

COVID-19'S UNEQUAL EFFECTS IN MASSACHUSETTS

REMEDYING THE LEGACY OF ENVIRONMENTAL INJUSTICE & BUILDING CLIMATE RESILIENCE

OFFICE OF MASSACHUSETTS ATTORNEY GENERAL MAURA HEALEY

Injustice anywhere is a threat to justice everywhere. We are caught in an inescapable network of mutuality, tied in a single garment of destiny. Whatever affects one directly, affects all indirectly.

Martin Luther King



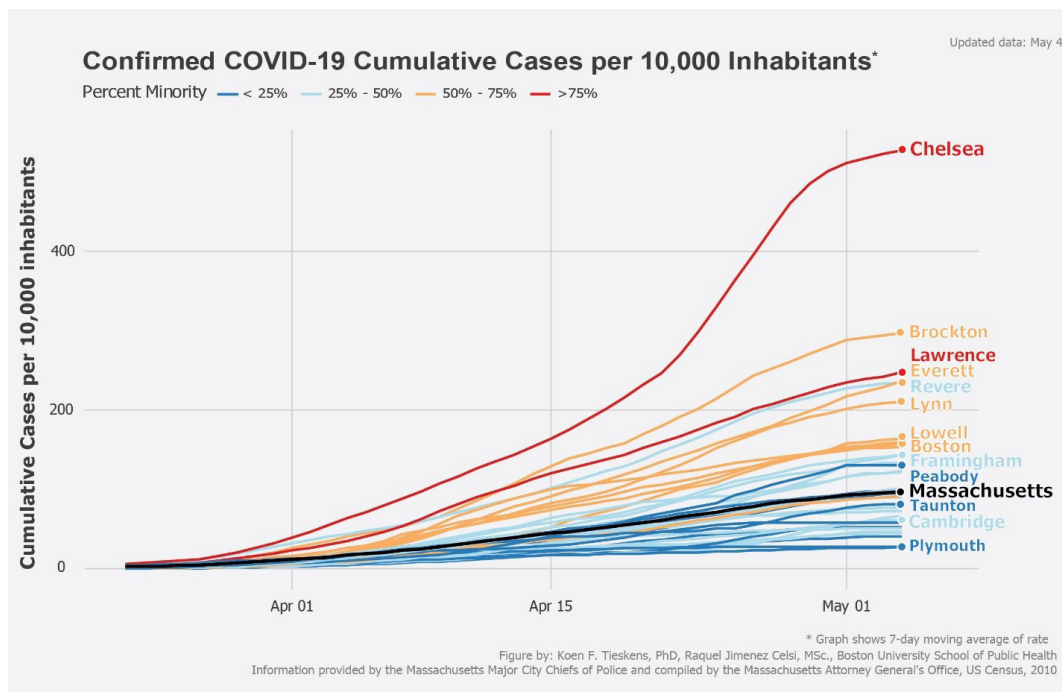
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OVERVIEW

In communities of color across the United States, the painful legacy of environmental injustice and unequal access to healthcare are lethally compounding the effects of the COVID-19 pandemic.¹ In urban areas like New York² and Chicago;³ in rural African American communities like Allendale, S.C.,⁴ and Albany, Georgia,⁵ and in a terrifying outbreak in the Navajo Nation, where the infection rate is ten times higher per capita⁶ than that of neighboring Arizona, communities of color are bearing the brunt of the COVID-19 pandemic in the United States.

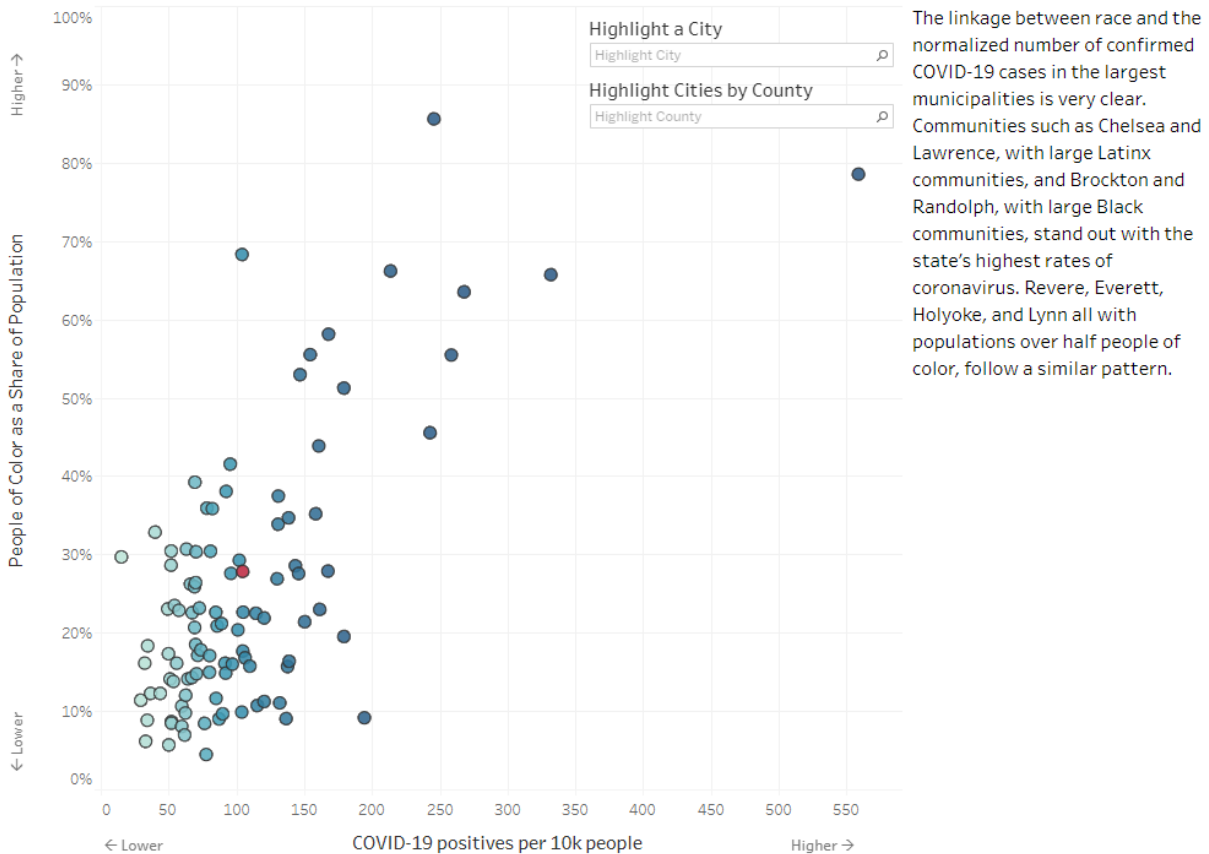
In Massachusetts—ranked fourth nationally in the total number of COVID-19 cases and third in total deaths—the cities and towns hit hardest are those that are home to communities of color, including African-American and Latinx residents.⁷ These communities have long been among the poorest and most polluted in Massachusetts, with higher than average rates of asthma-related hospitalizations, particularly among children.⁸ They are also most vulnerable to the impacts of climate change.

A Boston University School of Public Health analysis of data compiled by the Massachusetts Attorney General's Office shows that communities with greater populations of people of color have the highest rates of COVID-19 infection across 38 of the largest cities in Massachusetts, including Chelsea, Brockton, Everett, Lawrence, and Lynn.⁹



An analysis by the University of Massachusetts Donahue Institute similarly demonstrates the disproportionate effect of COVID-19 on communities of color in Massachusetts' largest municipalities.¹⁰

COVID-19 positive tests per 10,000 people by share people of color



The picture that is emerging is stark, but painfully, not surprising. These health disparities are the predictable end point of decades of policy choices that incentivize economic, housing, and environmental injustice.¹¹ With respect to the environmental factors that are exacerbating COVID-19 in the Commonwealth, even when everyone is playing by the rules, the system permits the concentration of polluting industries and facilities in our most vulnerable communities, regulatory programs do not consistently address risks to community health, environmental justice guidelines inform but do not drive decision-making, and siting and other public processes quickly become adversarial, suffer from uneven community engagement, and tend to favor parties with greater legal and technical resources and experience with regulatory bodies.

This must change. And our efforts to remedy environmental injustice must begin now, as we are all facing another threat, even greater than COVID-19—climate disruption. Many of the steps that will make our most vulnerable communities healthier—like transitioning away from polluting cars and trucks, reducing air pollution from power plants and other industries, and heating our homes and workplaces with cleaner fuels—will also make us all more climate resilient.

MASSACHUSETTS' MOST VULNERABLE COMMUNITIES BREATHE THE MOST POLLUTED AIR

COVID-19 is disproportionately impacting vulnerable communities and laying bare social inequalities and health disparities. At the root of the myriad COVID-19 risk factors is poverty—lack of economic opportunity and disenfranchisement. Across the nation, as in Massachusetts, the poorest residents are people of color.¹² In Massachusetts, 7 percent of white people live in poverty, while 17 percent of Black people, 23 percent of Hispanic people, and 11 percent of Asian people are poor.¹³ Dr. Lisa Cooper of the Johns Hopkins Bloomberg School of Public Health has described the many ways that individuals and families with low incomes may commonly find themselves at heightened risk of exposure to COVID-19: public transit may be the only travel option; more frequent shopping trips may be necessary because there are insufficient funds to stockpile; overrepresentation in “essential job” categories, including transportation, healthcare, and food supply; living situations may not be conducive to social distancing; language barriers; and a greater likelihood of having a serious chronic medical condition.¹⁴ And, communities of color tend to have the greatest levels of air and other forms of pollution—another factor in COVID-19 vulnerability.

A key indicator of COVID-19 vulnerability is environmental quality; specifically, air quality. To understand why, it's important to understand the ways in which those communities have long been exposed to dangerous levels of air pollution that exceed those found in more affluent and white communities.

Air pollution disproportionately impacts Black and Latinx communities, in part because industrial facilities and highways are heavily concentrated in low-income communities and communities of color.^{15, 16} Scientists have demonstrated this trend locally. In a study from the BU School of Public Health, concentrations of fine particulate-matter pollution (PM_{2.5}) and nitrogen oxide (NO₂) were highest for Black and Latinx communities in Massachusetts.¹⁷ The study found these inequalities have not only persisted but in fact worsened over time, even as overall PM_{2.5} and NO₂ exposure in the Commonwealth has decreased.^{18, 19} Another study found that higher NO₂ concentrations in Worcester were associated with lower median household income and educational attainment.²⁰

The public health effects of particulate matter pollution have a high cost not only in terms of human toll. A new study from the BU School of Public Health considers the health and associated economic benefits of the City of Boston's “Carbon Free Boston”

plan.²¹ If carbon neutrality led to elimination of human-generated emissions from the City of Boston, this would have a co-benefit of also reducing PM_{2.5} and ozone concentrations across the entire region, resulting in a net decrease in cardiovascular and respiratory illness and death.²² The study projects that the decrease in morbidity and mortality would result in a \$2.4 billion per year savings across the region and a \$1.7 billion savings in Suffolk County alone—about 1.4 percent of the gross domestic product of the county.²³ These health benefits would largely be conferred on communities of color, since the Carbon Free Boston plan would have the effect of mitigating existing disparities in air pollution exposure.²⁴

THE LINK BETWEEN AIR POLLUTION AND COVID-19 INCIDENCE AND SEVERITY

Earlier this month, the Harvard T. H. Chan School of Public Health released a nationwide study linking long-term exposure to fine particulate matter pollution (PM_{2.5}) to a higher COVID-19 death rate.²⁵ In addition, a study conducted on data from several European countries found that chronic exposure to higher concentrations of ground level NO₂, which is predominantly emitted from cars, trucks, buses, and power plants, may be a significant contributor to higher COVID-19 death rates.²⁶ Italian scientists have recently detected the novel coronavirus (SARS-CoV-2) on particles of air pollution, and are calling for more study to determine whether air pollution may provide a route of transmission for the virus.²⁷ Early (and not yet peer-reviewed) analysis suggests that higher levels of particle pollution could explain the higher rates of COVID-19 infection in Northern Italy—one of the most polluted regions in Europe.²⁸ These studies track past research on the effects of air pollution on novel respiratory illness. For example, one well-known study connected unusually high levels of SARS-2003 mortality in certain locations in China to higher concentrations of air pollution in those areas.²⁹ While these findings are preliminary and need to be confirmed through more in-depth research, it is clear that air pollution influences many of the diseases considered as vulnerability factors for COVID-19 (e.g., asthma and cardiovascular disease), so it is plausible that long-term exposure to air pollution would be associated with worse COVID-19 outcomes.

The BU School of Public Health recently released a mapping tool for COVID-19 vulnerability in Massachusetts.³⁰ The tool maps various COVID-19 heightened risk factors across the Commonwealth, including the percent of adults with asthma, the percent elderly or disabled, living in poverty, housing cost burdens, quarantine vulnerability, household size, Internet access, limited English, heat vulnerability, and

exposure to air toxics, underground storage tanks, highways, Superfund sites, polluted waters and other environmental risk factors.³¹ As the tool illustrates, areas with the lowest environmental quality are largely communities of color and current COVID-19 hot spots.³²

THE DISPARATE IMPACTS OF CLIMATE CHANGE ON VULNERABLE COMMUNITIES

Globally, nationally, and regionally, low income communities and communities of color are slated to be hit “first and worst” by climate change impacts.³³ Because these communities typically are already home to industrial facilities such as fuel storage tanks, extreme weather events and sea level rise present the additional threat of toxic contamination resulting from spills and explosions. Hurricanes Katrina and Maria devastated New Orleans and Puerto Rico, respectively, where communities were already at risk due to decades of disinvestment and unjust environmental policies that allowed the concentration of numerous Superfund sites and landfills, and high levels of air pollution had already compromised the health of many.³⁴ The effects of climate-driven extreme heat, extreme weather events, and degraded air quality are considerably amplified for those already struggling with chronic health conditions and lacking economic stability.

It comes as no surprise, then, that Massachusetts voters of color are significantly more concerned about climate change than white voters.³⁵ They are far more likely to believe that Massachusetts will suffer consequences like sea level rise, coastal flooding, strong storms, and extreme heat.

REMEDYING THE LEGACY OF ENVIRONMENTAL INJUSTICE AND BUILDING CLIMATE RESILIENCE

The COVID-19 pandemic shows us—yet again—the humanitarian and social cost of inequality. Every effort must be made now to mitigate the disproportionate impacts of COVID-19 on communities of color. Moreover, as the pandemic teaches in undeniable terms how intimately we are all connected to each other, it previews the vulnerabilities that are and will continue to be exacerbated by climate change. The basic concept of ecological health recognizes that the health of people, animals, and the environment is interdependent; in simple terms, pollution that harms the environment harms people. Because of historic discrimination against people of color, in the United States and Massachusetts, that pollution hurts some people more. What can be done to ensure the health of all our communities, equally?

First and foremost, policymakers at every level must work hand in hand with communities in developing and implementing steps to remedy environmental injustice and its attendant public health harms. The voices and experiences of communities of color must play a central role, and community representatives and leaders must be full partners in the work of building an environmentally just future. Together, we can take the following steps to reduce pollution and ensure communities have a real voice in decisions affecting public health and environmental quality.

Invest in clean energy and green jobs to promote economic recovery

- Revitalize the economy, expand economic opportunity, and create green jobs by investing in renewable energy, energy storage and energy efficiency to build climate resilient, more equitable and healthy communities. Prioritize incentives for rooftop solar and community-owned energy in environmental justice communities. Massachusetts employs over 100,000 workers in our large and growing clean energy economy, and there are about 3.3 million clean energy workers nationally. Now is the time to boldly reimagine our future and double down on that investment.
- Advance clean, electrified rail and bus rapid transit; increased bicycle infrastructure; improved pedestrian access; and electric vehicle ridesharing programs to reduce air pollution and make transportation more affordable for all, increasing access to education and opportunity.
- Improve building efficiency to reduce reliance on polluting energy sources and make heating more affordable for all families.

Halt rollbacks of environmental regulations, fight for strong air quality standards, and step up enforcement of existing laws

- The Trump Administration's systematic effort to dismantle environmental safeguards has continued apace during the COVID-19 pandemic. Recently, for example, EPA failed to strengthen the National Ambient Air Quality Standards for PM_{2.5}, despite EPA's own research showing a slight tightening of controls could save more than 10,000 U.S. lives a year.^{36, 37} EPA has also reversed its prior finding that regulating power plant mercury pollution is "necessary and appropriate"—a decision that jeopardizes standards that required power plants to install controls that reduce not only mercury, but massive amounts of particulate matter emissions. Attorney General Healey has joined Attorneys General from across the country to fight these harmful rollbacks.

- Step up enforcement of environmental laws to safeguard the public, and our most vulnerable communities in the face of federal inaction.

Strengthen requirements to ensure environmental justice communities are protected

- Working with communities, establish a comprehensive system for improving the quality of public health data to ensure the most accurate understanding of risks and needs, and to serve as a benchmark for evaluating the effectiveness of policy measures.
- Establish a more robust network of air quality monitoring sites to better track hotspots of toxic and particle pollution within vulnerable neighborhoods, especially near major sources of pollution, with the goal of providing regular, comprehensive updates to communities on public health threats.
- Establish stronger criteria for regulatory permitting decisions to ensure communities will not be disparately exposed to cumulative and synergistic effects of air and other pollution.
- In energy facility, environmental permitting, and similar proceedings related to proposed projects in environmental justice communities, require applicants to fund experts and attorneys for community intervenor participation, to enable full airing of community concerns at the siting stage of project development.
- Procedures applied by bodies that oversee facility siting must require early community engagement, and environmental justice considerations must be legally required and judicially reviewable.

As many have observed, this moment is unprecedented. Now is the time to begin making different choices and together we can build a better, equal, and more climate resistant Commonwealth.

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ENDNOTES

- 1 “Black Americans Are Dying From Coronavirus At Disproportionately Higher Rates,” Equal Justice Institute, April 9, 2020, accessed at <https://eji.org/news/black-americans-are-dying-from-coronavirus-at-disproportionately-higher-rates/>; Leins, Casey, “State, Local Officials Highlight Racial Disparities In Coronavirus Deaths,” U.S. News and World Report, April 13, 2020, accessed at <https://www.usnews.com/news/best-states/articles/2020-04-13/state-local-officials-address-racial-disparities-in-coronavirus-deaths>; Walsh, Colleen, “COVID-19 Targets Communities Of Color,” Harvard Gazette, April 14, 2020, accessed at <https://news.harvard.edu/gazette/story/2020/04/health-care-disparities-in-the-age-of-coronavirus/>; Cooney, Elizabeth, “Who Gets Hospitalized For Covid-19? Report Shows Differences By Race And Sex,” Stat, April 9, 2020, accessed at <https://www.statnews.com/2020/04/09/hospitalized-covid-19-patients-differences-by-race-and-sex/>; Thebault, Reis, Andrew Ba Tran and Vanessa Williams, “The Coronavirus is Infecting and Killing Black Americans at an Alarming High Rate,” The Washington Post, April 7, 2020, accessed at <https://www.washingtonpost.com/nation/2020/04/07/coronavirus-is-infecting-killing-black-americans-an-alarmingly-high-rate-post-analysis-shows/?arc404=true>
- 2 “COVID-19 Data: Rates of Cases, Hospitalizations, and Deaths by Race/Ethnicity Group,” New York City Department of Health and Mental Hygiene, accessed at <https://www1.nyc.gov/assets/doh/downloads/pdf/imm/covid-19-deaths-race-ethnicity-04242020-1.pdf>
- 3 “COVID-19 Case Rates By Race-Ethnicity Among Chicago Residents,” Chicago Department of Public Health, accessed at <https://www.chicago.gov/city/en/sites/covid-19/home/latest-data.html>
- 4 “SC Demographic Data Coronavirus (COVID-19),” South Carolina Department of Health and Environmental Control accessed at <https://www.scdhec.gov/infectious-diseases/viruses/coronavirus-disease-2019-covid-19/sc-demographic-data-covid-19>
- 5 Rapier, Graham, “How A Small Georgia City Far From New York Became One Of The Worst Coronavirus Hotspots In The Country,” Business Insider, April 7, 2020, accessed at <https://www.businessinsider.com/coronavirus-hotspot-albany-georgia-funderals-covid-19-cases-per-capita-2020-4>
- 6 Lange, Jeva, “The Navajo Nation Outbreak Reveals An Ugly Truth Behind America’s Coronavirus Experience,” The Week, April 21, 2020, accessed at <https://theweek.com/articles/909787/navajo-nation-outbreak-reveals-ugly-truth-behind-americas-coronavirus-experience>
- 7 “Coronavirus In The U.S.: Latest Map And Case Count,” The New York Times, last accessed May 12, 2020, accessed at <https://www.nytimes.com/interactive/2020/us/coronavirus-us-cases.html#states>
- 8 “Statistics About Asthma,” Bureau of Community Health and Prevention, Massachusetts Department of Public Health, accessed at <https://www.mass.gov/service-details/statistics-about-asthma>
- 9 “Vulnerability In MA During COVID-19 Epidemic,” Boston University School of Public Health, <https://bucas.maps.arcgis.com/apps/MapSeries/index.html?appid=e820a92d6bbc4c9099c59494a4e9367a>
- 10 “Donahue Data Dash: Visualizing The Disproportionate Impact of COVID-19 On MA Communities Of Color And Urban Areas,” UMass Donahue Institute, last accessed April 29, 2020 at <http://www.donahue.umassp.edu/news-events/institute-news/donahue-data-dash-visualizing-the-disproportionate-impact-of-covid-19-on-ma>
- 11 See, e.g., Newkirk, Vann R. II, “Trump’s EPA Concludes Environmental Racism Is Real,” The Atlantic, February 28, 2018, accessed at <https://www.theatlantic.com/politics/archive/2018/02/the-trump-administration-finds-that-environmental-racism-is-real/554315/>

12 "Poverty Rate By Race/Ethnicity 2018," Kaiser Family Foundation, accessed at <https://www.kff.org/other/state-indicator/poverty-rate-by-raceethnicity/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D>

13 Id.

14 "Racial Data Transparency," Johns Hopkins Coronavirus Resource Center, last updated April 28, 2020, accessed at <https://coronavirus.jhu.edu/data/racial-data-transparency>

15 Badger, Emily, "Pollution is Segregated, Too," The Washington Post, April 15, 2014, accessed at <https://www.washingtonpost.com/news/wonk/wp/2014/04/15/pollution-is-substantially-worse-in-minority-neighborhoods-across-the-u-s/>

16 "Fumes Across the Fence-Line: The Health Impacts of Air Pollution from Oil & Gas Facilities on African American Communities," Clean Air Task Force and NAACP, accessed at http://www.catf.us/wp-content/uploads/2017/11/CATF_Pub_FumesAcrossTheFenceLine.pdf

17 Rosofsky, Anna, Jonathan I. Levy, et al., "Temporal Trends In Air Pollution Exposure Inequality In Massachusetts," Environ Res. 2018 February; 161: 76–86.

18 Id.

19 A follow-up study found that exposure disparities were even greater when the leakiness of homes was considered, with the leakiest homes with high outdoor pollution located in neighborhoods with 20 percent Latinx populations, versus 2 percent Latinx for the tightest homes in areas with low outdoor pollution. Rosofsky, Levy, et al., "The Impact Of Air Exchange Rate On Ambient Air Pollution Exposure And Inequalities Across All Residential Parcels In Massachusetts," J Exp Sci Environ Epidemiol 29: 520-530 (2019).

20 Puett, Robin C., Jaime E. Hart, Jeff D. Yanosky et al., "Chronic Fine And Coarse Particulate Exposure, Mortality, And Coronary Heart Disease In The Nurses' Health Study," Environ Health Perspect., November 2009, accessed at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2801178/>

21 Raifman, Matthew, Armistead (Ted) Russell, T. Nash Skipper and Patrick L Kinney, "Quantifying The Health Impacts Of Eliminating Air Pollution Emissions In The City Of Boston," IOP Science, Accepted Manuscript online March 27, 2020, accessed at <http://iopscience.iop.org/article/10.1088/1748-9326/ab842b>

22 Id.

23 Id.

24 Similarly, the federal Clean Air Act Mercury and Air Toxics Standards, which require coal- and oil-fired power plants to reduce mercury emissions, also achieved major reductions in fine particulate matter pollution as a co-benefit. The Trump Administration recently reversed EPA's prior determination that the standards are "appropriate and necessary," leaving them vulnerable to legal challenge. See, e.g., Reilly, Sean, "Uncertainty Reigns As EPA Rethinks Toxics Rule's Legal Base," E&E News, April 26, 2019, accessed at <https://www.eenews.net/stories/1060223767>

25 Wu, Xiao, Nethery, Rachel C., Sabath, Benjamin, Braun, Danielle, Dominici, Francesca "Exposure to air pollution and COVID-19 mortality in the United States," accessed at <https://projects.iq.harvard.edu/covid-pm> and <https://www.medrxiv.org/content/10.1101/2020.04.05.20054502v2>.

- 26 Ogen, Yaron, "Assessing Nitrogen Dioxide (NO₂) Levels As A Contributing Factor To Coronavirus (COVID-19) Fatality," *Science of The Total Environment*, Vol. 726, July 2020, accessed at <https://www.sciencedirect.com/science/article/pii/S0048969720321215?via%3Dihub>
- 27 Carrington, Damian, "Coronavirus detected on particles of pollution," *The Guardian*, April 24, 2020, accessed at https://www.theguardian.com/environment/2020/apr/24/coronavirus-detected-particles-air-pollution?CMP=Share_iOSApp_Other
- 28 Id.
- 29 Cui, Yan, Zuo-Feng Zhang, et al., "Air Pollution and Case Fatality of SARS in the People's Republic of China: an Ecologic Study," *Environmental Health* 2, November 20, 2003, accessed at <https://ehjournal.biomedcentral.com/articles/10.1186/1476-069X-2-15>
- 30 Boston University School of Public Health, Vulnerability in MA During COVID-19 Epidemic, <https://bucas.maps.arcgis.com/apps/MapSeries/index.html?appid=e820a92d6bbc4c9099c59494a4e9367a>
- 31 For example, people experiencing homelessness in Massachusetts—and nationwide—are disproportionately members of communities of color. See <https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2019/03/29/a-pileup-of-inequities-why-people-of-color-are-hit-hardest-by-homelessness>; and <https://endhomelessness.org/wp-content/uploads/2019/07/3rd-Demo-Brief-Race.pdf>. COVID-19 has been widely transmitted among people experiencing homelessness. At the end of March, Boston Health Care for the Homeless Program conducted universal testing at a large Boston shelter, and found 36 percent of those taking shelter were positive for COVID-19. See Baggett, Travis P., Harrison Keyes, et al., "COVID-19 Outbreak at a Large Homeless Shelter in Boston: Implications for Universal Testing," (preprint), *MedRxiv*, April 15, 2020, accessed at <https://www.medrxiv.org/content/10.1101/2020.04.12.20059618v1>.
- 32 These areas are ranked as having a "high" environmental quality index on the tool's scale.
- 33 Dooling, Shannon, "'Hit First And Worst': Region's Communities Of Color Brace For Climate Change Impacts," *WBUR*, July 26, 2017, accessed at <https://www.wbur.org/news/2017/07/26/environmental-justice-boston-chelsea>
- 34 Frederick, Rejane and Cristina Novoa, "Echoes Of Katrina: Post-Hurricane Maria Public Health Threats And Trauma," *Center for American Progress*, March 20, 2018, accessed at <https://www.americanprogress.org/issues/green/news/2018/03/20/448215/echoes-katrina-post-hurricane-maria-public-health-threats-trauma/>
- 35 Koczela, Steve, "Analysis: Non-White Mass. Voters More Troubled By Climate Change Than White Voters," *WBUR*, July 26, 2017, accessed at <https://www.wbur.org/news/2017/07/26/climate-change-non-white-voters>
- 36 Davenport, Coral, "'Unbelievable' Timing: As Coronavirus Rages, Trump Disregards Advice To Tighten Clean Air Rules," *The New York Times*, April 14, 2020, accessed at <https://www.nytimes.com/2020/04/14/climate/coronavirus-soot-clean-air-regulations.html>
- 37 "Policy Assessment For The Review Of The National Ambient Air Quality Standards For Particulate Matter, External Review Draft," EPA Office of Air Quality Planning and Standards, September, 2019, accessed at https://www.epa.gov/sites/production/files/2019-09/documents/draft_policy_assessment_for_pm_naaqs_09-05-2019.pdf