Bridging the Gaps: An Environmental Justice Analysis of The University of Maryland, Baltimore

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Introduction

The University of Maryland, Baltimore (UMB) is a public university and an anchor institution in the heart of bustling downtown Baltimore. It spans just over 70 acres, 6.9 million gross square feet, and comprises over 60 buildings. There are just under 7,000 students, over 8,000 total employees, and about 3,500 faculty members.

The bond that ties together UMB community members is the principle that people come to this university to improve the human condition. UMB's seven schools represent all of the ways in which its students hope to help people: Pharmacy, Law, Nursing, Dentistry, Medicine, Graduate Studies, and Social Work. This is why UMB's core values are not simply a motto, but principles that are embodied through its community: respect and integrity; well-being and sustainability; equity and justice; and innovation and discovery.

Due to its proximity to downtown, UMB and its community members are able to take advantage of the abundant opportunities that are readily available in downtown Baltimore. Transportation opportunities include electric bikes and scooters, local and commuter buses, MARC Commuter Rail, Metro SubwayLink, Light RailLink, and a MobilityLink that provides specialized transit services for people with disabilities (MTA, MDOT, 2024). Recreational opportunities include historic vendor markets, Camden Yards and M&T Bank Stadium (home to the Baltimore Orioles and Ravens respectively), museums, and art installations. Additionally, downtown Baltimore has an influx of hospitals, schools, and religious institutions that make it the medical and research hub that it is, but also elucidates the prevalence of anchor institutions in an area that is home to many underserved communities.

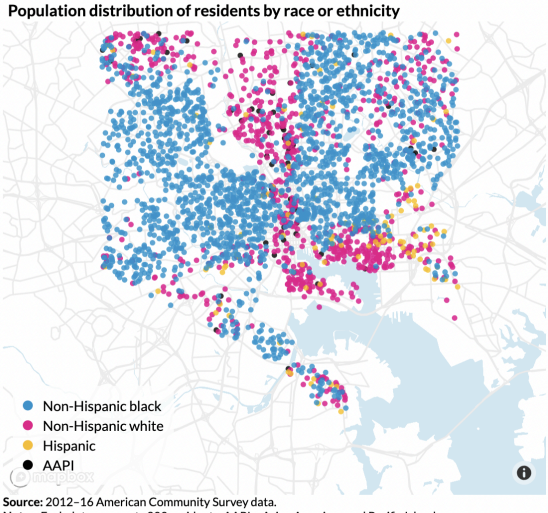
Large institutions have helped turn Baltimore into what it is today, but much of the development that occurs echoes historic actions that perpetuate the lack of service to specific communities and the intentional racism inherent in development, zoning, and housing policies.

Beneath the urban facade of Charm City–Baltimore's affectionate nickname–lies an environmental justice epidemic in Baltimore. Downtown Baltimore communities experience tremendous amounts of traffic, air pollutants, congestion, and environmental injustices that occur within and extend far beyond UMB's campus. This report analyzes UMB's environmental justice impacts compared to that of Baltimore City's to understand the gaps that exist and to provide recommendations to improve said conditions.

Baltimore City

Baltimore City is often seen as diametrically contrasting Black Butterfly and White L shapes that express demographics on the surface. Yet beneath the surface, Baltimore's socioeconomic demographics express historical, systemic racism that led to social and environmental disparities and continues to cause concerns of environmental injustices. Therefore, it is nearly impossible to report

Population distribution of residents by race or ethnicity



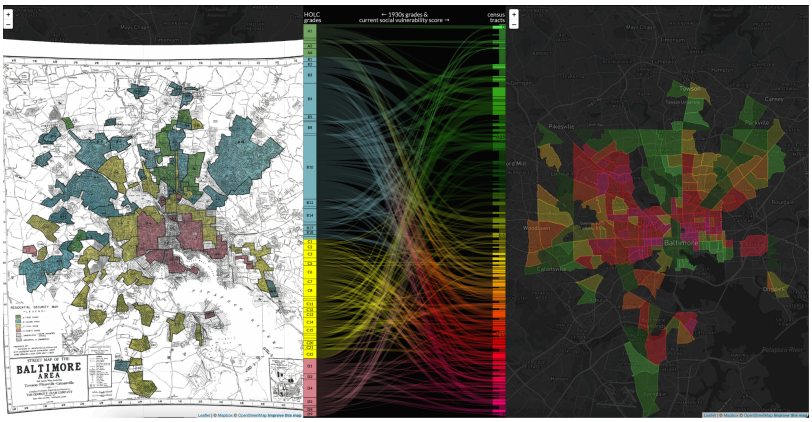
Source: 2012–16 American Community Survey data.
Notes: Each dot represents 200 residents. AAPI = Asian American and Pacific Islander.

about environmental justice conditions in Baltimore city without reporting on its current socioeconomic and environmental inequality as the outcome of historical, systemic racism.

The US EPA defines environmental justice as “the just treatment and meaningful involvement of all people, regardless of income, race, color, national origin, Tribal affiliation, or disability, in agency decision-making and other Federal activities that affect human health and the environment so that people: are fully protected from disproportionate and adverse human health and environmental effects (including risks) and hazards, including those related to climate change, the cumulative impacts of environmental and other burdens, and the legacy of racism or other structural or systemic barriers; and have equitable access to a healthy, sustainable, and resilient environment in which to live, play, work, learn, grow, worship, and engage in cultural and subsistence practices” (EPA, 2024). Since the EPA definition includes the legacy of racism as a barrier that all people should be protected from, it is imperative to understand how current socioeconomic and environmental disparities are a legacy of racism in Baltimore city.

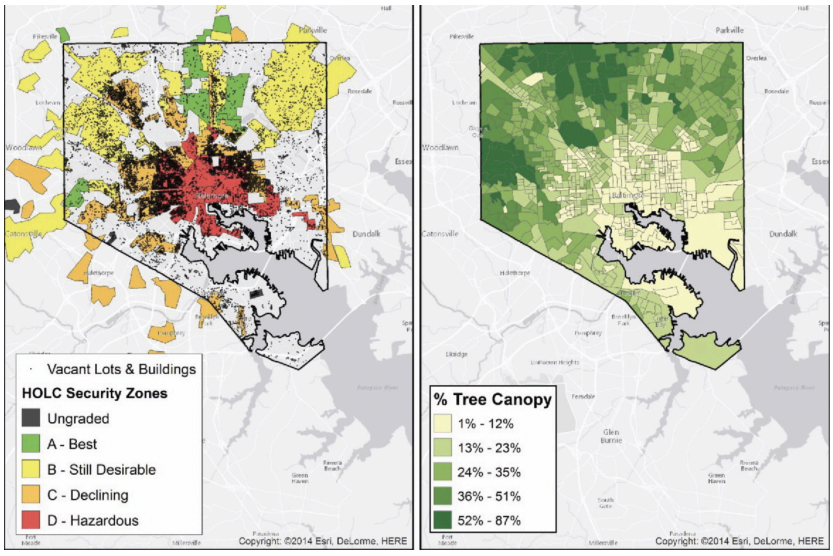
Restrictive lending practices, white flight, redlining, and segregation all pushed white families toward wealth creation, suburbs, and green spaces, while rejecting this same opportunity for Black families. The communities that were intentionally left behind were majority Black communities, and it is those communities that we can still see the remnants of these practices affecting communities (Grove et al., 2017).

Redlining occurred in Baltimore when white families were given mortgage insurance programs while “any neighborhoods that were majority Black… were automatically colored red” meaning high-risk credit areas, despite only doing so on the basis of skin color (International Mapping, 2021). Development, demolition, construction, and forced removal became the next phase of Baltimore’s historic racism: “the Black population doubled between the years of 1930 and 1960,” yet “[b]etween the years of 1951 and 1971, over 75,000 people were displaced, with 80-90% of them being Black people who were removed from their homes for the building of schools, urban renewal, highway expansion, and ‘slum clearing’” (International Mapping, 2021). One of the most well-known examples of this is the Highway to Nowhere (I-170 highway). This construction project forcibly destroyed hundreds of homes, displacing over a thousand people, and has not provided the city with any benefit to this day. The highway to nowhere which sits directly next to UMB’s campus accomplished only one feat: eradicating connections between majority Black neighborhoods. The highway still acts as a physical barrier to underserved communities and a physical metaphor for racist development that allowed for wealth-creation for white families while intentionally holding back Black communities from the same opportunities (DOT, WBU, 2024).

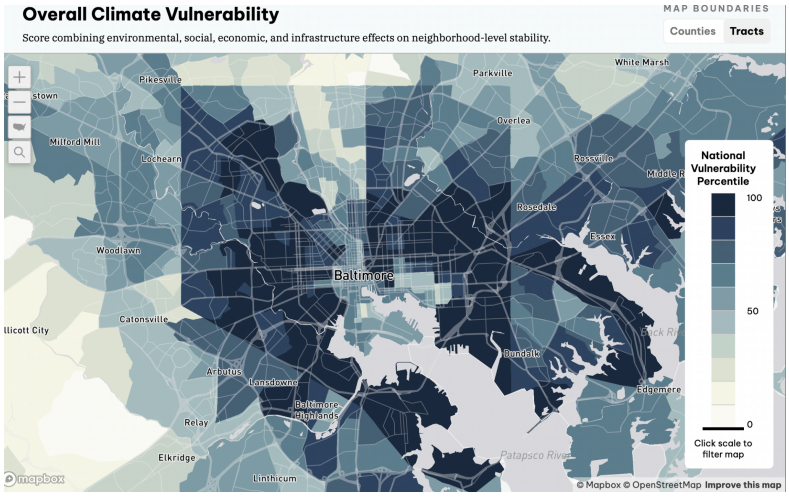


Baltimore’s historic practices of de jure segregation have created the de facto segregation that exists today as a legacy of inequity. Early segregation combined with the redlining that occurred in the 1930s “are manifest in the distribution of environmental disamenities such as polluting

industries, urban heat islands, and vulnerability to flooding, and they are also evident in the distribution of environmental amenities such as parks and trees.” It’s evident that downtown Baltimore, which had the lowest Home Owner’s Loan Corporation (HOLC) rating of D, meaning hazardous, was underinvested in. This led to an increase in abandoned buildings and absence of trees, which leads to higher temperatures, higher levels of crime, and increased vulnerability to heat waves (Grove et al., 2017).

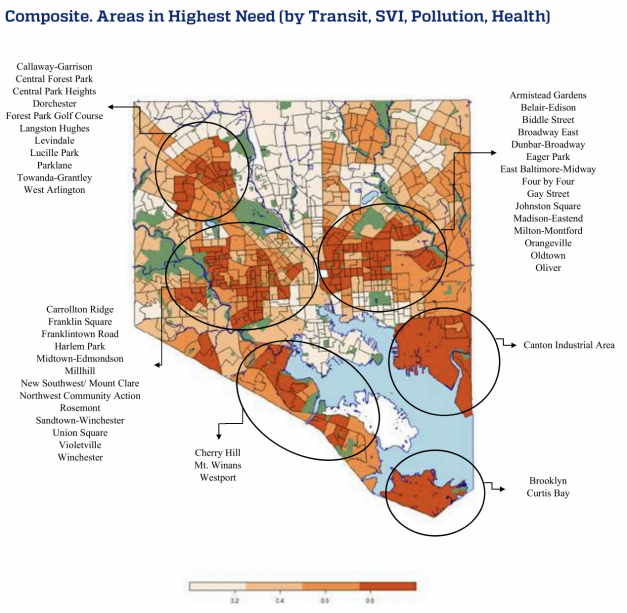


Using the U.S. Climate Vulnerability Index Map, Baltimore city has some of the highest percentile overall vulnerability, whereas nearby cities Columbia and Towson rank disparately low on overall vulnerability. This dichotomy is representative of the Black Butterfly and White L shapes that exist today. The same Climate Vulnerability Index Map indicates that most of downtown Baltimore ranks in the 100th percentile of historically redlined cities in the U.S. as historic practices clearly have lasting effects on current life in Baltimore (EDF, 2024). The continuous development from the various Baltimore City industries and institutions continue to perpetuate inequality and environmental injustices through expansion of universities, hospitals, and highways, while locating polluting industries in low-income and majority black neighborhoods (Energy Justice, 2024).



Systemic racism causes social and environmental disparities between majority white communities and majority Black, Indigenous, and People of Color (BIPOC) communities. These disparities are exacerbating social, financial, and medical conditions in those underserved neighborhoods. Thus, environmental justice is a symptom of development, a legacy of historically racist practices, and a vicious cycle of inequity. Environmental justice, therefore, needs to be at the core of every conversation that seeks to improve the human condition in Baltimore City.

Analysis of Baltimore City maps indicates there are vulnerable communities in East, West, and South Baltimore. Overlaying data from neighborhood disparities on subjects including health, transit, social vulnerability, and air pollution, indicates a specific cluster of neighborhoods in Southwest Baltimore, or Sowebo, that are most impacted by the combination of these factors (JHU, 2021). Using this transit equity report, the U.S. Climate Vulnerability Index Map, and the Not Even Past Richmond dataset comparing Baltimore's redlining map to most recent census data, there is a clear sphere of influence for Johns Hopkins University in East Baltimore, and for the University of Maryland, Baltimore (UMB) in Sowebo. Many Sowebo neighborhoods surrounding UMB are entirely in and above the 90th percentile for severe indicators such as air pollution related deaths, pollution sources, traffic volume, food insecurity, life expectancy, drug overdose deaths, infectious diseases, infant and child mortality, low birthweight, and so many other factors that are prevalent in high-density urban areas with large numbers of underserved communities [(EDF, 2024) and (Richmond, 2024)].



According to FEMA's National Risk Index, Baltimore City's social vulnerability index is extremely high, representing the fact that it is a highly populated and dense urban area home to many underserved communities. This risk index identifies a few key areas of concern for Baltimore's vulnerable populations, specifically Baltimore is at very high risk for heat waves, cold spells, and strong winds. It defines social vulnerability as "social groups in Baltimore City, MD that have a very high susceptibility to the adverse impacts of natural disasters when compared to the rest of the U.S." (FEMA, 2024).

This combination of data and maps provides the insight necessary to understand where UMB's efforts to improve environmental justice conditions would have the most impact. UMB straddles the border between downtown and Southwest Baltimore, making it uniquely positioned to affect positive change in some of Baltimore's most underserved communities. Baltimore City and the institutions within it have perpetuated the black butterfly effect through development that doesn't seek remuneration to underserved communities. While UMB can affect change in Sowebo, every institution in Baltimore will be required to work together to eradicate the legacy of racism that stretches beyond each campus' borders.

University of Maryland, Baltimore

UMB created the Office of Sustainability in 2021 and the following year added well-being and sustainability to its core values. Through the dedication of the university, and the

industriousness from the office of sustainability, UMB has proven its commitment to empowering dual pillars of environmental justice and social equity. Although it is different from environmental justice, social equity is important to mention as disparities in Baltimore are often outcomes of environmental injustice and racism. One way UMB can most directly advance environmental justice is by improving social equity within its own campus community.

UMB's environmental services (EVS) staff for example, have been improved greatly by implementation of a career ladder program for EVS workers, expansion of EVS appreciation week, and employee support in the form of Child Care Grants and tuition remission for eligible employees and their dependents. Employee Learning and Development (ELD) training offers eLearning and professional development, and Employee Assistance Programs (EAP) offer opportunities for legal, financial, technological, work-life balance, and mental health support services. UMB's High School Diploma program provides a 50% reduction in work hours to go to high school every day as part of a goodwill excel program for employees to earn a high school diploma rather than a GED (Elm, Reed, 2024).

UMB continuously improves its support services to students and employees, including educational support and disability services, community partnerships and engagement, diversity, equity, inclusion (DEI), accountability, and compliance. Another vital support system is UMB's student pantry, since roughly 29% of students surveyed indicated they have unmet food needs (UMB Student Pantry, 2020). Similarly, UMB offers Flexible Spending Accounts and discounts to employees at the local Lexington Market and various other food, technology, wellness, recreational, and childcare services, some of which come from UMB's Launch Your Life initiative to optimize students' and employees' health and well-being (UMB, HR, 2024).

Many of UMB's positive environmental justice impacts have begun from trailblazing initiatives that the Office of Sustainability tirelessly pushed for due to there being a need. UMB's Office of Sustainability is directly responsible for some of these initiatives including advancing investments into renewable energy, providing free composting, reducing incinerator feedstock via recycling improvements and waste reduction, diverting leftovers from trash to hungry campus community members through its Food Recovery and Environmental Eating (FREE) program, installing a weather station, and providing a community garden (UMB OS, 2024). Diverting food waste and encouraging environmental eating diverts large amounts of waste from incineration which causes air pollution and brings with it many health concerns.

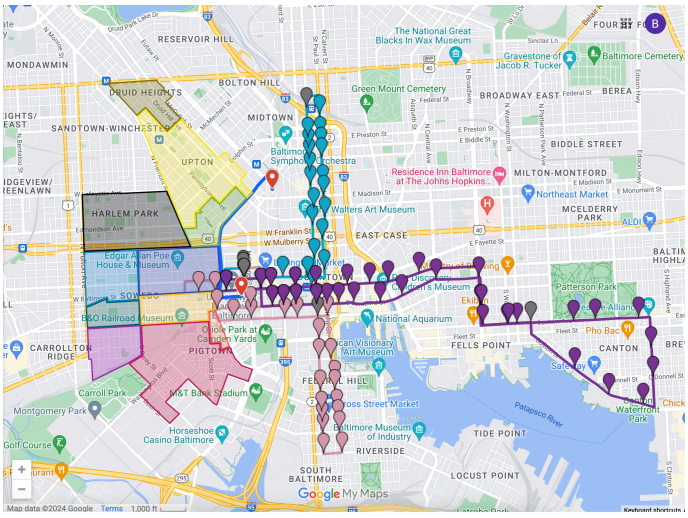
Waste diversion continues to occur through UMB's self-service waste and recycling project and UMB's grant and partnership with Compost Crew to offer free composting drop-offs at our campus. One drop-off bin is located at the center of campus where the majority of student traffic occurs, and the other is outside of UMB's Community Engagement Center which predominantly serves Sowebo. The Community Engagement Center was moved to a new location on Poppleton St with the intention of bringing community services and engagement closer to the communities in Sowebo that need them the most, and in part to bridge the redeveloped gap that is UMB's BioPark. This action ensures that UMB is committed to improving not just its University's needs, but the community's needs as well.

Specifically as it relates to environmental justice, UMB informs its community with mandatory air quality index (AQI) alerts when the air quality reaches a certain unsafe level as part of the updated Memorandum of Understanding for The University System of Maryland. To improve well-being and reduce the amount of congestion and air pollution in downtown

Baltimore, UMB introduced programs including Safe Walk, Safe Ride, UMB Shuttle, and Live Near Your Work. The former two will provide a public safety employee for safe walking 24/7/365 or a vehicle anytime from 7am through to 1am the next day, any day of the year (Safe Ride, 2024). UMB's shuttle service improves accessibility to certain neighborhoods and reduces the institution's reliance on single-occupancy internal combustion engines which contribute to air pollution and congestion in downtown Baltimore. The Live Near Your Work (LNYW) initiative offers money toward the down payment and closing costs of homes in neighborhoods near campus including communities previously identified as having significant environmental injustices in West Baltimore such as Pigtown, Poppleton, and Franklin Square [(EDF, 2024) and (UMB, LNYW, 2024)]. UMB's purchasing initiatives provide additional support to the local economy. These initiatives have supported local minority business enterprises (MBEs) and paved the way toward local self-resilience. This resulted in an increase in spending with local minority- and women-owned businesses in Baltimore from 0.1% to more than 15% in 3 years. The program exceeded its initial goals by more than 200% ahead of schedule and under budget, and it still exists today (Elm, Joyner, 2022). These actions portray UMB's commitment to the dual pillars of environmental justice and social equity that have improved well-being and sustainability on campus for students and employees, as well as in the local communities of Sowebo and Downtown Baltimore.

Gap Analysis

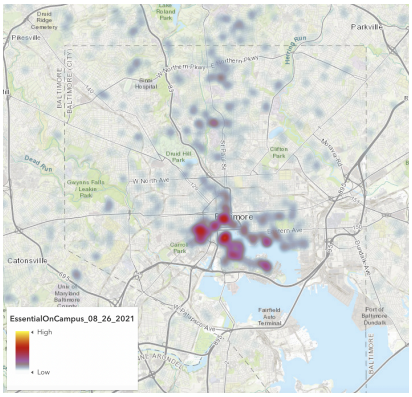
Despite all of the positive impacts to environmental justice that UMB has enacted in the past years, UMB could go further in its approach to improving social equity and environmental justice. Transit equity is one of those factors that allows universities including UMB to perpetuate the lack of service to certain communities that have likely been historically underserved. UMB's shuttle system is a perfect example of this as even though UMB's LNYW program supports movement to Sowebo neighborhoods in need of investment and equity, UMB's shuttle only travels to the aforementioned White L shape of affluent neighborhoods. UMB's shuttle system transits to Mount Vernon, Fells Point, Canton, Federal Hill, and connects University of Maryland Medical Center's Midtown Campus to UMB's downtown. These neighborhoods have a majority white population and are considered affluent in comparison to the rest of downtown and greater Baltimore City. Placing each of these routes on a map, the 'White L' shape becomes apparent, as does UMB's prioritization of supporting and connecting majority white and affluent neighborhoods to campus rather than focusing on low income neighborhoods and areas in need of improved transit equity, such as West Baltimore. UMB's shuttle service is representative of the disconnect that exists in Baltimore



between the wings of Baltimore's "Black Butterfly" and the intentionality behind those decisions. UMB could consider bridging this gap and improving environmental justice conditions in Sowebo by adding a shuttle option to these communities. This would benefit the community by providing another transit option which could encourage residents to take the shuttle rather than a single-use vehicle, lowering the amount of vehicle exhaust, congestion, and air pollution from a lower amount of single-use cars on the road.

The food pantry is only available to students, and though 29% of students have unmet food goals, no employees were surveyed, so there is a possibility that the percentage of people with unmet food goals could be even higher than that on campus. To bridge this gap, UMB could readminister this survey to students, faculty, and staff to ensure all of UMB's community members are supported equitably.

Similarly, UMB recently surveyed EVS staff to understand how this community's needs were being met on campus. To ensure that everyone's needs are being met, UMB could readminister this survey, but expand it to other communities on campus, and ensure that environmental justice questions remain at the forefront of the survey. Understanding that a vast majority of UMB's EVS staff are Black, UMB could hold itself accountable to the fact that there is a racial disparity between UMB's lowest paid positions and its senior and executive leaders. To bridge this gap, UMB could audit itself to determine the equitability of career advancement and feasibility of expanding support systems such as the career ladder or high school diploma initiatives.



Examination of employee telework and commuting data shows that UMB's full-time, non-exempt, essential, on-campus employees live throughout Baltimore City, with many residing within the black butterfly in Sowebo and Downtown Baltimore (ArcGIS, 2022). Understanding that Southwest Baltimore includes communities that are experiencing inequitable environmental injustices compared to the rest of Baltimore City, UMB could use this information to analyze the difference in how it supports Baltimore's more affluent neighborhoods as compared to Sowebo. UMB could also utilize this employee data to understand how many of its employees reside within Baltimore's highest needs neighborhoods. Since much of its essential workforce lives in neighborhoods around Sowebo, UMB could expand its support services to Sowebo to ensure that everyone on its campus is receiving an equally accessible amount of support.

Final Recommendations

To continue to improve its environmental justice impacts that it has been working toward for many years, UMB might consider the following recommendations formulated through the gap identification and analysis. (1) Continue to improve air quality and access to green spaces by increasing clean, renewable energy sources, decreasing waste used as incinerator feedstock, and encouraging reuse and reduction of materials.

UMB's Office of Sustainability has been committed to working toward this recommendation since its inception, working tirelessly to reduce incinerator feedstock from our

campus. UMB encourages reuse and reduction of materials on campus via campus engagement and material procurement, pushes to expand the university's ability to harness clean, renewable energy rather than relying on fossil fuels, and continues to achieve a tremendous amount of waste reduction all resulting in a reduction of air pollution. One aspect of this recommendation is to continue to work with food vendors to increase engagement and understanding of sustainable eating, composting, reusing durable materials, and reducing food waste by improving shopping practices, gardening, preserving, and freezing.

All of the energy efficiency and renewable energy that will go into the new School of Social Work building could be a template for UMB's new construction projects to lower air pollution and emissions associated with UMB. Additionally, UMB could make a public comment about Curtis Bay CSX Coal Terminal because the institution's physical boundaries only stretch so far, but the voice of its people can echo across borders. UMB could submit a public comment because environmental injustices do not end where campus ends, but extends to all of Baltimore, especially the folks in Curtis Bay, often cited as one of the most environmentally disparate communities in Baltimore. This community suffers from adverse environmental injustice impacts caused by coal, coal dust, and diesel trucking. Fossil fuels cause air pollution, which causes and worsens symptoms of asthma, which increases healthcare costs and medications, which increases waste, which, when incinerated, increases pollution. One area that UMB could focus on is increasing its fleet of electric vehicles (EVs) since there are currently less than a dozen EVs out of UMB's fleet of about 75. Promoting clean energy in all facets, such as promoting electric vehicle adoption are crucial to upending the cyclical nature of environmental injustices. Congestion and traffic are exponentially worse in downtown than the rest of Baltimore and there is a constant buzz and flutter from helicopters transporting to and from Baltimore's hospitals. This all leads to an increase in air pollutants and diesel exhaust. There is likewise an abundance of idling police cars and emergency vehicles, delivery and medical delivery vehicles, and a fantastic public transit system that is constantly driving throughout Baltimore. (NPR, Luse et al., 2023). Downtown Baltimore is in the 100th percentile of traffic volume and has the highest concentrations of exhaust related pollutants such as ozone, Nitrogen Dioxide (NOx) Diesel-particulate matter 2.5. The high concentration of pollutants in downtown is the reason that Baltimore City's asthma hospitalization rates were nearly 2.5 times the state-wide rate. The asthma hospitalization rate in Baltimore is one of the highest in the country, with rates being 50% higher for families living below the poverty line. The communities next to busy streets and

Figure 1. Comparison of Asthma Hospitalization Rates in Baltimore City, Maryland, and the United States (2010)[62]

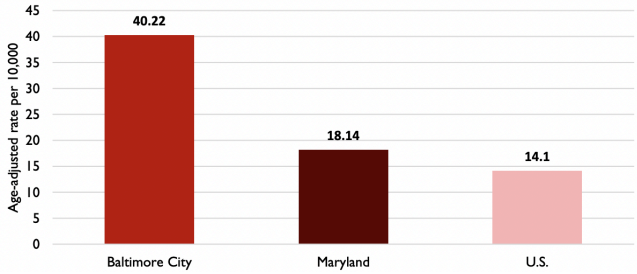
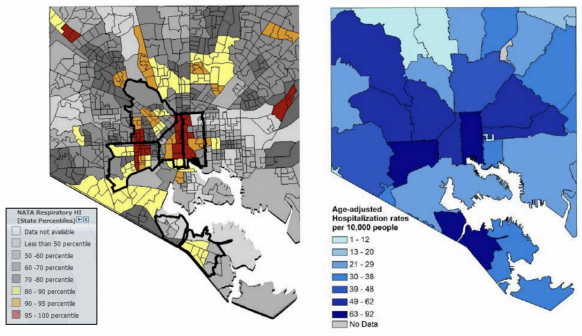


Figure ES-3. 2011 Comparison of Respiratory Risks from Toxic Air Pollution (left) to Asthma Hospitalization Rates (right)



Note: Bold boundaries on Respiratory Risk map highlight zip codes with the five highest asthma-related hospitalization rates in 2011.

highways are often previously redlined communities that, in combination with extreme heat, have to deal with extremely high ozone and exhaust-related pollutants that increase asthma inducing effects (Abell, 2017). Improving air quality and access to green spaces which lower the urban heat island effect are critically important for improving environmental, social, and health and respiratory conditions in Baltimore City.

(2) Continue to support Southwest Baltimore neighborhoods via transit, housing, and partnering with local minority-owned businesses. UMB could expand live near your work to offer more neighborhoods and to attract more employees. Expanding Live Near Your Work would create more incentive for employees as there are more options available. Promoting this initiative in combination to existing funding opportunities including the Buy Back the Block program from the city would encourage more participation, reduce the costs associated with home buying, incentivize movement and growth in Sowebo, and reduce the amount of commuting which can increase accessibility and reduce air pollution (Elm, 2024).

UMB could expand local business discounts out to Hollins Market and various businesses within the live near your work boundaries. Existing discounts for UMB employees at Lexington Market is a great resource serving mainly downtown, but Hollins Market is in a location that would primarily serve Sowebo. The more businesses and locations offering discounts to UMB employees, the more reciprocity exists from the university. Discounts not only benefit UMB employees with underserved nutritional or financial goals, but the local businesses across Downtown and Southwest Baltimore that could benefit from the additional business.

UMB could add or alter a shuttle route so that one goes directly to Sowebo, and not just affluent neighborhoods. Providing an accessible shuttle to Sowebo is vital to upend the transit inequity that exists in West Baltimore and could even encourage more employees to take advantage of the Live Near Your Work program since there is an additional transit option available.

UMB can continue to advance its current partnerships with local community organizations and nonprofits that are focused on improving environmental justice conditions, especially in Sowebo. The Office of Community and Civic Engagement is a tool that UMB could continue to support and engage with in order to expand on or add new partnerships that can reciprocally benefit UMB and the community.

(3) Continue to support current staff, students, and faculty on campus by improving intra- and inter-campus communication and committing to follow through on former recommendations such as those from the Future of Work Task Force Committee Report and recommendations made by the President's Fellows. Aspects of the Future of Work Task Force include recommendations to analyze and improve remote work, building occupancy allocation for efficiency, support and advance well-being resources, alternative services and subsidies to support fully on-site employees, support effective, equitable, and sustainable parking and transportation systems, evaluate growth and compensation opportunities, and address inclusivity and accessibility gaps (FWTF, 2023). This recommendation is expansive because it encapsulates so much in terms of sustainable parking and transit, improved communication, energy efficiency and increasing worker flexibility via conducting building occupancy audits, as well as supporting services such as the student food pantry. UMB could expand all forms of sustainability engagement: more classes, more speakers, more top-down tie-ins from executive leadership, and more accessible spreading of information so that sustainability can be as

prevalent on campus as every other core value is. Make sustainability be at the forefront of news, events, and all university-sponsored activities.

Being transparent about environmental justice conditions in Baltimore will be imperative to UMB's efforts to improve its impacts on creating lasting environmental justice and reduce inequalities that are frequently perpetuated in the city. Acting on these recommendations will improve air quality, encourage further support to Sowebo neighborhoods, expand current services provided to UMB staff, students, and faculty, and improve environmental justice beyond campus and into Baltimore City.

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