

# MM2045

## Active Transportation Plan: A Bold Vision — Executive Summary



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## CHAPTER 1

# Introduction



## Active Transportation Plan for Michigan

The Michigan Department of Transportation (MDOT) has developed an integrated, performance-based 25-year plan for transforming Michigan's transportation system, known as the 2045 State Long-Range Transportation Plan, or [Michigan Mobility 2045 \(MM2045\)](#). While developing MM2045, MDOT identified active transportation as a vital factor in Michigan's vision for a 21st century transportation system that improve Michiganders' safety, addresses climate change and enhance infrastructure conditions, mobility options and system reliability to drive statewide economic investments.

This Active Transportation Plan's development has relied heavily on the efforts of the larger MM2045, which relied on extensive stakeholder engagement, public-input surveys, and other efforts throughout MM2045's planning process to solicit feedback and guidance from the public and stakeholders. Throughout the strategy development process, the project team referred to the results of the MM2045 public engagement activities, including surveys conducted using MetroQuest, telephone town hall meetings, Americans with Disabilities Act (ADA) surveys, virtual mode-specific stakeholder meetings, MDOT social media outreach, and the MM2045 website. The public's priorities and interests in the future of Michigan's transportation system were incorporated and addressed in the strategy development and revision process.

## What is Active Transportation?

For the purposes of this plan, "active transportation" is defined as human-powered transportation that engages people in physical activity while they travel. There are two primary classes of active transportation: walking and bicycling. The following are common characteristics of these modes of travel:

- ▶ Human scale.
- ▶ Vulnerable road users.
- ▶ Primarily nonmotorized.
- ▶ Perform better via their own infrastructure networks.

Michigan's transportation agencies and partners must work together to prioritize their transportation needs and investments across all travel modes and spend transportation dollars wisely. Ensuring safety and mobility, with an increasing focus on multi-modal integration, requires conscious policy decisions and investment priorities that should be guided by an understanding of the needs, goals, and available resources. MDOT developed this Active Transportation Plan as a standalone document to be integrated into and support MM2045's vision of the transportation future in Michigan across all modes, recognizing active transportation as a vital form of transportation.





## CHAPTER 2

# 2045 Vision, Guiding Principles, Goals and Objectives

In 2045, the vision for Michigan's mobility network is safe, efficient, future-driven, and adaptable. This interconnected multi-modal system is people-focused, equitable, reliable, convenient for all users, and enriches Michigan's economic and societal vitality. Through collaboration and innovation, Michigan will deliver a well-maintained and sustainably funded network where strategic investments are made in mobility options that improve quality of life, support public health, slow climate change and promote resiliency.



**Guiding Principles** reflect the vision, mission, and values, and align with an agency's capabilities. As part of the MM2045 development process, the following Guiding Principles were developed: **Preservation, Modal Choice, Future Oriented, and Sustainable Communities**. The principles intend to create a multi-modal mobility network for all users that is safer, adaptable, economic, and equitable, while right-sizing the multi-modal network as efficiently and effectively as possible. The mobility

investments will be planned for emerging trends that embrace technology and innovation and will seek flexible and diversified funding through multidisciplinary partnerships. The principles foster livable, healthy, and connected communities with multi-modal access by facilitating the safe and convenient movement of all people regardless of age, income, or ability, providing strong intermodal connections.



The following MM2045 **Goals and Objectives** were developed based on input from MDOT leadership, sponsors, MDOT's core team, external stakeholders, public input, national goals, and federal planning factors. While these Goals were developed for the larger MM2045 planning effort, they translate smoothly over to the Active Transportation Plan as they are broad, multi-modal, and represent many aspects of creating a transportation system for the 21st century.

Each goal is accompanied by a summary/hybrid of the full plan's objectives, which are specific measurable statements that support achievement of the broader goals.



**Quality of Life: Enhance quality of life for all communities and users of the transportation network. The priority objectives intend to enhance quality of life for all communities and users of the transportation network.**

- **Priority objectives** include creating opportunities for safe physical activity, equitable transportation choice, and community engagement while pursuing community supportive transportation outcomes.



**Safety and Security: Enhance the safety and ensure the security of the transportation network for all users and workers. The priority objectives intend to enhance the safety and ensure the security of the transportation network for all users and workers.**

- The **priority objective** is to reduce the number of lives lost and injuries sustained on Michigan's transportation network by striving for zero.



**Mobility: Enhance mobility choices for all users of the transportation network through efficient and effective operations and reliable multi-modal opportunities. The priority objectives intend to enhance mobility choices for all users of the transportation network through efficient and effective operations, and reliable multi-modal opportunities.**

- **Priority objectives** include improving access, connectivity, equity, and options between modes.



**Economy and Stewardship: Improve the movement of people and goods to attract and sustain diverse economic opportunities while investing resources responsibly. The priority objectives intend to improve the movement of people and goods to attract and sustain diverse economic opportunities while investing resources responsibly.**

- **Priority objectives** include pursuing transportation improvements to expand access to economic opportunities, jobs, core services, activity centers, tourist destinations, and land uses.





**Network Condition:** Through investment strategies and innovation, preserve and improve the condition of Michigan's transportation network so that all modes are reliable, resilient, and adaptable. Through investment strategies and innovation, the priority objectives intended to preserve and improve the condition of Michigan's transportation network so that all modes are reliable, resilient, and adaptable.

- **Priority objectives** include achieving a state of good repair of transportation assets while cost-effectively maintaining, operating, and upgrading assets to maximize the useful life.



**Partnership:** Strengthen, expand, and promote collaboration with all users through effective public and private partnerships. The priority objectives intend to strengthen, expand, and promote collaboration with all users through effective public and private partnerships that reflect Michigan's diversity, equity, and inclusion principles.

- **Priority objectives** include data collection for use in performance measures to inform decision-making and to show progress, strengthening coordination of transportation facilities and services between agencies and municipalities, and strengthening community engagement to ensure decision-making processes and public outreach are representative, responsive, transparent, and accountable.



## CHAPTER 3

# Active Transportation Strategies



The Active Transportation Plan identifies strategies and implementable actions intended to improve the transportation network while supporting safety and multi-modal connectivity within and between communities and throughout Michigan, which in turn will increase the number of people walking and bicycling. MDOT developed the strategies through extensive research, coordination, and communication with stakeholders. To develop the MM2045 strategies, MDOT and consultant teams referenced the MM2045 strategic direction and reviewed existing strategic and planning documents from MDOT and other Michigan transportation and planning agencies, best practices and research, and strategies from peer states.

Many strategies were designed to support achieving more than one MM2045 goal or objective from the larger MM2045 Plan. All elements of every Goal or Objective might not have corresponding active transportation strategies. Furthermore, while many of those strategies are multi-modal and translate well to advancing active transportation in Michigan, a virtual Active Transportation Strategy Identification Town Hall Workshop held in April 2020 (with nearly 90 stakeholder participants from across Michigan) identified some additional active transportation-specific strategies. The workshop allowed MDOT staff and stakeholders to

review and provide feedback on potential strategies to achieve the objectives.

The following strategies are a mix of active transportation-relevant strategies from MM2045 along with active transportation-specific strategies developed as a result of the virtual town hall and strategy-related research in coordination with how best to achieve the plan's Goals and Objectives. Active transportation strategies must be implemented to accomplish the overarching Goals and Objectives set by MM2045. Priority strategies as shown in [Table 1](#) reflect MM2045 Objectives and include the following:

- **Safety and Security:** People who walk and bike are among the most vulnerable roadway users and the most disproportionately represented in roadway fatalities and serious injuries. Implementing low-cost safety treatments, expanding active transportation networks and connectivity, improving safety culture (including educational efforts for drivers and active transportation users), and implementing Zero-Focused Safety programs that offer strategies and tactics for reducing traffic fatalities to zero are among the top strategies to reducing these types of crashes and providing safer conditions for walking and biking.





- ▶ **Network Condition:** Investment strategies, innovation, and preservation are necessary to achieve and to maintain a state of good repair of all transportation assets, including facilities for walking and biking. Key active transportation strategies involve establishing methods and approaches for assessing bicycle and pedestrian network needs, identifying gaps, and targeting and funding improvements to eliminate gaps, improve connectivity and safety.
- ▶ **Mobility:** Key strategies for active transportation mobility include providing a complete and reliable pedestrian and bicycling network that is accessible for users of all ages and abilities to destinations and other transportation modes. This is accomplished by reducing barriers created by major highway and other transportation facilities in cities and metro areas, implementing Complete Streets policies, supporting connection to transit with first- and last-mile connections, mitigating travel delays, and leveraging technology to maximize safety and operational efficiency of new and existing systems.
- ▶ **Quality of Life:** Active transportation strategies that improve quality of life focus on providing opportunities for physical activity via walking and biking for people of all abilities, races, and ethnicities in urban, suburban, and rural areas. These strategies

include developing new initiatives to support walking and biking for nonwork trips, Safe Routes to School programs, strengthening outreach, and encouraging active transportation commuting options.

- ▶ **Economy and Stewardship:** Strategies that maximize economic competitiveness by increasing opportunities for walking and bicycling improve the ability for people to access jobs, businesses, and other destinations. In addition, strategies to conduct analyses that help quantify the economic impacts of biking and walking can be used to support tourism and attract new visitors. Other strategies include encouraging communities and metropolitan planning organizations (MPOs) to develop policies and support for first- and last-mile connection projects that are eligible and competitive for the federal Transportation Alternatives Program, Highway Safety Improvement Program, and Congestion Mitigation and Air Quality Improvement Program funds and that require schools and/or school districts to count all costs associated with school siting, which includes the impacts on utilities, public services, infrastructure, and tax base.
- ▶ **Partnership:** Strategies that facilitate collaboration with federal, state, regional, local, and private partners to support walking and bicycling are necessary to expand or enhance active transportation opportunities. These strategies include conducting regular reviews of policies and guidance related to data collection and ensuring pedestrian- and bicycle-related data is being collected, used, and disseminated. Other strategies focus on the following:
  - Establishing multi-modal roadway inventories and pedestrian- and bicycle-safety training and education for designers, planners, and drivers.
  - Eliminating gaps and barriers in the bicycle and pedestrian network in conjunction with all transportation projects as appropriate.
  - Initiating performance measures such as pedestrian and bicycle trip frequencies and percentages of pedestrian and bicycle mode shares to inform decision-making and show progress toward local, regional, state, and national goals.

The complete Active Transportation Plan contains all the active transportation strategies, as well as implementation steps to achieve the objectives of the plan.

**Table 1. Active Transportation Strategies**

**GOAL - Mobility:** Enhance mobility choices for all users of the transportation network through efficient and effective operations and reliable multi-modal opportunities.

OBJECTIVE - Improve access and connectivity between modes.

STRATEGY - Reduce barriers created by major highway and other transportation facilities in cities and metro areas.



**GOAL - Safety and Security:** Enhance the safety and ensure the security of the transportation network for all users and workers.

OBJECTIVE - Reduce the number of lives lost and injuries sustained on Michigan's transportation network, striving for zero.

STRATEGY - Implement low-cost engineering treatments to increase pedestrian safety and facilitate pedestrian access and mobility along and across roadways.

STRATEGY - Expand connected bicycle and pedestrian networks in cities, metro areas, and rural areas to increase access and improve safety, while prioritizing connectivity of the network to provide more options for local travel.

OBJECTIVE - Foster a community and workplace culture of safety first.

STRATEGY - Regularly review and update policies and guidance to recognize the needs of pedestrians and bicyclists and ensure accommodations are considered at all stages of project development.



**GOAL - Economy and Stewardship:** Improve the movement of people and goods to attract and sustain diverse economic opportunities while investing resources responsibly.

OBJECTIVE - Improve transportation connectivity to established and emerging activity centers and tourist destinations.

STRATEGY - Expand bicycling and walking infrastructure to support tourism and attract new visitors.

STRATEGY - Conduct analyses to help quantify the economic impacts of biking and walking.





**GOAL - Network Condition:** Through investment strategies and innovation, preserve and improve the condition of Michigan's transportation network so that all modes are reliable, resilient, and adaptable.

**OBJECTIVE** - Achieve and maintain a state of good repair of transportation assets within the limitations of available resources.

**STRATEGY** - Establish methods and approaches for assessing bicycle and pedestrian network needs, identifying gaps, and targeting improvements.



**GOAL - Partnership:** Strengthen, expand, and promote collaboration with all users through effective public and private partnerships.

**OBJECTIVE** - Ensure key transportation data is collected, maintained, usable, and accessible to transportation partners and the public.

**STRATEGY** - Conduct regular reviews of policies and guidance related to data collection and ensure pedestrian- and bicycle-related data is being collected, used, and disseminated.

**STRATEGY** - Establish or update multi-modal inventories along roadways and ensure that project planning and design processes address local Complete Streets needs.

**STRATEGY** - Improve training and education for all roadway users and design professionals in emphasizing bicycle and pedestrian safety.

**STRATEGY** - Improve access to data and best practice examples to evaluate alternatives, conduct outreach, and adopt effective policies and plans.

**STRATEGY** - Eliminate gaps and barriers in the bicycle and pedestrian network in conjunction with larger transportation improvement projects.

**OBJECTIVE** - Use performance measurement to inform decision-making and show progress toward local, regional, state, and national goals.

**STRATEGY** - Utilize the U.S. Census Bureau's American Community Survey journey-to-work data to determine a baseline for walking and bicycle riding. Recognize that this information does not include other nonmotorized transportation modes and only includes the primary mode of transportation.

**STRATEGY** - Establish and implement a pedestrian and bicyclist monitoring (counting) program and conduct counts on a regular basis. These counts need to include the number of trips that use multiple modes of transportation (i.e., transit and active transportation).



**GOAL - Partnership:** Strengthen, expand, and promote collaboration with all users through effective public and private partnerships.

OBJECTIVE - Strengthen coordination of transportation facilities and services between agencies and municipalities.

STRATEGY - Strengthen communications channels between MDOT and the Michigan Department of Natural Resources and their efforts in state route and trail planning, recreation planning, state park siting, and recreation grant-funding efforts.

STRATEGY - Strengthen communications channels between MDOT and the Michigan Department of Health and Human Services to leverage the strengths of each agency to promote active transportation and healthy lifestyles.

OBJECTIVE - Strengthen community engagement and open decision-making processes offered through a combination of inclusive traditional and innovative methods.

STRATEGY - Develop Complete Streets training for MDOT staff as well as interested local and regional staff.

STRATEGY - Hold workshops designed to train local officials, agency staff, and professional engineers to effectively meet ADA accessibility requirements on state, county, and local road projects.



## CHAPTER 4

# Michigan's Existing Active Transportation Network

## Michigan's Active Transportation Network

Michigan's active transportation network comprises various types of facilities; some accommodate both pedestrians and bicyclists while others are limited to

one or the other, and some are shared with motorized vehicles. The choice of where to deploy each facility type is based upon physical and budget constraints, speed, user volumes, land uses, crash history and risk, public input, desired modal accommodation, and other factors. [Table 2](#) presents these facilities.

**Table 2. Mode Types Permitted Per Facility**

Facility Type	Pedestrians	Bicyclists	Parked Vehicles	Moving Vehicles
Sidewalks <sup>C</sup>	✓			
Pedestrian Streets <sup>C</sup>	✓			
Pedestrian Lanes <sup>N</sup>	✓			
Shared-use Paths/Sidepath <sup>C</sup>	✓	✓		
Trails <sup>C</sup>	✓	✓		
Shoulders <sup>C</sup>	✓	✓	✓	
Striped Bike Lanes <sup>C</sup>		✓		
Sharrows <sup>C</sup>		✓		✓
Wide Outside Lane/Curb Lane <sup>C</sup>		✓	✓	✓
Shared Roadways <sup>C</sup>		✓	✓	✓
Separated Bike Lanes <sup>O</sup>		✓		
Bike Routes <sup>C</sup>	✓	✓	✓	✓
Bike Blvd/Neighborhood Greenway <sup>O</sup>	✓	✓	✓	✓
Advisory Bike Lanes/Advisory Shoulders <sup>O</sup>	✓	✓		✓
Shared Streets <sup>O</sup>	✓	✓	✓	✓
Yield Streets <sup>N</sup>	✓	✓	✓	✓

<sup>C</sup> Commonly found in Michigan

<sup>O</sup> Occasionally found in Michigan

<sup>N</sup> Not likely to be found in Michigan

## Current Active Transportation Network

Currently, four statewide networks comprise 11 major existing routes ([Figure 1](#)). A shared-use trails directory and maps of the trail system across the state for those 3.5 miles and longer can be found on the [Michigan Trails and Greenways Alliance](#) website.

- ▶ Three U.S. Bicycle Route System routes exist in Michigan, which connect to a 14,000-mile national network in 27 states and in Washington, D.C.
- ▶ Michigan's Iron Belle Trail comprises two separate routes: one for hikers and one for bicyclists. Both routes connect Detroit's Belle Isle Park with the city of Ironwood in the western Upper Peninsula.

- ▶ The Great Lake-to-Lake Trails spearheaded by the Michigan Trails and Greenways Alliance with financial support from the Kresge Foundation includes five routes traversing one Great Lake to another, with the goal for all routes being able to use shared-use paths or rail-trails.
- ▶ The Underground Railroad Bicycle Route was created through a joint effort of the Center for Minority Health at the University of Pittsburgh and Adventure Cycling Association with a Detroit Alternate Route that detours off the main route through southeast Michigan.

These networks have been supported by government agencies at all levels (MPOs and nonprofits alike), often in collaboration with local supporters.

**Table 3. Michigan Statewide Route Systems**

System	Route	Mode	Length - Once Completed	Percent Completion
U.S. Bicycle Route System (USBR)	USBR 10	Bicycle	193 miles	100%
	USBR 20	Bicycle	310 miles	100%
	USBR 35	Bicycle	505 miles	100%
Michigan's Iron Belle Trail	Hiking Route	Hiking	1,265 miles	76%
	Biking Route	Bicycle	810 miles	64%
Great Lake-to-Lake Trails	#1 - South Haven to Port Huron	Hiking and Bicycle	275 miles	68%
	#2 - Muskegon to Bay City	Hiking and Bicycle	210 miles*	80%*
	#3 - Charlevoix to Alpena	Hiking and Bicycle	140 miles	100%
	#4 - Manistique to Marquette	Hiking and Bicycle	90 miles*	35%*
	#5 - Escanaba to Ironwood Mountains	Hiking and Bicycle	195 miles*	25%*
Underground Railroad Bicycle Route	Detroit Alternate	Bicycle	180 miles*	100%

\* Estimated



Figure 1. Michigan's Statewide Active Transportation Route Systems



## Current Gaps

Michigan's statewide active transportation network comprises facilities of many different types and scales. Some of the networks extend the length of the state, while others are regional or local and are made up of shared-use paths, shoulders, bike lanes, or sidewalks. Often, only the least challenging portions of these routes have been developed. Existing gaps may be caused by several factors, including changes in jurisdiction, greater complexity, or higher costs. Common causes of gaps that may be complex to solve are due to proximity of rivers, highways, and railroads. All of these can be exacerbated by coordination issues that include but are not limited to local preferences, funding restraints, zoning, or local politics.

These gaps can often deter users who may have otherwise continued along a route. Filling gaps with new infrastructure connects communities, encourages bicyclists and pedestrians to travel to new areas, and increases safety, comfort, access, and overall mobility.

Most of Michigan's intermediate regional and local routes face the same issues that cause gaps. Providing the day-to-day connectivity for most Michigan residents, these networks are as vital as the statewide routes. While the statewide routes may serve as the backbone for long-distance bicycle travel and tourism, the intermediate regional and local routes are those that provide important connections within communities and individual regions of the state.

When multicounty pathways are developed and connected to more local trails and pathway systems, opportunities for expanded active transportation, recreation, and tourism are multiplied. Intermediate regional routes often begin as a local trail or pathway, growing and creating greater opportunity for increased active transportation trips by residents.

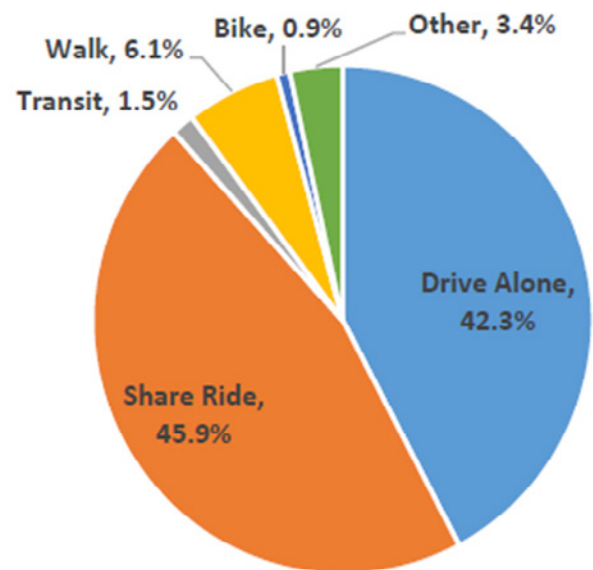
For Michigan to best expand its active transportation network, filling gaps and creating intersystem connections at the local and state levels is essential. Recognizing the role of local and regional networks in the statewide system is key. A mixture of local and regional partners along with state agencies and nonprofits has been successful in developing the existing world-class network of rail-trails and pathways found across Michigan. These groups will be necessary to continue to build out Michigan's networks of active transportation facilities through continued partnerships and collaboration.

## Current Walking and Biking Overview

The 2015 Michigan Travel Counts Household Travel Survey reported that walking accounted for 6.1 percent of all weekday trips in Michigan, while biking accounted for 0.9 percent of all weekday trips, as shown in [Figure 2](#).

With the median commute distance for walking being one-half mile and just less than 2 miles by bike, land use and density are key determinants of active transportation mode share.<sup>1</sup> Due to greater proximity of origins and destinations, urban populations account for the highest share, with 3.2 percent of the U.S. population walking to work, and 1.3 percent utilize bicycling as their primary commuting mode.

**Figure 2. Means of Travel by All People for All Trip Purposes – Weekday**



Source: 2015 Michigan Travel Counts Household Survey

According to the Michigan Travel Counts Household Travel Survey, households with no vehicle are more likely to take walking (35.7 percent) and biking (3.3 percent) trips than those with one or more vehicles. People are also more likely to choose to walk and bike if the infrastructure is comfortable, safe, and convenient. Providing multiple safe and free transportation options, such as walking and biking, is critical to creating an equitable transportation network that provides equal opportunity for all Michiganders.

<sup>1</sup> Grahn, Rick, Stan Caldwell and Chris Hendrickson, Recommended Policies for the 21st Century Trends in U.S. Mobility, Wilton E. Scott Institute for Energy Innovation Carnegie Mellon University, Traffic 21, and Mobility 21. Carnegie Mellon University, 2019.

## Crash Analysis and Public Health

Safety is a vital concern for every travel mode but is perhaps most serious for pedestrians and bicyclists, as they represent the most vulnerable users. Over the last seven years, pedestrians and bicyclists were involved in less than 1.5 percent of the crashes in the state, while disproportionately accounting for nearly 20 percent of fatalities. According to the Michigan Highway Safety Improvement Program Implementation Plan, nearly two in three fatal and serious injury crashes in Michigan occur in an urban area. When accounting for vehicle miles traveled, rural areas remain less safe than urban areas.

Between 2013 and 2019, there were an average of 2,261 pedestrian-related crashes (an average of 158 pedestrian-related fatalities) and an average of 1,740 bicycle-related crashes (an average of 27 bicycle-related fatalities) per year throughout Michigan. On average, 7 percent of pedestrian-related crashes and 1.5 percent of bicycle-related crashes resulted in fatalities compared to an average of 0.3 percent of motorist-only crashes resulting in fatalities for the same study period. In addition, in 2019, nearly 88 percent of pedestrian crashes and approximately 77 percent of all bicycle crashes were recorded as involving either fatality, injury or possible injury.

Other active transportation crash statistics found the following:

- ▶ **Road type** - Most crashes occurred on county roads and city streets (68.9 percent pedestrian-related crashes and 69.9 percent bicycle-related crashes).
- ▶ **Time of year** - The fall and winter months experienced the highest percentage of pedestrian-related crashes, while more than half of all bicycle-related crashes occurred during the summer months (May - August).
- ▶ **Time of day** - More than 40 percent of pedestrian-related crashes, and similarly, more than 50 percent of bicycle-related crashes occurred between 2 and 8 p.m. on average over all months of the year.
- ▶ **Lighting** - Most pedestrian and bicycle crashes occurred during daylight (62.9 percent) or in dark but lighted settings (20.6 percent); however, 11 percent

of pedestrian and bicycle crashes occurred in dark settings without lighting and 5.5 percent occurred in other/unknown lighting conditions.

The United States is amid an obesity epidemic. The 2019 State of Obesity report determined that the national adult obesity rate was 39.6 percent, and the national child obesity rate was 18.5 percent. These statistics represent a 70 percent increase in adult obesity over the last 30 years and an 85 percent increase in children.

The report also found that obesity levels are linked to socioeconomic conditions, with lower-income individuals at a higher risk of obesity. From 2015 to 2016, nationwide obesity rates were 47 percent for Latino/a/x adults, and 46.8 percent for Black adults, both of which are groups more often marginalized economically. In comparison, the obesity rate was 37.9 percent for white adults and 12.7 percent for Asian adults. The increased rates are comparable for children of these groups.<sup>2</sup> It should be noted that the study clarifies that these categories are limited and can be somewhat generalized because systemic racism itself acts as a fundamental cause of these racial and ethnic differences in socioeconomic status.

Obesity broadly impacts public health, with an obese adult more likely to have a decreased quality of life associated with the increased risk of developing serious health conditions, including diabetes, hypertension, heart disease, and cancer. Nationwide, the economic impact of obesity on healthcare spending is estimated at \$149 billion, annually. According to the Trust for America's Health, Michigan's obesity rate ranks higher than the U.S. median adult obesity rate (30.9 percent), and subsequently both diabetes and hypertension rates fall within the nation's high range. Michigan is equal to the nationwide average, with only 23.8 percent of the adult population meeting the Centers for Disease Control and Prevention's physical activity guidelines in 2018.<sup>3</sup>

Obesity and physical inactivity are two health risks that relate to active transportation. Associated diseases and health risks like diabetes, hypertension, high cholesterol, and chronic obstructive pulmonary disease are generally reduced with increased physical activity. The key to increasing the amount of the most popular forms of physical activity (walking and biking) is having safe and convenient active transportation choices, which in turn lead to increased healthy outcomes.

<sup>2</sup> Warren, Molly et al "The State of Obesity: Better Policies for a Healthier America with Special Feature on Racial and Ethnic Disparities in Obesity and Advancing Health Equity". Trust for America's Health. [www.TFAH.org](http://www.TFAH.org). 2019. America's Health Rankings analysis of Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System, United Health Foundation, [www.AmericasHealthRankings.org](http://www.AmericasHealthRankings.org). Accessed 2020.

<sup>3</sup> America's Health Rankings 2019. United Health Foundation <https://www.americashealthrankings.org/explore/annual/measure/Sedentary/state/MI..>

# Transportation Equity and Accessibility

Income affects transportation choice and job access is tied to transportation accessibility. Due to the high cost of car ownership, these issues affect minority and low-income communities and populations who have greater social and economic needs. More economically and socially vulnerable people rely on walking and biking for all, or part of, many essential trips. The 2016 Michigan Travel Counts Travel Characteristics Technical Report found that for “people in Michigan living without a private vehicle in their household, walking and transit are the primary methods of getting around, 35.7 percent are walking trips and 25.9 percent by transit.”<sup>4</sup> In addition, higher poverty areas suffer disproportionately from fatal crashes and from numerous barriers to access. Equity can be advanced by focusing on improving the quality and safety of first- and last-mile trips associated with transit, improving safe active transportation infrastructure in lower-income neighborhoods, and connecting census tracts with lower percentages of car ownership to broader transit and active transportation options. Active transportation should address equity issues with the goal that the system meets the needs of, and is accessible to, users of all backgrounds, ages, and abilities.

## Impacts of Transportation on Disadvantaged Communities

Statistics illustrate broad transportation equity concerns both at the national level and in Michigan:

- ▶ Low-income communities are more dependent upon bicycling for basic transportation than high-income communities. Americans making less than \$20,000 per year are twice as likely to bicycle to work than the rest of the American population, with the Kinder Institute for Urban Research showing that 49 percent of the people who bike to work earn less than \$25,000 per year.<sup>5,6</sup>
- ▶ In 2014, 100 of the 104 U.S. metro areas recorded a

higher percentage of pedestrian/cyclist fatalities in the census tracts with poverty levels of 25 percent and greater. Metro Detroit ranked 27th, with its poorest census tracts experiencing double the regional fatality average.<sup>7</sup>

- ▶ According to the 2017 National Household Travel Survey, 8.9 percent of households do not have access to a vehicle and rely on transit or active transportation for their travel needs. In Michigan, 3 percent of the working-age population has no vehicle available.<sup>8</sup>
- ▶ In 2014, Smart Growth America found that communities of color suffer a disproportionate amount of pedestrian and bicycle fatalities. The report cites an analysis from the League of American Bicyclists found that Black and Latino/a/x cyclists had a fatality rate 30 percent and 23 percent higher, respectively, than white cyclists, and similar racial/ethnic safety gaps are found for pedestrians.<sup>9</sup>

Transportation safety and equity are intertwined, with more low-income residents depending on walking and bicycling. In addition, some larger cities have been unable to prioritize the expenditure of funds necessary to install new active transportation infrastructure that makes the built environment safer, more comfortable, and convenient for safe walking and biking.

## Accessibility

Accessibility measures the ease with which individuals can reach their destinations, whether by foot, bicycle, car, or assistive device. Understanding a community's accessibility by various modes is important, especially for communities that have lower rates of vehicle ownership and longer commutes to employment.

Factors that affect accessibility include transportation demand, mobility (travel speed over time), transportation options, modal integration (convenience of connecting between various modes), affordability, and network connectivity. Demographic and financial considerations are often incorporated into accessibility calculations

4 McGuckin, Nancy, Jesse Casas, and Martha Wilaby. *MI Travel Counts III Travel Characteristics Technical Report*. Michigan Department of Transportation. September 2016. Accessed at [https://www.michigan.gov/documents/mdot/MTC\\_III\\_Travel\\_Characteristics\\_Report\\_554341\\_7.pdf](https://www.michigan.gov/documents/mdot/MTC_III_Travel_Characteristics_Report_554341_7.pdf).

5 Keatts, Andrew, Memo to Cities: Most Cyclists Aren't Urban Hipsters, The Urban Edge/Kinder Institute for Urban Research, October 20, 2015. Accessed via [http://urbanedge.blogs.rice.edu/2015/10/20/memo-to-cities-most-cyclists-arent-urban-hipsters/#.V30X7\\_krJpg](http://urbanedge.blogs.rice.edu/2015/10/20/memo-to-cities-most-cyclists-arent-urban-hipsters/#.V30X7_krJpg).

6 Anderson, Michael, Assumption Busters: 12 Facts About Race, Ethnicity, Income & Bicycling, People For Bikes, March 9, 2015. Accessed via <http://www.peopleforbikes.org/blog/entry/assumption-busters-surprising-facts-about-ethnicity-race-income-bicycles>.

7 Maciag, Mike. *Governing Research Report. America's Poor Neighborhoods Plagued by Pedestrian Deaths*. August 2014. Accessed via [http://images.centerdigitaled.com/documents/Governing\\_Pedestrian\\_Fatalities\\_Report.pdf](http://images.centerdigitaled.com/documents/Governing_Pedestrian_Fatalities_Report.pdf).

8 2019 American Community Survey. [www.census.gov](http://www.census.gov).

9 League of American Bicyclists, *The New Majority: Pedaling Towards Equity*, pg.2. Accessed via [http://bikeleague.org/sites/default/files/equity\\_report.pdf](http://bikeleague.org/sites/default/files/equity_report.pdf) & Smart Growth America, “Dangerous by Design 2014.” p.20. Accessed via: <http://www.smartgrowthamerica.org/documents/dangerous-by-design-2014/dangerous-bydesign-2014.pdf>.



alongside other traditional variable cost factors that include time, (un)reliability, out-of-pocket expenses, and levels of rider comfort, which are influenced by vehicle speeds, the number of travel lanes, traffic volumes, and the level of separation for a bicycle facility from traffic.<sup>10</sup>

For populations with limited access to private vehicles or the ability to move about freely due to mobility limitations, accessibility is a key determinate to social mobility, job access, and ease of life. Today, the typical Michigan worker with a car can access at least 1.1 million jobs within an hour's drive, according to analysis from a multistate study led by the Minnesota Department of Transportation. For people using transit, the jobs that can be reached within an hour drops to only 42,000. Those riding a bicycle can reach an estimated 15,000 to 68,000 jobs within an hour's ride, depending on whether they are comfortable riding on streets that do not have low-stress bicycle facilities. Accessibility is a considerable factor in economic success and in creating social equity. Two major academic studies link transportation and modal choice to economic success.<sup>11</sup> <sup>12</sup> These studies indicate that longer commute times result in poorer economic outcomes for children, establishing that accessibility is critical to successful economic outcomes.

Equity audits and accessibility analyses (including ADA analysis) are important components of active transportation network planning. Numerous methods evaluate equity but, generally, equity audits determine if transit systems are providing equal access to public facilities and services while providing equal quality service among vulnerable populations. These tools seek to ensure that public infrastructure investment is fairly distributed to all transportation user groups, with the accessibility emphasis on reducing barriers to economic advancement.

## Economic Benefits of Active Transportation

Recent research clearly illustrates the vital role that active transportation networks can play in strengthening a state or region's economic and quality of life metrics. To attract and retain knowledge-based workers, numerous studies

show that America's current labor pool now chooses where they want to live based upon the quality of life of the region. Once they have chosen the destination, they then search for a job, which is the inverse of the 20th century model where people would follow jobs. One key quality of life that determines a successful region is having a robust active transportation network.

Generally, the economic benefits of active transportation systems and walkable communities include the following:

- ▶ Lessened environmental impacts associated with automobile usage.
- ▶ Increased tourism opportunities and tourism/recreation-serving business development.
- ▶ Improved transportation equity and human health.
- ▶ Desirable communities where residents will often pay premiums to live adjacent to active transportation corridors.
- ▶ Increased locations to attract businesses and New Economy (new, high-growth industries that are on the cutting edge of technology and are believed to be the driving force of economic growth and productivity) workers.
- ▶ Increased community cohesion (more places for interactions between neighbors).
- ▶ Lower household transportation costs.

Traverse City's TART Trails Inc. commissioned a 2019 study that found the annual direct economic impact of the Leelanau Trail was \$71,200, while the Sleeping Bear Heritage Trail was \$3,326,000.<sup>13</sup> The study also found the ability of trail users to use the trails in the winter, due to winter maintenance, was seen as an important economic benefit.

A Redfin real estate study evaluated more than 1 million home sales between 2014 and 2016 in 14 metropolitan areas and found that as the walk score increased one point, those homes in more walkable areas saw significantly higher increases in valuation. (A walk score rising from 19 to 20 netted an increase of \$181 dollars while a walk score rising from 79 to 80 netted a \$7,000 premium; walk scores ranged from 1 being the lowest to 100 being the highest.)<sup>14</sup>

10 Koopmans, C., W. Groot, P. Warffemius, J.A. Annema, and S. Hoogendoorn-Lanser, *Measuring Generalised Transport Costs as an Indicator of Accessibility Changes Over Time*, Transport Policy, 2013.

11 Chetty, Raj and Hendren, Nathaniel, *The Impacts of Neighborhoods on Intergenerational Mobility Childhood Exposure Effects and County-Level Estimates*, Harvard University. April 2015. [http://www.equality-of-opportunity.org/images/nbhds\\_exec\\_summary.pdf](http://www.equality-of-opportunity.org/images/nbhds_exec_summary.pdf).

12 Kaufman, Sarah M., Mitchell L. Moss, Jorge Hernandez, Justin Tyndall, *Mobility, Economic Opportunity and New York City Neighborhoods*, NYU Rudin Center, Updated November 2015. <https://wagner.nyu.edu/files/rudincenter/2015/11/JobAccessNov2015.pdf>

13 Klizentye, Kotryna, Taylor Stein, *Leelanau & Sleeping Bear Heritage Trail – Health, Business and Visitor Assessment*, School of Forest Resources and Conservation – University of Florida, Dec. 2019.

14 Bokhari, Sheharyar, *How Much is a Point of Walk Score Worth?* Redfin, August 3, 2016.





## CHAPTER 5

# Policies, Practices, and Programs



## Introduction

Policies, practices, and programs are specific ways that pedestrian and bicycle transportation needs can be incorporated into projects and programs undertaken by agencies. These are intended to advance the Goals and Objectives as formulated in MM2045, requiring a variety of players including MDOT, MPOs, county road agencies, and local communities to work together to continue current and undertake new actions and initiatives. The Active Transportation Plan focuses on the four primary policy areas that strive to expand and enhance walking and biking opportunities in Michigan:

- ▶ **Zero-Focused Traffic Safety Programs** include Road to Zero, Toward Zero Deaths, and Vision Zero.
- ▶ **Complete Streets** are streets designed, operated, and maintained to enable safe use and support mobility for all users.
- ▶ **Safe Routes to School** is a program that reduces the barriers that limit or hinder children who commute to school via active transportation.
- ▶ **First- and Last-Mile Connections** are multi-modal types of transportation that get commuters from their starting (first-mile) or ending (last-mile) locations to and from a transportation transfer point.

This executive summary reviews the four policy areas, while the full Active Transportation Plan report provides additional detailed information and analyses for each. The full report also highlights Michigan case studies of communities that have successfully implemented these policies, practices, or programs. In addition, a detailed design guidance list and summary is provided in the appendix of the full report that can be used as a resource toolbox for agencies in planning and designing for active transportation.

## Zero-Focused Traffic Safety Programs

Zero-focused traffic safety programs are initiatives focused on reducing traffic fatalities to zero, with the shared goal of safe mobility for all people. The three national programs are Road to Zero, Toward Zero Deaths, and Vision Zero. Numerous entities estimate that up to 1.5 million people die annually in traffic-related crashes across the globe. Zero-focused programs have expanded exponentially since the year 2000, as communities around the world became concerned with unacceptable rates of traffic deaths, particularly pedestrians and bicyclists who suffer fatalities and serious injury crashes at rates much higher than motorists.

In 2019, the National Highway Traffic Safety Administration recorded 33,654 fatal motor vehicle crashes in the U.S., with 905 occurring in Michigan. Of particular concern are the number of fatalities and serious injuries suffered by pedestrians and bicyclists. In 2009, there were 4,109 pedestrian deaths in the U.S., climbing to 6,283 in 2018. In 2018, 857 bicyclists were killed. Of the 36,560 traffic fatalities reported in 2018, pedestrians and bicyclists comprised 19.5 percent of all traffic fatalities, which is the highest share of fatalities since 1990.<sup>15</sup>

To address this growing issue, three zero-focused American traffic safety efforts have been developed, each focusing on different sectors of American transportation.

### Road to Zero

Road to Zero efforts, led by the National Safety Council and several federal transportation agencies, focus on strengthening existing evidence-based roadway safety programs while supporting technology improvements in vehicles and infrastructure and implementing a Safe System approach, which supports a shift toward a roadway safety culture built on greater collaboration. The Safe System approach reduces human error and severity of injury and is based on following tenets:

- ▶ Deaths and serious injuries are unacceptable.
- ▶ Humans make mistakes that can lead to road crashes.
- ▶ Humans are vulnerable.
- ▶ All stakeholders share responsibility in reducing fatal and serious injury crashes.

### Toward Zero Deaths

MDOT and the Michigan State Police jointly lead the Toward Zero Deaths effort, which emphasizes six areas:

- ▶ Safer drivers and passengers.
- ▶ Safer vulnerable users.
- ▶ Safer vehicles.
- ▶ Safer infrastructure.
- ▶ Enhanced emergency medical services.
- ▶ Improved safety management.

All six areas support developing a traffic safety culture, striving to create an environment where drivers refrain from risky behaviors and safety is incorporated into decisions by all transportation system decision-makers.

The Federal Highway Administration (FHWA) asserts that zero fatalities on our nation's roadways is the only acceptable goal. The FHWA does not prescribe a methodology for the states to set their annual safety performance targets and instead gives the states flexibility; however, FHWA encourages states to review data sets, trends, and factors affecting targets so that targets are data-driven, realistic, and attainable. In efforts to meet FHWA performance management requirements, Michigan communities are encouraged to implement additional Zero-Focused Safety programs.

### Vision Zero

Vision Zero efforts are collaborative and focus on local communities. The following are the four Vision Zero principles:

- ▶ Recognize that traffic deaths are preventable and a public health issue best addressed by prevention-based systems-level strategies.
- ▶ People make mistakes and safeguards should be in place within the transportation network to lessen the severity of human error.
- ▶ Utilize an interdisciplinary approach to roadway safety that includes a diverse group of stakeholders, including public health, transportation, policymakers, law enforcement, and communities.
- ▶ Utilize data to drive safety decisions that combine the power of data with human experience and an ethical responsibility to ensure public safety.





Recently, Vision Zero efforts have increasingly focused on preventing traffic deaths by using proven engineering and design interventions and ensuring equity on our transportation facilities. Lowering speed limits and controlling speeding have become central to many national and local Vision Zero strategies. Enforcing speed limits has been deprioritized in recognition that safe design precludes the need for enforcing speed limits and that enforcement inequitably affects communities of color with fines.<sup>16</sup>

To create a safety culture, Zero-Focused Safety program efforts targeting the public include conducting public safety campaigns that focus on preventability and teaching the leading contributors to fatal and serious injury crashes. Efforts include focusing on modifying motorist behaviors, encouraging local safety programs, and utilizing data to prioritize the most effective educational strategies. The complete Active Transportation Plan provides educational and encouragement recommendations and ideas that can be further explored. Additional analysis, land use and zoning implementation concepts, and design guidance are also found in the full report.

## Complete Streets

Complete Streets are streets designed so that all users, including pedestrians, bicyclists, motorists, and transit riders, can all safely access and use the transportation network. The concept of Complete Streets is not a static idea; it is constantly evolving. Complete Streets requires significant communication and coordination among state, county, and local agencies, with a number of regulatory actors and the public participating in the design conversation. Complete Streets mark a significant departure from the historical approach to street design, which focused primarily on the safety and efficiency of motorized vehicles as the primary design consideration.

MDOT's Complete Streets goal, adopted in 2012 through the MDOT Policy on Complete Streets, is to ensure that streets are safe and convenient for all users and that they are accessible for all ages and abilities. More than 100 local jurisdictions across Michigan have adopted Complete Streets ordinances or policies. MDOT can support communities to make trunklines and MDOT-controlled roads (less than 10 percent of the state's network open to active transportation modes) multi-modal and complete

<sup>16</sup> <https://visionzeronetwork.org/acting-for-racial-justice-just-mobility/>

for all legal users. Additionally, MDOT, as the state transportation agency, can provide leadership and be a powerful example to local jurisdictions that look to MDOT for design guidance. Because MDOT leadership can carry implementation only so far, local agencies will be required to implement these policies at the local level.

Within MDOT, Complete Streets is part of the MDOT's [Context Sensitive Solutions \(CSS\)](#) approach to project planning and delivery. The CSS approach is a collaborative interdisciplinary approach to developing transportation projects. Under CSS, MDOT solicits dialogue with stakeholders (including but not limited to residents, local governments, road commissions, industry groups, land use advocates, and state agencies) early in a project's planning phase. Though it does not prescribe a rigid participation and engagement template, it does inform the types of engagement that are warranted for different levels of project complexity and local impact.

MDOT also developed the [Multi-Modal Development and Delivery Guidebook \(M2D2\)](#) in 2019 for the purpose of supporting Michigan's economic recovery and "MDOT's institutional capacity to plan, construct, operate, and maintain Michigan's transportation system for Complete Streets and multiple modes."<sup>17</sup> This guidebook provides an educational resource for MDOT and partners (nonprofits, other state agencies, local jurisdictions) to evaluate infrastructure updates to the transportation network.

Complete Streets are implemented at all levels, including the local level. Every jurisdiction, including counties, cities, villages, and townships, is responsible for determining needs and planning for street development that meets the needs of the jurisdiction, including and surpassing traditional mobility and access needs. Michigan's Public Act 135 of 2010 does not require local jurisdictions to develop or adopt Complete Streets policies; however, all infrastructure improvements should be evaluated within their local context. This provides the opportunity for local jurisdictions to determine the improvements necessary to make streets safe and accessible for all users and address gaps and barriers in the bicycle and pedestrian network in conjunction with larger transportation improvement projects.

Complete Streets policies and physical improvements are all intended to encourage active transportation. Safety, and the perception of safety by users, is essential to increasing active transportation. Complete Streets



improvements often address these issues, enhancing the active transportation user's experience. All road agencies (MDOT, county road commissions, and local governments) can partner with state agencies and nonprofit partners to promote and encourage active transportation as part of the broader public health and economic development initiatives. These partnerships are vital to encouraging active transportation use and improving the safety and connectivity of a multi-modal network across the state.

Facilities that are designed to support a Complete Streets design philosophy are inherently supportive of active transportation efforts. Expansion of Michigan's Complete Streets efforts is vital for Michigan to successfully integrate active transportation into the state's existing transportation network. Additional information on Complete Streets and the role that they play in expanding multi-modal efforts can be found in the full report.

<sup>17</sup> Multi-Modal Development and Delivery Guidebook. Michigan Department of Transportation. 2019. pg. 3.





## Safe Routes to School

The Safe Routes to School (SRTS) program aims to reduce the barriers that limit or hinder children commuting to school via active transportation. The threefold purpose of the SRTS program is to encourage more children to walk or bike to school, to increase safety for all children who walk or bike to school, and to reduce traffic congestion that contributes to air pollution around schools. Numerous factors reduce the number of school age children who could use active transportation to get to school. These factors include infrastructure barriers, social concerns, personal safety concerns, and neighborhood blight issues, along with schools of choice and less dense suburban districts that rely on busing.

Many program actions address the impacts of suburbanization on students' and parents' commuting patterns. School siting, design practices, and transportation network planning focused on auto mobility have led to many schools that are not safely accessible for children to approach on their own. Even children traveling to urban schools, with existing sidewalk networks, may face a variety of hurdles, including infrastructure, vehicle traffic speeds, and traffic volumes, which, according to surveys, are among the top concerns of parents. Programming for non-infrastructure activities is key to a successful local program, especially if it is sustained past the grant-funding period.

Through [Michigan's SRTS program](#), a wide variety of implementation resources are available to communities to address the various barriers that hinder children from using active transportation to get to school. Both national and Michigan SRTS organizations provide a wealth of online resources about the program's operation, sample documents, and case studies that communities may utilize in implementing their active transportation efforts focused on children.

Reductions in walking and biking to school have resulted in a cascade of undesirable social outcomes and unintended consequences. This reduction has had negative impacts on children's levels of activity, with less than one-third of Michigan children meeting the daily recommendation for physical activity. By encouraging children to be more active as youths, the program also hopes that more active lifestyle choices will continue into

their teenage and adult years, therefore increasing their active transportation participation rates and, in turn, reducing the societal cost of preventable disease and premature deaths.

Michigan's program follows the federal structure; however, it is administered by an MDOT SRTS program manager through a contract with the Michigan Fitness Foundation (MFF). MFF handles all day-to-day operations, including outreach, training, education, planning and grant application, technical advice, and contract management for non-infrastructure grants. If a school or community wishes to pursue SRTS activities or funding, they must first register the school(s) with the MFF, establish a relationship with a grant coordinator, and register with the Michigan SRTS program. Next, schools must designate an SRTS coordinator and establish an SRTS team. The MFF grant coordinator provides guidance and technical advice throughout the SRTS planning and grant application processes.

The local SRTS team must assess attitudes and behaviors related to walking and biking around their school(s) through surveys of parents and students regarding their behaviors, beliefs, and attitudes toward commuting to school. Next, the team must complete audits that assess the existing walking and biking routes, identifying the physical routes to school, their condition, and all barriers to safe travel.

MDOT's SRTS program's **"Six Es"** principles guide its efforts:

- ▶ **E**ngaging and **E**ducating the community while addressing the issue of **E**quity.
- ▶ **E**ncouraging students to walk or bike to school.
- ▶ **E**ngineering that accommodates users of active transportation.
- ▶ **E**valuating programs and adjusting when needed.

These six cornerstones are accomplished through two major project types: infrastructure projects and non-infrastructure projects. Infrastructure awards are available up to \$220,000 while non-infrastructure awards may be up to \$10,000.

Infrastructure projects address physical hurdles while non-infrastructure projects focus mostly on engagement, education, and encouragement activities. Encouragement activities include contests and prizes (such as bike decorating contests), safety poster contests, bike/walk to school contests among students individually, between classes or schools, and other fun events.

Michigan's SRTS program includes a toolkit that contains a wealth of information about conducting route assessments, parent and student engagement, hands-on demonstrations, and informational aids on preparing fliers, invitations, and press releases. Additional information is available at <https://saferoutesmichigan.org/>. The full SRTS report with additional information on the initiatives included within a SRTS program and local examples may be found in the full plan.



## First- and Last-mile Connections

First- and last-mile connections refer to the multi-modal types of transportation that are employed for getting commuters from their starting (first-mile) or ending (last-mile) locations to and from their transportation transfer point where they will often board or disembark transit vehicles or other ridesharing mode for most of their trip. Bicycling and walking are common forms of first- and last-mile transportation connections. Buses, carpools, ferries, and trains typically make up the transit segments of the journey.

Solutions that may improve first- and last-mile connections include feeder buses or shuttles, improved walking and cycling infrastructure, and urban planning reform that increases density and discourages sprawl near transit facilities or along transit routes. Other solutions include striving to accommodate micromobility options, including scooters, docked and dockless bikeshare systems, and e-bikes. Focusing on improving multi-modal transit access is a benefit to this type of approach rather than focusing on one specific mode, such as personal vehicle accommodation.

First- and last-mile connections vary in length considering the form of transportation. On average, walkers can traverse two or three blocks (approximately 0.5-mile walking distance) in 10 minutes while bicycle riders are able to ride almost 2 miles in the same period. Thus, improvements to the distance of first- and last-mile connections required for walking and bicycling will vary greatly due to the differing sizes of area covered by the differing forms of transportation.

First- and last-mile connections recognize that multi-modal transportation travelers often face hurdles in reaching the transfer point for making the connection between their primary transportation mode and their starting and ending destinations or have issues at the connection point itself. These gaps and challenges from the starting point to transit or from transit to the destination are often referred to as the first- and last-mile problem, and not all challenges are the same. Stations and stops served by high-frequency transit will have larger first- and last-mile catchment areas than a bus stop on an infrequent bus route. The general hurdles include the following:

- ▶ Distance from starting or ending point (more than 0.5-mile walking or 2 miles bike riding).
- ▶ Gaps in walking and biking infrastructure, including ADA deficiencies and inadequate or unsafe crossing.
- ▶ Safety and level of comfort on transit vehicles.
- ▶ Personal safety (crime, poor lighting, etc.).
- ▶ Physical barriers including geography and topography.
- ▶ Weather and urban heat island effect.
- ▶ Lack of supporting infrastructure, such as bathrooms, bicycle or other micromobility vehicle storage, e-bike charging stations, and bus shelters or benches.
- ▶ Long dwell times waiting for transit connections.
- ▶ Lack of onboard storage for bicycles, assistive devices, and other mobility devices.
- ▶ Lack of convenient ride-hailing services or easy curb-side pick-up/drop-off.
- ▶ Poor wayfinding, including lack of directional signs or lack of accurate posted transit schedules.
- ▶ Poor out-of-vehicle experience, including lack of real-time arrival and routing information, lack of shelter, difficulty in ticketing, unattractive and/or unsecure waiting areas.



Understanding and recognizing the challenges that face travelers at their first- and last-mile connections is key to increasing transit ridership and enhancing the usability of the state's active transportation network. Educational efforts may assist in bridging the first- and last-mile gaps. These efforts may include mainstreaming active transportation by bringing it on par with motorized transportation and shifting the culture to support active transportation. By improving the first- and last-mile connections, the utility of Michigan's active transportation network can serve more residents and visitors. Local governments, communities, and agencies around the state viewing walking and biking as forms of transportation equal to motorized transportation is important for this effort.

First- and last-mile connections may include non-physical hurdles such as the choice not to use the transit system due to the lack of knowledge of how the system works and concern over the ease of using the system. Encouragement activities may be used to urge travelers to try active transportation or transit and may include Walk/Bike/Transit-to-Work Days/Week, first- and last-mile connection improvements that include maps showing up-to-date active transportation facilities in relationship

to transit routes, or secure bike-parking areas or bike lockers and employee showers or changing rooms. All encouragement efforts are designed to expose individuals to active transportation options and urge them to expand or increase active transportation segments in their current personal transportation mixes.

There is a growing recognition of the importance of addressing first- and last-mile connections among both urban and transportation planners and transit agencies. These changes expand transit ridership catchment areas near transit stops while improving the pedestrian and bicycle rider experience. Recognition that these enhancements will improve Michigan's quality of life for people living or conducting business within these areas and will improve the state's attractiveness to individuals and businesses looking for multi-modal communities are necessary so that policies may be undertaken that improve the first- and last-mile connections. A detailed resource of planning trends, policy options, and design guidance that may be used to improve first- and last-mile connections may be found in the full report.





## CHAPTER 6

# Performance Measures

Performance measures are metrics used to track the effectiveness of infrastructure and program improvements, and the Active Transportation Plan presents a range of possible measures that could be deployed for tracking the accomplishments of plan implementation. Planning collaboration efforts within local jurisdictions are necessary in long-range and current transportation plans and are key to successfully developing a comprehensive statewide active transportation network. Performance measures support transportation agencies and local legislative bodies in aligning their transportation planning decisions with existing community goals and the Active Transportation Plan. Through the community planning process, steps to achieve the performance measure goals through infrastructure investment are established.

Every transportation project should be developed with active transportation considered during all phases of project definition, selection, design, construction, and maintenance. Agencies must first identify the appropriate type of pedestrian and bicycle accommodations to be incorporated into their projects. Considerations that planners and engineers should utilize include developing a project vision and goals, assessing existing conditions and local needs, equity, prioritization, health and safety, and accessibility.

[Table 4](#) shows the top performance measures to be considered and implemented in relation to the Active Transportation Plan's four prime policy areas and corresponding responsible agencies. These include various measures intended to benchmark, measure targets, and set priorities that are measurable and achievable. For instance, deploying traffic counters designed to capture walking and bicycling metrics on various regional and statewide systems will establish a benchmark number of existing users, and changes will provide a useful and accurate representation of active transportation utilization over time. Measuring the change in the percentage of all workers who commute to work by walking and bicycling



and tracking transportation system-related statistics, including data on first- and last-mile connections or proximity to transit and universities, can help track system improvements over time. Equity of the active transportation system may be measured in multiple ways, including reviewing safety data for equity throughout various populations, therefore ensuring that traditionally vulnerable populations are not suffering from crashes at higher rates than others. In addition, utilizing performance measures that quantify desirability of transportation system by reducing the level of traffic stress or improving the level of comfort are to help determine the network's overall desirability and necessary facility improvements.



**Table 4. Potential Active Transportation Plan Performance Measures**

Performance Measure	Priority Areas Performance Measure Informs				Timeframe for Establishing the Measure	Agency Responsible for Implementation				
	Complete Streets	Safe Routes to School	Toward Zero Deaths	First/ Last Mile Connect		MDOT	MPOs	Counties	Cities	MFF
Pedestrian and bicyclist counting program.	✓	✓	✓	✓	Mid-Term	✓	✓		✓	
Percentages of active transportation mode share. American Community Survey to determine baseline for walking and biking. Increased mobility.	✓	✓	✓	✓	Current					
Trips using multiple modes of transportation.	✓	✓	✓	✓	Mid-Term					
Utilization of standard crash data for improvements for active transportation users. Establish a nonmotorized safety baseline.	✓	✓	✓	✓	Current	✓	✓	✓	✓	
Five-year moving average: number of nonmotorized fatalities and serious injuries (all public roads): MM2045.	✓	✓	✓		Current	✓	✓	✓	✓	
Statewide statistics on pedestrian and bicycle crashes: frequency of crashes per year, time of year, time of day.	✓	✓	✓		Current	✓	✓	✓	✓	
Utilization of risk assessment tools.	✓	✓	✓		Mid-Term	✓	✓	✓	✓	
Statistical models to identify bicycle compatibility ratings for roads.	✓	✓	✓	✓	Long-Term		✓		✓	
Number of school districts enrolled in the Safe Routes to School program.	✓	✓	✓		Current				✓	✓
Carpool lots, Amtrak, transit stops, airport and bike rack availability. Cross modes at carpool lots.	✓			✓	Mid-Term	✓	✓		✓	
Review of safety data for equity throughout various populations.	✓	✓	✓	✓	Mid-Term	✓	✓	✓	✓	

MPO – Metropolitan Planning Organization

MFF – Michigan Fitness Foundation



Fostering a data-driven transportation safety culture in Michigan is vital to making Michigan's roads safer for all users. Tracking educational programs is a key input measure for expanding Michigan's active transportation network, with several educational input factors affecting safety culture and implementation. Safety culture improvements could be identified by tracking adoption of Complete Streets policies and participating in transportation safety programs, including Zero-Focused Traffic Safety programs and the SRTS program.

As the desire for walking and biking facilities continues to grow, performance measures will become increasingly important for prioritization and use in funding active transportation projects and programs. The performance measures in the Active Transportation Plan will assist

MDOT and road agencies in developing a system to benchmark progress in expanding and improving Michigan's active transportation network. Statewide policies regarding the adoption and mainstreaming of active transportation projects and programs are important yet difficult metrics to measure accurately. The performance measures that are selected for implementation are intended to directly influence how MDOT and local agencies implement their active transportation efforts; however, they rely upon many interagency partnerships, including local agencies, transit, and regional planning organizations to be achievable and relevant. A complete discussion on all active transportation performance measures identified for potential use in Michigan can be found in the full report.



## CHAPTER 7

# Funding and Financing

States provide funding in many ways; however, the unifying factor of the various approaches to funding active transportation is that all states rely on many different sources of funding. States obtain funding from sources such as the Transportation Alternatives Program, the Surface Transportation Block Grant Program, the Highway Safety Improvement Program, and the Congestion Mitigation and Air Quality Improvement Program to fund active transportation improvements. Additionally, many states have state-specific funds that have been created by their legislatures to fund active transportation improvements.

Michigan mandates that 1 percent of Michigan Transportation Fund (Act 51) funding goes toward projects that support pedestrians and bicyclists and is one of the few states to do so.

## Federal and State Programs

Michigan communities use a combination of federal, state, local, and private-sector funds to finance active transportation projects. MDOT and MPOs are typically the administrative leads for many federal programs, while MDOT oversees state transportation funds, and the Michigan Department of Natural Resources administers programs that can fund trails. Typically, state and federal funding require a local funding match of some sort.

## Local Programs

Local governments and road agencies have many potential options for local funding, including special dedicated millages, general fund allocations, special assessments, bonds, interlocal agreements, and public-private partnerships.

## Opportunities for Integration

Funding continues to be a major impediment for agencies across the state as they look to undertake active transportation projects. It is particularly challenging for

smaller and more rural communities, which frequently do not have the proficiency to pursue these funding options and may not have the staffing to pull together public-private partnerships or organize large philanthropic efforts. Nevertheless, public-private partnerships and philanthropic funding have increasingly been the foundation of funding for major active transportation projects that cross multiple jurisdictions or for major projects that accomplish many community goals. Funding maintenance of shared-use pathways and trails has historically been challenging for communities and cross-jurisdictional organizations; philanthropy has increasingly filled this void. The day-to-day active transportation projects that address first- and last-mile connections and the SRTS program are typically funded with some combination of federal, state, county, and local dollars.

MDOT and MPOs act as a clearinghouse of information and can provide local communities, partners, agencies, and organizations with a funding toolbox, as well as potentially provide technical assistance for certain funding applications. The role of MDOT and MPOs as coordinating agencies is crucial and local communities look to these agencies for guidance on how to implement and fund many of the active transportation projects initiated by their citizens.

The following recommendations are drawn from a peer state review of best practices:

- ▶ To the best extent possible, modify funding streams to fund accommodations from the same source as roadway projects.
- ▶ Eliminate gaps and barriers in the bicycle and pedestrian network in conjunction with larger transportation improvement projects.
- ▶ Compile and disseminate funding and project information to improve transparency and performance.
- ▶ Provide guidance to include active transportation components in state, regional, and MPO transportation plans to ensure they are included when setting project budgets.





## CHAPTER 8

# Conclusion



Michigan's first Active Transportation Plan demonstrates the importance of creating an environment that is conducive to safe, accessible, and efficient walking and bicycling. This plan envisions an ever-expanding active transportation network that supports economic development, provides opportunities for healthy living, addressing climate change, builds transportation equity and accessibility, and enhances Michigan's quality of life.

Strategies of the MM2045 Active Transportation Plan: A Bold Vision aim to enhance and increase active transportation opportunities for the most vulnerable users of the roadway: pedestrians and bicyclists. Achieving the MM2045 vision requires coordination between MDOT and its public and private partners over the next 25 years. These achievements will be developed through improved partnerships between all the entities and agencies that work together to design, build, and operate Michigan's transportation network. This plan details actions that can be taken for integrating policies, programs, and practices that include first- and last-mile connections, the

SRTS and Zero-Focused Safety programs, and Complete Streets principles that will lead to a walking and bicycling environment that enhances Michigan's vitality and attractiveness for residents and visitors alike.

Several recommendations of this Active Transportation Plan will require multiple steps to be taken over the course of many years. Some may require additional planning, analysis, and continued education for agencies and the public. The plan provides a comprehensive implementation approach for engagement, education, equity, encouragement, engineering, evaluation, and enforcement. The active transportation performance measures outlined in the plan will track the outcomes of policy and program actions, inform decision-making, and show progress toward local, regional, state, and national goals. Periodic updates to this Active Transportation Plan should occur as infrastructure, legislation, and programs evolve that affect pedestrian and bicycle facilities and as the network matures.



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