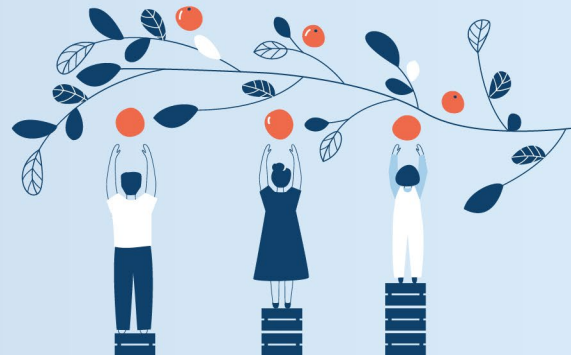


Transportation Access to Syringe Service Programs

Michigan 2024

This report will be regularly updated.



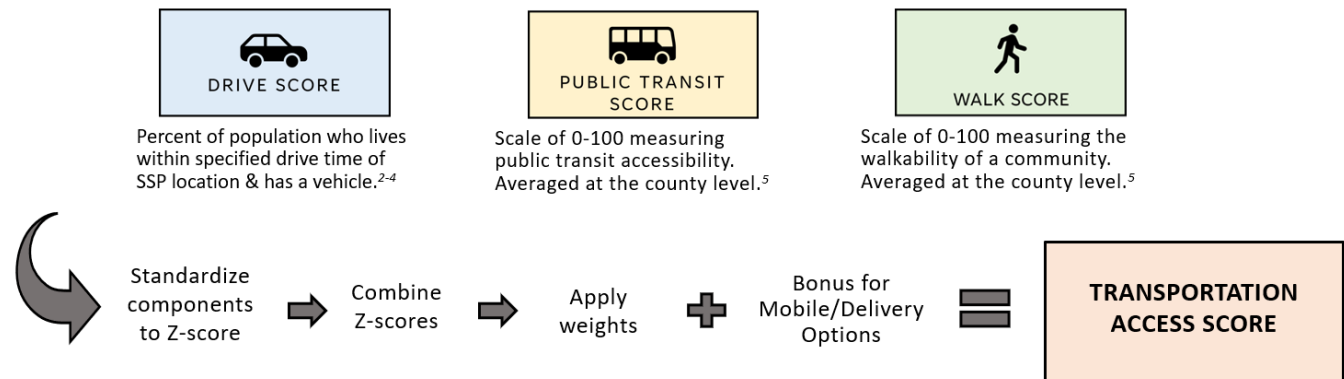
Background

Harm reduction is a set of practical strategies aimed at reducing the negative consequences associated with using drugs. Harm reduction services, such as syringe services programs (SSPs), have been proven to reduce the harms of substance use disorder (SUD) for individuals and the community.¹ SSPs reconnect marginalized community members to their community and empower people to make positive change in their lives. SSP services may include syringe exchanges, naloxone distribution, drug testing, linkage to SUD treatment, vaccinations, hygiene kits, wound care, and resources or referrals for housing, food, and other needs.

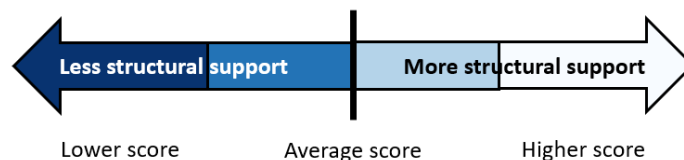
The Transportation Access Score is a tool developed by Michigan Department of Health and Human Services (MDHHS) to measure how accessible SSPs are by multiple modes of transportation. SSP access depends on a community having SSP sites or delivery options and how transportation infrastructure in a community facilitates or obstructs access. The score has four components: a drive score, a public transit score, a walk score, and a delivery bonus. Each component score is aggregated to the county level, standardized to a common scale (Z-score), weighted, and combined. More weight is given to the drive score than public transit and walk scores because driving is the primary method for transportation used by the majority of SSP clients. If delivery SSPs operate in the county, then a bonus is added to provide a final Transportation Access Score for each county.

Methodology

Figure 1. Transportation Access Score Methodology. *



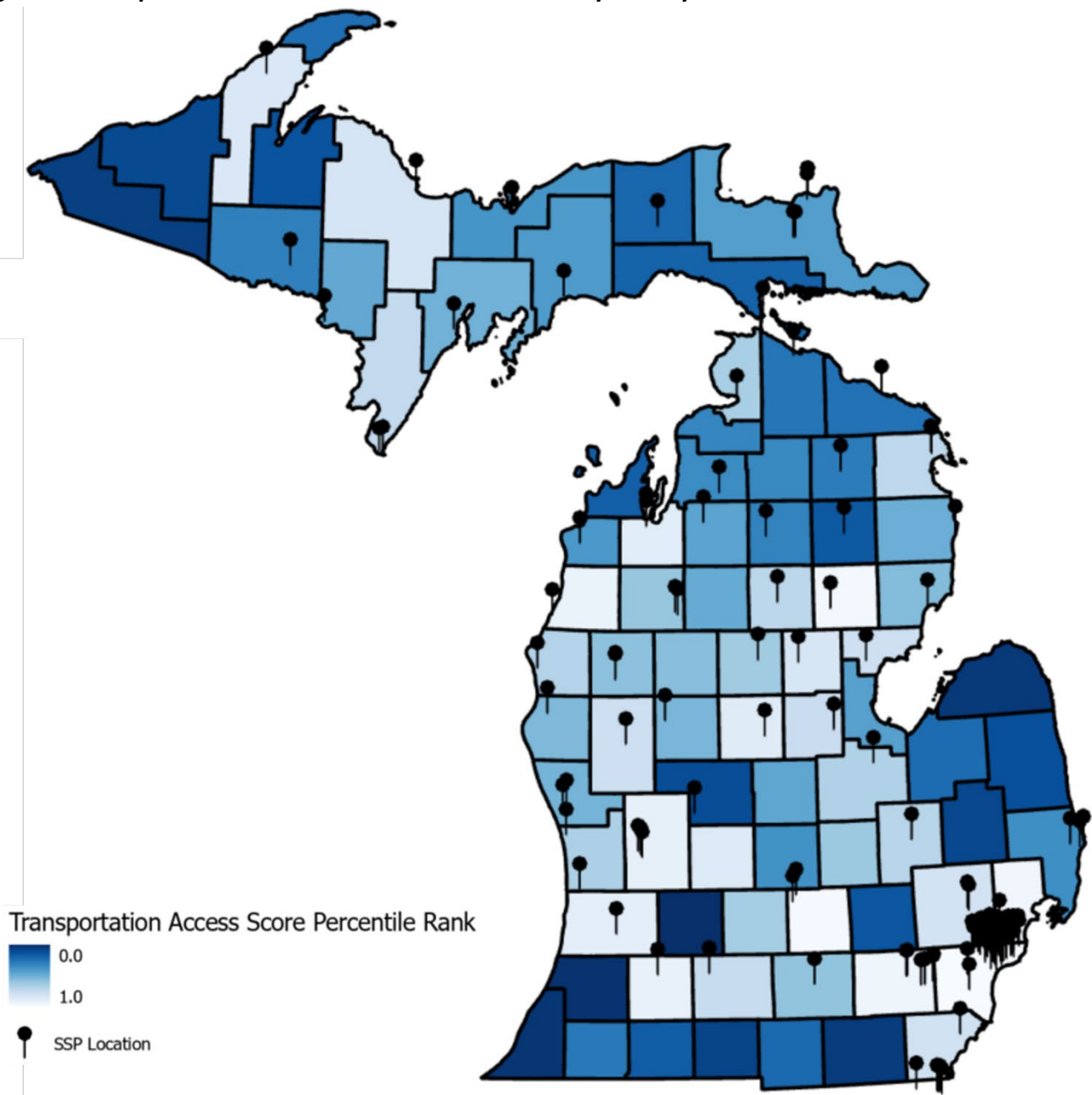
How to interpret the Transportation Access Score



*See Data Notes section for more details on methodology.

Results

Figure 2. Transportation Access Score Percentile Rank by County. *

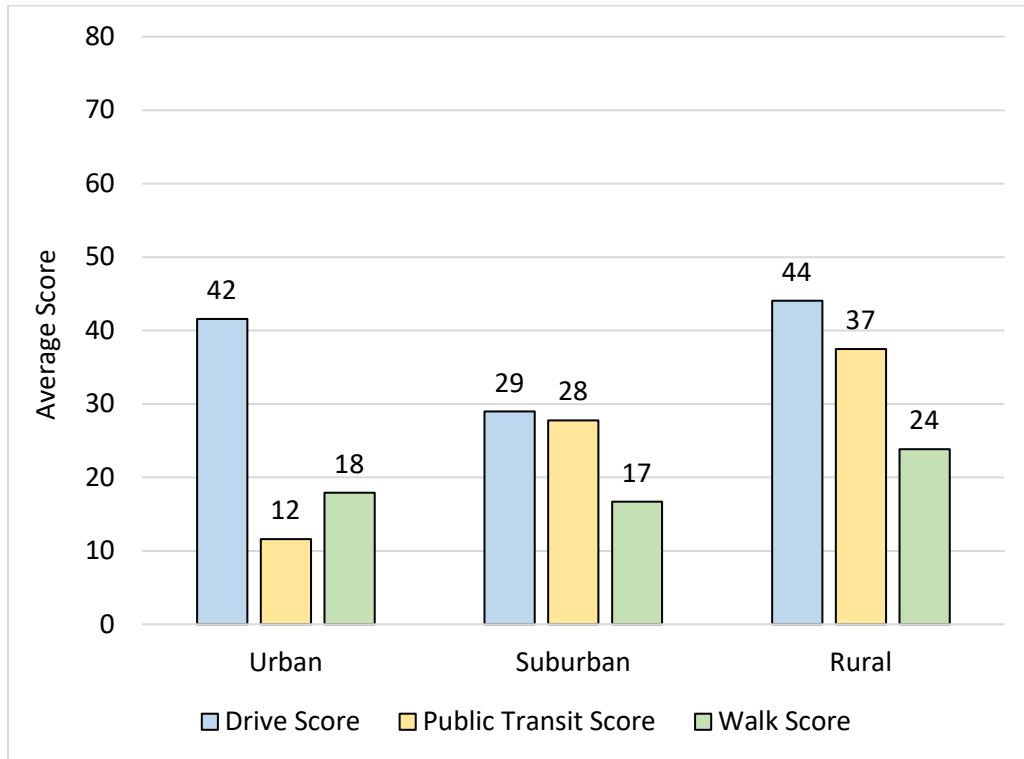


The counties with a lower Transportation Access Score (**less structural support**) that are also in the top 25th percentile of 5-year average fatal overdose rates are Van Buren, Lenawee, and Crawford County. These counties have lower than average transportation access to SSPs.



The ten counties with the highest Transportation Access Scores (**more structural support**) are Wayne, Ingham, Ogemaw, Macomb, Washtenaw, Manistee, Kalamazoo, Kent, Allegan, and Grand Traverse. These counties have better than average transportation access to SSPs.

Figure 3. Average Drive Score, Public Transit Score, and Walk Score by County's Urbanicity.



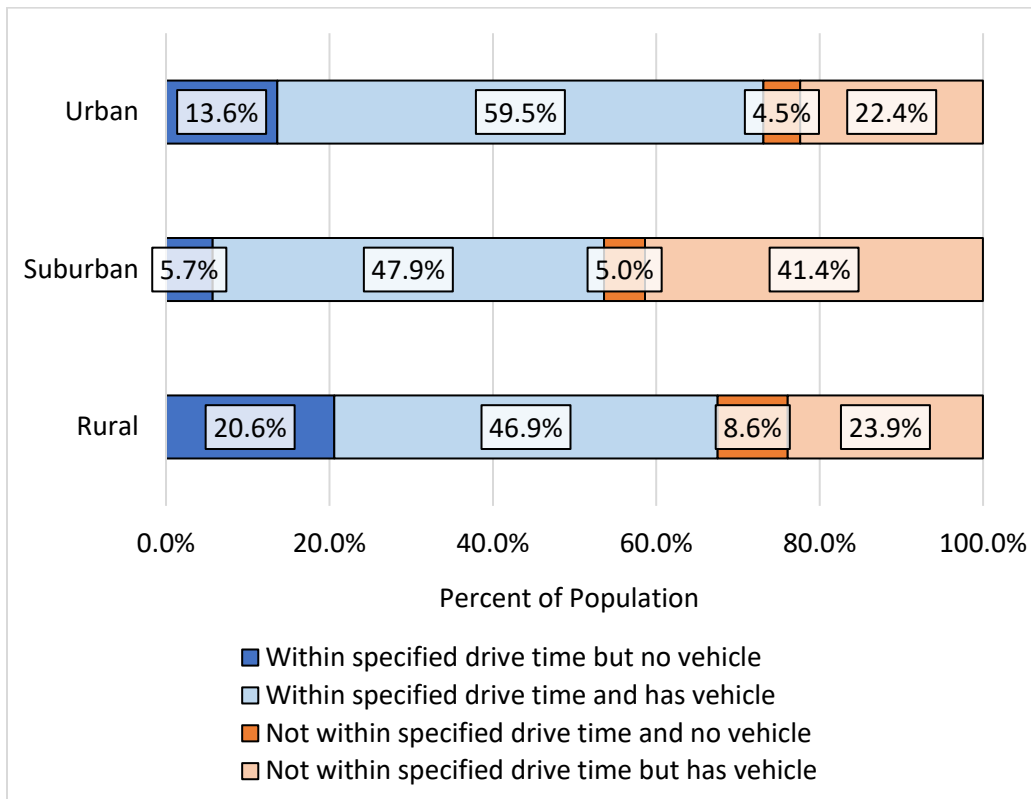
Drive scores are highest in rural counties and lowest in suburban counties.



Public transit scores are highest in rural counties and lowest in urban counties.

Walk scores are highest in rural counties followed closely by urban counties.

Figure 4. Michigan Population living within specified drive time to a SSP with and without access to a vehicle by County's Urbanicity.

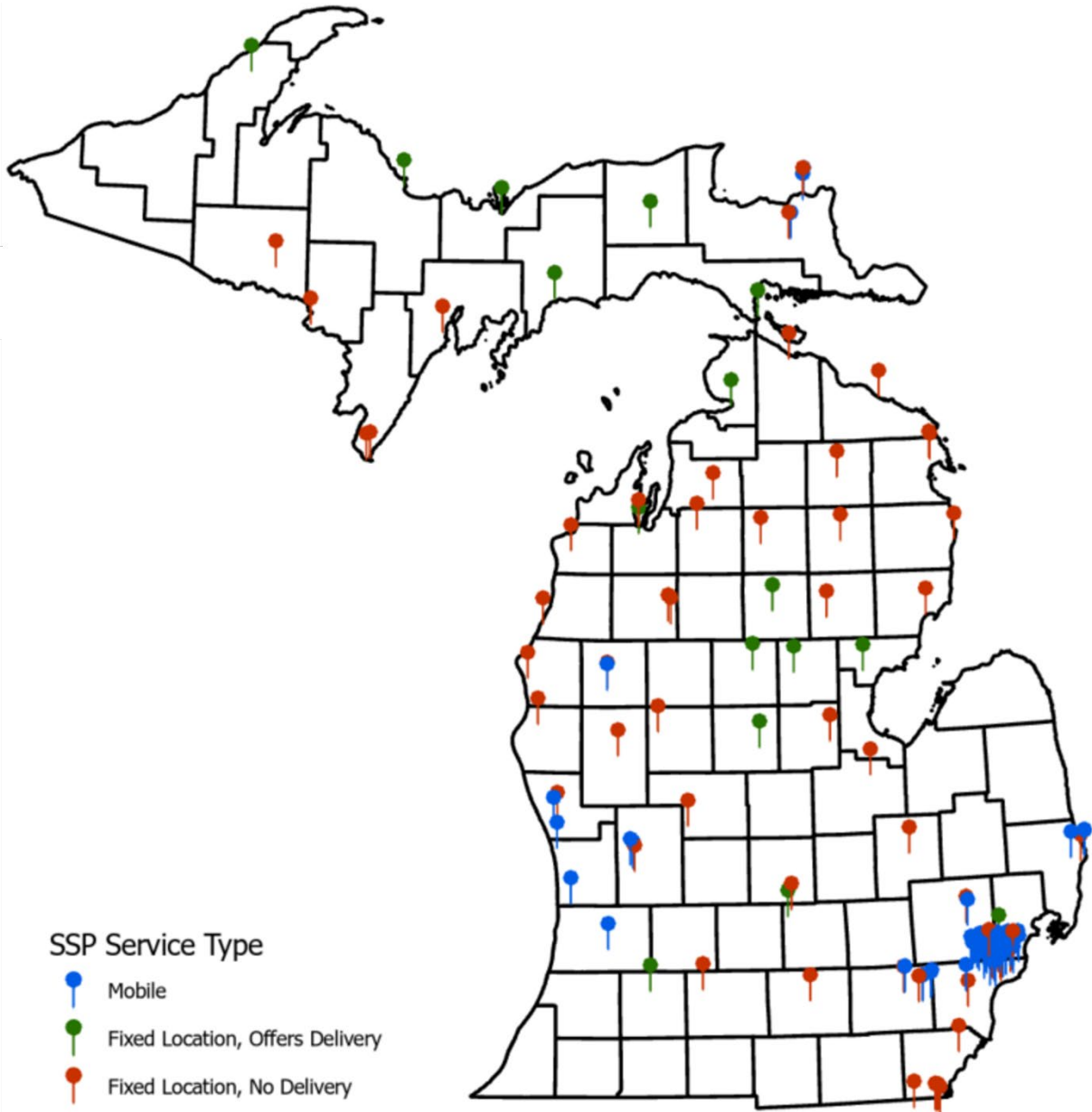


Urban counties have the highest percentage of their population who live within the specified drive time and who have a vehicle (59.5%).



Rural counties have the highest percentage of their population who live within the specified drive time and who do not have a vehicle (20.6%).

Figure 5. Michigan SSPs by Service Type. *



Mobile SSPs are more common in southeastern and western Michigan.

Delivery options are more common in northern Michigan and the Upper Peninsula.



Discussion & Public Health Implications

- 30 years of research shows that SSPs are safe, effective, and cost-saving.¹
 - SSPs help prevent overdoses by providing education on how to recognize, respond to, and reverse a drug overdose. SSPs provide naloxone, a medication that can reverse an opioid overdose, as well as training on how to use the medication.
 - SSPs help prevent transmission of blood-borne infections, such as HIV and Hepatitis C (HCV), by providing sterile injection equipment. SSPs are associated with an estimated 50% reduction in HIV and HCV incidence and the reduction is even greater when combined with medications that treat opioid dependence (medication-assisted treatment).¹
 - SSPs support public safety by providing safe needle disposal, which reduces the presence of discarded needles in the community.
- Steps to support SSPs in the community and increase access to their services:
 - Provide education to community leaders on the importance of SSPs, reducing stigma in their community, and public health importance of public transportation availability and access.
 - Allocate funds to harm reduction programs to support SSP expansion.
 - Support harm reduction programs by removing legal barriers to syringe service programs.
- Steps to address transportation-specific barriers for SSP participants:
 - Support programs to help SSP participants obtain state IDs.
 - Subsidize public transportation for SSP participants by providing free or reduced fare.
 - Rural Health Information Hub [toolkit](#) to improve access to transportation.

Data Notes

Data Sources & References

1. National Center for HIV, Viral Hepatitis, STD, and TB Prevention. Centers for Disease Control. Summary of Information on The Safety and Effectiveness of Syringe Services Programs (SSPs). <https://www.cdc.gov/ssp/syringe-services-programs-summary.html#prevention-of-id>
2. MDHHS SSP Directory. Retrieved November 16, 2023, from [Michigan.gov/SSP](https://www.michigan.gov/SSP)
3. U.S. Census Bureau; 2020 TIGER/Line Shapefiles: Census Tracts; Retrieved from <https://www.census.gov/cgi-bin/geo/shapefiles/index.php?year=2020&layergroup=Census+Tracts>.
4. U.S. Census Bureau; American Community Survey, 2017-2021 American Community Survey 5- Year Estimates; Retrieved from <https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>.
5. Redfin. Walk Score®. Retrieved April 5, 2023, from <https://www.walkscore.com/>
6. 2020 NCHS bridged-race population estimates, Centers for Disease Control and Prevention.
7. NCHS Urban-Rural Classification Scheme for Counties. https://www.cdc.gov/nchs/data_access/urban_rural.htm
8. "Validation of Walk Score for Estimating Neighborhood Walkability: An Analysis of Four US Metropolitan Areas." Duncan, D.T., Aldstadt, J., Whalen, J., Melly, S.J., Gortmaker, S.L. *Int. J. Environ. Res. Public Health* 2011, 8(11), 4160-4179; <https://doi.org/10.3390/ijerph8114160>
9. "Models to Improve Access to Transportation." Rural Health Information Hub. Updated June 4, 2019. <https://www.ruralhealthinfo.org/toolkits/transportation/2/models-to-improve-access>

Statistical Notes

Drive times were assigned based on the National Center for Health Statistics (NCHS) Urban-Rural Classification Scheme for Counties.⁷ NCHS categories were collapsed into three levels: urban, suburban, and rural. Urban included small metro, medium metro, and large central metro counties. Suburban included large fringe metro counties. Rural included noncore and micropolitan counties. The specified drive time for urban and suburban counties was 15 minutes and for rural counties it was extended to 30 minutes. Rural counties were assigned a longer drive time to accommodate less dense communities and cultural norms for driving longer distances.

The drive time analysis was conducted in R using the *hereR* package, which creates drive time polygons called isochrones around the SSP locations. The isochrones are then merged with the census tract shapefile³ to determine the degree to which the isochrone overlaps the census tract, which in turn is used to extrapolate the percent of the census tract's population living within the drive time polygon. The results of the drive time analysis are the number of people at the census tract level who live within the specified drive time of the SSP location. These results are then multiplied by the estimated percent of households in the tract who have a vehicle from the Physical Housing Characteristics for Occupied Housing Units table of the American Community Survey⁴ to extrapolate the number of people in the tract who both live within a specified drive time of an SSP and have a vehicle. These tract-level estimates are then summed by county and divided by the county's total population to get the drive component score.

Public transit and walk scores were provided by Walk Score[®] at the census tract level and averaged by county. Walk Score[®] measures walkability based on walking routes to five categories of common destinations including educational (schools), retail (grocery stores, drug stores), food (restaurants), recreational (parks, gyms), and entertainment (movie theaters).⁸ Walk Score[®] measures public transit accessibility by calculating the distance to the closest stop on each route and takes into consideration route type and frequency.⁸ Walk and public transit scores range 0-100 with 0 representing the lowest walkability or public transit accessibility and 100 representing the most walkable or best public transit accessibility.

Z-scores are a way to compare individual scores to the average scores of a group. It is a measure of how many standard deviations the individual score is above or below the average score. The formula for calculating Z-scores for each component and combining the Z-scores into a final Transportation Access Score are below:

$$\text{County A's Drive Z-score} = \frac{(\text{County A's Drive Score}) - (\text{Average Drive Score for all Michigan counties})}{(\text{Standard Deviation of Drive Score for all Michigan counties})}$$

$$\text{County A's Public Transit Z-score} = \frac{(\text{County A's Public Transit Score}) - (\text{Average Public Transit Score for all Michigan counties})}{(\text{Standard Deviation of Public Transit Score for all Michigan counties})}$$

$$\text{County A's Walk Z-score} = \frac{(\text{County A's Walk Score}) - (\text{Average Walk Score for all Michigan counties})}{(\text{Standard Deviation of Walk Score for all Michigan counties})}$$

If county has a SSP with delivery options:

$$\text{County A's Transportation Access Score} = \text{County A's Drive Z-score} + (0.5 * \text{County A's Public Transit Z-score}) + (0.5 * \text{County A's Walk Z-score}) + 1$$

If county does not have a SSP with delivery options:

$$\text{County A's Transportation Access Score} = \text{County A's Drive Z-score} + (0.5 * \text{County A's Public Transit Z-score}) + (0.5 * \text{County A's Walk Z-score}) + 0$$

Limitations of the Transportation Access Score

The Transportation Access Score does not take into consideration the safety concerns of driving, using public transportation, or walking to access SSPs. Rideshare (e.g. Uber, Lyft), taxis, and other private sources of transportation other than a personal vehicle are not included in the score. Other factors not included in the Transportation Access Score may also impact a person's ability to access SSPs. This includes having a driver's license, the cost of vehicle maintenance and gas, disabilities affecting mobility and driving, weather/seasonality, and paraphernalia laws criminalizing the possession of non-medical syringes. Neighboring counties may have SSP, which is accounted for in the drive score component but not the walk or public transit score components.

Vehicle availability was provided by the American Community Survey, which may be less likely to accurately collect data from incarcerated individuals and people experiencing homelessness. These populations may be less likely to have a vehicle available therefore vehicle availability may be overestimated in areas with more incarcerated individuals and people experiencing homelessness.

The scores provided by Walk Score® are not perfect measures of walkability and public transit accessibility as these are complex measures to accurately capture and they do not have a standardized definition. Walk Score® does not account for poor infrastructure maintenance (e.g. cracked sidewalks), crime, traffic, and physical terrain that may make walking or public transit less viable options.

The Transportation Access Score does not take into consideration transportation access to other sources of naloxone in the community. Naloxone boxes and vending machine locations can be identified by using [MDHHS's map and directory](#). Naloxone can now be purchased over-the-counter (without a prescription) at pharmacies.

The Michigan Department of Health and Human Services (MDHHS) does not discriminate against any individual or group on the basis of race, national origin, color, sex, disability, religion, age, height, weight, familial status, partisan considerations, or genetic information. Sex-based discrimination includes, but is not limited to, discrimination based on sexual orientation, gender identity, gender expression, sex characteristics, and pregnancy.

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MORE DATA AVAILABLE:

For more data and information on substance use disorder and overdose, go to Michigan.gov/OpioidsData

