





Public Health

“[A] healthy city can embrace and make productive use of the differences of class, ethnicity, and lifestyles it contains, while a sick city cannot; the sick city isolates and segregates difference, drawing no collective strength from its mixture of different people.”

—Richard Sennett¹

Introduction

Population health is shaped by our collective exposures to healthy and unhealthy environments – it begins in our homes, in our children’s schools, in the natural and built environment, and at our places of employment. Healthy communities are “places where all individuals have access to healthy built, social, economic, and natural environments that allow them to live to their fullest potential, regardless of their race, ethnicity, gender, income, age, abilities, or other socially defined circumstances.” Given the connection of our neighborhoods to our health, the Public Health Chapter provides a framework for understanding how community conditions affect the health of Revere residents and identifies strategies to sustain healthy outcomes among residents, from childhood to later in life.

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Public Health is deeply linked to other elements of *Next Stop Revere*. It presents new data or different perspectives on how improvements in other elements, such as Economic Development, Housing, Open Space, and Transportation, can contribute to healthier outcomes for residents. The Chapter integrates the perspective of local public health stakeholders by including the Revere Public Health Department, Board of Health, Healthy Community Initiatives, and Substance Use Disorder Initiatives (SUDI) in the planning process and future decisions around community change.

¹ “Why Complexity Improves Quality of City Life” in “Hong Kong: Cities, Health and Well-Being,” a publication of the Urban Age Conference, 2011

Health Equity and Environmental Justice

This Chapter uses a health equity lens to explore how certain populations in the city may experience disproportionate impact due to factors such as geography, ethnicity, income, age, or other characteristics. Disparities in disease prevalence and the burden of poor health among demographic groups are well-documented. In Revere, there are significant differences in health outcomes by race and ethnicity (Figure 1). In general, Revere’s white residents are hospitalized at a lower rate for chronic health issues than other race and ethnicity groups. Meanwhile, for every chronic disease examined except cancer, black residents have hospitalization rates significantly higher than white residents.

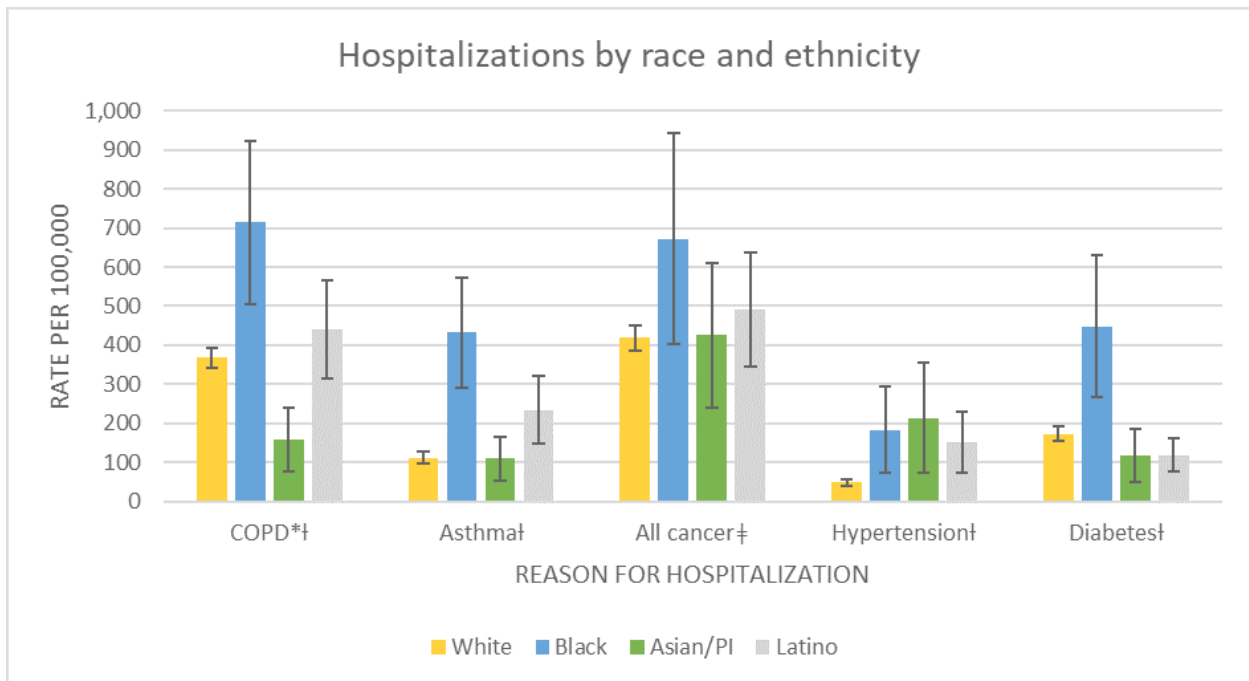


Figure 1: Hospitalizations by Race and Ethnicity. Source: Massachusetts Department of Health MassCHIP, 3 year aggregate rates, 2012-2014; 3 year aggregate rates, 2009-2011.

* COPD = Chronic obstructive pulmonary disease

Disparities in illnesses by race and ethnicity stem directly or indirectly from a community’s surrounding environment. For example, both people of color and low-income households are disproportionately likely to live near a major road,² where air pollution is drastically elevated,³ and are therefore more likely to suffer the associated cardiovascular, respiratory and neurological health effects of high exposure to air pollution.⁴ Health conditions are further exacerbated by community conditions such as poverty, a lack of affordable housing, and limited food options.

2 Rowangould, Gregory M. “A census of the US near-roadway population: Public health and environmental justice considerations.” i 25 (2013): 59-67.
 3 Padró-Martínez, Luz T., et al. (2012)
 4 Lane K.J, Levy J.I, Scammell M.K, Peters J.L., Patton A.P, Reisner E., Lowe L, Zamore W, Durant J., Brugge D. Association of modeled long-term personal exposure to ultrafine particles with inflammatory and coagulation biomarkers. Environment International. 2016; 92-93:173-182.



▶ ENVIRONMENTAL JUSTICE

The Environmental Justice determination is based on the principle that all people have a right to be protected from environmental pollution and to live in and enjoy a clean and healthful environment.⁵ It also recognizes that certain racial and economic groups have disproportionately had to live in areas where there have been significant environmental hazards. From this perspective, some of Revere's greatest assets – e.g., proximity to Logan Airport and Boston, a regional job center, the availability of public transit and local access to regional roadways – can also be viewed as liabilities.

While the proximity of Logan Airport and the roads and rails running to Boston do benefit Revere residents, they do so at a disproportionate public health and quality of life cost to the community. As examples, Revere is a commuter rail corridor but has no commuter rail station; 90% of peak-period roadway users are commuters who live elsewhere and work elsewhere, and all of the air passengers from the North Shore must pass through Revere going to and from Logan Airport. Each of these infrastructure facilities brings with them high levels of noise and air pollution, to which nearby Revere residents are exposed. Research shows that low-income and non-white populations are more like to live near sources of pollution and are therefore exposed at a disproportionately higher level.⁶⁷ In that regard, these impacts should rightly be described as "environmental justice" issues in that Revere most vulnerable residents bear the burden of infrastructure facilities that benefit the region as a whole.

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- 5 These communities are defined as U.S. Census block groups that meet one or more of the following criteria: 1) the median annual household income is at or below 65% of the statewide median income for Massachusetts, 2) 25% of the residents are minority or 25% of residents are foreign born, or 3) 25% of residents are lacking English language proficiency.
 - 6 Nancy Tian, Jianping Xue, and Timothy M. Barzyk, "Evaluating Socioeconomic and Racial Differences in Traffic-Related Metrics in the United States Using a GIS Approach," *Journal of Exposure Science and Environmental Epidemiology* 23 (Mar. 2013): 215–22, doi:10.1038/jes.2012.83.
 - 7 Jennifer Parker et al., Linkage of the 1999–2008 National Health and Nutrition Examination Surveys to Traffic Indicators From the National Highway Planning Network, National Health Statistics Report (U.S. Department of Health and Human Services, Apr. 2, 2012).

Public Health Today: Existing Conditions

▶ THE ROLE OF HEALTH IN PLANNING AND THE BUILT ENVIRONMENT

Evidence shows that how we plan and build communities affects the health and wellness of residents. Cumulative research focused on the history of the causes of disease estimates that roughly 60% of our health is determined by social, environmental, and behavioral factors shaped by the context in which we live (Figure 2).⁸

The relationship between health and planning is reinforced by data on health issues and the leading causes of death in the United States. The country is experiencing increasing levels of chronic diseases like obesity and diabetes, and more and more people are dying from preventable diseases like heart disease, strokes, and lower respiratory diseases.⁹ Yet, these illnesses are highly preventable, as they are often the result of behaviors, choices, and influences stemming directly or indirectly from a community's surrounding environment.

Understanding the connection between resident health and well-being and the spaces in which they live, learn, work, gather, and age is important: it provides the impetus for developing communities that offer more opportunities for healthy living. Planning plays a key role in engaging community members in developing a vision for the future, setting the conditions for what and where changes will occur, and ultimately creating places that protect and promote health.

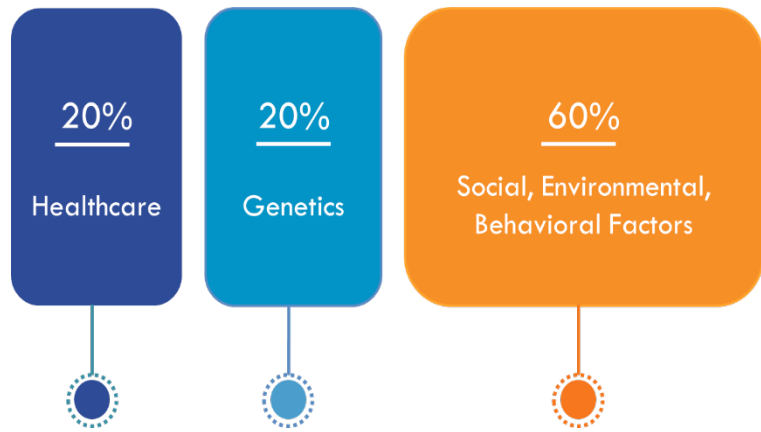


Figure 2: Factors Responsible for Population Health. Source: Adapted from US County Health Rankings.

▶ COMMUNITY HEALTH SYSTEM

Sets of individuals and organizations play an important role in planning for and meeting the service needs of residents, particularly those who are suffering from symptoms of environments that do not promote health. At the municipal level, the work is performed by health agents and inspectors and boards of health as well as other entities such as councils on aging and recreation departments. Outside of the municipal health agents, health systems and community organizations play a similar role as they respond to acute health issues (e.g., heart attacks), promote disease prevention and seek to intervene in behavioral health issues (e.g., opioid use).

8 McGinnis, J. M., Williams-Russo, P., & Knickman, J. R. (2002). The case for more active policy attention to health promotion. *Health Affairs*, 21(2), 78-93.

9 U.S. Centers for Disease Control and Prevention, Deaths: Final Data for 2013, Figure 10



Figure 3: A Framework for Healthy Community Design



LOCAL HEALTH DEPARTMENTS, BOARD OF HEALTH, AND HEALTH INITIATIVES

Revere is served by a Board of Health. Revere's Public Health Division, which includes the City's public health nurse and school nurses, is part of the City's Inspectional Services Department (ISD). The Public Health Division works closely with ISD's Health Inspections Division and collaborates with Healthy Community Initiatives, Substance Use Disorders Initiatives (SUDI), the North Suffolk Public Health Collaborative, the Disabilities Commission, Elder Affairs, and Veterans Services to provide essential services that address



needs across all ages and abilities, promote programs that support health and wellness among residents, effectively respond to emergencies, and reduce the spread of infectious diseases.

A framework for understanding local health work is the Foundational Public Health Services (FPHS), which represents a minimum package of public health services that should be present in any jurisdiction.¹⁰ The FPHS includes two areas: foundational capabilities (i.e., skills) and foundational areas (i.e., areas of expertise or specific activities).

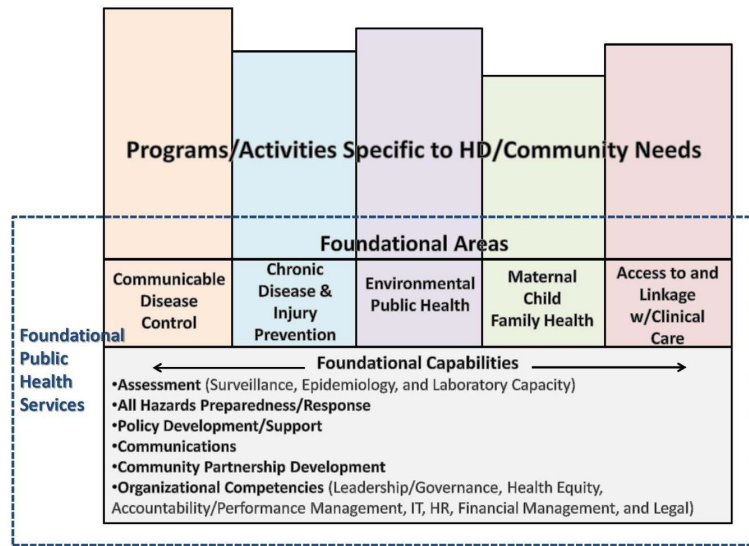


Figure 4: Foundational Public Health Services. Source: *Defining and Constituting Foundational Capabilities and Areas V1*

A scan was done to assess Revere’s FPHS capabilities across the

foundational areas. The following Public Health Element sections refer to many of the essential and innovative services offered by the City’s agents of public health. While it is clear that the public health capabilities and services offered by the multiple divisions, departments, and coalitions in Revere are extensive, the current fragmented municipal structure for public health services poses a significant barrier.

The scan suggested that all areas of FPHS are being met in some fashion. The Public Health and Health Inspections divisions of the ISD provide services that address core areas, such as communicable disease control, linkages to care, and environmental health. Public health agents within the other City departments complement these with resources related to chronic disease and injury prevention, linkages to clinical care related to substance abuse and behavioral health, and family health.

Yet, there is note a unified strategy or a holistic understanding of how Revere’s municipal public health providers are protecting and promoting the health and wellness of residents across their many programs and services. The lack of a unifying strategy for Revere’s local public health services makes it difficult to assess whether the City’s current public health services are meeting residents’ needs.

The fragmented structure also creates logistical barriers. Municipal stakeholders report that communication and collaboration between departments can be difficult. Currently, Revere’s Office of Healthy Community Initiatives (HCI) is the primary driver of cross-sectoral collaboration. In association with Revere on the Move, HCI’s goal is to make Revere a healthier place to eat, live, work and play. This work is focused on policy, systems, and environmental changes and necessitate partnerships with the Mayor’s office, planning, and economic development staff, as well as the Parks and Recreation, Public Works, and Police departments. Examples of the office’s cross-departmental work include the Neighborways project, a community engagement focused, traffic-calming project done in collaboration with planning and DPW staff, community park builds, or the Recent Pocket Park analysis. While the success of this office highlights the important

10 Public Health Leadership Forum, <https://www.resolve.ngo/site-healthleadershipforum/defining-and-constituting-foundational-capabilities-and-areas.htm>



role agents of local public health can play within multiple local planning functions, the current structure of Revere's public health system makes this continuing this type of work a real challenge.

Revere is currently exploring moving towards a more operational Health Department framework, which could help address some of these barriers, increase capacity to provide FPHS capabilities and better position the City to compete for funding that will support the creation and maintenance of a healthy community.

▶ HEALTH CARE SYSTEMS

Several area hospitals and community health centers serve Revere: Cambridge Health Alliance Everett Hospital, East Boston Neighborhood Health Center, Massachusetts General Hospital-Revere Health Care Center, Beth Israel Deaconess HealthCare, Melrose Wakefield Health Care Center, Tufts Medical Center Community Care, and the North Suffolk Mental Health Association.

Most healthcare systems produce a community health needs assessment (CHNA) every three years for communities located within their service area. In connection with the CHNA, the systems must propose community health improvement strategies, which in Massachusetts are recommended to focus on the social determinants of health.¹¹

In 2019, area health care providers partnered with Revere, Chelsea, and Winthrop as well as multiple community organizations to develop an integrated community health needs assessment (iCHNA). The North Suffolk iCHNA will include improvement strategies focused on the following community health priorities:

- Housing
- Economic Stability and Mobility
- Behavioral Health

▶ HEALTH CARE ACCESS

The Revere Public Schools and public health system are important points of access to non-emergency medical care. Some of these referral points are informal (i.e., word of mouth), but some, such as the Public Health Nurse and the Public Schools, are part of a system set up to help residents overcome barriers to care. The Revere Public Health Nurse is an important resource for older adult residents and senior-oriented programs, and facilities. The Revere Health Nurse can facilitate referrals for those residents to PACE, VNAs, HHAs, or long-term care facilities. Parent Information Center Revere Public Schools is another point of access and referral point for health services. Of particular note is the Parent Information Center, which facilitates the enrollment of new students (and quite often, newer immigrant students), arranges student immunizations, and makes referrals to Primary Care Physicians at one of the federally qualified health centers (such as Massachusetts General Hospital, MGH, HealthCare Center or East Boston Neighborhood Health Center) for the whole family. MGH also has a school-based adolescent Health Center at Revere High School and model which should be replicated in the new High School.

11 The Attorney General has set four statewide priorities for strategies: Chronic Disease with a Focus on Cancer, Heart Disease and Diabetes Housing Stability/Homelessness Mental Illness and Mental Health Substance Use Disorders. In addition to these four focus issues, in 2017 DPH adopted six health priorities to guide the Community Health Initiative investments: Built Environment, Social Environment, Housing, Violence, Education, and Employment.



Survey respondents reported that these referral networks are helpful but could be improved. Some of the more informal referral points could stand to be more effectively communicated and structured. Where follow-through on the parent-to-provider step can be inconsistent and irregular, a suggestion was for school-based staff to be authorized to deliver immunizations. While the school-based nurses play an important role in providing medical care to Revere's youth, the existing fee and payment structure does not return in a clear nexus back to the point of service. Several referral networks could be more effectively communicated and structured to increase reach and impact.

Half of North Suffolk iCHNA survey respondents from Revere are satisfied with the health care system in their community (49%). Yet a large proportion (40%) of respondents felt that there were still barriers to getting non-emergency medical care in their community. The top five factors that made access difficult included wait times for appointments (27%), overall cost (25%), insurance (20%), inconvenient hours (14%), and location of health care (13%).

The North Suffolk iCHNA focus group participants observed that insurance is a barrier to medical and mental health care in Revere for many patients, especially immigrants. Navigating insurance coverage was difficult, both obtaining coverage and determining which providers take certain insurance plans. Insurance payments, especially for dental care, were a particular concern for low-income residents. A larger proportion of residents report having been to a primary care doctor in the past year than having had a dental checkup or an eye exam (Figure 5). Insurance could explain some of the differences in preventative care access.

	Chelsea	Revere	Winthrop
Saw their primary care doctor	89%	90%	87%
Had a dental checkup	70%	72%	79%
Had eye exam	61%	62%	56%

Figure 5: Percent of Residents in the Past 12 Months who...Source: 2019 North Suffolk Community Health Needs Assessment Community Survey

In addition, the iCHNA found that language barriers between providers and patients make it difficult to provide care. Many key informants and focus group participants touched on the idea that language barriers play a large role in preventing individuals from accessing services.

HEALTH STATUS SNAPSHOT

The 2019 North Suffolk Community Health Needs Assessment provides an in-depth look at the health of Revere residents, as well as the environments, behaviors, and systems that promote or hinder health (learn more here: <https://www.northsuffolkassessment.org>). Data from this report show that, in general, Revere residents are as healthy as the population of the Commonwealth overall. In some cases, these findings can attest to Revere's colocation of health centers and health and human service providers, which together offer a range of support for families and individuals of all ages, even those without insurance. Diabetes is a notable exception to this, with Revere residents being hospitalized for diabetes at a higher rate than the commonwealth.



While the hospitalization rates for some chronic diseases may not be higher than rates statewide, they remain a concern for residents. Focus group participants frequently mentioned the presence of chronic diseases when talking about the health of their community. This is particularly true for cardiovascular (health disease and stroke) and respiratory health (asthma and COPD).

Health behaviors are another item of concern. Estimates from the state's Behavioral

Risk Factor Surveillance System (BRFSS) on measures of obesity and eating habits indicate the city's residents perform similar to the state (Figure 6). Nonetheless, only about a fifth (17%) of Revere adults report consuming recommended levels of fruit and vegetables, and the proportion of adults who are estimated to be obese or overweight remains high (26% and 64%, respectively). Both the short-term and long-term effects of being overweight or obese are of concern as they are associated with increases in an individual's risk for other chronic diseases and are a major cause of death nationally.¹²

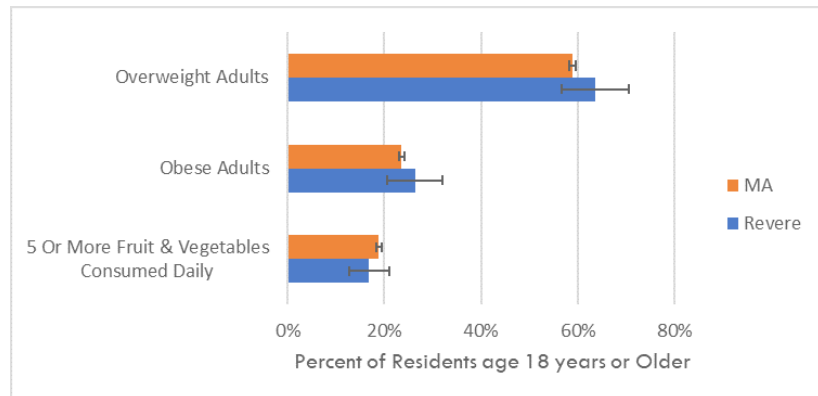


Figure 6: Proportion of Adults Reporting Health Conditions and Behaviors. Source: 2012-2014 Overweight and Obese Adults and 2011, 2013, 2015 Fruit & Vegetable Consumption BRFSS Small Area Estimates accessed via the Massachusetts Population Health Information Tool (PHIT)

TOP HEALTH CONCERNS

As part of the 2019 North Suffolk iCHNA, Revere residents identified the following as the top five health issues in their community:¹³

1. Substance Use Disorders
2. Mental Health
3. Environmental Health
4. Housing
5. Poverty

Poor mental health and substance use disorders have grown as top health concerns since the 2015 assessment (Figure 7). Focus group participants mentioned mental health, notably anxiety and depression, as a need that has gone unaddressed, especially among populations dealing with trauma. While mental health hospitalization rates for Revere are similar to the state overall (915 and 934 hospital admission per 100,000 people, respectively), they have not been decreasing, indicating that mental health issues are pervasive. North Suffolk iCHNA focus group participants stated that there remains significant stigma around accessing mental health services and that these stigmas may be greater for non-white residents and those who are foreign-born.

12 IOM (Institute of Medicine). (2012). Accelerating Progress in Obesity Prevention: Solving the Weight of the Nation. Washington, DC: The National Academies Press.



Substance use disorders were the top health concern for Revere survey respondents, with particular focus on opioid use disorders among focus group participants and assessment informants. In Revere, the opioid epidemic has had devastating consequences for the community; opioid overdoses accounted for more than 24 deaths in Revere in 2017, and hospitalizations rates remain significantly higher than those statewide and in neighboring communities. The 2018 Open Space and Recreation Plan (OSRP) found that, concerning land use, opioid use impacts the cleanliness of parks and playgrounds and the perceptions of safety in public spaces.

There remain significant obstacles to clinical and social/emotional services for community members who have substance use disorders (learn more here: <https://www.northsuffolkassessment.org>).

	Chelsea		Revere		Winthrop	
	2015	2019	2015	2019	2015	2019
Mental health	17%	41%	21%	45%	11%	49%
Alcohol/drug use/ addiction/overdose as a top health concern	57%	75%	71%	73%	46%	73%

Figure 7: Percent of Residents in the Past 12 Months who...Source: 2019 North Suffolk Community Health Needs Assessment Community Survey



HEALTH OVER THE LIFESPAN: AGE-SPECIFIC HEALTH

A critical aspect of community health is examining the health of the population throughout the life course. Data specific to youth and older adults are included here. The purpose is to provide a spotlight on populations that are more susceptible to changes that can either promote or provide lifelong health and wellness.

Youth

Childhood and youth are critical periods for physical, social, and emotional development and a time when external factors such as exposure to significant adverse events (e.g., housing instability, trauma) or exposure to pollutants can adversely affect development. Similarly, engagement in prosocial and healthy behaviors can serve as protective factors that improve health outcomes and prevent illness.

Many municipalities use youth surveys to gather information from youth about their health status and their experiences growing up in healthy environments. Recent survey data for Revere suggest that substance use, mental health, and obesity are all areas of concern for youth.

Focus group participants mentioned vaping and marijuana use as concerns. Data from the 2017 youth survey suggest that current cigarette use remains low (less than 4% of all students). Yet, nearly 9% of middle school students and 12% of high schoolers have used electronic vapor products, and 5% of middle schoolers and 18% of high schools have smoked marijuana. According to focus group participants, young people did not perceive vaping or marijuana as harmful.

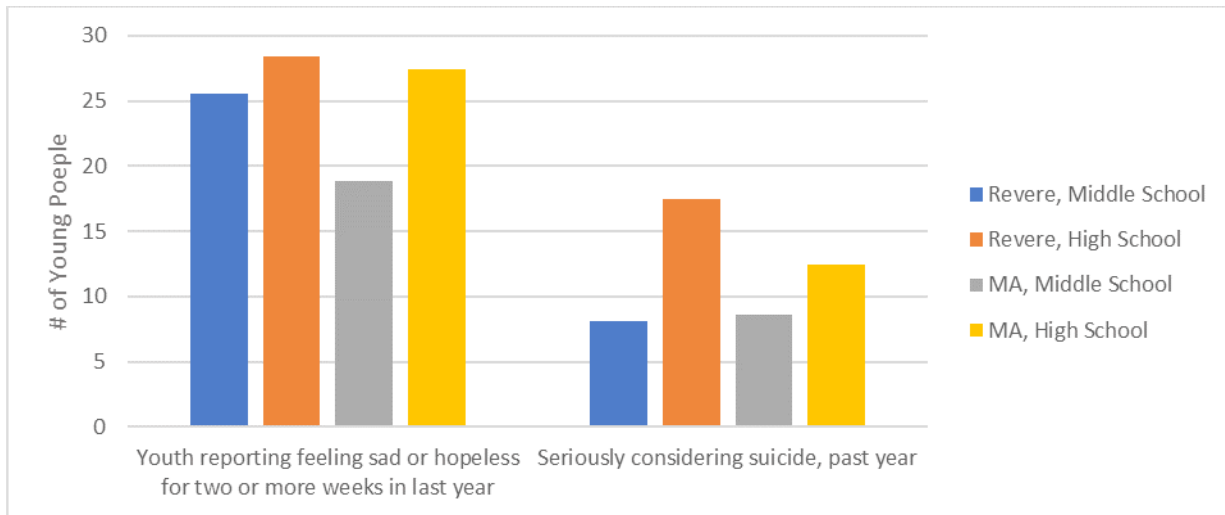


Figure 8: Mental Health and Suicidal Thoughts in High School and Middle School Students. Source: 2017 Youth Behavioral Risk Survey

While data from earlier surveys suggest that there has been a decrease in the percentage of high school and middle school students who report persistent sadness or having considered self-harm like suicide, the overall percentages remain high.¹⁴ Within the Revere student population, females and non-white students are more likely to report these concerns. In some cases, the percentages reporting depression symptoms or suicidal thoughts do exceed state percentages; in no cases are they higher than national percentages. An important resource for youth mental and behavioral health is the in-school programming offered by North Suffolk Mental Health.

Percent of Overweight or Obese Public School Students				
Grade	Revere (2018-2019 school year)	Chelsea (2017-2018 school year)	Winthrop (2014-2015 school year)*	Massachusetts (2014-2015 school year)*
1st Grade	42%	47%	35%	28%
4th Grade	51.50%	57%	37%	34%
7th Grade	44%	62%	37%	34%
10th Grade	41%	49%	36%	33%

Figure 9: Percent of Residents in the Past 12 Months who...Source: 2019 North Suffolk Community Health Needs Assessment Community Survey

* Massachusetts DPH reports only until 2014-2015 school year



Surveys suggest there are similar percentages of Revere and state youth who engage in healthy behaviors like physical activity and healthy eating.¹⁵ However, obesity is more prevalent among Revere public school students than those statewide (Figure 9) and almost as much of a concern as it is among school-age youth in neighboring Chelsea. Focus group participants highlighted the need for more youth activities and spaces for teenagers to promote physical activity and increase interactions with others in the community.

Older Adults

Massachusetts is set to experience growth in the number of residents who are 65 years and older. The growth in the number of older residents will challenge how residential and commercial infrastructure is built, what health, social, and economic services are offered; and how and where older residents interact with the rest of the community. Currently, 14.5% of Revere residents are 65 years and older; this population is projected to increase over the next ten years.

The Massachusetts Healthy Aging Collaborative has developed municipal profiles for cities and towns that show the health of older residents. Their data suggests that while older residents in Revere engage in healthy behaviors like meeting guidelines for physical activity, nutrition, and sleep, they are still suffering from poor health outcomes at higher rates than other older adults across the state (learn more here: <https://mahealthyagingcollaborative.org>)

Community conditions have a powerful effect on lifetime health. Among older adult residents and key stakeholders, housing, transportation, and social isolation were top health concerns.

Informants stated that affordable and age-friendly housing is a top concern among Revere's older adults. Housing affordability trends can have a huge impact on Revere's older adult population, given that a large proportion is on a fixed income. Most of Revere's older adults are homeowners¹⁶ and recent Census estimates show that about a third of older residents live in households with annual incomes less than \$20,000. Where these homes are not designed for aging in place, residents will require solutions that respond to changing physical and cognitive abilities that come with growing older. As residents age 65 and older look for housing that meets their needs within their community, demand for a wide range of age-friendly housing types will increase.

Transportation services are a critical element for older adults to be able to access programming and needed services as well as to connect with other residents. Although MBTA public transit is available to neighborhoods of Revere, the MBTA trains do not connect residents to locally significant amenities, and the bus routes serving West Revere are infrequent with reduced off-peak hours. The Rossetti-Cowan Senior Center runs two shuttles, offering transportation by appointment to the Senior Center, medical appointments, and community amenities like the grocery store and library. The shuttle currently serves 300 to 350 individuals per week.

Social isolation and loneliness are high among elderly populations. In Revere, a third of people aged 65 and older live alone.¹⁷ Key informants stated that while older adults may choose to live alone, this can lead to unaddressed health risks and affects how older residents access care and interact with others.

15 2015 and 2017 Revere Youth Risk Behavior Survey (YRBS)

16 American Community Survey (2012-2016)

17 American Community Survey (2012-2016)



Senior centers serve as a gateway to the nation's aging network—connecting older adults to vital community services that can help them stay healthy and independent. Compared with their peers, senior center participants have higher levels of health, social interaction, and life satisfaction and lower levels of income. Based on 2010 estimates, the Rossetti-Cowan Senior Center currently serves 28.5% of Revere's senior population (to learn more about the Rossetti-Cowan Senior Center, see the Public Facilities and Services Chapter). In interpreting this statistic, it is important to note that many older residents remain active socially and may not need organized senior activity. In addition, there is a significant amount of programming offered at the several Revere-based senior-oriented residential facilities and private community-based programs. The recent opening of a PACE facility in conjunction with East Boston Neighborhood Health Center has brought additional affordable and accessible health care in a supportive social setting that also responds to issues of isolation and loneliness.



Elements of a Healthy Community

STABLE, HEALTHY, AND QUALITY HOMES

Housing was the fourth overall health concern for Revere residents in the iCHNA survey. Housing has effects on health through multiple pathways: stability and affordability, quality and design, and location.

Stable housing is an essential component of good health because when individuals live in a safe, affordable home and community, they can prioritize their health, better manage disease, and invest in their well-being. High housing costs can force individuals to choose between housing payments and other essentials such as food, medical care, and utilities. It can also contribute to increased stress, which decreases resistance to disease.¹⁸ Children in unstable housing are at risk of malnutrition and developmental delays that can have lifelong health consequences.¹⁹

Focus group participants noted that Revere's housing market conditions are stressful. As described in the Housing Chapter, it is estimated that 53% of renters and 44% of homeowners in Revere are cost-burdened, meaning they spend more than 30% of their income on housing. Participants report that increases in housing costs have led to overcrowding as individuals and families are doubling up in apartments because they cannot afford to live alone. Rising costs were described as a threat to participants' health, responsible for pushing people out of their homes and community, and leading to a loss of community connectedness and multicultural diversity.²⁰

There are several measures of housing quality. Housing that is not adequately maintained, ventilated, or free from pests and contaminants, such as mold, lead, and radon, is an important contributor to rates of injury, asthma, cancer, neurotoxicity, cardiovascular disease, depression, and poor mental health. A common hazard in many Massachusetts' homes, as a result of older housing stock, is lead paint. Disturbed or aging paint can release lead dust, which is then inhaled or consumed. Lead can cause damage to the brain, kidneys, and nervous system, slow growth and development, and create behavioral problems and learning disabilities in children. The use of lead in household paint was banned in 1978, but lead paint applied before the ban is still present in many older homes across the Commonwealth. In Revere, 74% of houses were built before 1978 (as compared to the state average of 71%), and 83% of children have been screened for elevated blood lead levels.²¹

The location of housing is critical, as well. In general, households in neighborhoods that have higher population densities, access to destinations, more grid-like street patterns, and access to high-quality bicycle

18 RWJF How Does Housing Affect Health?: <https://www.rwjf.org/en/library/research/2011/05/housing-and-health.html>

19 Cutts, Diana Becker, et al. "US housing insecurity and the health of very young children." *American Journal of Public Health* 101.8 (2011): 1508-1514.

20 North Suffolk Integrated Community Health Needs Assessment Community Survey (2019).

21 Massachusetts Department of Public Health, Bureau of Environmental Health, Massachusetts Environmental Public Health Tracking (EPHT). (2017). EPHT Community Profile for Revere, 1-10. Retrieved from <https://matracking.ehs.state.ma.us/>



and pedestrian infrastructure are positively associated with physical activity.^{22,23} The Transportation Chapter describes Revere's walking amenities in more depth.

▶ ACTIVE TRANSPORTATION AND SAFETY

The health benefits of physical activity have been well documented, yet less than half (49%) of all adults in Revere meet the Surgeon General's recommended 30 minutes of moderate-intensity physical activity on most days of the week.²⁴ Research has linked physical inactivity to poor health outcomes such as coronary heart disease, Type II diabetes, certain cancers, and even premature mortality.²⁵

Evidence suggests that good infrastructure (sidewalks, bike lanes, etc.) and public transportation access leads to increased walking and biking for transportation purposes, and therefore plays an important role in increasing population-level physical activity.²⁶ A robust body of literature links physical activity to a wide range of health benefits^{27,28}.

Compared to the national walking average of six minutes per day, public transit users spend a median of 19 daily minutes walking.²⁹ Estimates show that an individual walks an additional 8.3 minutes per day when they switch from driving to transit.³⁰ While a sizeable portion (27%) commute by public transit, two-thirds of

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- 22 Ewing, Reid, and Robert Cervero. 2010. "Travel and the Built Environment." *Journal of the American Planning Association* 76 (3): 265–294. doi:10.1080/01944361003766766.; Freeman, Lance, Kathryn Neckerman, Ofira Schwartz-Soicher, James Quinn, Catherine Richards, Michael D M Bader, Gina Lovasi, et al. 2012. "Neighborhood Walkability and Active Travel (Walking and Cycling) in New York City." *Journal of Urban Health: Bulletin of the New York Academy of Medicine* (September 1). doi:10.1007/s11524-012-9758-7
 - 23 Giles-Corti, Billie, Fiona Bull, Matthew Knuiman, Gavin McCormack, Kimberly Van Niel, Anna Timperio, Hayley Christian, et al. 2013. "The Influence of Urban Design on Neighbourhood Walking Following Residential Relocation: Longitudinal Results from the RESIDE Study." *Social Science & Medicine* 77 (January): 20–30. doi:10.1016/j.socscimed.2012.10.016.
 - 24 National Center for Health Statistics, FastStats: Exercise or Physical Activity, 2014, <http://www.cdc.gov/nchs/fastats/exercise.htm>
 - 25 Lee, I-Min, Eric J Shiroma, Felipe Lobelo, Pekka Puska, Steven N Blair, and Peter T Katzmarzyk. 2012. "Effect of Physical Inactivity on Major Non-communicable Diseases Worldwide: An Analysis of Burden of Disease and Life Expectancy." *Lancet* 380 (9838) (July 21): 219–229. doi:10.1016/S0140-6736(12)61031-9
 - 26 Sallis, J. F., Floyd, M. F., Rodríguez, D. A., & Saelens, B. E. (2012). Role of built environments in physical activity, obesity, and cardiovascular disease. *Circulation*, 125(5), 729-737.
 - 27 Li, J., & Siegrist, J. (2012). Physical activity and risk of cardiovascular disease—a meta-analysis of prospective cohort studies. *International journal of environmental research and public health*, 9(2), 391-407; National Cancer Institute (NCI). Physical Activity and Cancer Fact Sheet. <http://www.cancer.gov/about-cancer/causes-prevention/risk/obesity/physical-activity-fact-sheet>
 - 28 Biddle, S. J., & Asare, M. (2011). Physical activity and mental health in children and adolescents: a review of reviews. *British journal of sports medicine*, bjsports90185
 - 29 Besser, L. M., & Dannenberg, A. L. (2005). Walking to public transit: steps to help meet physical activity recommendations. *American journal of preventive medicine*, 29(4), 273-280.
 - 30 Hill, J. O., Wyatt, H. R., Reed, G. W., & Peters, J. C. (2003). Obesity and the environment: where do we go from here?, *Science*, 299(5608), 853-855.



Revere residents drive to work).³¹ Shifting additional car commuters to public transit, walking, or biking could help improve resident health. Continued residential development along the Blue Line corridor will play an important role in ensuring high public transportation utilization among future residents.

As described in the Transportation Chapter, several roads and intersections Revere have been identified by the Highway Safety Improvement Program (HISP) as crash clusters for bicyclists and pedestrians (See Transportation Chapter). In addition to actual safety and injury risk, the perception of how safe the transportation system has effects on people's behaviors. Studies that consider traffic and perceptions of safety generally agree that pedestrians and bicyclists have negative perceptions of traffic and that real or perceived danger and discomfort in traffic discourages walking and bicycling.^{32 33 34} Safety concerns appear to be strongest in children, the elderly, and women.³⁵

EXPOSURE TO AIR POLLUTION AND GREEN SPACE

Environmental Health

Environmental health was a top overall health concern for Revere respondents to the North Suffolk iCHNA survey. Participants mentioned traffic-related air pollution and noise from the airport in addition to coastal flooding and environmental issues.

There is evidence linking exposure to very high noise and traffic-related air pollution to increased risk for heart disease, respiratory disease, and neurological health conditions. Noise annoyance, a condition mentioned by focus group participants, increases the risk for chronic stress. Night-time noise exposure can disturb sleep and can lead to the body's inability to regulate blood pressure. Concentrations of traffic-related air pollution can be particularly high in areas with heavy congestion or high volumes of vehicular traffic. Near these locations, individuals in schools and homes, and those who walk or bicycle can be directly affected by short- and long-term exposure to the pollutants. Research suggests that exposure concerns are relevant to those living or actively recreating within 500 feet of corridors that have traffic volumes exceeding 30,000 vehicles per day. Discussed in greater detail in the Revere 2018 Open Space and Recreation Plan, air pollution is of significant concern across Revere due to the high volume roadways in the city and the proximity of Logan International Airport.

The Wheelabrator garbage incinerator in Saugus is another area of resident concern, especially for the Point of Pines, Riverside, and Oak Island neighborhoods. A waste-to-energy plant, Wheelabrator burns 1,500 tons of garbage per day from ten Massachusetts communities and can generate as much as thirty-seven megawatts of energy. It also generates ash, which can contain hazardous heavy metals like arsenic, cadmium,

31 U.S. Census Bureau, American Community Survey, 2012-2016

32 Jacobsen, P L, F Racioppi, and H Rutter. 2009. "Who Owns the Roads? How Motorised Traffic Discourages Walking and Bicycling." *Injury Prevention: Journal of the International Society for Child and Adolescent Injury Prevention* 15 (6) (December): 369–373. doi:10.1136/ip.2009.022566;

33 Pucher, John, Jennifer Dill, and Susan Handy. 2010. "Infrastructure, Programs, and Policies to Increase Bicycling: An International Review." *Preventive Medicine* 50 Suppl. 1 (January): S106–125. doi:10.1016/j.jpmed.2009.07.028-168

34 Wahlgren, Lina, and Peter Schantz. 2012. "Exploring Bikeability in a Metropolitan Setting: Stimulating and Hindering Factors in Commuting Route Environments." *BMC Public Health* 12: 168. doi:10.1186/1471-2458-12-168

35 Bassett, David R, Jr, John Pucher, Ralph Buehler, Dixie L Thompson, and Scott E Crouter. 2008. "Walking, Cycling, and Obesity Rates in Europe, North America, and Australia." *Journal of Physical Activity & Health* 5 (6): 795–814



and lead that gets disposed of in the adjacent landfill.³⁶ Residents expressed concerns about the noise and air pollution produced by the incinerator and about contamination to the surrounding salt marsh from the ash landfill.

Access to Open and Green Space

Parks and recreational spaces present opportunities for physical activity and community connections. In studies, good access to large, attractive recreation spaces has been associated with greater levels of exercise.³⁷ Access to parks, open space, and greenery are associated with protection against poor mental health outcomes and greater socializing and social support.³⁸

A measure of access to open space is the number of acres of open space per person in a specific geography. Based on the 2010 population and recent land use data, the city has an average score of 0.15 acres per capita. Revere's score is much lower than the MAPC region as a whole (1.52 acres).³⁹

The North Suffolk iCHNA survey found that the top places where Revere residents engage in physical activity included parks and walking or hiking trails. Yet, a smaller proportion of respondents reported visiting outdoor recreation spaces or going to recreational spaces to engage in physical activity than residents in municipalities.⁴⁰ Expanding access to these types of facilities could promote physical activity in Revere.

However, access to open and green space is more than acres of open and green space available. It is equally determined by the range of space types and uses offered and the connectivity of these spaces to the population. The 2019 Pocket Park analysis of open space access illustrated that there remain areas of Revere, which are underserved by current open spaces (See the Pocket Parks Analysis in the Open Space and Recreation Chapter). These included most of the Shirley Avenue neighborhood, the central Park Ave, and the Hills neighborhoods, as well as sections of the Riverside and Beachmont neighborhoods. Connectivity of open spaces likewise varies across the city. Participants in the 2018 OSRP reported having limited access to nearby open spaces, parks, and recreation facilities. This highlights the importance of considering transportation networks and communication about available resources, as well as whether the current spaces serve users of all ages and abilities.

Exposure to green space can occur through publicly-accessible parks and lands, but residents are also exposed to green space through contact and experience with vegetation like trees and shrubs throughout a community. Analysis of tree canopy coverage in the Climate and Energy Chapter shows that overall, only 13.8% of Revere's total land has some coverage (See map in the Energy and Climate Chapter). As described

36 LeMoult, Craig (May 9, 2018). "Environmentalists And Town of Saugus Appeal State Approval Of Ash Landfill." WBUR. Accessed at: <https://www.wgbh.org/news/local-news/2018/05/09/environmentalists-and-town-of-saugus-appeal-state-approval-of-ash-landfill>; Jochem, Greta (Feb 1, 2018). "An Incinerator Divides a Town Near Boston." CityLab.

Accessed at: <https://www.citylab.com/environment/2018/02/an-incinerator-divides-a-town-near-boston/552053/>

37 Lee, A. C. K., & Maheswaran, R. (2011). The health benefits of urban green spaces: a review of the evidence. *Journal of Public Health*, 33(2), 212–222.

38 Cities, Green Space, and Mental Well-Being: <http://oxfordre.com/environmentalscience/view/10.1093/acrefore/9780199389414.001.0001/acrefore-9780199389414-e-93>

39 The score is calculated by averaging the open space per capita of all 250m grids within a specific geographic extent. The average only considers grids where the population was greater than 0 in 2010.

40 North Suffolk Integrated Community Health Needs Assessment Community Survey (2019).



in the same chapter, Revere is responding to this by participating in the Massachusetts Greening the Gateways Cities Program (GGCP), which is aimed at increasing urban tree canopy and planting more trees.

In addition to the physical, cognitive, and social health, co-benefits, vegetation, and open green space offer ecological benefits. Vegetation and green spaces can alleviate heat impacts, offer stormwater retention, and improve air quality locally as well as provide carbon sequestration opportunities and regulate temperature regionally.

▶ ACCESS TO HEALTHY AFFORDABLE FOOD

Research suggests that access to healthy and nutritious foods in neighborhoods may play a critical role in residents' diets.^{41 42} Dietary choices are associated with risks for chronic diseases, such as Type 2 diabetes, hypertension, and overweight and obesity.⁴³ The USDA defines food security as the condition of having access to enough food for an active, healthy life, while food insecurity describes the condition of having limited financial resources to buy food. Poverty is the largest contributing factor to food insecurity in the United States. Revere has higher poverty rates than Massachusetts, generally. An estimated 13% of residents live in poverty, compared with roughly 11% statewide.

While food costs play a role, geography is a large determinant in food access, with implications for the correlated conditions of food insecurity and diet-related health outcomes. People may sometimes have enough money for food but are not able to access healthy food because of transportation or functional limitations. The North Suffolk iCHNA found that price was the most mentioned factor affecting where residents shopped for food, but that distance to the store was also a top concern. The availability of culturally specific food was also an important factor in-store choice, especially for Latinx residents and those who were foreign-born.

While each Revere supermarket is accessible by an MBTA bus route, these lines have limited service and do not connect residents efficiently. Shirley Ave is an especially notable example of this, with the nearest grocery store located in Suffolk Downs and no direct line between the neighborhood and the store. In addition, shoppers report that the MBTA is inadequately equipped for traveling with groceries, and different bag limit policies are enacted depending on line and driver. For residents aged sixty years and older, the Revere Senior shuttles offer rides to the supermarket.

41 Morland, Kimberly, Steve Wing, Ana Diez Roux, and Charles Poole. 2002. "Neighborhood Characteristics Associated with the Location of Food Stores and Food Service Places." *American Journal of Preventive Medicine* 22 (1) (January): 23-29

42 Rose, Donald, and Rickelle Richards. 2004. "Food Store Access and Household Fruit and Vegetable Use Among Participants in the US Food Stamp Program." *Public Health Nutrition* 7 (8) (December): 1081-1088. doi:10.1079/PHN2004648.

43 Centers for Disease Control and Prevention, Guide to Community Preventive Services - Promoting Good Nutrition, <http://www.thecommunityguide.org/nutrition/index.html>



Supermarkets provide a greater variety of healthy foods that are generally of higher quality and more affordable when compared to smaller food stores. Although some discrepancy exists in the literature, poor supermarket access has been linked to increased rates of poor health outcomes such as diabetes, cardiovascular disease, and obesity when compared to neighborhoods that have supermarkets.⁴⁴

The majority of Revere residents (91%) report getting most of their groceries from the supermarket or grocery store. There are several large grocery stores in Revere, but since the closing of the Shirley Ave Stop and Shop, remaining supermarkets are located on the periphery of Revere (See Figure 10 below), and necessitate solutions to the existing transportation barriers. Accordingly, the Massachusetts Public Health Association's Food Trust Program lists Revere as having one of the top grocery gaps in the state.⁴⁵ While most convenience stores are concentrated in areas where people live (Figure 10 below), these businesses tend to serve lower cost, unhealthy foods.

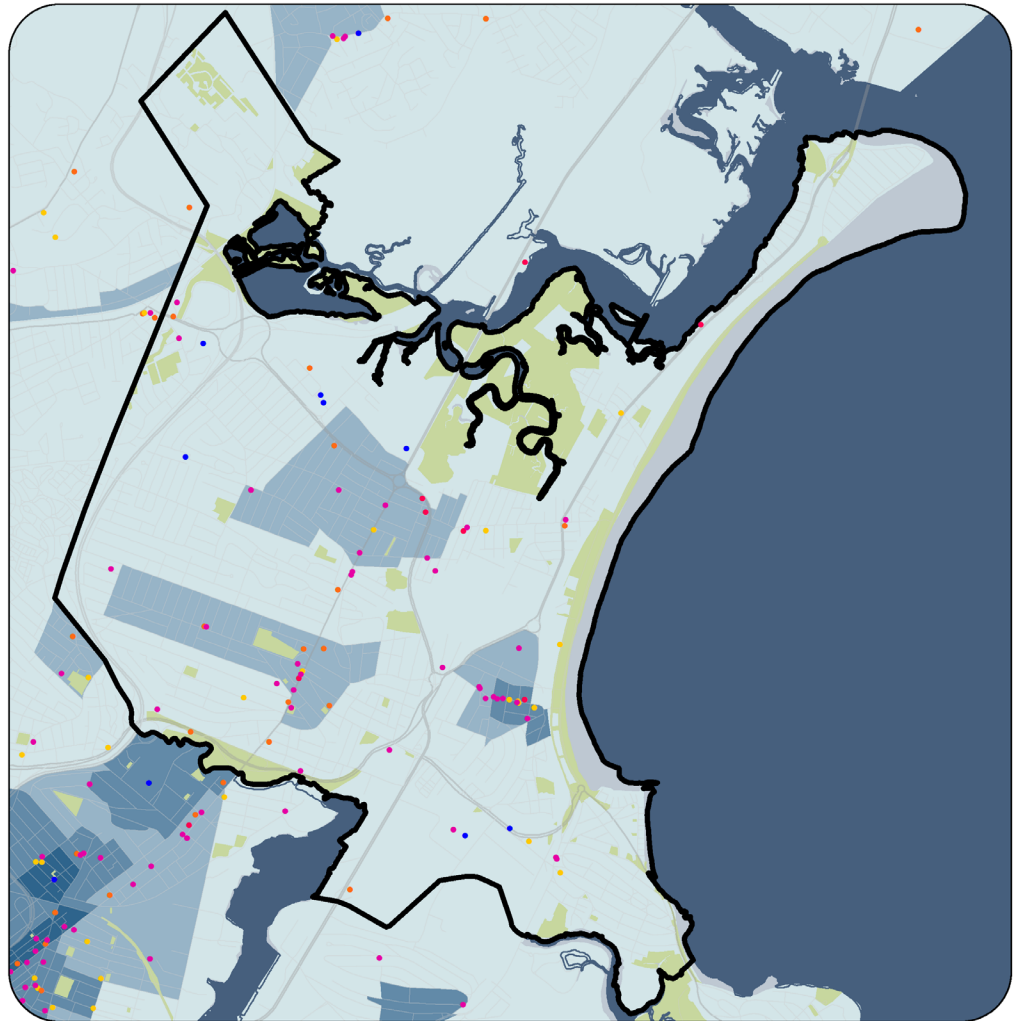
HCI's food justice initiatives have focused on food insecurity, food access, and healthy food retail. The initiative leverages resources to expand healthy food access, with the Revere Farmers Market as a notable example of that type of work. The market provides access to locally produced food from July to October. Revere's market, currently located at the American Legion Hall on Broadway, leverages the Healthy Incentive Program and provides a \$20 match for those with WIC and Senior nutrition vouchers, including Veterans. In 2019 the City opened the match program up to residents over sixty-two years of age and all low and moderate-income residents in the city. There are two additional monthly mobile markets offering access to fresh produce. In the past, HCI has offered technical assistance, education, and financial resources to smaller retailers and convenience stores to enable them to expand their healthy food offerings. These resources are explained in greater detail in the Economic Development Chapter. Sustaining the critical food justice work has been a challenge with current staffing capacity and resources.

School Food

During the 2018 Open Space and Recreation Plan school nurse focus group, concerns were raised regarding the quality and accessibility of school food and the free meal program. Students eat most of their meals in schools, and eating enough nutritious food is foundational to a student's ability to do well in school and life. When students have a healthy diet, this positively impacts their cognitive development, school achievement, and socioemotional well-being.⁴⁶ Because children from food-insecure households face increased risks of negative health outcomes, the nutritious meals they eat throughout the school week are especially important to reduce these risks.

While the Revere Public Schools offer universal free breakfast, many children have transportation issues and do not get to school early enough to eat the free breakfast. The focus group felt that overall food quality could be improved or made more culturally relevant and noted that a large portion of offerings, especially

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- 44 Cotterill, Ronald, and Andrew Franklin. 1995. "The Urban Grocery Store Gap. No. 8." University of Connecticut, Department of Agricultural and Resource Economics, Charles J. Zwick Center for Food and Resource Policy; Powell, Lisa M, M Christopher Auld, Frank J Chaloupka, Patrick M O'Malley, and Lloyd D Johnston, 2007, "Associations Between Access to Food Stores and Adolescent Body Mass Index." *American Journal of Preventive Medicine* 33 (4 Suppl.) (October): S301–307. doi:10.1016/j.amepre.2007.07.007.
- 45 MA Public Health Association Food Trust Program (2019). Accessed at: <https://mapublichealth.org/priorities/access-to-healthy-affordable-food/ma-food-trust-program>
- 46 Wight, V., Kaushal, N., Waldfogel, J., & Garfinkel, I. (2014). Understanding the Link between Poverty and Food Insecurity among Children: Does the Definition of Poverty Matter? *Journal of Children & Poverty*, 20(1), 1–20. <https://doi.org/10.1080/10796126.2014.891973>.



Food Retailers

- Small Convenience stores
- Convenience stores, Pharmacies and Drug Stores
- Specialty Food Stores, Meat Markets, and Fish and Seafood Markets
- Small Supermarkets and Other Grocery, Farmers Markets, Fruits and Vegetable Markets
- Supermarkets and Other Grocery, Warehouse and Supercenter

Access to a Grocery Store? (1/4 mile)

- No
- Unlikely
- Likely
- Yes

Produced by: Metropolitan Area Planning Council
 Data Sources: MAPC, MassGIS, InfoGroup 2016
 Date: October 2019

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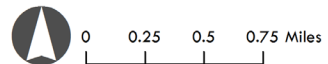


Figure 10: Healthy Food Access (1/4 mi)

for breakfast, are simple carbohydrates. This is problematic as pediatric Type I and Type II Diabetes are very prevalent in the school system.⁴⁷

In efforts to improve healthy food access, nutrition, and health, priority should be given to improving school food environments and other complementary programming, expanding the current summer meals programs, building on the recently implemented "Breakfast After the Bell" program, as well as school gardening and nutrition education initiatives.

47 2015 and 2017 Revere Youth Risk Behavior Survey (YRBS)

Community Connections

Social cohesion, which describes the extent of connectedness and solidarity of a community, and social support are associated with positive health outcomes. Communities with greater levels of social cohesion—often characterized by high levels of trust and respect, participation in community activities and public affairs, and increased participation in community groups—have better health outcomes than those with low level.⁴⁸

Survey data indicates that Revere residents are involved in their community and public affairs. A large proportion (70%) of Revere respondents to the North Suffolk iCHNA survey have attended a community event in the past year, and more than a third (42%) are part of a faith-based group or neighborhood association. Revere residents also report being engaged with public affairs; more than half (57%) agree or strongly agree that they should be involved in government decision making, and most (77%) vote at every or almost every election.⁴⁹

People within rich social environments—who have more friends and social interactions, hold a greater level of trust in their neighbors, and are part of a more tightly knit community—have access to a greater network of social resources, which in turn helps them stay healthier.⁵⁰ Access to social support is associated with protective health effects, including improved mental health outcomes, reduced stress, better cardiovascular health, better immune system functioning and more.⁵¹ Survey data suggests that most Revere residents are satisfied with their social environment. Almost half (45%) of Revere survey participants report having ‘very good or excellent’ social activities and relationships (Figure 11).⁵²

This high rate of social activity is laudable and important to maintain, especially given the increasing heterogeneity of Revere’s community. Where participation in social and civic activities can be geographically, linguistically, or ethnically and racially siloed, it is important the City proactively consider how they can effectively engage and communicate with all residents.

Participants across the North Suffolk iCHNA focus groups reported the desire to unite the different ethnic and racial groups of Revere. As identified in the Historical and Cultural Resources as well as Public Facilities chapters, a community or cultural facility that could accommodate these types of events was a frequently mentioned need throughout the *Next Stop Revere* engagement process.

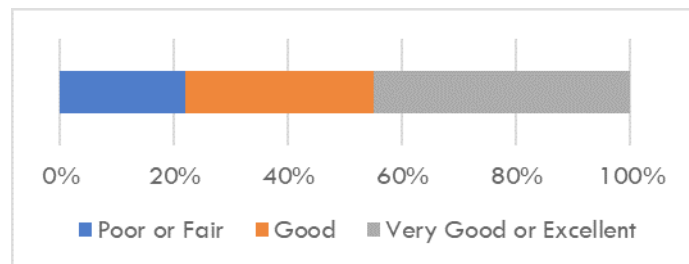


Figure 11: Answer to the question, “In general, how would you rate your satisfaction with your social activities and relationships?”

Source: 2019 North Suffolk iCHNA survey

Challenges

▶ RACISM AND HEALTH INEQUITIES

Immigrants, people of color, Muslims, and other minorities have experienced sustained and recently escalated racism, xenophobia, and hate crimes across the country. Where sentiments around racism can be regional or global, harms inflicted by racism are experienced individually and locally.

In Revere, as is true across Massachusetts and the country, experiences of racism can have direct impacts on health and access to care. As an example, the Institute of Medicine found that “health care providers’ diagnostic and treatment decisions, as well as their feelings about patients, are influenced by patients’ race or



ethnicity and stereotypes associated with them.”⁵³ A health equity approach to improving health outcomes in Revere must also tackle racism and structural racial inequities in the City.

Participants at the *Next Stop Revere* Kick-Off meeting reported racism as a concern, and Revere respondents to the North Suffolk iCHNA survey indicated that they had been treated badly due to identity. Furthermore, Latinx respondents were four times more likely to have been treated badly or unfairly in the past year because of race or ethnicity than their non-Latinx counterparts. Other racial and ethnic groups in Revere have likely had similar experiences of discrimination and racism, but existing data sources insufficiently capture their stories.

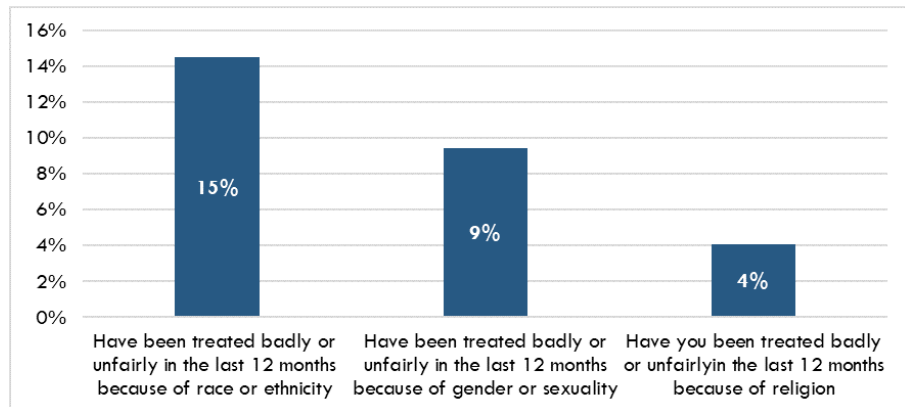


Figure 12: Reported experiences of racism and prejudice due to gender, sexual, or religious identity. Source: 2019 North Suffolk integrated community health needs assessment (iCHNA) survey

CRIME AND SAFETY

While many of Revere residents (79%) who participated in the iCHNA survey reported feeling safe in their community, there remains a sizeable proportion of residents (21%) who do not feel safe. Crime and violence were not mentioned as a top community health concern for Revere residents in 2019, but it was in both 2012 and 2015.⁵⁴ The Revere Police Department formed a Community Service Division in 2017 to more proactively engage residents and collaboratively solve community problems. The Police Department developed youth and senior academies to engage the population. The Shirley Avenue Sub-station, in addition to the Pleasant Street substation, have served as important resource centers for residents. Despite this work, it is important to note that the amount of survey respondents that continue to feel unsafe in their community indicates that, although public safety is not a pervasive issue, there is still work to be done.

ACCESS TO CRITICAL SERVICES

Participants in the second *Next Stop Revere* forum reported that access to daily amenities, like grocery stores and commercial areas, schools, and recreation facilities, was a significant challenge for non-drivers. In addition, the North Suffolk iCHNA survey found that transportation and the location of services were listed as top barriers to accessing non-emergency medical care. Traffic fatalities & injuries, coupled with the perception of danger, make the environment less welcoming to people getting around on bike and foot. Meanwhile, public transit is not currently serving as a robust means of connecting to local amenities. Beyond

53 Love, Bayard and Hayes-Greene, Deena (2019) "The Groundwater Approach: building a practical understanding of structural racism." Accessed at: <https://www.racialequityinstitute.com/groundwaterapproach>



transportation networks, North Suffolk iCHNA focus group participants spoke to the role language and insurance accessibility of medical care.

CLIMATE CHANGE

The projected changes to our climate, such as higher temperatures and extreme weather, will exacerbate existing health conditions, such as asthma and cardiovascular disease. New health issues will also emerge as vectors, as the warmer and wetter conditions facilitate water-borne diseases. While our physical places will be vulnerable, so will be the health of people that live, work and gather in these places. These challenges are described in greater detail within the Energy and Climate chapter.

AGING POPULATION

As described above, Massachusetts is set to experience growth in the number of residents who are 65 years old and older. The growth in the number of older residents will challenge how infrastructure is built, what services are offered, and how and where these residents interact with the rest of the community.

Opportunities

PROXIMITY TO LOCAL AND REGIONAL RESOURCES

Throughout outreach for *Next Stop Revere*, participants cited their proximity to health-supporting resources as a community asset. Within Revere, residents praised the walkability of their neighborhood, their easy access to the beach, and resources like the MBTA Blue Line and the Revere Farmers Markets. Participants also appreciated their community's proximity to Boston, with its jobs, medical services, and airport. A commitment to improving public transit connections and walking and biking infrastructure could further leverage the proximity to these key assets. The City's emphasize on transit-oriented development and the clustering of amenities to support activities around new development will build on this community asset and ensure that Revere remains a well-connected municipality. The expansion and construction of the Northern Strand Community Rail Trail is a notable project to improve bike/ped connectivity regionally. The \$13M of funding committed to building out the Northern Strand trail is the result of regional efforts and collaboration (reference the Open Space and Recreation Plan TK).

LEADERSHIP AND INNOVATION WITHIN THE PUBLIC HEALTH SYSTEM

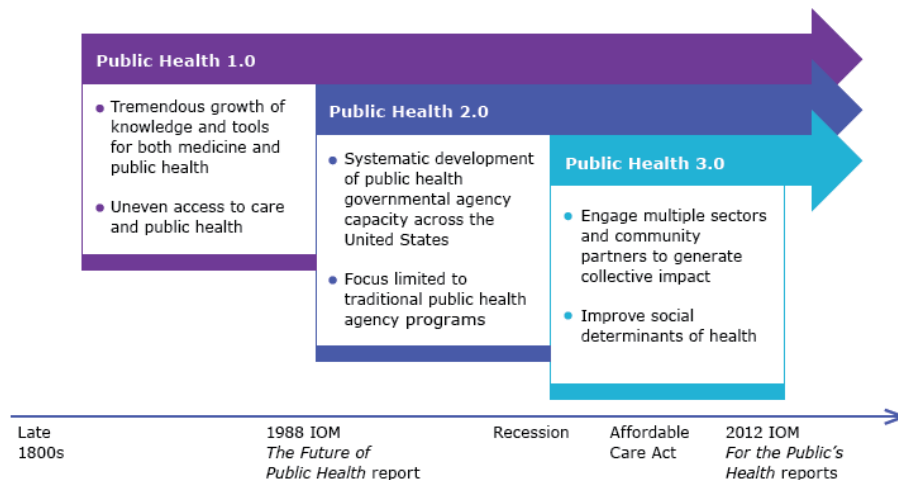


Figure 13: Public Health 3.0

The scan of Revere's FPHS capabilities across the foundational areas found that public health agents in Revere are doing a lot of innovative and essential work but that the existing structure of public health services within Revere City Hall is fragmented. Fragmentation creates silos of work, which poses challenges for communication, resource allocation, and, ultimately, program sustainability.

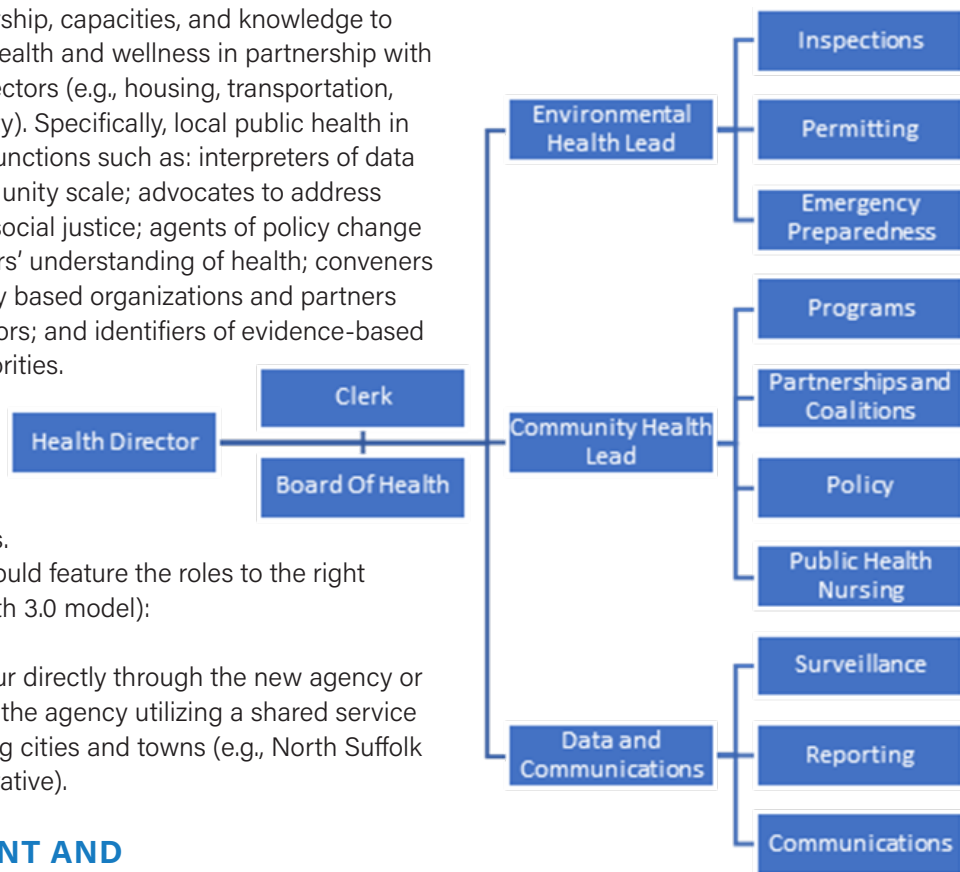
If Revere is to continue to do innovative and community-focused public health work, such as HCI and SUDI, it needs to create a unified City agency devoted to public health issues and opportunities. Such an agency could provide a unified public health strategy, a framework for allocating institutional and financial support, and systems for collaboration. It could also improve the municipality's position to compete for funding. Where there is work currently underway to explore reorganizing existing departments into a single agency, an opportunity exists to adopt the emerging model for public health, sometimes referred to as Public Health 3.0.

The 3.0 model moves local public health into a position to impact the social determinants of health. Playing the role of 'community health strategist,' the department maintains public health protections per statute while

prioritizing their leadership, capacities, and knowledge to advance community health and wellness in partnership with partners from many sectors (e.g., housing, transportation, education, public safety). Specifically, local public health in a 3.0 model includes functions such as: interpreters of data and trends on a community scale; advocates to address health inequities and social justice; agents of policy change who broaden legislators' understanding of health; conveners inclusive of community based organizations and partners from non-healthy sectors; and identifiers of evidence-based strategies for local priorities.

A unified City public health approach in Revere could take many forms. Each form, though, should feature the roles to the right (using the Public Health 3.0 model):

These roles could occur directly through the new agency or be accomplished with the agency utilizing a shared service role across neighboring cities and towns (e.g., North Suffolk Public Health Collaborative).



REDEVELOPMENT AND OPPORTUNITY AREAS

As described in greater detail in the Economic Development section, there are a series of major public and private parcels – like Suffolk Downs, Wonderland, Caddy Farm, and the former NECCO property -- that can all be redeveloped without any displacement of existing residents or businesses. These sites can catalyze private production of public amenities, such as open space and senior housing, and provide new economic opportunities for Revere residents.

Economic opportunity, or the ability to improve one's financial conditions, is part of socioeconomic status and thus a key social determinant of health. Socioeconomic status is the result of multiple related factors such as education level, employment, and income. One's education level influences job choices and, in turn, income level. Higher-income is known to lead to better health outcomes, and there is evidence of increased risks for mortality, morbidity, and unhealthy behaviors for those with lower incomes.^{55 56} These factors together greatly

55 Lindahl, Mikael. 2002. "Estimating the Effect of Income on Health and Mortality Using Lottery Prizes as Exogenous of Variation in Income". IZA Discussion Paper 442. Institute for the Study of Labor (IZA). Accessed from: <http://ideas.repec.org/p/iza/izadps/dp442.html>.

56 Rehkopf, David H, Lisa F Berkman, Brent Coull, and Nancy Krieger. 2008. "The Non-linear Risk of Mortality by Income Level in a Healthy Population: US National Health and Nutrition Examination Survey Mortality Follow-up Cohort, 1988-2001." BMC Public Health 8: 383. doi:10.1186/1471-2458-8-383.



influence the probability of a person's access to environments and resources supportive of health, as well as their mental and physical health.⁵⁷

Notable private production of amenities includes the redevelopment of Suffolk Downs, which will eventually comprise 13 acres of open space in Revere and 40 acres in the project, all of which will be available for use by Revere residents and accessible by public transportation or private shuttles. The project will also create an innovation center and additional deed-restricted senior housing. The City can continue to leverage the redevelopment of its other opportunity areas for TOD, open space creation/preservation, and job-development.

▶ URBAN FARMING AND COMMUNITY GARDENING

Revere's Healthy Community Initiatives currently oversees, with the MGH Revere CARES coalition through Revere on the Move's Urban Farming Committee, thirty garden plots at Revere High School, and seventeen at Gibson Park. Outreach found that existing community and school gardens developed by the City have been well received and that the public is interested in developing more opportunities for gardening in the community. At a public forum, participants selected the Shirley Avenue neighborhood, the Whelan School, and near the Rose Street Federal Family Development building as priority spaces to explore for growing food. Building on this expressed community interest, the City is collaborating with MGH Revere Cares on Revere on the Move's Urban Farming Committee. The goal of this work is to bring in those who already are farming or want to learn to farm and build capacity to grow Urban Farming in Revere through policy, systems, and environment changes.

▶ SCHOOL FOOD

According to the Massachusetts Department of Elementary and Secondary Education, in the 2019-20 school year, more than half of Revere students (74%) were enrolled in the free or reduced lunch programs at school; this compared with 44% statewide. In addition, free breakfast is provided for all Revere Public Schools students. Revere Public Schools qualifies for but is not participating in the Community Eligibility Program (CEP), a program that would ensure that all students eat breakfast and lunch for free, given that participation would cost \$250,000 and is cost-prohibitive. The CEP Program is an opportunity for school districts to meaningfully and equitably increase nutritious food access for its students and eliminating issues of the stigma that are commonly experienced where there are free- and reduced-cost meal programs in place.

▶ COMMUNITY ENGAGEMENT

Throughout engagement for *Next Stop Revere* and the North Suffolk iCHNA, the community requested improved channels of communication on resources and activities. As mentioned in the Vision chapter, this may be especially important in an ethnically diversifying community like Revere, where it is valuable to be able to communicate positively and effectively with all population segments.

Currently, much of Revere's community engagement capacity comes from HCI's Neighborhood Organizer. This position is intended to focus on building capacity and leadership of residents, enabling them to take ownership after a city completes a project. However, due to time demands, the role has shifted to project-based engagement. While this has led to successful project work, the focus on long-term stewardship has

57 Swain, G. 2017, "How does economic and social disadvantage affect health?" <https://www.irp.wisc.edu/publications/focus/pdfs/foc331a.pdf>



been lost. Given the focus on improved channels of communication, sustained institutional and financial support of this role is critical.

Many residents also mentioned the need for a central Community Center and the general wish for more spaces open for the community to use for events. As the Recreation Department prepares to launch a pilot citywide community center (see Open Space and Recreation Chapter for more details), the City should consider how the center can provide additional programming for resident's recreational needs, but also serve as a central hub for communication on resources and a space adaptable to the needs of all population segments.



Community Input

FEEDBACK FROM FORUMS

This section provides a summary of feedback received from members of the public. Input and feedback on public health were collected during the first open-house kick-off meeting through interactive boards, as well as the second community forum.

During the open house, participants were asked: "What about your neighborhood keeps you feeling healthy and what, if any, threats there were to your health?" Many participants noted that the ability to get to resources that make you healthier – like good food, walking trails, and the beach – keep them feeling strong. Meanwhile, the safety of streets, pollution, and limited green spaces, water parks, and indoor recreation spaces were seen as community challenges.

The *Next Stop Revere* Community Forum focused on Transportation, Sustainability, Open Space, and Public Health was held on May 8th, 2019. During the forum, the Metropolitan Area Planning Council presented on key considerations for Public Health and hosted a break-out session on this topic and Open Space.

Many participants noted that the ability to get to resources that make you healthier – like good food, walking trails, and the beach – keep them feeling strong. Meanwhile, the safety of streets, pollution, and limited green spaces, water parks, and indoor recreation spaces were seen as community challenges.

Participants were asked to provide feedback on six proposed public health goals and discuss the topic of resident health and well-being more broadly. Participants were also asked to fill out a short questionnaire ranking each of the proposed goals. All or almost all of the people who filled out the questionnaire marked "promote environments that strengthen community connectedness and a sense of belonging for all residents," "prioritize investment in biking and walking infrastructure," and "address exposure to environmental harm" as high importance. "Support the behavioral and mental health of all residents" and "Consider health impacts of proposed projects and policies" also ranked high (either all high priority or medium priority). Participants also discussed the importance of a strong community, their desire for more healthy food and urban farming opportunities, and the need for improved transportation networks for non-drivers.

FEEDBACK FROM THE SURVEY

As part of the 2019 North Suffolk iCHNA, people living and working in Revere, Chelsea, and Winthrop were asked about local health issues and other aspects of community life through an online and paper survey. In total, 650 Revere residents and workers filled out the survey. Top health issues identified by Revere participants are explained in detail in the Top Health Concerns Section, and data from this survey has been integrated throughout the Public Health Chapter.

Next Stop Revere also surveyed residents on elements of healthy community design. Participants consistently marked improving traffic safety and transportation access; increasing youth programming and green spaces, creating affordable housing; and creating better community spaces and communication as important to very important. These findings are discussed in more detail within the Transportation, Housing, Public Facilities, and Open Space chapters.



There were also several write-in comments about the importance of health care and food access, healthy aging, air pollution, and crime as part of the online *Next Stop Revere* survey. Many participants noted the need for more housing, convenient food options, and programming for older adults. Participants were also concerned about the accessibility of amenities for those with ambulatory difficulties. Environmental health was frequently mentioned, specifically concerns about air pollution (related to the airport and traffic), and trash pickup and rodents in the Shirley Ave neighborhood.

KEY THEMES

1. Available health data suggest that the residents of Revere have similar-to-poor health outcomes when compared to residents of Massachusetts on average. There are significant differences in health outcomes by race and ethnicity.
2. Revere suffers from poor mental and behavioral health outcomes; substance use is a particular concern.
3. Revere's current housing market conditions were described as a threat to residents' health and reported to be leading to a loss of community connectedness and multicultural diversity.
4. Improved connections for non-drivers to local, health-promoting amenities, such as grocery stores, commercial centers, recreation facilities, schools, and childcare, are needed.
5. Certain neighborhoods remain underserved by Revere's current open and green spaces. Increasing vegetation citywide could offer physical, cognitive, social health, and ecological co-benefits.
6. Food insecurity is an issue for Revere residents as poverty rates are high and most grocery stores are on the periphery of where most residents live
7. Revere residents are involved in their community and public affairs but report needing better spaces.



Recommendations

Goal 1

Create indoor and outdoor spaces, linked with programming, to strengthen community connectedness and promote physical activity and healthy eating among residents of all ages

Programming, Partnerships and Internal City Operations

Strategy 1.1: Designate spaces in existing community buildings for physical improvements, using universal design principles and age-friendly and dementia-friendly elements, to pilot intergenerational programming, such as the pilot Community Center at the Garfield School and ongoing improvements of Revere City and the Revere Historical Society. The design of the new Revere High School should consider recreational and community spaces.

Strategy 1.2: Expand availability of indoor and outdoor public space for youth programming (existing and planned spaces, such as the new Revere High School or a future community center) to increase physical activity and prosocial behavior. Such space should be designed with lessons learned from the Colella Community Center and should provide flexibility to serve a variety of uses, such as cultural, artistic, active recreation, and other uses. The spaces should be evaluated consistently to determine effectiveness.

Strategy 1.3: Provide additional public land for community gardens to provide residents with space for the safe production of food and potential local distribution (e.g., schools).

Strategy 1.4: Conduct bi-annual creative placemaking events to highlight the cultures of city residents.

Strategy 1.5: Work with private developers to ensure increased public amenities, such as the innovation center and youth center proposed for Suffolk Downs.

Planning

Strategy 1.6: Identify vacant lots or surface parking lots for temporary or permanent interventions (cleaning and greening) that are facilitated through volunteer efforts of neighbors and city residents.

Goal 2

Use the built environment, policy, and programmatic interventions that improve and sustain the behavioral and mental health of all residents

Programming, Partnerships and Internal City Operations

Strategy 2.1: Apply crime prevention through environmental design (CPTED) (natural surveillance, access control, territorial enforcement, maintenance, and management) and age-friendly and dementia-friendly principles in the design of publicly accessible open spaces to increase perceptions of safety and increase the sense of community.

Strategy 2.2: Foster community-wide, family-based social and emotional health across the lifespan for all residents, including specific efforts to eliminate stigma.



Strategy 2.3: Continue participation in the Greening the Gateway Cities Program to increase tree canopy cover in the city.

Strategy 2.4: Install pedestrian-scale street lighting, using dark sky friendly fixtures, at key locations to improve the sense of security along public ways and to enhance safety at pedestrian crossings.

Strategy 2.5: Enforce current ordinance that restricts the location and concentration of alcohol and tobacco retailing and provides restrictions on street-level advertising.

Strategy 2.6: Develop and distribute resources about tenant protection (e.g., available legal services) to inform and connect residents about their rights as tenants in the city and the Commonwealth.

Strategy 2.7: Develop partnerships with “non-traditional” institutions such as hair salons and barbers, religious institutions, funeral homes, and banks and financial services to help establish connections and informally identify the potential risk of social isolation and need for outreach.

Strategy 2.8: Support efforts of the North Suffolk iCHNA Action Plan to increase access to behavioral and mental health providers and programming focused on resiliency within Revere Public Schools.

Goal 3

Address environmental exposures that affect the physical health of residents

Programming, Partnerships and Internal City Operations

Strategy 3.1: Install mitigation measures at sensitive uses such as schools, childcare centers, recreation spaces, and housing that are proximate (within 500 feet) to existing stationary and mobile sources of air pollution.

Strategy 3.2: Work with landlords to protect renters against the hazards of lead-based paint and to improve the air quality in older homes where mold, mildew, and other contaminants may be present.

Strategy 3.3: Provide age-friendly home remodeling guidance (e.g., AARP HomeFit guide, universal design guide) through the Building Department and pair with lower permitting fees, expedited permitting, or low interest municipal to assist older residents with affording to make these changes.

Planning

Strategy 3.4: Develop sensitive use location guidelines to require new facilities be at least 500 feet from high traffic roadways. Identify recommendations for mitigation, including design standards and ventilation systems.

Strategy 3.5: Continue work with neighboring communities on regional traffic studies, such as the Route 1 study being completed in partnership with Saugus.

Strategy 3.6: Advocate for local and regional bus, subway, and commuter rail improvements at MBTA Fiscal and Management Control Board meetings, MassDOT board meetings, and other venues.



Strategy 3.7: Work with MassPort to reduce the environmental impacts of airport operation and traffic congestion related to airport access/egress.

Strategy 3.8: Assess housing stock in relation to anticipated climate change effects and target low-income homeowners in high-risk locations with programming to make changes that reduce the risk of climate-induced flooding and thermal impacts.

Land Use and Regulatory

Strategy 3.9: Adopt zoning changes that include site layout and physical interventions to mitigate air pollution exposure in new residential developments and proposed outdoor recreational spaces.

Strategy 3.10: Revisit, and where needed, update noise control and disturbance regulations to move towards meeting environmental noise guidelines as set by the World Health Organization.

Goal 4

Prioritize healthy eating and active living investments to reduce the risk of acute, chronic disease, injury and premature mortality

Programming, Partnerships and Internal City Operations

Strategy 4.1: Direct public and private sector investments along key walking and biking corridors to include transit shelters, benches, shade trees, and lighting and at key destinations also include water fountains, bicycle parking, and publicly accessible restrooms.

Planning

Strategy 4.2: Adopt a data-driven traffic safety practice to identify locations with high crash potential and prioritize capital investments for interventions to reduce the risk of crash-related fatalities and injuries.

Strategy 4.3: Use MAPC Local Access Scores to prioritize bicycle and pedestrian capital investments along corridors (e.g., Broadway, Squire Road) that connect to healthy destinations such as grocery stores, commercial districts, recreation destinations, childcare, transit stations, and schools.

Strategy 4.4: Conduct a review of pedestrian and bicycle elements at signalized intersections to improve lighting, audible pedestrian signals, crossing times, and use of evidence-based interventions (e.g., leading pedestrian interval) to improve safety for users.

Strategy 4.5: Update local traffic guidelines to enable greater mobility for older adults (e.g., FHWA Designing Roadways for Aging Population) as well as persons with disabilities and residents who do not drive.

Strategy 4.6: Continue pursuit of funding for multi-modal intersection, street, crosswalk, and sidewalk enhancements to improve the sense of security along public ways and to enhance the safety of bicyclists and pedestrians.



Goal 5

Assure a high performing municipal public health system that promotes the health and equity of residents in local decision-making, including decisions made by non-health sectors

Programming, Partnerships and Internal City Operations

Strategy 5.1: Support municipal public health services transition to the Public Health 3.0 model that includes the role of the Chief Health Strategist to support more holistic place-based planning and health-promoting interventions.

Strategy 5.2: Develop channels of communication and collaboration between local health officials and planners through the use of quarterly check-ins, involvement in pre-development meetings, or use of shared planning process.

Strategy 5.3: Schedule bi-annual meetings, at a minimum, to foster partnerships with outside organizations seeking to address the social determinants of health such as MGH/Revere Cares and North Suffolk Mental Health.

Planning

Strategy 5.4: Adopt, at a minimum, a streamlined site plan checklist (e.g., Plan for Health Toolkit checklist) to evaluate building envelope and development site conditions for opportunities to enhance and promote the health of residents in nearby neighborhoods as well as future residents.

Strategy 5.5: Continue collaboration between the Revere Public School Health Services, MGH and the City Health Office to pursue funding for vaccine storage and vaccines for children's programs to reduce barriers to care for new students.

Strategy 5.6: Based on expected future residential development, evaluate the feasibility of partnering with existing health facilities, and regional anchor institutions to expand health care delivery throughout the city.