



**ACTIVE
TRANSPORTATION
PLAN DEVELOPMENT
GUIDE**

2021

THIS PAGE IS INTENTIONALLY LEFT BLANK.



ACKNOWLEDGMENTS

The completion of the Active Transportation Plan Development Guide was made possible through the collaboration and assistance of many partners. The Ohio Department of Transportation would like to thank participants in a series of regional roundtables, who provided direction and feedback on the guide, and the consultant team.

REGIONAL ROUNDTABLE PARTICIPANTS

Bike Buckeye Lake
 Bike Cleveland
 Bike Miami Valley
 Buckeye Hills Regional Council
 City of Cleveland
 City of Dayton
 City of Lakewood
 City of Oberlin
 City of Xenia
 Cleveland Metroparks
 Cuyahoga County Planning Commission
 Lorain County Public Health
 Miami Valley Regional Planning Commission
 Midtown Cleveland
 Northeast Ohio Areawide Coordinating Agency
 Ohio Department of Health
 Perry County Health Department
 Perry County Job and Family Services
 University Circle
 Village of New Lexington
 Village of Springboro
 Village of Yellow Springs

CONSULTANT TEAM

TOOLE
 DESIGN

CONTENTS

EXECUTIVE SUMMARY	2
CHAPTER 1: INTRODUCTION	16
CHAPTER 2: DEFINE THE SCOPE.....	28
CHAPTER 3: ENGAGE THE COMMUNITY	36
CHAPTER 4: DEVELOP A VISION AND GOALS.....	56
CHAPTER 5: ASSESS EXISTING CONDITIONS	62
CHAPTER 6: IDENTIFY PROPOSED PROJECTS AND PROGRAMS	108
CHAPTER 7: PRIORITIZE PROPOSED PROJECTS	131
CHAPTER 8: IMPLEMENT THE PLAN.....	145
APPENDICES	154



FIGURES

Figure 1: Walk Bike Ohio Goals	19
Figure 2: Active Transportation Plan's relation to other plans and initiatives	20
Figure 3: Plan development schedule	33
Figure 4: IAP2 Spectrum of Public Participation (credit: IAP2).....	37
Figure 5: A map of existing conditions from the City of Hamilton's ATP.....	63
Figure 6: TIMS web-mapping portal.....	64
Figure 7: Bicycle Level of Traffic Stress and corresponding facility types.	87
Figure 8: This map shows parcels within 1/4 mile and 1/2 mile walking distance of a potential Bus Rapid Transit.	92
Figure 9: This map shows setback lengths along a study corridor.	93
Figure 10: Example processes for assessing existing conditions by level of effort required.....	106
Figure 11: Developing Active Transportation Recommendations.....	111
Figure 12: Rural bicycle facility selection guidance	117
Figure 13: Urban bicycle facility selection guidance	117
Figure 14: Bicyclist Design User Profiles	120
Figure 15: Pedestrian Design User Profiles	121
Figure 16: Stakeholder voting results for Perry County's ATP recommendations.....	132

TABLES

Table 1: Summary of Community Engagement Strategies	6
Table 2: Summary of Existing Conditions Analyses	9
Table 3: Active Transportation Related Initiatives, Plans, and Programs	21
Table 4: Summary of Community Engagement Strategies	41
Table 5: Summary of Existing Conditions Analyses	72
Table 6: LTS Scores.....	88
Table 7: Estimated posted speed limits based on functional classification.....	88
Table 8: Sample project prioritization framework.....	132
Table 9: Active Transportation Design Resources.....	142
Table 10: Implementation Responsibility of Agencies/Organizations in Ohio	146
Table 11: ATP Adoption Process	150
Table 12: Count Technology Options.....	164
Table 13: Recommended Bike Network Schema	174
Table 14: Recommended Pedestrian Network Schema.....	180
Table 15: Intersections (points).....	182
Table 16: Intersections (lines)	182
Table 17: Project Prioritization Criteria	183

THIS PAGE IS INTENTIONALLY LEFT BLANK.





EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

ODOT's Active Transportation Plan Development Guide is a resource for local and regional planning organizations developing active transportation plans in Ohio. It encompasses national best practices in active transportation planning and guides communities through a seven-step process for creating their own active transportation plans, described below.

Communities may use this document in concert with ODOT's [Active Transportation Plan Template](#). The template provides tools and resources for communities to complete their plans, including Microsoft Word and PowerPoint files with sample language and customizable graphics.



Chapter 1: Introduction

Chapter 1 begins with basics, defining active transportation as human-powered travel that engages people in physical activity while they travel from place to place and reinforces that bicycling and walking are valid forms of transportation.

It describes active transportation plans (ATPs), which outline the vision, goals, and strategies needed to support safe, convenient, and accessible active transportation options. An ATP may be developed at any geographic scale and in a variety of contexts: urban, suburban, and rural. It should identify a combination of programs, policies, and infrastructure improvements to meet the needs of people walking and bicycling.

ATPs come in all shapes and sizes depending on a community's geography, scale, budget, priorities, timeline, and resources. While ATPs can be used as a tool for planning broadly at the state level or more specifically at the corridor level, these plans are

most commonly developed for local jurisdictions or a region.

Local plans are the most common type of ATP. Communities can develop standalone active transportation plans or integrate active transportation into their comprehensive plans or transportation master plans.

Regional plans coordinate a comprehensive approach to walking and bicycling infrastructure and programs across many jurisdictions. Regional networks link communities and connect to local networks to support shorter trips for both pedestrians and bicyclists.

Chapter 1 presents the many other types of plans and initiatives that overlap with active transportation planning, and the need for coordinating the development of ATPs with these efforts:

Transportation master plans most commonly include Long Range Transportation Plans (LRTPs), thoroughfare plans, or transportation elements of comprehensive plans.

Vision Zero is an approach to transportation safety that aims to eliminate serious injury and fatal crashes.

Complete Streets policies ensure roadway improvements serve all modes of transportation.

Safe Routes to School programs encourage and enable students in grades K-8 to walk or ride their bicycle to school.

Lastly, Chapter 1 describes the key steps in developing an ATP, which the remaining chapters describe in greater detail.





Chapter 2: Define the Scope

Defining the scope of your ATP is an important first step in the plan development process. Chapter 2 includes the following sections:

Establish the plan's purpose: Before the planning process begins, it is important that the primary participants have a common understanding of the objectives, time frame, geographic focus, and cost of the ATP.

Determine the project area: To clearly define the ATP's scope of work and purpose, the project team should identify a geographic focus area.

Assess available resources: The amount of available resources will dictate the breadth and depth of the ATP and help determine if additional assistance is needed.

Identify a project team: Planning for and developing an ATP requires the involvement of people from many disciplines, and it is important to be clear about everyone's role in the process from the outset.

Identify key stakeholders and audiences: Some communities create a project management team, which oversees day-to-day decisions related to the plan, and a larger steering committee or advisory team that provides input at key milestones.

Determine a development schedule: Developing a timeline at the beginning of the project is key to keeping the planning process on track.

These elements should all be compiled into a scope document or project management plan that will guide the development of the plan.



Chapter 3: Engage the Community

Chapter 3 highlights engagement opportunities in each step of the plan development process. It describes 17 engagement strategies organized along a spectrum of potential reach from targeted audiences to broad participation. Each strategy includes information on cost, effectiveness at reaching underrepresented communities, and when to use it during plan development (see Table 1).

Chapter 3 also includes important elements of meaningful community engagement:

- ◆ Equity considerations
- ◆ Moving from outreach to engagement
- ◆ Mitigate opposition
- ◆ Engage early and strategically
- ◆ Local solutions vs. Best practices
- ◆ Compensating the public for participating
- ◆ Engaging community-based organizations

Chapter 3 closes with a discussion of legal requirements. Federal laws, executive orders, and policies require engagement of under-resourced populations, and many of these requirements tie funding to thoughtful community engagement. ODOT also has legal requirements that are fulfilled through documentation during the planning process. ATPs, if mindfully developed, can help serve as some of this documentation.



Table 1: Summary of Community Engagement Strategies

Engagement Strategy	Cost	Reach of Underrepresented Communities	When to Use	
Translated Materials	medium	high	<ul style="list-style-type: none"> ◆ Develop a Vision & Goals ◆ Assess Existing Conditions ◆ Identify Proposed Projects 	<ul style="list-style-type: none"> ◆ Prioritize Proposed Projects ◆ Implement the Plan
Stakeholder Meetings	low	medium	<ul style="list-style-type: none"> ◆ Develop a Vision & Goals ◆ Assess Existing Conditions ◆ Identify Proposed Projects 	<ul style="list-style-type: none"> ◆ Prioritize Proposed Projects ◆ Implement the Plan
Focus Groups	high	high	<ul style="list-style-type: none"> ◆ Develop a Vision & Goals ◆ Assess Existing Conditions 	<ul style="list-style-type: none"> ◆ Identify Proposed Projects
Neighborhood Organization Meetings	low	high	<ul style="list-style-type: none"> ◆ Develop a Vision & Goals ◆ Assess Existing Conditions 	<ul style="list-style-type: none"> ◆ Identify Proposed Projects
Meeting in a Box	low	high	<ul style="list-style-type: none"> ◆ Develop a Vision & Goals ◆ Assess Existing Conditions 	<ul style="list-style-type: none"> ◆ Identify Proposed Projects
In-person or Intercept Surveying	medium	high	<ul style="list-style-type: none"> ◆ Assess Existing Conditions ◆ Identify Proposed Projects 	
Charrettes	high	medium	<ul style="list-style-type: none"> ◆ Develop a Vision & Goals ◆ Assess Existing Conditions 	<ul style="list-style-type: none"> ◆ Identify Proposed Projects
Temporary Demonstrations	high	high	<ul style="list-style-type: none"> ◆ Identify Proposed Projects ◆ Implement the Plan 	
Pop Up Events	medium	high	<ul style="list-style-type: none"> ◆ Assess Existing Conditions ◆ Identify Proposed Projects 	<ul style="list-style-type: none"> ◆ Prioritize Proposed Projects
Interactive, Informative Games	medium	high	<ul style="list-style-type: none"> ◆ Develop a Vision & Goals ◆ Assess Existing Conditions 	<ul style="list-style-type: none"> ◆ Identify Proposed Projects
Community Workshops and Open Houses	high	low	<ul style="list-style-type: none"> ◆ Develop a Vision & Goals ◆ Assess Existing Conditions 	<ul style="list-style-type: none"> ◆ Identify Proposed Projects
Virtual Public Open Houses	high	low	<ul style="list-style-type: none"> ◆ Develop a Vision & Goals ◆ Assess Existing Conditions 	<ul style="list-style-type: none"> ◆ Identify Proposed Projects ◆ Implement the Plan
Online Public Meetings	medium	low	<ul style="list-style-type: none"> ◆ Develop a Vision & Goals ◆ Assess Existing Conditions 	<ul style="list-style-type: none"> ◆ Identify Proposed Projects ◆ Implement the Plan
Social Media	low	medium	<ul style="list-style-type: none"> ◆ Develop a Vision & Goals ◆ Assess Existing Conditions 	<ul style="list-style-type: none"> ◆ Identify Proposed Projects ◆ Implement the Plan
Interactive Maps	low	medium	<ul style="list-style-type: none"> ◆ Develop a Vision & Goals ◆ Assess Existing Conditions 	<ul style="list-style-type: none"> ◆ Identify Proposed Projects ◆ Implement the Plan
Online Surveys	low	medium	<ul style="list-style-type: none"> ◆ Develop a Vision & Goals ◆ Assess Existing Conditions 	<ul style="list-style-type: none"> ◆ Identify Proposed Projects
Websites	low	medium	<ul style="list-style-type: none"> ◆ Develop a Vision & Goals ◆ Assess Existing Conditions ◆ Identify Proposed Projects 	<ul style="list-style-type: none"> ◆ Prioritize Proposed Projects ◆ Implement the Plan



Chapter 4: Develop a Vision and Goals

Chapter 4 explains how to develop a vision and goals for your ATP that will guide the plan development process. Some vision statements identify a horizon that might be 10 or 20 years into the future, while others are more general. Most ATPs also include a set of goals that represent specific target areas to accomplish the vision.

There are two primary strategies for developing a vision and goals:

Community engagement: The most successful plans base their visions and goals on community engagement findings. Public needs and priorities must be reflected in these guiding statements, otherwise it is much harder to generate buy-in and ownership of the finished plan.

Plans and policies already adopted in your community:

Determining related or overlapping goals with other plans will help align your ATP with existing planning efforts, which will be valuable during plan implementation, such as by leveraging funding where goals align. Also consider your peer communities; if they are facing similar active transportation challenges and opportunities, you could borrow their ideas.

Chapter 4 concludes with example visions and goals for ATPs across Ohio.





Chapter 5: Assess Existing Conditions

Existing conditions describe what your transportation system and community look like now: who lives there, how they get from place to place, how safe the roads are, and how the transportation system impacts quality of life. There are many techniques – both qualitative and quantitative – for capturing information on the current state of active transportation within a given region or community.

This chapter divides existing conditions analyses into three steps:

1. Preparing data and creating a base map
2. Reviewing existing plans, policies, and supportive programs
3. Conducting analyses

Preparing data and creating a base map: Base maps help you understand the transportation system and existing active transportation facilities. They also enable some of the analyses described in this chapter. Chapter 5 includes a list of information that is generally shown on ATP base maps as well as common data sources, and [Appendix D](#) shows existing conditions recommended data schema.

Reviewing existing plans, policies, and supportive programs: A plan and policy review summarizes active transportation and related efforts to date and frames the current planning process as a logical next step in your community’s active transportation evolution. ATPs should build upon completed plans and projects to obtain an accurate picture of the active transportation system. This section discusses the importance of vetting recommendations from past plans and studies to make sure they are still applicable and determine whether they should be incorporated into your ATP.
















Conducting analyses: This section provides a comprehensive list of analyses, tools, and resources that are used to understand existing conditions, organized by statewide active transportation goals. Some of these approaches are data-intensive while others are more simplistic. Descriptions of certain analyses include steps and general tips to complete them, resources needed, and case studies. Chapter 5 includes guidance on level of effort, time commitment, data requirements, complexity, and importance of each analysis. To accommodate communities with varying resources, this section offers a broad spectrum of existing conditions analyses and tools, from walk audits to systemic safety analyses. (See Table 2.)



Table 2: Summary of Existing Conditions Analyses

Analysis	Level of Effort	Data Requirements	Complexity	Importance
Qualitative Methods				
Walk Audits and Bike Rides		low	low	Recommended
Gaps and Generators Mapping		low	low	Strongly Recommended
Connecting the Dots Mapping		low	low	Strongly Recommended
Strengths, Weaknesses, Opportunities, and Threats Analysis		low	low	Supplemental
Equity				
Equity Analysis ¹		medium	medium	Strongly Recommended
Environmental Justice Assessment		medium	medium	Strongly Recommended
Network Utilization				
Third Party Probe Data		high	medium	Strongly Recommended
Demand Analysis/Trip Potential Analysis		medium	high	Strongly Recommended
Conventional Nonmotorized Counts		high	high	Supplemental (see Appendix C)
Travel Demand Modeling		high	high	Supplemental (see Appendix C)
Network Connectivity				
Digital Network Inventory		low	low	Strongly Recommended
Field Network Inventory		low	high	Supplemental
Pedestrian Level of Traffic Stress		high	high	Recommended
Bicycle Level of Traffic Stress		high	high	Recommended

¹ Equity analyses are scalable depending on desired level of detail. For example, using data from the Walk.Bike.Ohio statewide equity analysis would be low, whereas customizing the analysis to a specific community with multiple data sources would be medium to high.

Analysis	Level of Effort	Data Requirements	Complexity	Importance
Bicycle Network Analysis		high	high	Supplemental
Travelshed Analysis		medium	medium	Supplemental
Land use and Transportation Analysis		medium	medium	Recommended
Safety				
Basic Crash Analysis		low	low	Strongly Recommended
Crowd Sourced Near Miss Locations		medium	medium	Supplemental
Systemic Safety Analysis		high	high	Supplemental
Network Screening Analysis		high	high	Supplemental
Livability				
Community Health Assessment		medium	medium	Recommended
Health Impact Assessment		medium	medium	Supplemental (see Appendix C)
Property Value Analysis		high	high	Supplemental
Greenhouse Gas Inventory		medium	medium	Supplemental
Aggregated Trend Analysis		medium	medium	Supplemental (see Appendix C)
Difference-in-Difference (DID) Analysis		medium	medium	Supplemental (see Appendix C)
Interrupted Time Series (ITS) Analysis		high	high	Supplemental (see Appendix C)
Preservation				
Asset Condition Inventory ²		high	high	Supplemental

2 Asset condition inventories are scalable and the level of effort, data requirements, and complexity depend on desired outcomes and existing datasets. For example, this would be relatively simple for communities that already have digitized sidewalk networks and only want to measure asset condition at the blockface level. On the other end of the spectrum, tracking many data points (slope angle, lip height, pavement material, etc.) for each ADA ramp at each corner of every intersection would significantly increase the effort and complexity.



Chapter 6: Identify Proposed Projects and Programs

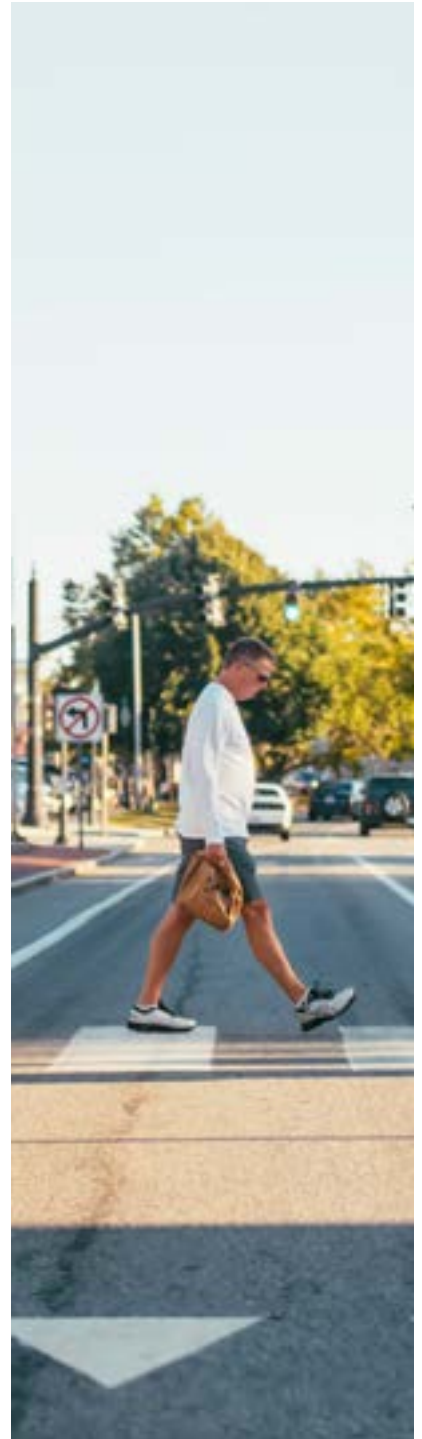
ATPs use a combination of infrastructure and non-infrastructure recommendations to develop a proposed bicycle and pedestrian network and supportive programs and policies that encourage active transportation.

Infrastructure

A major outcome of an ATP is the development of a proposed bicycle and pedestrian network. Similar to existing conditions analyses, there are many approaches to network planning, some of which require greater effort. While the right approach for your community depends on your level of resources, time, and technical expertise, developing active transportation projects generally follows four steps:

1. **Develop a network:** During this step you will develop a rough framework for your active transportation network based on findings from existing conditions analyses, and considering several factors: right-of-way, crash history, speed and volume, land use, and connections to regional and statewide networks.
2. **Determine facilities:** Facility selection requires coordination with the public and project stakeholders and existing plans. ATPs may identify a road as a future pedestrian or bicycle route, but do not always identify the preferred facility type and may not consider the physical impacts or implementation challenges of providing the preferred facility type on each road. If you plan to include preferred facility types in your ATP, follow these guiding principles during facility selection:
 - a. Consider resource constraints
 - b. Prioritize safety
 - c. Accommodate all ages and abilities
 - d. Consider context

This section also provides an overview of facility types and design user considerations.





- 3. Develop projects:** Projects will be the building blocks of your implementation plan. They will help you identify and secure funding, prioritize segments of the network, gain stakeholder support, and build momentum as the plan is finalized and implementation begins. This process involves dividing your routes from Step One into more manageable segments and creating a description of each project that clearly justifies the project's purpose and the needs that it will address. As you develop projects, be sure to vet them with key stakeholders. Sharing your preliminary recommendations with EJ communities and listening to their feedback with genuine interest and curiosity will help you develop equitable projects that serve those with the greatest need.
- 4. Create a network rationale:** The network rationale is a narrative that accompanies maps and graphics and explains the reasoning behind route alignment, facility selection, and other aspects of the proposed network. The network rationale should incorporate both technical and equity considerations and frame the plan within a local context.

Programs and policies

Establishing safe and convenient infrastructure is critical to improving walking and bicycling conditions, but without programs and policies in place to support active transportation, infrastructure projects can only go so far. Incorporating program and policy recommendations into your ATP can improve the regulatory and political environments for active transportation in your community and complement physical improvements to the transportation system. This section explains the importance of programs and policies in fostering culture change, maintaining momentum, and building support for active transportation. It concludes with several non-infrastructure case studies around Ohio.



Chapter 7: Prioritize Proposed Projects

A prioritization process establishes an order for funding and implementing projects based on a common set of criteria that stakeholders agree upon. Agencies and communities have limited funding and resources, so it is important to prioritize projects that advance your goals to the greatest degree. Prioritization processes also help determine how much funding you need to allocate to your capital improvement programs for active transportation projects.

Chapter 7 explains two different methodologies for undertaking a project prioritization process:

1. **Qualitative approaches** work best for communities that have a smaller planned network of active transportation facilities, or for communities that do not have the staff or financial resources to undertake a more complex approach. In these cases, communities develop a simple voting activity for stakeholders and community members that ranks various proposed projects.
2. **Quantitative approaches** generally use GIS datasets to score and rank projects based on a set of criteria. This section describes eight potential criteria to prioritize projects that reflect the goals of Walk.Bike.Ohio, the state's bicycle and pedestrian policy plan. Some or all of these criteria may align with your community's priorities, but it is important to discuss and vet each item with your key stakeholders to ensure consensus.

Chapter 7 also provides guidance on project phasing, which is based on prioritization results as well as local judgment and expertise. It emphasizes the importance of flexibility in project phasing in case unexpected implementation opportunities arise. Chapter 7 concludes with a discussion on conceptual designs and cost estimates for top priority projects and network buildout considerations.





Chapter 8: Implement the Plan

Chapter 8 discusses the final items to consider before finalizing your ATP. Identifying roles and responsibilities for moving projects forward once the plan is adopted, creating funding and maintenance strategies, and planning for network monitoring and performance evaluation will help guarantee as smooth an implementation process as possible.

- ◆ **Roles and responsibilities:** This section lists responsibilities across all agencies involved in active transportation implementation.
- ◆ **Funding:** ATPs are an opportunity to explore a range of funding options, including federal, state, regional, local, and private sources.
- ◆ **Maintenance strategies:** The long-term performance of active transportation networks depends on both the construction of new facilities and an investment in continued maintenance. Maintaining bicycle and pedestrian facilities is critical to ensuring those facilities are accessible, safe, and functional. This section lists resources for maintenance and directs readers to ODOT's [Active Transportation Plan Template](#) for maintenance strategy recommendations by facility type and guidance on maintenance activity frequency.
- ◆ **Plan adoption:** This section describes the plan adoption process at various regional and local levels as well as key adoption considerations:
 - » Keep decisionmakers up to date on the planning process from the beginning to ensure a smooth adoption.
 - » Contact the adopting agency early in the planning process to understand how long it typically takes to adopt a plan.
- » By integrating active transportation projects into related plans in your area, you can build a stronger case for funding opportunities.
- » Consider who will oversee implementation after the plan is adopted.
- ◆ **Monitoring and implementation:** The ability to effectively evaluate successful implementation of the ATP is essential. Establishing performance measures will help track the effectiveness of active transportation investments. This section also discusses the importance of regularly updating your plan and conducting ongoing community engagement.

