# Transit Equity & Environmental Health in Baltimore

*One Page Summary*

## Introduction

Public transit provides relatively low-cost access to jobs, food, and healthcare, while also reducing pollution and greenhouse gas emissions by taking cars off the roads and increasing physical activity. Despite these benefits, public transit in Baltimore often fails to get people to their destinations in a reasonable amount of time. This is especially concerning since low-income people of color represent the majority of transit-users in Baltimore, many of whom during the COVID-19 pandemic were classified as "essential workers".

This project, a collaboration between Johns Hopkins University, the Baltimore Transit Equity Coalition, and Baltimore community members, aims to better understand the relationship between the public transit system, air pollution, and health impacts in the Baltimore region. We hope the information can be used to determine which areas would benefit the most from investments in transit. Our first step was to create maps which describe current inequities with regards to transit and social vulnerability, summarized below.

## Methods

Each theme had indicators drawn or derived from the U.S Census Bureau (including American Community Survey and LEHD Origin-Destination Employment Statistics data), the Centers for Disease Control and Prevention, and the Maryland Transit Authority (including their General Transit Feed Specification data). For each, we calculated a percent rank (0-100) relative to other Baltimore geographies, so that a higher rank indicated an area more in need compared to the rest of the city. Each theme's score was the average of all its indicators.The analysis focused on people living and working in Baltimore (about 40% of whom are considered "essential"). Future efforts should include the entire metropolitan area.

## Indicators

Transit indicators were separated into *access* and *system performance* metrics. *Access measures* included:

- Number of transit stops in the census tract
- Distance over a half mile to high frequency transit routes
- % of workforce commuting by public transit

The *system performance* sub-theme included:

- Estimated average commute time
- Estimated difference in average commute comparing public transit versus car
- % of population commuting by transit with a commute >45min
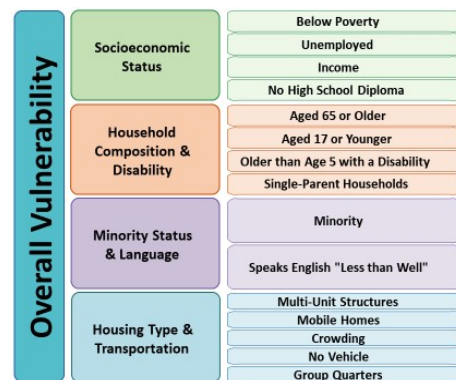


Communities' ability to access resources and opportunities not only relates to local infrastructure but is also impacted by factors such as poverty, which can impose drastic hardships on individuals living in those places. To better understand the social vulnerability of these communities, the research team used CDC's Social Vulnerability Index (see box above).

## Results and Recommendations

In all the maps, darker color indicates areas of greater need. For the transit score, many indicators appear to increase further away from the city center: average commute time, % of public transit users with commute >45 minutes, difference in average commute time between public transit and personal vehicle use, and distance to high frequency transit stops. However, some tracts closer to the city center have a disproportionate need for investment. The social vulnerability map reflects the notorious white 'L' and black 'butterfly' associated with Baltimore, with more low-income, minority-populated areas residing in the darker areas and wealthier, white-populated areas residing in the lighter middle of the map.

In combination with the transit maps, it is clear that neighborhoods in the "black butterfly" with higher social vulnerability have greater need. This calls for greater investment in transit in neighborhoods such as the ones identified in the Overall Transit Investment Need map below.



Transit Composite Score

Social Vulnerability Composite Score

Overall Transit Investment Need
(Transit and SVI overlayed)

Arlington
Callaway-Garrison
Central Forest Park
Central Park Heights
Cylburn
Dolfield
Dorchester
Fallstaff
Glen
Greenspring
Langston Hughes
Levindale
Lucille Park
Parklane
Pimlico Good Neighbors
Reisterstown Station
Towanda-Grantley
Woodmere

Better Waverly
Coldstream Homestead Montebello
Ednor-Gardens Lakeside
Kenilworth Park
Pen Lucy
Richnor Springs
Waverly
Wilson Park
Winston-Govans
Woodbourne-McCabe
Wrenlane

Belair-Edison
Biddle Street
Broadway East
Four by Four
Johnston Square
Madison-Eastend
Milton-Montford

Boyd-Booth
Bridgeview-Greenlawn
Carrollton Ridge
Coppin Heights
Easterwood
Edgewood
Evergreen Lawn
Franklintown Road
Midtown-Edmondson
Millhill
Mosher
Northwest Community Action
Penrose/Fayette Street Outreach
Rognel Heights
Rosemont
Sandtown-Winchester
Winchester

Brooklyn
Cherry Hill
Mount Winans
Westport