



Statewide Bike and Pedestrian Plan

Mike DeWine, Governor

Jack Marchbanks, Ph.d., ODOT Director

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OHIO DEPARTMENT OF
TRANSPORTATION

Acknowledgements

The completion of Walk.Bike.Ohio was made possible through the collaboration and assistance of many partners. The Ohio Department of Transportation would like to thank the Walk.Bike.Ohio Steering Committee members, stakeholder meeting host agencies and the consultant team.

Steering Committee

Age Friendly Columbus	ODOT Division of Opportunity, Diversity + Inclusion
American Academy of Pediatrics - Ohio Chapter	Ohio Bike Federation
Bike Miami Valley	Ohio Department of Aging
City of Canton	Ohio Department of Health
City of Cleveland	Ohio Department of Natural Resources
City of Columbus	Ohio Disability and Health Program
City of Zanesville	Ohio Facilities Construction Commission
Clark County-Springfield Transportation Coordinating Committee	Ohio Township Association
County Engineers Association of Ohio	Ohio Valley Regional Development Commission
Federal Highway Administration	Perry County
Greater Ohio Policy Center	Policy Matters Ohio
Metroparks Toledo	Rails to Trails
Mid-Ohio Regional Planning Commission	Sandusky County
Northeast Ohio Areawide Coordinating Agency	Tourism Ohio
ODOT District 11 and 12	Tri State Trails
ODOT Division of Human Resources	Urban Land Institute

Stakeholder Meeting Hosts and Locations

Buckeye Hills Regional Council, Marietta
Mid-Ohio Regional Planning Commission (MORPC), Columbus
Northeast Ohio Areawide Coordinating Agency (NOACA), Cleveland
Ohio Mid-Eastern Governments Association (OMEGA), Cambridge
Ohio-Kentucky-Indiana Regional Council of Governments (OKI), Cincinnati
Toledo Metropolitan Area Council of Governments (TMACOG), Toledo

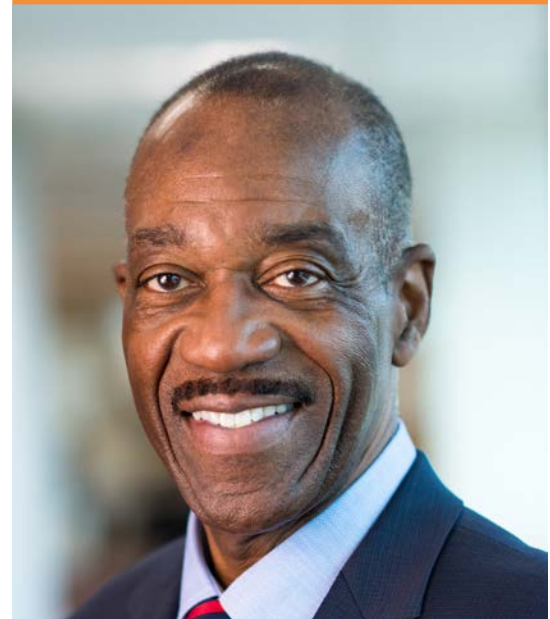
Consultant Team

Alta Planning + Design
MKSK
MurphyEpson

Valued Ohioans:

ODOT is pleased to publish Walk.Bike.Ohio, Ohio's first statewide bicycle and pedestrian plan. Over the past two years, ODOT has worked to document existing conditions and develop recommendations to make walking and biking in Ohio a safe, convenient and accessible transportation option for everyone.

Although publication of Walk.Bike.Ohio is a major milestone for Ohio, it is just the beginning of the work necessary to achieve our vision. Ohioans across the state rely on walking and biking to get to work, school, and medical appointments. Therefore, implementation of the plan recommendations is essential to improving walking and biking in Ohio.



I want to thank the many transportation planning partners listed on the Acknowledgements page who assisted in the development of Walk.Bike.Ohio. The guidance provided by our partners was instrumental in developing the plan recommendations. I also want to thank the many citizens who engaged in the planning process and shared their thoughts and ideas.

In addition to this plan, many additional resources were developed to assist both ODOT and our planning partners. Those resources are referenced throughout this document and also linked on our website, transportation.ohio.gov/walkbike.

I look forward to continued collaboration with our planning partners over the coming years to improve Ohio's transportation system and benefit all Ohioans.

Respectfully,

Jack Marchbanks, Ph.D.

ODOT Director



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Executive Summary



Walk.Bike.Ohio

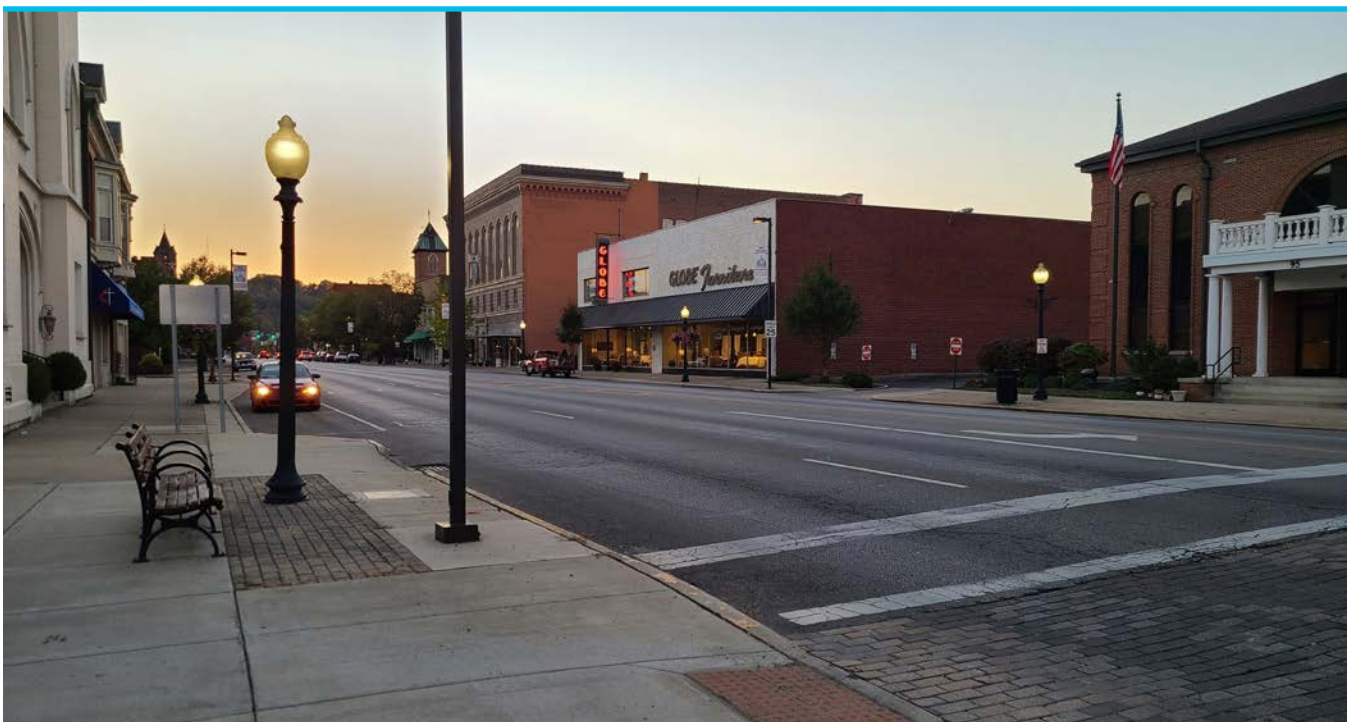
Purpose

The value of a walkable and bikeable Ohio is clear. A more walkable and bikable Ohio is a healthier and more sustainable Ohio. Active transportation opportunities provide mobility, economic, health, environmental and quality of life benefits to residents, which is important as demographic and social trends highlight the increasing need for walkability and bikability. Walk.Bike.Ohio (WBO) is Ohio's first statewide pedestrian and bicycle plan, and provides a roadmap for overcoming challenges and capitalizing on opportunities as the state moves towards creating a more walkable and bikeable Ohio. It documents the current performance of Ohio's transportation system with respect to active modes of transportation (walking and

SCOPE OF RECOMMENDATIONS

As a policy plan, Walk.Bike.Ohio will guide policies, programs, and investments in infrastructure to improve walking and biking, but does not recommend specific infrastructure projects.

bicycling) and outlines goal areas that set the stage for increased collaboration between the Ohio Department of Transportation (ODOT) and its partners. For the first time, this plan defines short-term activities (strategies and actions items) that ODOT will provide resources and leadership in advancing, impacting transportation policies, investments, infrastructure and programs for years to come.



Walking and Biking in Ohio Today

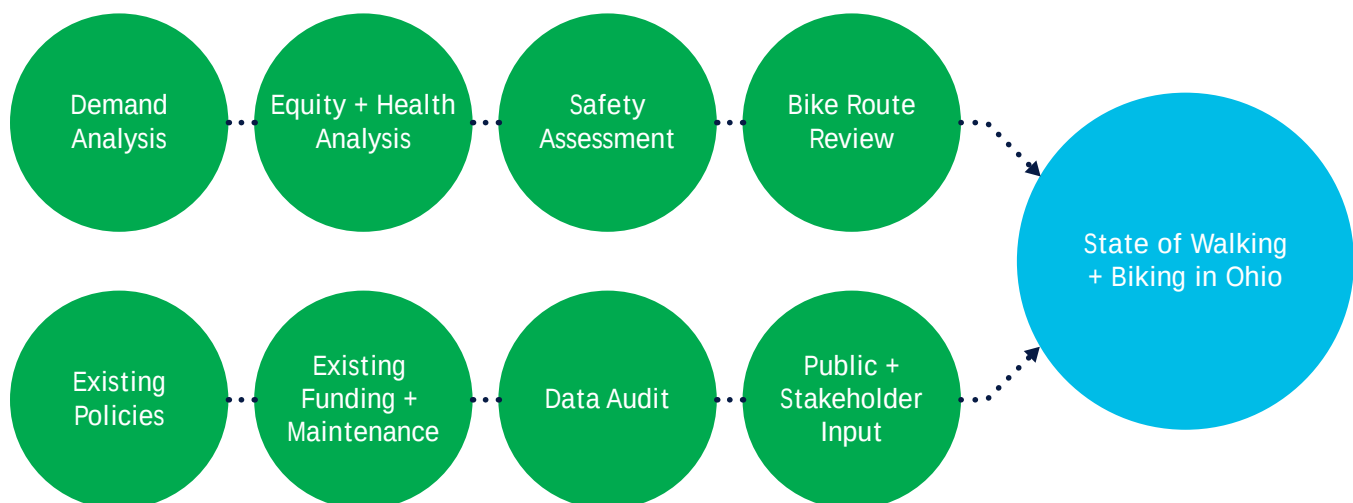
Today, there remains an incredible amount of untapped potential to benefit from investing in a transportation system that ensures the safety, convenience, and accessibility of walking and biking. Walking and bicycling are fundamental transportation modes for many Ohioans who rely on them to access transit, work, school, retail stores or any number of destinations across Ohio in both rural and urban settings.

Nearly one out of every 10 households does not have access to a motor vehicle in Ohio, meaning active transportation options are necessary. Connected active transportation networks can also play a role in improving Ohio's ranking of 40th in the United States for overall health outcomes and 47th for health behaviors, which include obesity and physical inactivity.

Ohio features a 3,000-plus mile bike route system that serves as the backbone of a bicycle network. Yet, there are deficiencies in state, regional and local bicycle and pedestrian networks, such as system gaps, unsafe roadway crossings and deficient or failing sidewalks. Safety is a concern as well, with bicyclists and pedestrians making up 14% of all roadway fatalities in Ohio. ODOT and its partners use federal, state and local funding resources to build active transportation networks that improve connectivity and safety; they also rely on project development policies for bicycle and pedestrian facility accommodations.

A summary of the state of walking and biking in Ohio today is in Appendix B and sets the stage for the strategy and action step program that will ultimately advance walking and bicycling mobility, safety and connectivity in Ohio.

Existing Condition Metrics



Stakeholder and Public Engagement

The WBO planning process brought together stakeholders from across Ohio to develop this plan. Collaboration was the foundation to develop this document's recommendations and will be essential to implement them. A steering committee of representatives from multiple geographies and agencies across Ohio guided the process. Two rounds of stakeholder meetings, engaging hundreds of practitioners and advocates, were held across the state to receive input about their needs and feedback on draft recommendations.

Thousands of Ohio residents interacted with the project website, completed an online survey and reviewed a draft plan. Ohioans across all geographies and demographics communicated the importance of active transportation in their communities. Stakeholders conveyed the need for improving mobility, safety, and quality of life with investments in walking and bicycling infrastructure, programs, policies, and maintenance. The engagement process and results are outlined in the appendix of WBO.

Engagement Tools



Active Steering Committee



Two Rounds of Stakeholder Meetings Across the State



Two Public Surveys: Ohio Today + Draft Plan Review



Project Website + Social Media



Print Materials: Fact sheet, meeting-in-a-box, posters

Framework for the Future

Walk.Bike.Ohio introduces a framework for advancing active transportation by documenting existing conditions, identifying roles and responsibilities of various partners, and outlining critical actions for ODOT to focus on over the next five years. The organizing framework for the WBO action plan can be seen in the pyramid below.

The plan's vision and goals were established to guide the planning process and to direct the plan's implementation. They were developed through input from the steering committee and stakeholders around the state. The vision is the aspirational statement for WBO and declaration of priorities. The goals represent specific target areas to reach to accomplish the vision. Performance measures are provided to monitor

progress towards achieving the plan's goals and to ensure an evaluation mechanism is in place.

Plan themes were developed that represent the broad approaches and tools for accomplishing the goals of WBO. The themes are the organizing framework for the strategies and action steps defined below. The WBO themes are planning/guidance, implementation, collaboration, data and education/promotion.

The action plan is composed of strategies and action steps defined within each theme. These were developed from iterative conversations with the project steering committee and stakeholders across Ohio who will be partners in carrying out these steps. These represent the specific action areas of focus for the next five years.

Plan Framework

The **Vision Statement** is a declaration of priorities and end state, intended to guide decision making.

Goals are broad statements that describe a desired result, outcome or end state.

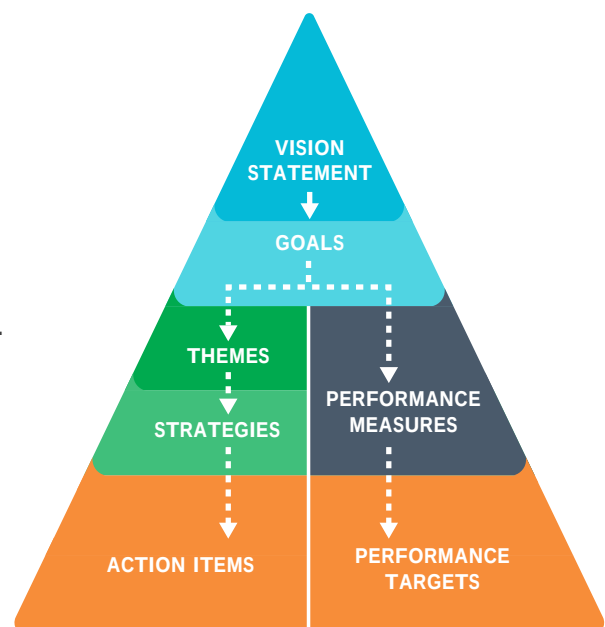
Themes are programmatic groupings related to attainment of goals.

Strategies are statements of work related to the themes.

Performance measures report progress against the goal and whether they are being met.

Actions items are specific statements of work related to accomplishment of strategies.

Performance targets define specific, critical amounts of progress expected over a period of time.



Vision Statement

Walking and biking in Ohio will be a safe, convenient and accessible transportation option for everyone.

Goals

In order to achieve this vision for Ohio's future, the state will focus on the following strategic goal areas.



Equity – Ensure the system accommodates users of all ages, abilities and incomes. Provide opportunities for all Ohioans in urban, suburban and rural areas to have access to connected walkways and bikeways.



Network Utilization – Increase walking and biking usage. Work to increase active transportation for all ages and abilities.



Network Connectivity – Promote comfortable and continuous bicycle and pedestrian facilities that connect people to destinations. Expand the active transportation network to include connected, separated and accessible walkways and bikeways.



Safety – Reduce bicyclist/pedestrian injuries and fatalities. Work actively and collaboratively with federal, state, regional, local and private partners to make Ohio safer for people who walk and bike.



Livability – Improve the quality of life for all Ohioans. Provide active living environments with safe, connected, accessible facilities along with programs that influence public health and the environment by encouraging walking and bicycling.



Preservation – Ensure critical existing infrastructure is in a state of good repair. Maintain existing active transportation facilities through collaboration between state and local partners to ensure safe, accessible walkways and bikeways.

Achieving WBO Goals

The WBO strategies and action items are organized by the five themes described in the following sections. For the purpose of WBO, a theme is a grouping of common tools and methods used to organize the strategies and action steps of this document. Themes encompass some of the most common groupings of methods and tools to accomplish the plan's goals. The table below highlights the different WBO themes, associated strategies and how they relate to the plan's goal areas. More detail on roles, responsibilities, and action items can be found in Chapter 2.

		WALK.BIKE.OHIO - GOALS					
Theme	Strategy	Safety	Equity	Network Connectivity	Network Utilization	Livability	Preservation
Planning + Guidance	Develop and adopt multimodal planning, design and implementation guidance.	●			●	●	●
	Seek opportunities to support bicycle and pedestrian facility maintenance.		●				●
	Develop clear, consistent and meaningful evaluation metrics and monitor performance.	●					
Education + Promotion	Develop educational materials for roadway users on rights and responsibilities impacting people walking and biking.	●					
	Educate elected officials at all levels about the importance of a more walkable and bikeable Ohio.	●	●	●	●		
	Provide technical assistance and education to practitioners, including planners, engineers, law enforcement and their partners.	●	●				
	Promote walking and biking as a transportation option.	●	●		●	●	
Implementation	Assist local communities in project development and implementation.	●	●				●
	Implement State and U.S. Bike Route System.	●		●		●	
	Support regional, cross-jurisdictional active transportation project implementation.	●		●			
Data	Develop statewide active transportation asset inventory.	●	●	●	●		●
	Establish active transportation monitoring program.	●	●		●		●
	Expand active transportation safety data collection and analysis.	●	●				
Collaboration	Strengthen ongoing collaboration between ODOT and other state agencies.	●				●	
	Strengthen ongoing coordination and collaboration between ODOT and its local partners.	●	●	●		●	

Chapter 1

Introduction



Introduction

Purpose

Ohio's pedestrian and bicycle transportation system is both vast and complex, made up of thousands of miles of infrastructure and multimodal connectors. This includes shared roads, sidewalks, trails, transit stops, and other facilities owned and operated by thousands of agencies and organizations. This system links Ohio's 11 million residents with their homes and destinations, is the lifeblood of Ohio's economy, and is a primary determinant of quality of life.

Walk.Bike.Ohio (WBO) establishes a statewide strategy to guide the Ohio Department of Transportation's (ODOT) long-term walking and biking policies and short-term activities.

WBO introduces a framework of recommendations for ODOT and its partners. It is also a clearinghouse of resources, memorandums, state-level data and public/stakeholder engagement summaries for use by ODOT staff and its partners across the state. WBO features a strong evaluation component to monitor progress toward achieving the plan's goals.

In the years to come, WBO will guide statewide active transportation policies, programs, initiatives, and investments, inform regional and local planning efforts, identify key data and research needs, and provide a framework for increased cross-sector, multijurisdictional, and multimodal coordination and partnerships. As a policy plan, WBO does not recommend specific projects; rather, it identifies policy, program, and funding opportunities to improve walking and biking in Ohio.

WBO VISION STATEMENT

Walking and biking in Ohio will be a safe, convenient and accessible transportation option for everyone.



The WBO vision and its recommendations are only possible with collaboration. Partnerships ensure that Ohio's active transportation system functions as an integrated system for walking and bicycling. WBO was developed through the input of hundreds of stakeholders across Ohio, including other state agencies, MPOs/RTPOs, local jurisdictions, counties, non-profits, advocates, and residents. The implementation of WBO will require that continued collaboration, with WBO serving as a guidebook.

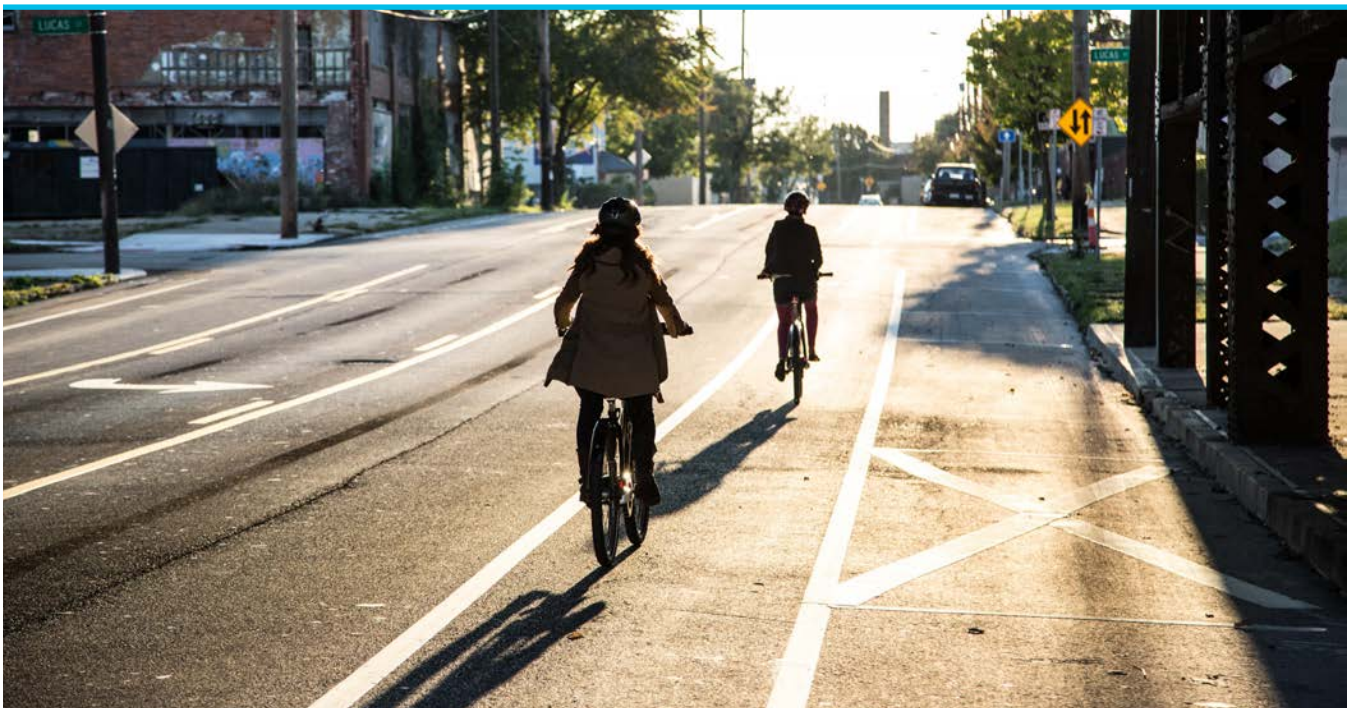
Background

ODOT's Strategic Plan sets the overall mission, vision, guiding principles and performance metrics for the agency. Access Ohio 2045, ODOT's long-range statewide transportation plan, sets the long-term vision for all transportation modes and forms the basis of Ohio's multimodal transportation investment and policy decisions over the next 25 years. WBO is an extension of, and companion plan to, Access Ohio 2045.

WBO is the first statewide bicycle and pedestrian transportation plan for Ohio and builds on the long-history ODOT and its partners have of making progress toward a sustainable, multimodal transportation system. ODOT and its partners recognize the need to comprehensively assess current initiatives and to develop bike and pedestrian policies that will inform planning

activities today and into the future. WBO provides a framework for addressing the needs of bicyclists and pedestrians across the state through organized strategies and action steps. WBO also sets the stage for increased collaboration between ODOT and its partners across Ohio.

WBO is not meant to be a standalone plan that is only used by ODOT staff focused on bicycle and pedestrian transportation; rather, it builds upon and integrates into previous planning and recent initiatives and engages the full ODOT organization and its partners. In addition, ODOT's goal is to work collaboratively with other state agencies. Working across ODOT offices and with other state agencies will be essential to the betterment of all Ohioans.



Benefits of a Walkable and Bikeable Ohio

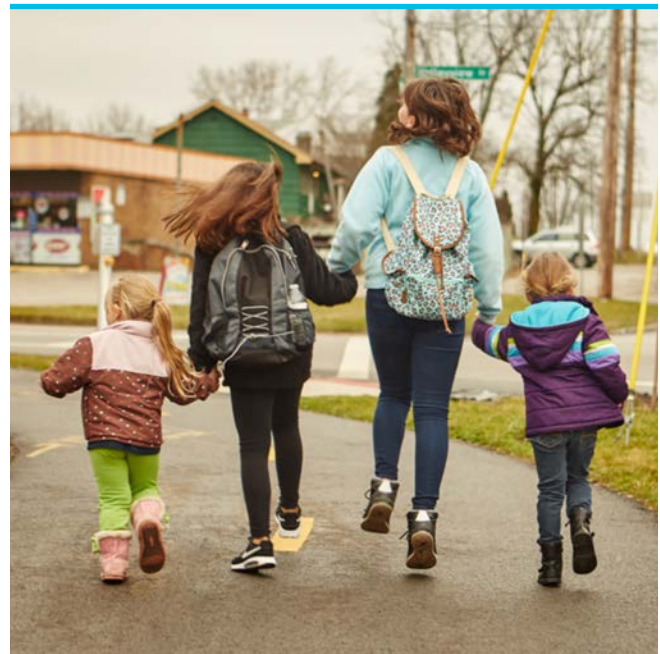
Introduction

A more walkable and bikeable Ohio is a healthier and more sustainable Ohio. Scores of studies and research highlight the benefits of creating walkable and bikeable communities. Active transportation opportunities provide mobility, economic, health, environmental and quality of life benefits to Ohio which is important as demographic and social trends highlight the increasing need for walkability and bikability.

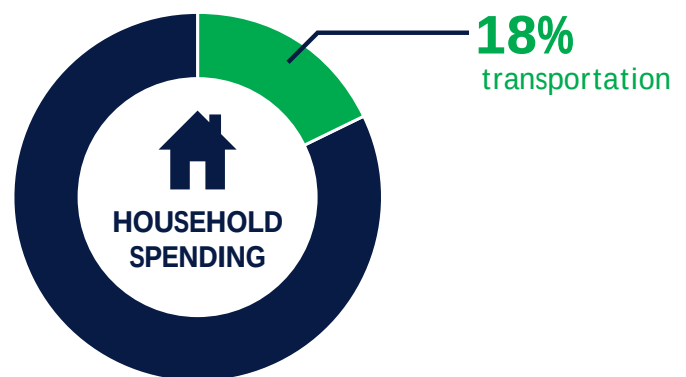
Mobility

Walking and bicycling are the most efficient types of transportation available. These trips require less infrastructure, reduce congestion and improve people's health. A multimodal transportation system enables people of all ages and abilities to walk or bike to reach destinations. This is especially important for short trips, less than three miles in length, which account for nearly half of all trips in the United States.¹

Walking and bicycling are also the most affordable transportation options and benefit communities with socioeconomic barriers. Residents of these communities can have a higher quality of life with safe and accessible active transportation networks. Active transportation infrastructure is a necessity to reach school, work, and key services such as healthcare and grocery stores. Currently, transportation makes up approximately 18% of average expenditures for Ohio households.²



Average Ohio Household Expenditures



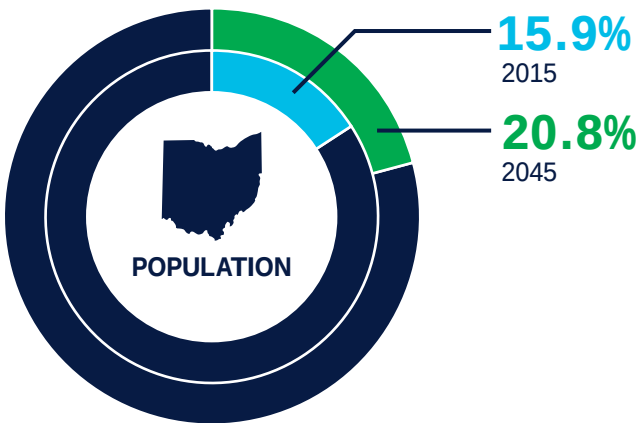
Quality of Life

Active transportation represents not only a current need, but an opportunity to address the growing mobility needs defined by an aging population, increasing urbanization/suburbanization, cultural mobility shifts of the Millennial and Gen Z generations, and the chronic health issues plaguing the state. The share of the Ohio population over age 65 is expected to increase from 15.9% in 2015 to 20.8% in 2045.³

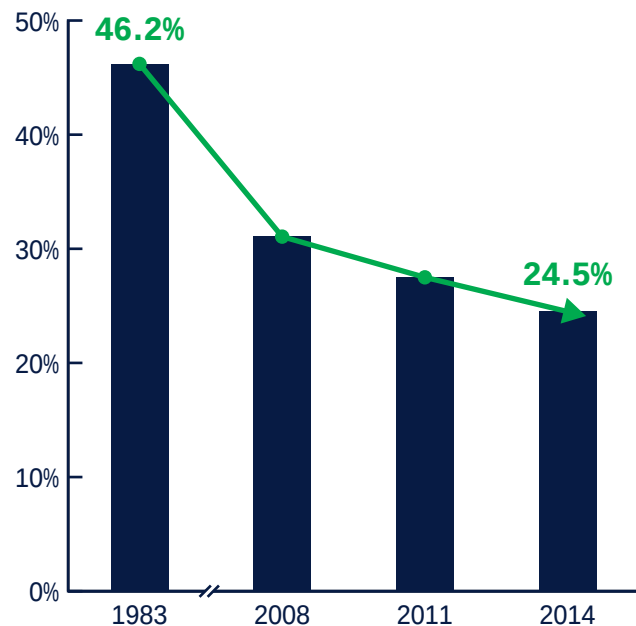
As Ohio's population continues to grow in age, it is anticipated that larger numbers of people may need transit and active transportation

options. Meanwhile, many millennials and Gen Z consumers focus on convenience, cost and environmental considerations when making their transportation choices. According to the Federal Highway Administration, from 1983 to 2014, the share of 16-year-olds with a driver's license dropped 47%.⁴ If millennials continue to demonstrate a preference for active transportation and shared mobility options, the demand for transit service, micromobility, bicycle facilities, pedestrian accommodations and other alternative modes will continue to increase.

Percent of Ohioans Age 65+



16-Year Olds with a Driver's License



Economy

Active transportation projects deliver an array of positive economic benefits—tourism, increased property values, commercial activity and infrastructure savings. Robust bicycling networks and safe walking environments have the potential to generate millions of dollars in state and local economic benefits for Ohio, including contributions to tax revenue. At the local level, the economic benefits of bicycle- and pedestrian-friendly communities are becoming increasingly clear to community leaders—they help attract and retain professional talent, encourage neighborhood revival, increase tourism and stimulate local economies.

A 2013 economic impact study of trails in the Miami Valley in southwest Ohio found that nearly 100,000 trail users came from outside the region, contributing \$13 million a year to the economy.⁵ The Ohio + Erie Canal Towpath Trail, a developing 101-mile trail that connects dozens of northeast Ohio communities, sees \$6.9 million in trail user spending annually.⁶

In addition, active transportation infrastructure investments create jobs. A study by the American Association of State Highway and Transportation Officials (AASHTO) in 2012 found that greenways, sidewalks and bicycle facilities create more jobs per million dollars spent than other transportation investments.

Annual Trail User Spending from Two Ohio Trail Systems



Health

Creating healthier, more active communities can bring meaningful change in the everyday lives of Ohioans and promote active transportation through the built environment. Second only to socioeconomic factors, developing the built environment by creating opportunities for making healthy travel options the default choice has the most potential to impact health outcomes in our communities.⁷ Advancing active transportation in Ohio will provide access to opportunities while promoting physical exercise. This is critical as in 2018 Ohio was ranked 40th in the United States for overall health outcomes and 47th for health behaviors, which include obesity and physical inactivity.⁸ Ohioans also have a higher prevalence of chronic disease compared with the United States.⁹ According to the U.S. Centers for Disease Control and Prevention (CDC), lack of physical activity is one of the key lifestyle risks for chronic disease.

There are a number of studies that relate the built environment to physical activity and physical activity to overall health. Residents of walkable communities are 2.4 times as likely to meet physical activity guidelines compared to those who do not live in walkable neighborhoods.¹⁰ Walking or biking for 20 minutes each day is associated with a 21% lower risk of heart failure for men and a 29% lower risk for women.^{11,12}



Ohio's Health Rankings in 2018



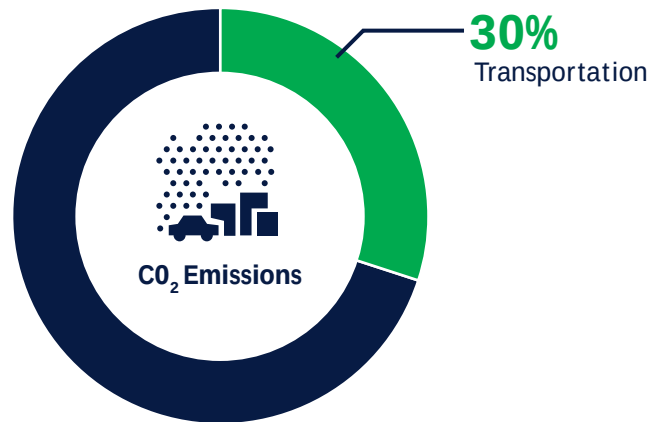
Environment

Decreasing reliance on automobiles and reducing congestion by using walkways and bikeways will improve Ohio's environment and the air Ohioans breathe. Replacing automobile trips with walking and bicycling trips can reduce particulate matter, nitrous oxide, sulfur oxide, volatile organic compounds and carbon dioxide that a typical motor vehicle emits. Transportation made up 29% of U.S. greenhouse gas emissions in 2017.¹³ In 2015, transportation produced about 30% of Ohio's carbon dioxide emissions, second only to the energy sector.¹⁴

Ohio is ranked 45th in the country for air pollution and poor air quality.¹⁵ Existing bicycle and walking trips in Ohio can help prevent 6.8 million metric tons of greenhouse gas and criteria pollutant emissions from entering the atmosphere over a 20-year period. This is equivalent to a \$453.9 million in mitigation cost savings.

In addition, trails and greenways, which can act as active transportation corridors, can serve a dual purpose by conserving open space, providing a filter for runoff, increasing resiliency in flooding situations and preserving sensitive sites like wetlands.

Carbon Dioxide Emissions in Ohio



Existing walking and biking trips in Ohio...



can help prevent

6.8 million tons

of greenhouse gas and pollutant emissions...

...over the next 20 years.



Planning Process and Framework

Planning Process

The WBO planning process brought together stakeholders from across Ohio to develop this plan.

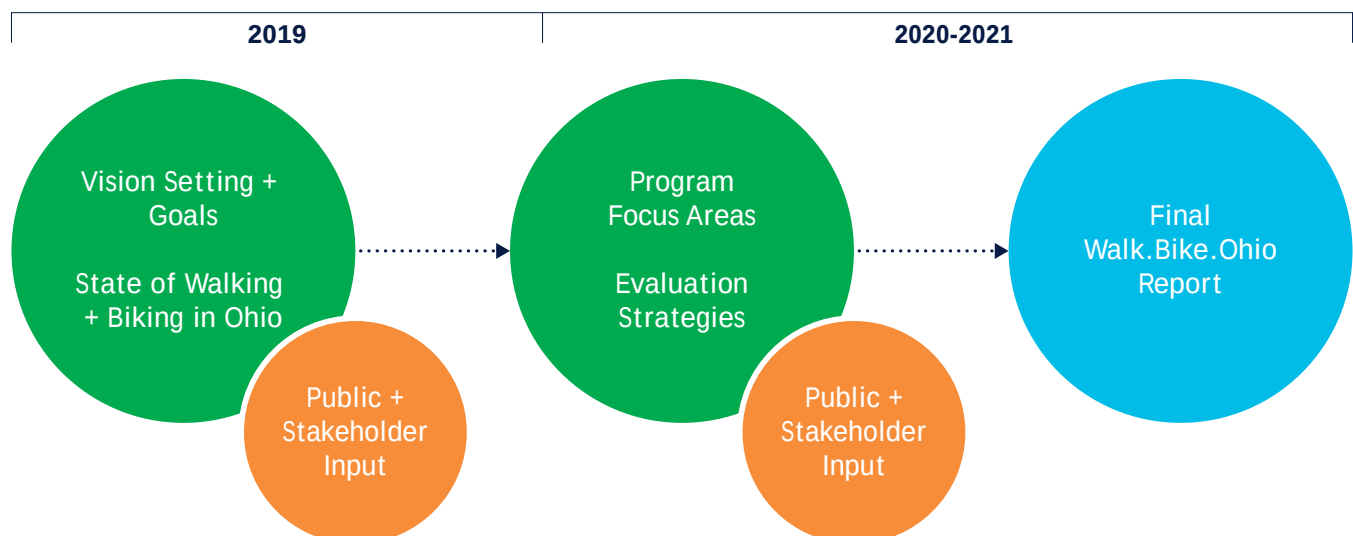
A Technical Advisory Committee representing key ODOT offices met regularly throughout the planning process to provide technical guidance on key issues, opportunities and strategies

A Steering Committee of representatives from multiple geographies and agencies across Ohio provided overall guidance and met six times during the planning process. The Steering Committee included representatives from ODOT, other state agencies, FHWA, metropolitan planning organizations (MPOs), regional transportation planning organizations (RTPOs),

county and municipal governments, business and economic development organizations, community and environmental interests, and other partners statewide.

An extensive stakeholder and public engagement process engaged people across the state through two rounds of stakeholder meetings. Hundreds of Ohioans participated in the stakeholder meetings and identified key issues and opportunities, along with providing input into the recommendations. Thousands of Ohio residents interacted with the project website and completed an online survey. The strategic outreach and results are outlined in this plan's appendix.

Project Timeline



Existing Conditions

Overview

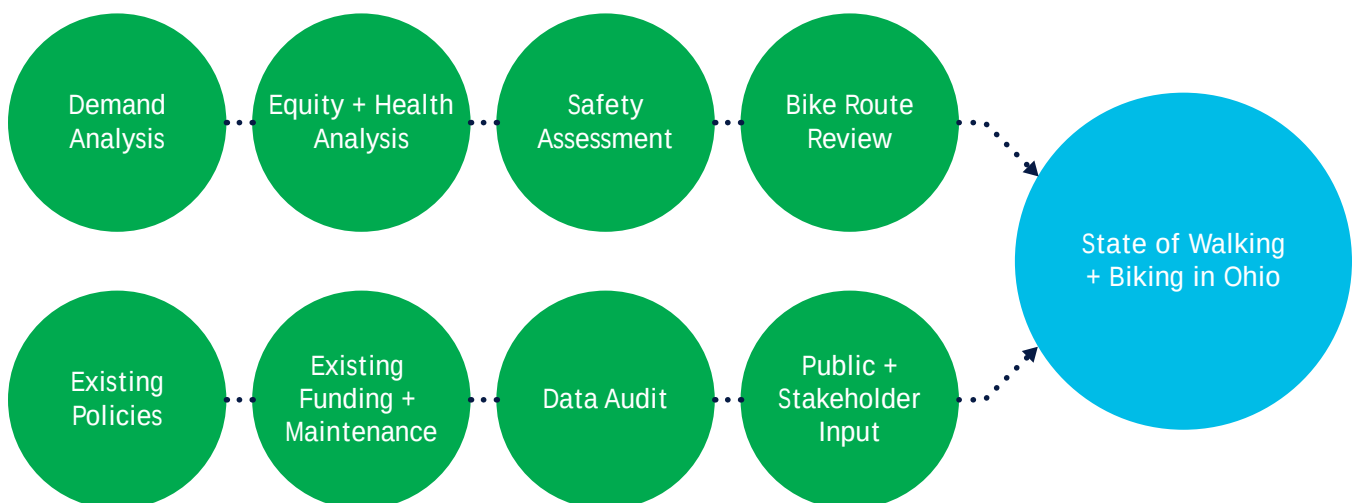
Ohio is the 7th most populous state in the country with a diversity of landscapes ranging from the urban centers of Cleveland, Cincinnati and Columbus to suburban communities, small towns, rural farmland and natural environments. Within all of these contexts, walking and bicycling are fundamental transportation modes with both Ohio's residents and visitors relying on active transportation to meet needs and desires every day. To understand the opportunities and challenges faced by individuals traversing Ohio's transportation system by foot and bicycle, the current state of walking and biking in Ohio was examined through multiple lenses. This not only included evaluating existing conditions related to the physical active transportation network and users, but also the factors, policies, and programs that impact walking and bicycling. This work set the stage for the development of statewide strategies and initiatives to ultimately advance walking and bicycling mobility, safety and connectivity in Ohio.

WANT MORE INFORMATION?

See Appendix B: Existing Conditions for summaries that distill the overall takeaways from the existing conditions analysis. In addition, more information on where to find the various supporting documents and data can be found in Appendix C: Supporting Documents.

Many underlying datasets can be downloaded on ODOT's [Transportation Information Mapping System](#) (TIMS) online portal.

Existing Condition Metrics



Key Findings

The table below highlights key findings from our existing conditions analysis and is organized by the six WBO goals to highlight trends and statistics, with the purpose of identifying priority needs and benchmarks for improvement.



Equity - 35% of Ohio residents live in high need areas of the state that tend to be some of the most vulnerable, with high rates of poverty, high mortality rates, limited English proficiency, limited access to motor vehicles and beyond.



Network Utilization - 29% of Ohio residents live in high demand areas of the state that tend to be where people live, work, play, shop, learn and access transit. Bicycle and pedestrian user count data is very limited across the state.



Network Connectivity - Facility data represents a major data gap and ODOT faces challenges with data collection, inventorying and maintenance. 44% of Ohio's State and U.S. Bike Route System, which is more than 3,000 miles in 76 different counties, provides a low-stress biking experience.



Safety - There were 846 bicycle and pedestrian fatal or severe injury crashes in Ohio over the last five years. Pedestrian crashes are increasing by an average of 10 crashes per year and fatal crashes are 2 times as likely to occur in low-income areas. While arterials only account for 8% of the total roadway network, they account for 56% of pedestrian crashes and 46% of bicycle crashes.



Livability - In 2018, Ohio ranked 40th in the United States for overall health outcomes and 47th for health behaviors, which include obesity and physical inactivity. Existing walking and biking trips in Ohio can help residents save \$12.7 Billion in transportation and environmental costs over the next 20 years.



Preservation - Non-incorporated U.S. routes and state routes currently are the only places where ODOT has maintenance jurisdiction where bike lanes or sidewalks might be located. All other responsibilities for roadway maintenance are carried out by local entities. Ohio's home rule status requires increased coordination between ODOT and its partners.

Measuring Progress

The state of walking and bicycling in Ohio is complex and nuanced. The existing conditions analysis, found in Appendix B, informs the identification and development of summary performance measures that will enable ODOT and its partners to continuously monitor system performance. Performance measures are valuable for many reasons, including:

- Tracking the success of WBO implementation
- Evaluating real-time information to impact decision making
- Complying with federal, state and MPO funding requirements
- Providing information to engage a broad set of stakeholders in project and program identification and prioritization
- Capturing the value of new and innovative datasets and data collection methods for the active transportation field

WBO Performance Measures

The strategies and actions of Walk.Bike.Ohio provide specific direction to continue improving active transportation in Ohio. Building on federal guidance, the performance measures described on the next page are intended to benchmark walking and bicycling in Ohio and help guide future decision making at the statewide level.

These performance measures were developed with feedback from the WBO Steering Committee and are:

- Linked to the six identified WBO goals;
- Measurable with available resources; and
- Related to actions controlled by ODOT.

DATA AVAILABILITY

Today, limited and varied guidance is available at a local and national level on what active transportation performance measures to use and how and when to apply them. FHWA released the 2016 Guidebook for Developing Pedestrian + Bicycle Performance Measures¹⁶ that served as a resource during the WBO planning process.

However, much of the data needed for a comprehensive evaluation of active transportation is limited in Ohio. The recommended WBO performance measures use data that is available today but should be updated as additional data becomes available.

Performance measures are recommended for each goal utilizing available data, identifying existing baseline metrics and setting future targets. Baseline data was established for each performance measure and the development of performance targets to work toward in the future. ODOT should regularly assess progress on each performance measure, preferably annually.

Goal	Performance Measure + Description	Baseline	Performance Target
 Equity <i>Ensure the system accommodates users of all ages, abilities and incomes.</i>	Funds spent in high-demand disadvantaged communities <i>The amount of investment in pedestrian and bicycle related projects in ODOT's four year plans for high-demand, disadvantaged communities</i>	40% of all standalone bicycle and pedestrian project funding (planned for next four years) are in a high need, high demand tier (15% of population is in this tier)	25% of all standalone bicycle and pedestrian project funding (planned over the next four years) should be in high need, high demand areas
 Network Utilization <i>Increase walking and biking usage.</i>	The proportion of total commute trips by transportation mode <i>Work mode share is being measured instead of total user trips due to limited user count data.</i>	Pedestrian: 2.3% walk to work Bicycle: 0.3% bike to work	0.25% annual increase in walking to work (3.55% walk to work in five years) 0.1% annual increase in biking to work (0.8% bike to work in five years)
 Network Connectivity <i>Promote comfortable and continuous bicycle and pedestrian facilities that connect people to destinations.</i>	Level of traffic stress <i>A rating given to a State or U.S. Bike Route segment indicating the traffic stress it causes bicyclists</i>	44.2% of State and U.S. Bike Routes are LTS 1 or 2	0.5% annual increase in % of bike routes that are LTS 1 or 2

Goal	Performance Measure + Description	Baseline	Performance Target
 Safety <i>Reduce bicyclist and pedestrian injuries and fatalities.</i>	Non-motorized fatalities and serious injuries (FSI) <i>The measured five-year rolling average of non-motorized fatalities and serious injuries occurring annually</i>	846.60 five-year rolling average (2014-2018)	2% annual reduction of five-year rolling average (813)
 Livability <i>Improve the quality of life for all Ohioans.</i>	Physical activity <i>Measure of the level of physical activity per capita or the portion of the population that is physically active</i>	18.3% of adults meeting physical activity guidelines (2017)	0.25% annual increase in adults meeting physical activity guidelines
 Preservation <i>Ensure critical existing infrastructure is in a state of good repair.</i>	Facility maintenance (sidewalk condition) <i>A measurement of the physical condition and state of good repair of pedestrian facilities</i>	89.53% of sidewalks in good condition (sidewalks within 200 feet of ODOT maintained intersections) (2020)	90% of sidewalks within 200 feet of ODOT maintained intersections are in good condition

CHAPTER 2

Recommendations



Framework for the Future

Advancing the Walk.Bike.Ohio vision and goals requires strategic action by ODOT and its partners. The recommendations of Walk.Bike.Ohio build from an understanding of existing conditions and the stakeholder and public input provided throughout the planning process. The same collaboration that led to the development of the Walk.Bike.Ohio Plan will be required to accomplish the strategies and action steps assembled in this chapter.

Walk.Bike.Ohio introduces a framework of recommendations for ODOT and its partners. The framework is organized into the themes of planning/guidance, implementation, collaboration, data and education/promotion. The recommendations in this chapter are organized into strategies and specific action steps with timelines and lead agencies/partners. To ensure the plan is evaluated moving forward, performance measures are provided to monitor progress toward achieving the plan's goals.

Plan Framework

The **Vision Statement** is a declaration of priorities and end state, intended to guide decision making.

Goals are broad statements that describe a desired result, outcome or end state.

Themes are programmatic groupings related to attainment of goals.

Strategies are statements of work related to the themes.

Performance measures report progress against the goal and whether they are being met.

Actions items are specific statements of work related to accomplishment of strategies.

Performance targets define specific, critical amounts of progress expected over a period of time.



Vision Statement

Walking and biking in Ohio will be a safe, convenient and accessible transportation option for everyone.

Goals

In order to achieve this vision for Ohio's future, the state will focus on the following strategic goal areas.



Equity – Ensure the system accommodates users of all ages, abilities and incomes. Provide opportunities for all Ohioans in urban, suburban and rural areas to have access to connected walkways and bikeways.



Network Utilization – Increase walking and biking usage. Work to increase active transportation for all ages and abilities.



Network Connectivity – Promote comfortable and continuous bicycle and pedestrian facilities that connect people to destinations. Expand the active transportation network to include connected, separated and accessible walkways and bikeways.



Safety – Reduce bicyclist/pedestrian injuries and fatalities. Work actively and collaboratively with federal, state, regional, local and private partners to make Ohio safer for people who walk and bike.



Livability – Improve the quality of life for all Ohioans. Provide active living environments with safe, connected, accessible facilities along with programs that influence public health and the environment by encouraging walking and bicycling.



Preservation – Ensure critical existing infrastructure is in a state of good repair. Maintain existing active transportation facilities through collaboration between state and local partners to ensure safe, accessible walkways and bikeways.

Partner Roles + Responsibilities

Making walking and biking in Ohio a safe, convenient and accessible transportation options for everyone requires the coordinated efforts of many organizations, institutions and all levels of government. Shared ownership of Ohio's transportation system means shared responsibility in achieving statewide goals of ensuring safety, fostering equity, connecting networks, enhancing livability, increasing utilization and preserving assets.

ODOT has taken the lead to create WBO but it is meant to be a resource for all potential partners such as local governments, Metropolitan Planning Organizations (MPO), Regional Transportation Planning Organizations (RTPO), other state agencies, the U.S. Department of Transportation,

advocates and nonprofits in Ohio. All of these partners have a role in planning, designing, constructing and maintaining the active transportation network and supporting implementation of WBO. ODOT is committed to implementing the action plan outlined in this chapter. The following pages highlight the major responsibilities of ODOT's partners listed below in achieving a more safe, convenient and accessible Ohio:

- Local Governments
- MPO/RTPOs
- Advocates and Nonprofits
- Other State and Federal Agencies



Local Governments

Local governments are responsible for planning, constructing and maintaining streets, bridges and active transportation networks within their jurisdictions. Given Ohio's home rule status, they play a primary role in implementation of the projects and programs most visible to everyday Ohioans. Local governments also range in size and possess varied levels of expertise and resources. This results in the need for significant collaboration with partners, often relying on support from their regional and state counterparts.

Many urban areas of Ohio have Metro Park agencies that provide parks and natural areas

and play a significant role in the development of trails in Ohio. These trails provide recreational and transportation functions. Collaboration between Metro Park agencies, ODOT and local municipal transportation departments assures that connectivity is addressed.

Key stakeholders that influence active transportation at the local level range from elected officials and staff planners and engineers to village administrators and contracted professional staff such as outside engineering firms. Local government staff will be partners in WBO implementation through the following actions:

WBO IMPLEMENTATION ROLE FOR LOCAL GOVERNMENTS

Develop Active Transportation Plans + Supporting Policies – Identify a local active transportation network and prioritize recommendations in conjunction with bicycle and pedestrian advocacy and community groups. Evaluate and update existing policies and procedures to ensure a multimodal approach that is current with state and national best practices.

Leverage Funding Opportunities – To support local implementation of active transportation networks and programs, proactively identify and leverage state, regional and local funding opportunities.

Oversee Project Development and Construction – Manage the development of active transportation projects. Ensure walking/biking infrastructure follows national and state guidelines and standards and is accessible for all ages and abilities.

Encourage Active Transportation – Partner with community advocates and groups to host and promote walking and biking encouragement and educational events. Programs like Safe Routes to School, Bicycle Friendly Businesses and Walk Friendly Communities offer resources for event promotion and awareness.

Facilitate Maintenance + Operations – Ensure facilities are properly maintained for year-round access and that the project scoping process accounts for future maintenance needs.

Monitor System Performance – Evaluate the active transportation system to understand system performance needs and evaluate local success in achieving WBO goals.



Metropolitan Planning Organizations and Regional Transportation Planning Organizations

Ohio has one of the nation's largest networks of metropolitan and regional transportation organizations. This includes 17 U.S. DOT-designated Metropolitan Planning Organizations (MPOs), responsible for conducting urban transportation planning processes in Ohio's metropolitan regions, and six designated Regional Transportation Planning Organizations (RTPOs) that serve to ensure that Ohio can better integrate regional input and identify rural needs/issues. These agencies are vital links

between ODOT, the federal government and local jurisdictions of all sizes. ODOT Central Office and District staff work closely with MPO and RTPO staff on a variety of plans and projects.

MPOs and RTPOs are charged with conducting transportation planning processes for their regions that address all transportation modes. MPOs and RTPOs provide regional planning and federal funding programs for their communities. These regional agencies will be key partners in WBO implementation through the following actions:

WBO IMPLEMENTATION ROLE FOR MPOs/RTOs

Develop Long-Range Regional Plans – Develop and update regional active transportation plans, identify key needs and projects, and facilitate coordination between jurisdictions.

Identify Regional Priorities – Prioritize funding to maximize benefits for all modes, including using prioritization methods for distributing funds based on projects that improve active transportation access and safety.

Encourage Active Transportation – Partner with local governments, advocates and community groups to encourage more walking and biking. Encouragement can be through the development of education materials, sponsorship of events such as bike month or walk to school day, or producing a regional bike and walk map.

Optimize Funding – Look for innovative ways to optimize funding for active transportation projects, including ODOT's MPO and Large Cities Program, the Highway Safety Improvement Program (HSIP) and the Transportation Alternatives Program (TAP).

Collaborate with Partners – Serve as a technical resource to local jurisdictions and a liaison to ODOT. Advocate for coordinated and consistent planning and design of active transportation facilities and programs across the state.

Monitor System Performance – Evaluate the active transportation system to understand system performance needs, measure regional success in achieving WBO goals and refine existing planning tools and models.



Advocates and Nonprofits

Active transportation advocacy groups and nonprofits represent the many people who walk and bike in Ohio. These groups focus on specific localities and/or topic areas to promote and improve active transportation, safety and equity in their communities.

Several of the state's advocacy and nonprofit organizations were engaged in WBO, including Bike Miami Valley (Dayton), Yay Bikes (Columbus), Green Umbrella (Cincinnati), Bike Cleveland, and the Ohio Bicycle Federation. In addition to various advocacy groups, there are many bike clubs throughout the state. These advocacy groups and nonprofits will be key partners in WBO implementation through the following actions:



WBO IMPLEMENTATION ROLE FOR ADVOCATES AND NONPROFITS

Engage with Partners - Provide input and guidance during statewide, regional or local planning and implementation projects to ensure active transportation planning efforts reflect community needs and values. Assist with engaging underrepresented communities in planning processes. Support the efforts of local governments by participating in focus groups and advisory boards, attending public meetings to provide insight into infrastructure needs and speaking on behalf of bicyclists and pedestrians.

Advocate for Active Transportation - Communicate the benefits of a more walkable and bikable Ohio with elected officials and decision makers. Partner with local governments and other organizations to increase awareness of local needs and priorities through engagement activities or attending public meetings.

Encourage Active Transportation - Partner with local governments, regional agencies and/or ODOT to encourage people to walk and bike. Encouragement can be through the development of promotional materials or through hosting events like bike trainings.

Educate Ohioans - Partner with local governments, school systems and ODOT to educate people of all ages and abilities about the rules of the road and safe walking and bicycling behaviors.

Other State and Federal Agencies

WBO is a plan for all of Ohio. Coordination across state and federal agencies will yield actions and results that fit within the mission of each agency. Collaboration and coordination between planning efforts will be important moving forward. State agencies include the Ohio Department of Natural Resources (ODNR), Ohio Department of Health (ODH), Ohio Department of Public Safety (ODPS), Ohio Department of Education (ODE), Ohio Development Services Agency (DSA) and others. Federal agencies include the Federal Highway Administration (FHWA) and the Environmental Protection Agency (EPA). These state and federal agencies will be key partners in WBO implementation through the following actions:



WBO IMPLEMENTATION ROLE FOR OTHER STATE AND FEDERAL AGENCIES

Formalize Partnerships – Host coordination meetings with representatives from various state agencies to ensure collaboration is consistent. Topics for coordination include leveraging funding mechanisms, integrating statewide planning efforts, sharing technical resources and facilitating data collection.

Leverage Resources – Ensure that agencies incorporate active transportation access into projects, policies and programs as appropriate and share resources that promote state and federal policy and funding information with ODOT staff.

Provide Regulatory Oversight – Ensure state and local governments follow federal processes and guidelines as they pertain to bicycling and walking infrastructure, safety and design standards.

The Action Plan

This action plan features strategies and action items that will help guide ODOT and its partners' long-term strategy and short-term implementation efforts to improve active transportation throughout the state. It includes a five-year plan of strategies and action steps to help advance the WBO vision and goals.

This action plan was not developed in isolation. The WBO Steering Committee and stakeholders from across Ohio helped to frame the key active transportation barriers, issues and needs. Stakeholders helped develop the vision and goals and prioritized draft strategies and

action items that make up the core of the five-year plan. Stakeholder input came from participants representing different geographies and backgrounds. Because of this diversity, the plan's strategies and action items address a range of issues across the urban-to-rural transect of the state. Regardless of geography, similar topics of importance emerged and included funding, safety, infrastructure and maintenance, connectivity and accessibility, and cultural shifts.



Achieving WBO Goals

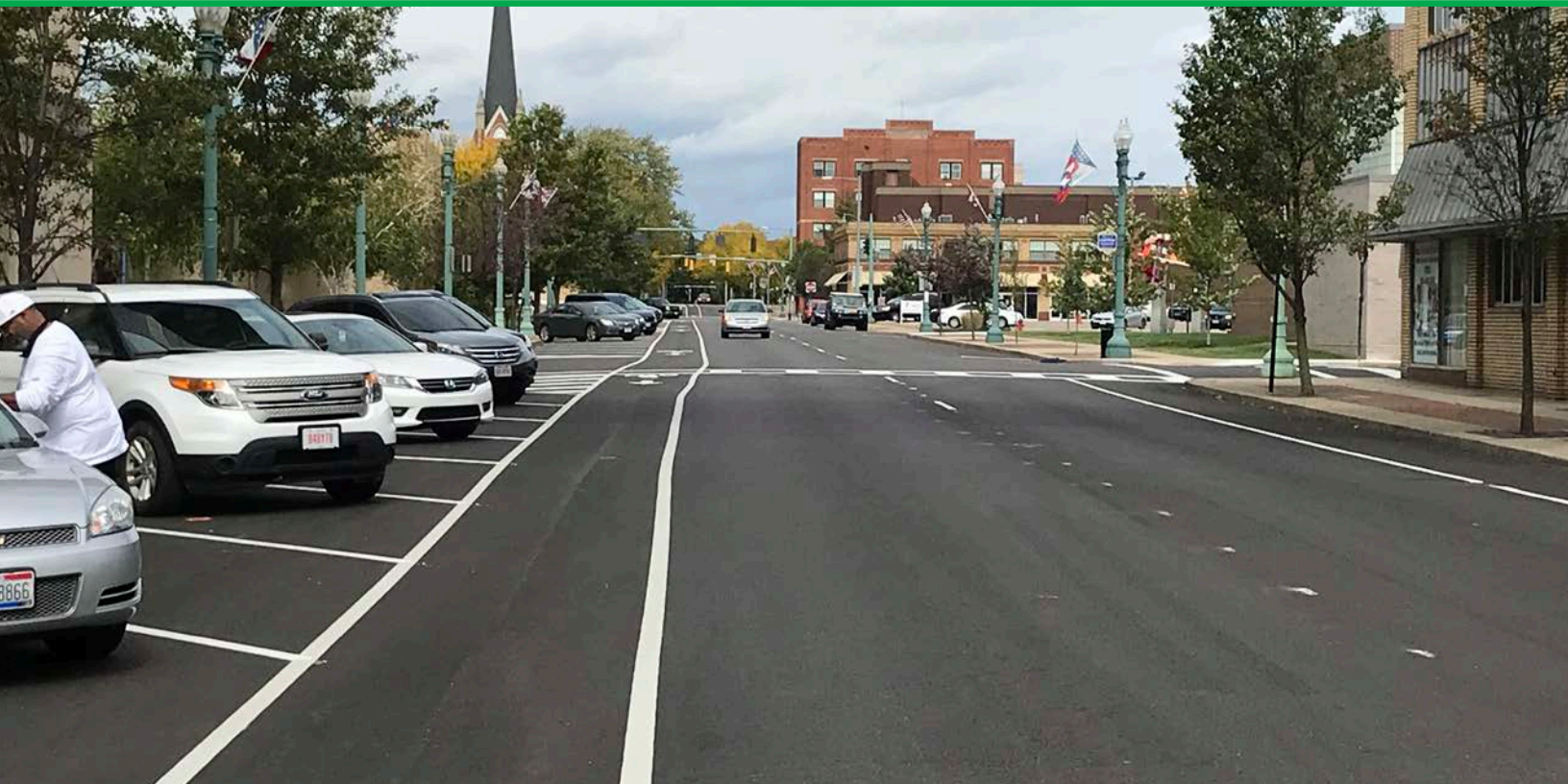
The WBO strategies and action items are organized by the five themes described in the following sections. For the purpose of WBO, a theme is a grouping of common tools and methods used to organize the strategies and action steps of this document. Themes encompass some of the most common groupings of methods and tools to accomplish the plan's goals. The table below highlights the different WBO themes, associated strategies and how they relate to the plan's goal areas.

		WALK.BIKE.OHIO - GOALS					
Theme	Strategy	Safety	Equity	Network Connectivity	Network Utilization	Livability	Preservation
Planning + Guidance	Develop and adopt multimodal planning, design and implementation guidance.	●			●	●	●
	Seek opportunities to support bicycle and pedestrian facility maintenance.		●				●
	Develop clear, consistent and meaningful evaluation metrics and monitor performance.	●					
Education + Promotion	Develop educational materials for roadway users on rights and responsibilities impacting people walking and biking.	●					
	Educate elected officials at all levels about the importance of a more walkable and bikeable Ohio.	●	●	●	●		
	Provide technical assistance and education to practitioners, including planners, engineers, law enforcement and their partners.	●	●				
	Promote walking and biking as a transportation option.	●	●		●	●	
Implementation	Assist local communities in project development and implementation.	●	●				●
	Implement State and U.S. Bike Route System.	●		●		●	
	Support regional, cross-jurisdictional active transportation project implementation.	●		●			
Data	Develop statewide active transportation asset inventory.	●	●	●	●		●
	Establish active transportation monitoring program.	●	●		●		●
	Expand active transportation safety data collection and analysis.	●	●				
Collaboration	Strengthen ongoing collaboration between ODOT and other state agencies.	●				●	
	Strengthen ongoing coordination and collaboration between ODOT and its local partners.	●	●	●		●	



Planning + Guidance

“When we focus on policy and design first, it does a lot of the encouragement for us.”



Develop statewide, regional, local and corridor planning initiatives that identify the needs of users and develop equitable recommendations across Ohio. Establish guidance such as standard operating procedures and strategies that ensure bicycling and walking needs are addressed and improve quality of life for all Ohioans.

THEME STRATEGIES

P1: Develop and adopt multimodal planning, design and implementation guidance.

P2: Seek opportunities to support bicycle and pedestrian facility maintenance.

P3: Develop clear, consistent and meaningful evaluation metrics and monitor performance.





Planning + Guidance

ODOT and its partners use planning and guidance tools to engage the public, provide design guidance, ensure active transportation is part of best practices and maintain existing networks. Planning efforts help prioritize projects and programs and set the stage with design guidance and recommendations to move forward into implementation. For ODOT and its partners to achieve the WBO vision, planning and guidance are fundamental and provide the tools needed by communities.

Strategies	Action Items	Key Partners	Status
P1. Develop and adopt multimodal planning, design and implementation guidance.	P1.1: Convene an ODOT task force to develop and adopt statewide complete streets guidance.	ODOT	New
	P1.2: Develop and promote the new ODOT Multimodal Design Guide and provide training.	ODOT, Local Governments, MPO/RTPOs	In-Progress
	P1.3: Develop active transportation planning guidance for MPOs, RTPOs, municipalities and villages across Ohio.	ODOT, MPO/RTPOs	In-Progress
	P1.4: Review and enhance the Project Development Plan (PDP) process.	ODOT, Local Governments, MPO/RTPOs	In-Progress
P2. Seek opportunities to support bicycle and pedestrian facility maintenance.	P2.1. Define current active transportation maintenance roles, responsibilities and resources within the state.	ODOT, Local Governments	New
	P2.2. Develop a maintenance cost estimating tool that can assist in the development of planning-level cost estimates for annual maintenance.	ODOT	New
	P2.3. Conduct a best practice scan on opportunities to consider facility lifecycle costs in funding awards.	ODOT, MPO/RTPOs, Local Governments	New
P3. Develop clear, consistent and meaningful evaluation metrics and monitor performance.	P3.1. Develop standardized project selection and monitoring criteria related to demand, health, equity and safety for active transportation investments.	ODOT, MPO/RTPOs	In-Progress
	P3.2. Measure performance on Walk.Bike.Ohio quantifiable metrics on an annual basis and create a statewide reporting mechanism.	ODOT	New





Education + Promotion

“Making clear connections between health and economic opportunity and active transportation is critical.”



Educate and inform roadway users, elected officials and practitioners on bicycling and walking matters. Develop activities to promote walking and biking as safe, fun and healthy modes of transportation.

THEME STRATEGIES

E1: Develop educational materials for roadway users on rights and responsibilities impacting people walking and biking.

E2: Educate elected officials at all levels about the importance of a more walkable and bikeable Ohio.

E3: Provide technical assistance and education to practitioners, including planners, engineers, law enforcement and their partners.

E4: Promote walking and biking as a transportation option.



Education + Promotion

ODOT and its partners use education and promotion tools to ensure Ohioans are aware of laws, elected officials are aware of the benefits of walkable and bikeable communities, and residents and tourists are aware of the opportunities and options to walk and bicycle for transportation. Education and promotion activities ensure that the general public is aware and acting safely in the roadway environment. For ODOT and its partners to achieve the WBO vision, education and promotion are critical elements that will lead to safer streets and more active transportation activity.

Strategies	Action Items	Key Partners	Status
E1. Develop educational materials for roadway users on rights and responsibilities impacting people walking and biking.	E1.1: Maintain the YOUR MOVE Ohio campaign and incorporate new topics.	ODOT	In-Progress
	E1.2: Establish an ODOT clearinghouse for active transportation safety education materials.	ODOT	New
E2. Educate elected officials at all levels about the importance of a more walkable and bikeable Ohio.	E2.1: Partner with local walking/biking advocacy groups to provide resources, toolkits and guidance in order to communicate directly with local leaders.	ODOT, Advocacy Groups, Local Governments	New
	E2.2: Coordinate with public health agencies to promote the benefits that active transportation have on mental and physical health.	ODOT, ODH, Local Governments	In-Progress
	E2.3: Develop a statewide health and economic impact study.	ODOT, ODH, DSA, ODNR	New
E3. Provide technical assistance and education to practitioners, including planners, engineers, law enforcement and their partners.	E3.1: Expand the Local Technical Assistance Program and the Active Transportation Academy to include a new menu of topics.	ODOT	In-Progress
	E3.2: Continue implementation of the active transportation Action Institute to bring together practitioners from across the state.	ODOT, Local Governments, MPO/RTPOs	In-Progress
E4. Promote walking and biking as a transportation option.	E4.1: Develop a series of active transportation promotional maps at multiple scales to promote existing networks and increase awareness.	ODOT, ODNR, Local Governments, Advocacy Groups	New
	E4.2: Create specialized outreach and training materials for traditionally underserved communities with minority and/or low-income populations.	Local Governments, ODOT, Advocacy Groups	New





Implementation

"I would love to see more bike/walking paths connecting small rural communities together safely."



Identify and develop programmatic allocations of federal, state and local resources for bicycle and pedestrian infrastructure, staffing and programs. Establish a project scoping and design toolbox for bicycle and pedestrian project implementation.

THEME STRATEGIES

F1: Assist local communities in project development and implementation.

F2: Implement State and U.S. Bike Route System.

F3: Support regional, cross-jurisdictional active transportation project implementation.



Implementation

ODOT and its partners fund and implement bicycle and pedestrian projects regularly in Ohio. However, demand and need outweigh existing and in-process active transportation projects. Additionally, implementation is often the most challenging and complex action to complete. Retrofitting bikeways and walkways requires conversations about tradeoffs and can often be expensive. For ODOT and its partners to achieve the WBO vision, implementation is a critical theme and tool of this plan.

Strategies	Action Items	Key Partners	Status
F1. Assist local communities in project development and implementation.	F1.1: Expand funding eligibility for project development.	ODOT	In-Progress
	F1.2: Develop a Living Laboratory program to assist partners with development and presentation of project case studies.	ODOT, MPO/RTPOs, Local Governments	New
	F1.3: Partner with local public agencies to reduce project development burden in areas with the highest need.	ODOT, Local Governments	New
	F1.4: Implement a competitive grant program to fund local, regional and corridor active transportation plans in areas of high need and demand.	ODOT, MPO/RTPOs	New
	F1.5: Streamline active transportation project funding application processes and identify opportunities to consolidate.	ODOT, MPO/RTPOs, Local Governments	New
	F1.6: Support systemic bicycle and pedestrian safety improvements.	ODOT, MPO/RTPOs, Local Governments	In-Progress
F2. Implement State and U.S. Bike Route System.	F2.1: Create a project list of improvements to the State and U.S. Bike Route System along priority corridors based on safety, demand, need and level of traffic stress.	ODOT, Local Governments	New
	F2.2: Improve user experience by providing standard design features and wayfinding signage.	ODOT, Local Governments	In-Progress
F3. Support regional, cross-jurisdictional active transportation project implementation.	F3.1: Assist with multijurisdictional project development and project bundling.	ODOT, MPO/RTPOs	In-Progress
	F3.2: Conglomerate county active transportation plans into regional plans to ensure priority recommendations are identified.	ODOT, MPO/RTPOs	New
	F3.3: Support major projects along high-risk roadways that increase safety and address user needs.	ODOT, MPO/RTPOs, Local Governments	In-Progress





Data

“Need to consider ways to share data and information between communities. Create ways for communities to share inventory collection techniques or formats.”



Collect and maintain quantitative and qualitative data to inform the decision-making process and develop data standardization.

THEME STRATEGIES

D1: Develop statewide active transportation asset inventory.

D2: Establish active transportation monitoring program.

D3: Expand active transportation safety data collection and analysis.



Data

ODOT and its partners use data to map existing active transportation facilities, analyze network connectivity, monitor bicycle and pedestrian crash trends, assess use and evaluate progress in reaching goals. Data is essential to understand how Ohio is progressing toward becoming a more walkable and bikeable state. The availability of active transportation data ranges across the state and there is significant need to increase both the quantity and quality of non-motorized datasets. In particular, there are gaps in facility and user data. However, ODOT has made great strides with its online TIMS mapping platform and with data sharing in general to provide meaningful information to its partners and Ohioans. For ODOT and its partners to achieve the WBO vision, data is essential so that performance can be measured and decision making for planning and implementation can be better informed.

Strategies	Action Items	Key Partners	Status
D1. Develop statewide active transportation asset inventory.	D1.1: Develop GIS database schema and framework for standardized data collection and management of pedestrian and bicycle assets/facilities.	ODOT, MPO/ RTPOs, Local Governments	In-Progress
	D1.2: Inventory statewide bicycle facilities based on established framework.	ODOT, MPO/ RTPOs, Local Governments	In-Progress
	D1.3: Develop an Active Transportation Data Collection User's Guide.	ODOT, Local University	New
D2. Establish active transportation monitoring program.	D2.1: Evaluate use of new technology for data collection and develop a consistent reporting structure for analysis findings.	ODOT, MPO/ RTPOs, Local Governments, Local University	In-Progress
	D2.2: Establish a statewide non-motorized traffic monitoring program.	ODOT	In-Progress
D3. Expand active transportation safety data collection and analysis.	D3.1: Provide technical assistance to local communities and regional planning organizations to analyze active transportation crash data.	ODOT	In-Progress
	D3.2: Automate Vulnerable Roadway User Crash type coding based on PBCATv3 within ODOT's Crash Data Systems.	ODOT	In-Progress
	D3.3: Develop a training module specific to active transportation safety in the Highway Safety Training Opportunities program.	ODOT, MPO/ RTPOs, Local Governments	New





Collaboration

“Engaging “non-traditional” partners like health departments, developers, and non-profits in active transportation planning and implementation will be an important step.”



Promote partnerships and programs to engage state, regional and local practitioners and advocates that leverage resources and achieve common goals.

THEME STRATEGIES

C1: Strengthen ongoing collaboration between ODOT and other state agencies.

C2: Strengthen ongoing coordination and collaboration between ODOT and its local partners.





Collaboration

ODOT and its partners collaborate to ensure resources can be leveraged, engagement is equitable, projects connect communities, priorities are funded and best practices and experiences are shared. A two-way flow of information from locals to ODOT as well as information from ODOT to locals is critical for informed planning and alignment of resources with statewide needs and priorities. Collaboration across federal, state and local agencies allows for combined resources to advance common goals and expedite initiatives. For ODOT and its partners to achieve the WBO vision, collaboration is essential so that responsibilities can be shared, roles established and progress made.

Strategies	Action Items	Key Partners	Status
C1. Strengthen ongoing collaboration between ODOT and other state agencies.	C1.1: Maintain and build partnership between ODOT and ODNR, with a focus on aligning both the Ohio Trails Vision and Walk.Bike.Ohio in implementation efforts.	ODOT, ODNR	In-Progress
	C1.2: Maintain strong partnerships between ODOT and ODH through engagement, active transportation planning, community engagement, education and promotion.	ODOT, ODH	In-Progress
	C1.3: Build partnership between ODOT, ODPS and ODE to pursue education/enforcement initiatives.	ODOT, ODPS, ODE	New
	C1.4: Establish a multi-agency advisory committee that meets regularly to discuss active transportation.	ODOT, ODH, ODNR, ODPS, ODE	New
C2. Strengthen ongoing coordination and collaboration between ODOT and its local partners.	C2.1: Build partnerships with organizations representing people of color and disadvantaged communities.	ODOT, Advocacy Groups, Local Governments	In-Progress
	C2.2: Build working partnerships between ODOT and public transit and rail partner agencies to improve intermodality.	ODOT, ODH, Local Governments	In-Progress
	C2.3: Host annual forum in each ODOT District office to coordinate network implementation and project development opportunities.	ODOT, ODH, DSA, ODNR	New
	C2.4: Update the existing Statewide Public Participation Document and the PDP to increase participation in traditionally-underserved communities and areas of highest need.	ODOT, Local Governments	In-Progress
	C2.5: Conduct a best practice research scan of policies, programs and resources toolkit aimed at integrating land use and transportation decision making.	ODOT, Local Governments	New



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Appendix A

Public Engagement





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Overview of Public Engagement Process

As part of Walk.Bike.Ohio, Ohio's first statewide bike and pedestrian plan, ODOT developed an engagement and communications process to proactively engage targeted audiences. The proactive engagement helped ODOT shape plan strategies and action items. This plan will impact how ODOT programmatically addresses the needs of pedestrians and bicyclists and engages with partners to improve access and use of active transportation for years to come.

Walk.Bike.Ohio Project Goal

To create Ohio's first bicycle and pedestrian plan that will guide, inform and support ODOT's active transportation policies and investment strategies. The bike-ped plan will align with Access Ohio 2045, Ohio's statewide long-range multimodal plan, and will be informed by the results of the 2016 ODOT Transportation Preference Survey (TPS).

Engagement and Communication Objectives

The overall Walk.Bike.Ohio engagement objectives were to:

- Inform and engage multiple audiences, including ODOT's internal audiences, as well as external partners, stakeholders and the public
- Gather input on goals, strategies, needs and priorities that support Walk.Bike.Ohio's project goal
- Build consensus around Walk.Bike.Ohio's recommendations

There were Steering Committee and technical stakeholder meetings at key project milestones to inform the development of the plan and build synergy among internal and external audiences.

The primary Walk.Bike.Ohio engagement tactics focused on the following groups:

- Steering Committee
- Stakeholders
- The general public
- Various subject matter experts who were engaged with focus groups

In addition to these groups, a Technical Advisory Committee (TAC) made up of ODOT Central Office and District staff guided the engagement and communications efforts.

Walk.Bike.Ohio Audiences

- ODOT Staff
- Legislators – state, federal
- Local elected officials - city, county, township
- Partner organizations – MPOs, RTPOs, others
- Other state agencies
- Bicycle organizations
- Pedestrian organizations
- Public
- Media





Strategies + Engagement Tools

The Walk.Bike.Ohio team used a mix of strategies and tactics to engage the audiences noted above. Before developing materials, the team created a visual brand for Walk.Bike.Ohio and messaging so that all of the plan's materials had a consistent look, tone and feel. These are detailed in the other strategies and tactics section.

The Walk.Bike.Ohio team developed and used a variety of tools – in-person meetings, focus groups, web, social and print – to find out how Walk.Bike.Ohio can address Ohioans' active transportation priorities.

A mix of engagement techniques were designed and implemented to maximize participation and input into the plan's development. These included stakeholder meetings, focus groups with key audiences, public online surveys and a meeting in a box for MPOs and RTPOs to supplement other engagement work.

Engagement also included outreach to interested regional and statewide organizations – such as the Ohio Association of Regional Councils (OARC), MPOs and RTPOs, local governments, bicycle and pedestrian advocacy groups, and others noted above.

Steering Committee

The Walk.Bike.Ohio Steering Committee served in an advisory capacity to provide their expertise, vet concepts and ideas, and confirm they are well-thought out and clearly presented before information was shared more broadly.

Steering Committee members helped extend the reach of Walk.Bike.Ohio messaging by sharing information, seeking feedback from their internal and external constituents and assisting with the promotion of stakeholder workshops and public outreach information in their respective organizations and networks.

Over the course of the plan's development, six Steering Committee meetings were held. Members' feedback on Walk.Bike.Ohio's vision, goals, themes and action strategies was invaluable. The first three meetings were held at ODOT's Central Office in Columbus. Due to the coronavirus pandemic, the last three meetings were held virtually using an online meeting application. Organizations serving on the Steering committee are listed on page II.





User Survey

As part of the first round of public feedback, the Walk.Bike.Ohio team conducted a survey to obtain the general public's thoughts, experiences and perspectives on walking and biking in Ohio and to identify challenges and concerns that hadn't been raised by other stakeholders. The survey was promoted at the first round of stakeholder meetings, via Steering Committee members, through emails sent by MPOs and RTPOs, and by ODOT Communications' distribution of a news release that resulted in media coverage and in social media posts. Additionally, ODOT promoted the survey at its booth at the 2019 Ohio State Fair. The survey was open from June-August 2019 and there were 8,683 survey responses.

Subject Matter Expert Focus Groups

The Walk.Bike.Ohio team held small, roundtable focus group meetings. Each focused on specific topics related to Walk.Bike.Ohio's development. These included: Ohio MPO and RTPO representatives, September 29, 2020; ODOT staff interviews, October 28 and 31, 2019; and bike advocates, January 23, 2020.

Stakeholder Outreach Meetings

There were two rounds of six stakeholder meetings. Stakeholder outreach meetings targeted technical stakeholders and professionals. The content for the first round focused on plan vision and goals, design guidelines, structures and funding systems.

There was one meeting for every two ODOT districts, with the following pairs used: Districts 1-2 (Northwest Ohio), Districts 7-8 (West Central and Southwest Ohio), Districts 3-12 (North Central and Northeast Ohio), Districts 4-11 (East Central and Northern Ohio), Districts 5-6 (Central and East-Central Ohio) and Districts 9-10 (Southern and Southeast Ohio).

For the first round of stakeholder meetings, held in July 2019, each meeting lasted 2 hours and was held in the late afternoon. The rationale for the time frame was to accommodate people who attended as part of their job, while it was late enough in the day to be reasonable for people who represented an organization as a volunteer to attend.

To prepare, the Walk.Bike.Ohio team created content for the workshop (an online public survey, meeting materials including a digital meeting flier and social media posts), coordinated meeting staffing and logistics, and documented workshop notes and outcomes. The team analyzed key takeaways and input informed the plan's development.





A news release to garner news coverage was created. Additionally, Steering Committee members were asked to promote the stakeholder meetings to their organizations and networks as part of the workshop notification process via email. ODOT Communications posted information about the meetings on its Facebook page.

In addition, the first online survey was designed and promoted before, during and after the stakeholder outreach meetings.

The dates and locations of Walk.Bike.Ohio's first round of stakeholder meetings are below. There were 214 attendees at the six meetings.

Date + Time	Host	Location
Wednesday, July 10, 2019, 2-4pm	Ohio-Kentucky-Indiana Regional Council of Governments (OKI)	720 East Pete Rose Way, Suite 420, Cincinnati, OH 45202
Thursday, July 11, 2019, 2-4pm	Toledo Metropolitan Area Council of Governments (TMACOG)	300 Dr. Martin Luther King Drive, Toledo, OH 43604
Monday, July 15, 2019, 2-4pm	Mid-Ohio Regional Planning Commission (MORPC)	111 Liberty Street, Suite 100, Columbus, OH 43215
Tuesday, July 16, 2019, 2-4pm	Ohio Mid-Eastern Governments Association (OMEGA)	Paul Brown Epic Center, Zane State College, 9900 Brick Church Rd., Cambridge, OH 43725
Wednesday, July 17, 2019, 2-4pm	Buckeye Hills Regional Council (Buckeye Hills)	1400 Pike St., Marietta, OH 45750
Thursday, July 18, 2019, 2-4pm	Northeast Ohio Areawide Coordinating Agency (NOACA)	1299 Superior Ave., Cleveland, OH 44114



Due to the coronavirus pandemic, the second round of stakeholder meetings was held virtually using an online meeting platform. They focused on feedback on draft plan recommendations. The second round of meetings were in July 2020.

The team again created digital materials to promote these meetings, including an email invitation and social media posts and graphics.

The dates of Walk.Bike.Ohio's second round of stakeholder meetings are below. There were 263 attendees at the six meetings.

Date + Time	Region, ODOT Districts
Wednesday, July 8, 2020, 2-4pm	SW Ohio, Districts 7, 8
Thursday, July 9, 2020, 10am-noon	NW Ohio, Districts 1, 2
Monday, July 13, 2020, 2-4pm	Central Ohio, Districts 5, 6
Wednesday, July 15, 2020, 10am-noon	Eastern Ohio, Districts 4, 11
Wednesday, July 15, 2020, 2-4pm	SE Ohio, Districts 9, 10
Thursday, July 16, 2020, 10am-noon	NE Ohio, Districts 3, 12

Meeting-in-a-Box

To extend the reach of the first round of stakeholder meetings, Alta created a meeting-in-a-box for local stakeholders to use at additional meetings that they scheduled in their communities. The goal of these meetings was obtaining additional feedback on Walk.Bike.Ohio's vision and goals, identifying barriers to walking and biking in Ohio, and offering possible solutions. Information from meeting-in-a-box sessions was incorporated into round one stakeholder feedback.

Other Strategies and Tactics

Branding

The branding effort included naming the project and creating a logo mark. After the branding was completed, associated deliverables were created, including but not limited to: templates for PowerPoints, technical memos and reports, displays, emails, website content and others. The branding and associated templates followed ODOT's branding standards.

Messaging

After hosting a discovery session with ODOT's project and communications team, the Alta team developed messages for the various internal and external audiences. The results of ODOT's 2016 Transportation Preferences Survey also guided message development.

Engagement Discovery Session

As noted above, the communications and outreach plan was informed by a discovery session with ODOT Walk.Bike.Ohio project team members and ODOT communications staff.

What We Heard

Steering Committee Meetings

Meeting Date	Meeting Content	Meeting Outcomes
May 20, 2019	Project overview, plan vision and goals activity, review draft existing conditions findings.	Members voted on preferred vision statements and goals and gave feedback on draft existing conditions findings.
September 5, 2019	Project update, review proposed content for Walking and Biking in Ohio Today report, two small group activities focusing on vision/goals and barriers, and recommendations/stakeholders.	Feedback on Walking and Biking in Ohio Today report proposed content, the plan's draft vision statement and goals.
January 23, 2020	Project update, review of draft plan themes, project goals and performance measures, two small group activities to give feedback on themes and performance measures	Feedback on plan's draft themes, goals and performance measures.
March 30, 2020	Project update, review revised draft strategies, small group activity to review draft strategies.	Feedback on the plan's draft strategies.
September 3, 2020	Project update, small group activity to review and prioritize five-year action plan.	Feedback and rankings for the plan's five-year action plan, including roles and responsibilities.
March 23, 2021	Project update, community engagement summary and final review of draft Walk.Bike.Ohio report.	Feedback on the response to community input on the draft report and discussion about future implementation efforts.



Public User Survey

A full copy of the survey summary results is [online](#). Here are some highlights:

- Respondents walk and bike for health benefits, fun and environmental benefits.
- Respondents don't walk and bike more often due to: lack of infrastructure, distance to destinations, high traffic speeds or volumes, poor condition of infrastructure, not enough time, weather and unsafe/unlawful motorists.
- There was an overall positive perception of walkability and bikability in Ohio.
- Distance influenced walking and biking perceptions and behaviors, and impacted pedestrians more than bicyclists.
- Crashes, close calls and overall concerns were top safety responses.
- Lack of walking and biking infrastructure was a common barrier.
- Respondents said that walking and biking improved their quality of life.
- Respondents' age, ability, income and geography affected their perceptions and experiences related to walking and biking equity.
- Potential strategies to improve walking and biking in Ohio were grouped by topics: infrastructure; policy, law and enforcement; education and encouragement; and funding.

Stakeholder Meetings - Round One

Below are highlights from the feedback at the first round of stakeholder meetings.

Funding

- Need additional resources/capacity
- Project scoring should prioritize bike/ped
- Funding applications need streamlining
- Funding requirements/limitations

Connectivity

- Network and prioritization assistance
- Land use policies that require linkages
- Jurisdictional boundary barriers
- First/last mile connections to/from transit

Infrastructure

- Lack of bike/ped facilities
- Need better maintenance
- Design guidance and assistance needed

Safety

- Increase off-road and separated facilities
- Allow communities to reduce speed limits
- Need tools to assess risk and prevent crashes

Cultural Shifts

- Auto-centric processes
- Capacity building for multimodal efforts
- Need promotion/encouragement programs
- Targeted enforcement needed





Policy

- Complete streets, land use/zoning policies
- Regional/county planning needed
- Land acquisition challenges

Leadership

- Lack of political will
- Education of decision makers needed
- Need to identify local champions

During the course of the meetings, there were some notable regional differences, including:

Rural

- Focus on economic development when building bike/ped facilities
- Overall lack of facilities
- Often no zoning codes exist
- Concern with deterring development
- Challenges with local match
- Concern of geography, hills, spread-out destinations
- General distrust of big government, NIMBYism and challenges with land acquisition

Urban

- Political will and other priorities
- Challenges with defining planning and defining a network
- Challenges with projects that span jurisdictions
- Need to prioritize bike/ped with local/regional funding available for transportation
- Efficient use of ROW, challenges associated with limited space or ROW

Stakeholder Meetings - Round Two

Attendees prioritized the plan's draft strategies using a three-point scale. The strategies were organized by the plan's themes. Participants also suggested other strategies, commented on the drafts and gave other feedback. The highest-ranked strategies, by theme, were:

- Planning + Guidance Strategy 1 - Develop and adopt multimodal planning, design, implementation and guidance.
- Education + Promotion Strategy 2 - Educate elected officials at all levels about the importance of a more walkable and bikeable Ohio.
- Implementation Strategy 2 - Develop innovative funding mechanisms and partnerships.
- Data Strategy 1 - Develop statewide active transportation asset inventory.
- Collaboration Strategy 2 - Strengthen ongoing coordination and collaboration between ODOT and its local partners.

Advocacy Focus Group Meeting

The following is a summary of the advocacy focus group that was held on January 23, 2020.

What are the most important topics to address in Ohio today around walking and biking?

- Equity lens – be thoughtful in addressing through topics of racism and classism
- Trail spines and holistic network
- Design of road
- Education
- Effective engagement needed





What are important policies Walk.Bike.Ohio should address?

- Need to take into account mobility devices
- Permitting and grant cycles are not coordinated
- Complete streets critical
- Vision Zero
- Policies need to be connected to design as opposed to enforcement
- Speed issue
- Fact sheets
- Intersections
- Crosswalks
- Ohio Revised Code changes
- Data collection issue
- Desire for statewide vulnerable user law

What is the number one thing we need to do in Walk.Bike.Ohio?

- Complete streets policy with design guidance flexibility
- Transit is important and should be woven into the process
- Technical assistance supports
- Policy items need to be action oriented and implementation focused
- Health/economic impact study needed
- Funding
- Is it possible to fund advocacy groups from across the state?

- Build advocacy “infrastructure” networks across state
- Education
- Stipends for neighborhood education/ambassadors
- Operations policy

MPO/RTPO Focus Group Meeting

A focus group meeting with MPO/RTPO representatives was held on September 29, 2020 to discuss the roles and responsibilities partner agencies have in implementation of Walk.Bike.Ohio. The following is a summary of the input received.

What role do MPO/RTPOs play in the implementation of Walk.Bike.Ohio?

- Lead regional planning and priority setting
- Encourage active transportation
- Provide education on active transportation
- Optimize funding
- Serve as a technical resource to member jurisdictions
- Monitor and evaluate active transportation system performance





Walk.Bike.Ohio Draft Plan Comment Period Summary

As part of the 45-day public comment period, a survey was hosted on PublicInput.com and also was accessible on the Walk.Bike.Ohio website from January 7-February 26, 2021. It was promoted via the Steering Committee and on ODOT's social media channels. Results should be considered qualitative as the survey distribution did not use statistical sampling methods.

Who took the survey?

- There were 2,065 survey participants who gave 728 responses to open-ended questions.
- Taking the survey was the first time more than 90% of respondents had participated in the Walk.Bike.Ohio planning process.
- The most common ways people participated in the WBO process were visiting the project website, reading reports and taking a previous survey.
- Nearly 90% (89%) of respondents found the plan easy to understand.
- Nearly 90% (88%) of respondents said the draft plan is consistent with their understanding of future active transportation needs in Ohio for the next five years.

Demographics of Survey Participants

Of the respondents who chose to answer the optional demographic questions, they represented the following:

- Caucasians, white were 90% of the respondents; Blacks, African-Americans were 2% of the respondents; Hispanics were 1% of the respondents; however, people could and did select more than one race when responding.

- More than half (52%) were between 46-65 years old.
- Nineteen percent of respondents had incomes of \$50,000-\$74,999 and an additional 19% had incomes of \$100,000-\$149,999.
- 309 unique ZIP codes from around Ohio, 22% of the state's total.

Key Findings

- Appreciation for prioritizing the rights and safety of bicyclists and pedestrians in Ohio and the comprehensive approach to recommendations.
- Desire to emphasize off-road connectivity rather than on-road facilities.
- Expectation that the plan would show specific projects, routes, connections.
- Desire for more concise summary, one pager, abridged version, or etc.
- Some skepticism of government spending, fear of overreach, push back on the need or value of investment in walking and biking.
- Desire for improvements at the local level, lack of understanding of what capacity ODOT has to influence what happens at the local level.
- Concern the State and US Bike Routes are not safe or practical for everyday users.



Appendix B

Existing Conditions





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Walk.Bike.Ohio Goals B-4

 Equity Goal B-5

 Network Utilization Goal B-13

 Network Connectivity Goal B-24

 Safety Goal B-31

 Livability Goal B-36

 Preservation Goal B-42

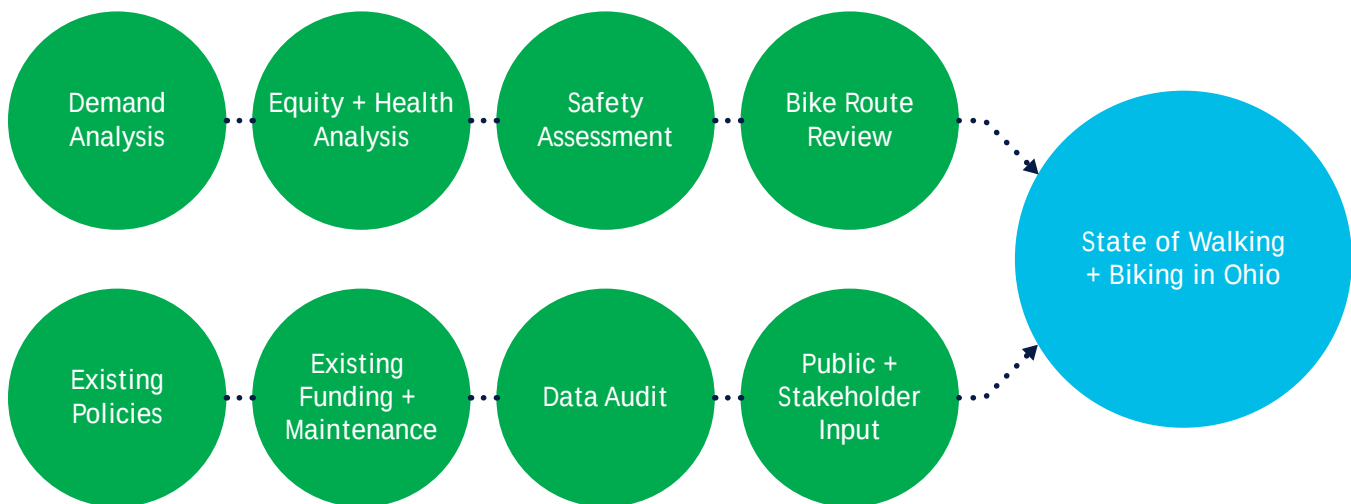
Introduction

Ohio is the 7th most populous state in the country with a diversity of landscapes ranging from the urban centers of Cleveland, Cincinnati and Columbus to suburban communities, small towns, rural farmland and natural environments. Within all of these contexts, walking and bicycling are fundamental transportation modes with both Ohio's residents and visitors relying on active transportation to meet needs and desires every day. To understand the opportunities and challenges faced by individuals traversing Ohio's transportation system by foot and by bicycle, the current state of walking and biking in Ohio was examined through multiple lenses. This not only included evaluating existing conditions related to the actual, physical active transportation network and users, but also the factors, policies, and programs that impact walking and bicycling. This work set the stage for the development of statewide strategies and initiatives to ultimately advance walking and bicycling mobility, safety and connectivity in Ohio.

SUPPORTING DOCUMENTS

The summaries included in this Appendix are meant to distill the overall takeaways from the existing conditions analysis. More information on where to find the various supporting documents and data can be found in Appendix C: Supporting Documents. Many underlying datasets can be downloaded on ODOT's [Transportation Information Mapping System \(TIMS\)](#) online portal.

Existing Condition Metrics



WBO Goals

This chapter is organized by the six WBO goals to highlight key findings and statistics, with the purpose of identifying priority needs and benchmarks for improvement.





Equity Goal

Ensure the system accommodates users of all ages, abilities and incomes.

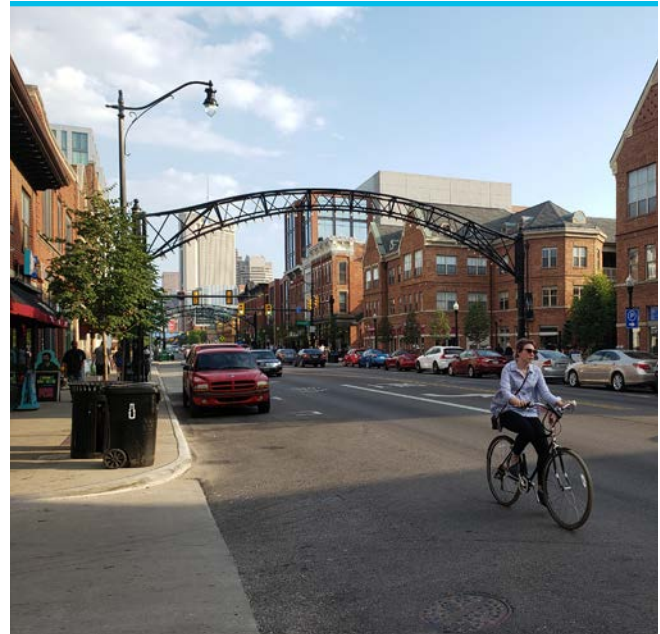
Historically, certain individuals and communities, including those from minority, low-income, and limited English proficiency populations, have not benefited equitably from transportation investments and programs. Today within Ohio, this manifests itself in many ways, particularly as it relates to where and how residents engage in walking and biking. For example, high need populations and areas experience a disproportionate amount of the severe pedestrian and bicycle crashes. In addition, there are significant differences in perceptions and engagement in active transportation across races and genders in Ohio. Transportation facilities are essential components in helping to create opportunities for Ohioans and to reduce the disproportionate economic and health burdens experienced by its most vulnerable residents. Often, traditionally vulnerable populations, such as minority groups, youths, older adults, people living in poverty, adults with no high school education, residents with limited English proficiency, and households with no access to a motor vehicle, may rely heavily on bicycling, walking, and transit. Building bicycling and walking facilities in these areas can help provide multiple transportation options and decrease some of the economic and health burdens experienced by residents.

This equity section identifies and summarizes locations in Ohio with concentrations of vulnerable populations, bicycle/pedestrian crash disparities, the bicycling gender gap, and how ODOT funding is applied to vulnerable communities.



Geographic Need

Many communities rely on multiple modes of transportation to connect to basic services that are necessary to live productive, fulfilling and healthy lives. Critical to understanding the state of walking and biking in Ohio is identifying and understanding areas where individuals are more likely to walk and bike due to economic necessity. These areas of the state tend to be some of the most vulnerable, with high rates of poverty, high mortality rates, limited English proficiency, limited access to motor vehicles and beyond. The Active Transportation Needs Analysis used socio-demographic data from the American Community Survey (ACS) to identify these geographic concentrations of disadvantaged residents, considered more vulnerable to unsafe, disconnected or incomplete active transportation networks. The vulnerable populations listed below were included as indicators of potential equity concerns in this analysis.



Need Indicators



MINORITY GROUPS: Percent of the population that identifies as non-white or multiple races/ethnicities.



YOUTH: Percent of the population that is under the age of 18.



OLDER ADULTS: Percent of the population that is over the age of 64.



POVERTY: Percent of the population that is living at or below 200% of the Federal Poverty Level.



NO HIGH SCHOOL DIPLOMA: Percent of the adult population over the age of 24 that does not have a high school diploma or equivalent degree.



LIMITED ENGLISH PROFICIENCY: Percent of the population that identified as not speaking English well or at all.



NO ACCESS TO A MOTOR VEHICLE: Percent of households that said they did not have regular access to a motor vehicle.

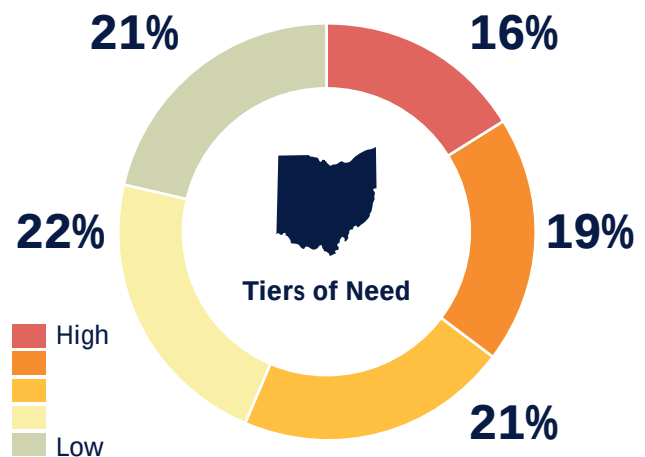
SUMMARY OF NEED IN OHIO

The Needs Analysis found that approximately 35% of Ohio residents live in the top two tiers of highest need. The map on the following page shows composite results of the Needs Analysis, which highlights areas across the state that have high concentrations of vulnerable populations. Composite Needs Analysis maps were also created for each of ODOT's 12 districts.

Ohio's larger urban centers are more likely to have neighborhoods and areas categorized as high composite need areas. These urban centers include Toledo, Cleveland, Youngstown, Akron, Canton, Dayton, Columbus and Cincinnati. The suburbs surrounding each of these urban centers typically range from low to moderate need. Smaller city downtowns and village centers throughout the state also show moderate to high composite need, but this need typically drops off sharply in surrounding sparsely populated areas. The more sparsely populated areas of southern and eastern Ohio deviate from this pattern, namely in Districts 9, 10 and 11, where rural areas demonstrate a high need for active transportation facilities. This includes parts of the Appalachian region and areas with a large presence of Amish communities.

Within Ohio, the areas of highest composite need occur mainly in Ohio's largest cities, across the state's Amish communities and in the Appalachian (Southeast) region of the state. Districts 6, 9 and 12 are home to the highest percentages of people living in a high need area. Districts 6 and 12 are home to Columbus and Cleveland, respectively, while District 9 does not contain any large metropolitan centers.

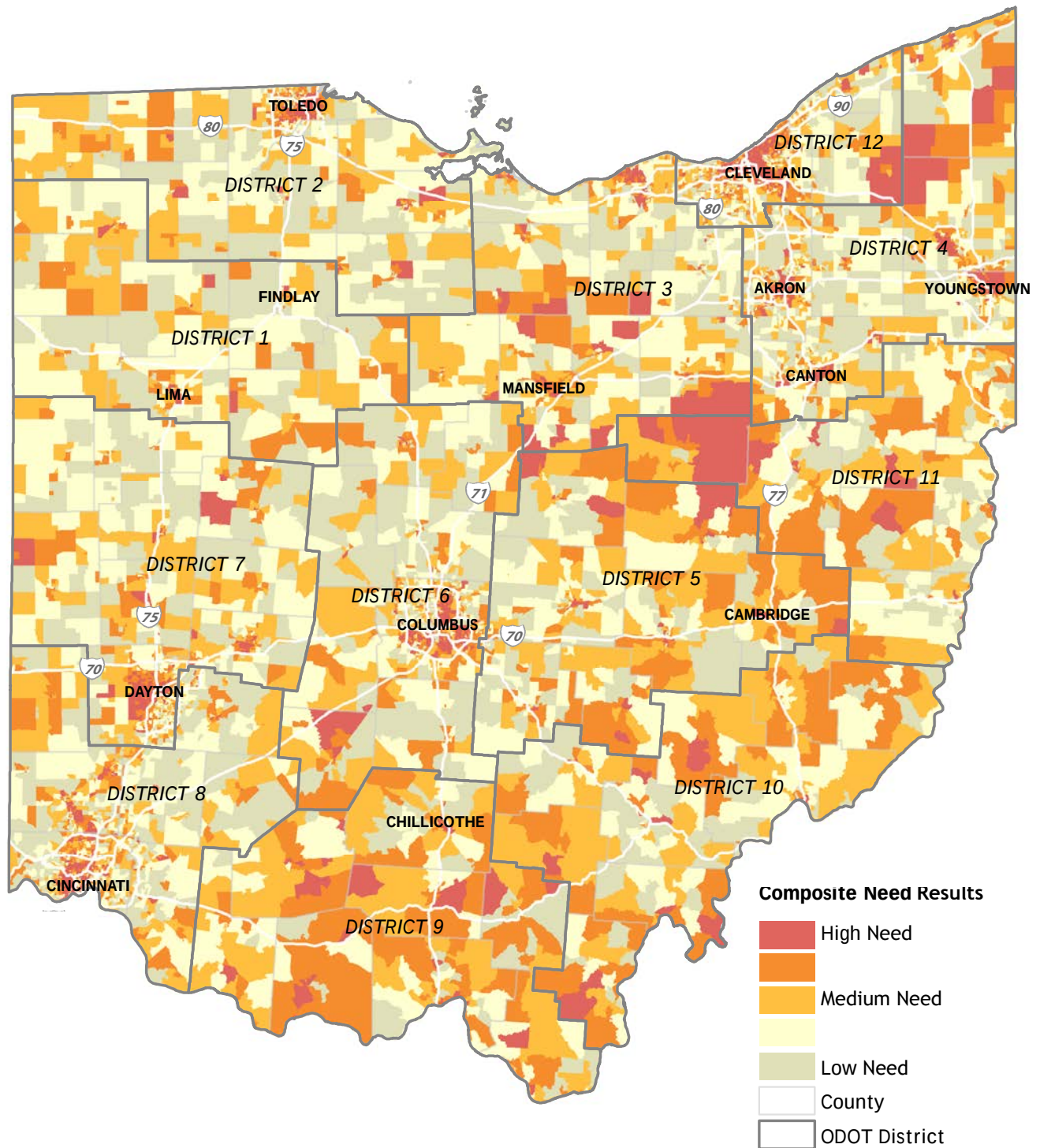
% of Population (Census Tract) in Each Tier of Need



AMISH TRAVEL STUDY

ODOT released a [Statewide Amish Travel Study](#) in 2019 to identify high-priority roads and recommend improvements that fit the unique needs of Amish communities.

Composite Need Results



Racial Inequality

Today, higher concentrations of non-white or multiple race/ethnicity populations are clustered in urban areas such as Cleveland, Toledo, Columbus, Dayton and Cincinnati (see map on next page). Many of these areas have suffered from historic underinvestment resulting in poor or decaying infrastructure, educational opportunities, job resources and healthy food options.^{17,18}

With respect to bicyclist safety, the League of America Bicyclists reports that the national fatality rate is 23% higher for Hispanic bicyclists and 30% higher for African-American bicyclists than for white bicyclists.¹⁹ In Ohio, data indicates that bicycle and pedestrian crashes often disproportionately affect people of color. For pedestrians, this trend has occurred with greater frequency in recent years. In 2017, 18% of Ohio's population identified as non-white but accounted for 30% of fatal pedestrian crashes. The overlap between equity and transportation safety is explored more in the following sections.

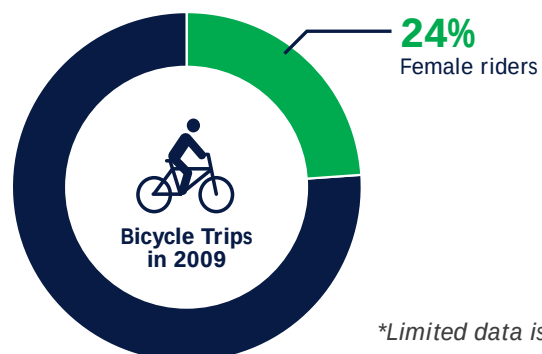
The Biking Gender Gap

Although people of all genders bicycle at relatively equal rates in industrialized European countries such as the Netherlands, Germany and Denmark where cycling infrastructure networks are robust and primarily separated from vehicular traffic, research has consistently found that in the United States, men's total bicycle trips surpass women's by a ratio of at least 2:1.^{20*}

The 2016 Ohio Transportation Preference Survey found that while all genders report active transportation as important, women are much less likely than men to regularly ride a bicycle. While this is likely caused by a variety of reasons, a survey conducted by The Ohio State University found that 43% of women reported nearby car traffic is a major reason they do not bike ride, while only 28% of men said the same.²¹

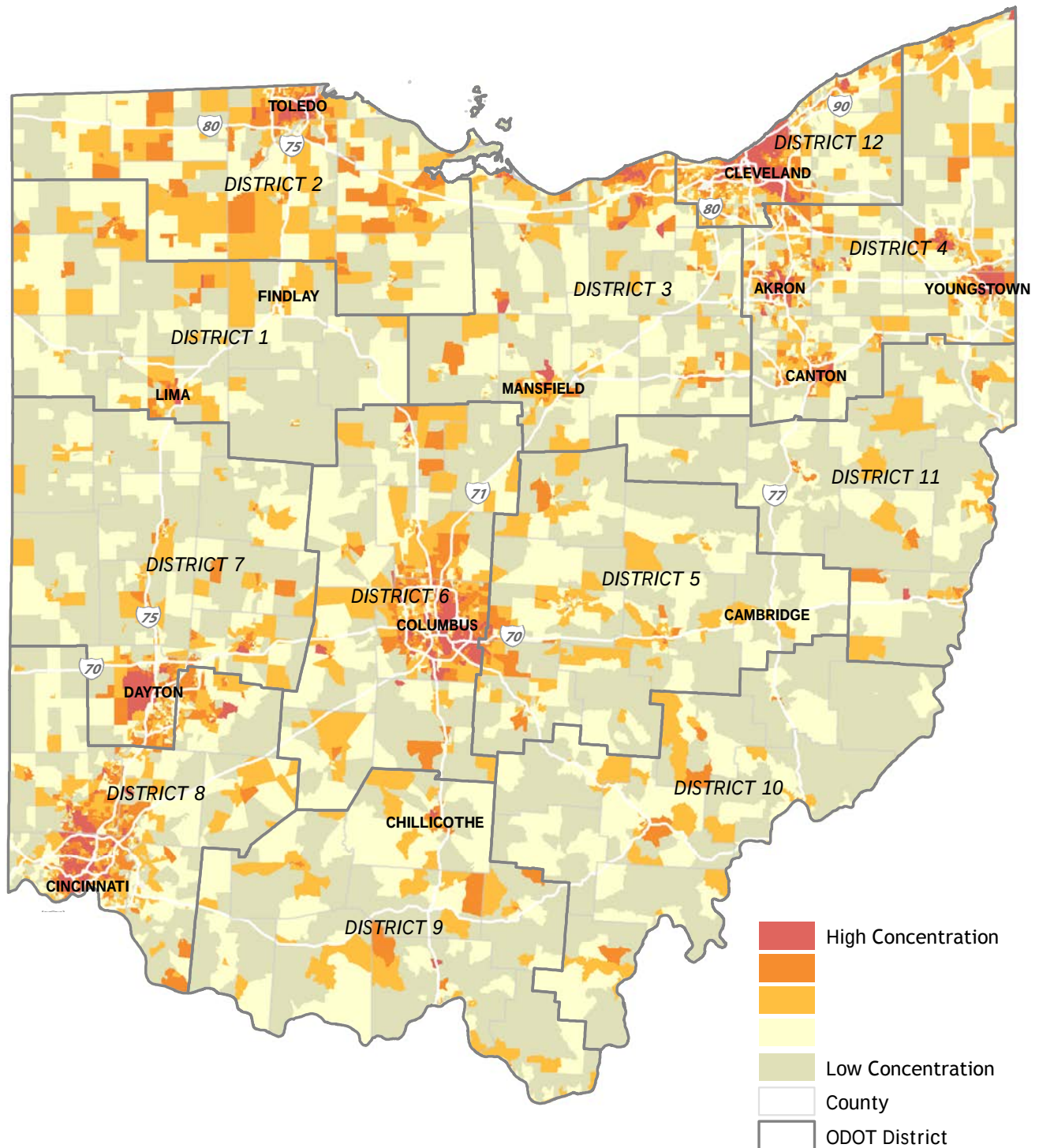
More data collection and public engagement is needed to fully understand the current state of walking and biking in Ohio for people of all ages, genders, races, and abilities.

Only 24% of bicycle trips taken in the United States in 2009 were taken by female riders.²²



**Limited data is available for trans and non-binary riders.*

Minority Groups



WBO USER SURVEY SPOTLIGHT

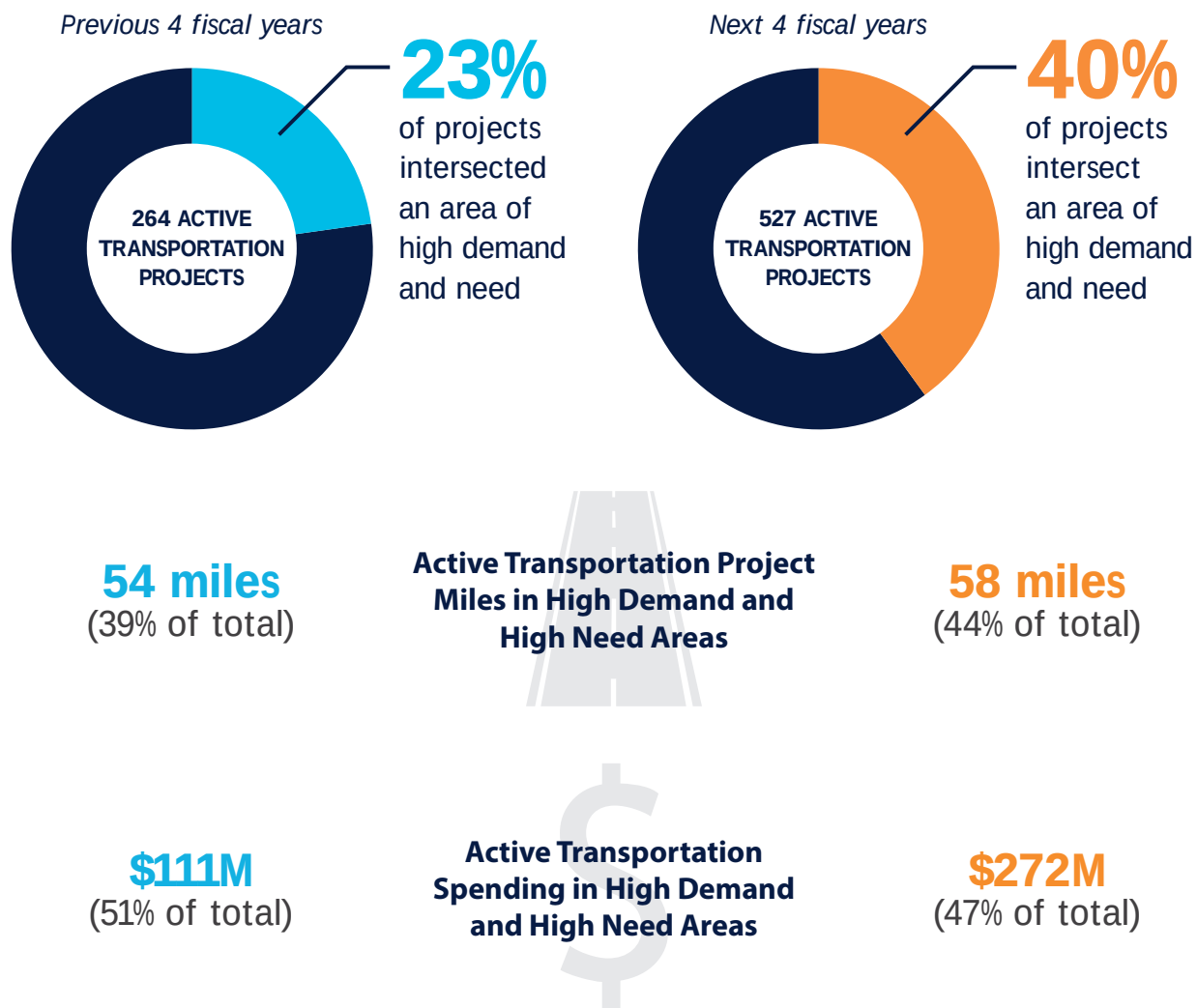
An external analysis of the WBO user survey conducted by Professional Data Analysts found that there were key differences in walking and biking perceptions across racial and ethnic groups. Difference between groups appear in green text. The full report, Public Perceptions of Walking and Biking in Ohio, is available for download on the [Walk.Bike.Ohio website](https://www.walkbikeliveohio.org/).

	White	Black	Asian	Hispanic or Latino	American Indian or Alaska Native
Reasons for Walking + Biking	1. Health 2. Fun 3. Environment	1. Health 2. Fun 3. Save money	1. Health 2. Fun 3. Environment	1. Health 2. Fun 3. Environment	1. Health 2. Fun 3. Environment
Barriers to Walking	1. Distance 2. Lack of sidewalks and paths 3. High traffic speed/volume	1. Distance 2. Lack of sidewalks and paths 3. Not enough time	1. Distance 2. Lack of sidewalks and paths 3. High traffic speed/volume	1. Distance 2. Lack of sidewalks and paths 3. Have to carry things	1. Distance 2. Lack of sidewalks and paths 3. High traffic speed/volume
Barriers to Biking	1. Lack of bike lanes/paths 2. High traffic speed/volume 3. Unsafe/unlawful motorists	1. High traffic speed/volume 2. Lack of bike lanes/paths 3. Unsafe/unlawful motorists	1. Lack of bike lanes/paths 2. High traffic speed/volume 3. Unsafe/unlawful motorists	1. Lack of bike lanes/paths 2. High traffic speed/volume 3. Unsafe/unlawful motorists	1. Lack of bike lanes/paths 2. High traffic speed/volume 3. Unsafe/unlawful motorists
Desired Walking Destinations	1. Trails 2. Parks 3. Shopping	1. Parks 2. Trails 3. Shopping	1. Parks 2. Trails 3. Shopping	1. Trails + parks (tie) 2. Shopping	1. Trails + parks (tie) 2. Shopping
Desired Biking Destinations	1. Trails 2. Parks 3. Shopping	1. Trails 2. Parks 3. Shopping	1. Parks 2. Trails 3. Shopping	1. Trails 2. Parks 3. Shopping	1. Trails 2. Parks 3. Shopping

Existing ODOT Funding Review

Part of understanding how Ohio is advancing equity is to analyze committed funding to higher need areas. These graphics illustrate ODOT's funding allocations for standalone active transportation projects of the past four and the next four fiscal years in areas of high demand and need. High demand areas are where active transportation is expected to occur and high need are areas with the highest concentration of vulnerable users.

This analysis only captures standalone and federal/state-funded pedestrian and bicycle projects. It is important to note that this is just a portion of the actual funding spent on active transportation in Ohio. Financial data is currently unavailable for improvements that were incorporated into larger transportation projects, funded exclusively by local jurisdictions, or located outside of the state's roadway inventory.





Network Utilization Goal

Increase walking and biking usage.

Network utilization describes who is walking and bicycling in Ohio and where. This usage can be impacted by a number of factors including land use and development patterns, the presence or absence of active transportation networks, proximity of destinations, safety concerns, and socioeconomic need. While it can be assumed that utilization varies across the state, there are typically higher percentages of residents walking and bicycling for transportation in urban areas and less so in rural areas, which makes accurately understanding utilization challenging. Currently data gaps exist within Ohio that limit a complete picture of network utilization by non-motorized users. Volume data collection has focused primarily on automobiles and trucks, American Community Survey Data (mode of transportation to work) only accounts for trips to work and does not account for all other utilitarian and recreational trips, and robust surveys conducted at the state, regional and local levels are often limited due to being cost-prohibitive to conduct.

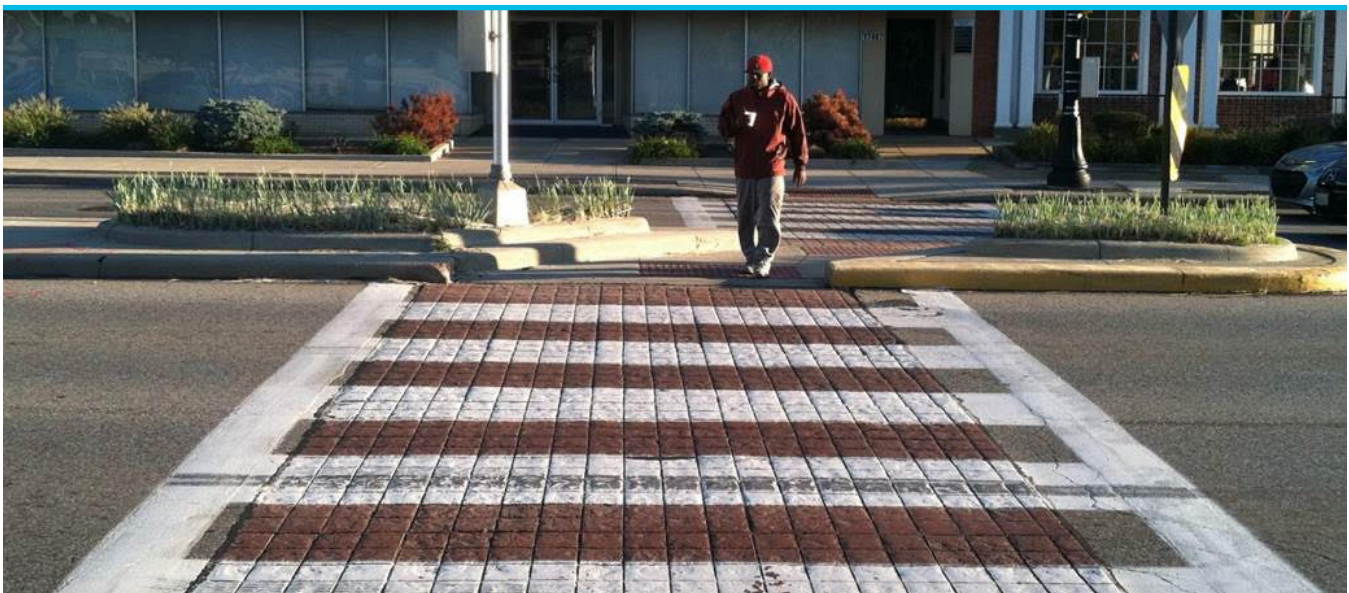
Even with these limitations, it is possible to develop a high-level understanding of non-motorized activity within Ohio. The following section focuses on existing count programs, estimated demand mapping, mode share, user types, and new mobility.

Importance of User Counts

In order to truly understand the extent of network utilization among active transportation users, the collection of count, or volume, data is necessary. Historically, collecting non-motorized data has been seen as both time and resource intensive. While some communities and regional planning organizations in Ohio have established count programs or conducted pilot count projects, there are still funding, quality control and data management limitations that impact the ability to understand usage comprehensively across Ohio. This is in part due to the lack of requirements from the federal government for collection and submission of non-motorized count data unlike vehicular count data. Even with these resource limitations, ODOT and its partners have worked to establish a central database to consolidate available volume data through its Non-Motorized Database System.

OHIO NON-MOTORIZED DATABASE SYSTEM SPOTLIGHT

ODOT's **Non-Motorized Database System** (NMDS) is a platform that provides local, regional and state agencies the ability to upload, organize and analyze pedestrian and bicycle volume count data at the segment level. Users are able to filter data by year, mode, county and community. Responsive widgets filter the data into bar charts and a statewide map showing count locations, highest ADT locations, and yearly, monthly, and daily volume. The analysis tool provides a menu of advanced search fields and reports detailed count data for each count location ID.



Geographic Demand

Higher amounts of walking and bicycling tend to occur where there is a density of population centers, employment areas and destinations. One way to summarize and understand this walking and bicycling activity is through a spatial demand analysis. This type of analysis estimates the cumulative demand for walking and biking considering where people live, work, play, shop, learn and access transit. The indicators listed below were included as indicators of potential demand in this analysis.

Demand Indicators



EMPLOYMENT DENSITY: A measure of where people work.



POPULATION DENSITY: A measure of where people live.



WALK/BIKE COMMUTE MODE SHARE: A measure of existing active transportation usage.



PARK DENSITY: A measure of parkland expressed as acreage per Census Tract.



PRESENCE OF COLLEGES/ UNIVERSITIES: A measure of where people attend college.



RETAIL EMPLOYMENT DENSITY: A measure of where people shop and are employed by retail industries.



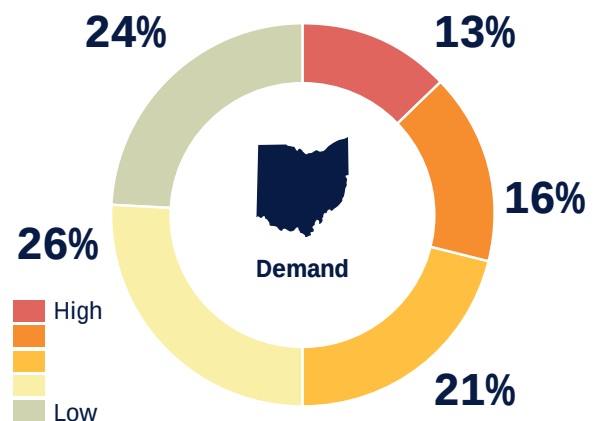
PEOPLE AT OR BELOW 200% OF FEDERAL POVERTY LINE: A measure of concentrated poverty.

ACTIVE TRANSPORTATION DEMAND IN OHIO

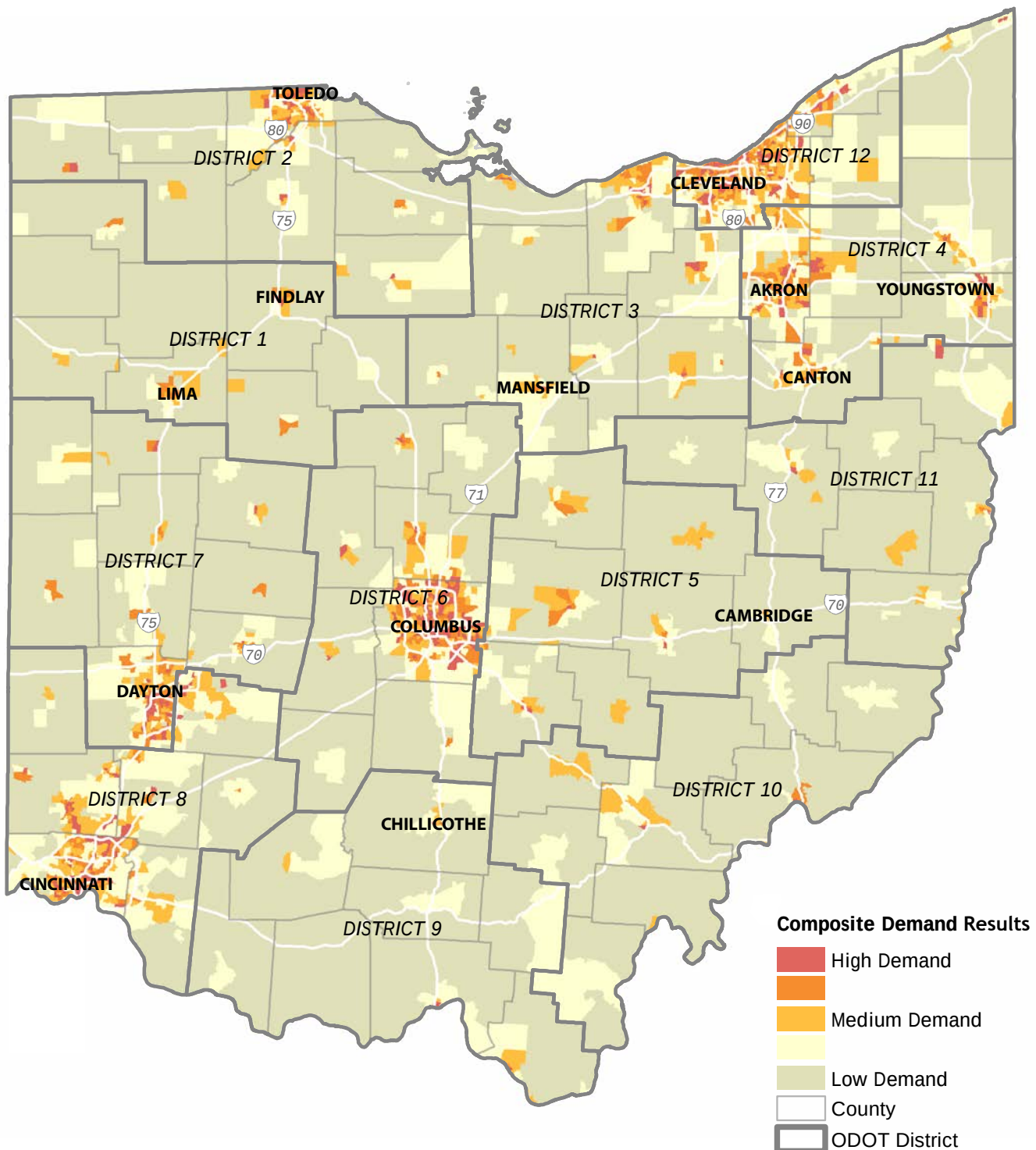
The Composite Demand Map on the next page summarizes the geographic distribution of active transportation demand throughout the State of Ohio. Major urban areas, such as Cleveland, Cincinnati, and Columbus, register as “high demand.” These areas have the highest densities for population, employment opportunities and retail locations within the state. A deeper look at the results at the ODOT district level reveals additional information about particular areas that are high-demand at the downtown and neighborhood level.

While the areas identified as “high demand” tend to fall within Ohio’s urbanized areas, there are numerous census tracts outside of the major cities and MPO boundaries where significant active transportation usage is expected. These pockets of “high demand” in more rural areas of the state are often found in small downtowns, such as Mount Vernon (District 5), Findlay (District 1) and Marysville (District 6). These scores are often driven by the small, dense downtowns with abundant amenities, such as trails and parks.

% of Population (Census Tract) in Each Demand Tier



Composite Demand Results



Combining Need and Demand

A central focus of non-motorized network planning in Ohio is to provide comfortable and continuous bicycle and pedestrian facilities in high need and high demand areas as identified in the Walk.Bike.Ohio Need and Demand Analyses.

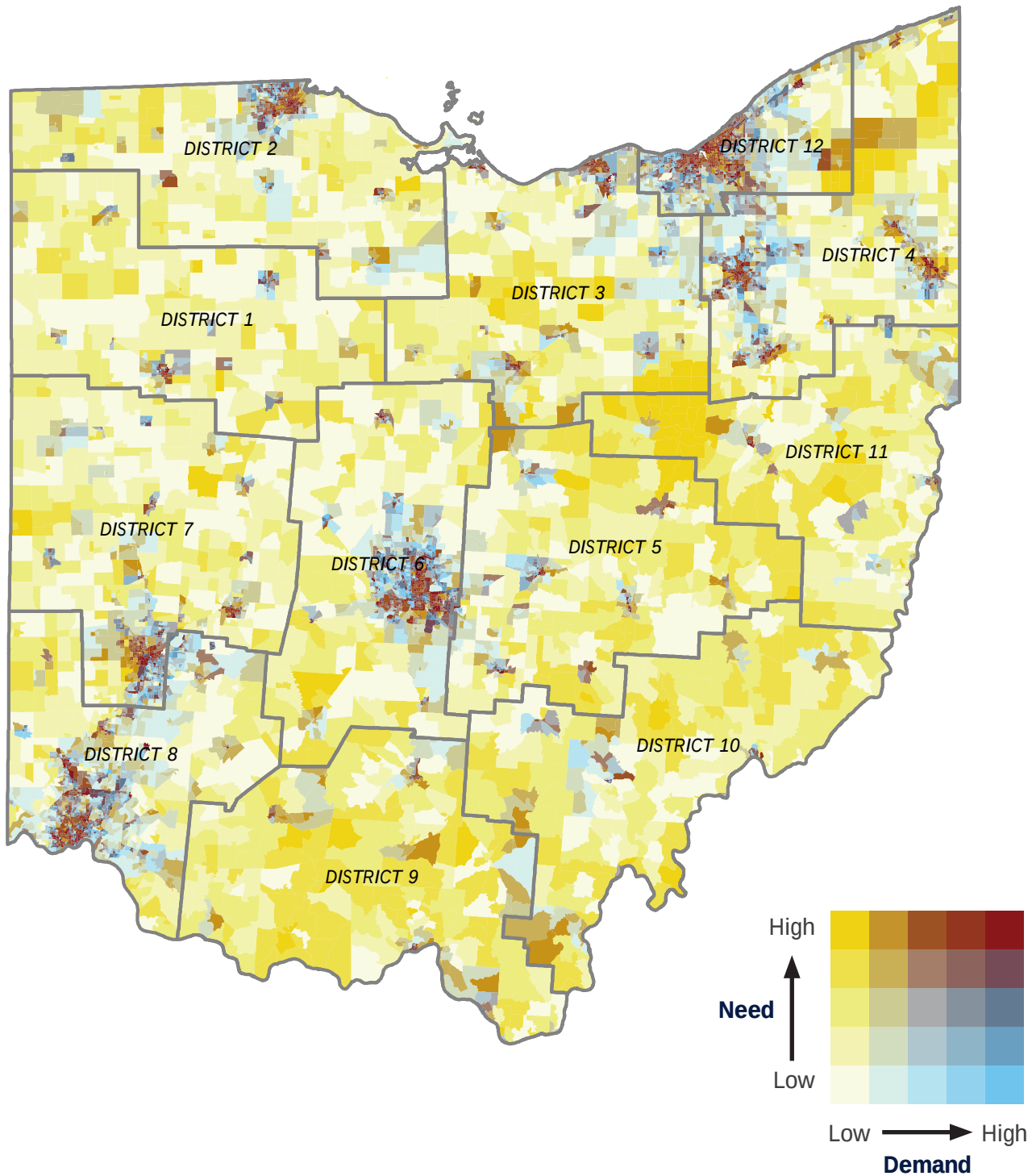
- High need areas are where residents are more dependent on active transportation and transit to connect to basic services that are necessary to live productive, fulfilling and healthy lives. High need areas are spread across the state.
- High demand areas are where factors like density of population, employment opportunities and retail locations make individuals more likely to choose active transportation and transit over other modes of travel such as driving. High demand areas are concentrated in Ohio's urban centers and village centers.

Investments in non-motorized network connectivity in areas categorized as both high need and high demand will have an immediate and high impact. Prioritizing implementation of active transportation infrastructure in high need and demand areas is a strategic way for communities to meet goals related to safety, equity, network utilization and livability while providing connected networks for non-motorized travelers.

The composite State of Ohio Need + Demand Results map on the next page shows that the majority of areas categorized as high need and demand are located in Ohio's largest urban centers – Cincinnati, Dayton, Toledo, Columbus, Cleveland, Akron, Canton and Youngstown. Smaller concentrations of high need and demand areas also occur in Ohio's small city and village centers in rural areas, many of which are built around historic downtowns and walkable street grids.



Combined Need + Demand Results



This data can be explored on ODOT's Transportation Information Mapping System (TIMS) online portal.
<https://gis.dot.state.oh.us/tims/Map/ActiveTransportation>

Mode Share

EXISTING MODE SHARE IN OHIO TODAY

According to the American Community Survey, 2.5% of Ohioans reported walking or biking to work in 2019. While not capturing utilitarian and recreational trips, it is a proxy for understanding trends in bicycling and walking. The table below highlights how Ohio's existing mode share compares to other states within the country and in the great lakes region.

	RANK	BIKE COMMUTE MODE SHARE	WALK COMMUTE MODE SHARE	COMBINED MODE SHARE
Alaska	1st	0.78%	8.0%	8.78%
Maine	10th	0.49%	3.9%	4.39%
Pennsylvania	11th	0.57%	3.8%	4.37%
Illinois	18th	0.6%	3.0%	3.6%
West Virginia	23rd	0.1%	2.9%	3.0%
Michigan	27th	0.4%	2.2%	2.6%
Indiana	28th	0.4%	2.1%	2.5%
Kentucky	28th	0.2%	2.3%	2.5%
Ohio	28th	0.3%	2.2%	2.5%
United States	N/A	0.5%	2.6%	3.1%

Who is Walking and Biking in Ohio?

The percentage of people who walk or bike to work is often a reflection of the presence of comfortable facilities, travel distance and perception of safety. In 2020, ODOT and the Ohio Department of Health released a report called *Active Transportation in Ohio: Who Walks and Bikes?* that describes the demographic and socioeconomic characteristics of adults who regularly walk and/or bike for transportation in Ohio. The report is based on responses from the 2016 ODOT Transportation Preference Survey. Key findings include:

- One out of five survey respondents walked and/or biked at least a few times/week.
- Walking was more common than biking.
- Regular active transportation use was less common in Appalachian counties but was not limited to counties with large urban centers.
- Regular active transportation users included all types of people regardless of sex, age, education and income level.
- Regular active transportation use was equally common within and beyond urbanized area boundaries.
- Living closer to work was associated with regular active transportation use.
- Regular active transportation users who biked were more likely than those who only walked to be male, have higher income, live closer to work, and have a bike.

User Types

An active transportation network is likely to attract a large portion of the population if it is designed to reduce stress associated with potential motor vehicle conflicts and connect people bicycling and walking to where they want to go. The next two sections describe the range of bicycle and pedestrian user types identified through the Walk.Bike.Ohio survey. It should be noted that while over 8,600 surveys were completed, it was not a statistically significant sampling of all Ohioans.



OHIO BICYCLISTS

There are a wide variety of bicyclist user types, often classified into four broad groups as shown in the chart below. Both nationally, and in Ohio, the largest group is the “Interested but Concerned” category which typically accounts for over 50% of the population.

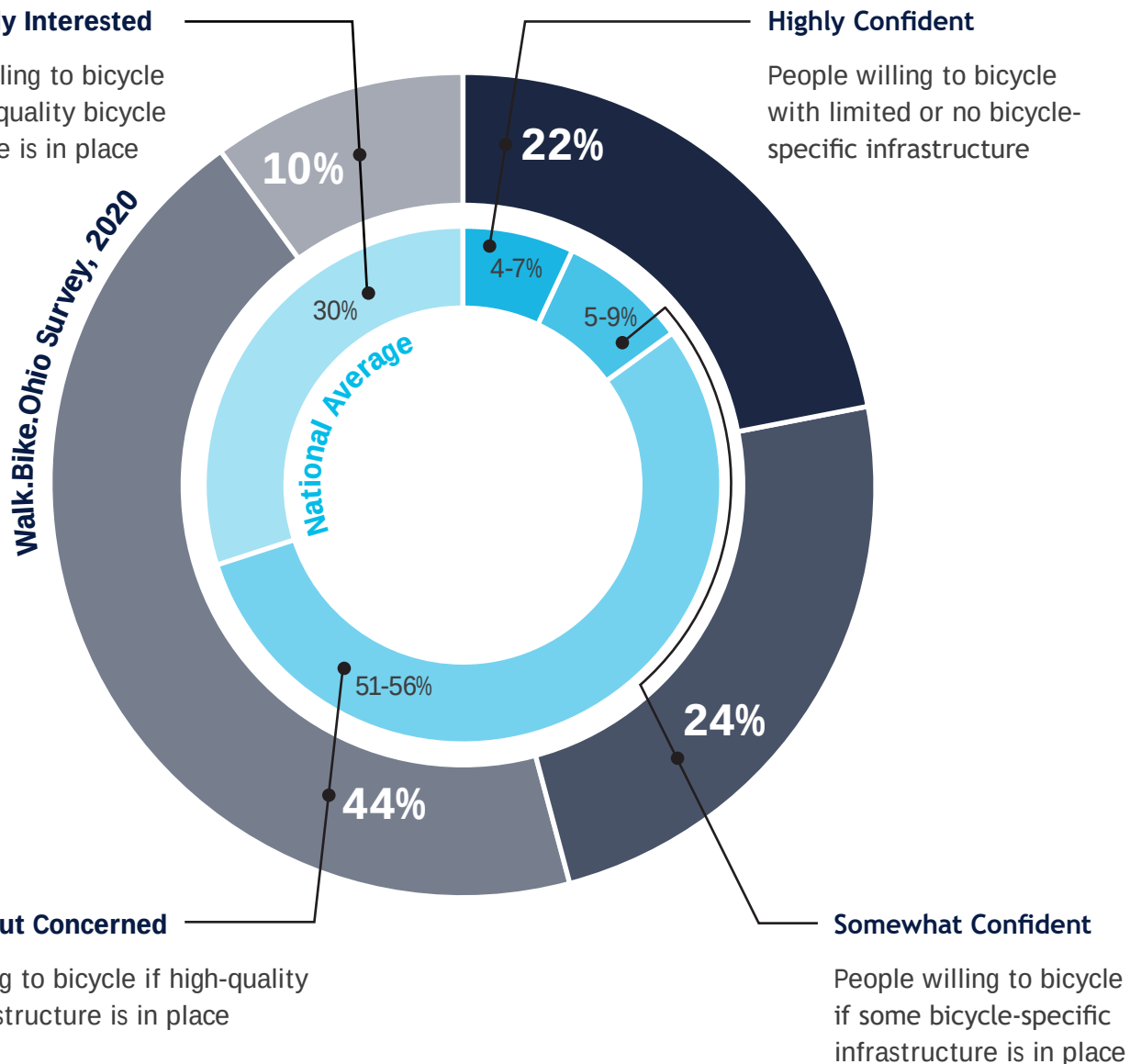
Because the “Interested but Concerned” user classification generally represents all ages and abilities, these users are often the focus of bicycle facility design. By accommodating the needs of these users, all potential users will be served and bicycle activity overall will increase.

Not Currently Interested

People unwilling to bicycle even if high-quality bicycle infrastructure is in place

Highly Confident

People willing to bicycle with limited or no bicycle-specific infrastructure



OHIO PEDESTRIANS

On any given day, most people are pedestrians in some way or another. Whether they are crossing a street to go to school or traveling through a parking lot on their way into the office, they are pedestrians. Whether they are walking, running, in a wheelchair or using a scooter, they are pedestrians. However, not all pedestrians are the same, with Ohioans having a variety of needs, abilities, and possible impairments. One way to understand and classify pedestrians is by looking at age groups and their generalized characteristics.

The table to the right summarizes common pedestrian characteristics for various age groups.

Age	Characteristics	% Ohioans
0-4	Learning to Walk Requires Constant Supervision Developing peripheral vision and depth perception	5.9%
5-8	Increasing independence, but still requires supervision Poor depth perception	5.9%
9-13	Susceptible to “darting out” in roadways Insufficient judgment Sense of invulnerability	6.4%
14-18	Improved awareness of traffic environment Insufficient judgment	6.6%
19-40	Active, aware of traffic environment	31.4%
41-65	Slowing of reflexes	26.5%
65+	Difficulty crossing street Vision loss Difficulty hearing vehicles approaching from behind	17.1%

New Mobility

A wide variety of emerging technologies and transportation change agents under the “New Mobility” umbrella are currently reshaping how Ohioans choose to get around. New Mobility, for the purpose of this document, is transportation services or modes that are enabled, defined or redefined by digital technology. Often, they include features such as apps, real-time information, point-to-point trips, on-demand services, multimodal trips, shared fleets or trip services, and are electric powered. The ever-growing “New Mobility” umbrella includes automated, connected and electric vehicle technology, on-demand ride-sourcing and ride-hailing, enhanced transit, first- and last-mile transit connections, micromobility devices, and dynamic curbside management. These vehicles, devices, technologies and programs are provided using a variety of ownership models: public, private or public-private.

These emerging modes and technologies are being rolled out and used all over the world, including in Ohio. Some examples include:

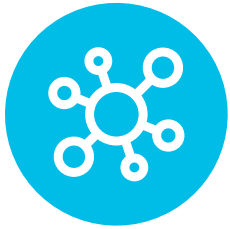
- Electric scooters and bikeshare are already operating in Cincinnati, Cleveland, Columbus, Dayton and Toledo.
- The state is working on a Systems Engineering Analysis project to assist Ohio communities with implementing connected vehicle infrastructure.

LOCAL PILOT PROGRAMS

Cities like Columbus are piloting Mobility-as-a-Service (MaaS) platforms, which consolidate a diverse array of transportation options with a single payment channel using an app, instead of multiple ticketing and payment operations. The app makes it easier for users to combine multimodal trips and compare costs, schedules and travel times.

- Ride-hailing services are present throughout Ohio, and microtransit pilots are underway in Columbus and Grove City.
- Through non-motorized planning and safety initiatives, municipalities are exploring how these new modes interact with, and complement, walking and biking.

New mobility and changing patterns of transportation are directly connected to policy considerations for walking and biking in Ohio. This includes potential sidewalk and bike lane conflict, and decisions regarding safety, curb management and use. Also, many of these technologies enhance the non-motorized travel experience, making multimodal travel more convenient and affordable for users of Ohio’s roadways. Thus, new mobility options may further increase network utilization of pedestrian and bicycle facilities and equitable nonmotorized transportation in Ohio.



Network Connectivity Goal

Promote comfortable and continuous bicycle and pedestrian facilities that connect people to destinations.

Largely due to federal policy and funding, from the middle part of the 20th century to today, automobile-related priorities have been a major focus of transportation agencies across the country. This has had a significant negative impact on the ability of non-motorized users to safely and conveniently navigate the transportation system nationwide, including within Ohio. While bicyclists and pedestrians still have rights to the road, there are obvious challenges and safety concerns for sharing the road. Urban centers feature sidewalks through their original development, but as suburban sprawl occurred, sidewalks and bikeways were often not required with new development, leaving the system for pedestrians and bicyclists fragmented and disconnected with many barriers. Additionally, roadways through urban centers were significantly altered and expanded to accommodate increasing automobile demand from surrounding suburban areas creating significant connectivity and safety concerns. Today, ODOT and its local partners have increasingly begun to develop policies to incorporate pedestrian and bicycle facilities within roadway projects and local development, but the system remains patchwork across much of the state.

This network connectivity section addresses the critical impact of land use and transportation integration, summarizes and analyzes the State and U.S. Bike Route System and its comfort levels, and also describes the gaps in bikeway and walkway data.

Land Use and Transportation

Two of the most influential factors impacting walkable and bikeable communities are land use planning and transportation networks. Over the past 70 years, policies and development that segregated land uses resulted in sprawling development and automobile-centered connectivity. Results from the WBO survey found that barriers to walking and biking more often included destinations being too far away and lack of infrastructure.

Separated land uses can often be reached only by car, adding financial burden to individuals and families to finance personal automobiles and further impacting available transportation options. Pedestrians and bicyclists are impacted directly by land use and transportation decisions, which due to Ohio's home rule status are often made without regional coordination. Travel distances play a major role in one's determination to make that trip by foot or bicycle.

OHIO TRAIL SYSTEM SPOTLIGHT

Ohio's trail system plays a critical role in the active transportation network by bringing people together, providing alternative transportation routes, promoting healthy living, and having a significant positive impact on the state economy.

An interactive map is available of the existing statewide trail network here:
<https://trails.ohiodnr.gov/trails/>



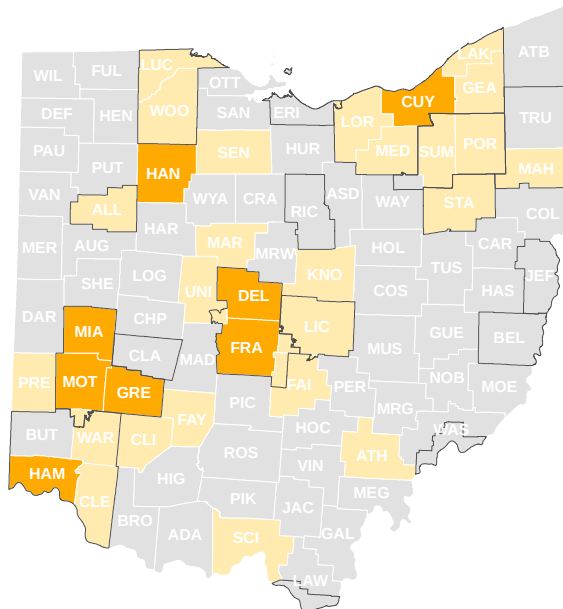
Network Inventory

A complete and well-maintained bicycle and pedestrian facility inventory is a critical first step to fully understand network connectivity. At the statewide level, facility data represents a major data gap and ODOT faces challenges with data collection, inventorying and maintenance. Where available today, non-motorized facility data is most developed and maintained at the regional and local levels due to programmatic needs for planning and operations. Specifically, bike facility data is most frequently developed and maintained by regional planning organizations or other non-profit partners. Pedestrian facility data is typically developed and maintained at the local jurisdiction level (if at all due to amount of effort to collect and maintain).

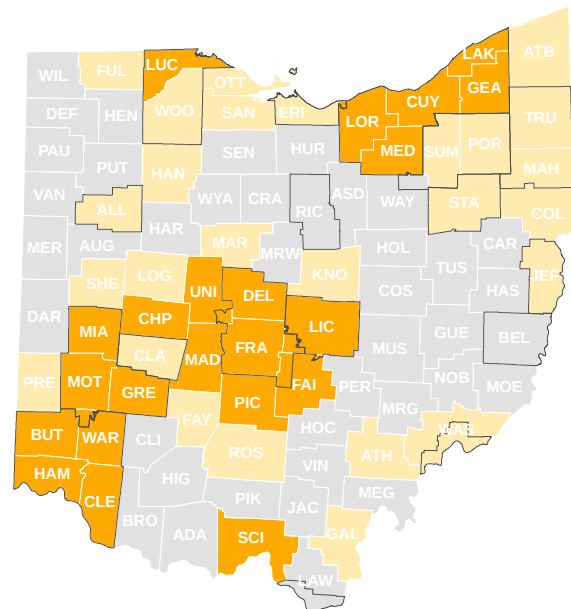
The maps below categorize the availability of pedestrian and bicycle data in Ohio by county into one of three categories:

- **Complete/Near Complete:** Data is available for the entire county or is only missing a minor area of coverage; however, this data may not be the most up to date.
- **Partial/Limited:** Some level of data availability but limited coverage, often limited to a single local municipality within the county.
- **Not Available:** No data could be found for the county or a very minute amount.

Availability of Pedestrian Facility Data



Availability of Bicycle Facility Data



This is not a complete or exhausted inventory of available facility data but an exercise to help illustrate the existing status of pedestrian and bicycle data in the state. The State + U.S. Bike Route System data was not included as part of this assessment.

State and U.S. Bike Route System

Statewide facility data does exist for the State and U.S. Bike Route System, Ohio's strategic bicycling network that was first developed as part of Access Ohio. The system of routes comprise more than 3,000 miles in 76 different counties. The goal of Ohio's State and U.S. Bike Route system is to provide bicyclists with safe and convenient connections to population centers and destinations around the state. This system is intended to serve as a strong backbone that local and regional bike networks can connect to across Ohio. It is important to acknowledge that the findings highlighted below reflect a narrow understanding of the State and U.S. Bike Route System. More analysis and coordination with local jurisdictions and stakeholders is needed to fully understand the comprehensive state of the system.

System Composition

47 miles

Bicycle lanes, including buffered and separated bicycle lanes

169 miles

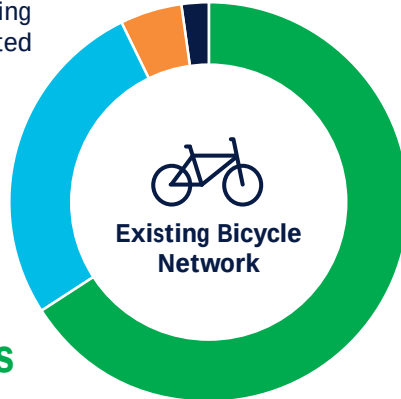
Paved shoulder

900 miles

Shared-use paths

2,185 miles

Shared lanes

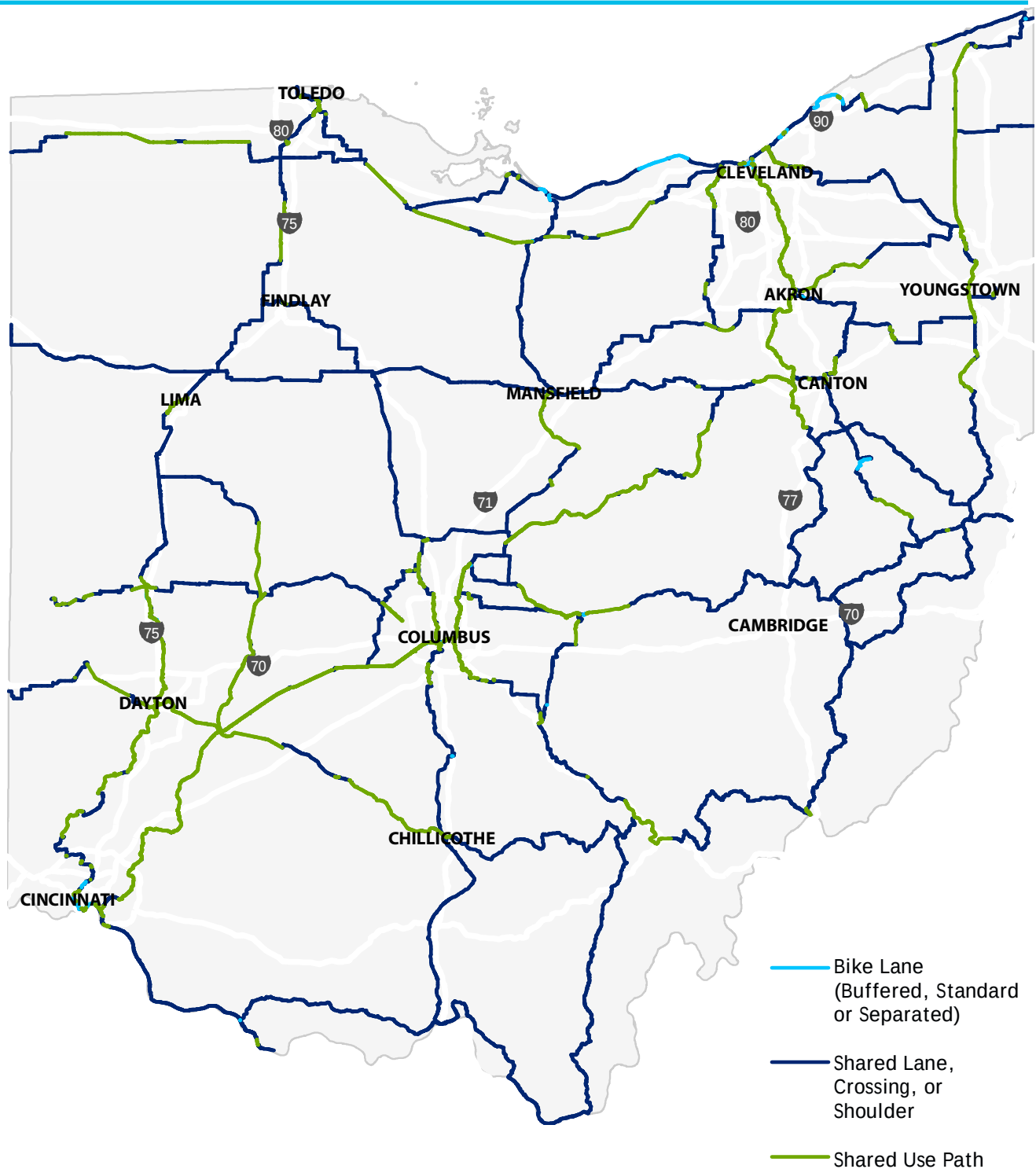


U.S. BIKE ROUTES IN OHIO

There are segments of five U.S. Bike Routes in Ohio, encompassing 1,400 miles. They include USBR 21, 25, 30, 44 and 50. Each ODOT district has at least 150 miles of identified State or U.S. Bike Routes in their jurisdiction. Districts 1 and 12 have the least number of miles, 199 and 162 miles respectively, while Districts 3 and 4 have the greatest number of miles, 366 and 400.

More information on the United States Bicycle Route System (USBRS) can be found here: <https://www.adventurecycling.org/routes-and-maps/us-bicycle-route-system/>

State and U.S. Bike Route System Facility Types



This data can be explored on ODOT's Transportation Information Mapping System (TIMS) online portal.
<https://gis.dot.state.oh.us/tims/>

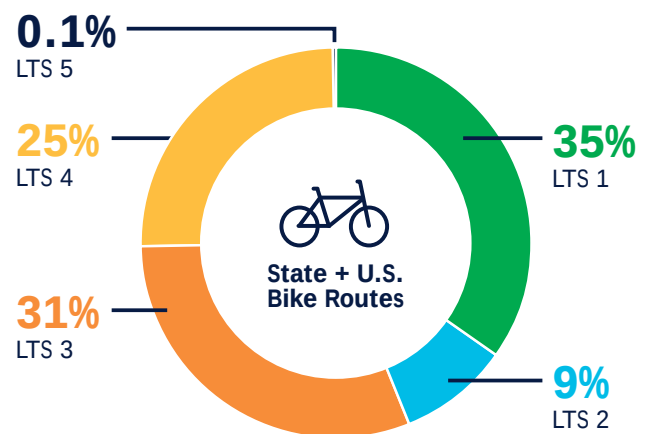
Level of Traffic Stress (LTS) of State and U.S. Bike Routes

As one measurement of the user experience, “traffic stress” is the perceived sense of danger associated with riding or walking in or adjacent to vehicular traffic. The less stressful - and therefore more comfortable - a walking or biking facility is, the wider its appeal to a broader segment of the population with resulting higher utilization rates.

ODOT analyzed the existing State and U.S. Bike Route network using the Level of Traffic Stress Analysis (LTS) which characterizes roadway facilities by their relative stress level to bicyclists based on the “weakest link” principle. This methodology emphasizes the importance of having high quality facility design throughout the duration of a bicycle route. For example, unsafe conditions for bicyclists at one intersection may undermine the LTS score of a roadway segment with high-quality buffered bike lanes implemented on the adjacent roadway. As shown to the right, about half of Ohio’s state bike route system is considered comfortable for the mainstream adult population, an LTS 1 or LTS 2.

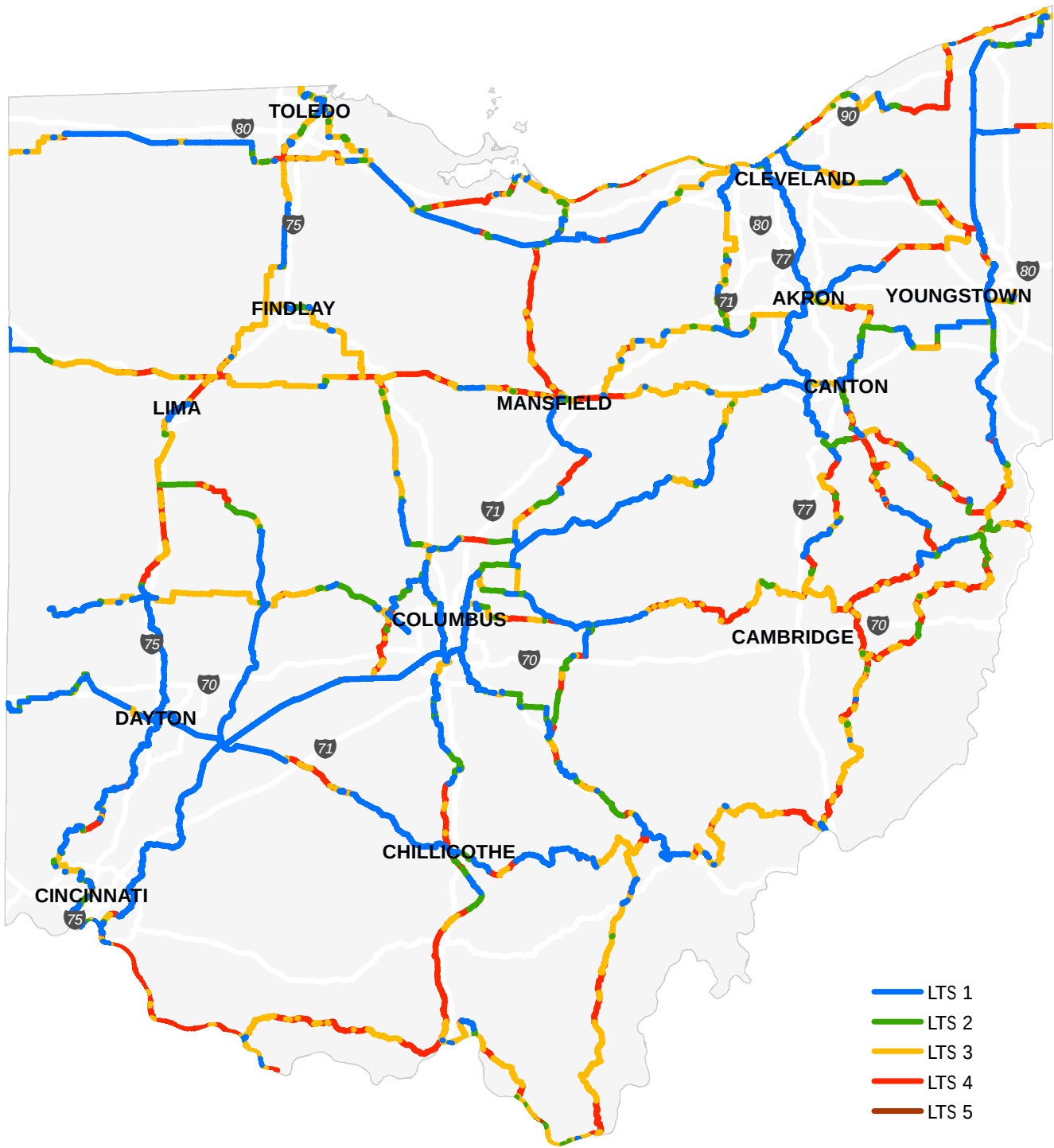


Level of Traffic Stress of State and U.S. Bike Routes in Ohio





Level of Traffic Stress on the State and U.S. Bike Route System





Safety Goal

Reduce bicyclist and pedestrian injuries and fatalities.

Ever since the invention and rapid adoption of automobiles beginning in the early 1900s, severe traffic crashes between automobiles and non-motorized users have been a major issue for the state of Ohio. Systematic development of auto-oriented arterial roadways through urbanized areas has had safety implications for pedestrians, in particular. Suburban development that occurred without sidewalks and bikeways has left gaps in the system and created vulnerability for pedestrians and bicyclists users, many of whom walk and bike out of economic necessity.

Today, Ohio is not trending in the right direction for bicyclist and pedestrian safety. Currently, there are around 850 bicycle and pedestrian fatal or severe injuries on average every year. Pedestrian crashes of all levels of severity are on the rise in Ohio and are concentrated on arterial roadways. Bicyclist crashes are declining overall, but the rate of fatal and severe injuries is increasing with over half the bicyclists killed in suburban and rural contexts with no active transportation facilities or paved shoulders.

A comprehensive safety analysis for pedestrians and cyclists was completed as part of Walk.Bike.Ohio. This analysis identified crash trends, common crash characteristics, demographic attributes, and primary factors that impact safety for people on foot or bike in Ohio. This safety section summarizes bicycle and pedestrian crash rates, crash rates by demand and need, high risk users, and high risk facilities.

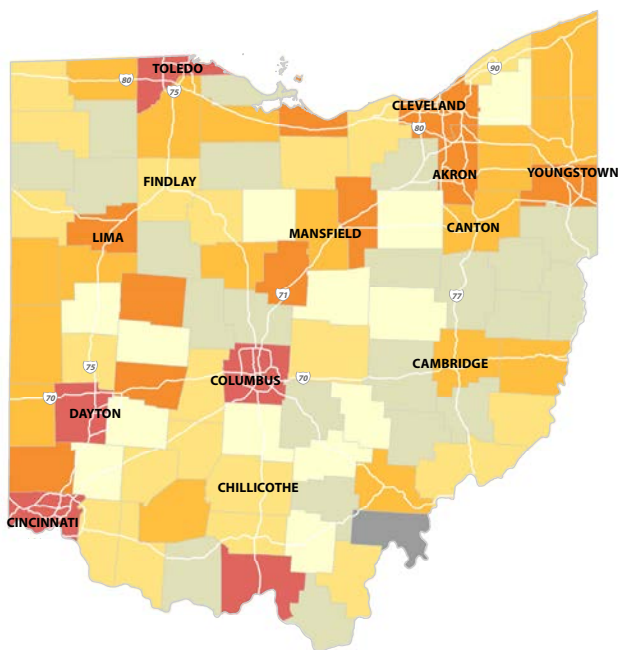
Pedestrian FSI Crash Rate by County

Fatal and Severe Injury (FSI) pedestrian crashes are on the rise, increasing by about 10 per year on average. Between 2009 and 2018, there was an overall 49% increase in fatal crashes. FSI pedestrian crash rates by population for each county are shown in the map below. Several of the more urban counties are highlighted on this map. However, when looking at crashes per population, the more rural Scioto County in the southern part of the state also stands out with a high concentration of FSI pedestrian crashes.

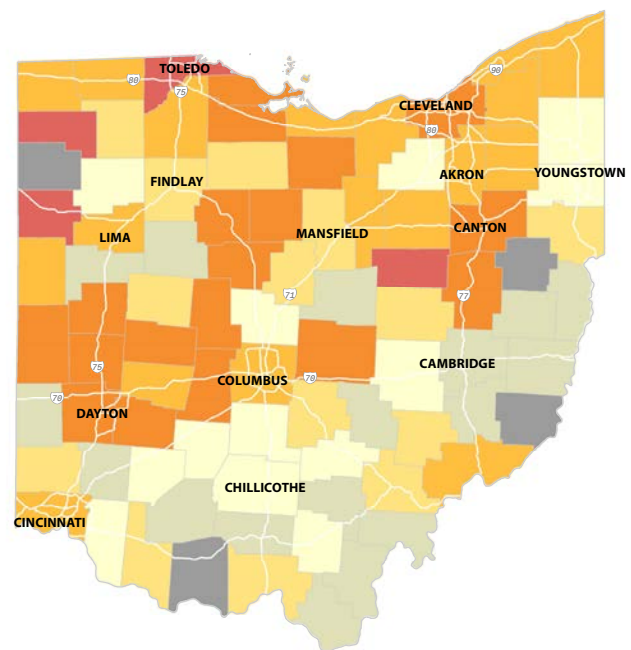
Bicyclist FSI Crash Rate by County

Bicycle fatal crashes showed somewhat of an increase between 2009 and 2018, with an average annual increase of 6% from 2009 to 2018. FSI bicyclist crash rates by population for each county are shown in the map below. Some of the more urban counties are highlighted on this map, including Cuyahoga and Lucas. However, many of the counties that show the highest rates of crashes have relatively low populations and are in rural areas, such as Holmes, Defiance and Van Wert, which have the three highest FSI bicyclist crash rates per population in the state. While these rural counties do not have the highest number of crashes overall, they have relatively low populations, which translates to a high crash rate per population.

Pedestrian Crash Rate by County



Bicyclist Crash Rate by County



FSI Crashes by Need

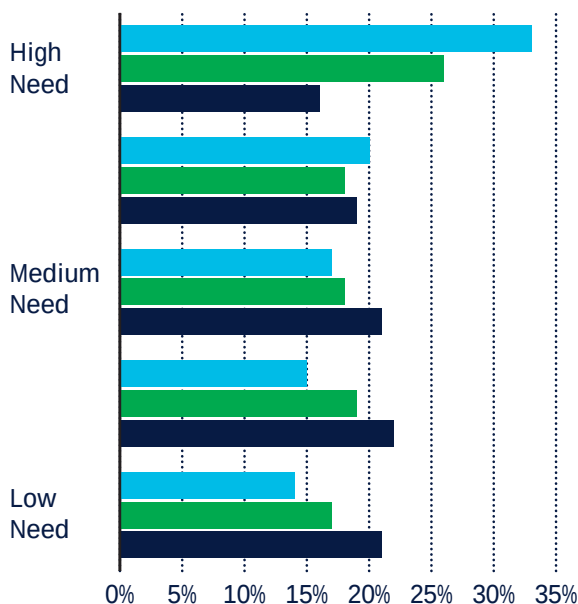
With respect to pedestrian safety, Smart Growth America's 2016 Dangerous by Design report states that "older adults, people of color and people walking in low-income communities are disproportionately represented in fatal crashes involving people walking."²³ In Ohio, 33% of all FSI pedestrian crashes from 2009- 2018 occurred in a block group identified as the highest tier of need in the geographic Need Analysis (see equity section), while only 16% of Ohio's population live in the highest need tier.

In Ohio, 28% of all FSI bicyclist crashes from 2009- 2018 occurred in a block group identified as the highest tier of need in the Need Analysis, while only 16% of Ohio's population live in the highest need tier.

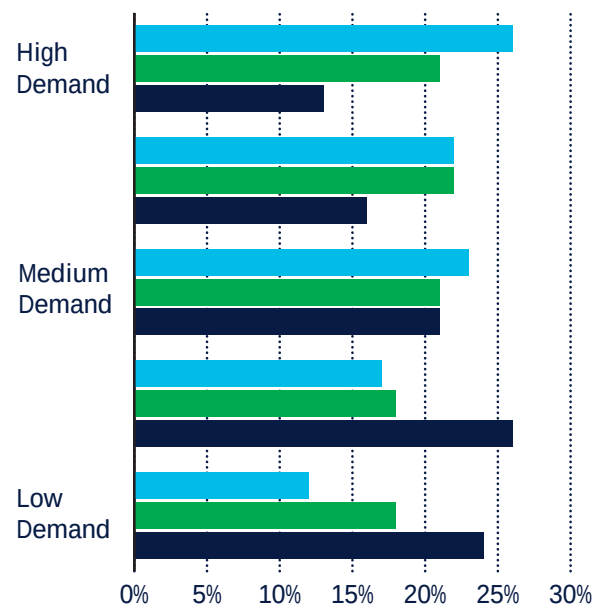
FSI Crashes by Demand

High demand areas in the Walk.Bike.Ohio analysis are locations that feature higher densities of population and destinations. In Ohio, although only 13% of the state's population lived within an area in the highest demand tier, 26% of all FSI pedestrian crashes and 21% of all FSI bicyclist crashes from 2009-2018 occurred within a high demand area of the state.

Crashes by Need Tier



Crashes by Demand Tier



■ % FSI Pedestrian Crashes
 ■ % FSI Bicyclist Crashes
 ■ % Ohio's Population

High Risk Users

FATAL PEDESTRIAN CRASHES BY RACE

The table below shows an annual breakdown of fatal pedestrian crashes in Ohio by race based on Fatality Analysis Reporting System (FARS) data reported for 2009 through 2017. Since 2009, people identified as non-white have accounted for between 18% and 34% of all fatal pedestrian crashes. Though not tested for statistical significance, this is a general indicator that pedestrian crashes disproportionately affect people of color and this trend has occurred with greater frequency in recent years.

Year	Non-White		White		Total
	#	%	#	%	
2009	15	18%	70	82%	85
2010	23	25%	70	75%	93
2011	20	19%	84	81%	104
2012	22	19%	91	81%	113
2013	20	24%	64	76%	84
2014	20	23%	67	77%	87
2015	29	25%	87	75%	116
2016	45	34%	89	66%	134
2017	43	30%	99	70%	142

FATAL BICYCLIST CRASHES BY RACE

The table below shows an annual breakdown of fatal bicyclist crashes in Ohio by race, based on FARS data reported for 2009 through 2017. Since 2009, people identified as non-white have accounted for between 5% and 54% of all fatal bicyclist crashes.

Year	Non-White		White		Total
	#	%	#	%	
2009	3	16%	16	84%	19
2010	3	23%	10	77%	13
2011	4	24%	13	76%	17
2012	2	11%	16	89%	18
2013	1	5%	18	95%	19
2014	7	54%	6	46%	13
2015	10	34%	19	66%	29
2016	3	15%	17	85%	20
2017	2	11%	17	89%	19

Note: The shading highlights the years that the rate of people identifying as non-white and involved in a fatal crash exceeds the total percent of people identifying as non-white.

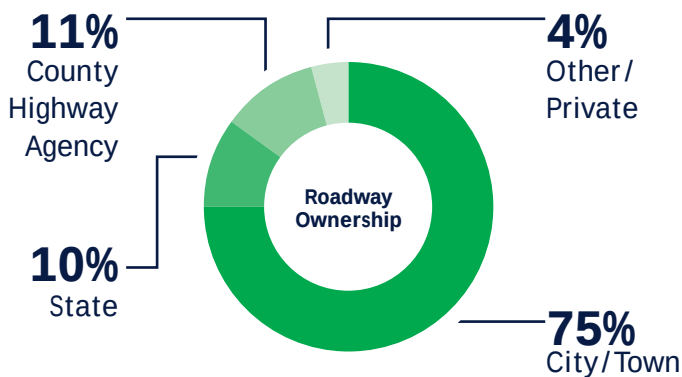
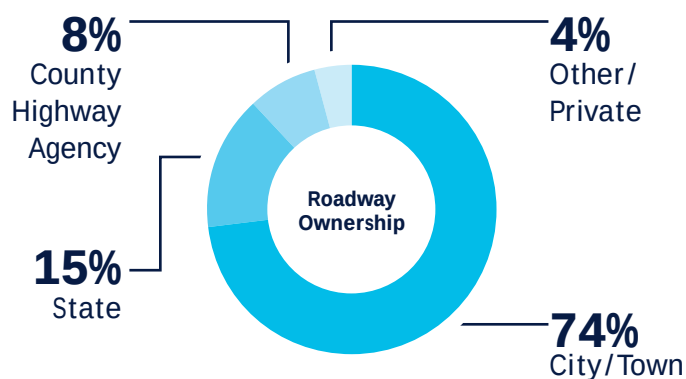
High Risk Facilities

ROADWAY CLASSIFICATION AND OWNERSHIP

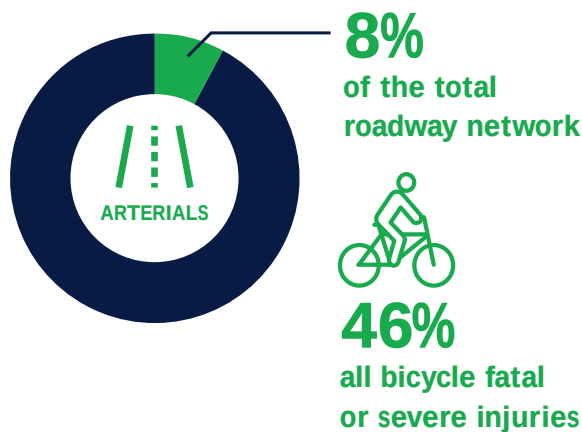
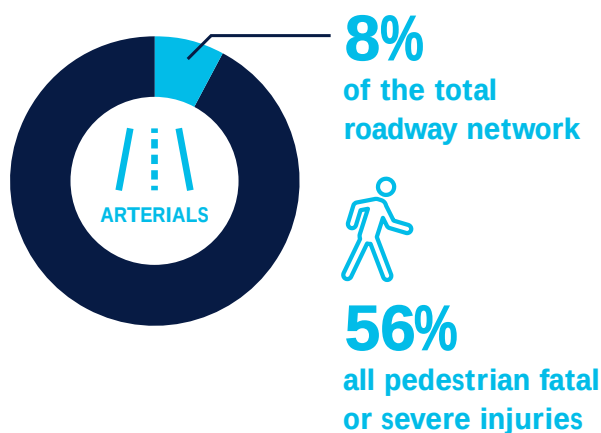
A majority of FSI pedestrian crashes (56%) and bicyclist crashes (46%) occurred on arterial roadways which only represent 8% of the total roadway network.

FSI bicyclists crashes (75%) and pedestrian crashes (74%) most commonly occurred on roadways owned and maintained by cities and towns.

FSI Crashes by Roadway Ownership



FSI Crashes on Arterials





Livability Goal

Improve the quality of life for all Ohioans.

Livability is the sum of the factors that add up to a community's quality of life. It includes the natural and built environments, social conditions, economic conditions, and the health of local residents. Ohio's transportation system plays a role in livability by its impact to the built environment, and thus its contribution to human behavior and both health and environmental outcomes. Today, Ohio is one of the least healthy states in the country, falling behind on physical activity. This is due to a large number of factors; however, the built environment does impact the ability of Ohio residents to have adequate options for walking and bicycling for both transportation and exercise. In addition, with auto-oriented lifestyles, increased emissions add to the air quality issues faced by Ohio. Finally, transportation costs are a burden to some Ohioans, contributing to economic instability for families.

This livability section examines health trends for Ohioans, the numerous economic benefits of bicycling and walking, and the impact of transportation choices on air quality.

Ohio Health Facts

In order to implement solutions that positively impact the health of residents in every community, there must be a baseline measure and consideration of the current health status of Ohio communities. These health facts were provided by the Ohio Department of Health (ODH).



In 2018, 21% of adults in Ohio reported having more than one chronic disease. Ohioans also have a higher prevalence of chronic disease compared with the United States.²⁴



In 2018, Ohio ranked 40th in the United States for overall health outcomes and 47th for health behaviors, which include obesity and physical inactivity.²⁵



Ohio has the 10th highest obesity rate for youth ages 10-17 in the country, at a rate of 17%.²⁶ According to ODH, children with obesity are at increased health risk for problems like high blood pressure, high cholesterol, diabetes, asthma and joint problems. Additionally, children with obesity are more likely to become adults who have obesity.²⁷



In 2017, only 19% of adults aged 18-64 in Ohio met federal guidelines for aerobic and muscle-strengthening activity during leisure time.²⁸



The American Community Survey found that 82% of workers in Ohio drive or ride in a private vehicle to commute, sitting on average for 25 minutes each way.

Health Indicator Analysis

Transportation systems are the nexus between the resources that impact the social and physical determinants of health. Health indicators such as cardiovascular health, food security and access, mental health, physical health and risk factors help illustrate health issues that can be impacted by safe walking and biking infrastructure. A WBO Health Indicator Analysis was completed that focuses on the primary health indicators listed below due to their ability to be highly influenced by an individual's physical activity or a community's built environment. The indicators were analyzed at the county level, the smallest geographic level for which health data could be sourced.

COMPOSITE RESULTS

The scores for each indicator were summed by county to create a total composite health snapshot score. The highest composite scores highlight counties with above-average values for many of the health indicators included in the analysis. This indicates a concentration of several health issues. The composite scores are shown in the map on the next page.

There is a significant concentration of counties with high composite health scores in the southeastern quadrant of the state, encompassing ODOT Districts 9, 10, 5 and 11. The counties with the highest concentration of health issues include: Lawrence, Meigs, Morgan, Jackson, Champaign and Hardin.

Health Indicators



PHYSICAL INACTIVITY: Percentage of adults that report no leisure-time physical activity²⁷



OBESITY: The proportion of adult respondents whose BMI was greater than or equal to 30.0²⁷



ACCESS TO EXERCISE OPPORTUNITIES: Percentage of the population without access to places for physical activities²⁹



HYPERTENSION: The proportion of adults who reported ever being told by a health professional that they have high blood pressure²⁷

Composite Health Results

Low
 ↑
 Concentration of Health Issues
 ↓
 High

County
 ODOT District

Economic Impact

Active transportation provides many societal and personal benefits. Most of these benefits also have a positive economic impact. Investments in Ohio's walking and biking network contribute directly and indirectly to the state economy and improve residents' quality of life.

The economic benefits of active transportation include:

- ▼ Reduction in road construction, repair and maintenance costs
- ▼ Reduction in costs due to greenhouse gas emissions
- ▼ Reduction in health care costs due to increased physical activity and reduced respiratory and cardiac disease
- ▼ Reduction in fuel, repair and maintenance costs to users
- ▼ Reduction of costs due to increased road safety
- ▼ Reduction in external costs due to traffic congestion
- ▼ Reduction in parking subsidies
- ▼ Reduction of costs due to air pollution
- ▼ Reduction of costs due to water pollution
- ▲ Positive economic impact of bicycle tourism
- ▲ Positive economic impact of bicycle sales and manufacturing



- ▲ Increased property values along greenways and trails
- ▲ Increased productivity and a reduction of sick days and injuries at the workplace
- ▲ Increased retail sales in pedestrian-friendly areas

An economic impact analysis was completed as part of Walk.Bike.Ohio to look at the estimated number of bicycling and walking trips in Ohio by residents each year, the estimated number of motor vehicle trips reduced by walking and biking trips, and the resulting transportation and environmental benefits.

Existing Walking and Biking Trips in Ohio...



can help residents save

\$12.7 Billion

in transportation and environmental costs...

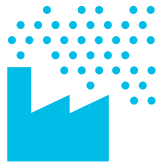
...over the next 20 years.

Environment and Air Quality

Providing environments for safe and efficient walking and biking can encourage people to replace some driving trips with these human-powered modes. Such efforts can help to improve the environment in Ohio by lowering vehicle emissions resulting in cleaner air, healthier communities and preserving valuable natural resources.



Transportation made up 29% of U.S. greenhouse gas emissions in 2017.³⁰ In 2015, transportation produced about 30% of Ohio's carbon dioxide emissions, second only to the energy sector.³¹



Ohio is ranked 45th in the country for air pollution and poor air quality.³²



If Ohio's bicycle and walk rate increased just over 1%, an additional 2.6 million metric tons of emissions could be prevented from entering the atmosphere over a 20-year period. This is equivalent to an additional \$179.1 million in mitigation cost savings.



Preservation Goal

Ensure critical existing infrastructure is in a state of good repair.

ODOT and local governments are responsible for maintaining their transportation networks, including walkways and bikeways. Depending on the municipality, the maintenance of sidewalks is also spread out to private residents and developers. Current sidewalk deficiencies have accumulated over decades of neglect, particularly in Ohio's oldest cities with aging infrastructure. In addition, there are generally more federal and state capital dollars for sidewalk, trail, and bikeway construction as opposed to maintenance. The lack of maintenance dollars and resources is one of the primary barriers for agencies wanting to develop facilities.

As described in the network connectivity section, there are gaps in mapped, active transportation facilities; even more lacking are databases of sidewalk, bikeway, and trail condition. This preservation section summarizes maintenance procedures in Ohio, the impact of home rule status, and the challenge of maintaining networks across jurisdictions.

Maintenance in Ohio

With the current legislative authority, ODOT is responsible for the construction, reconstruction and maintenance of all interstate routes and all non-incorporated U.S. routes and state routes. In total, ODOT preserves and maintains 43,000 miles of roads and 14,000 bridges. In FY 2017, ODOT spent a little under \$2.2 billion on maintenance, 65% of its total spending.

Non-incorporated U.S. routes and state routes currently are the only places where ODOT has maintenance jurisdiction where bike lanes or sidewalks might be located. All other responsibilities for roadway maintenance are carried out by local entities, such as county, city, village, township, or other bodies such as division of parks and recreation, railroad owner, private owner, toll road owner or through maintenance agreements. Depending on the policies of each jurisdiction, sidewalk maintenance can be

the responsibility of the property owner, the jurisdiction or combination of both.

ODOT published the Roadway Infrastructure Maintenance Responsibility (RIMR) manual in March 2015 to clearly identify which agency is responsible for roadway facility maintenance. Bicycle and pedestrian maintenance activities are grouped within the general roadway maintenance categories listed in the RIMR. ODOT performs a variety of routine sidewalk and bicycle facility maintenance. ODOT crews perform surface repair, striping/delineation, signage upkeep, landscaping maintenance, culvert inspection, clearing and repair, and other miscellaneous work as needed including snow removal, sweeping and litter removal.



Home Rule Impact

Section 3 of Article XVIII of the Ohio Constitution reads, “Municipalities shall have authority to exercise all powers of local self-government and to adopt and enforce within their limits such local police, sanitary and other similar regulations, as are not in conflict with general laws.” This is the foundation of the home rule status in Ohio.

Municipalities, counties, and townships have the authority and responsibility to develop and implement their own transportation plans and policies. This gives local government entities significant autonomy from state laws and regulations. Effectively, construction, reconstruction, maintenance, repair and regulation of state routes and municipal streets within municipal boundaries is the responsibility of the municipalities. This includes sidewalks and bikeways.

Because of home rule, roadway, bikeway and sidewalk maintenance is handled inconsistently across jurisdictions, irrespective of pedestrians and bicyclists who cross those jurisdictions. A bike lane that is swept through one municipality and not maintained in another leads to a fragmented, disconnected network. ODOT and local municipalities need to collaborate to ensure safe, accessible bicycle and pedestrian travel across borders. This is a challenge depending upon the priorities and funding availability of each municipality.



Ohio has more than **1,000 local governments**, including villages, townships, cities, and counties.

Facility Maintenance

Bicyclists and pedestrians depend on a network of bikeways and walkways to make their trips. They are also impacted by the condition of the facility. In Ohio today, preventive maintenance on sidewalks and bike lanes is often incorporated into routine roadway maintenance to reduce hazards for users and the life cycle cost of facilities. However, ongoing upkeep of active transportation facilities is needed to encourage mode shift by ensuring reliable conditions and accessibility of the bicycle or pedestrian facility. Neglect of bicycle and pedestrian facilities reduces active transportation accessibility and comfort, and increases the risk of hazards along the facility.

Maintenance was cited often by stakeholders as an issue for active transportation in Ohio, particularly in the “rust belt” portions of the state. Active transportation facility maintenance requires a dedicated commitment of resources which can be challenging for both the state and localities.

WBO USER SURVEY SPOTLIGHT

23% of survey respondents said that the **poor condition of infrastructure was a barrier to walking**, and

22% said it was a **barrier to biking**.

Winter Maintenance

A winter maintenance program is crucial to providing year-round accessibility for bicycling and walking. Slick and snowy sidewalks and bike lanes are a problem for all pedestrians and bicyclists. When curb ramps and sidewalks are blocked by snow, it can pose serious mobility issues and is especially impactful for people that don't have access to a vehicle and individuals with physical impairments.

In Ohio, the responsibility for removing snow and ice from sidewalks typically lies with the local jurisdiction or the adjacent property owner. The removal of snow and ice from sidewalks and pathways can be a significant undertaking for local government authorities and adjacent property owners. Furthermore, roadway plowing often pushes piles of snow into pedestrian curb ramps and crosswalks. Melting snow can pool at curb ramps built without proper sloping and cause ice to form, resulting in a slippery walking surface for pedestrians. ADA-compliant pedestrian warning ramps may present issues for snow and ice clearing due to the presence of truncated domes.

Appendix C

Supporting Documents



Supporting Documents

Existing Condition Resources

As part of the development of Walk.Bike.Ohio, a series of memorandums and reports that highlight existing conditions, data, policies, and practices around active transportation were developed. The documents listed below serve as resources for practitioners around the state and are available on the Walk.Bike.Ohio website: <http://transportation.ohio.gov/walkbike>. In addition, data is available on ODOT's Transportation Information Mapping System (TIMS) online portal: <https://gis.dot.state.oh.us/tims/Map/ActiveTransportation>.

- **State and U.S. Bike Route Review** – A summary and evaluation of the 3,000+ mile bike route system
- **Demand Analysis** – A summary of the demand analysis model used for the state of Ohio to identify areas of potential pedestrian and bicyclist demand
- **Needs Analysis** – A summary of the needs analysis model used for the state of Ohio to identify areas of potential pedestrian and bicyclist need
- **Economic Impact Analysis** – A summary of transportation and environmental benefits created by bicycling and walking trips
- **Health Assessment** – A summary of Ohio health rankings, state health snapshot, and health indicators in Ohio
- **Health Impact Analysis** – A memorandum that models the impact of physical activity/active transportation and health outcomes
- **Bicycle Safety** – An analysis and summary of fatal and serious bicyclist crash data
- **Pedestrian Safety** – An analysis and summary of fatal and serious pedestrian crash data
- **User Types and Facilities** – A summary of land use/transportation, user types, user experience, and facility types
- **Maintenance** – A summary of ODOT maintenance responsibilities and activities, local sidewalk maintenance, winter maintenance, and maintenance funding
- **Funding** – A summary of federal and state funding sources for active transportation
- **Existing Conditions Summary Report** – A high-level summary of existing conditions provided in one document, including mode share, need and demand, safety analysis, health assessment, bike route system, funding, maintenance, policy, data, public feedback, and user types
- **New Mobility** – A resource for ODOT employees, MPOs, and local policymakers looking to manage new mobility technologies in their communities by providing a scan of current new mobility modes and policies in Ohio

Design Guidance

The table below provides references to research, resources, and guidance on designing for pedestrians and bicyclists.

Title	Author	Date
National Resources		
Achieving Multimodal Networks: Applying Design Flexibility and Reducing Conflicts	FHWA	September 2016
FHWA Memorandum: Bicycle and Pedestrian Facility Design Flexibility	FHWA	August 2013
Pursuing Equity in Pedestrian and Bicycle Planning	FHWA	May 2016
Strategic Agenda for Pedestrian and Bicycle Transportation	FHWA	September 2016
FHWA Guidance: Bicycle and Pedestrian Provisions of Federal Transportation Legislation	FHWA	December 2015
Highway Capacity Manual	Transportation Research Board (TRB)	2010
Case Studies in Delivering Safe, Comfortable, and Connected Pedestrian and Bicycle Networks	FHWA	December 2015
Designing Walkable Urban Thoroughfares: A Context Sensitive Approach	ITE	2010
FHWA Memorandum: Proven Safety Countermeasures	FHWA	January 2015
Guidebook for Developing Pedestrian and Bicycle Performance Measures	FHWA	March 2016
Road Diet Informational Guide	FHWA	2014
Pedestrian and Bicycle Funding Opportunities	FHWA	August 2016
Bicycle and Pedestrian Funding, Design, and Environmental Review: Addressing Common Misconceptions	FHWA	August 2015
Transit Street Design Guide	NACTO	April 2016
Small Towns and Rural Multimodal Networks	FHWA	December 2016
National Resources - Accessibility		
Public Rights-of-Way Accessibility Guidelines (PROWAG)	U.S. Access Board	2011
Supplemental Notice of Proposed Rulemaking (SNPRM) on Accessibility Guidelines for Shared Use Paths	U.S. Access Board	2013



Design Guidance (continued)

Title	Author	Date
National Resources - Pedestrian-Specific		
Guide for the Planning, Design, and Operation of Pedestrian Facilities	AASHTO	July 2004
Urban Street Design Guide	NACTO	October 2013
National Resources - Bicycle-Specific		
Guide for the Development of Bicycle Facilities	AASHTO	2012
Separated Bike Lane Planning and Design Guide	FHWA	May 2015
Urban Bikeway Design Guide	NACTO	March 2014
Bicycle Facilities and the Manual on Uniform Traffic Control Devices	FHWA	December 2015
Incorporating On-Road Bicycle Networks into Resurfacing Projects	FHWA	March 2016
Separated Bike Lane Design Guide	MassDOT	2015
Bicycle Network Planning and Facility Design Approaches in the Netherlands and the United States	FHWA	April 2016
Bikeway Selection Guide	FHWA	February 2019
Ohio Resources		
Project Development Process Manual (Appendix B)	ODOT	
Ohio Location and Design Manual	ODOT	
Ohio Manual on Uniform Traffic Control Devices (MUTCD)	ODOT	
Ohio Traffic Engineering Manual	ODOT	
Pavement Design Manual	ODOT	
Ohio Temporary Traffic Control Manual	ODOT	
Standard Construction Drawings	ODOT	
Sign Designs and Markings Manual	ODOT	
Roadway Standards Approved Products	ODOT	