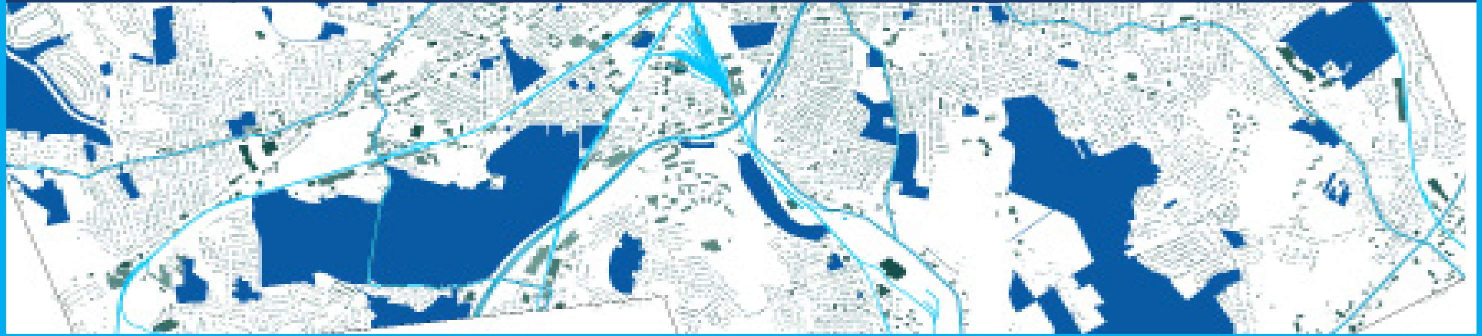
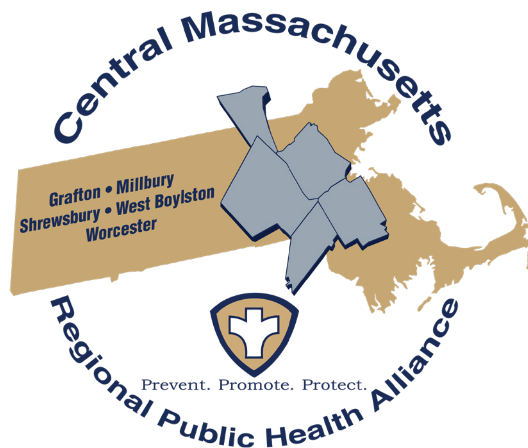
Greater Worcester

Community Health Assessment

2021 CHA





The City *of* WORCESTER

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Background & Purpose

The 2021 Greater Worcester Regional Community Health Needs Assessment (CHA) was developed collectively by the Worcester Division of Public Health – the lead agency of the Central Massachusetts Regional Public Health Alliance (CMRPHA), Fallon Health, The Hanover Insurance Group Foundation, and UMass Memorial Health. Since 2008, these entities have worked collaboratively to plan and conduct a regional assessment effort, aimed at identifying community health issues, barriers to care, disparities in health outcomes, vulnerable populations, gaps in the health service system, and opportunities for collaboration. CHA findings will be used to help ensure that community health improvement efforts are appropriately focused and delivered in ways that allow people to access health and health-related services when, where, and how they need them.

Since 1994, the Massachusetts Attorney General's Office has published Community Benefit Guidelines that encourage nonprofit hospitals and health maintenance organizations (HMOs) to address social determinants of health in the communities they serve. In 2012, the federal Affordable Care Act (ACA) further reinforced these expectations by mandating that these entities engage in similar assessment, planning, and community health improvement activities. Local and state health departments have similar requirements and obligations born out of their civic obligation to ensure the health and well-being of those who live, work or visit their communities. The Worcester Division of Public Health has opted to build on its commitment to strong public health principles by becoming an accredited public health department under the auspices and accreditation guidelines of the Public Health Accreditation Board (PHAB). To identify leading social determinants, major health issues, and vulnerable populations, the Community Benefit Guidelines encourage institutions to conduct comprehensive community health needs assessments. In developing these materials, institutions are expected to fully engage the community-at-large and to collaborate with other community health stakeholders.

A primary goal of the CHA is to gather information on the lived experiences of Greater Worcester's diverse populations. Collecting this information is critical in efforts to center health equity and address needs and barriers in ways that are comprehensive, accessible, and culturally competent. The CHA was completed in close partnership with local stakeholders, including health and social service providers, advocates, elected and appointed officials, faith leaders, community organizations, Boards and Commissions, and community residents.

The Community Benefits and PHAB guidelines include the expectation that institutions conduct their CHAs and develop their strategic implementation plans in close collaboration with existing multisector, community coalitions to take advantage of and leverage work already completed—as well as to avoid duplication of efforts. In this regard, this CHA has worked in close cooperation with the Coalition for a Healthy Greater Worcester as part of the Greater Worcester Community Health Improvement Plan (CHIP). The Worcester CHIP acts as the strategic plan for the CHA sponsors and other local stakeholders.

Community Health Needs Assessment Sponsors

Central Massachusetts Regional Public Health Alliance

The mission of the Worcester Division of Public Health (WDPH) /Central Massachusetts Regional Public Health Alliance (CMRPHA) is to equitably improve health outcomes and quality of life for all residents by providing high quality, data drive, public health leadership and services. The Division provides an array of public health services including public health nursing, community health initiatives, emergency preparedness and response, environmental health inspections and policy technical assistance. In 2016, WDPH / CMRPHA became the first nationally accredited public health department in Massachusetts.

Fallon Health

Founded in 1977, Fallon Health is a nationally recognized, not-for-profit health care services organization that is committed to the vision of creating healthier lives by supporting the diverse and changing needs of those we serve. Since its inception, Fallon has worked to improve the quality of life and the health status of individuals by offering access to high quality, affordable medical care and services. As both an insurer and a provider of care, Fallon offers a variety of health plan options, with a renewed focus on—and commitment to—Medicare and Medicaid. Fallon works cooperatively with health care and community-based organizations, as well as state and federal agencies, to lead the creation of innovative health care solutions, seek healthy outcomes and improve access to health care services. Fallon is proud to have a strong record of partnership and collaboration with community organizations and residents throughout the Commonwealth.

The Hanover Insurance Group Foundation

The goal of The Hanover Insurance Group Foundation, Inc. (The Hanover Insurance Company, and Citizens Insurance Company of America, companies of The Hanover Insurance Group) is to improve the quality of life in communities where our companies—The Hanover and Citizens Insurance— have a major presence, placing a special emphasis on helping to build world-class public education systems and inspiring and empowering youth to achieve their full potential.

UMass Memorial Health

UMass Memorial Health is the largest not-for-profit health care delivery system in Central Massachusetts, with 1,700 physicians and 15,000 employees. UMass Memorial Medical Center, located in Worcester, is a teaching hospital and the clinical partner of the University of Massachusetts Medical School. UMass Memorial Health's Community Benefits mission incorporates the World Health Organization's broad definition of health, defined as "a state of complete physical, mental and social well-being and not merely the absence of disease." Further, as described in their mission, "UMass Memorial Health is committed to improving the health status of all those it serves and to addressing the health problems of the poor and other medically underserved populations. In addition, nonmedical conditions that negatively impact the health and wellness of our community are addressed."

Acknowledgements

Since the assessment began in the spring of 2021, hundreds of individuals participated in the CHA, through interviews, focus groups, and a Community Health Survey. The information gathered through these efforts enabled the CHA to engage the community and gain a better understanding of the region's capacity, strengths and weaknesses, as well as health status, barriers to care, service gaps and underlying determinants of health. While it was not possible for this assessment to involve all community stakeholders, it engaged a comprehensive and inclusive sample of the population; those involved showed commitment to strengthening the region's health system, particularly for people most at-risk.

The CHA sponsors would like to thank everyone who was involved in this effort, but particularly the region's service providers, advocacy groups, and community members who invested their time, effort and expertise. They would like to especially acknowledge the participation and in-kind support provided by the Coalition for a Healthy Greater Worcester (CHGW), who provided access to valuable information gathered through CHIP Community Conversations. They would also like to thank SparkMap, BroadStreet, and the Worcester Regional Research Bureau (WRRB) for allowing the assessment to draw on their data resources. This assessment would not have been possible without their support.

This work was supported by John Snow, Inc. (JSI), a public health research and consulting organization dedicated to improving the health of individuals and communities.

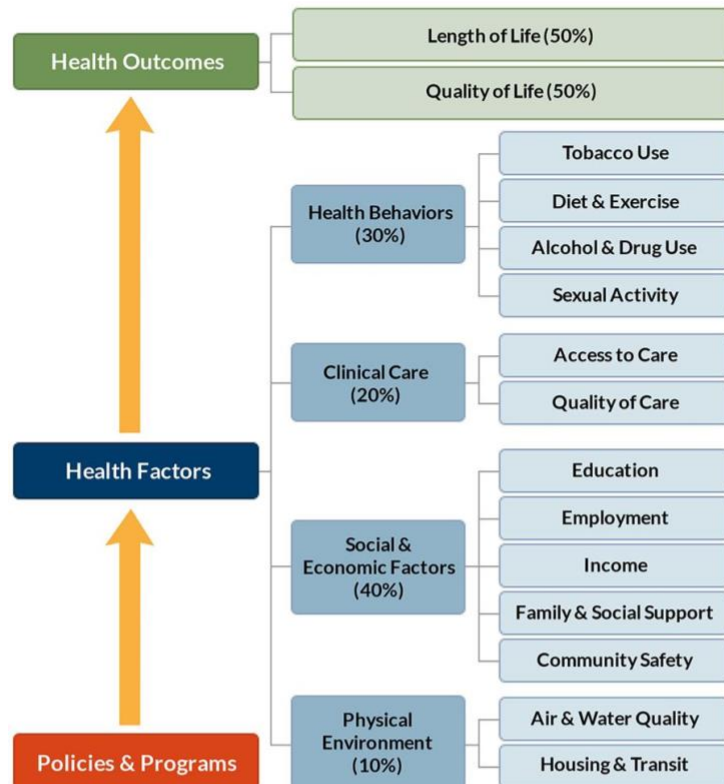
Approach & Methods

Over the past decade, there has been an increased understanding—among policymakers, public officials, HMOs and service providers—of the importance of developing broad system-wide plans to guide public and private agencies, service providers and other stakeholders as they work collectively to address barriers to care, improve health status and strengthen regional health systems. To be effective, these plans and their assessments and recommendations must be:

- **Comprehensive—**involving the full range of health care, social service and public health providers
- **Data-driven—**applying quantitative and qualitative data from primary and secondary sources in ways that allow for sound decision making
- **Collaborative—**engaging all relevant stakeholders including, public agencies, service providers and the at-large community in a transparent, inclusive process
- **Action-oriented, measurable and justifiable—**providing a clear path or roadmap that guides action in clear, specific, measurable ways and allows for the implementation of short-term and long-term strategies
- **Evidence-based—**implementing projects and strategies that are proven, rooted in clinical or service provider experience and that take into consideration the interests and needs of the target population

The CHA utilized a mixed-methods assessment approach that integrates quantitative and qualitative data. The 2021 effort focused on compiling information through an extensive community engagement effort that involved stakeholder interviews, focus groups, and a community health survey, as described below. Data and findings from recent local assessment and planning efforts have also been integrated into this report.

FIGURE 1: FRAMEWORK FOR COMMUNITY HEALTH IMPROVEMENT



Source: Robert Wood Johnson Foundation

Historically, the health care system has focused more on clinical services, physical health and treatment of chronic conditions, such as heart disease, cancer, asthma and diabetes. Over the past decade, there has been a clear shift to focus on preventing and addressing the underlying social, economic, behavioral and physical

determinants of health. There is increasing awareness that these issues are at the root of poor individual health status, community well-being and overall population health. As shown in Figure 1, there is growing body of research shows that only a small portion of one's overall health can be attributed directly to access to and quality of clinical care. The remainder is linked to genetics, health behaviors, social and economic factors, and physical residential environments. With respect to community health assessment and improvement, the efforts of the Greater Worcester Regional CHA, the CHIP, along with the expectations of the Commonwealth, the federal government, and PHAB are framed with these ideas in mind.

FIGURE 2: SOCIAL DETERMINANTS OF HEALTH

The Massachusetts Attorney General's Office Community Benefits Guidelines and the Massachusetts Department of Public Health (MDPH) Determination of Need Guidelines have established priorities to guide and focus the community health improvement work of hospitals and HMOs across the Commonwealth. With emphasis on helping disadvantaged populations, reducing health disparities and promoting wellness, these priorities include chronic disease management, mental health, substance use, housing and violence.

These guidelines are not meant to restrict the unique issues that not-for-profit hospitals and HMOs decide to prioritize. Rather, they clarify the idea that in order to reduce health-related disparities and have a genuine and sustained impact on health and well-being, CHAs and the subsequent strategic implementation plans must address the underlying social determinants, inequities and injustices at the root of health status issues.

The CHA Sponsors also understood the need for the CHA to be aligned with the region's broader agenda of promoting health and well-being, addressing health disparities and conducting their efforts in the context of health equity. Health equity is the attainment of the highest level of health for all people.

Achieving health equity requires valuing everyone equally, with focused, ongoing societal efforts to address avoidable inequalities, underlying socioeconomic factors and injustices, whether historical or contemporary.

Figure 3: Equality vs. Equity

Source: Robert Wood Johnson Foundation

Qualitative Data & Community Engagement

Stakeholder Interviews

Staff from JSI worked with the CHA sponsors to conduct stakeholder interviews with 45 community leaders, service providers, public officials, advocates, and representatives from community stakeholders, faith-based organizations and academia. Due to the pandemic, all interviews were completed virtually, via phone or Zoom, using a standard interview guide:

Interviewee	Role & Affiliation
Bayda Asbridge	Arabic Interpreter, UMass Medical Health
Sandy Amoakohene	Built Environment & Food Systems Coordinator, Worcester REACH Project
Edward Augustus	City Manager, City of Worcester
Maureen Binienda	Superintendent, Worcester Public Schools
Rev. Louis Bond	Covenant United Methodist Church
Leah Bradley	Executive Director, Central Massachusetts Housing Alliance
Anne Bureau	Worcester Community Connections Coalition
Richard Burke	President and CEO, Fallon Health
Dr. Matilde Castiel	Commissioner, Worcester Health and Human Services
Jonathan Cohen	VP for Programs and Strategy, Greater Worcester Community Foundation
James Cummings	Superintendent, Grafton Public Schools
Dr. Eric Dickson	President and CEO, UMass Memorial Health
David Fort	Chair, Worcester Board of Health
Tim Garvin	President and CEO, United Way of Central Massachusetts

Interviewee	Role & Affiliation
Jennifer Gaskin	President, Worcester Caribbean American Carnival Association
Eve Gilmore	Executive Director, Edward Street Child Care Center
Yahaira Graxirena	Transportation Planner, Central Massachusetts Regional Planning Commission
Isabel Gonzalez	Director, Worcester Interfaith
Alex Guardiola	VP of Government Affairs and Public Policy, Worcester Regional Chamber of Commerce
Sharon Henderson	Covenant United Methodist Church
Dr. Michael Hirsh	Medical Director, Worcester Division of Public Health
Mona Ives	President & Board Chair, Ansaar of Worcester
Carolyn Jackson	CEO, Saint Vincent Hospital
Noreen Johnson Smith	Former VP of Development/Advancement, Family Health Center
Jermoh Kamara	Director of Wellness and Health Equity, YWCA
Steve Kerrigan	President and CEO, Edward M. Kennedy Health Center
Eric Kneeland	Director of Programs & Operations, Worcester Regional Research Bureau
Cheryl Lapriore	Chief of Staff, UMass Memorial Health
Kristen Las	Assistant Town Manager, Shrewsbury
Barry Maloney	President, Worcester State University
Paul Mathews	Executive Director and CEO, Worcester Regional Research Bureau
Kevin Mizikar	Town Manager, Shrewsbury
Gina Plato-Nina	Community Legal Aid Attorney, Central West Justice Center
Dr. Luis Pedraja	President, Quinsigamond Community College
Karen Pelletier	Executive Vice President, Worcester Regional Chamber of Commerce
Brian Pigeon	Senior Transportation Planner, City of Worcester
Dr. Jose Ramirez	Vice President of Operations, Edward M. Kennedy Community Health Center
Robert Ramirez	Spanish Interpreter, UMass Memorial Health
Anh Vu Sawyer	Executive Director, The Southeast Asian Coalition
Dr. Rob Schreiber	VP/Medical Director, Summit Eldercare
Dr. Michael Sheehy	Chief of Population Health and Analytics, Reliant Medical Group
Emily Swalec	Program Director, Worcester Family Resource Center
Jayna Turchek	Director of Accessibility, City of Worcester
Dr. Linda Weinreb	Vice President and Medical Director, Director of Medicaid Programs/ACOs at Fallon Health
Dr. Jan Yost	President and CEO, Health Foundation of Central Massachusetts

Focus Groups

Staff from JSI conducted a series of nine (9) virtual focus groups. These sessions allowed for the collection of critical input from service providers and community residents, with an emphasis on understanding the health needs and experiences of vulnerable populations. Focus groups were organized in collaboration with stakeholder interviewees to leverage their community connections and to help ensure participation:

Focus Group Cohort	Date
Worcester Together: Undocumented Working Group	June 9, 2021
Coalition for a Healthy Greater Worcester	June 15, 2021
Worcester Together: Food Insecurity & Food Access	June 22, 2021
Worcester Together -at large meeting	July 8, 2021
Mayor's Mental Health Task Force & Worcester Together: Mental Health Committee	July 14, 2021
Worcester Together: Logistics Committee	July 14, 2021
UMass Memorial Medical Center: Interpreter Services	July 15, 2021
Worcester Together: Older Adults	July 16, 2021
City of Worcester Accessibility Advisory Commission	July 20, 2021

Community Health Survey

In June, the Worcester Division of Public Health administered a web-based community health, open to all individuals who live, work and play in Greater Worcester. The survey was implemented as a way to gather information from populations that may have not been connected to other assessment activities. The CHA Sponsors worked with staff at the Worcester Division of Public Health to craft a survey that was accessible and easy to understand (Attachment A). It was available in three languages (English, Spanish, Vietnamese) and distributed widely, from June 5, 2021 – August 11, 2021. Methods of distribution included:

- Boards of Health in the CHA Service Area
- Monthly newsletters to towns
- Employee newsletters by all partner organizations
- Postings on partner Facebook pages and social media platforms
- E-newsletter distribution by the Coalition for a Healthy Greater Worcester to approximately 850 community members and organizations (sent three times and posted on social media)
- Distribution to the Worcester Together Coalition including over 150 members
- Other email distribution lists and at community outreach events, such as the COVID-19 Feet on the Street, COVID testing, and vaccination sites

Overall, 909 individuals took the survey. Highlights include:

- When asked to choose the conditions that make for a healthy community, the top five responses were:
    - Access to good health care (93% of respondents)
    - Safety (86% of respondents)
    - Education – good schools, equity in schools (85% of respondents)
    - Access to healthy food (82% of respondents)
    - Public parks and green spaces (82% of respondents)

- 82% of respondents rated their community as healthy (38%) or somewhat healthy (44%)
- 60% responded that they are satisfied with quality of life in their community
- 54% responded that they were satisfied with the health care system in the community
- 82% responded that they feel safe in their community, and 96% responded that they feel safe at home
- 59% responded that they agreed that the community is a good place to raise children
- 49% responded that they agreed that the community is a good place to grow old

CHIP Community Conversations

Data from the Coalition for a Healthy Greater Worcester and the CHIP's "Community Conversations" were used to inform this CHA report. As part of the CHIP's planning effort, community residents were engaged in a series of Community Conversations in November-December of 2020. In total, 97 people were interviewed through 35 1-on-1 and small group discussions. Participants were recruited by advertising on social media, through email, and snowball sampling. Engaging with individuals who had never been a part of the CHIP process, and/or were not employed by CHIP partnership institutions, was paramount to the CHIP's goals around advancing health equity. Individuals who had been part of the CHIP process or who were employed by partnership institutions were not excluded, but the effort aimed to focus on people who had lived experience, and who were disproportionately affected by health system issues outlined in the 2018 CHA.

Quantitative Data & Data Limitations

For this report, data was gathered from a broad range of sources to characterize the community, better understand health status in the region, and to inform a comprehensive understanding of the many factors associated with poor health status. Whenever possible, data was collected at the municipal or zip code level. The primary sources of data include US Census Bureau American Community Survey 5-Year Estimates (2015-2019), the CDC's 500 Places Project, data gathered by the Worcester Regional Research Bureau for the 2020 Worcester Almanac, and others. Note that the US Census Bureau will release a new data set in December of 2021. Efforts will be made to update data in this report upon that release.

The Massachusetts Department of Public Health (MDPH) created the Population Health Information Tool (PHIT), which is meant to present data stratified by demographic and socioeconomic variables (e.g., gender identity, age, race, ethnicity, disability status, poverty level) for counties, states, and municipalities. At the time this report was produced, data available via the PHIT was extremely limited. The most significant issue this limitation caused was the availability of timely data related to morbidity, mortality, health behaviors, and service utilization. Additionally, not all quantitative data was available in ways that stratified by demographic characteristics, which limited the ability to identify health disparities in an objective way. Qualitative activities allowed for exploration of these issues, but the lack of objective quantitative data constrained the effort.

Community Assets

Federal, Commonwealth, and PHAB requirements indicate that a Resource Inventory should be created to inform the extent to which there are gaps in health-related services. To this end, a list of community assets has been developed and can be found in Attachment B.

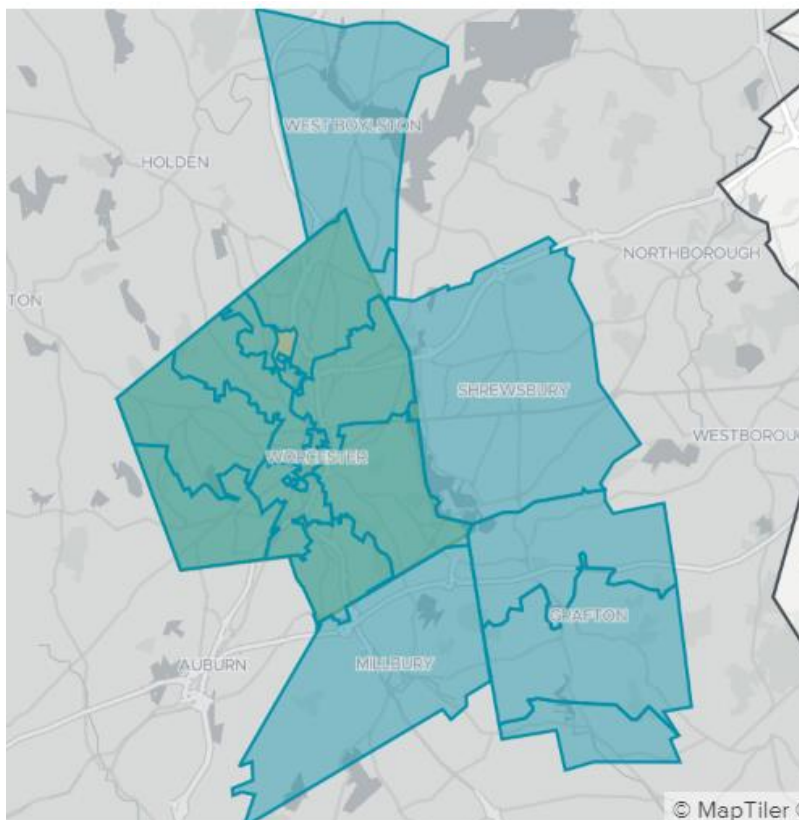
Feedback from Last Community Health Needs Assessment

There was no written feedback on the previous CHA or Implementation Plan since its posting in 2018. There was also no feedback on the Massachusetts Attorney General's website, which publishes the hospital's community benefits reports and provides an opportunity for public comment. The CHA Sponsors encourage feedback and comments on this report; any feedback is taken into account when planning future CHA processes.

CHA Service Area

The CHA service area includes the municipalities of the Central Massachusetts Regional Public Health Alliance: Grafton, Millbury, Shrewsbury, West Boylston, and Worcester. As a population-based assessment, the CHA considers the needs of the entire population - regardless of demographics, socioeconomics, health status, and if/where people receive health care services. Special attention is given to addressing the needs of populations that face disparities in health-related outcomes, have been disenfranchised, and those who are more likely to experience barriers to care.

FIGURE 4: CHA SERVICE AREA



REGIONAL AND COMMUNITY CHARACTERISTICS

Total Population

The CHA service area sits squarely in Central Massachusetts. Worcester, the second-largest city in New England, has approximately 185,000 residents (as of the 2015-2019 American Community Survey, 5-Year Estimates). Grafton has the smallest population among all CHA municipalities. In August of 2021, the US Census Bureau released new total population estimates that indicate Worcester's population increased 14% between 2010 and 2020, from 181,045 to 206,518.

TABLE 1: TOTAL POPULATION, LAND AREA, POPULATION DENSITY

	Total Population	Total Land Area (Square Miles)	Population Density (Per Square Mile)
Grafton	18,743	23.28	778.7 (
Millbury	13,732	15.71	844.2
Shrewsbury	37,086	20.75	1,717.09
West Boylston	7,693	12.95	592.40
Worcester	185,143	37.36	4,955.70
01545	37,086	20.75	1,787.63
01583	7,693	12.62	609.64
01602	22,900	5.77	3,971.76
01603	19,731	4.51	4,370.58
01604	38,191	6.44	5,932.86
01605	28,533	5.64	5,056.98
01606	19,896	5.93	3,356.16
01607	8,167	3.16	2,582.61
01608	4,471	0.45	9,991.06
01609	21,628	3.82	5,661.93
01610	22,023	2.13	10,359.38
Worcester County	824,772	1,510.65	545.97
Massachusetts	6,850,553	7,800.98	878.17

Source: Data from US Census Bureau 5-year estimates, 2015-2019.

Age

Age is a fundamental factor to consider when assessing individual and community health status. Older individuals typically have more physical and mental health vulnerabilities and are more likely to rely on immediate community resources for support compared to young people.

TABLE 2: AGE

	Median Age	Age 0-4	Age 5-17	Age 18-24	Age 25-34	Age 35-44	Age 45-54	Age 55-64	Age 65+
Grafton	41.2	6.10%	18.10%	6.1%	12.2%	13.1%	17.9%	13.3%	13.10%
Millbury	44.9	4.95%	15.13%	7.81%	10.17%	12.09%	17.75%	14.38%	17.73%
Shrewsbury	41.5	4.89%	18.51%	7.38%	10.82%	12.92%	14.78%	13.90%	16.80%
West Boylston	42.6	3.6%	10.2%	7.30%	16.70%	14.40%	15.20%	13.40%	19.01%
Worcester	34.7	5.05%	18.83%	15.54%	16.12%	11.74%	12.50%	11.67%	13.60%
01545	41.9	4.89%	23.40%	7.38%	10.82%	12.92%	14.78%	13.90%	16.80%
01583	42.2	3.77%	14.34%	7.20%	16.83%	14.70%	15.03%	13.51%	18.39%
01602	41.5	3.66%	16.14%	13.45%	12.73%	11.13%	14.21%	14.62%	17.72%
01603	36.1	6.30%	19.47%	12.99%	16.10%	12.29%	13.79%	11.78%	13.58%
01604	34.7	6.55%	21.93%	9.41%	19.19%	13.07%	12.67%	11.84%	11.89%
01605	32.6	6.19%	22.77%	13.15%	17.93%	11.74%	10.70%	10.18%	13.54%
01606	41.3	4.62%	20.22%	8.54%	14.61%	12.63%	13.44%	14.79%	15.77%
01607	39.2	4.70%	20.15%	7.85%	17.44%	12.54%	16.96%	12.04%	13.03%
01608	28.2	4.34%	26.33%	14.65%	20.53%	14.20%	10.60%	5.70%	7.98%
01609	33.2	2.45%	11.80%	27.56%	12.47%	9.70%	10.30%	11.19%	16.98%
01610	27.8	4.42%	13.96%	31.13%	15.52%	10.04%	11.77%	8.75%	8.82%
Worcester County	40.1	5.40%	21.30%	9.77%	12.81%	12.15%	14.60%	14.09%	15.28%
MA	39.5	5.27%	20.02%	10.18%	14.21%	12.21%	13.69%	13.53%	16.16%
United States	38.1	6.09%	22.61%	9.44%	13.87%	12.62%	12.96%	12.86%	15.64%

Source: Data from US Census Bureau 5-year estimates, 2015-2019.

Race & Ethnicity

An extensive body of research illustrates the health disparities and differences in health care access and utilization by race and ethnicity. As stated by the Center for American Progress, "these disparities are not a result of individual or group behavior but decades of systematic inequality in American economic, housing, and health care systems." These disparities illustrate the disproportionate and often avoidable inequities that exist within communities, and reinforce the importance of understanding demographics to identify populations more likely to experience adverse health outcomes.

> *"One of the dynamics related to the social determinants of health is the lack of representation of people who are actually utilizing the system in groups that are planning to augment the system. We need more efforts to bring people who are directly affected into the center of the conversation, and prioritize their needs and experiences." **–CHA Focus Group participant***

Participants in CHA focus groups and CHIP Community Conversations described experiences where people of color felt they received differential treatment compared to white peers (e.g., being advised to "wait out" symptoms while others were treated, receiving less information about follow-up procedures). Participants also identified a need for more diversity and representation among health care and social service providers.

> *"I am very open and will tell everything to my doctor...there isn't anything that I have difficulty discussing. They just aren't listening. I do feel like they are not going to believe me because I go too much. Are they tired of me? Are they trying to help me? Not many physicians take the time to understand a patient's culture and perspective in the course of providing care."* ***- CHIP Community Conversation participant***

> *"When a person doesn't look like you, they aren't able to connect with you. There is a disconnect, even when a person is righteous." -* ***CHA Focus Group participant***

TABLE 3: RACE AND ETHNICITY

	Non-Hispanic White	Hispanic or Latino of any race	Black or African American	Asian	Multiple Race
Grafton	83.7%	6.3%	3.1%	8.1%	3.6%
Millbury	91.91%	1.23%	1.42%	2.52%	2.49%
Shrewsbury	72.9%	4.80%	3.0%	19.10%	3.50%
West Boylston	88.77%	12.36%	5.99%	1.91%	1.99%
Worcester	55.17%	21.88%	13.29%	7.40%	3.96%
01545	70.17%	4.62%	2.70%	19.27%	3.48%
01583	79.45%	12.36%	5.99%	1.91%	1.99%
01602	75.53%	8.87%	7.38%	5.59%	3.13%
01603	51.64%	22.50%	11.75%	12.96%	3.26%
01604	51.20%	22.74%	14.24%	9.15%	3.78%
01605	43.03%	30.32%	19.10%	5.38%	5.19%
01606	69.22%	10.09%	11.97%	5.93%	4.77%
01607	56.84%	16.49%	21.54%	3.58%	2.09%
01608	23.62%	43.55%	22.19%	6.91%	3.09%
01609	65.79%	17.85%	8.60%	5.27%	2.87%
01610	42.96%	34.36%	12.54%	8.67%	5.33%
Worcester County	76.38%	11.49%	5.02%	4.91%	2.87%
Massachusetts	71.58%	11.81%	7.63%	6.60%	3.26%
United States	60.70%	18.01%	12.70%	5.52%	3.32%

Source: Data from US Census Bureau 5-year estimates, 2015-2019

TABLE 4: ASIAN BY SPECIFIC ORIGIN, 2015-2019 (%)

	Asian Indian	Chinese	Filipino	Japanese	Korean	Vietnamese	Other Asian
Grafton	4.3	1.4	0.3	0.5	0.3	0.6	0.7
Millbury	1.8	0.0	0.2	0.1	0.0	0.4	0.0
Shrewsbury	12.0	3.5	0.0	0.4	0.8	0.9	1.5
West Boylston	0.4	0.7	0.1	0.0	0.1	0.4	0.1
Worcester	0.9	1.4	0.3	0.1	0.1	3.7	1.0
Massachusetts	1.6	2.4	0.2	0.1	0.4	0.7	1.1

Source: Data from US Census Bureau 5-year estimates, 2015-2019

TABLE 5: HISPANIC/LATINO BY SPECIFIC ORIGIN, 2015-2019 (%)

	Mexican	Puerto Rican	Cuban	Dominican	Central American	Southern American	Other Hispanic/Latino
Grafton	9.9	52.3	9.7	3.3	3.6	17.7	3.6
Millbury	1.2	52.7	13.6	0.0	0.0	3.0	8.3
Shrewsbury	4.8	35.4	4.4	0.4	6.7	25.9	6.8
West Boylston	12.3	59.8	3.2	5.6	3.5	4.7	11.0
Worcester	21.9	63.7	0.9	12.7	7.9	7.8	2.9
Massachusetts	11.8	40.5	1.8	18.9	16.9	10.4	5.3

Source: Data from US Census Bureau 5-year estimates, 2015-2019

Immigrants, Refugees, & Non-English Speakers

Several key informants identified immigrants, refugees, and undocumented individuals as segments of the population that face extreme barriers to accessing health and social services. One of the most prominent prohibitive factors that affects when individuals seek out or maintain care is fears around immigration status, which leads to distrust and hesitancy.

> *"In the last 3 years, hospitals have increased the amount of questions they ask regarding identity. If you have an ID without a picture, they won't take it. Patients do tend to be very afraid. That fear keeps people from accessing services - the fear to be separated from their families, and fear to be sent back to their countries."- **CHA Focus Group participant***

Beyond the fears around immigrant status, language is a significant barrier to receiving and comprehending health information. A focus group with medical interpreters highlighted the importance of having a trusted professional available to help navigate interactions with providers. Many individuals also reported the need for interpreters and community health workers to help non-English speakers navigate health insurance, complete care transitions, manage medications, and fill out forms.

*"We help families understand how to access everything that is available to them. Often language is a major barrier for people who need help. We need to set people up to help navigate society via someone they trust." - **CHA Focus Group participant***

*"In Worcester, the largest complicating factor is language. We provide care in 55 languages. Our patients speak more than that, but that's what we deliver services in. There were people who did not know that there was a pandemic. We were still informing people last summer, that there was a pandemic going on. People didn't understand mask-wearing and didn't understand what was happening." **- CHA Stakeholder interviewee***

Finally, many participants identified a specific need for mental health providers that understand or have experience in treating immigrants and/or refugees who have experienced severe trauma.

*"We see people coming to the country that have PTSD [post-traumatic stress disorder] or depression. They're not in the best mental state. A lot of that has to do with being isolated, removed from their culture so suddenly, not knowing how to make friends, or feeling at-odds with the culture around them in many ways. Culturally and spiritually."- **CHA Focus Group participant***

The table below reports the percentage of the population aged 5 and older who speak a language other than English at home and speak English less than "very well." This indicator is relevant because an inability to speak English well creates barriers to health care access, provider communications, job opportunities and health literacy/education. It also includes the percentage of the population aged 5 years and older living in Limited English speaking households – one that is "linguistically isolated" – where **no** household member 14 years old and over speaks only English at home, or no household member speaks a language other than English at home and speaks English "very well".

TABLE 6: POPULATION WITH LIMITED ENGLISH PROFICIENCY

	Population Age 5+ with Limited English Proficiency
Grafton	4.20%
Millbury	4.19%
Shrewsbury	9.95%
West Boylston	5.55%
Worcester, MA	16.86%
01545	9.95%
01583	5.55%
01602	11.45%
01603	16.13%
01604	20.14%
01605	24.79%
01606	8.19%
01607	14.52%
01608	31.38%
01609	10.46%
01610	19.63%
Worcester County	7.63%
Massachusetts	9.23%
United States	8.40%

Source: US Census Bureau, 5-Year Estimates (2015-2019)

Table 7 reports the percentage of the population that is foreign-born. The foreign-born population includes anyone who was not a U.S. citizen or a U.S. national at birth. This includes any non-citizens, as well as persons born outside of the U.S. who have become naturalized citizens. The native U.S. population includes any person born in the United States, Puerto Rico, a U.S. Island Area (such as Guam), or abroad of American (U.S. citizen) parent or parents. The latest figures show that 38,606 persons in Worcester are of foreign birth, which represents 20.85% of the report area population. This percentage is greater than the national average of 13.55%. The City of Worcester is very ethnically-diverse and that diversity continues to grow, primarily due to the city being a Federal Refugee Resettlement Site.

TABLE 7: FOREIGN-BORN POPULATION, 2015-2019

	Naturalized U.S. Citizens	Population Without U.S. Citizenship	Foreign-Birth Population
Grafton	1,499	732	11.90%
Millbury	607	516	8.18%
Shrewsbury	4,388	4,433	23.79%
West Boylston	267	234	6.51%
Worcester	20,171	18,435	20.85%
01545	4,388	4,433	23.79%
01583	267	234	6.51%
01602	3,029	1,323	19.00%
01603	2,648	2,003	23.57%
01604	4,394	4,974	24.53%
01605	2,914	2,950	20.55%
01606	1,886	1,029	14.65%
01607	1,157	377	18.78%
01608	410	730	25.50%
01609	1,523	2,318	17.76%
01610	2,221	2,750	22.57%
Worcester County	54,518	45,553	12.13%
Massachusetts	613,050	535,859	16.77%
United States	21,847,890	22,163,980	13.55%

Source: US Census Bureau, 5-Year Estimates (2015-2019)

Table 8: Number of residents from the top 10 countries of origin in Worcester, 2011 and 2018

	2011		2018
Vietnam	3,506	Vietnam	4,215
Brazil	3,461	Ghana	3,398
Ghana	3,358	Dominican Republic	2,890
Dominican Republic	2,705	Albania	2,498
Albania	2,115	Brazil	2,079
El Salvador	1,724	China, excluding Hong Kong and Taiwan	1,733
China, excluding Taiwan and Hong Kong	1,341	Iraq	1,388
Poland	1,137	India	1,287
Kenya	905	Kenya	1,264
India	694	El Salvador	1,200
Total	**20,946**	**Total**	**21,952**

Source: U.S. Census Bureau, 2018 5-Year American Community Survey.

Early Childhood, Youth, & Adolescent Health

Concerns around the health and wellness of young people, including young children, teens, and young adults, were at the forefront of discussions over the course of the Community Health Assessment. Most of the discussion centered on mental health concerns, especially in the wake of COVID-19, where young people may witness and bear the effects of stress in their homes and communities. Many stakeholders and focus group participants identified childcare issues as a critical stress point for many families, particularly over the past year. Families, caregivers, and students have had routines interrupted, resulting in uncertainty, economic concerns, and anxiety.

Socially distanced learning at Rainbow Child Development Center

*"We need clinicians specializing in areas like early childhood, infant and toddler mental health, and trauma related issues - as well as concerns for young parents and mental health impacts on their children." **- CHA Stakeholder interviewee***

There was also significant discussion around the effects of racism and discrimination on young people - trauma, anger, fear, and anxiety/depression.

*"Racism experienced by a child is an adverse childhood experience. When we do not have people of color and other people who represent out community in childcare and youth spaces, we are doing a disservice to children experiencing racism. Our youth need to be able to share their stories. Sometimes, we think we know better than youth. We say we are going to amplify their voices, but unfortunately, kids sometimes feel they aren't heard. We need more youth development organizations and to make sure that kids are on city-wide committees." **– CHA Focus Group participant***

Interviewees and focus group participants were particularly concerned about specific segments of the population, including youth from families with limited economic means, new immigrants and refugees, and non-English speakers. Several individuals identified a need to continue to provide more opportunities to provide health services in schools and non-traditional settings, to ensure that youth have access to care outside of a doctor's office.

*"Worcester needs to help on every front they can when it comes to youth. Worcester is changing as a community. We're building new schools and have dedicated leadership. I don't think we have the types of problems that other urban districts have. We don't want to lose what we've got. When we have kids coming that are new Americans, or their parents are struggling with language barriers - I think there's an opportunity there on the health side, to help. Maybe putting more clinics in the school?" **– CHA Stakeholder interviewee***

Older Adult Health & Healthy Aging

In the U.S. and the Commonwealth, older adults are among the fastest-growing age groups. Chronic and complex conditions are the leading cause of death among older adults, and older adults are more likely to develop chronic illnesses and conditions such as hypertension, diabetes, COPD, congestive heart failure, depression, anxiety, Alzheimer's disease, Parkinson's disease, and dementia than are younger adult cohorts. By 2030, the CDC and the Healthy People 2020 Initiative estimates that 37 million people nationwide, or 60% of those over 65, will have multiple chronic conditions. Some of the greatest barriers to care for this population center around health care accessibility and navigation - understanding their health insurance coverage, transportation to and from medical appointments, navigating care transitions and discharge planning, and medication management. Another major need is more

accessible and affordable home health and home support programs, including care for older adults with behavioral health neurological conditions. A significant percentage of these individuals experience hospitalizations, are admitted to nursing homes and require health services and social supports in home and community settings. The ability to live independently and to "age in-place" – or to find affordable and accessible housing options – is a leading concern among older adults and their caregivers.

"There is plenty of health care - but how do they navigate it?"
- CHA Focus Group participant

The many challenges faced by older adults was discussed in nearly every interview and focus group, especially in the context of COVID-19. Many participants identified homebound older adults, specificallythose without in-home caregivers, as one of the region's most vulnerable populations. Concerns around social isolation, mobility issues, and lack of transportation have, historically, been a concern for older adults; all of these concerns were exacerbated during the pandemic. Many sectors, including health care, were quick to transition in-person programs and services to virtual, though this presented new challenges for older adults, who may be less tech savvy or lack the necessary resources (e.g., smartphones, tablets, computers, broadband internet). This issues was exacerbated for older adults who are non-English speakers.

TABLE 9: OLDER ADULTS IN THE SERVICE AREA

	Number of older adults 65+	Older adults 65+, Percent
Grafton	2,462	13.10%
Millbury	2,435	17.70%
Shrewsbury	6,232	16.7%
West Boylston	1,522	19.1%
Worcester	25,187	13.60%
01545	6,232	16.80%
01583	1,415	18.39%
01602	4,059	17.72%
01603	2,679	13.58%
01604	4,542	11.89%
01605	3,863	13.54%
01606	3,137	15.77%
01607	1,064	13.03%
01608	357	7.98%
01609	3,673	16.98%
01610	1,943	8.82%
Worcester County	126,028	15.28%
Massachusetts	1,107,089	16.16%
United States	50,783,796	15.64%

Source: US Census Bureau, 5-Year Estimates (2015-2019)

TABLE 10: OLDER ADULTS 65+ LIVING ALONE

	Percentage of Total Households
Grafton	10.30%
Millbury	12.68%
Shrewsbury	10.0%
West Boylston	16.5%
Worcester	12.81%
01545	9.99%
01583	15.22%
01602	12.95%
01603	12.41%
01604	10.75%
01605	15.43%
01606	12.45%
01607	12.32%
01608	5.01%
01609	17.43%
01610	11.83%
Worcester County	11.34%
Massachusetts	11.95%
United States	10.98%

Source: US Census Bureau, 5-Year Estimates (2015-2019)

"Technology was a way to connect, but also a barrier for many older adults. Not everyone can use it. Not everyone has the tech savvy and Wi-Fi."
- CHA Focus Group participant

The City of Worcester is working towards Age-Friendly designation - characterized as a livable community for people of all ages. There are a number of organizations and collaboratives working to understand and meet the needs of older adults in the region, including needs related to the social determinants of health (e.g., housing, food insecurity, economic security, and transportation).

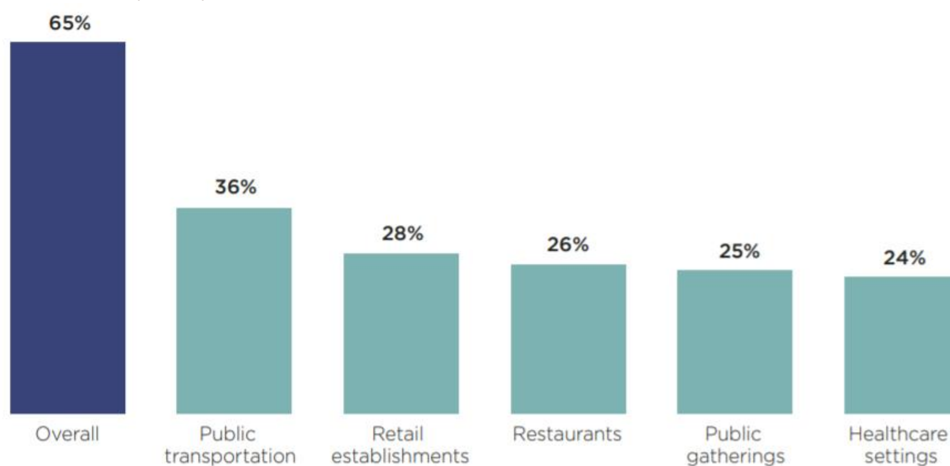
LGBTQ+ Health

The Boston Indicators project reports that Massachusetts has the second largest LGBTQ+ population of any state in the nation (5%); and that 16% of 18 to 24-year-olds identify as lesbian, gay, bisexual or something else. While societal acceptance of the LGBTQ+ community has increased greatly over the past several decades, this population continues to face issues of disproportionate violence and discrimination, socioeconomic inequality, and health disparities.

Though there is a tendency to view LGBTQ+ as a monolithic identity, some segments of the population experience greater disparities than others. In Massachusetts, nearly two-thirds (65%) of transgender people report experiencing discrimination in public spaces in the past year, and approximately 17%

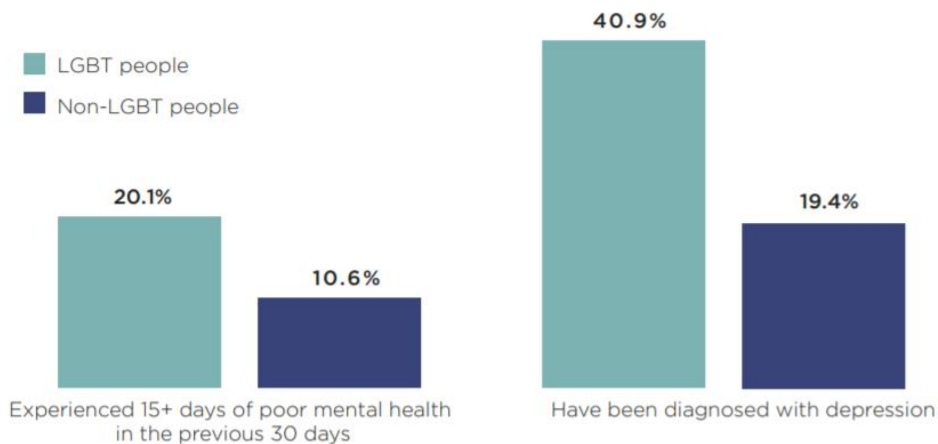
percent of transgender people were living in poverty in 2015, compared to 11.5% of the general population. Many LGBT youth struggle with mental health conditions: in Massachusetts in 2015, 61% of LGBTQ+ youth reported feeling so sad or hopeless that they weren't able to maintain their usual activities, compared to 24% of heterosexual youth. LGBT youth of color also experience these disparities, compounded with other race-based forms of discrimination.

FIGURE 5: SHARE OF TRANSGENDER POPULATION IN MASSACHUSETTS EXPERIENCING DISCRIMINATION IN THE PAST YEAR, BY PUBLIC PLACE (2014)



From the Boston Indicators Project

FIGURE 6: SHARE OF ADULT POPULATION EXPERIENCING DEPRESSIVE SYMPTOMS IN MASSACHUSETTS, 2011-2016



Participants in a CHIP Community Conversation focused on LGBTQ issues reported many health-related barriers, including providers that lack the education, cultural humility, or who are not well versed in LGBTQ health issues.

*"Trans people, and especially youth, are not welcomed into health care settings in a way that is respectful of their dignity. [There is a] lack of knowledge, no database, and technical services are not really available." **- CHIP Community Conversation participant***

*"[It's important] to find a provider and know how insurance works, and how to advocate on things that make you uncomfortable. You don't get good healthcare if you don't talk about what is important to you. Our existence is uncomfortable and difficult to talk about, especially if our concerns are dismissed." **- CHIP Community Conversation participant***

Individuals reported additional needs, including shelters and emergency housing that is safe for LGBTQ individuals, support groups, mental health providers, and supportive services for youth.

People with Disabilities

Research has shown that individuals with physical, mental, and intellectual disabilities experience significant disadvantages related to the social determinants of health and associated disparities, including lower levels of educational attainment and income, lower screening rates, high rates of obesity, and difficulty accessing health services. In healthcare, there has been increasing recognition of health disparities by demographic characteristics (e.g., by race, ethnicity, income, gender identity), but less so for those with disabilities.

TABLE 11: POPULATION WITH ANY DISABILITY

	Population with a Disability	Population with a Disability, Percent
Grafton	1,609	8.60%
Millbury	1,777	13.12%
Shrewsbury	3,486	9.42%
West Boylston	574	10.19%
Worcester	27,273	14.90%
01545	3,486	9.42%
01583	574	10.19%
01602	2,475	10.85%
01603	2,980	15.15%
01604	5,314	14.00%
01605	4,872	17.46%
01606	2,567	13.29%
01607	1,613	19.79%
01608	902	20.20%
01609	3,215	15.17%
01610	3,383	15.54%
Worcester County	98,164	12.07%
Massachusetts	784,593	11.58%
United States	40,335,099	12.62%

Source: US Census Bureau, 5-Year Estimates (2015-2019)

TABLE 12: DISABILITY CHARACTERISTICS (%)

	Hearing difficulty	Vision difficulty	Cognitive difficulty	Ambulatory difficulty	Self-care difficulty	Independent living difficulty
Grafton	3.1	1.5	3.5	4.4	2.2	4.2
Millbury	3.6	2.0	5.4	6.9	3.4	5.8
Shrewsbury	2.1	1.3	4.6	4.8	2.3	4.3
West Boylston	4.1	2.5	2.1	5.4	2.0	3.2
Worcester	3.3	2.2	7.6	7.4	3.4	7.7
Massachusetts	3.2	1.8	5.0	5.8	2.4	5.3

Source: US Census Bureau, 5-Year Estimates (2015-2019)

In a focus group with Worcester's Accessibility Advisory Commission, participants identified several persistent issues that prevent disabled individuals from accessing quality care. Many of these issues have persisted for years, with limited recognition or progress.

A major barrier is that many providers lack the education or comfortability to treat disabled individuals. Focus group participants suggested that medical students participate in hands-on learning and training activities. Care may also be improved by recruiting disabled physicians and providers who understand common health needs.

"The interaction between medical personnel and disabled people need to be improved at all levels. From psychiatric services to elder care. There needs to be a significant improvement." ***- CHA Focus Group participant***

Participants also reported issues with the physical spaces and accessibility. There is a great need for providers to evaluate accessibility, and to outfit their facilities with the appropriate equipment, including adjustable exam tables, lifts, ramps, elevators, and scales that can accommodate wheelchairs.

"Medical offices/hospitals not equipped with proper accommodations to provide basic care and testing for people with disabilities." ***-CHA Focus Group participant***

"There has been very little done in this area [accommodations]. An exam table is still fixed. It may or may not have rails on the side. For someone in a wheelchair, you can't have a trapeze to get from the wheelchair onto the exam table."
- CHA Focus Group participant

There was significant discussion of barriers for individuals with psychiatric disabilities, especially in acute care settings that may be chaotic and require long wait times. Emergency rooms, for example, are not conducive to high-quality care or a healing experience for many individuals.

Beyond issues pertaining to health care, focus group participants also reported challenges related to the social determinants of health. Many landlords are unwilling to make the proper accommodations to support individuals with physical disabilities. Worcester's transportation system, though improved through the zero-fare initiative, is inefficient, and there are limited options beyond the public system. Participants report that there are no wheelchair-accessible taxis, and no transportation programs for those who are visually impaired, deaf, or mute. Many individuals rely on various forms of public transportation to access healthcare and supportive services.

Veterans

Veterans are a population with distinct cultural values and unique health issues. They experience substance use disorders, mental health disorders (including depression, post-traumatic stress disorder and serious mental illnesses), traumatic brain injuries, chronic pain and serious bodily injuries at disproportionate rates compared to civilians. These factors coalesce to produce a complicated set of issues that make it difficult for some veterans to reintegrate successfully into civilian life, exacerbating existing health issues and creating instability in personal and professional lives.

TABLE 13: VETERANS IN THE CHA SERVICE AREA

	Total Veterans	**Veterans, Percent of Total Population**
Grafton	862	6.10%
Millbury	747	6.84%
Shrewsbury	1,679	5.91%
West Boylston	413	6.28%
Worcester	7,692	5.12%
01545	1,679	5.91%
01583	413	6.28%
01602	1,331	6.94%
01603	1,051	6.62%
01604	1,470	4.93%
01605	1,040	4.72%
01606	815	5.14%
01607	317	4.86%
01608	111	3.38%
01609	1,092	5.72%
01610	515	2.72%
Worcester County	43,487	6.70%
Massachusetts	303,534	5.54%
United States	18,230,322	7.29%

Source: US Census Bureau, 5-Year Estimates (2015-2019)

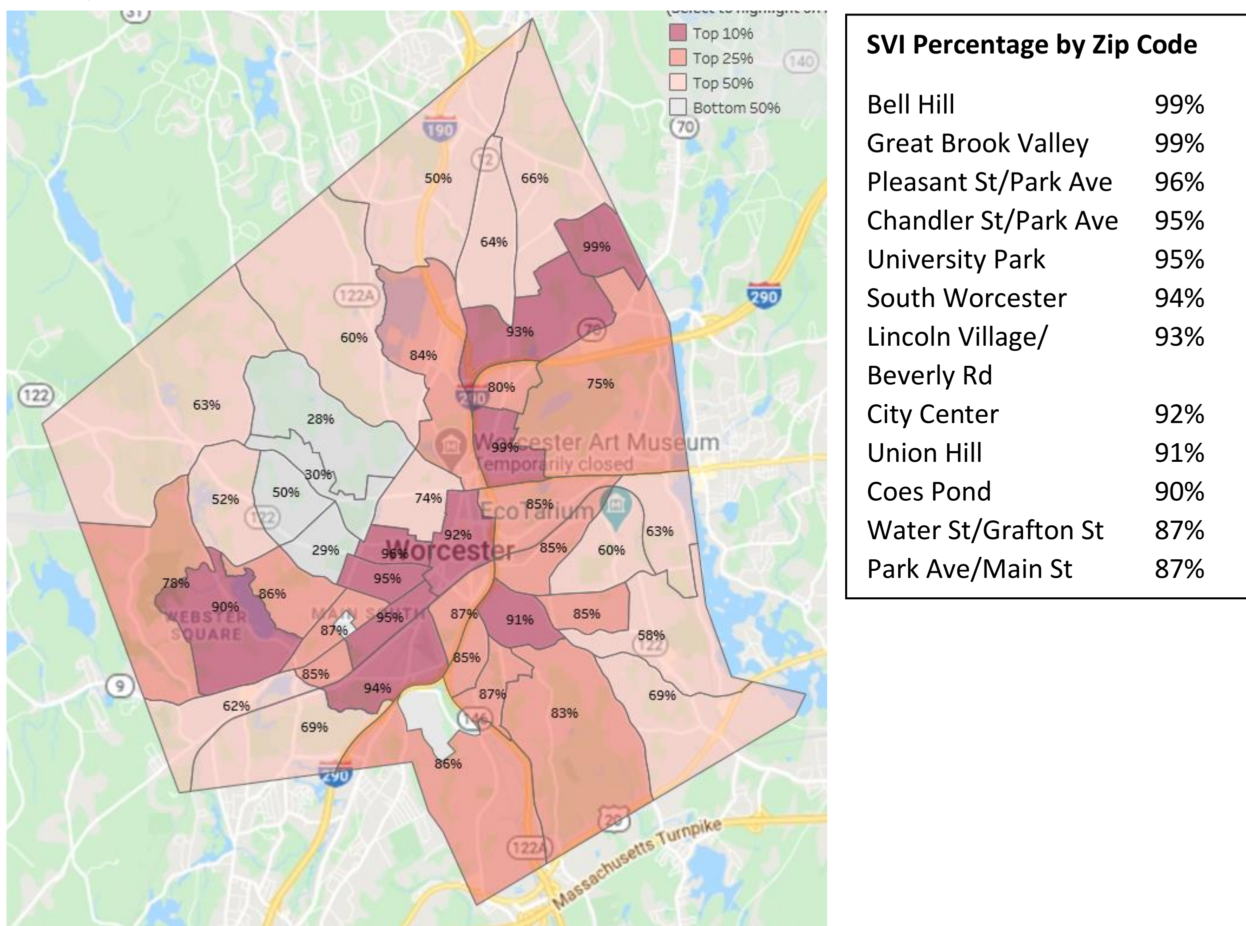
SOCIAL DETERMINANTS OF HEALTH

The social determinants of health are the conditions in which people live, work, learn and play. These conditions influence and define quality of life for many segments of the population in the CHA service area. A dominant theme from key informant interviews and community forums was the tremendous impact that the underlying social determinants, particularly economic insecurity, housing, food insecurity, and transportation have on health status.

Social Vulnerability Index (SVI)

The Social Vulnerability Index (SVI) is a census tract level composite measure, used for determining communities that will likely be in need of support before, during, and after emergency events. SVI calculations are based on measures associated with socioeconomic status, household composition, minority and language status, housing, and transportation. In 2018, 10% of Worcester census tracts were designated as 'most vulnerable' communities in the nation - two of which (Bell Hill and Great Brook Valley) were in the top 1% of most vulnerable communities. A team from UMass Memorial Medical Center's Office of Clinical Health Integration has done extensive work to visualize characteristics of the SVI for each of Worcester's neighborhoods, as seen below and throughout this report.

FIGURE 7: SOCIAL VULNERABILITY INDEX OF WORCESTER, BY ZIP CODE, AND SVI PERCENTAGE COMPARED TO THE NATION, 2018

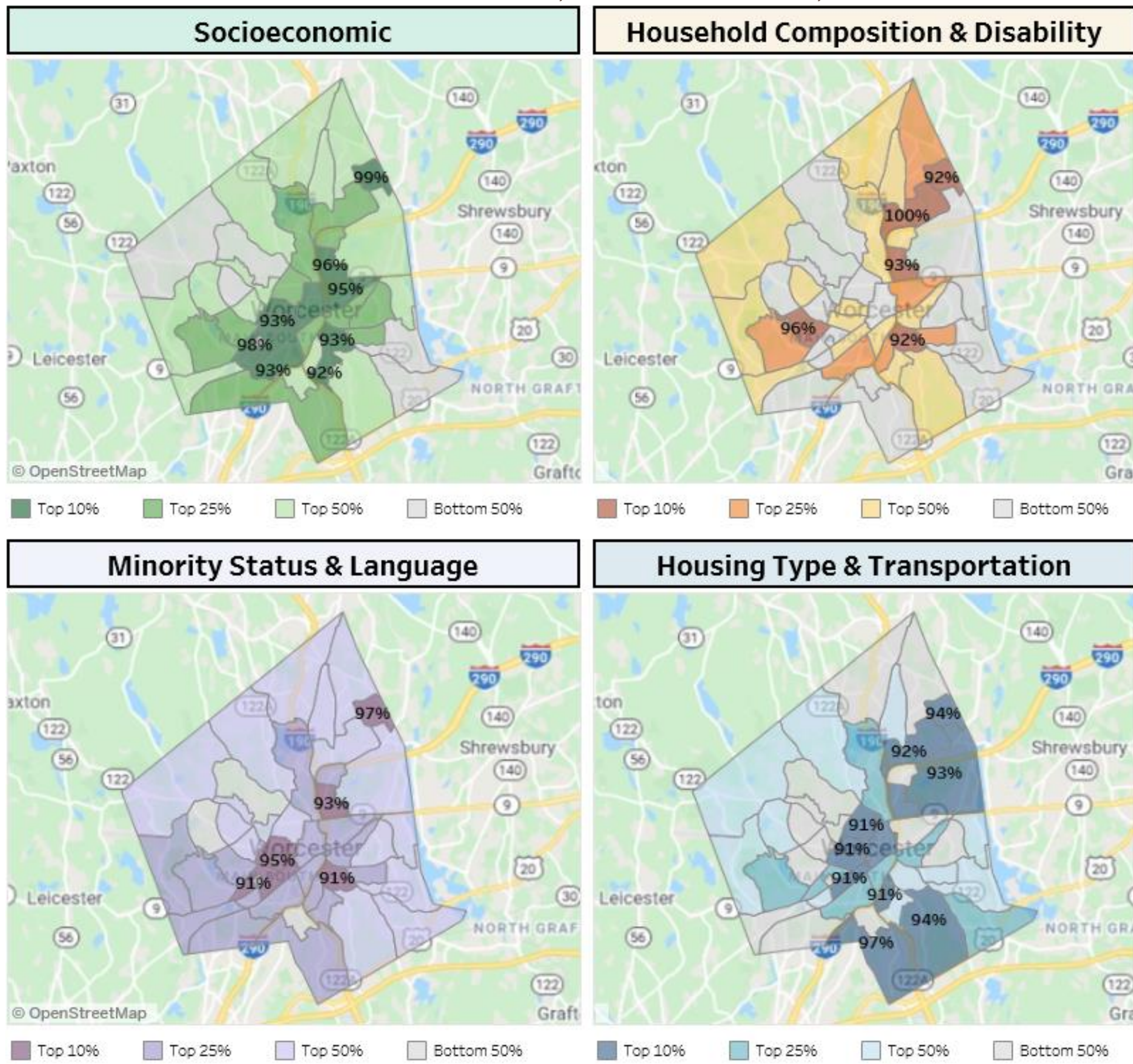


SVI Percentage by Zip Code

Bell Hill	99%
Great Brook Valley	99%
Pleasant St/Park Ave	96%
Chandler St/Park Ave	95%
University Park	95%
South Worcester	94%
Lincoln Village/ Beverly Rd	93%
City Center	92%
Union Hill	91%
Coes Pond	90%
Water St/Grafton St	87%
Park Ave/Main St	87%

Source: UMass Memorial Medical Center, Office of Clinical Integration

FIGURE 8: SOCIAL VULNERABILITY INDEX OF WORCESTER, BY ZIP CODE AND THEME, 2018



Source: UMass Memorial Medical Center, Office of Clinical Integration

Socioeconomics

Socioeconomic status, as measured by educational attainment, income, employment status, occupation, and the extent to which one lives in areas of economic disadvantage, is closely linked to morbidity, mortality, and overall well-being. Lower-than-average life expectancy is highly correlated with low-income status.

Education

Higher levels of educational attainment are associated with improved health outcomes and social development at the individual and community levels. Compared with individuals with more education, people with less education are more likely to experience worse health, more chronic conditions, and more limitations/disabilities. The health benefits associated with higher education typically include better access to resources, safer and more stable housing, and better engagement with providers. It is important to note that, in many communities, access to educational opportunities vary depending on historical context and resource allocation. Factors associated with low education that affect health outcomes include the inability to navigate the healthcare system, educational disparities in personal health behaviors, and exposure to chronic stress. Poverty, low educational attainment and limited job opportunities are among the top social determinants leading to lower utilization of health care services and poor health outcomes. As a result, Worcester youth are at high-risk for obesity, gang involvement, violence, poor oral health and a need for mental health services.

Table 14: Educational attainment among population 25+

	No High School Diploma	Associate's Degree or Higher	Bachelor's Degree or Higher
Grafton	4.80%	60.91%	50.40%
Millbury	7.06%	41.75%	32.47%
Shrewsbury	4.89%	65.92%	58.56%
West Boylston	11.81%	43.95%	33.60%
Worcester	15.29%	38.51%	30.23%
01545	4.89%	65.92%	58.56%
01583	11.81%	43.95%	33.60%
01602	7.04%	53.30%	44.37%
01603	17.10%	29.48%	21.07%
01604	13.43%	39.54%	29.92%
01605	18.45%	31.58%	24.26%
01606	7.41%	44.99%	37.24%
01607	17.43%	31.38%	22.81%
01608	32.28%	29.78%	25.50%
01609	16.00%	47.82%	40.68%
01610	27.25%	24.50%	16.14%
Worcester County	9.25%	45.48%	36.40%
Massachusetts	9.24%	51.29%	43.69%
United States	12.00%	40.63%	32.15%

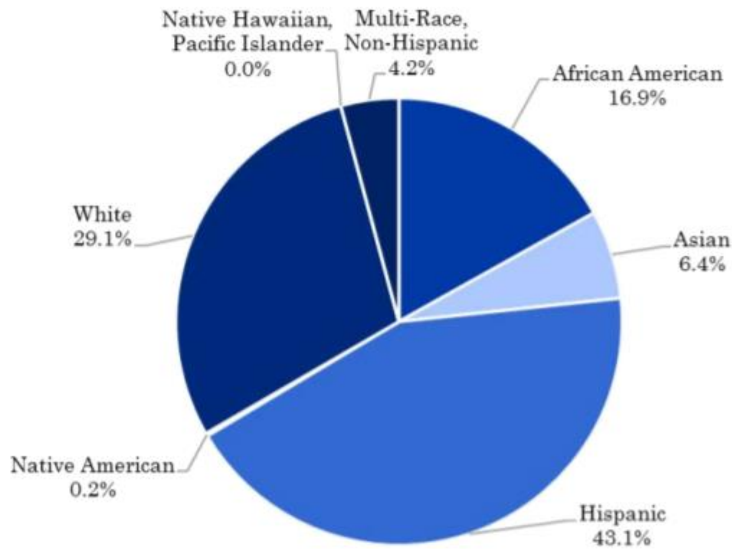
Interviewees and focus group participants identified the diversity in Worcester's public schools as an asset, although there was concern that immigrant and refugee students faced a number of significant barriers related to language and culture. There was also concern about disciplinary statistics among students of color compared to white students.

TABLE 15: EARLY CHILDHOOD EDUCATION

	Population Age 3-4 Enrolled in School
Grafton	62.30%
Millbury	57.37%
Shrewsbury	72.61%
West Boylston	80.56%
Worcester	49.36%
01545	72.61%
01583	80.56%
01602	51.17%
01603	68.17%
01604	44.12%
01605	30.56%
01606	50.17%
01607	66.96%
01608	24.53%
01609	60.58%
01610	58.00%
Worcester County	56.79%
Massachusetts	59.53%
United States	48.32%

Source: US Census Bureau, 5-Year Estimates (2015-2019)

FIGURE 9: WORCESTER PUBLIC SCHOOLS, ENROLLMENT BY RACE/ETHNICITY (2019-2020)



Source: Massachusetts Department of Elementary & Secondary Education.

Source: Worcester Regional Research Bureau's Worcester Almanac, 2020

TABLE 16: DISCIPLINARY STATISTICS IN WORCESTER PUBLIC SCHOOLS BY RACE/ETHNICITY 2018-2019

Student Group	Students	Students Disciplined	Percent In-School Suspension	Percent Out-of-School Suspension	Percent Emergency Removal
Asian	1,762	24	0.5	0.8	0.3
Afr. Amer./Black	4,524	304	2.4	4.4	1.4
Hispanic/Latino	11,790	1,002	3.1	5.3	1.8
Multi-race, Non-Hisp./Lat.	1,136	94	3	5.6	1.7
Nat. Haw. or Pacif. Isl.	6	0	-	-	-
White	7,892	336	1.7	2.4	0.9

Source: Worcester Regional Research Bureau's Worcester Almanac, 2020

TABLE 17: DISCIPLINARY STATISTICS IN WORCESTER PUBLIC SCHOOLS BY STUDENT GROUP, 2018-2019

Student Group	Students	Students Disciplined	Percent In-School Suspension	Percent Out-of-School Suspension	Percent Emergency Removal
All Students	27,160	1,765	2.4	4	1.4
English Learner	9,452	565	2.3	3.6	1.5
Economically disadvantaged	17,821	1,447	3	5.1	1.8
Students w/disabilities	5,465	677	4.5	7.7	3.3
High needs	22,317	1,620	2.7	4.6	1.6

Source: Worcester Regional Research Bureau's Worcester Almanac, 2020

TABLE 18: 4-YEAR GRADUATION RATES, CLASS OF 2019 (WORCESTER PUBLIC SCHOOLS)

	% Graduated**	% Still in School	% Non-Grad Completers	% H.S. Equiv.	% Dropped Out
All Student	83.6	6.4	2	0.5	7.6
Male	81.1	7.5	2.6	0.7	8
Female	86.1	5.3	1.3	0.2	7.1
EL	75.1	8.3	4.3	0.4	11.9
Students with disabilities	72.3	13.9	3	0.5	10.4
Low Income	80	7.7	2.4	0.7	9.2
High Needs	80	8	2.4	0.6	9
African American/Black	86.8	5.4	2.1	0.6	5.1
Asian	92.3	3.8	0	0	3.8
Hispanic or Latino	78.5	7.7	3.6	0.3	10
American Indian or Alaskan Native	100	0	0	0	0
White	85.3	6.5	0.4	1	6.9
Native Hawaiian or Pacific Islander*	-	-	-	-	-
Multi-Race, Non Hispanic or Latino	90.5	2.7	0	0	6.8

**Graduation rates are not publicly reported for cohort counts fewer than 6.*
***Indicates the percentage of students who graduate with a regular high school diploma within 4 years.*
Source: Massachusetts Department of Elementary & Secondary Education.

Source: Worcester Regional Research Bureau's Worcester Almanac, 2020
Note: EL represents students for whom English is a second or other language

Employment, Income, & Poverty

Like education, income influences all aspects of an individual's life, including the ability to secure housing, needed goods (e.g., food, clothing), and services (e.g., transportation, health care, childcare). It also affects one's ability to maintain good physical and mental health. Lack of gainful and reliable employment is linked to several barriers to care, including lack of health insurance, inability to pay for health care services and copays, and inability to pay for transportation to enable individuals to receive services. Certain populations struggle to find and retain employment for a variety of reasons – from mental and physical health issues, to lack of childcare, to transportation issues and other factors.

Many of the issues associated with COVID-19 are exacerbated by issues related to socioeconomic status. Research has shown that test positivity rates and testing delays were higher in low-income municipalities; there is a strong correlation between low socioeconomic status and COVID-19 attributed deaths, and people in low socioeconomic status municipalities were not able to reduce their mobility (e.g., quarantine, work from home, social distance) as much as those in more affluent communities.

Table 19, includes the labor force participation rate. This is a measure of an economy's active workforce – the sum of all workers who are employed or actively seeking employment divided by the total working age population.

TABLE 19: LABOR FORCE PARTICIPATION AND UNEMPLOYMENT RATES

	Labor force participation rate	Unemployment rate
Grafton	72.70%	5.0%
Millbury	70.17%	6.9%
Shrewsbury	67.52%	3.8%
West Boylston	47.55%	3.1%
Worcester	60.26%	3.8%
01545	67.52%	No data
01583	47.55%	No data
01602	63.72%	No data
01603	61.25%	No data
01604	66.73%	No data
01605	60.04%	No data
01606	65.66%	No data
01607	59.52%	No data
01608	59.73%	No data
01609	49.67%	No data
01610	51.47%	No data
Worcester County	66.14%	4.4%
Massachusetts	67.20%	3.9%
United States	62.99%	4.5%

Source: US Census Bureau, 5-Year Estimates (2015-2019)

TABLE 20: MEDIAN HOUSEHOLD INCOME

	Median Household Income	Families with Income Over $75,000	Households with Public Assistance Income
Grafton	$106,250	63.80%	1.40%
Millbury	$85,781	66.80%	1.33%
Shrewsbury	$105,014	77.94%	1.40%
West Boylston	$90,688	68.81%	2.04%
Worcester	$48,139	42.22%	5.52%
01545	$105,014	77.94%	1.40%
01583	$90,688	68.81%	2.04%
01602	$64,942	58.22%	2.10%
01603	$42,904	37.08%	7.19%
01604	$55,665	43.26%	4.00%
01605	$40,390	30.66%	6.28%
01606	$65,708	55.04%	2.71%

	Median Household Income	Families with Income Over $75,000	Households with Public Assistance Income
01607	$39,928	39.18%	9.16%
01608	$31,384	7.87%	7.20%
01609	$45,992	54.08%	6.50%
01610	$33,695	19.75%	9.72%
Worcester County	$74,679	61.84%	2.93%
Massachusetts	$81,215	64.23%	2.67%
United States	$62,843	51.51%	2.36%

Source: US Census Bureau, 5-Year Estimates (2015-2019)

TABLE 21: POPULATION LIVING BELOW THE POVERTY LINE

	Population in Poverty, Percent	Children under 18 in Poverty, Percent
Grafton	5.30%	1.5%
Millbury	4.38%	2.9%
Shrewsbury	3.95%	1.9%
West Boylston	9.28%	15.0
Worcester	19.98%	27.00%
01545	3.95%	1.62%
01583	9.28%	15.00%
01602	12.91%	15.08%
01603	20.20%	21.05%
01604	16.15%	23.60%
01605	27.24%	38.24%
01606	10.70%	16.47%
01607	17.69%	22.60%
01608	43.53%	74.56%
01609	22.43%	26.68%
01610	28.45%	33.12%
Worcester County	10.12%	12.34%
Massachusetts	10.29%	13.15%
United States	13.42%	18.52%

Source: US Census Bureau, 5-Year Estimates (2015-2019)

TABLE 22: LIVING BELOW THE FEDERAL POVERTY LINE, BY RACE/ETHNICITY

	White	Black/African American	Hispanic/ Latino	Native American/ Alaska Native	Asian	Native Hawaiian/ Pacific Islander	Some other race	Multiple race
Grafton	4.63%	0.65%	0.0%	No data	7.13%	No data	0.0%	0.0%
Millbury	4.63%	4.10%	1.44%	0.0%	1.73%	0.0%	0.60%	0.31%
Shrewsbury	3.12%	3.40%	4.06%	0.0%	7.07%	No data	1.25%	5.57%
West Boylston	7.63%	63.20%	5.59%	30.0%	26.19%	No data	33.33%	1.77%
Worcester	19.89%	16.87%	30.91%	28.81%	17.58%	15.00%	25.22%	27.61%
01545	3.12%	3.40%	4.06%	0.00%	7.07%	No data	1.25%	5.57%
01583	7.63%	63.20%	5.59%	30.00%	26.19%	No data	33.33%	1.77%
01602	13.53%	13.29%	18.66%	65.38%	2.49%	0.00%	19.19%	8.64%
01603	20.68%	19.56%	28.27%	81.82%	12.04%	0.00%	33.59%	21.79%
01604	16.67%	11.85%	22.58%	12.61%	16.11%	0.00%	16.65%	24.01%
01605	28.54%	21.10%	34.24%	0.00%	23.39%	No data	27.87%	38.59%
01606	9.73%	8.46%	15.79%	0.00%	13.49%	No data	2.59%	31.04%
01607	19.35%	8.04%	52.34%	No data	0.34%	No data	77.25%	9.36%
01608	44.58%	35.59%	60.09%	53.23%	9.06%	No data	59.72%	73.19%
01609	22.60%	15.92%	38.78%	0.00%	35.29%	No data	26.26%	16.53%
01610	28.78%	25.91%	30.32%	80.70%	33.54%	100.00%	18.11%	33.16%
Worcester County	8.96%	15.95%	25.44%	20.96%	10.97%	5.73%	22.63%	17.72%
Massachusetts	8.25%	18.71%	24.54%	22.25%	12.86%	12.85%	23.84%	16.36%
United States	11.15%	23.04%	**19.64%**	24.86%	10.94%	17.51%	21.04%	16.66%

Source: US Census Bureau, 5-Year Estimates (2015-2019)

Food Insecurity

Food insecurity is one of the nation's leading health issues; research has shown that food-insecure children are at least twice as likely to be in poor or fair health and more likely to have asthma than children who are not food insecure. Food-insecure older adults are more likely to have depression, asthma, diabetes, and congestive heart failure compared to those who are not.

Volunteers sorting vegetables at the Community Harvest Project

Food insecurity is inextricably linked to poverty, but is also more prevalent among single-parent households, Black households, Hispanic/Latinx households, individuals with disabilities, older adults with chronic conditions, and immigrants. Participants in a CHA focus group on food insecurity reported that many undocumented residents need access to food resources, but fear prevents them from engaging in services. There is also a need to recognize that food needs are varied, based on culture, medical needs, allergies, and storage capacity.

> *"There is fear among undocumented families. They need help and want to apply for things, but they're terrified of how it will affect their status and their efforts to gain citizenship in the future."* ***- CHA Focus Group participant***

Many interviewees and focus groups reported food insecurity as a major concern in the CHA service area, exacerbated significantly by COVID-19 - especially for homebound older adults, low-income individuals and families, and those children/families who relied on meals provided in schools. Many organizations quickly shifted their efforts to be sure that these individuals were getting their needs met despite the call to social distance and remain at home. Representatives from the Worcester Senior Center reported that, among calls to the Center for assistance, food-related calls were #2 behind health/COVID-19 related calls.

> *"Food insecurity starts with economic insecurity and housing insecurity. When people are in a situation that they can't meet basic needs. Programs like SNAP and WIC are so important; but the problem with those programs are in the realms of access, paperwork, and barriers. The boost in SNAP and EBT benefits have come together to help people lift themselves out of a food insecurity problem - but policies have been put in place and have shown that these programs can solve hunger. It's incumbent on us to advocate for real solutions.*

Food pantries help but they're not sustainable, they're not systemic. We need to look at big bold policy actions to see how we can keep those programs that are helping people more permanent." ***– CHA Stakeholder interviewee***

"Our reliance on emergency food systems is a big red flag [that food security is an issue.] We get so many requests to open new food pantries. We're focused on temporary solutions instead of causes. When 80-90% of someone's income is going towards rent and utilities, food comes second. Kids are relying on food from school. Prices have gone up since the pandemic - fresh fruits & veggies are expensive! These foods aren't subsidized." ***– CHA Stakeholder interviewee***

While there are many organizations working to combat food insecurity, there is recognition that programs must adapt to people's needs. Mobile food programs and other efforts that bring food and resources directly to individuals and neighborhoods are one way to increase accessibility.

"We're still receiving phone calls about homebound elderly. They continue to need home delivery of food. That isn't going to go away. These issues existed before COVID, but were exacerbated by the pandemic. Mobility will continue to be a barrier; It takes a lot for an organization to move their services mobile - but the need isn't going away." ***– CHA Focus Group participant***

Worcester Regional Environmental Council's YouthGROW, Grant Square Community Garden. YouthGROW (Youth Growing Organics in Worcester) is a year-round urban agricultural program that annually benefits 35-40 low-income, at-risk youth ages 14 - 18 through employment and engagement in a formal leadership development and jobs/life skills curriculum. Programming takes place at two urban farm campuses in Worcester's Main South and Bell Hill neighborhoods, at REC's farmers markets, and through additional year-round afterschool support, mentorship, internships, and volunteer opportunities.

TABLE 23: FOOD INSECURITY RATE

	Food Insecure Population, Total	Food Insecurity Rate
Grafton	584	No data
Millbury	1,173	No data
Shrewsbury	3,127	No data
West Boylston	672	No data
Worcester	16,042	8.60%
01545	3,127	No data
01583	672	No data
01602	2,021	No data
01603	1,764	No data
01604	3,072	No data
01605	2,323	No data
01606	1,690	No data
01607	740	No data
01608	344	No data
01609	1,986	No data

	Food Insecure Population, Total	Food Insecurity Rate
01610	2,121	No data
Worcester County	70,760	8.60%
Massachusetts	616,090	9.00%
United States	41,133,950	12.63%

Source: Feeding America, 2017

In the City of Worcester area, an estimated 15,231 or 21.59% households receive Supplemental Nutrition Assistance Program (SNAP) benefits compared to the national average of 11.74%. This indicator is relevant because it assesses vulnerable populations which are more likely to have multiple health access, health status, and social support needs; when combined with poverty data, providers can use this measure to identify gaps in eligibility and enrollment.

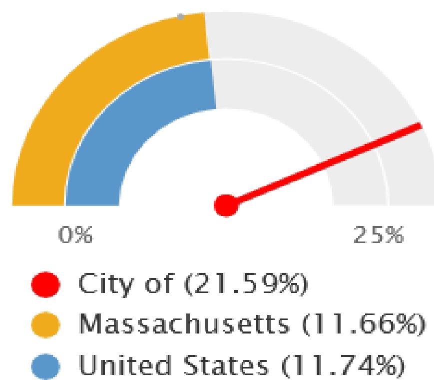


TABLE 24: HOUSEHOLDS RECEIVING SNAP BENEFITS IN WORCESTER

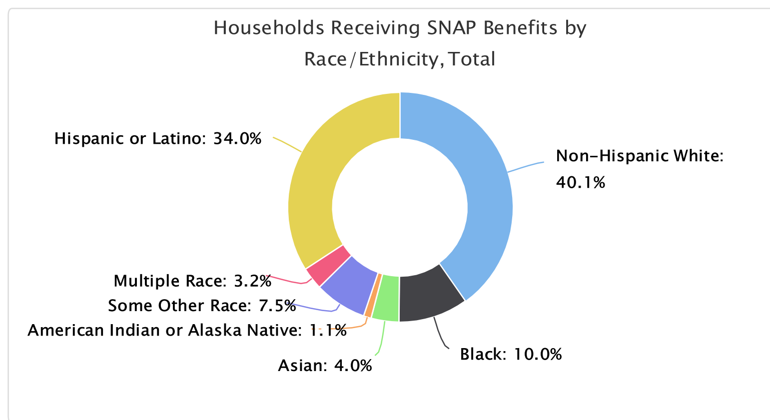
	Total Households	Households Receiving SNAP Benefits	Percent Households Receiving SNAP Benefits
Worcester	70,560	15,231	21.59%
Worcester County	309,951	38,243	12.34%
Massachusetts	2,617,497	305,089	11.66%
United States	120,756,048	14,171,567	11.74%

Source: US Census Bureau, 5-Year Estimates (2015-2019)

TABLE 25: SNAP BENEFITS BY RACE/ETHNICITY IN WORCESTER

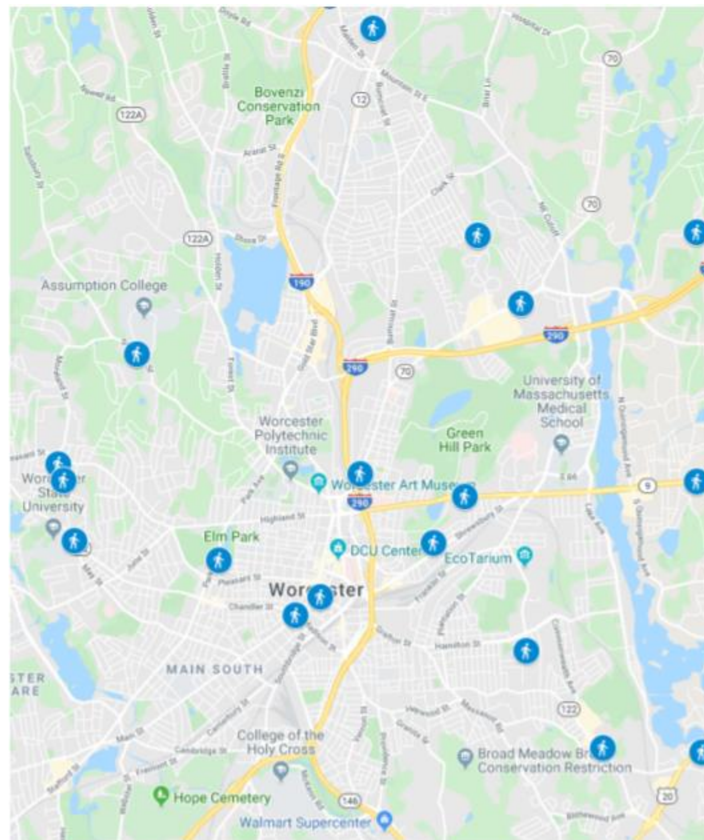
	Total Population	Non-Hispanic White	Black	Asian	American Indian or Alaska Native	Some Other Race	Multiple Race	Hispanic or Latino
Worcester	21.59%	12.88%	21.59%	17.36%	53.82%	36.94%	31.57%	43.79%
Worcester County	12.34%	8.61%	21.26%	9.48%	49.55%	30.88%	21.49%	36.49%
Massachusetts	11.66%	7.28%	26.13%	10.83%	34.22%	33.66%	20.81%	33.79%
United States	11.74%	7.03%	25.07%	6.97%	23.85%	20.78%	17.39%	19.57%

Source: US Census Bureau, 5-Year Estimates (2015-2019)



Built Environment, Transportation & Accessibility

FIGURE 10: PEDESTRIAN FATALITIES IN WORCESTER, 2016-2019



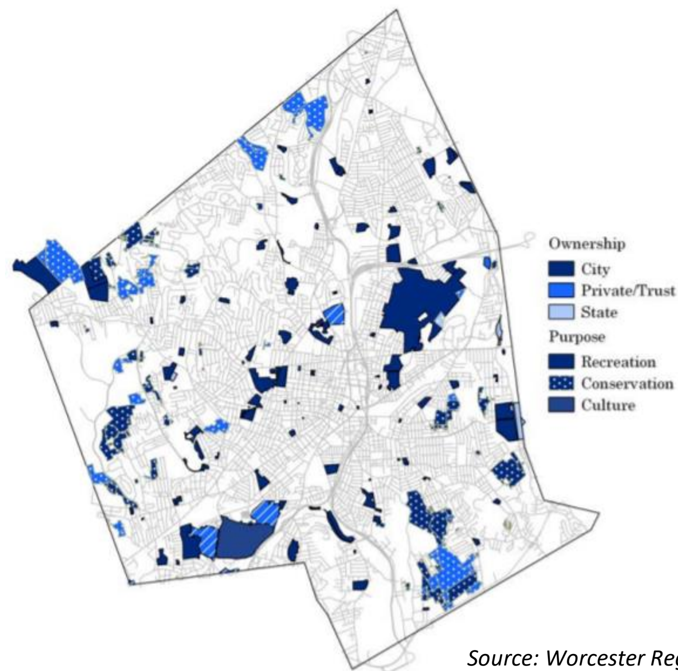
As of Dec. 11, 2019. Source: Massachusetts Vision Zero Coalition

The built environment, and one's ability to navigate their community, has significant influences on health. Whether an individual has access to transportation, walking and biking routes, safe sidewalks, and green space directly affects their ability to work, attend school, receive healthcare and other services, exercise, and more. Furthermore, it is important that these spaces are accessible for all individuals, including those with disabilities.

Many organizations are working to make Worcester a more accessible community. Over the past several years, Worcester's zero-fare transportation effort, walkability audits, and major projects focused on redesigning the city's streets have brought public health professionals, city planners, disabled individuals, businesses, and advocates together. Worcester has an interdepartmental Transportation Planning Advisory Group and an active citizen's advisory group (WalkBike Worcester).

Stakeholder interviewees reported that accessibility was a critical issue in certain neighborhoods. Damaged sidewalks, lack of streetlights, lack of green space, and general neglect all contribute to issues of accessibility.

FIGURE 11: GREEN SPACES IN WORCESTER, BY PURPOSE AND OWNERSHIP



Source: Worcester Regional Research Bureau's Worcester Almanac, 2020

"We know that lack of physical activity is so connected to chronic diseases. We've found that when we look at the City's infrastructure, there are some neighborhoods that don't have the infrastructure that is conducive to physical activity. I've been living in Worcester for 10 years and have been able to move to different neighborhoods. The neighborhood where I live now – I see people walking all the time. People with strollers and walking their dogs, and kids riding their bikes. In my other neighborhood, people were walking because they needed to walk to transit stop or walk to the corner store to get food. There is a difference. We need to start putting funds in the right place."
—CHA Stakeholder interviewee

"The long and the short of it, is it's all the same neighborhoods [with accessibility/built environment issues]: primarily minority neighborhoods that also have the worst health outcomes. It's all the same census tracts. It becomes an issue of equity."- CHA Stakeholder interviewee

TABLE 26: COMMUTING PATTERNS TO WORK,

	Drive alone	Carpool	Public transportation	Bike or walk	Taxi or other	Work at home
Grafton	80.4%	6.2%	3.8%	0.5%	1.3%	7.9%
Millbury	83.5%	4.3%	1.4%	2.5%	3.6%	4.7%
Shrewsbury	83.2%	6.5%	3.4%	1.1%	0.6%	5.2%
West Boylston	86.9%	5.9%	0.8%	0.3%	1.3%	4.8%
Worcester	71.3%	10.4%	3.5%	7.0%	2.5%	5.3%
01545	83.2%	6.5%	3.4%	1.1%	0.6%	5.2%
01583	86.9%	5.9%	0.8%	0.3%	1.3%	4.8%
01602	81.6%	7.9%	1.6%	2.5%	0.8%	5.6%
01603	71.8%	12.9%	4.3%	5.1%	2.5%	3.4%
01604	75.6%	11.6%	2.0%	3.3%	3.4%	4.2%
01605	68.0%	12.1%	4.9%	7.2%	3.0%	4.8%
01606	83.2%	4.6%	2.4%	2.1%	1.9%	5.9%
01607	81.7%	7.3%	2.4%	1.3%	1.9%	5.5%
01608	48.3%	14.0%	7.8%	20.3%	3.0%	6.6%
01609	59.2%	11.6%	4.0%	16.2%	1.5%	7.6%
01610	52.0%	12.0%	6.5%	18.5%	4.4%	6.6%
Worcester County	79.8%	7.9%	2.0%	3.1%	1.6%	5.7%
Massachusetts	69.9%	7.5%	10.4%	5.8%	1.3%	5.2%
United States	76.3%	9.0%	5.0%	3.2%	1.3%	5.2%

Source: US Census Bureau, 5-Year Estimates (2015-2019)

Many organizations have gathered data that illustrate disparities by neighborhood. Click the links below to read more.

Overview and Assessment of Transportation Needs
Pedestrian and Bike Safety Impact on Health - Dashboard
Worcester Regional Research Bureau: Walkability

Beyond transportation, there was also significant discussion around disparities in access to technology (e.g., Broadband, Wi-Fi, electronic devices). COVID-19 brought these disparities to light, as many services (healthcare and otherwise), moved virtual.

TABLE 27: INTERNET ACCESS METRICS IN WORCESTER, 2019

With an Internet Subscription	78.4%
Broadband such as cable, fiber optic or DSL	67.0%
Cellular Data Plan	55.7%
Satellite Internet Service	2.8%
Dial-up with no other subscription	0.5%
No Internet Access	21.6%

Source: Worcester Regional Research Bureau's Worcester Almanac, 2020

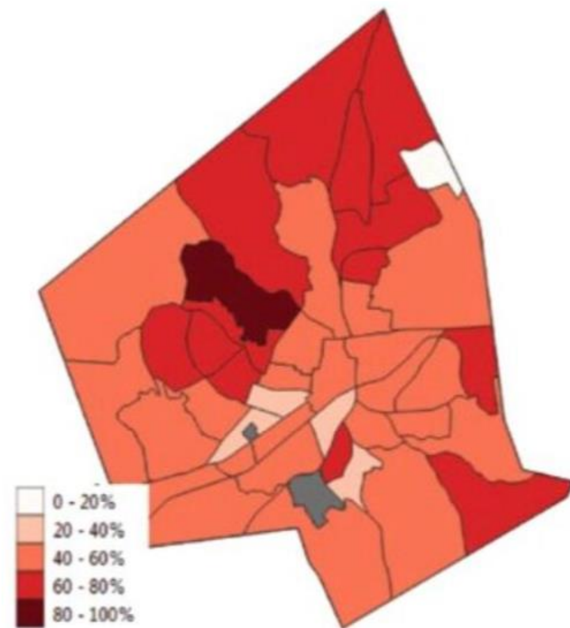
Housing & Homelessness

Lack of affordable housing and poor housing conditions contribute to a wide range of health issues, including respiratory diseases, lead poisoning, infectious diseases, and poor mental health. At the extreme are those without housing, including those who are unhoused or living in unstable or transient housing situations. They are more likely to delay medical care and have mortality rates up to four times higher than those who have secure housing.

Adults who are experiencing homelessness or living in unstable situations are more likely to experience mental health issues, substance use, intimate partner violence, and trauma; children in similar situations have difficulty in school and are more likely to exhibit antisocial behavior.

Interviewees and focus group participants reported a number of housing-related issues and needs in the service area. Housing stock, including the availability of rental units, continues to decline, especially for those who are low or moderate-income. The Worcester Regional Research Bureau's report, Achieving the American Dream, outlines disparities in homeownership by neighborhood, race/ethnicity, and by level of education. These disparities contribute to a city that is largely segregated; many of the neighborhoods with the largest percentage of non-White residents are also those with the lowest rates of homeownership, highest rates of poverty, and worse health outcomes.

FIGURE 12: PERCENT OF ORIGINATED MORTGAGES GOING TO WHITE HOMEOWNERS IN WORCESTER, 2019



Source: Worcester Regional Research Bureau's Worcester Almanac, 2020

TABLE 28: COST BURDENED HOUSEHOLDS

	Cost burdened households (housing costs exceed 30% of income)	Severe cost burdened households (housing costs exceed 50% of income)
Grafton (01519 only)	24.44%	7.71%
Millbury	28.32%	10.54%
Shrewsbury	23.01%	7.21%
West Boylston	24.65%	13.30%
Worcester	41.26%	20.34%
01545	23.01%	7.21%
01583	24.65%	13.30%
01602	33.46%	12.93%
01603	40.38%	21.89%
01604	40.65%	19.60%
01605	45.23%	21.08%
01606	33.04%	15.95%
01607	31.52%	20.04%
01608	57.72%	27.35%
01609	46.35%	27.61%
01610	51.57%	24.21%
Worcester County	31.35%	13.27%
Massachusetts	34.16%	15.37%
United States	30.85%	13.99%

Source: US Census Bureau, 5-Year Estimates (2015-2019)

Over the past several years, through efforts by the City of Worcester's Department of Health and Human Services and many community organizations, the number of chronically homeless individuals has declined over time. In December of 2020, Worcester's Housing First Coordinating Council released their Second Annual Report which describes a number of initiatives taken to reverse chronic homelessness.

As with many other issues, the total effects of the COVID-19 pandemic are yet to be seen. Many individuals faced significant economic hardship because of layoffs, cut hours, and childcare constraints on the ability of people to work. Further, for many, stress and trauma as a result of the pandemic limited their ability to maintain normal routines, including work. Interviewees and focus group participants reported that while the number of traditionally "homeless" individuals may not increase, the number of individuals and families couch surfing or doubling- and tripling-up to save money is on the rise. Despite homeless shelters and emergency resources, these settings are not ideal for all. In December of 2020, Worcester's Housing First Coordinating Council released their Second Annual Report which outlines a number of other initiatives taken to address chronic homelessness.

There were approximately [2,000 homeless students] in the Worcester Public School system in 2020; the majority of those students (1,399) live in shared living arrangements, or are "doubled up." There are nearly 400 students in shelters or scattered-site apartments, and another 300 in foster care. This number was likely underreported because of remote learning.

*"We need to provide shelter that allows for dignity; that lets people stay during the day and have a private bathroom. This helps improve likelihood of getting out of homelessness." – **CHA Stakeholder interviewee***

*"Youth experience homelessness in a very different way. We need to create a better [shelter] system for youth." – **CHA Stakeholder interviewee***

TABLE 29: ANNUAL POINT-IN-TIME HOMELESSNESS SURVEY, CITY OF WORCESTER (2019)

	Sheltered			Unsheltered	**Total**
	Emergency Shelter	Transitional Housing	Safe Haven		
Number Homeless Under Age 18	462	110	0	4	**576**

Source: Central Massachusetts Housing Alliance.

Source: Worcester Regional Research Bureau's Worcester Almanac, 2020

Approximately 78% of Worcester's housing stock was built before lead paint was banned in the United States (1978). For many years, city officials have worked on lead abatement initiatives with property owners and landlords. In 2019, the city received a $5.6 million grant from the US Department of Housing and Urban Development (HUD) for lead abatement – the single largest abatement in HUD's history. Approximately 250 units have or will get direct lead abatement, while another 120 units will be screened for mold, radiation, and other potential hazards. [In 2019], 71% of children in Worcester aged 9 -4 years had blood lead levels tested. Among these children, 2% had blood lead levels greater than 5µg/dL (the CDC reference level).

TABLE 30: SCREENING AND PREVALENCE OF CHILDHOOD BLOOD LEAD LEVELS (AGES 9 MONTHS-4 YEARS)

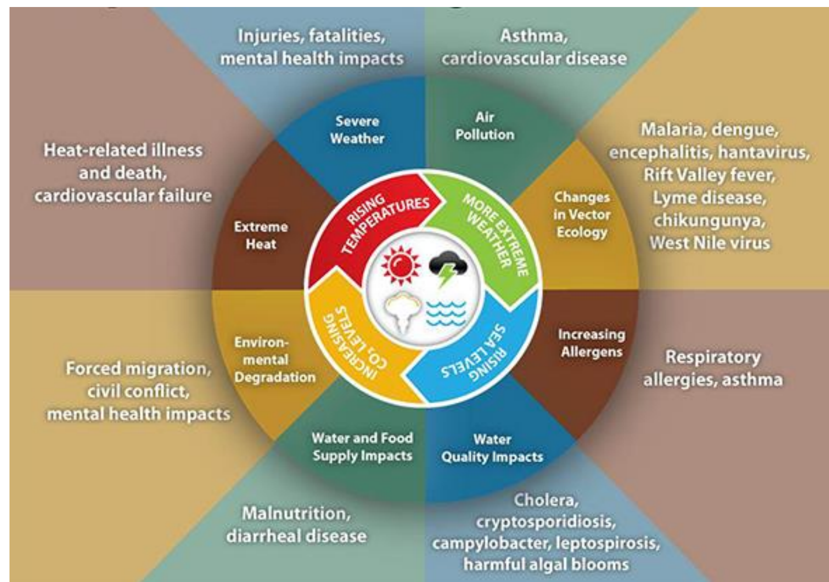
	Population 9 months-4 years (#)	**Percent screened**	**Blood Lead Level ≥5 µg/dL (%)**	**Pre-1978 Housing Units (%)**
Grafton	791	63%	0%	48%
Millbury	441	73%	0%	60%
Shrewsbury	1,394	64%	1.2%	52%
West Boylston	176	88%	0%	71%
Worcester	7,321	71%	2.0%	78%
Massachusetts	240,575	72%	1.1%	69%

Source: [Massachusetts Department of Public Health Childhood Lead Poisoning Prevention Program]

Environmental Health

Environmental health focuses on the relationships between people and the climate and environment in which they live. Changes to our climate are already having significant impacts on our communities. The Northeast, specifically, is at risk for more extreme weather events and temperature-related illnesses and death.

FIGURE 13 IMPACTS OF CLIMATE CHANGE ON HUMAN HEALTH



Source: Centers for Disease Control and Prevention

Working In partnership with the Green Worcester Working Group, the City of Worcester released the Green Worcester Plan in 2020. The Plan outlines 10 vision areas, each with several associated goals.

The table below reports the non-cancer respiratory hazard index score, based on air toxicity. This score represents the potential for non-cancer adverse health effects, where scores less than 1.0 indicate adverse health effects are unlikely, and scores of 1.0 or more indicate a potential for adverse health effects.

TABLE 31: RESPIRATORY HAZARD INDEX

	Respiratory Hazard Index Score
Worcester	1.78
Worcester County	1.32
Massachusetts	1.62
United States	1.83

Source: EPA National Air Toxics Assessment, 2011

Health Insurance and Navigation

Whether an individual has health insurance – and the extent to which it helps pay for needed acute services and access to a full continuum of high-quality, timely, and accessible preventive and disease management or follow-up services – has been shown to be critical to overall health and well-being. Access to a usual source of primary care is particularly important, since it greatly affects the individual's ability to receive regular preventive, routine, and urgent care and to manage chronic diseases.

Massachusetts has the highest health insurance coverage rate in the U.S., but there are still pockets of individuals without coverage, including young adults, low-income individuals, and the undocumented. Many key informants and focus group participants identified issues around navigating the health system, including how to access health insurance, as a major barrier to care. In a focus group, medical interpreters reported that they often go beyond their traditional scope of work to help connect patients to additional services and ease care transitions. Non-English speakers, new immigrants, and refugees face cultural and linguistic barriers that may lead to lapses in care, inappropriate utilization of emergency services, and noncompliance (e.g., follow up plans, medication regimens.)

> *"We as interpreters - we advocate for the patient. But we can only advocate up to a certain degree. For example, if people are calling and want to ask questions about free care… I don't think we have anything in writing that explains that. If I'm placed in that position, I let the patient know that they qualify for the health services that they're offered. We sometimes have to step out of our boundaries."*
> *– CHA Focus Group Participant*

TABLE 32: INSURANCE BY TYPE

	Uninsured Population	Private Insurance	Public Insurance
Grafton	2.1%	85.79%	27.35%
Millbury	1.7%	81.51%	32.86%
Shrewsbury	1.6%	87.91%	26.00%
West Boylston	2.4%	82.98%	37.05%
Worcester	2.91%	62.09%	49.41%
Worcester County	2.50%	75.24%	38.05%
Massachusetts	2.72%	76.28%	37.27%
United States	8.84%	74.52%	38.51%

Source: US Census Bureau, 5-Year Estimates (2015-2019)

HEALTH RISKS, BEHAVIORS, AND OUTCOMES

Health Risk Factors

As discussed in the section on food insecurity, one's ability to access nutritious food has significant impacts on health. In addition to access to grocery stores, research shows that there are a number of factors that influence healthy eating, including quality and price of fruits and vegetables, marketing of unhealthy food, and cultural appropriateness of food offerings. It is also important that individuals understand the basics of nutrition - which foods are nutrient-dense, calorie goals, macronutrients, etc.

Lack of physical fitness and poor nutrition are among the leading risk factors associated with obesity and chronic health issues. Both factors help to prevent disease and are essential for the healthy growth and development of children and adolescents, while overall fitness and the extent to which people are physically active reduce the risk for many chronic conditions and are linked to good emotional health. Over the past two decades, obesity rates in the United States have doubled for adults and tripled for children. Overall, these trends have affected all segments of the population, regardless of age, sex, race, ethnicity, education, income, or geographic region.

TABLE 33: OBESITY

	Obesity
Worcester County	27.8%
Massachusetts	24.7%
United States	29.5%

Data Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. 2017.

The table below includes estimated expenditures for fruits/vegetables and for soda purchased for in-home consumption, as a percentage of total food-at-home expenditures. This indicator is relevant because current behaviors are determinants of future health, and because unhealthy eating habits may illustrate a cause of significant health issues, such as obesity and diabetes.

TABLE 34: HEALTH RISK FACTORS

	Number of fitness and recreation facilities	Fruits and vegetables as a percentage of food-at-Home Expenditures*	Soda as a percentage of Food-At-Home Expenditures*
Worcester	22	13.07%	3.50%
Worcester County	100	No data	No data
Massachusetts	1,236	13.10%	3.35%
United States	37,758	12.68%	4.02%

Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. 2017
**Source: Nielsen SiteReports. 2014.*

Life Expectancy and Overall Mortality

The all-cause and premature mortality rates do not indicate that all residents have equal or similar access to care, based simply on their proximity to services. See the data below to explore disparities in life expectancy in Worcester County compared to the state and the nation, and differences in life expectancy by neighborhood in Worcester. These trends follow similar patterns that underlie disparities for people of color, individuals that are low-income, foreign-born residents, and non-English speakers.

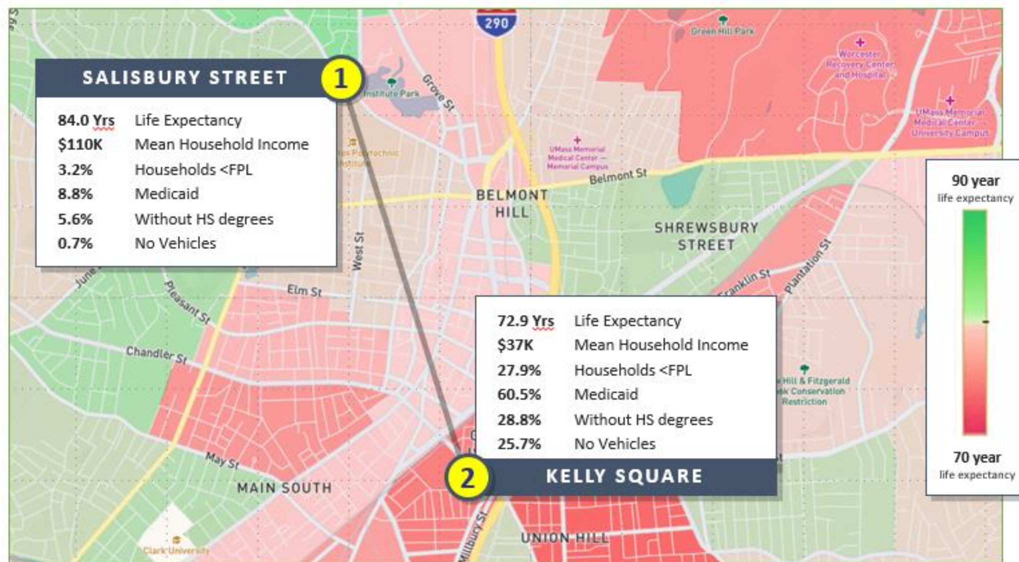
The table below shows the average life expectancy at birth, by zip code. Life expectancy measures the average number of years from birth a person can expect to live, according to the current mortality experience (age-specific death rates) of the population.

Table 35: Life expectancy by zip code

	Life Expectancy at Birth (2010-15)
Worcester	78.67
01545	82.93
01583	80.40
01602	80.24
01603	77.74
01604	77.57
01605	78.96
01606	79.49
01607	78.29
01608	78.78
01609	79.91
01610	77.51
Worcester County	80.06
Massachusetts	80.60
United States	78.69

Source: Centers for Disease Control and Prevention and the National Center for Health Statistics, U.S. Small-Area Life Expectancy Estimates Project. *2010-15.*

FIGURE 14: LIFE EXPECTANCY, SALISBURY STREET VS KELLY SQUARE (WORCESTER)



Source: UMass Memorial Medical Center, Office of Clinical Integration

In Figure 14, from UMass Memorial Medical Center's Office of Clinical Integration, note the 11-year difference in life expectancy in the two neighborhoods – Salisbury Street vs. Kelly Square – despite only being located 2 miles apart.

Mental/Behavioral Health

Mental health—including depression, anxiety, stress, trauma, and other conditions—was overwhelmingly cited as the leading health issue for residents of Worcester and the CHA service area. Individuals from across organizations and sectors discussed:

- The significant burden of stress and anxiety, especially as it relates to socioeconomic status (e.g., poverty, income, cost of living)
- Trauma, racism, and discrimination experienced by people of color, immigrants and refugees, and non-English speakers
- The long-term mental health impact and fatigue associated with marginalization and disenfranchisement in nearly all facets of life (for people of color, non-English speakers, individuals with disabilities, low income, individuals with mental health and SUD)
- The prevalence of mild to moderate depression across all nearly all segments of the population, from children to older adults
- The impact of adverse childhood experiences (e.g., abuse, witness to domestic violence, parents/caregivers with mental health issues or substance use disorder)

Many key informants and focus group participants reported that while these issues have been prevalent for many years, they were exacerbated by COVID-19.

> *"The past year has exacerbated mental health issues - the isolation has been incredibly painful for people." **– CHA Stakeholder interviewee***

One population that has taken on significant mental health burdens over the past year are health care workers, especially those that have continued to provide care and services. Caregiver burden, compassion fatigue, and vicarious trauma were all identified as major concerns.

> *"Our therapists need therapists. This is already an issue, and I think it's going to become more of one." **- CHA Focus Group participant***

TABLE 36: POOR MENTAL HEALTH

	Adults with poor mental health
Grafton	12.49%
Millbury	13.40%
Shrewsbury	11.10%
West Boylston	13.40%
Worcester	16.70%
01545	11.10%
01583	13.40%
01602	14.00%
01603	17.00%
01604	15.70%
01605	17.20%
01606	14.40%
01607	16.50%
01608	19.50%
01609	17.20%
01610	21.00%
Worcester County	13.7%
Massachusetts	12.9%
United States	13.4%

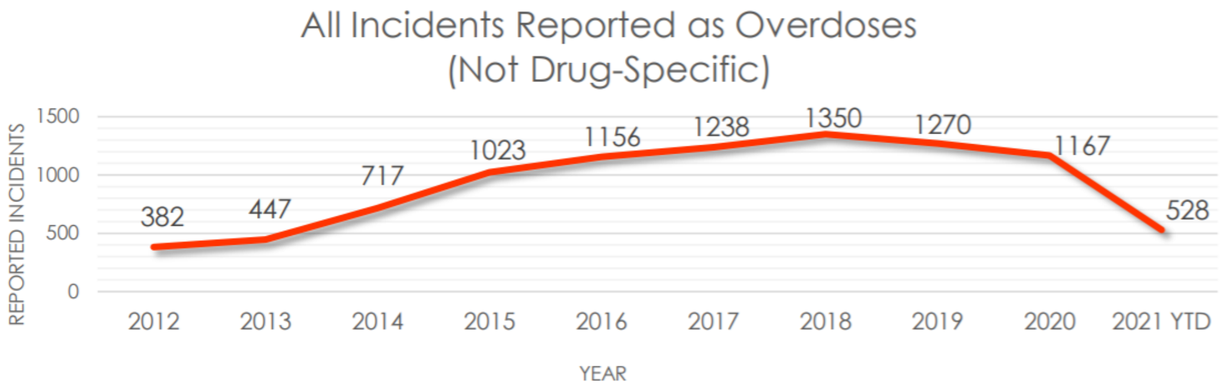
Data Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System. Accessed via the 500 Cities Data Portal. 2018.

Substance Use Disorder

Substance use was named as a leading health issue among key informants and focus group participants. As with mental health services, there are several community partners working to fill service gaps and address the needs of both individuals and the community at-large, although individuals continue to face delays or barriers to care due to limited culturally appropriate providers and specialists, limited treatment beds, and social determinants that impede access to care (e.g., insurance coverage, transportation, employment). Many participants also discussed the co-morbidity that often occurs between mental health and substance use issues.

As evidenced by the data below, the opioid crisis persists. Focus group participants and interviewees also identified a significant uptick in alcohol use over the course of the pandemic, especially amongst women. There continues to be concerns around vaping and e-cigarette use (especially for youth), changing community norms around marijuana, and prescription drug use. Though there was limited discussion regarding tobacco, Worcester continues to have higher rates of use (20.3% in Worcester compared to 13.7% in Massachusetts overall).

FIGURE 15: DRUG OVERDOSES IN WORCESTER, 2012-2021



Source: Worcester Police Department, June 2021

FIGURE 16: CONFIRMED AND SUSPECTED HEROIN/OPIATE RELATED OVERDOSES IN WORCESTER

	07 2020	08 2020	09 2020	10 2020	11 2020	12 2020	01 2021	02 2021	03 2021	04 2021	05 2021	06 2021
Fatal	8	1	7	1	3	4	2	2	2	3	1	0
Non-Fatal	87	87	64	52	46	52	61	48	74	62	55	47

Source: Worcester Police Department, June 2021

Table 37: Adult binge drinking

	Percentage of Adults Binge Drinking in the Past 30 Days
Grafton	20.61%
Millbury	19.70%
Shrewsbury	18.40%
West Boylston	20.00%
Worcester	18.50%
01545	18.40%
01583	20.00%
01602	18.70%
01603	17.50%
01604	18.60%
01605	16.80%
01606	18.80%
01607	18.80%
01608	17.90%
01609	20.10%
01610	18.80%
Worcester County	18.6%
Massachusetts	19.5%
United States	16.9%

Data Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System. Accessed via the 500 Cities Data Portal. 2018.

Table 38: Tobacco use

	Percentage of Adult Current Smokers
Grafton	15.10%
Millbury	17.10%
Shrewsbury	13.30%
West Boylston	18.10%
Worcester	20.30%
01545	13.30%
01583	18.10%
01602	16.10%
01603	22.20%
01604	20.10%
01605	21.50%
01606	18.00%
01607	21.60%

	Percentage of Adult Current Smokers
01608	24.59%
01609	18.60%
01610	23.80%
Worcester County	17.2%
Massachusetts	15.0%
United States	17.0%

Data Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System. Accessed via the 500 Cities Data Portal. 2018.

Cardiovascular Disease & Stroke

Cardiovascular and cerebrovascular diseases, such as heart disease and stroke, are affected by several health and behavioral risk factors, including obesity and physical inactivity, tobacco use, and alcohol use. Hypertension, or high blood pressure, increases the risk of more serious health issues, including heart failure, stroke, and other forms of major cardiovascular disease.

Nationally, rates of high blood pressure and heart disease vary by race and ethnicity.

- High blood pressure is more common among non-Hispanic Black adults (54%) than white adults (46%), non-Hispanic Asian adults (39%), or Hispanic adults (36%)
- Age-adjusted death rates for heart disease are highest among non-Hispanic Black adults (208 per 100,000) compared to white (168.9), Hispanic (114.1) and Asian/Pacific Islander (85.5) adults

The table below includes the percentage of adults age 18 who report ever having been told by a doctor, nurse, or other health professional that they have high blood pressure. Women who were told high blood pressure only during pregnancy and those who were told they had borderline hypertension were not included. It also includes the percentage of adults age 18 or older who report ever having been told by a doctor, nurse, or other health professional that they had angina or coronary heart disease.

TABLE 39: CARDIOVASCULAR DISEASE

	Adults with High Blood Pressure	Adults Ever Diagnosed with Coronary Heart Disease
Grafton	26.20%	**4.70%**
Millbury	29.90%	**5.90%**
Shrewsbury	27.40%	**5.00%**
West Boylston	31.91%	**6.49%**
Worcester	28.90%	6.00%
01545	27.40%	5.00%
01583	31.91%	6.49%
01602	29.00%	6.00%
01603	30.60%	6.70%
01604	29.90%	6.20%

	Adults with High Blood Pressure	Adults Ever Diagnosed with Coronary Heart Disease
01605	31.20%	6.70%
01606	29.80%	6.20%
01607	30.00%	5.60%
01608	29.19%	5.71%
01609	26.10%	5.50%
01610	25.50%	5.20%
Worcester County	30.3%	6.2%
Massachusetts	29.4%	6.0%
United States	32.9%	6.9%

Data Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System. Accessed via the 500 Cities Data Portal. 2018.

TABLE 40: STROKE

	Adults who have ever had a stroke	Ischemic Stroke Hospitalizations, Rate per 1,000	Age-Adjusted Death Rate (Per 100,000 Population)
Grafton	2.20%	No data	No data
Millbury	2.80%	No data	No data
Shrewsbury	2.30%	No data	No data
West Boylston	3.0%	No data	No data
Worcester		7.1	33.6
Worcester County	2.9%	7.1	33.6
Massachusetts	2.9%	7.7	27.3
United States	3.4%	8.4	37.3

Cancer

The most common risk factors for cancer are well known: age, family history of cancer, alcohol and tobacco use, diet, exposure to cancer-causing substances, chronic inflammation, and hormones.

Nationally, cancer incidence and mortality rates continue to decline, as recommendations and requirements around screening and preventative care are implemented. However, certain segments of the population are at an increased risk of illness or death from particular cancer types:

- Black/African Americans have higher cancer mortality rates than other racial and ethnic groups for most types of cancer. Black/African American women are also at an increased risk of mortality from breast cancer, despite comparable incidence rates to white women
- Hispanic/Latinx and Black/African American women have higher incidence of cervical cancer compared to other racial and ethnic groups

- American Indian/Alaska Natives have high mortality rates related to kidney cancer, and the highest incidence of liver and bile duct cancer
- Lesbian, gay, and bisexual youth are more likely to drink and use alcohol than heterosexual youth, putting them at increased risk for certain cancer types

TABLE 41: CANCER SCREENINGS

	Females Age 50-74 with Recent Mammogram	Females age 21-65 with Recent Pap Smear	Adults with Adequate Colorectal Cancer Screening
Grafton	83.09%	90.20%	71.21%
Millbury	82.10%	89.00%	70.70%
Shrewsbury	83.50%	89.00%	71.60%
West Boylston	81.79%	88.70%	68.30%
Worcester	82.30%	84.50%	64.00%
01545	83.50%	89.00%	71.60%
01583	81.79%	88.70%	68.30%
01602	82.70%	87.50%	69.30%
01603	81.70%	83.50%	60.90%
01604	81.90%	85.90%	65.40%
01605	82.60%	84.50%	62.60%
01606	82.50%	87.80%	67.90%
01607	81.70%	86.40%	64.00%
01608	83.20%	80.99%	53.60%
01609	82.60%	82.40%	64.50%
01610	81.90%	78.80%	55.00%
Worcester County	80.6%	87.4%	69.4%
Massachusetts	79.8%	86.2%	70.6%
United States	73.7%	83.9%	65.5%

Data Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System. Accessed via the 500 Cities Data Portal. 2018.

TABLE 42: CANCER INCIDENCE

	Cancer Incidence Rate (Per 100,000 Population)	Cervical Cancer Incidence Rate (Per 100,000 Population)	Breast Cancer Incidence Rate (Per 100,000 Population)	Colorectal Cancer Incidence Rate (Per 100,000 Population)	Cancer Incidence Rate (Per 100,000 Population)
Worcester, MA	470.7	6.4	137.0	33.5	66.8
Worcester County, MA	470.8	5.2	137.0	33.3	67.0
Massachusetts	452.7	7.6	137.9	35.2	61.2

	Cancer Incidence Rate (Per 100,000 Population)	Cervical Cancer Incidence Rate (Per 100,000 Population)	Breast Cancer Incidence Rate (Per 100,000 Population)	Colorectal Cancer Incidence Rate (Per 100,000 Population)	Cancer Incidence Rate (Per 100,000 Population)
United States	448.7		125.9	38.4	58.3

Source: State Cancer Profiles. 2013-17.

Diabetes and Asthma

Over the course of a lifetime, approximately 40% of adults in the U.S. are expected to develop type 2 diabetes – this number increases to over 50% for Hispanic men and women. Several factors increase the risk of developing type 2 diabetes, including being overweight, physical inactivity, age, and family history. Having diabetes increases the risk of cardiovascular comorbidities (e.g., hypertension, atherosclerosis), may limit the ability to engage in physical activity, and may have negative impacts on metabolism.

TABLE 43: ADULTS WITH DIABETES IN WORCESTER COUNTY

	Adults with Diagnosed Diabetes, Age- Adjusted Rate
Worcester County, MA	8.0%
Massachusetts	7.7%
United States	9.5%

Source: Dartmouth College Institute for Health Policy & Clinical Practice, Dartmouth Atlas of Health Care. 2017.

Respiratory diseases such as asthma and COPD are exacerbated by behavioral, environmental, and location-based risk factors, including smoking, diet and nutrition, substandard housing, and environmental exposures (e.g., air pollution, secondhand smoke). They are the third leading cause of death in the United States. In many scenarios, quality of life for those with respiratory diseases can improve with proper care and management.

In 2021, the Asthma and Allergy Foundation of America released their report Asthma Capitals 2021: The Most Challenging Places to Live with Asthma. Worcester is named as #11 in a list of the top 20 asthma capitals in the United States, based on estimated asthma prevalence, emergency department visits due to asthma, and asthma-related fatalities. In Worcester, crude asthma death rates and emergency room visits are worse than average. The report states that poverty, air pollution, living in rental housing, number of manufacturing and industrial businesses, proximity to high-traffic roadways, and access to specialists are risk factors in the Northeast.

Pediatric asthma has been a historic concern in Worcester. Nationally, rates of pediatric asthma are higher among Black children compared to white children, and Massachusetts is no exception. In 2015, approximately 9.9% of white children in Massachusetts have asthma, compared to 24% of Black children.

TABLE 44: RESPIRATORY DISEASE

	Adults with asthma	Adults ever diagnosed with chronic lower respiratory disease
Grafton	9.70%	4.70%
Millbury	10.10%	5.80%
Shrewsbury	9.10%	4.40%
West Boylston	9.91%	6.20%
Worcester	11.00%	6.20%
01545	9.10%	4.40%
01583	9.91%	6.20%
01602	10.40%	5.70%
01603	11.00%	6.90%
01604	10.70%	6.30%
01605	11.40%	6.80%
01606	10.40%	6.10%
01607	11.10%	6.20%
01608	11.39%	6.20%
01609	10.90%	5.60%
01610	12.10%	6.20%
Worcester County	10.1%	6.0%
Massachusetts	10.1%	5.8%
United States	9.5%	7.2%

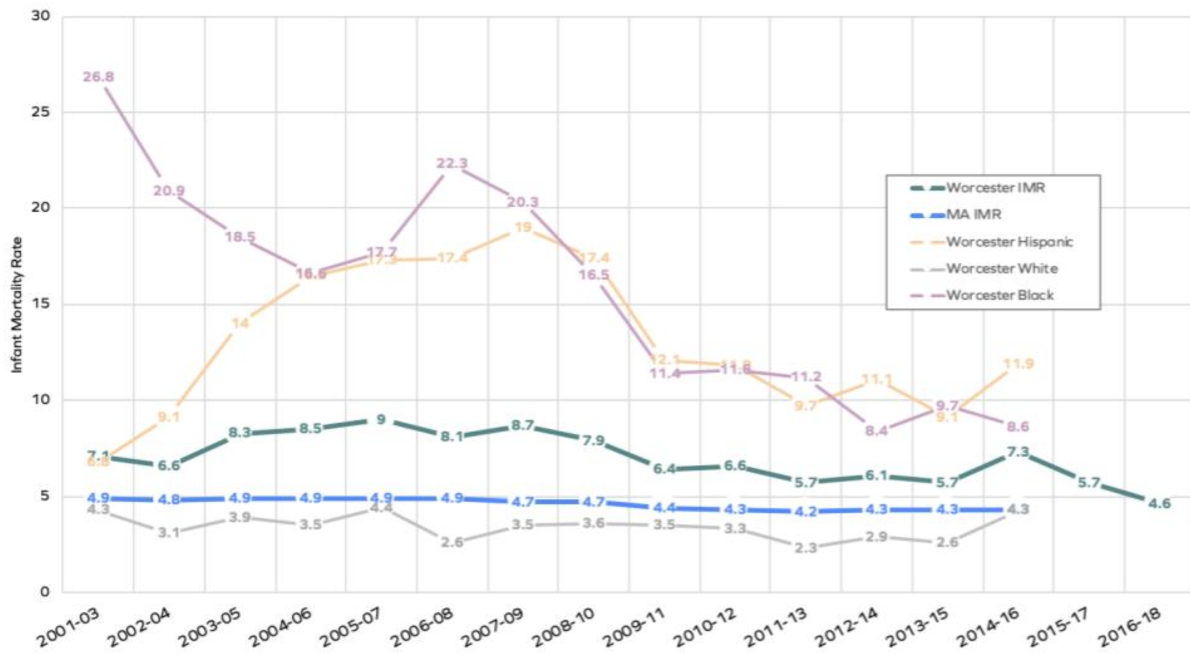
Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System. Accessed via the 500 Cities Data Portal. 2018.

Maternal & Infant Health

Maternal and child health issues are of critical importance to the overall health and well-being of a geographic region and at the core of what it means to have a healthy, vibrant community. Infant mortality, childhood immunization, rates of teen pregnancy, rates of low birthweight and rates of early and appropriate prenatal care for pregnant women are among the most critical indicators of maternal and child health. While infant mortality, low birth weight, and preterm birth were not discussed as leading health issues, the quantitative data suggests there are disparities in this area, particularly by race/ethnicity.

In 2016-2018, the infant mortality rate in Worcester 4.6 per 1,000 live births. Though this is lower than the US infant mortality rate (5.8), it is higher than the state infant mortality rate (4.3). There are significant disparities in the infant mortality rate by race and ethnicity, with higher rates for Black and Hispanic/Latino mothers compared to white mothers.

FIGURE 17: INFANT MORTALITY RATES IN WORCESTER AND MASSACHUSETTS, OVER TIME AND BY RACE/ETHNICITY



Source: Worcester Division of Public Health, Massachusetts Birth Reports

Low birth weight and premature birth are two causes of infant mortality; in Worcester, 69% of infants who died in 2016-2018 were low birth weight, and 60% were premature. A growing body of research indicates that racism and discrimination, and the health impacts of high stress, play a significant role in preterm births and low birth rates.

Infectious Disease & Sexual Health

Though great strides have been made to control the spread of infectious diseases in the U.S., they remain a major cause of illness, disability, and even death - as evidenced by the COVID-19 pandemic. Sexually transmitted infections, diseases transmitted through drug use, vector-borne illnesses, tuberculosis, pneumonia, and influenza are among the infectious diseases that have the greatest impact on modern American populations. Older adults, immunocompromised individuals, injection drug users, and individuals who have unprotected sex are often at the greatest risk for contracting infectious diseases.

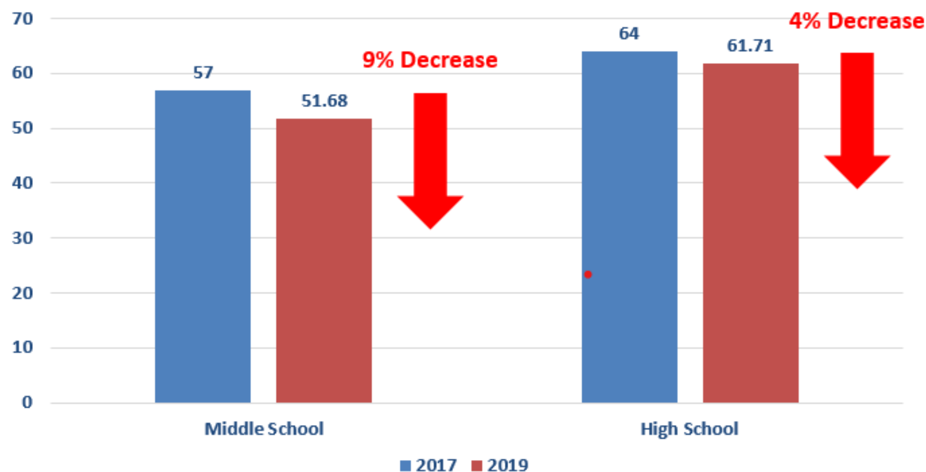
TABLE 45: INFLUENZA AND PNEUMONIA DEATHS

	Five Year Total Deaths, 2015-2019 Total	Age-Adjusted Death Rate (Per 100,000 Population)
Worcester	204	17.6
Worcester County	898	17.6
Massachusetts	6,854	15.2
United States	273,174	14.0

Data Source: Centers for Disease Control and Prevention, National Vital Statistics System. Accessed via CDC WONDER. 2015-2019. Source geography: County

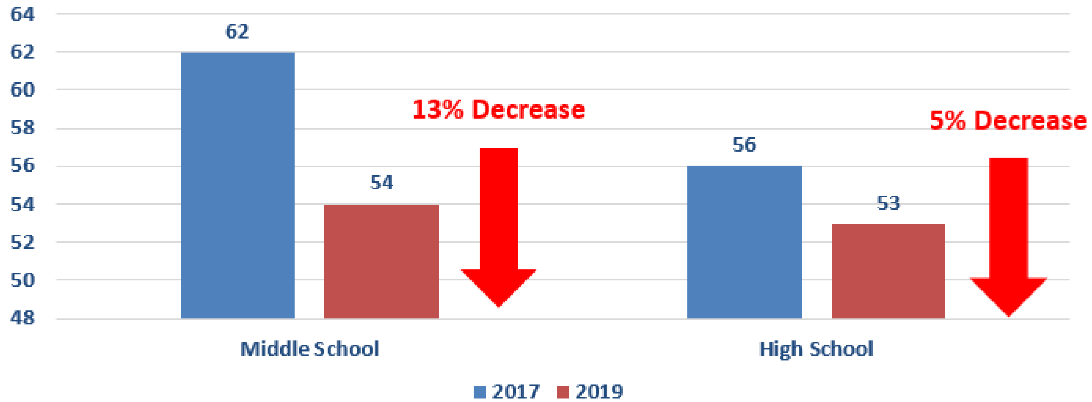
Over the past several years, the Worcester Department of Health and Human Services has focused on a campaign to provide comprehensive sexuality education in schools. Comprehensive sexuality education teaches that, while abstinence is the best method for avoiding sexually transmitted infections/diseases and unintended pregnancy, condoms and contraceptives reduce risk. It also focuses on teaching interpersonal and communication skills that encourage young people to explore their own values, goals, and options. According to the 2020 Worcester Regional Youth Health Survey, the percentage of middle school and high school students who reported having used a condom the last time they had sexual intercourse decreased between 2017 and 2019, as did the percentage who reported having talked to parents or adults about HIV, STIs, and pregnancy. Further, there were 223 pregnant or parenting young women in Worcester schools in 2019, including 55 in the 7th or 8th grade.

FIGURE 18: "HAVE YOU EVER TALKED ABOUT WAYS TO PREVENT HIV INFECTION, OTHER STIS, OR PREGNANCY WITH YOUR PARENTS OR OTHER ADULTS IN YOUR



Source: UMass Memorial Health & WDPH. 2020. Worcester Regional Youth Health Survey

FIGURE 19: "THE LAST TIME YOU HAD SEXUAL INTERCOURSE, DID YOU OR YOUR PARTNER USE A CONDOM?"



Source: UMass Memorial Health & WDPH. 2020. Worcester Regional Youth Health Survey

TABLE 46: STIS IN WORCESTER

	Chlamydia Infections, Rate per 100,000 Pop.	Gonorrhea Infections, Rate per 100,000 Pop.	HIV / AIDS Infections, Rate per 100,000 Pop.
Worcester	337.6	92	7.19
Massachusetts	444.0	117.7	10.9
United States	539.9	179.1	13.6

Source: Centers for Disease Control and Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention. 2018

COVID-19

On March 11, 2020, the World Health Organization (WHO) declared the novel coronavirus (COVID-19) a global pandemic and advised the public to reduce activities and practice social distancing. Since then, the world has continued to adapt to new research, procedures, and policies. Over the course of the assessment, stakeholders and focus group participants emphasized the many multi-faceted impacts of COVID-19, as discussed throughout this report.

UMASS MEMORIAL HEALTH RONALD MCDONALD CARE MOBILE "FEET ON THE STREET" COVID-19 COMMUNITY OUTREACH AND EDUCATION

UMass Memorial Health instituted a Mobile Vaccine Equity Enhancement Program that provides onsite vaccinations at low-income housing complexes, senior centers, churches, and other community sites

COVID-19 presented monumental challenges for individuals, communities, local public health systems, health care providers, and society. The Centers for Disease Control and Prevention (CDC) reports that risk of severe illness and death from COVID-19 increases with age; more than 80% of COVID-19 related deaths have been in people over the age of 65. People with chronic and complex medical conditions - including those with cancer, respiratory diseases, neurological conditions (e.g., dementia and Alzheimer's), diabetes, and those who are immunocompromised - are also at an increased risk of illness and death. COVID-19 also illuminated long-standing health and social inequities; research has shown that many of those in racial and ethnic minority groups are at an increased risk of illness and death from COVID-19. People with disabilities have also been disproportionately affected, as they are more likely than those without disabilities to have a chronic health condition, live in congregate settings, and face barriers to healthcare. These populations continue to face systemic barriers to care, which often center around the social determinants of health - defined as the conditions in which individuals live, learn, work, play, and worship.

One of the few positives that arose from the pandemic was the way in which organizations - working across sectors, missions, and target populations - came together in rapid response. In mid-March of 2020, individuals representing approximately 25 local entities came together to start Worcester Together, and met weekly to plan citywide response and relief efforts. Worcester Together continues to meet; membership has increased to over 230 members, and several focused workgroups have been formed (e.g., Logistics, Housing, Youth, Older Adults, etc.). Later, the group started the Worcester Together Fund, which has raised and distributed over $11 million dollars in relief funding.

> *"I think the sustainability of the collaboration [Worcester Together] has been strong because we came together in service, and not for dollars. Prior to [the pandemic], there was a lot of conflict between folks since we didn't understand fully what each other were doing. The pandemic necessitated better coalition building and allowed for relationships to build." **–CHA Focus Group participant***

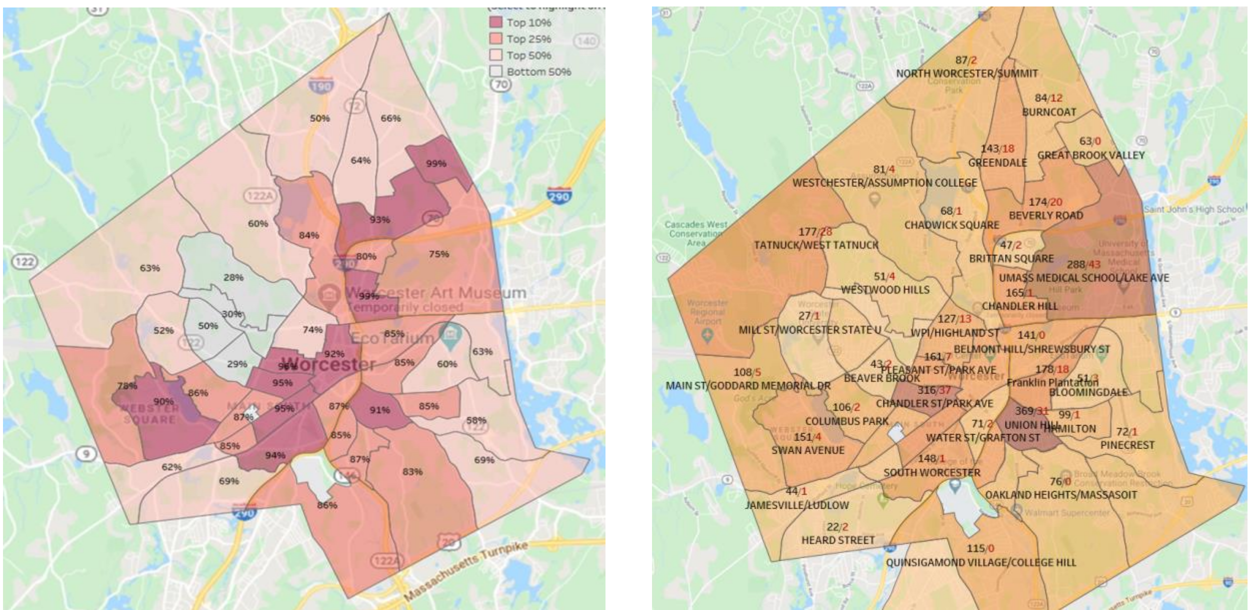
Follow the links below for data in CHA service area communities:

[City of Worcester COVID-19 Status Dashboard]
[City of Worcester COVID-19 Vaccination Dashboard]
[Impact of COVID-19 on Black People in Worcester and Access to Vaccines]
[Grafton Coronavirus Information]
[Millbury Coronavirus Information]
[Shrewsbury Coronavirus Information]
[West Boylston Coronavirus Information]

Opening Day at Worcester Senior Center Emergency Dispensing Site- Dr Matilde Castiel, Health Commissioner and Amelia Houghton, Public Health Nurse

Summit Eldercare on Grove Street, as it was being used as an infirmary for members with COVID-19

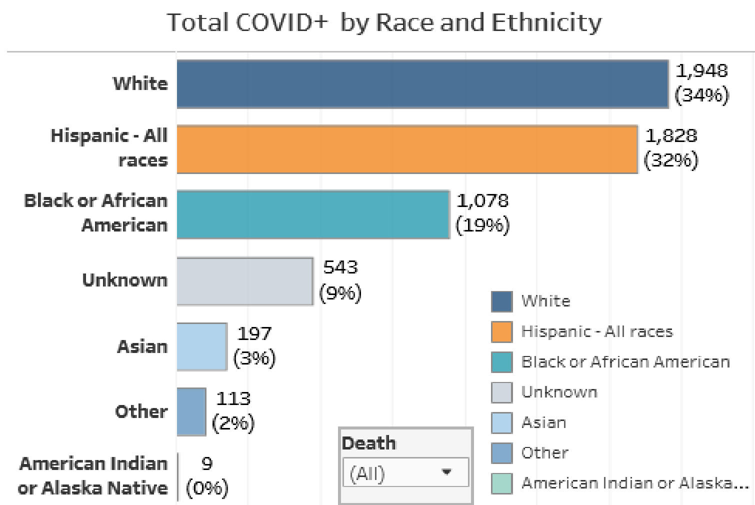
FIGURE 20: SOCIAL VULNERABILITY INDEX IN WORCESTER (LEFT) AND POSITIVE COVID-19 CASES IN AUGUST 2020



Source: UMass Memorial Medical Center, Office of Clinical Integration

In Figure 20, above, notice the overlap between the city's most vulnerable neighborhoods, and the highest COVID-19 case counts.

FIGURE 21: TOTAL POSITIVE COVID-19 CASES BY RACE/ETHNICITY IN WORCESTER (AS OF AUGUST 2020)



Oral Health

Poor oral health not only causes pain and discomfort, but also contributes to various diseases and conditions—including cardiovascular disease, diabetes, infectious disease and Alzheimer's disease. Maintaining good oral health is especially important for children, as untreated dental conditions may lead to issues with development related to speech, eating and learning.

According to a 2016 University of Massachusetts Medical School report on oral health in Worcester, the city has fewer oral health providers who accept MassHealth than Worcester children who need services. Key informants corroborated this information, especially the need for a more effective safety net to provide oral health care for low-income children and families. Community water fluoridation, in which a fluoride compound is added to the public water supply, is not mandated in Massachusetts, though many cities and towns have chosen to participate. However, Worcester is one of the few municipalities in the state that remains unfluoridated.

TABLE 47: ROUTINE DENTAL CARE, 2018

	Percentage of Adults with Recent Dental Visit
Grafton	79.00%
Millbury	75.80%
Shrewsbury	78.90%
West Boylston	73.30%
Worcester	65.70%
01545	78.90%
01583	73.30%
01602	73.90%
01603	62.20%
01604	67.40%
01605	62.40%
01606	72.00%
01607	65.70%
01608	54.71%
01609	66.80%
01610	56.80%
Worcester County	73.1%
Massachusetts	72.7%
United States	64.4%

Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System. Accessed via the 500 Cities Data Portal. 2018.

CHIP & CHA PRIORITIES

The following is a summary of the population segments and community health issues that were prioritized by interviewees, focus group participants, and survey respondents. This prioritization also draws heavily on the quantitative data collected for this assessment, and the strength and momentum of existing community health efforts.

Priority Populations

The CHA Sponsors, working in collaboration with other health and social service stakeholders throughout the region, are committed to improving the health status and well-being of all residents in the service area. This report includes findings that are relevant to all residents, however, there was broad consensus on which segments of the population face significant barriers to care and experience adverse social determinants of health. that can put them at greater risk. The assessment identified the following groups as priority populations:

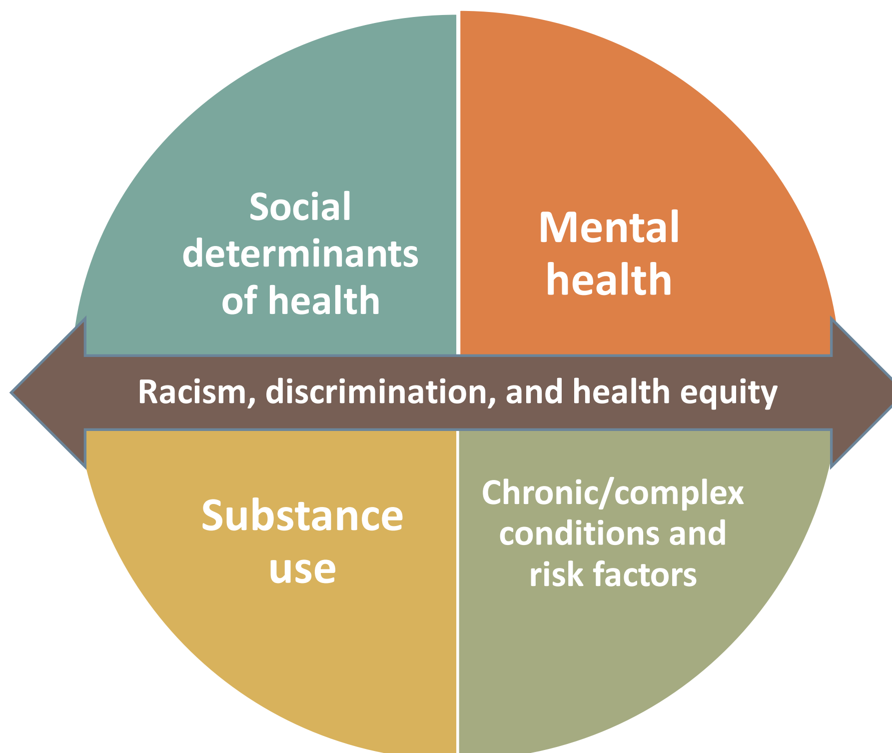
- People of color
- Immigrants, refugees, and non-English speakers
- Youth and adolescents
- Individuals with disabilities and chronic/complex conditions
- Individuals and families with limited economic means
- Older adults

Priority Areas and Cross Cutting Issues

The CHA aims to identify the full range of community health issues affecting the region, across all its demographic and socioeconomic segments. The assessment is framed broadly to ensure that the breadth of unmet needs and community health issues are recognized. However, it is critical that the CHA identify leading community health issues based on the full range of data collected throughout the CHA process.

With this in mind, the CHA Sponsors framed the leading community health issues into five priority areas:

- **Social determinants of health, including:** food insecurity, housing, transportation/accessibility, cultural and linguistic barriers, socioeconomics
- **Mental health, including:** depression, stress, trauma, social isolation, serious mental illness
- **Substance use, including:** alcohol, tobacco, e-cigarettes, opioids and other prescription drugs, marijuana
- **Chronic/complex conditions and their risk factors, including**: obesity, physical activity, nutrition, asthma, diabetes, cardiovascular disease, neurological conditions, cancer, disabilities
- **Racism, discrimination, and health equity:** a cross-cutting priority that affects barriers to care, health outcomes, and health disparities in each of the other priority areas



ATTACHMENT A: COMMUNITY HEALTH SURVEY

Dear Community Partners,

The Central Massachusetts Regional Public Health Alliance, Fallon Health, The Hanover Insurance Group and UMass Memorial Health invite you to participate in the 2021 Greater Worcester Community Health Needs Assessment (CHA) Survey. A CHA is conducted every three years to help us understand key problems that impact health and to assess the strengths of our community. The last CHA was completed in 2018.

In this process, your voice and input is vital. If you live in Worcester or the surrounding towns of Grafton, Millbury, Shrewsbury and West Boylston please participate by completing this short, voluntary and anonymous survey that will take just a few minutes. Our goal is to collect a large number of responses, which represent the diversity of our community. Findings of this survey will be documented in the 2021 Community Health Needs Assessment to be published in the Fall of this year and will be available in print and online on our respective websites.

Thank you for your participation in this important process.

1. In your view, what makes a community healthy? Choose all that apply.

- ☐ Access to good healthcare
- ☐ Recreation
- ☐ Safety
- ☐ Walk/Bike-ability
- ☐ Access to jobs
- ☐ Livable wages / Workforce development opportunities
- ☐ Access to healthy food
- ☐ Education (good schools/equity in schools)
- ☐ Healthy housing/ Stabilized Housing
- ☐ Transportation
- ☐ Affordable Childcare / Afterschool Programs/Summer Programs
- ☐ Access to WiFi and Devices for All

- [ ] Services and Support for Elders/Seniors
- [ ] House of Faith/Churches
- [ ] Social Support for Seniors and those living alone
- [ ] Arts
- [ ] Culture
- [ ] Public Parks /Green Spaces

Other (please specify)

2. What does a healthy community look like to you?
Consider- Good place to raise children; low crime rate/safe neighborhoods; good schools; access to healthy foods; access to healthcare; low adult death and disease rates; low infant deaths; clean parks; clean streets and sidewalks; affordable housing; communities prepared for emergencies; community support groups; availability of good jobs; activities for youth, etc.

3. How would you rate the overall health of the community that you live in?

○ Very **un**healthy

○ **Un**healthy

○ Somewhat healthy

◉ Healthy

○ Very healthy

Other (please specify)

4. Please respond to the following statements using the scale provided.

	Agree	Neither agree nor disagree	Disagree

You are satisfied with the quality of life in your community. (Consider your sense of safety, well-being, participation in community life and associations, etc.)

You are satisfied with the health care system in the community. (Consider accessibility, cost, availability, quality, and options in health care)

This community is a good place to grow old. (Consider elder-friendly housing, transportation to medical services, churches, shopping, elder day-care, social support for the elderly living alone, meals on wheels, etc.)

This community is a safe place to live. (Consider residents' perceptions of safety in the home, the workplace, schools, playgrounds, parks, and the mall. Do neighbors know and trust one another? Do they look out for each other?)

There are networks of support for individuals and families during times of stress. (consider neighbors, support groups, faith community, outreach agencies, etc.)

Comments?

5. Are the following economic opportunities available in the community? (Choose all that apply)

- ☐ Locally owned and operated businesses
- ☐ Jobs with career growth
- ☐ Job training/higher education opportunities
- ☐ Affordable housing
- ☐ Reasonable commute to work

6. Please select yes or no for each of the following

	No	Yes
Do you feel safe in your community?		
Do you feel safe at home?		

7. What makes Greater Worcester a healthy region?

Q7. Answer 1

Q7. Answer 2

Q7. Answer 3

8. In your view, what do you think are the greatest community health challenges?

Q8. Answer 1

Q8. Answer 2

Q8. Answer 3

9. How did the COVID-19 pandemic affect or exacerbate these community health issues?

10. What challenges will exist after the pandemic?

11. In what ZIP code is your home located? (enter 5-digit ZIP code; for example, 00544 or 94305)

12. What is your age?

- 16-29 years old
- 30-49 years old
- 50-64 years old
- 65-74 years old
- 75 years old or older

13. What is your gender?

- Girl/Woman
- Boy/Man
- Non-Binary
- Genderqueer
- Two-spirit

- [ ] Transgender girl/woman
- [ ] Transgender boy/man
- [ ] Unsure
- [ ] Prefer not to answer
- [ ] Other (please specify)

14. What racial ethnic group do you most identify with?

- [ ] African-American / Black
- [ ] American Indian, Alaska Native, Indigenous or First Nations
- [ ] Arab or Middle Eastern
- [ ] Asian or Asian American
- [ ] Hispanic, Latina or Latino
- [ ] Native Hawaiian or Pacific Islander
- [ ] White, Caucasian or European American
- [ ] Other (please specify)

15. What is the highest level of education you have completed?

- Still In high school
- Less than high school graduate
- High school diploma or GED
- Associate's degree / some college
- Bachelor's degree
- Graduate or professional degree
- Still in college

Thank you for participating in the 2021 Greater Worcester Community Health Assessment Survey!

ATTACHMENT B: COMMUNITY ASSET LISTING

Community Resource	Town	Food	Housing	Goods	Transit	Health	Care	Education	Work	Legal
Gardner Community Action Committee, Inc.	Worcester			X	X	X				
Community Servings	Worcester	X			X					
Urban Missionaries of Our Lady of Hope – The LittleStore	Worcester	x								
CENTRO	Worcester					X	X			X
Elder Services of Worcester Area (ESWA)	Worcester					X	X			
Net of Compassion	Worcester	x							X	X
Training Resources of America Inc	Worcester								X	X
Worcester Public Library	Worcester							X		
Massachusetts Association for the Blind and Visually Impaired (MAB)	Worcester					X	X			
Guild of St. Agnes	Worcester						X	X		
CENTRO	Worcester						X	X		X
City of Worcester Office of Human Rights	Worcester							X		X

Seven Hills Foundation	Worcester				X			
Guild of St. Agnes	Worcester				X	X		
New Hope, Inc.	Worcester		X					
City of Worcester Department of Health & Human Services	Worcester	x	x	x		x		
Elder Services of Worcester Area (ESWA)	Worcester				X	X		
Boston Bar Association	Worcester							X
Seven Hills Foundation	Worcester			X		X		
Central Massachusetts Collaborative	Worcester					X		
Jewish Family & Children's Service (JF&CS)	Worcester							
CENTRO	Worcester				X			
Central Massachusetts Agency on Aging	Worcester				X			
Guild of St. Agnes	Worcester					X		
Jewish Family & Children's Service (JF&CS)	Worcester				X		X	
HealthAlliance Home Health & Hospice (HAHHH)	Worcester				X			
CENTRO	Worcester			X	X			
Massachusetts Association for the Blind and Visually	Worcester			X	X			

Impaired (MAB)								
Greendale Peoples Church	Worcester	X						
Jewish Family & Children's Service (JF&CS)	Worcester		X	X	X		X	X
Family Health Center of Worcester	Worcester				X			
Community Healthlink - Worcester Team	Worcester			X				
Elder Services of Worcester Area (ESWA)	Worcester			X	X	X		
Christopher Heights	Worcester		X					
CENTRO	Worcester				X	X		
Jewish Family & Children's Service (JF&CS)	Worcester				X			
Elder Services of Worcester Area (ESWA)	Worcester			X	X	X		
Tri-Valley, Inc.	Worcester			X	X			
Seven Hills Foundation	Worcester				X	X		
Massachusetts Society for the Prevention of Cruelty to Children (MSPCC)	Worcester				X	X		
CENTRO	Worcester				X	X		
Easterseals Massachusetts	Worcester				X			
CareOne - Millbury	Worcester			X	X			
Ace Medical Services	Worcester				X			

CENTRO	Worcester						X	X		
Pernet Family Health Service	Worcester	X		X		X	X			X
Jeremiah's Inn	Worcester	X								
Mission E4	Worcester						X			
Elder Services of Worcester Area (ESWA)	West Boylston	x				X	X	X		
Notre Dame Health Care Center Inc	West Boylston			X		X	X	X		
HealthAlliance Home Health & Hospice (HAHHH)	West Boylston						X			
Community Healthlink - Worcester Team	West Boylston					X				
Elder Services of Worcester Area (ESWA)	West Boylston					X	X	X		
Ace Medical Services	West Boylston						X			
Ace Medical Services	Shrewsbury						X			
CareOne - Millbury	Shrewsbury					X				
Elder Services of Worcester Area (ESWA)	Shrewsbury	x				X	X		x	x
Notre Dame Health Care Center Inc	Shrewsbury			X		X	X			
Shrewsbury Council on Aging (SCOA)	Shrewsbury	X	X	X	X	X	X	X	X	X
Shrewsbury Youth & Family Services, Inc.	Shrewsbury							X	X	X
Elder Services of Worcester Area (ESWA)	Millbury						X	X	X	

Elder Services of Worcester Area (ESWA)	Millbury	x			X	X	X
Notre Dame Health Care Center Inc	Millbury		X		X	X	X
Central Massachusetts Agency on Aging	Millbury					X	
Youth Mobile Crisis Intervention (YMCI)	Millbury				X		
Tri-Valley, Inc.	Millbury				X	X	
CareOne - Millbury	Millbury				X	X	
Ace Medical Services	Millbury					X	
Elder Services of Worcester Area (ESWA)	Grafton	X		X	X	X	
Notre Dame Health Care Center Inc	Grafton		X		X	X	X
Central Massachusetts Agency on Aging	Grafton					X	
Community Healthlink	Grafton				X		
Elder Services of Worcester Area (ESWA)	Grafton				X	X	X
CareOne	Grafton				X	X	

*Resource listing compiled utilizing the CommunityHELP IT Platform, created in partnership by UMass Memorial Health and Reliant Health. Visit the platform at: https://www.communityhelp.net/

Public Health

Prevent. Promote. Protect.