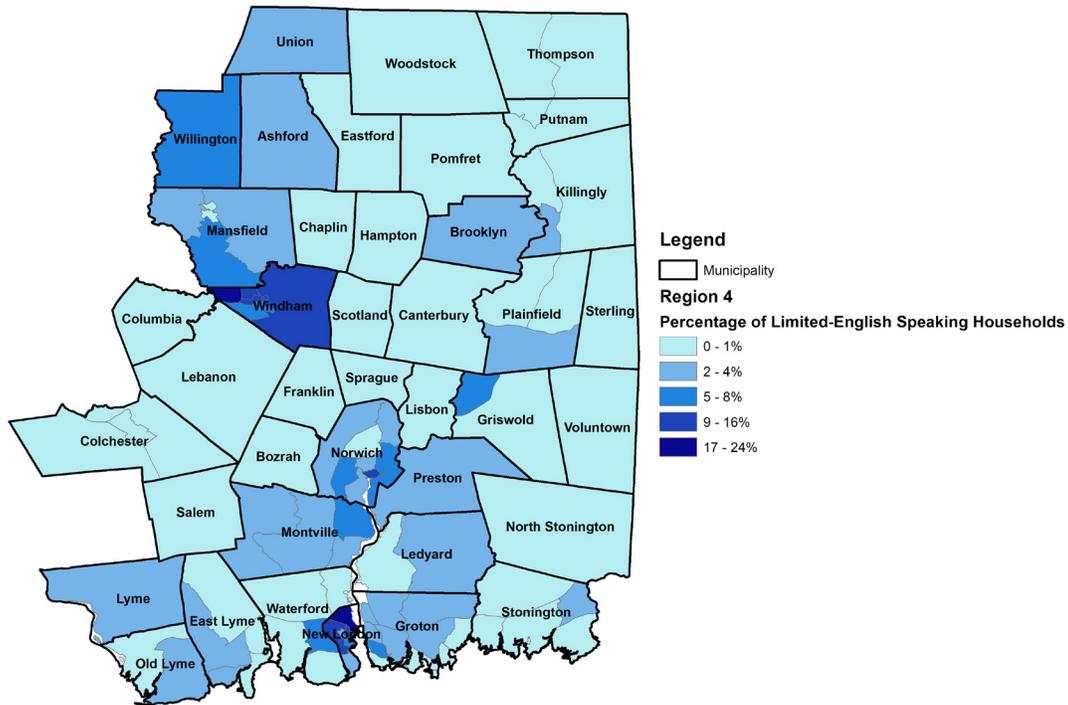


Figure 28: Percentage of Limited-English Speaking Households. (Source: U.S. Census Bureau 2018 American Community Survey 5-year Estimates)

3. Infrastructure and Physical Systems

Broadband Infrastructure

One of the most critical twenty-first century infrastructures is the internet and high-speed broadband access to it. Effective use of this critical resource relies both on the availability of physical infrastructure and user access to it. As seen in Figure 29, several census tracts across multiple towns report that between 23-41% of households do not have internet access. Region 4’s topography with rolling wooded hills and relatively sparse population has been a barrier to the private investment in providing adequate broadband infrastructure. For the urban communities in Region 4, as seen in Figure 30, there are more internet service providers and available infrastructure, but the cost of devices and access to that service is often prohibitive for low-income households. These conditions can be detrimental to the economic well-being of the Region’s residents, as the lack of dependable internet connections can lead to isolation and barriers to job opportunities, health care appointments, and access to social services. As several stakeholders have noted, limited broadband infrastructure has become a top concern during the pandemic. One community health organization based in Windham reported that 60% of their clients were not able to utilize the full capacity of telehealth options due to poor internet access. For some residents, accessing the internet through devices and internet connection provided by their local library was their only way to do so. This option is now more difficult to access due to pandemic-related restrictions. Furthermore, as many Connecticut school districts have adapted to remote instruction, the strength and accessibility of residential internet connections has become absolutely essential to educating children.

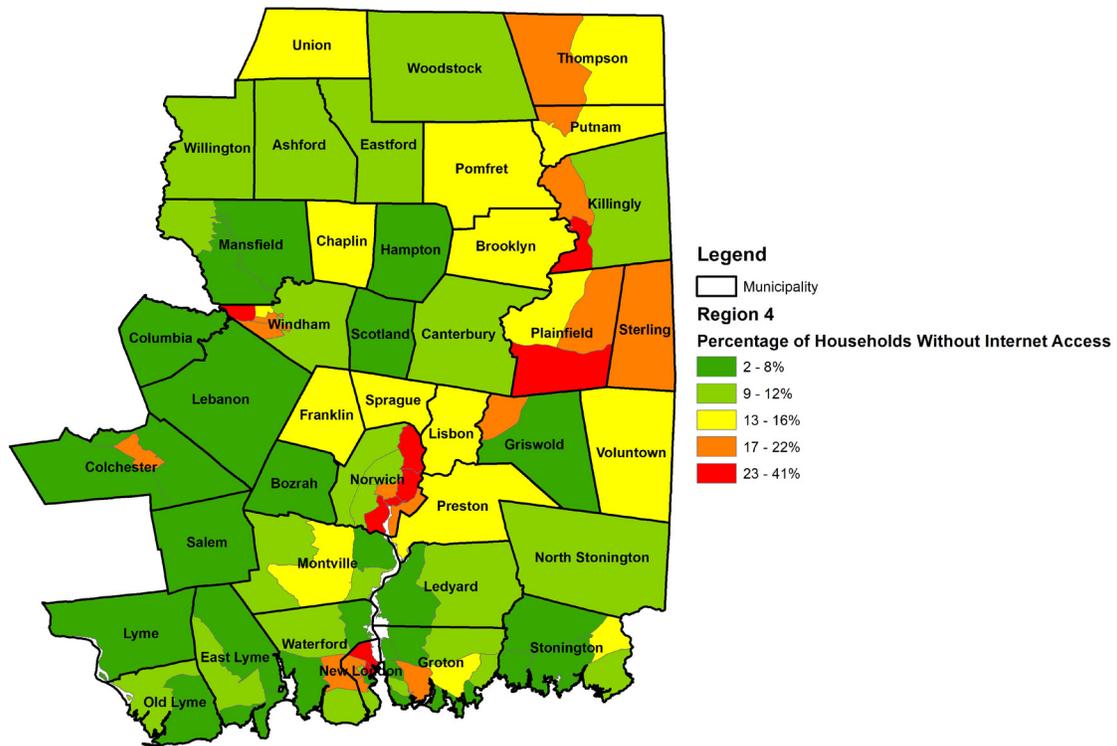


Figure 29: Percentage of Households Without Access to Internet. (Source: U.S. Census Bureau 2018 American Community Survey 5-year Estimates)

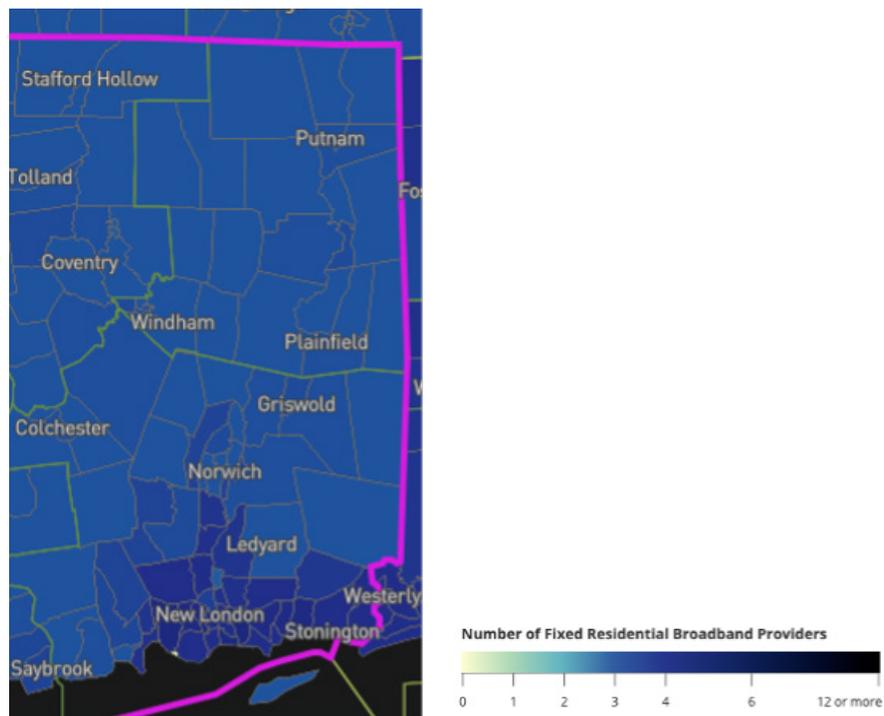


Figure 30: Internet Service Provider Density. (Source: Federal Communications Commission. Fixed Broadband Deployment)

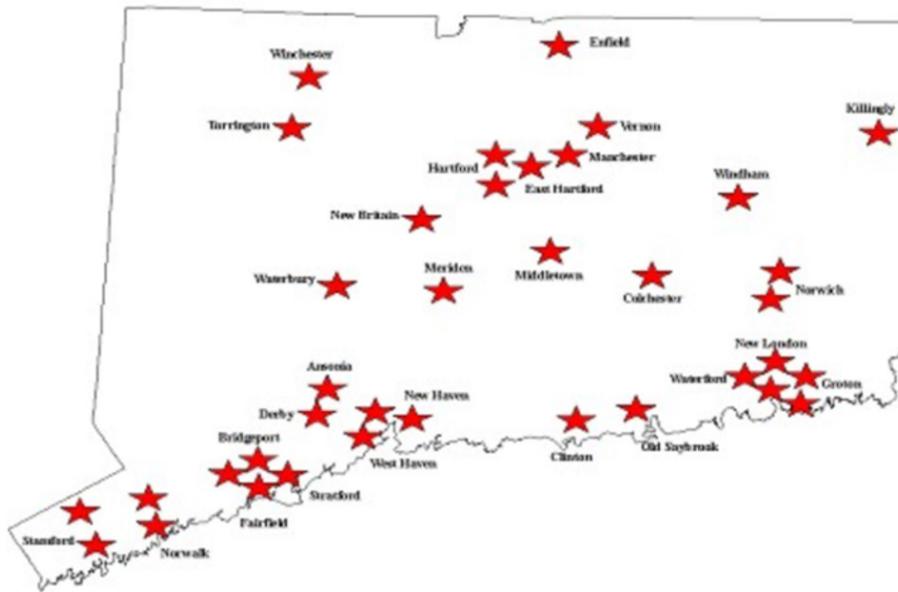


Figure 32: Statewide Community Health Centers. (Source: Connecticut State Department of Health, Community Health Centers)⁶⁶

Note: “Community Health Centers are nonprofit, health care practices located in medically underserved areas that provide high quality, primary health care in a culturally appropriate manner to anyone seeking care.”

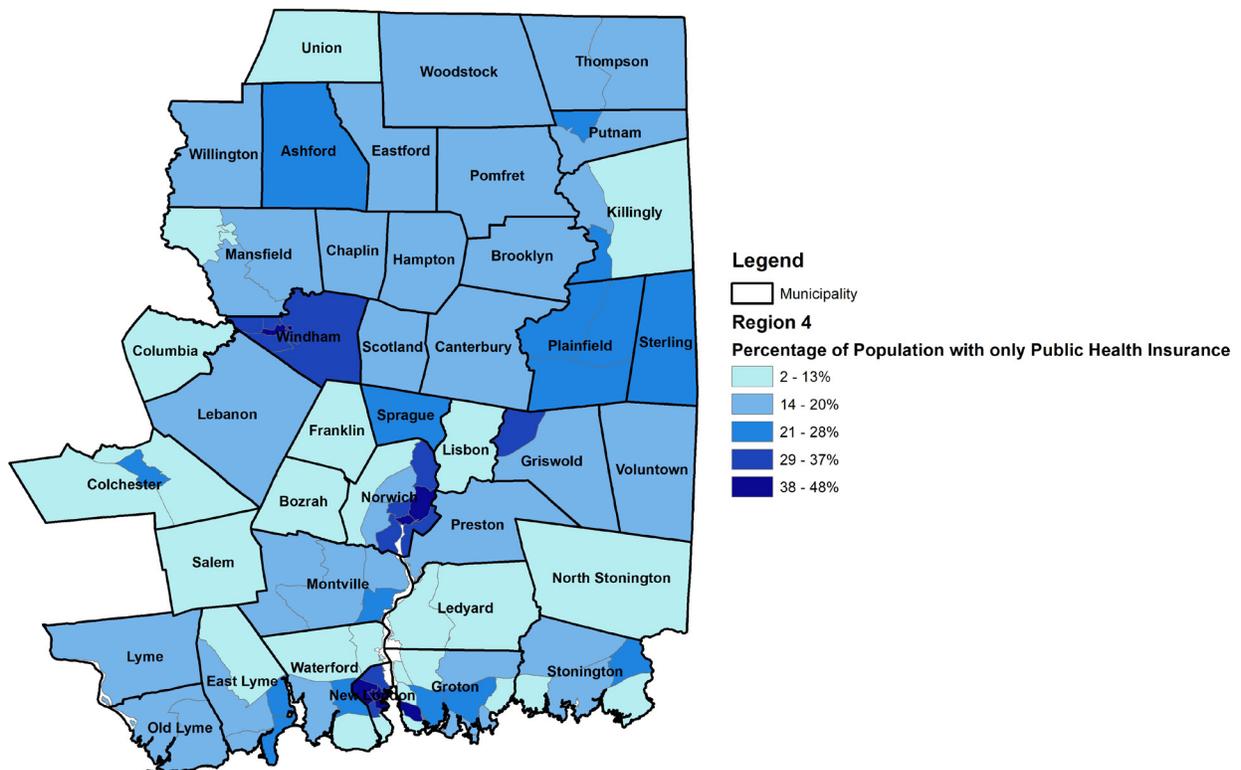


Figure 33: Percentage of Population with Only Public Health Insurance. (Source: U.S. Census Bureau 2018 American Community Survey 5-year Estimates)

Transportation Infrastructure

Prior to the pandemic, several highway infrastructure projects in Region 4 were in development, and some were planned for the future. These projects are being implemented including a highway interchange re-design and bridge reconstruction. Stakeholders shared that these projects were important to alleviating traffic “pinch points” and expanding the region’s tourism economy. Region 4’s highway infrastructure has seen some changes in rate of usage since the pandemic began; although at some points during the beginning of the pandemic there had been noticeable decreases in traffic levels, highway usage has been increasing in recent months. Stakeholders reflect that in order to create conditions to support economic recovery when stay-at-home orders are lifted and more workers return to their offices, it will be important to continue to invest in projects that alleviate traffic congestion and increase access to the major highway system, buses and trains. Before the crisis-influenced move to remote work, 19% of the Windham County population commuted over 45 minutes to work, a percentage that is greater than that in other Region 4 counties (12% in New London and 16% in Tolland), the state level (16%) and national level (17%).⁶⁷ Stakeholders also recognize that a lack of viable transportation options isolates rural residents in the region. In order to address these gaps, expansion in highways which enable residents and visitors to travel to and from the region’s casinos, the New York Metro area, and neighboring states is key. Stakeholders report that increased economic activity, such as new car dealerships and the prosperity of local eateries are some of the most noticeable effects of transportation improvements. Moreover, continued investment from both state and federal agencies will be necessary for transportation infrastructure development to continue over the long-term.

Housing Infrastructure

Region 4, like the State of Connecticut as a whole, has an aging housing stock. Compared to the national average, a significant proportion of houses in the Region were built before 1940, as shown in Figure 34. This can lead to expensive heating and cooling costs for renters and owners alike. As discussed above, many residents in Region 4 are struggling with housing costs due to conditions brought on by the pandemic. However, the shortage of affordable housing options in eastern Connecticut has been a longstanding issue. The Eastern Connecticut Association of Realtors reports that trends reflect rising housing prices at the same time that fewer new homes are being built.⁶⁸ The factors indicate that there is a growing need and demand for new housing stock. The development of affordable, energy efficient housing in Region 4 can lay the foundation for residents to live in housing that is unburdened by frequent upkeep costs and that allows for greater household economic mobility.

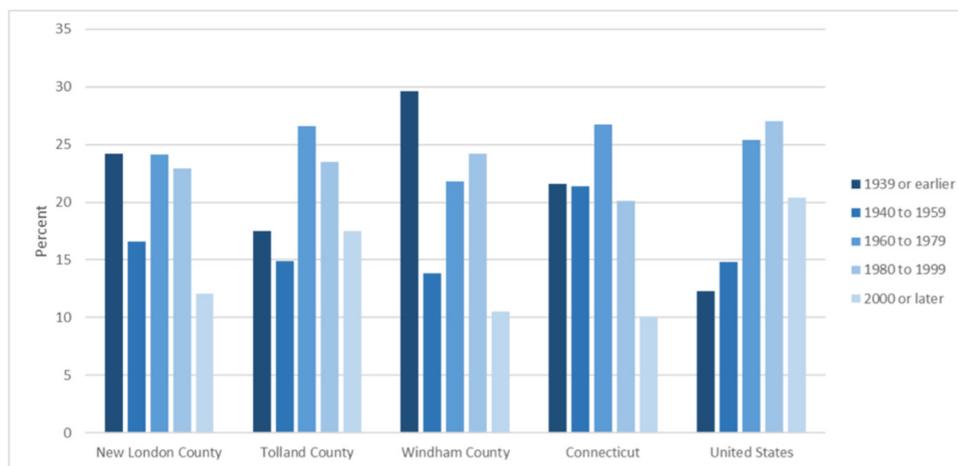


Figure 34: Age Distribution of Housing Units. (Source: United States U.S. Census Bureau, American Community Survey 2019 Estimates)

Water Infrastructure

The COVID-19 public health crisis has contributed to budgetary challenges for municipal and regional drinking water providers. Many community water utilities extended shut-off moratoriums, continuing to supply to customers who are unable to pay for their service due to pandemic-related economic distress. At the same time, several large, non-residential customers that make up a significant portion of revenue for utility providers have decreased usage and with the associated decline in revenues to utility providers. For example, one third of Montville's Water Pollution Control Authority's revenue comes from the Foxwoods Casino, which experienced a revenue decrease of 87% at the beginning of the pandemic.⁶⁹ Furthermore, stakeholders share that the movement to remote work and delayed activity of key collaborators and suppliers has lengthened issue response times and altered the timeline on projects.

Power Infrastructure

Most residents of Region 4 receive their electrical power from Eversource which manages services for customers across the greater New England area, including residents of 149 municipalities in Connecticut. In recent years, Connecticut has been in the path of several major storms which have knocked out power for residents for up to two weeks. Outages have the potential to affect low-income communities more severely. Without access to back-up generators, residents are unable to keep food and medicines refrigerated and keep their homes at a safe temperature to prevent exposure to extreme heat or cold. Moreover, outages can directly impact commercial activity for small and locally owned businesses. In early August 2020, Hurricane Isaias caused extensive damage to Eversource's infrastructure and service. The utility was then placed under investigation by the State's Public Utilities Regulatory Authority in order to assess if Eversource had the necessary resources and investments to service its customers. The power infrastructure in Connecticut remains vulnerable to future storms, and long-term investments in the state's power infrastructure is important to assuring the financial security of both residential and commercial customers.

In response to the pandemic, Eversource has allowed customers to create a custom payment plan for accumulating payments. The cost of energy is high in the State of Connecticut, with the average residential rate for the State is 23.67 cents per Kilowatt hour, making it second only to Hawaii as the most expensive state in the nation for electricity.⁷⁰ This factor contributes to the high cost of living that is particularly challenging for the state's most vulnerable residents. High utility costs and inconsistent service during bad weather can also discourage businesses from locating in Connecticut.

Residents of Norwich receive electrical power and other services from Norwich Public Utilities, a municipal-based provider of natural gas, electricity, water and wastewater collection services.⁷¹ Norwich Public Utilities noted that during a typical year, they provide roughly \$750,000 in financial assistance to their customers. Customers qualify for the program based on loss of employment, and the utility has not adjusted the eligibility criteria based on current economic conditions. This year, the provider expects that the amount of financial assistance it provides will significantly exceed previous years. In spite of this program, if customers do not notify the utility of qualifying circumstances, there is still a potential for their service to be terminated. In examining the utility's commercial customers, businesses were most active in fulfilling their utility bills in the time preceding the receipt of their Paycheck Protection Program funds. Norwich Public Utilities is hoping that they will receive funding through Community Development Block Grants; this will allow them to alleviate some of the payment burden of residential customers, thus allowing the utility to be more flexible with the payment options it can extend to small businesses

D. Regional Resilience Areas

Post-COVID Economic Recovery and Resilient Economic Development

COVID-19 is a disaster unlike any in the past century. Most disasters faced by communities are natural (hurricanes, fires, earthquakes, and storms), primarily disrupting physical structures and infrastructures. The COVID-19 pandemic's primary impacts are human-centric: lives, businesses, jobs, debts, families, and communities. It has amplified disparities and inequalities that have long existed, and which constitute the principal barriers to recovery and growth. In many cases, it is by addressing those conditions that the greatest progress in recovery and economic development can be facilitated. In short, this emergency has blurred the lines among the immediate response to the disaster, the mid-term actions to recover the society and the economy, and the long-term strategies to "bounce forward." This translates into the need to address both the effects of the pandemic and the legacy conditions that may serve to inhibit future economic growth.

Previously, these legacy conditions that compromise Region 4's resilience might have been addressed through individual actions targeting the specific social "deficit" or economic "weakness." Post-COVID, the conditions underlying these findings and considerations must be dealt with through an integrated, concerted approach that simultaneously addresses structural barriers, maximizes combined resources, and stimulates opportunity and innovation – for residents and organizations of all size and character. Importantly, this must be done at a regional scale.

This report is designed as preliminary assessment from which specific recommendations, initiatives, or actions can ultimately be drafted. The goal of the resilience-based analysis undertaken by the GRI research team is to clarify the critical broad considerations that must be foundational to developing a recovery strategy and implementation efforts that will be developed in follow-on work with Region's municipalities and the Northeastern Connecticut Council of Governments and the Southeastern Connecticut Council of Governments. The considerations for recovery are clustered according to the core regional resilience findings that they most directly address.

In Region 4, and throughout Connecticut and the nation, the heaviest toll of the disaster has been experienced by the most economically vulnerable residents amongst us, especially people of color and recent immigrants, and those tied to service-intensive businesses. The economic toll in Region 4 has also been high for those living in rural communities who have had limited access to employment opportunities and social services. The region is home to a large population of older adults. Region 4 includes many very small towns. While the lowest income communities are concentrated in urban areas, there is also considerable rural poverty in Region 4 that is underserved. Absent significant outreach efforts, too often low income and underemployed rural residents are reluctant to take advantage of the social services that may be available to them out of concerns around potentially being stigmatized should they seek out that support.

The COVID crisis public health response necessitated drastic curtailment of entertainment, tourism and hospitality business operations in Region 4. Prior to the COVID-19 outbreak, the Foxwoods Resort Casino, owned and operated by the Mashantucket Pequot Tribal Nation and Mohegan Sun Casino, owned by the Mohegan Tribe and managed by Mohegan Gaming & Entertainment had contracts with over 2000 vendors. Collectively, the pandemic has led to furloughs or layoffs for over 10,000 employees.⁷² To ensure a resilient recovery of for Region 4's economy, there is a pressing need to mobilize efforts that can support regional small businesses. Equally important is the need to create more workforce retraining opportunities for displaced workers in the hospitality, entertainment and service sectors as well as for the long-term unemployed and underemployed.

While Region 4 has experienced substantial job losses and adverse impacts on small businesses, there are several industries located in the region that are poised for major job growth in the coming years. General Dynamics Electric Boat's contract to build Virginia-class and Columbia-class submarines for the US Navy will employ a growing manufacturing labor force in Groton, which is projected to contribute to business growth for other manufacturers that are part of Electric Boat's supply chain and service jobs in the area. Also based in Groton, Pfizer's Global Research and Development facility is projected to bring on additional employees in coming years. Region 4 also projects growth in healthcare jobs. Looking ahead, the challenge for the Region will be to connect those people who lost employment with new opportunities which will require them to acquire new and advanced skills. The goal should be to strive to ensure that the growth in jobs does not end up displacing current residents, but instead positions them to participate in these new employment opportunities.

Managing the inevitable tensions associated with balancing support for businesses and residents who have been most acutely impacted by the COVID-19 crisis while seizing the opportunity to capitalize on the growth of new and established industries, frames the primary findings of this resilience baseline assessment for Region 4. Given Connecticut's town-centric governance, the regional assessment must be translated into recovery approaches and economic development plans which strike an optimal balance between the critical need for regional collaboration and individual municipal-led efforts that respond to their local needs and opportunities. To that end, these findings include a number of considerations that should usefully inform regional and local implementation strategies.

Resilient Recovery Findings and Considerations

Five overarching findings relevant to regional economic resilience emerged from the review of social and economic data by GRI's team of researchers and from their interviews with a diverse group of stakeholders in Region 4. Interviews with local government leaders, industry representatives, business owners, health-care system managers, educators, infrastructure managers, social service providers, and civic and community organizations representing communities from across Region 4 were conducted between October-December 2020, with a total of 32 Region 4-specific interviews conducted.

Finding 1: Region 4's urban communities are poised to capitalize on General Dynamics Electric Boat's planned expansion to attract additional supporting business, as well as the expected expansion of blue economy, biotechnology and healthcare businesses.

General Dynamics Electric Boat (EB) currently employs approximately 17,000 employees in southern New England, including roughly 4,500 employees based in Rhode Island and 11,000 employees based in Groton, Connecticut. EB was recently awarded a \$9.5 billion contract for construction of Columbia-class submarines for the US Navy, with a project timeline that extends into the 2040s. EB is actively working to improve its talent pipeline to ensure an experienced labor force for new positions and to fill vacancies from approximately 8,000 current employees who are projected to retire within the next decade. The projected peak new hiring will be in 2024. The company has invested \$30 million internally for training and has programs

targeting hiring more women in trades. These manufacturing sector jobs typically start at higher salaries than other entry-level jobs in the Region and have multiple pathways for employee advancement. While the COVID-19 crisis has slowed EB's and partnering agencies' workforce development programs, sustaining and scaling up those training programs is a core priority.

Consideration 1.1

In order to realize these benefits, consideration should be given to policies, strategies, and investments that maintain and enhance the area's attractiveness for new and established businesses.

Associated with EB's expansion, other small manufacturers that are part of EB's supply chain are expected to experience growth. This is creating a workforce and business cluster which is attractive to emerging blue technology industries and the construction and building trades. Healthcare and biotechnology business in the region, the largest of which is Pfizer's Global Research and Development facility, are also poised for growth. Robust long-term economic recovery will depend upon encouraging long-term private capital investment and job creation in economically distressed communities. There is an opportunity to leverage Region 4's Qualified Opportunity Zones to attract new entrepreneurship in advanced manufacturing, blue technology, healthcare and biotechnology. Southern Region 4 includes 10 of the State's 72 total Qualified Opportunity Zones which provide significant tax advantages for establishing and maintaining operating businesses. A key element in ensuring Region 4's continued ability to attract new businesses will be building local leaders' capacity to establish strong collaborations and partnerships across municipalities in order to make better use of scarce resources, capitalize on regions assets, and directly address longstanding infrastructure needs.

Consideration 1.2

Development plans which help sustain the family-friendly "village" feel of many of Region 4's municipalities, to include rehabilitating "Main Street" town and urban centers, will be important to attracting and retaining residents.

Planned development should aim to increase the attractiveness of the area as well as to protect this important "sense of place." Both business and residential space must be expanded to capture projected relocations, but it should be done in ways that are in keeping with the unique qualities that make Region 4's communities attractive places to live and work. Emphasis should be placed on careful repurposing and rehabilitation of existing housing and commercial space in "Main Street" town and urban centers.

Several of the stakeholders interviewed by the GRI research team noted that in 2020, for first time in 15 years, Connecticut had a surging housing market, fueled by an increase of approximately 20,000 new residents, compared to a net outward migration of 700 individuals in 2019. Connecticut's rural, suburban and small urban communities are attractive to remote workers seeking more living space, proximity to nature and access to high-quality public schools. Increasing demand for affordable housing with an "urban village" feeling is projected in the Groton, New London, and surrounding towns in connection to emerging Electric Boat jobs and replacement hires as some workers retire, associated blue technology industry job-creation, and growth in the number of commuters choosing to live closer to their workplace.

Finding 2: The rural character of the majority of Region 4's municipalities and the associated gaps in information and transportation infrastructures, present special challenges for the region's many socio-economically vulnerable residents in gaining access to economic and educational opportunities, social services, and healthcare.

In Region 4, the health, social and economic consequences of the COVID-19 crisis have been felt most severely by individuals and families who were economically vulnerable prior to the pandemic. Food insecurity and housing insecurity throughout the region have increased as a result of loss of employment, loss of

hours, and disruptions to individuals' ability to access support services. Many working families faced intensified challenges tied to disruptions to in-person schooling and safety concerns about sending children to care providers. Stakeholders interviewed by GRI researchers noted that undocumented workers in Region 4 communities are particularly vulnerable since they are deterred from pursuing assistance through many federal and state support programs out of fear of the public charge law.

In Plainfield Public Schools, the free and reduced lunch rate went from serving 26% of the students to 57% within two years, demonstrating the dramatic increase in poverty experienced by families in the area. Interviewees stressed that rural poverty throughout Region 4 can be as extreme as urban poverty, but is often overlooked. In general, social service supports do not always reach individuals most in need because they feel that there is a stigma around accessing support or because of a lack of focused outreach and communication to this population about available services. This challenge is especially pronounced in rural communities in northeast Connecticut where low income residents are geographically isolated, sometimes with limited transportation options. Stakeholders interviewed noted that some rural residents preferred to access food assistance in neighboring towns so that they would not be recognized by neighbors as "needy."

The COVID crisis has been particularly disruptive and devastating for many older adults living in eastern Connecticut. The COVID-19 crisis has limited opportunities to be active and engaged in their communities for seniors living at home and has reduced their access to regular medical appointments and basic services. This heightens the risk of adverse physical and mental health impacts. Necessary health and safety measures led to reduced access to regional transportation services, which are critical to older adults who rely on bus, van or shuttle services to access medical care and basic necessities such as groceries. Managing the risk of COVID transmission in medical facilities and senior living facilities has presented significant unanticipated logistical challenges that has added to the financial stress of these service providers.

Core challenges to be addressed include housing and food insecurity, gaps in affordable childcare and equitable education opportunities, and aspects of the regional healthcare system that could be developed to better address the population's needs. These societal challenges include a combination of chronic and COVID-19-caused issues. Addressing societal issues is fundamentally important to ensuring a healthy and productive workforce and to supporting livable, vibrant and economically-secure communities.

Consideration 2.1

Social service assistance programs will be more responsive to the urgent needs of people impacted by the COVID-19 emergency if they are able to offer a "no wrong door" service delivery model that can address in an integrated way, health, housing, food assistance, education, transportation and employment support. Additionally, providers of social assistance should be provided with greater flexibility to presume eligibility when requests for assistance are made so as to ensure a timely and comprehensive response to urgent needs.

The COVID-19 pandemic has resulted in disproportionately severe health and financial implications for low-income service workers in Region 4 who are less likely to be able to work from home. Immigrants and low-wage workers often live in relatively crowded, multi-generational households and have little or no access to preventive healthcare. Region 4's overall economic recovery ultimately will depend on the ability for individuals and households to recover. That will require investments that assure equitable access to COVID-19 public health services to include testing and vaccinations; improved access to healthcare, and responding to the rising incidence of food and housing insecurity.

Stakeholders interviewed by GRI researchers expressed widespread concerns about a likely sudden rise in homelessness when COVID-19 eviction moratoriums are lifted. Households that are unable to pay their rent or mortgages face eviction or foreclosure, with long-term effects on their household finances, credit score,

housing stability, health, and student educational achievement outcomes. There is a need for regional leaders to support programs that offer case-management support to community members facing intergenerational poverty and acute social and economic disruptions.

Consideration 2.2

Targeted food assistance programs for rural residents, immigrants and communities of color should be prioritized to address food insecurity which is expected to be a persistent challenge in many Region 4 communities.

The effects of the COVID-19 pandemic have been disproportionately distributed and have had the most severe effects on communities of color, immigrants, and disadvantaged individuals. In no area has this been more apparent than for food insecurity. Any regional economic recovery strategy must consider the devastating impacts of hunger. Effective subsidies and free food distribution programs should be continued and expanded where necessary. Eligibility rules should be presumed or streamlined to ensure that food reaches those who need it effectively. Federal, state, and municipal agencies should be prepared to support the provision and distribution of food until the effects of the pandemic have dissipated. Region 4 stakeholders noted that allocating resources to support coordination of emergency food assistance programs run by government agencies and nonprofit organizations is critical.

Importantly, the many small farms in eastern Connecticut provide an opportunity to build on the farm-to-table movement by facilitating deeper partnerships with the food service industry and by addressing food insecurity by providing vulnerable residents with access to nutritious and affordable locally-grown food.

Consideration 2.3

The digital divide (both in terms of access and user competencies) remains a barrier to equitable and resilient recovery and growth -- for workers from disadvantaged populations and for small businesses' adaptability, sustainability, and survivability, particularly for those operated by or serving disadvantaged populations.

The COVID-19 pandemic forced individuals, families, businesses, and organizations into reliance on the internet in new and unprecedented ways. In the process, it exposed gaps in access that had and can continue to have major adverse impacts on resilient economic recovery and development. There are several reasons for these gaps. A region, urban neighborhood or rural area may lack access to high-speed broadband internet connectivity because the infrastructure is simply not present or not robust enough to accommodate the demands placed on it. Alternatively, the infrastructure may be in place, but individuals or businesses may not be able to afford the access or to purchase the equipment needed to provide connectivity. Or some individuals because of language capability or age, may not be able to bridge the language or technology divide necessary to effectively use internet services. Any of these three can lead to isolation from modern services, commerce, or healthcare.

Many small businesses particularly minority businesses with limited cash flow or cash reserves were not able to pivot to on-line business because of internet technology challenges. This was most frequently because the business was not large or well-connected enough, did not have and could not procure the requisite equipment or software or did not have the technical or language skills to make the transition. Even if these businesses were able to sustain themselves at some level of operation during the pandemic, the rapid transitions to new on-line business models or supply chains in some sectors leave them susceptible to being left behind when the COVID-19 emergency is over.

Unequal access to on-line education, particularly at the K-12 level, resulted in educational achievement gaps for low-income, minority and disadvantaged students. Despite heroic efforts by school officials in all Region 4 cities and towns, the unevenness of internet connectivity and the need for at-home supervision

to support distance learning have resulted in identifiable disparities in learning that will persist for years and has the potential to adversely affect the imperative to have a well-educated, trained workforce that can directly contribute to the economy.

The COVID-19 emergency has also made the internet an increasing prerequisite to accessing healthcare. While the reliance on tele-medicine may become less pronounced once the pandemic has passed, the use of the internet will remain central to healthcare delivery. Without secure, reliable broadband access, those most needing access to healthcare -- seniors, low-income workers, and disadvantaged individuals – may be least able to do so.

A long-term regional economic development strategy should consider public ownership or public subsidy of broadband internet connectivity in areas where the return-on-investment disincentivizes private internet service companies from providing adequate service. Despite years of build-out, less-affluent neighborhoods in urban areas and wide swaths of rural areas remain unserved or underserved by private internet service providers. Meanwhile, the pandemic has accelerated reliance on connectivity to the internet across all societal strata for access to the most basic services. If not managed correctly, the roll-out of 5G networks has the potential to exacerbate the problem. Poor connectivity in these chronically underserved areas, frequently populated by communities of color and language-challenged groups, will amplify existing inequities in commerce, education, and healthcare.

Consideration 2.4

The centrality of childcare to a vibrant and efficient workforce has been made clear during this COVID-19 crisis, there is a need to invest in safe and affordable childcare options for families across the Region.

Childcare has been one of the central crises of the COVID-19 pandemic. The effects of closed schools and childcare centers have affected all sectors of the workforce but disproportionately so for women. As the pandemic dissipates and schools reopen, it is likely that adequate childcare will continue to be challenge. Many small childcare providers have gone out of business and are unlikely to reopen. Loss of income during the crisis may leave lower-income families without the resources to pay for after school care. The likelihood that women will be unable to return to the workforce due to the need to provide ongoing care for their children could prove to be an important limiting factor for the Region's economic recovery.

Programs to reduce the amount of families' household income that they need to spend on childcare could include expanding after school care for children in the public school system and summer school. Also, subsidies to families or direct payments to providers should be considered. Given the growing teacher shortage in public schools, it will be important to improve the competitiveness of compensations for childcare providers. Planners should look for opportunities to couple development of affordable and accessible childcare facilities with new industrial and residential developments located within the Region's Qualified Opportunity Zones.

Consideration 2.5:

The public education system will need to be adequately resourced to provide additional support for vulnerable students across Region 4 to include summer school opportunities. It is particularly important to provide extra assistance to graduating high school students seeking employment opportunities and/or continuing on with higher education.

Ensuring that education system supports are in place for vulnerable students in the region is critical to the long-term economic outlook for Region 4. Students graduating high school will need additional advising support and financial assistance to plan for a future that includes furthering their education. Investing resources to support high school students with pathways to community college, four-year college opportunities or technical training institutions is vitally important-- this is an issue of ensuring a robust workforce to

bring sustainable growth to the region in coming decades. Robust enrollment in the region's higher education institutions also contribute directly to local economies. Expanding the pathways for students to enter in-state public and private institutions will improve their ability to support the wider economic recovery as important economic anchors for the region. Programs that provide opportunities for youth mentorship and youth leadership will be vitally important for economic recovery as will services that support parents with resources and information to fully participate in decisions that will affect their children's education.

Education sector stakeholders interviewed in Region 4 emphasized the importance of ensuring that compensation for teachers is such that it makes the profession attractive for motivated and high-quality teaching professionals. It is also important to provide tailored professional development opportunities that support successful digital learning which is likely to remain a feature of public education even after the pandemic is over.

Consideration 2.6

In responding to the mental health stresses of the COVID-19 pandemic, support for community healthcare providers and mental health services should be prioritized as a cornerstone for regional recovery.

Throughout Region 4, stakeholders interviewed by GRI researchers described the significant challenge of filling open positions at healthcare institutions. Of particular concerns is that the disruptions associated with the pandemic, including economic stress and social distancing requirements, have contributed to increasing mental health challenges for regional residents and increased instances of depression, substance abuse and suicide. Community organizers and healthcare providers connected to the local healthcare system emphasized the need for increased and continued mental health support systems for community members, and especially healthcare system workers, who experienced loss of family members or neighbors because of the virus. Many of the region's agencies and non-governmental social service organizations that address these problems are worried about likely reductions in funding at the state and municipal levels as a result of lost tax revenues associated with the pandemic. There are direct connections between community mental health and the labor force. Workers who have become ill because of unemployment-related stresses or who now must be caregivers to family members who suffer from mental illness cannot participate in the workforce until they have access to treatment. Non-profit social service organizations providing community mental health services may also see declines in funding because of state and municipal revenue loss and the typical decline in donations during economic recessions.

Residents in Region 4 have struggled with a widely observed shortage of trained mental healthcare providers.⁷³ There is a need for more support at all levels, including for healthcare workers, in schools, places of employment, services targeted for the elderly and those suffering from substance abuse. There is a need for municipal and regional government agencies to partner with trusted community partners for developing and implementing accessible mental and behavioral health services in communities. In order to reach their full potential, such programs must be effectively promoted with targeted outreach and must be accessible to communities of color and those who may require multi-lingual services.

Restoring and sustaining the healthcare system for Region 4 is a complex task of overlapping requirements. These actions will be key to navigating the COVID-19 crisis in the near term, and assuring a healthy and productive population over the long term. Where possible, non-governmental social services organizations should be considered for increased federal disaster funding to compensate for declines in local and state public funding and donations linked to the COVID-19 crisis.

Finding 3: When the COVID-19 eviction protections expire, there is a significant risk of displacing families from their homes in Region 4.

Many tenants and landlords have been placed under extreme financial pressure since the start of the pandemic. Some residents who have experienced job losses, particularly those tied to the services sectors, are likely to find there are fewer employment opportunities to return to even after the pandemic has ended. These economically vulnerable residents will remain unable to afford their rent or mortgage (likely one of their largest single cost-of-living expenses). Loss of housing will quickly cascade across the Region and the State, as residents are forced to relocate to more affordable locations which may already have limited or already overwhelmed support services available. Additionally, once a resident has an eviction on their record, it becomes far more difficult to find new housing. This may force families and residents into homelessness, causing direct impacts to their health and their children's education, as well as strain on shelters, food pantries, etc.

For the many rural communities in the region, transportation issues and access to the internet are barriers to taking advantage of available social services to identify possible solutions before residents are evicted. Housing disruptions, combined with these transportation challenges, may fundamentally shift working and commuting patterns. As with other regional issues identified in these findings, evictions pose an indirect threat to business operations, especially for small businesses that relied on or were owned by local residents.

Consideration 3.1

Local and regional recovery strategies should plan for the medium-term stability of impoverished, low-income, and ALICE families that maintains them in their current housing until the COVID-19 pandemic recovery process is largely accomplished.

The communities of Groton, New London, Norwich, Windham and Mansfield face the highest risk of housing insecurity given the concentration of low-income residents and the higher percentages of renter occupied units. The negative impacts of COVID-19 on education, workforce development, employment, and other necessary community services will persist long after the pandemic unless residents have access to stable housing. Children, particularly in vulnerable communities, have already been extremely challenged in their ability to keep up in school. Evictions would be catastrophic to their educational success, and in the long-term will leave Connecticut with a less competitive workforce.

Consideration 3.2

Local and regional recovery strategies should plan for the medium-term stability of small landlords whose income has been restricted by pandemic-caused tenant inability to pay rent and the eviction moratorium.

Throughout the moratorium on evictions, landlords still had financial obligations for their properties and maintenance obligations for their residents. These landlords, especially those who have single properties or small portfolios, may be unable to make mortgage payments if they go many months with receiving rent from their tenants. Ensuring a healthy rental market is especially important for a region that already burdened with a tight housing inventory.

Finding 4: Main Street business (i.e., small to medium local businesses), particularly those businesses that are owned or serve vulnerable populations or locales, have suffered the most serious damage in the pandemic, making a focus on recovery of this business strata critical to the region's long-term economic recovery.

Main Street businesses anchor the economic and social life of a community. With limited cash reserves, many of these businesses entered the pandemic with little wherewithal to survive the extended disruptions associated with COVID-19 public health measures. The Accommodation and Food Services, Arts, Entertainment and Recreation, Other Services and Retail Trade sectors have been most seriously impacted, with these businesses dominating the regional applications for the Connecticut CARES Small Business

Grant Program. Business closures for up to 6 months were not uncommon following the onset of the pandemic and many have been required to limit activities once again during the second wave that began the fall of 2020. Just how many businesses will end up permanently shuttered is still not yet clear, but the numbers are expected to be significant. For those businesses still struggling to survive, they will need to obtain the knowledge and access to technology that enables them to pivot to on-line or delivery models.

The workers who have lost their jobs because of these business closures have limited options for re-employment in the sectors they had worked in. Many are low-wage, minimum-skilled workers who will find it challenging to compete for jobs in new sectors. Disproportionately, they are people of color or members of other disadvantaged communities. Beyond the devastating personal and family challenges they face, their loss of employment has serious cascading effects on the region's economy with potentially adverse effects on housing and rental property, retail sales, social services, and health outcomes. Recovery of the small and medium business strata will, therefore, be essential for achieving an equitable recovery of the region's economy and its long-term growth.

Small urban and village centers in Region 4 support diverse small businesses in the entertainment, hospitality and arts and culture sectors, including event venues, restaurants, museums, theaters and art galleries. Stakeholders interviewed by GRI researchers raised concerns that many of these small businesses and nonprofit organizations may end up permanently close.

Consideration 4.1

Recovery strategies should take full advantage of the First Draw and Second Draw Paycheck Protection Program (PPP) loans and the SBA's COVID-19 Economic Injury Disaster Loans (EIDL). Mobilizing outreach efforts and application support should prioritize efforts to reach minority-owned or language-challenged small businesses.

State and regional officials should work closely with the US Small Business Administration (SBA) and partner with their local institutions of higher education, to ensure that information about available federal programs and assistance with applications is available particularly to minority-owned or language challenged small businesses.

Consideration 4.2

Recovery and long-term economic development strategies will be more successful if they include provisions for technical and/or financial assistance that can assist small businesses in pivoting from traditional business models to emerging models that may be more heavily reliant on such things as on-line order processing, alternative delivery systems, and on-line payment applications.

Small businesses, particularly those in minority-owned and language-challenged communities, may find it difficult to keep pace with the demands of the digital economy. The challenges include the need to acquire new technical skills, access to technology, and financial capacity to purchase necessary equipment.

Consideration 4.3

Some small businesses will not survive. For others, changes to their business models and practices may result in declining worker demand. Long-term economic development strategies will need to include provisions for re-training workers whose jobs are lost as a result of these business model shifts. Workforce retraining plans that support the re-directing of workers to new careers will need to be adapted to support the lower-skilled workers who have been most dramatically impacted by the COVID-19 emergency. This translates into the need to subsidize the costs of training, providing income support for those undergoing training, and assistance with transportation and childcare. Meeting this challenge will be key to ensuring that those who have been most impacted do not end up permanently out of the workforce.

Consideration 4.4

Consider targeted supports to sustain Region 4’s agriculture and fisheries sectors, which are at the heart of social and economic life in many of the region’s small communities.

Agriculture and fisheries are important aspects of Region 4’s identity and contribute to a sense of place for regional residents and small businesses. They also directly contribute to event venues, restaurants and wineries and breweries that make up the region’s distinctive food, agriculture and farming ecosystem.

There are opportunities to provide incentives for partnerships between the food service industry and local food transportation to food banks. Federal emergency food assistance programs including the USDA Farmers to Families Food Box program are a model that should be evaluated and pursued, with emphasis on drawing on the capacity of local agricultural producers to help meet the region’s needs for food assistance. Programs that support local food processing and packaging, increase access to cold storage, and allow agricultural producers more time to get products to local markets or to sell in other areas would significantly alter the region’s agricultural opportunities landscape. Also vital to the long-term viability of the region’s agricultural producers are programs that preserve land for farming and provide pathways for new farmers to lease and own farmland. Fisheries industry stakeholders in southern Region 4 require support for pier remedial work, improved cold storage and processing facilities and associated legal and engineering and design expenses.

Finding 5: Loss of jobs in the hospitality and entertainment sectors presents a serious risk of long-term unemployment for working-age adults across Region 4 in the absence of targeted recovery supports for advanced skills workforce training to meet the demands of the industries that are poised for growth.

The regional economy that emerges from the COVID-19 pandemic will be significantly altered. Hiring for many jobs in entertainment and hospitality-related sectors will be slow to recover. The potential widespread failure of small and micro-businesses may lead to many jobs disappearing altogether. There is little doubt that the economy of 2021 and beyond will require a workforce with new and different skills as businesses adapt to an altered business environment and business models change. These changes will require stepped-up workforce development efforts at all levels. For those currently in high-school and all post-secondary education, the job market they will enter will likely require different skills training than the one they had been anticipating. For those workers who find their jobs eliminated or structurally altered, the new business models will likely require similarly new skills from those obtained in the past. COVID-19 has already disrupted workforce training at all levels. Adult education, language instruction, and skills training have been disrupted as parents have been forced to stay at home with children. Additionally, many hands-on skills training has been curtailed because of COVID-19 public health restrictions. The need for new adult education and for reimagined workforce development are converging in ways not seen for decades and will require significant investments to ensure economic recovery in a new post-COVID-19 environment.

There is an opportunity for workforce development planners to work even more closely with the institutions of higher education in Region 4 on identifying new ways in which economic recovery funding and federal disaster recovery assistance can be tailored to support workforce development and continuing adult education related to preparing workers for new career pathways where there are likely to be the greatest employment opportunities. This funding should be available to both public and private organizations with validated career training and technical certification programs focused on creating a vibrant workforce for the post-COVID-19 business environment. Programs that emphasize community colleges and 4-year colleges and universities working in collaboration with local employers to design and execute educational programs that matches theory with practice will well-position the region to retain students within the state by providing that with attractive career placement opportunities.

Consideration 5.1

Regional recovery and development plans should emphasize training programs that address the need for skills in demand by the manufacturing, shipbuilding, construction, and healthcare sectors. To ensure a resilient recovery of for Region 4's economy, there is a pressing need address the worker skill mismatch between those who are unemployed and growing employment opportunities in the manufacturing, shipbuilding, construction, and healthcare sectors. Region 4 stakeholders reflected that there is a need to better market workforce training opportunities to communities and individuals most in need of support. In addition to the successful programs focused around meeting General Dynamics Electric Boat's demand for new hires, there are also opportunities to connect the region's unemployed and underemployed residents with opportunities in emerging regional industries such as film editing and information technology.

Regional stakeholders also highlighted the need for job skills training, mentorship and institutional supports for racial minorities and women pursuing training in construction and trades jobs. Connecticut's trades unions are not diverse and are generally viewed by racial minorities and women as unwelcoming. However, continued job growth in these professions will require filling the demand for new workers into the trades that better reflect regional demographics.

Consideration 5.2

Consideration should be given to targeting recovery funds to invest in ongoing regional collaborations among institutions of higher education with the private sector so that they can more directly support the career pathways that will best sustain a successful regional economy.

As a state, Connecticut has a robust network of higher education institutions (IHEs) engaged in innovation and development with several strong and engaged players within Region 4. These institutions are great assets for developing capabilities and competencies needed to fuel the Region's expansion in financial services, technological innovation, healthcare, advanced manufacturing, and other emerging fields such as the blue economy and offshore wind energy. Support of tailored institutional initiatives can help encourage broader collaborations among institutions of higher education, among municipalities in the Region, and across the public-private divide, that will be critical to achieving equitable and resilient economic growth. Inclusion of deliberate structures and incentives for capacity and competency building among diverse and inclusive students, scholars, and associated practitioners will also help ensure that Connecticut's workforce of the future is equitable, diverse, and able to tackle evolving knowledge and innovation.

Consideration 5.3

Regional recovery necessitates improvements in the overall transportation infrastructure and in the availability and access to local transit services that improved the ability of residents of Region 4 to connect with employment training opportunities, their places of work, and support access to health and other social services.

Funding to maintain and upgrade the state's rapidly aging critical transportation infrastructure has been severely limited by decreases in public funding over the past decade. State revenues, largely from gasoline and automobile taxes, are in decline as has financing transportation projects with bonds. Municipalities do not have the authority to levy income or sales taxes to overcome state shortfalls. Many smaller towns do not have the bonding capacity to carry-our major transportation capital projects within their jurisdictions. These factors have led to reliance on federal funding which has not be consistently available in recent years. As a result, maintenance has been deferred on existing roads and bridges and plans for expansions to existing systems have been put on hold or abandoned altogether. The Biden Administration's emphasis on investing in infrastructure represents a unique opportunity for Region 4 to make major transportation improvements, but stepped-up collaborative planning for synergistic projects at the regional level will be key to capitalizing on this opportunity.

Concluding Observations

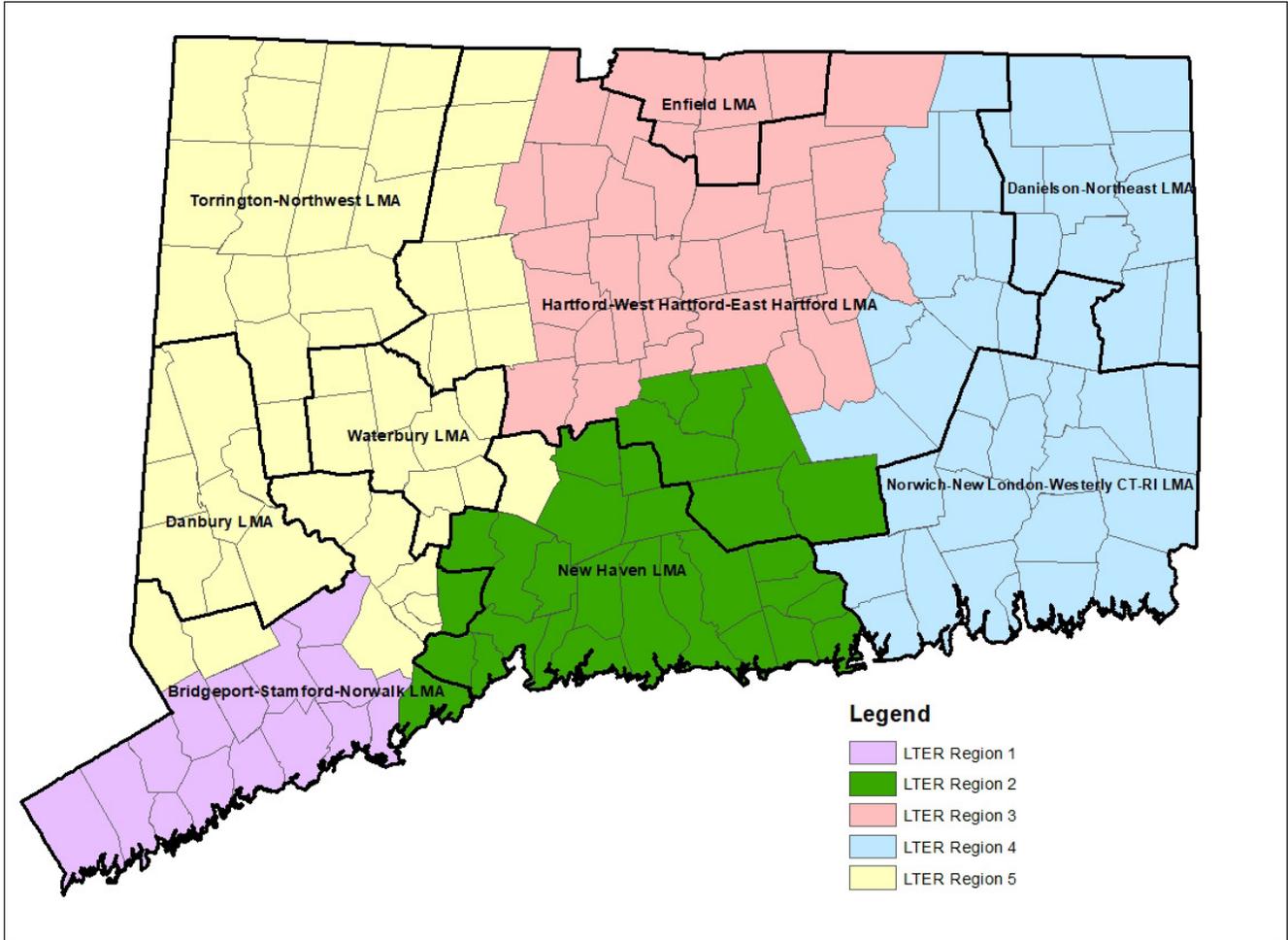
The new Biden Administration is poised to deploy a \$2-3 trillion between its response to the COVID emergency and the investment it is seeking to make in infrastructure projects. The next two years could be a historic opportunity for states to receive federal funding on a level that has not been available since the 1960s. Assembling ambitious regional plans that are supported by the documentation that outlines why they are needed and how they will advance greater equity and resilience will be key to securing a significant amount of federal assistance. The goal of this report has been to serve as both a starting point and a catalyst for Region 4 and the State of Connecticut to take advantage of this once-in-a-lifetime opportunity to achieve its longstanding economic development goals.

Managing COVID-19 effects so as to “bounce forward” instead of simply trying to bounce back will be best accomplished at the regional level. A regional view can accelerate opportunity by recognizing that development in one municipality can spur complimentary development in another. For example, if one community expands manufacturing, the other can capitalize on the need to provide worker housing, retail, and amenities. A regional view can also identify incipient challenges such as when rising property values in one community is causing lower-income populations to leave, placing stress on another already economically distressed community that exacerbates inequities. In all instances, combining regional understanding with the capacity and shared commitment to coordinate action is the most successful way to spur growth and ameliorate problems.

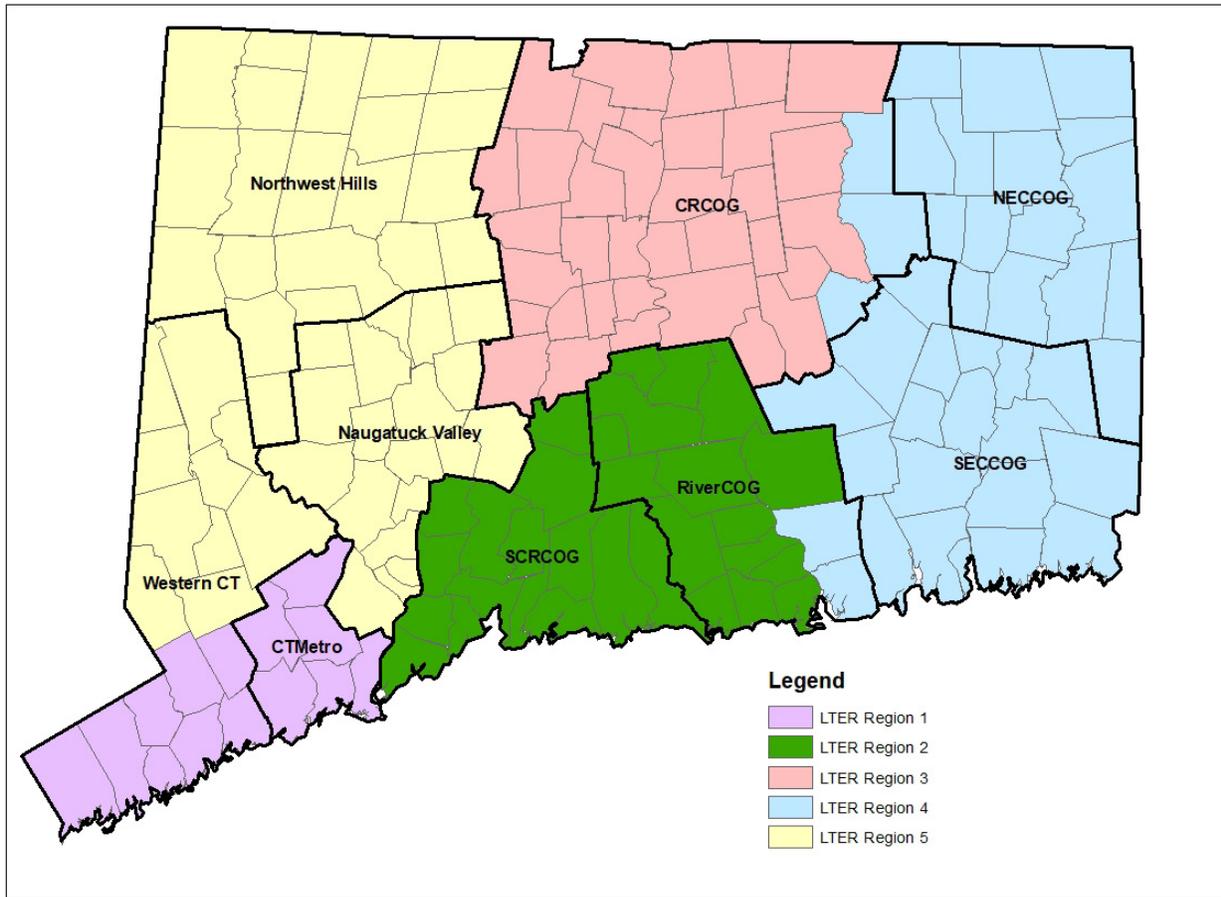
The COVID-19 pandemic and the pressing need to recover from it creates an ideal opportunity to reexamine regional economic development strategies such as the regional Comprehensive Economic Development Strategies (CEDS) and develop well-coordinated economic development plans and projects to ensure long term resilient economic recovery and development that is more equitable and sustainable. The reexamination of plans and strategies should seek to understand the assets, plans and programs that currently exist in the various regional municipalities and how these can be leveraged to support a regional recovery and economic development strategy. Each municipality within the region has strengths and challenges and it is the interrelationships among those strengths and challenges that provide the most significant opportunities for economic development. No municipality is an island and few municipal infrastructures (physical, economic, or social) truly stop at the municipal boundaries. Mapping these interrelationships and gaining a deep understanding of what communities want and, equally importantly, what they will accept, is key to finding the paths to synchronize strategies, plans and resources. This type of well-coordinated planning creates the class of large-scale, long-term plans that are most attractive to not just federal agency funders, but to private investors as well.

Appendices

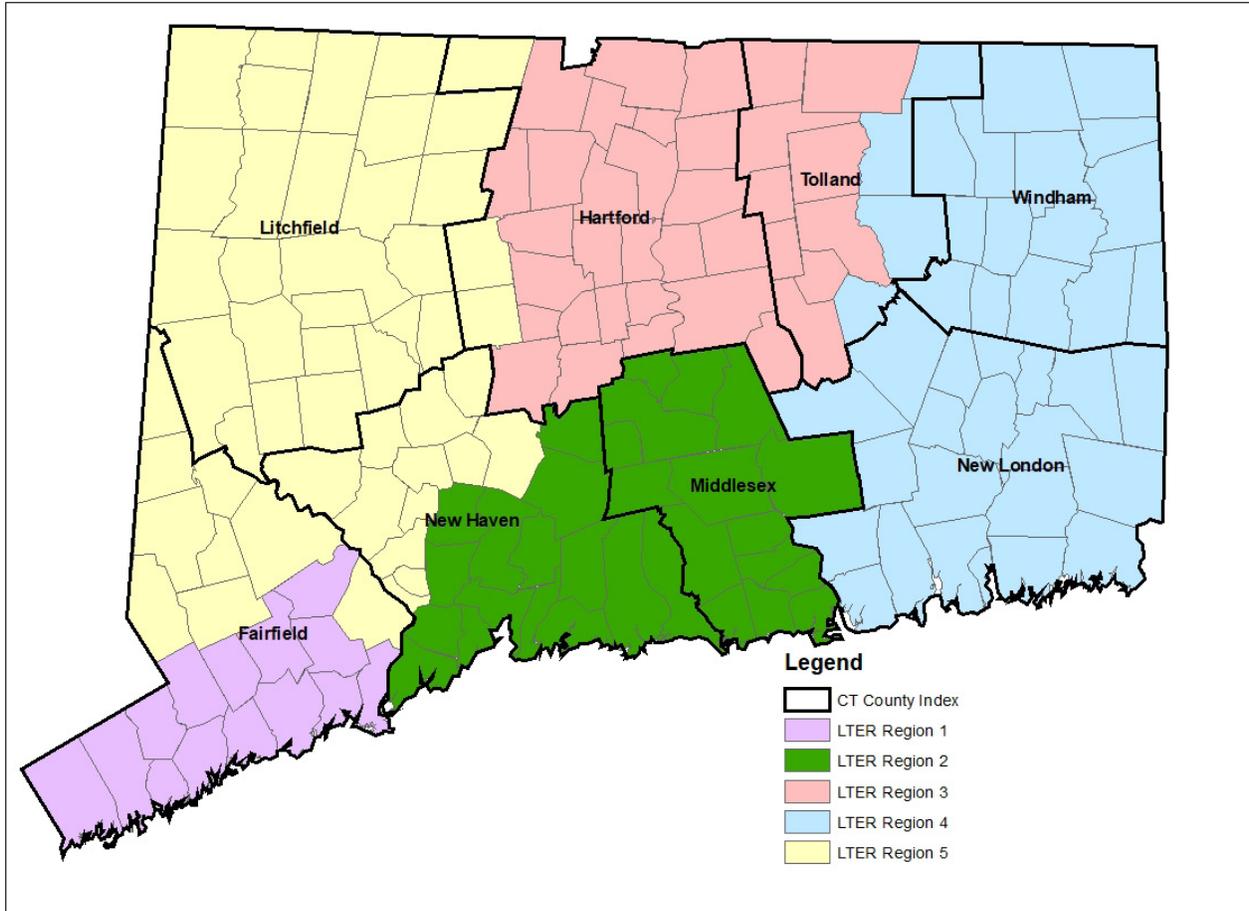
A. LTER Regions and LMAs



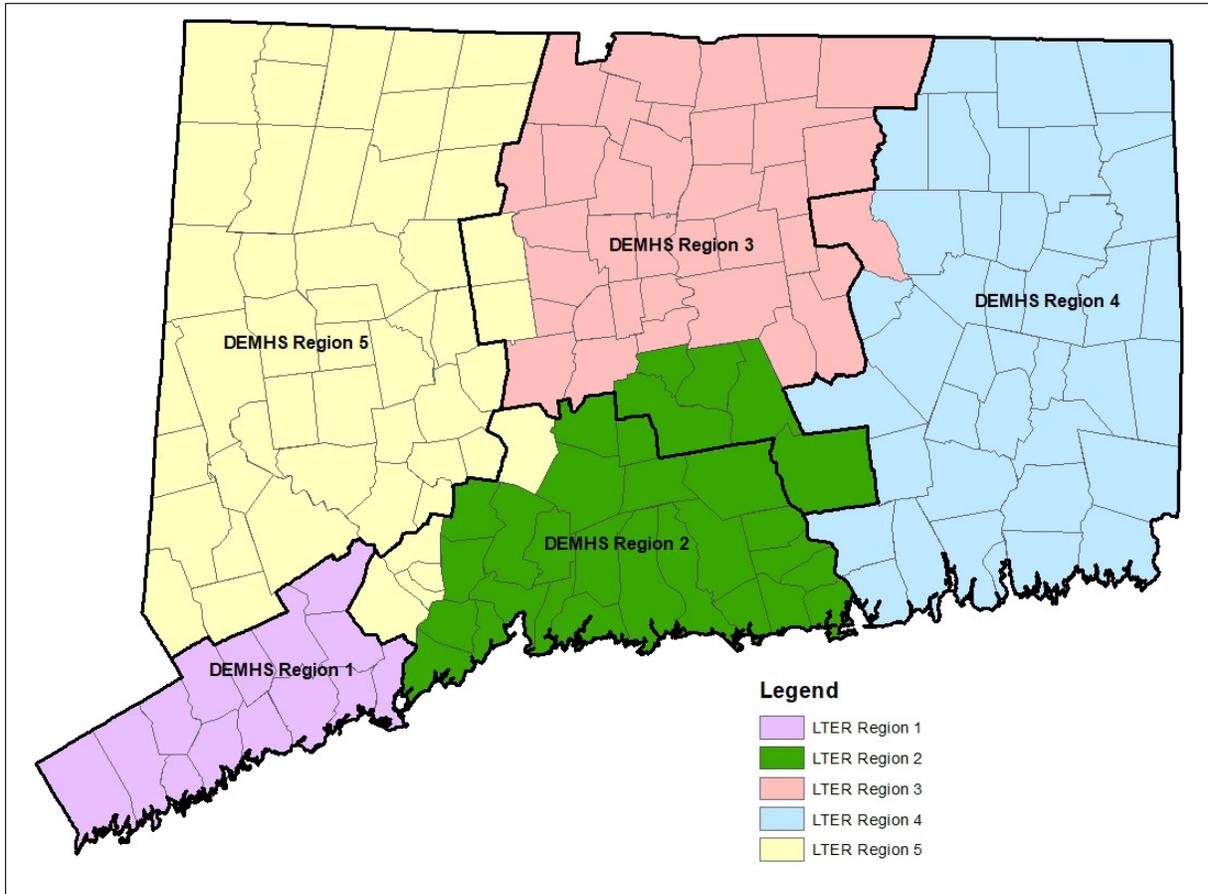
B. LTER Regions and COGs



C. LTER Regions and Counties



D. LTER Regions and DEMHS Regions



E. Organizations Interviewed

Region	Organizations Interviewed
LTER Region 4	<p>A Thyme to Cook</p> <p>American Ambulance Service Inc.</p> <p>Connecticut College</p> <p>Connecticut Energy Marketers Association</p> <p>Connecticut Health Foundation</p> <p>Connecticut Voices for Children</p> <p>District 4 Board of Education</p> <p>Eastern Connecticut Workforce Investment Board (EWIB)</p> <p>Eastern CT Workforce Investment Board</p> <p>Eastern Highlands Health District</p> <p>End Hunger CT</p> <p>Garde Arts Center, Inc.</p> <p>General Dynamics Electric Boat</p> <p>Generations Health Center</p> <p>Killingly School</p> <p>Ledge Light Health</p> <p>Montville WPCA</p> <p>Northeastern Connecticut Council of Governments Animal Shelter/Veterinary Services</p> <p>New London Homeless Hospitality Center</p> <p>Northeast District Department of Health (NDDH)</p> <p>Northeastern Connecticut Council of Governments (NECCOG)</p> <p>Norwich Public Utilities</p> <p>Plainfield Public Schools</p> <p>SEAT</p> <p>Southeastern Connecticut Council of Governments (SCCOG)</p> <p>Southeastern Connecticut Cultural Coalition</p> <p>Southeastern Connecticut Enterprise Institute (SeCTer)</p> <p>Taylor Brooke Winery</p> <p>Thames Valley Council for Community Action (TVCCA)</p> <p>Uncas Health</p> <p>United Community & Family Services (UCFS)</p> <p>United Services</p> <p>United Way (Gemma Moran Food Bank)</p>

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About The Global Resilience Institute

Based at Northeastern University in Boston, MA, the Global Resilience Institute's (GRI) research and educational mission is to develop and deploy practical and innovative tools, applications, and skills that drive social and technical changes, which strengthen the capacity of individuals, communities, systems, and networks to adapt to an increasingly turbulent world. Launched in 2017, GRI is the world's first university-wide institute to respond to the resilience imperative. Today, GRI undertakes multi-disciplinary resilience research and education efforts that draw on the latest findings from network science, health sciences, coastal and urban sustainability, engineering, cybersecurity and privacy, social and behavioral sciences, public policy, urban affairs, business, law, game design, architecture, and geospatial analysis. GRI works in close partnership with industry, government, communities, and non-governmental organizations, as well as engages in external outreach to inform, empower, and scale bottom-up efforts that contribute to individual and collective resilience.

About Northeastern University

Founded in 1898, Northeastern is a global research university and the recognized leader in experience-driven lifelong learning. Our world-renowned experiential approach empowers our students, faculty, alumni, and partners to create impact far beyond the confines of discipline, degree, and campus. Our locations—in Boston; Charlotte, North Carolina; the San Francisco Bay Area; Seattle; Toronto; and the Massachusetts communities of Burlington and Nahant—are nodes in our growing global university system. Through this network, we expand opportunities for flexible, student-centered learning and collaborative, solutions-focused research. Northeastern's comprehensive array of undergraduate and graduate programs—on-campus, online, and in hybrid formats—lead to degrees through the doctorate in nine colleges and schools. Among these, we offer more than 140 multi-discipline majors and degrees designed to prepare students for purposeful lives and careers.

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