
OHIO DEPARTMENT OF TRANSPORTATION
WALK
OHIO
BIKE
WALK.BIKE.OHIO
2022 Trails & Greenways Mini Conference

Overview

In the next few minutes....

The State of Walking & Biking

The Future of Walking & Biking

The Action Plan

OHIO DEPARTMENT OF TRANSPORTATION

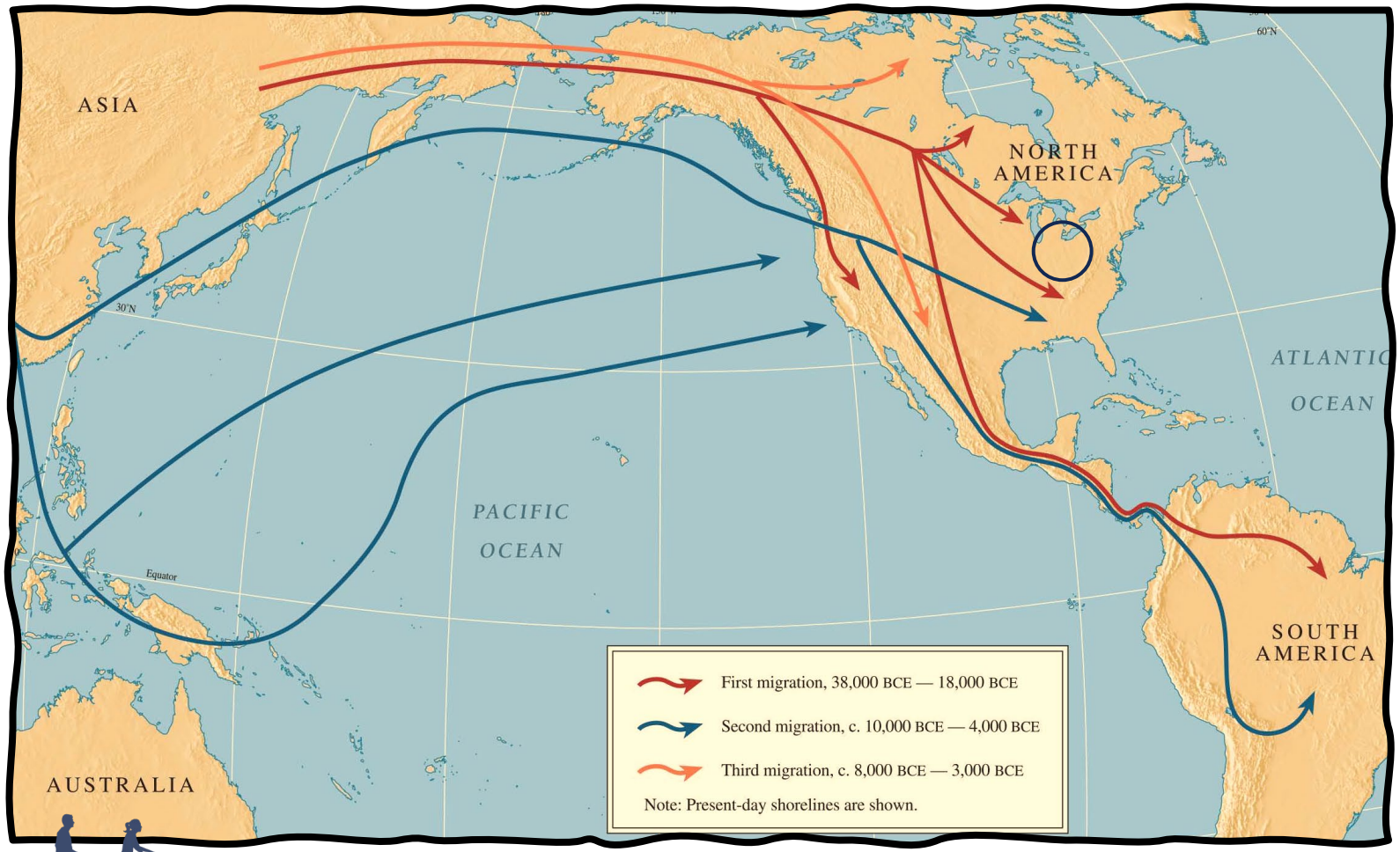
WALK OHIO BIKE

The State of Walking & Biking

Where are we now?

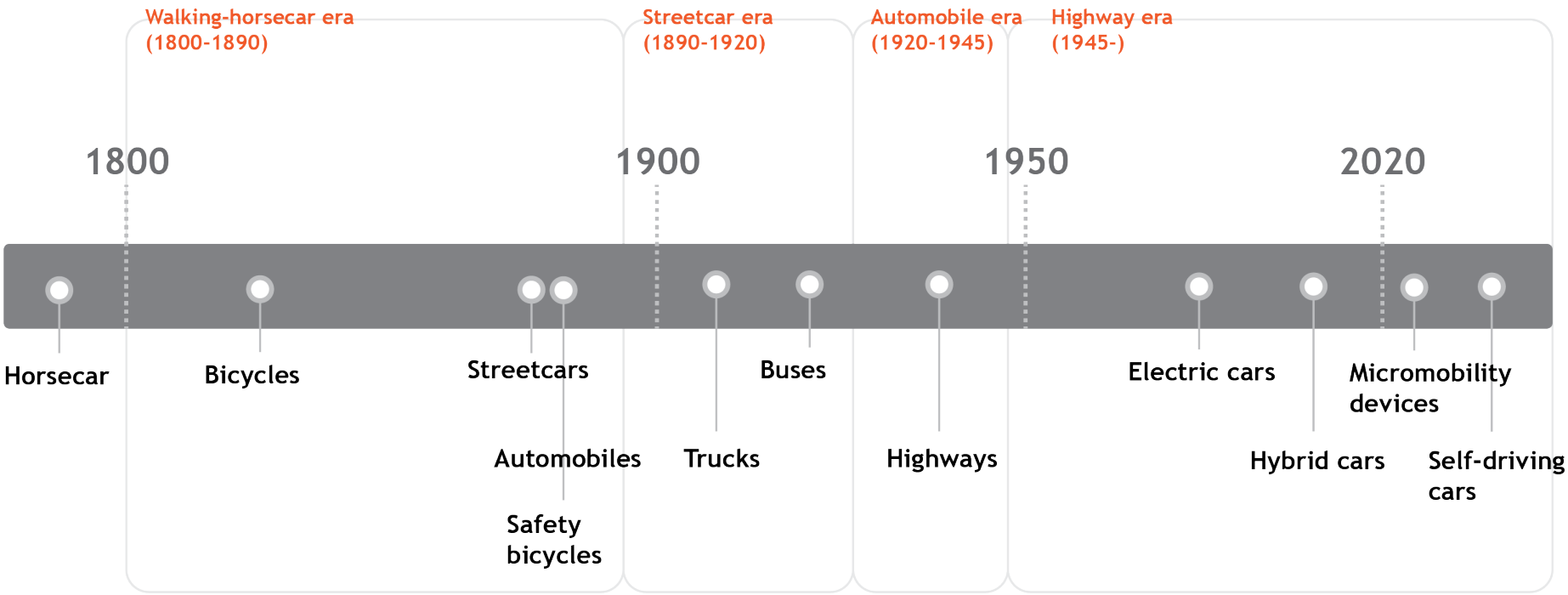
The First ~~Ohioans~~: Pedestrians

~13000 BC



Innovations in Transport:

Surface Transportation



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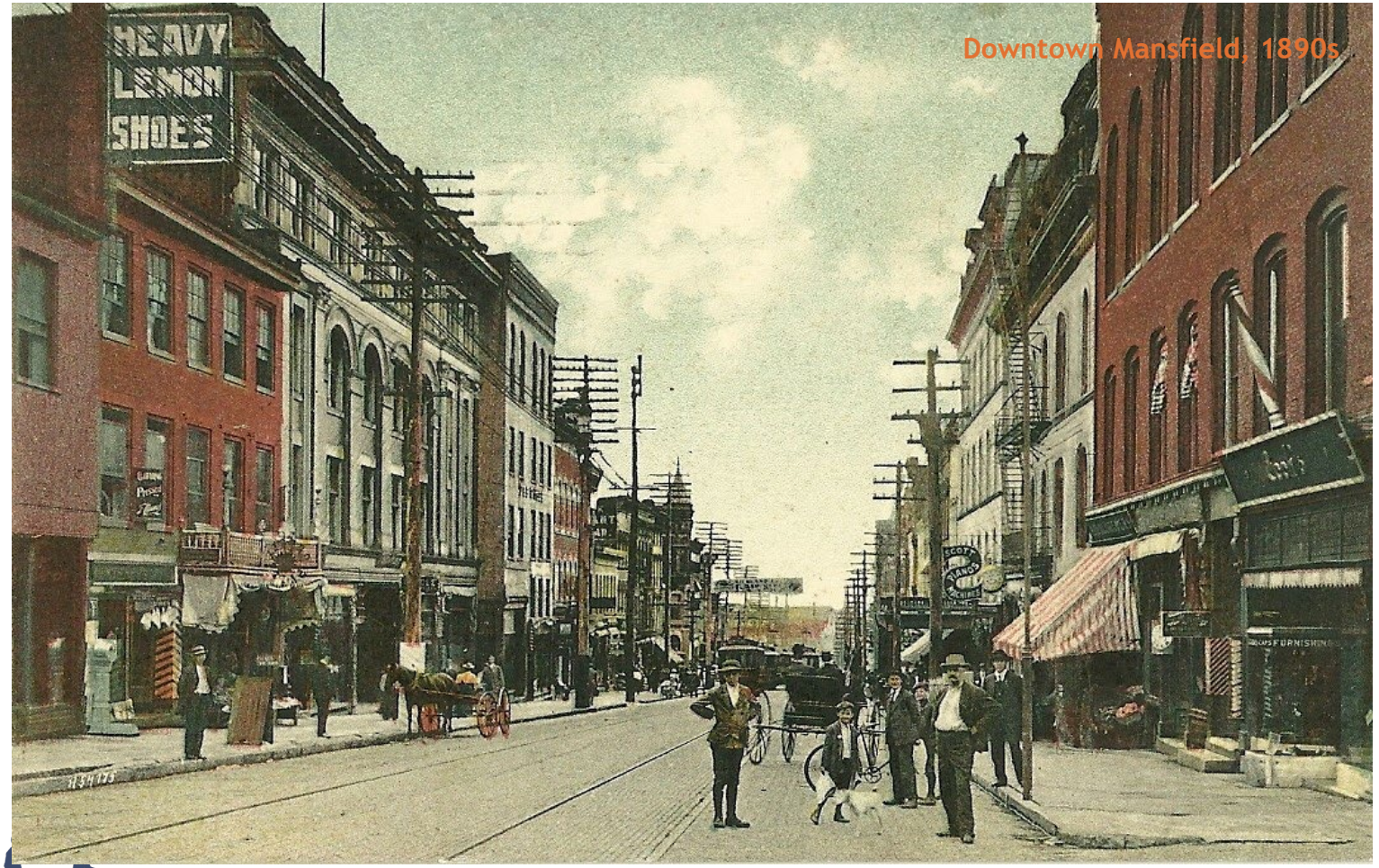
Walking-Horsecar era (1800-1890)



Downtown Mansfield, 1890s

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Streetcar era (1890-1920)

Broad & High Columbus, Ohio 1910

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Automobile era (1920- 1945)

Downtown Canton, Ohio in ~1940

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Highway era (1945-)

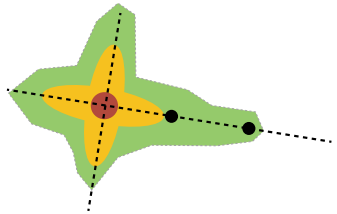
Downtown Lorain, Ohio 1964

Network Connectivity

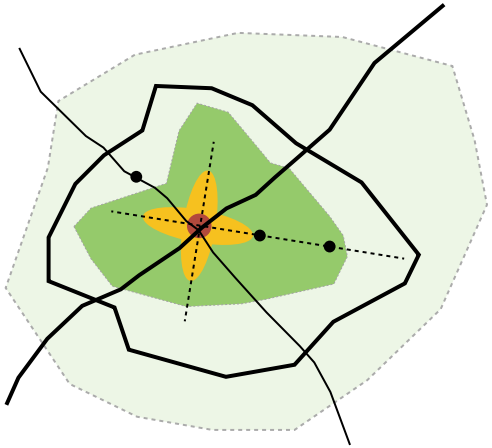
Urban Evolution

Walking-horsecar era (1800-1890)

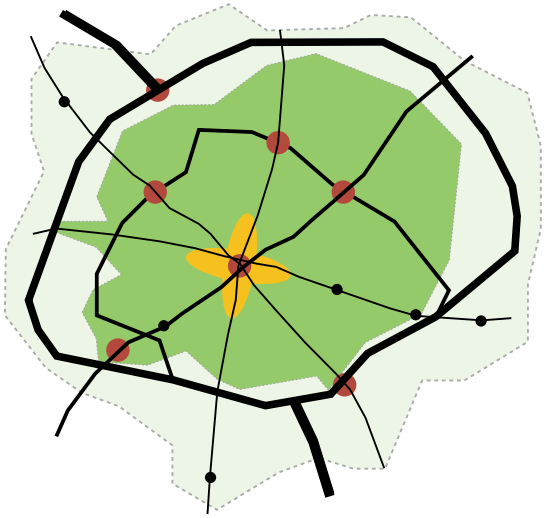
Streetcar era (1890-1920)



Automobile era (1920-1945)



Highway era (1945-)



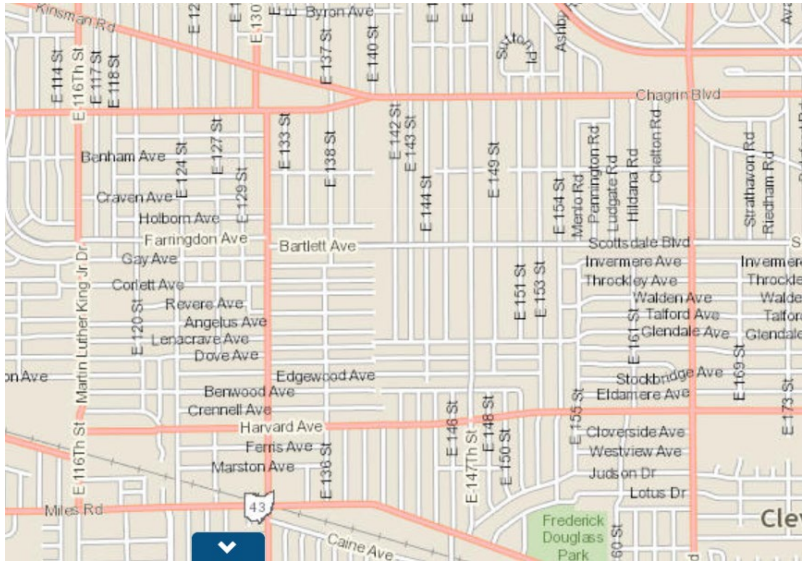
- Centers
- CBD
- Railways
- Suburb Towns
- Roads
- Main roads
- Highways
- Suburb
- New suburb

Network Connectivity

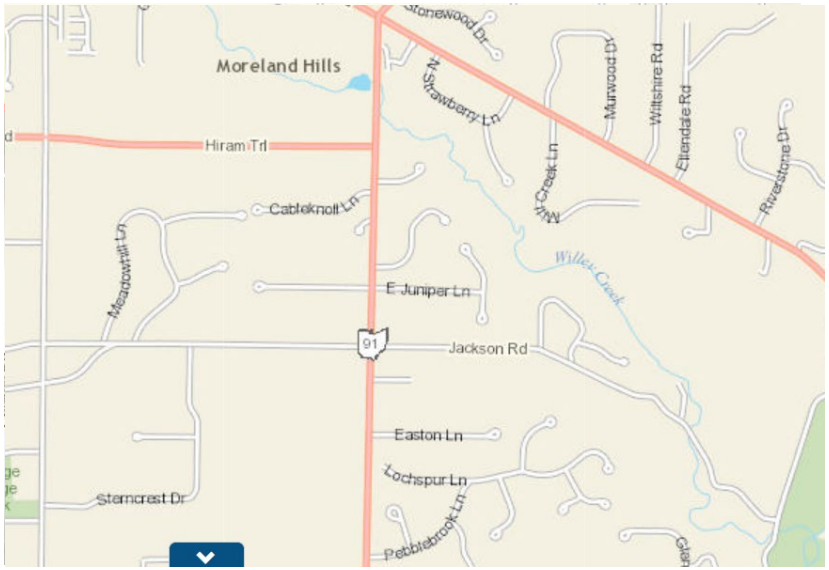
Network Density

Street Maps at the Same Scale

Cleveland (Mt Pleasant), Ohio



Moreland Hills, Ohio



Network Connectivity

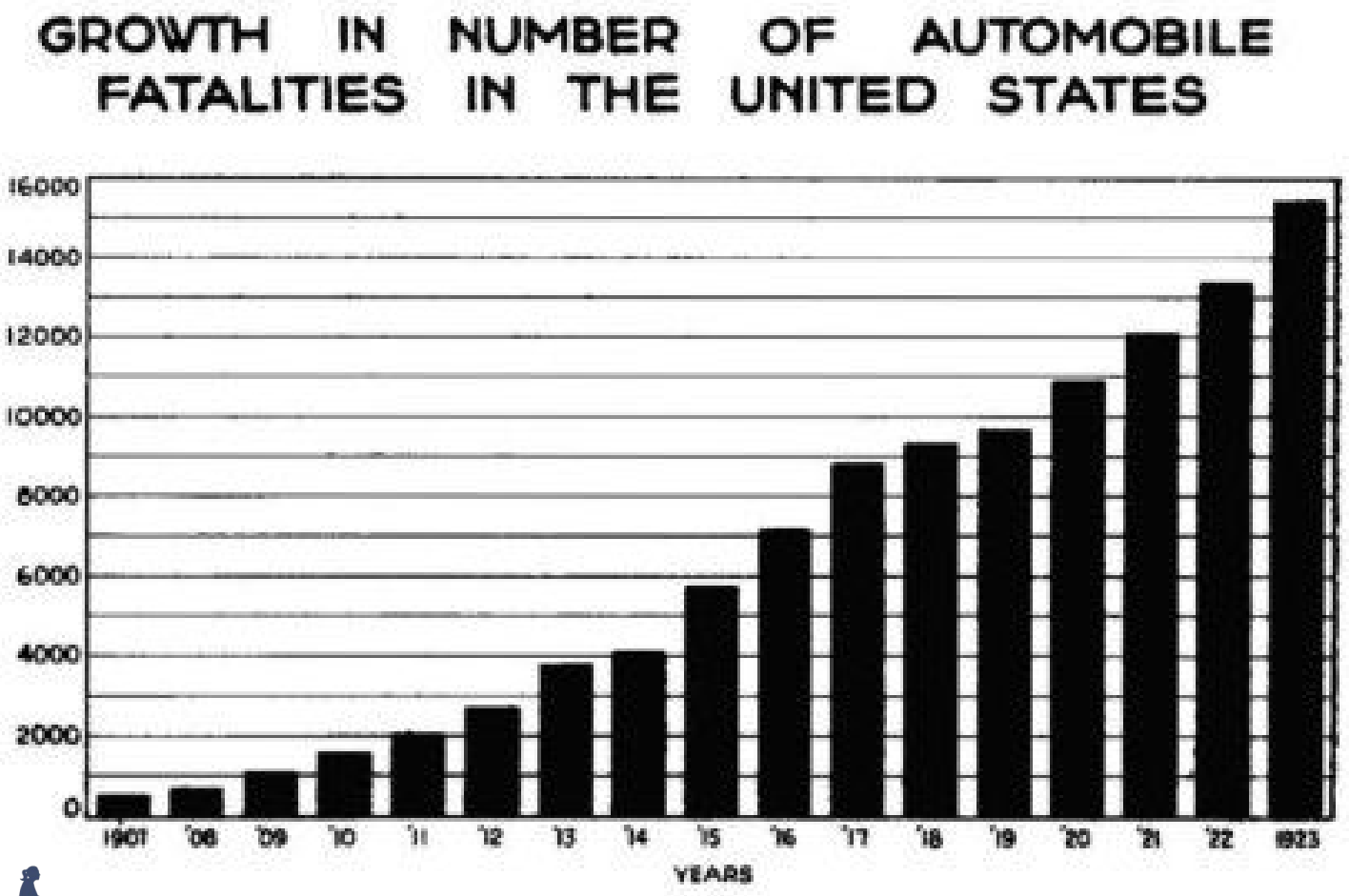
Lack of facilities

When survey respondents were asked why they don't walk or bike more often, the leading barrier noted was destinations were too far away, followed by a lack of infrastructure.

(WBO Survey)

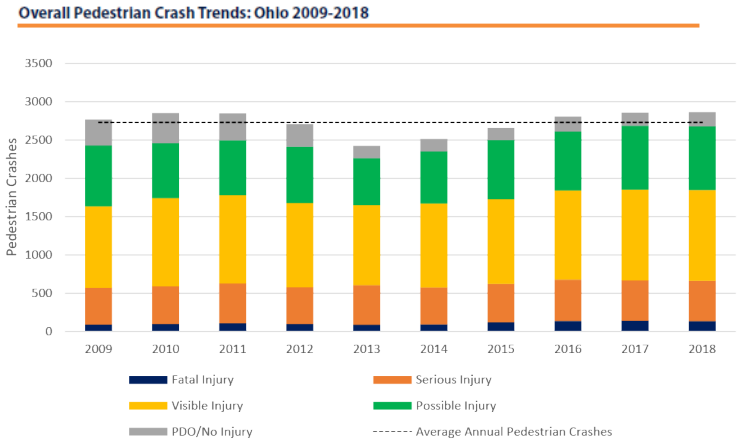
Safety

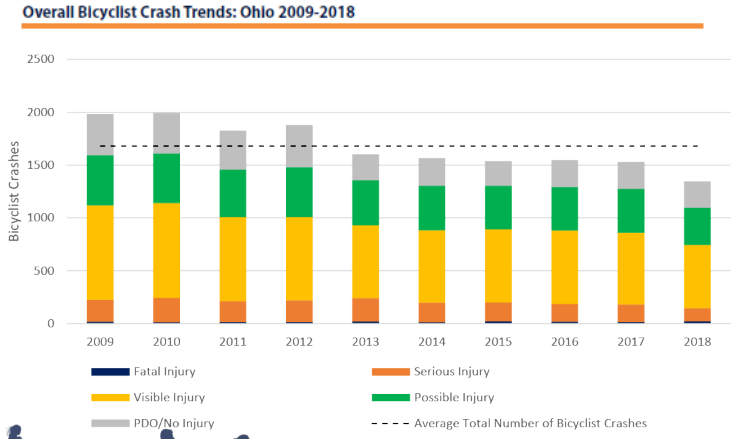
Non-Motorized Crash Trends

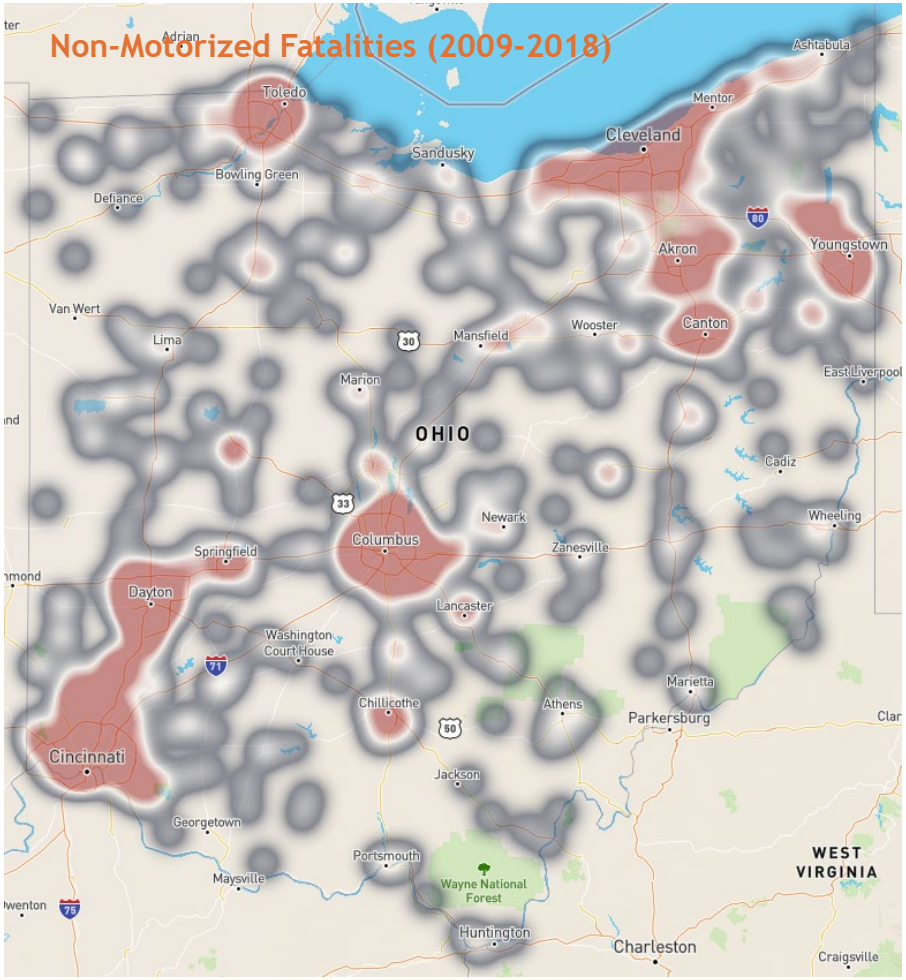


Safety

Non-Motorized Crash Trends

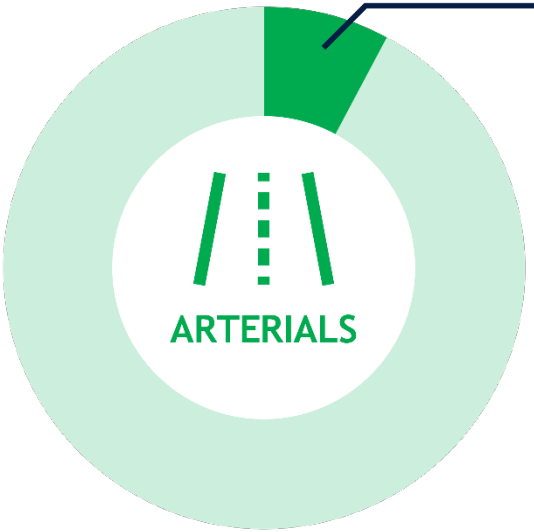






Safety

Arterial Roadways



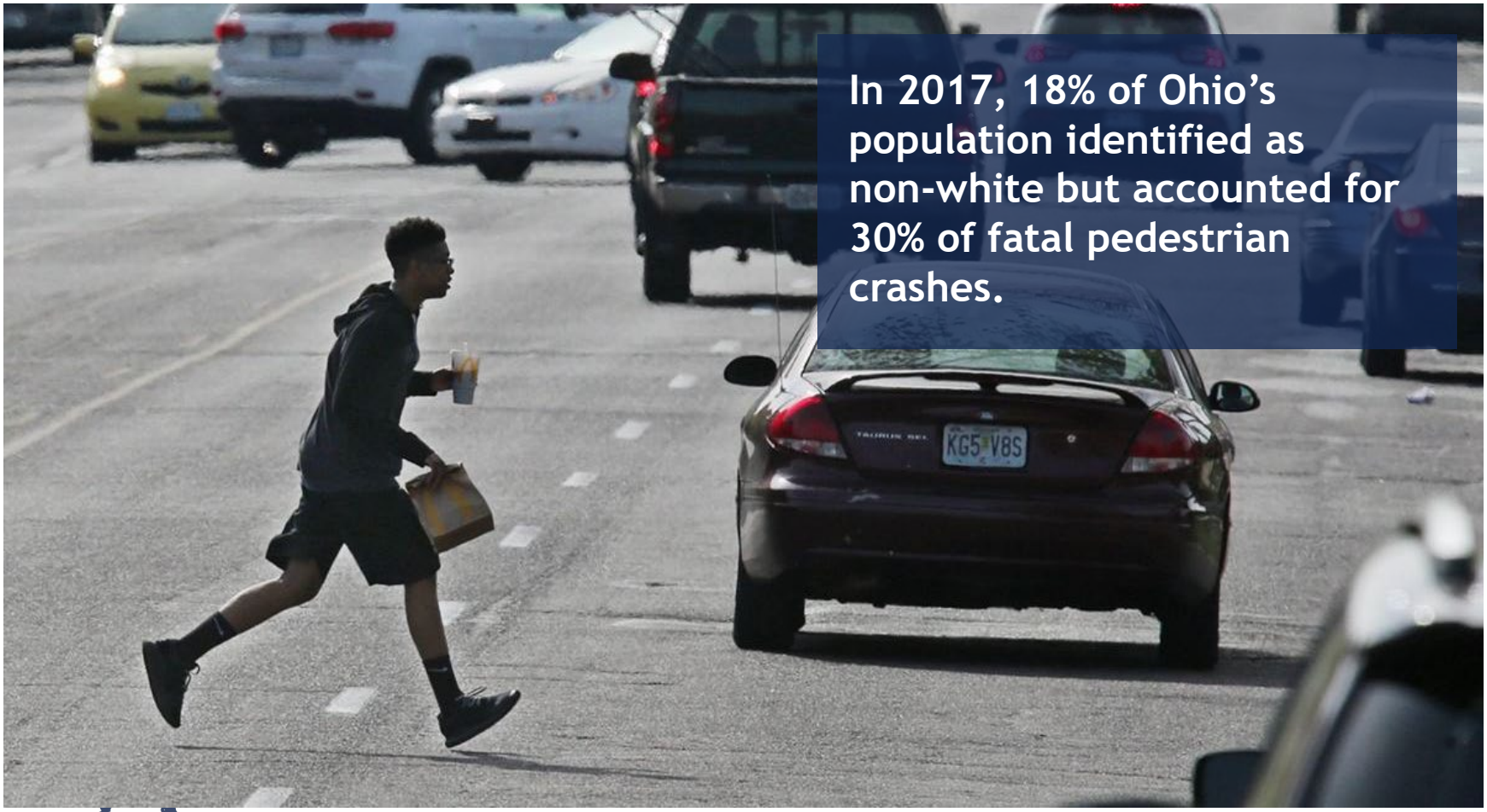
8%
of the total
roadway network

46%
all bicycle fatal
or severe injuries

56%
all pedestrian fatal
or severe injuries

Equity

Barriers



Equity

Gender

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

Almost half of women reported nearby car traffic is a major reason they do not bike.
(OSU)

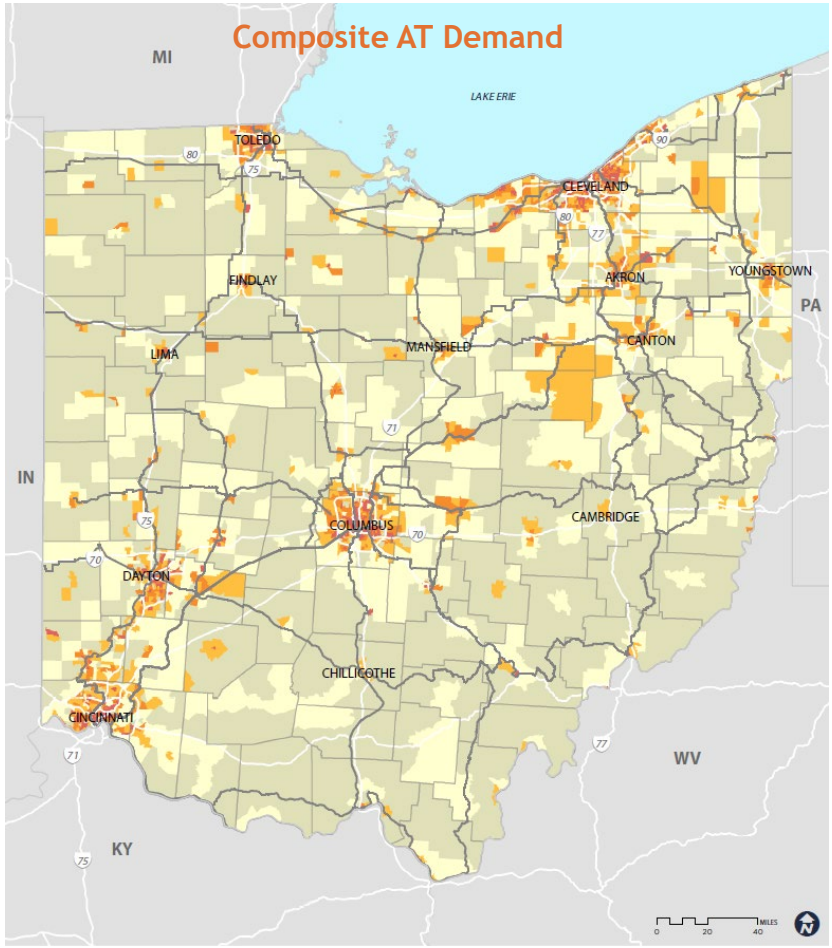
Network Utilization

Mode Share

0.3%
bike to work

2.3%
walk to work

28th in state commute mode share rankings



Livability

Health outcomes

In 2018, Ohio ranked

40th for overall health outcomes, and

47th for health behaviors, which include obesity and physical inactivity

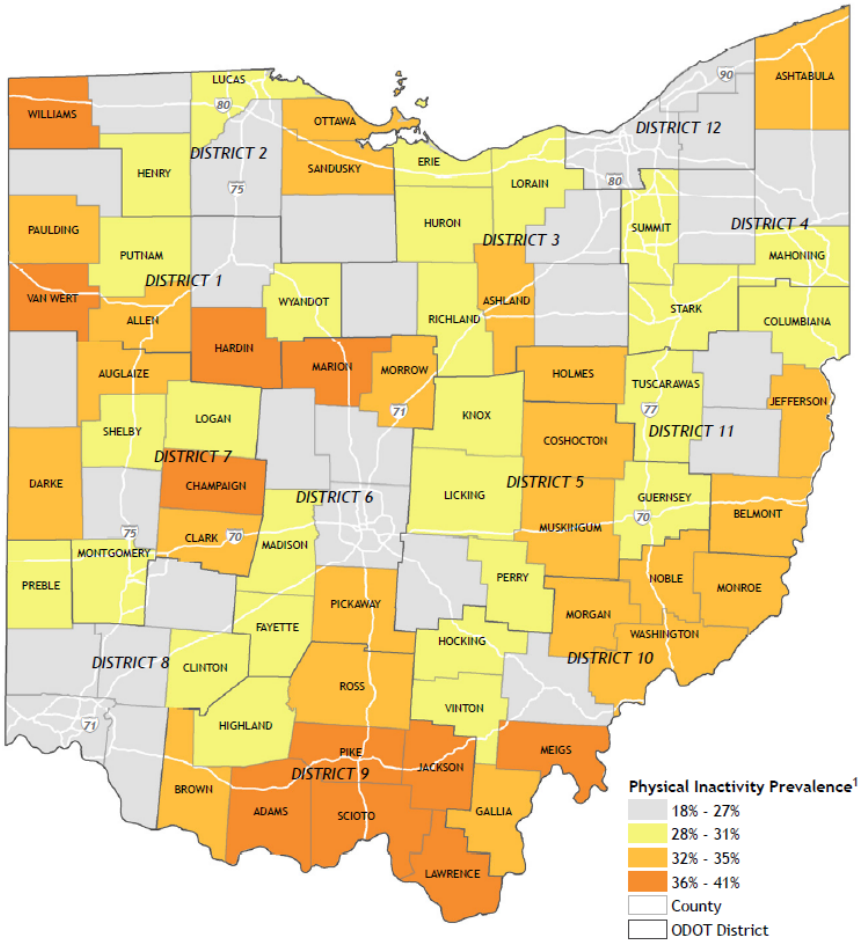
UHF, 2018

19%

of adults aged 18-64

met federal guidelines for aerobic and muscle-strengthening activity during leisure time

BRFSS, 2017



OHIO DEPARTMENT OF TRANSPORTATION

WALK OHIO BIKE

The Future of Walking & Biking

Where are we headed?

WALK.BIKE.OHIO

Vision & Goals

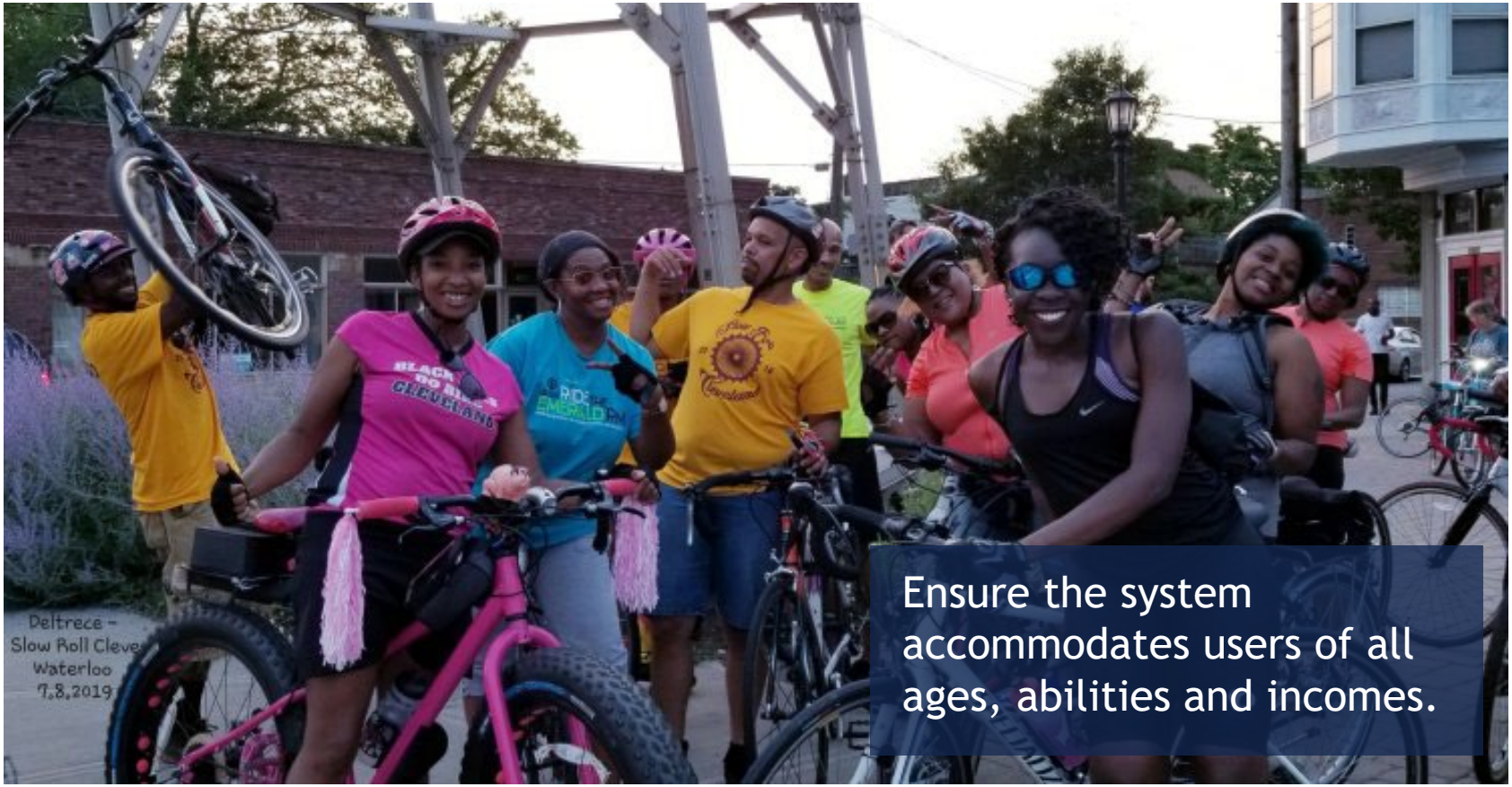
Walking and biking in Ohio will be a safe, convenient and accessible transportation option for everyone.

Safety

Vision & Goals

Equity

Vision & Goals



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

Network Connectivity

Vision & Goals

I-70/I-71 Long Street Bridge and Cultural Wall

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

Livability

Vision & Goals

Preservation

Vision & Goals

Network Utilization

Vision & Goals

OHIO DEPARTMENT OF TRANSPORTATION

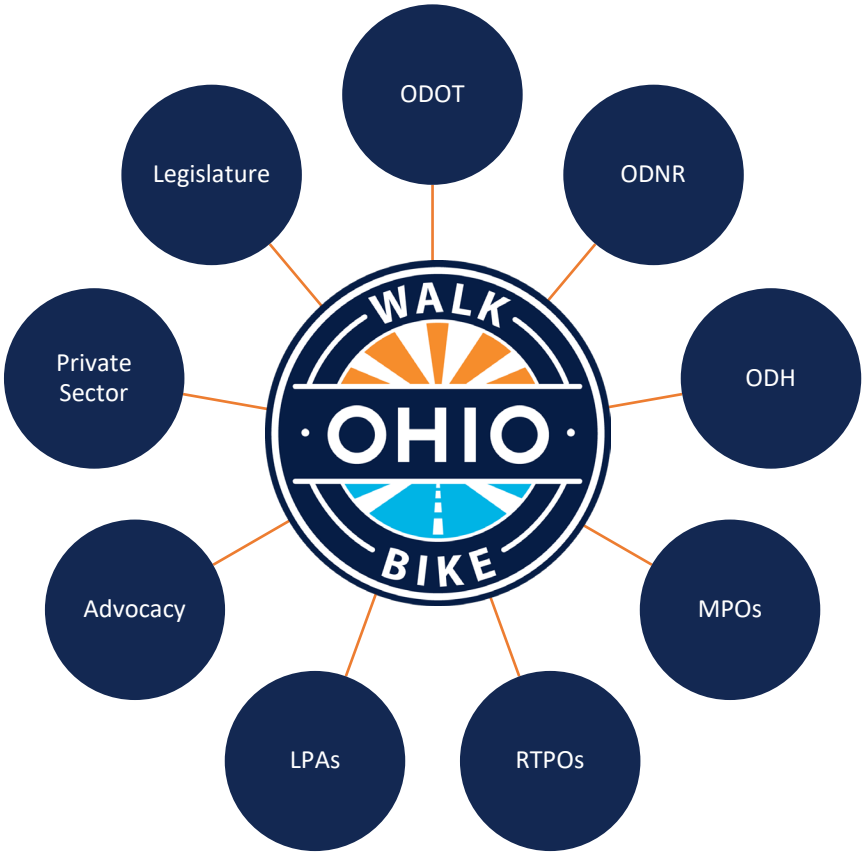
WALK OHIO BIKE

The Action Plan

How are we going to get there?

Partnerships

Importance of Collaboration



WALK.BIKE.OHIO

Purpose and Need

Walk.Bike.Ohio (WBO) is meant to help guide Ohio's long-term walking and biking policies and ODOT's short-term activities.

WALK.BIKE.OHIO

Themes

THEME 1: Planning & Guidance

THEME 2: Implementation

THEME 3: Education & Promotion

THEME 4: Data

THEME 5: Collaboration

Planning & Guidance

Develop statewide, regional, local, and corridor planning initiatives that identify the needs of users and develop equitable recommendations across Ohio.

Establish policy recommendations such as standard operating procedures, legislation, and strategies that ensure bicycling and walking needs are addressed and improve quality of life for all Ohioans.

STRATEGIES:

- **Develop and adopt multimodal planning, design, implementation guidance.**
- **Seek opportunities to support bicycle and pedestrian facility maintenance.**
- **Develop clear, consistent and meaningful evaluation metrics and monitor performance.**

Implementation

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.

STRATEGIES:

- **Assist local communities in project development and implementation.**
- **Implement US and State Bike Route System.**
- **Support regional, cross-jurisdictional AT project implementation.**

Education & Promotion

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.

STRATEGIES:

- **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.**

Data

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

STRATEGIES:

- **Develop statewide active transportation asset inventory.**
- **Establish active transportation monitoring program.**
- **Expand active transportation safety data collection and analysis.**

Collaboration

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

STRATEGIES:

- **Strengthen ongoing collaboration between ODOT and other state agencies.**
- **Strengthen ongoing coordination and collaboration between ODOT and its local partners.**

Final Plan

For more Information

https://www.transportation.ohio.gov/wps/portal/gov/odot/programs/walkbikeohio/walkbikeohioplan

Tracking Progress

Active Transportation Advisory Committee

https://www.transportation.ohio.gov/wps/portal/gov/odot/programs/walkbikeohio/walkbikeohioplan

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2022 Trails & Greenways Mini Conference

ODOT Funding Program Update

OHIO DEPARTMENT OF TRANSPORTATION

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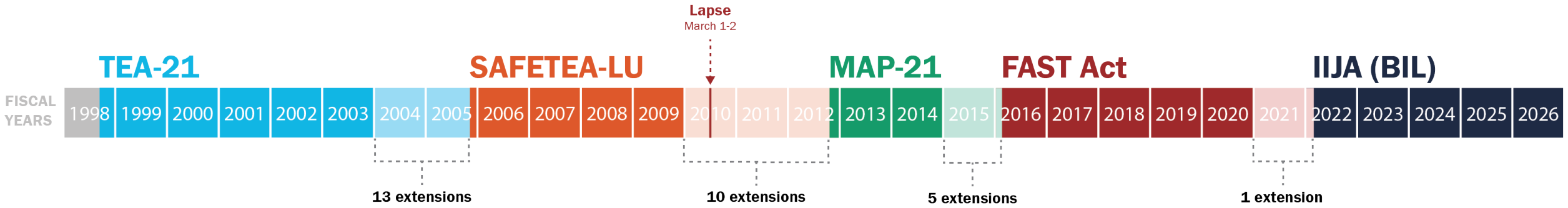
BIPARTISAN INFRASTRUCTURE LAW (BIL) OVERVIEW

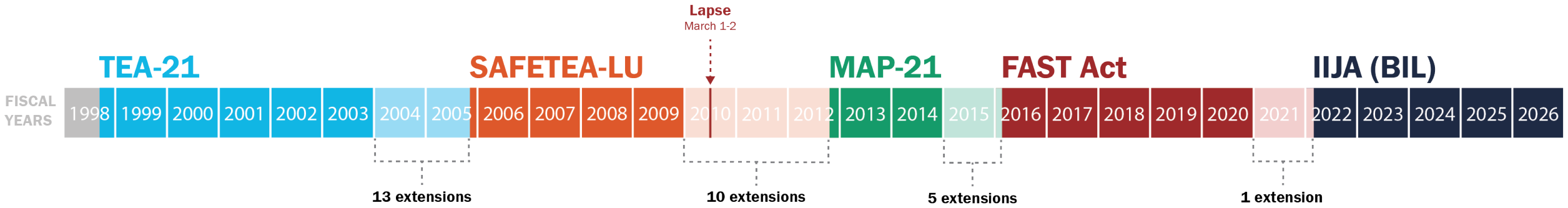
OVERVIEW OF BIL

In the United States, the "federal transportation bill" refers to multi-year funding bills for surface transportation programs passed at the federal level. These have included:



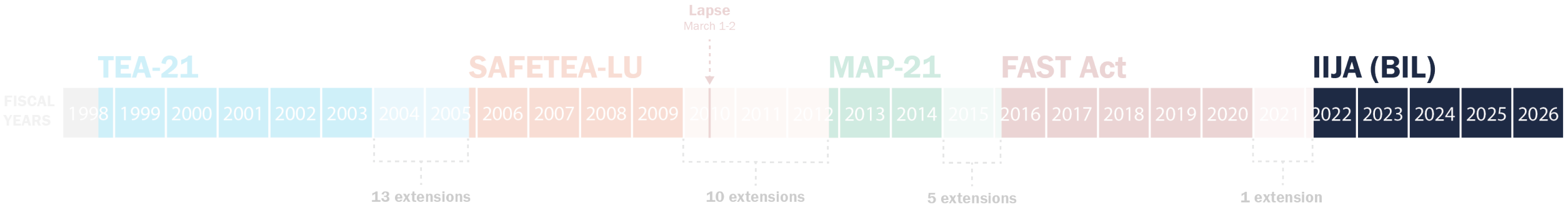
OVERVIEW OF BIL

The federal transportation bill not only impact the availability of federal funding for transportation projects, but also the federal policy surrounding transportation.



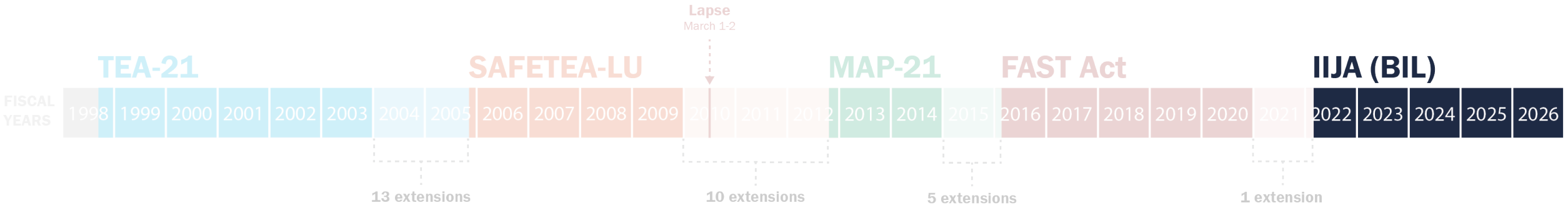
OVERVIEW OF BIL

Signed into Law on November 15th, 2021, the Infrastructure Investment and Jobs Act (IIJA) is a new five-year authorization of the federal Transportation Program (and much more).

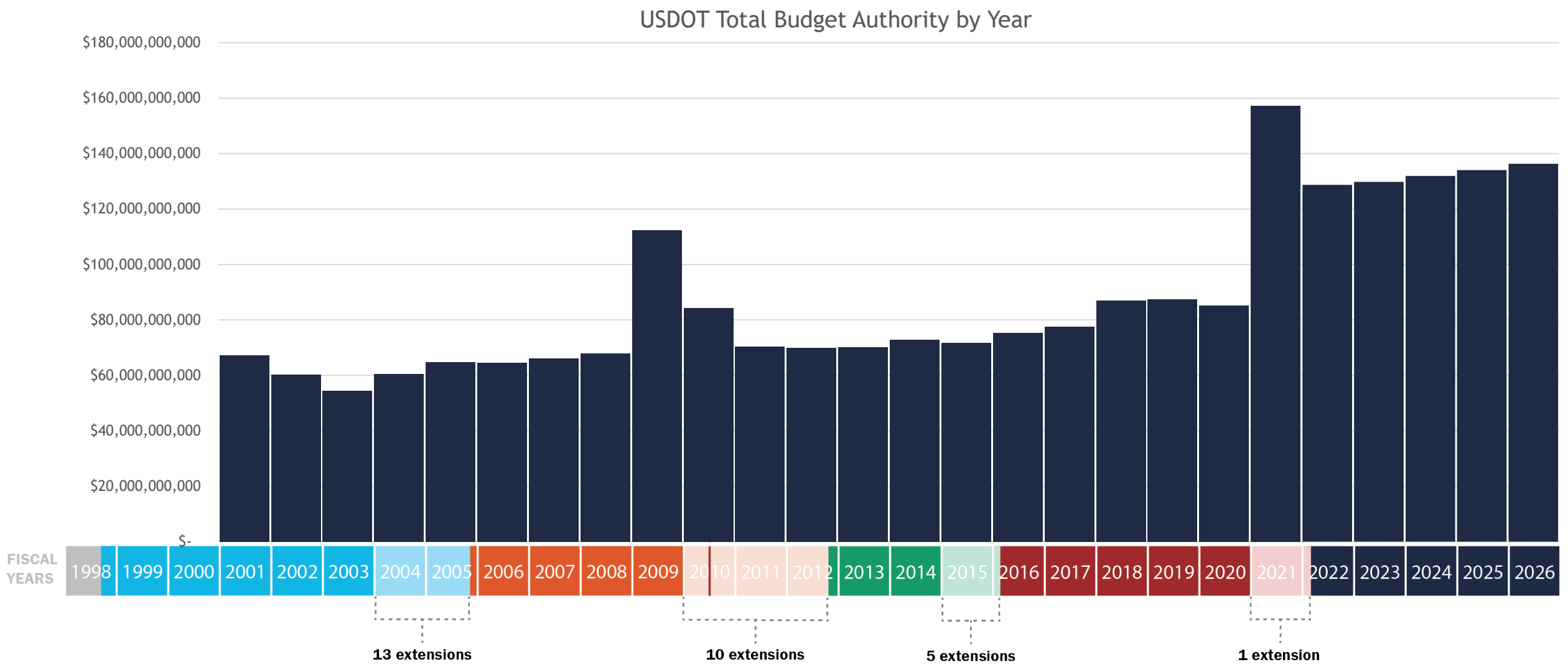


OVERVIEW OF BIL

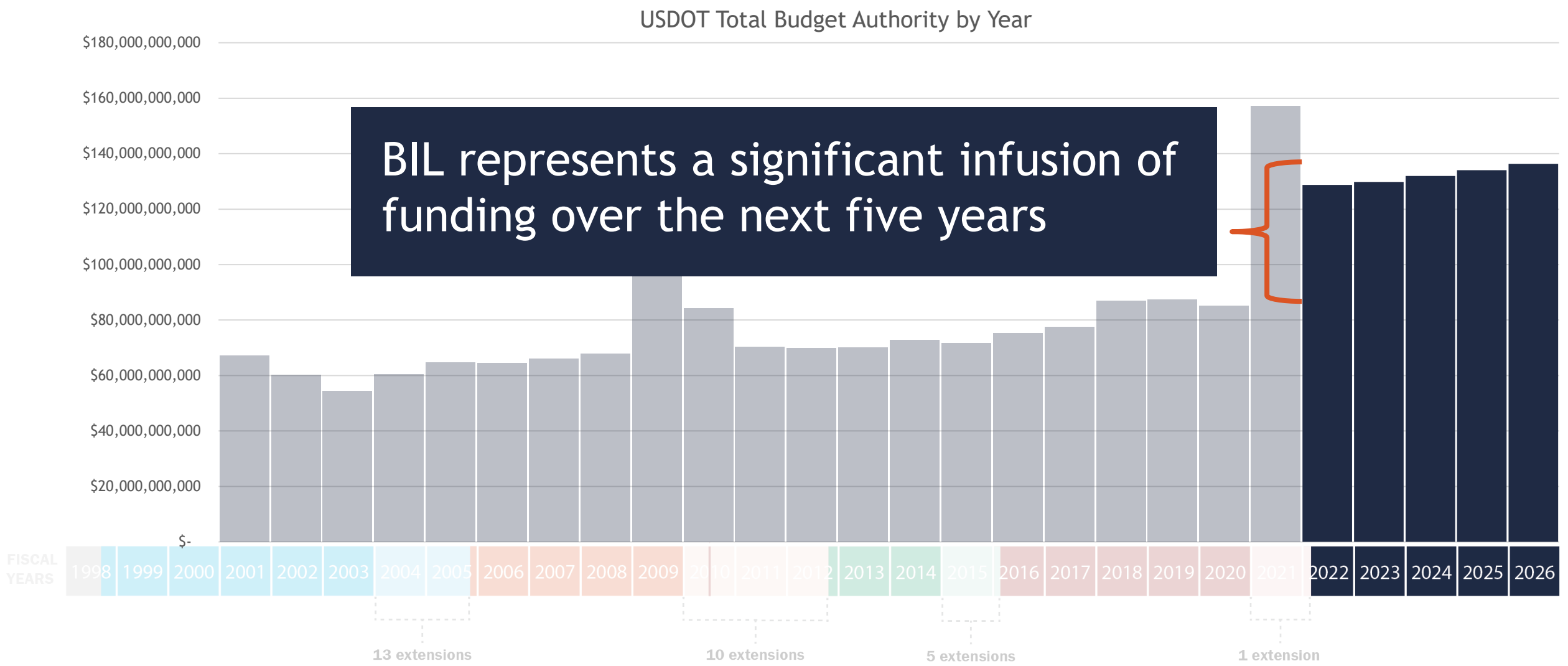
The Infrastructure Investment and Jobs Act (IIJA) is sometimes referred to as the Bipartisan Infrastructure Law (BIL). IIJA is the same thing as BIL.



OVERVIEW OF BIL



OVERVIEW OF BIL



BIL represents a significant infusion of funding over the next five years

ODOT – AT RELATED FUNDING PROGRAMS

ODOT AT RELATED FUNDING PROGRAMS

MPO & Large City Capital Program

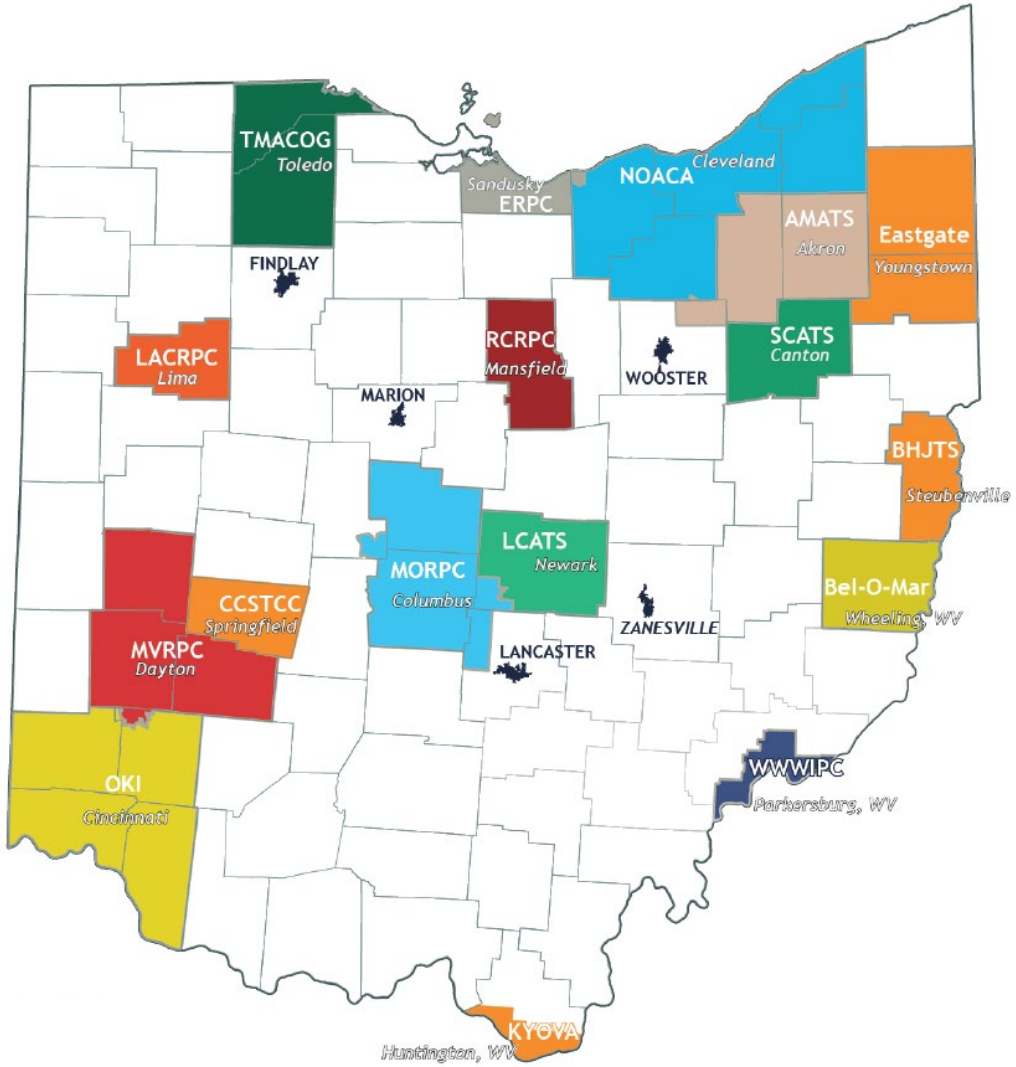
ODOT's Highway Safety Improvement Program

ODOT's Transportation Alternatives Program

Safe Routes To School program

MPO & LARGE CITY CAPITAL PROGRAM

The MPO & Large City Program allocates capital budgets to each of Ohio's seventeen MPOs and to five large cities, outside MPO areas, to finance multi-modal transportation system improvement projects within Ohio's urban areas.



MPO & LARGE CITY CAPITAL PROGRAM

- **215M -> 270M (25% increase)**
- Includes new allocation of Carbon Reduction Funds for the MPOs
- MPO Policy Boards establish the funding priorities for their respective allocations of STBG, CMAQ, TAP, and CRP.

TRANSPORTATION ALTERNATIVES PROGRAM

ODOT's Transportation Alternatives Program (TAP) helps fund several project types including pedestrian and bicycle infrastructure.

This funding program is solely for those projects sponsored by political subdivisions outside the county boundaries of MPOs.

TRANSPORTATION ALTERNATIVES PROGRAM

- **12M -> 16M (33% increase)**
- Carbon Reduction Funding will be used to increase TAP program thru BIL
- ODOT will be using HSIP to cover the 20% local match for active transportation projects (Construction)

SAFE ROUTES TO SCHOOL PROGRAM

The SRTS program provides funding to facilitate the development and implementation of projects and activities that enable and encourage children to walk or bike to school.

SAFE ROUTES TO SCHOOL PROGRAM

- 4M -> 5M (25% increase)
- Expansion to include projects that impact students in K-12.
- Increasing the infrastructure cap to $500K and encouraging that projects are $300+. *
- Cap non-infrastructure projects at $60K regardless of school district size (recommendations will remain)*

ODOT'S HIGHWAY SAFETY IMPROVEMENT PROGRAM

ODOT's Highway Safety Program provides funds to ODOT District Offices & local governments for highway safety treatments designed to alleviate a safety problem or potentially hazardous situation.

ODOT'S HIGHWAY SAFETY IMPROVEMENT PROGRAM

- **150M -> 185M (23% increase)**
- BIL mandates that if 15%+ of a State's fatalities VRUS, then that state must allocate 15% of HSIP funding (FY2023) to VRUs. Ohio triggered this rule.
- Increased funding for systemic safety projects.

HSIP Systemic Safety Funding Application Process

Learn how to apply for systemic safety improvements, funding focused on roadway departure issues and pedestrian safety.

HIGHWAY SAFETY SHARE

HSIP Formal Safety Application

The formal safety application process is for higher-cost, more complex safety improvements that require a more detailed review.

HIGHWAY SAFETY SHARE

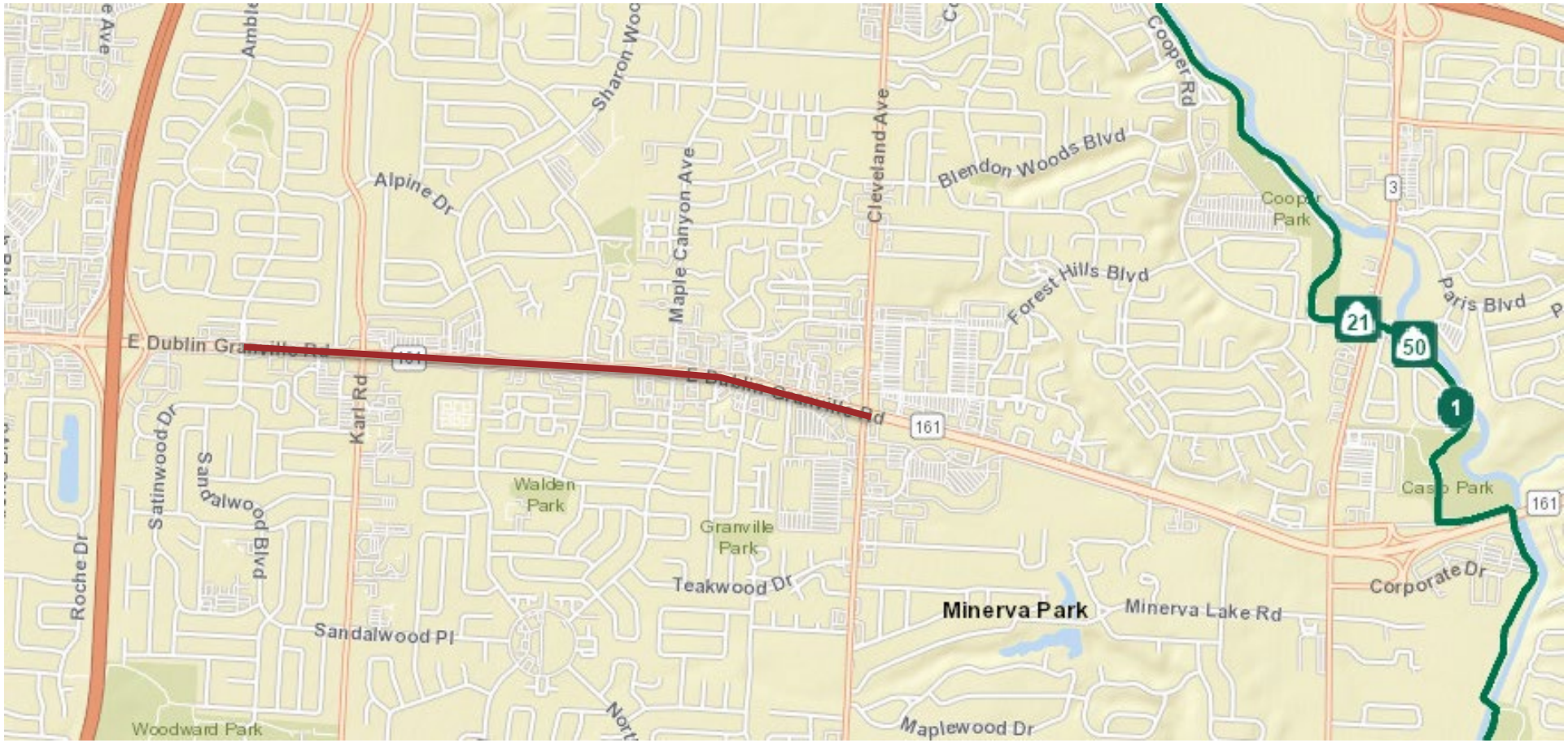
HSIP Abbreviated Safety Funding Application

Learn how to apply for low-cost safety improvements, typically $500,000 or less.

HIGHWAY SAFETY SHARE

ODOT'S HIGHWAY SAFETY IMPROVEMENT PROGRAM

ODOT'S HIGHWAY SAFETY IMPROVEMENT PROGRAM



ODOT PROGRAM RESOURCE GUIDE

[Program Resource Guide | Ohio Department of Transportation]

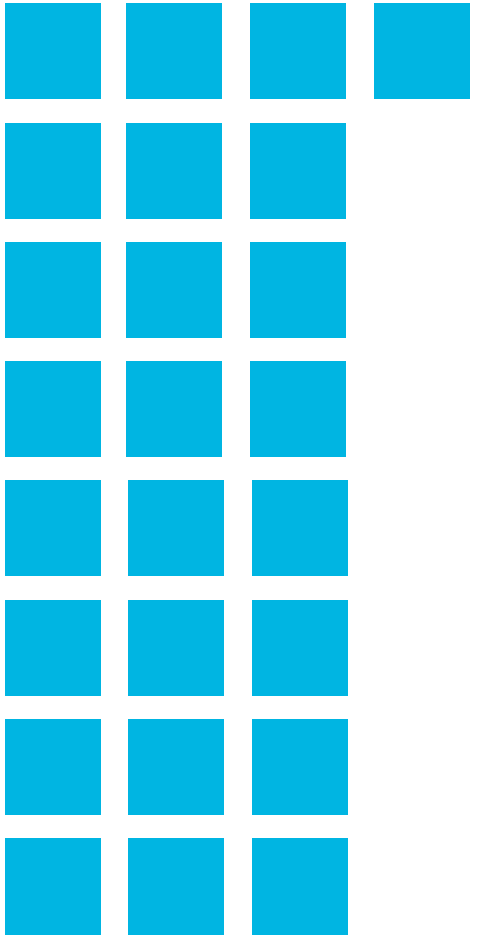
IMPACT TO DISCRETIONARY GRANTS

OVERVIEW OF BIL

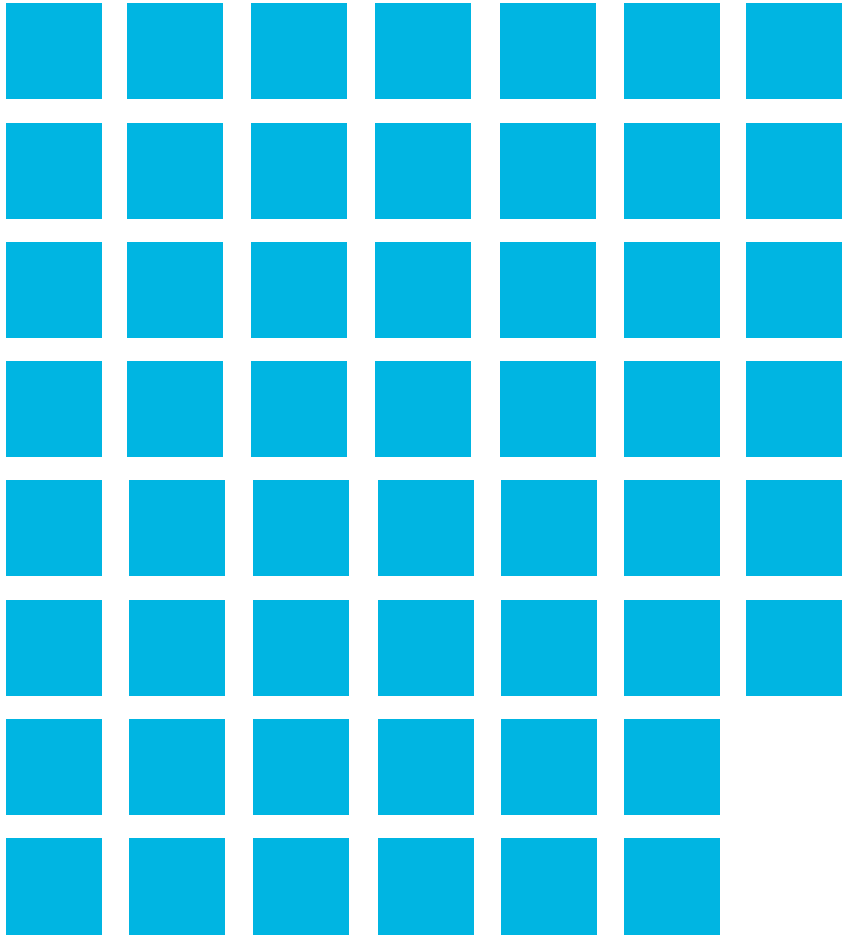
An estimated 30% of funding authority provided by BIL is for federal discretionary grants.

DISCRETIONARY GRANT BACKGROUND

FAST-ACT



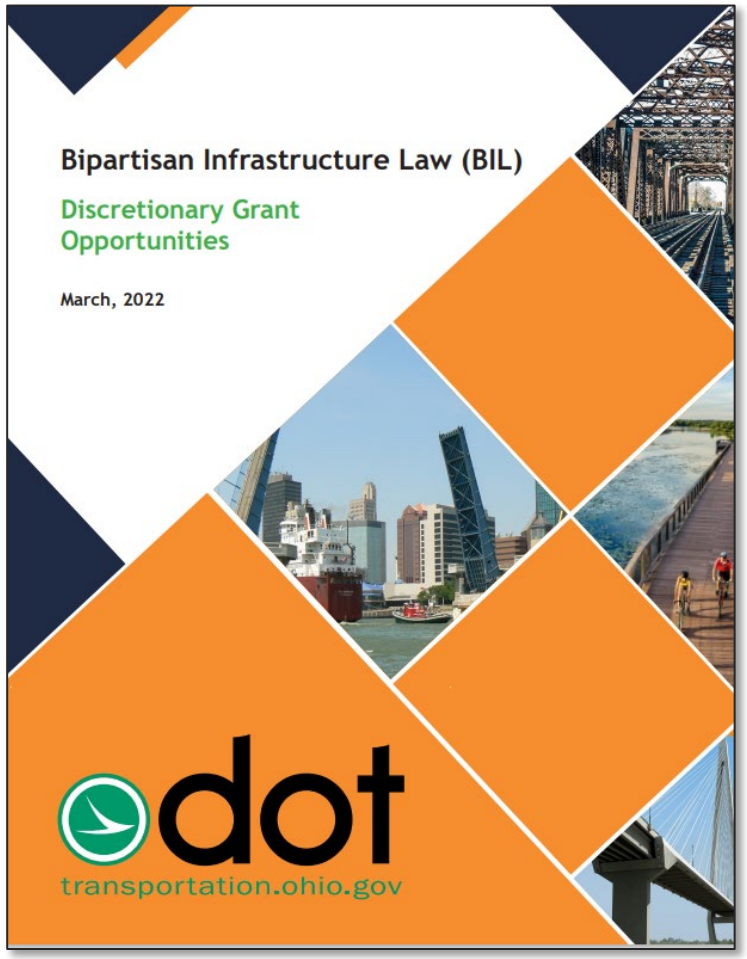
IIJA/BIL

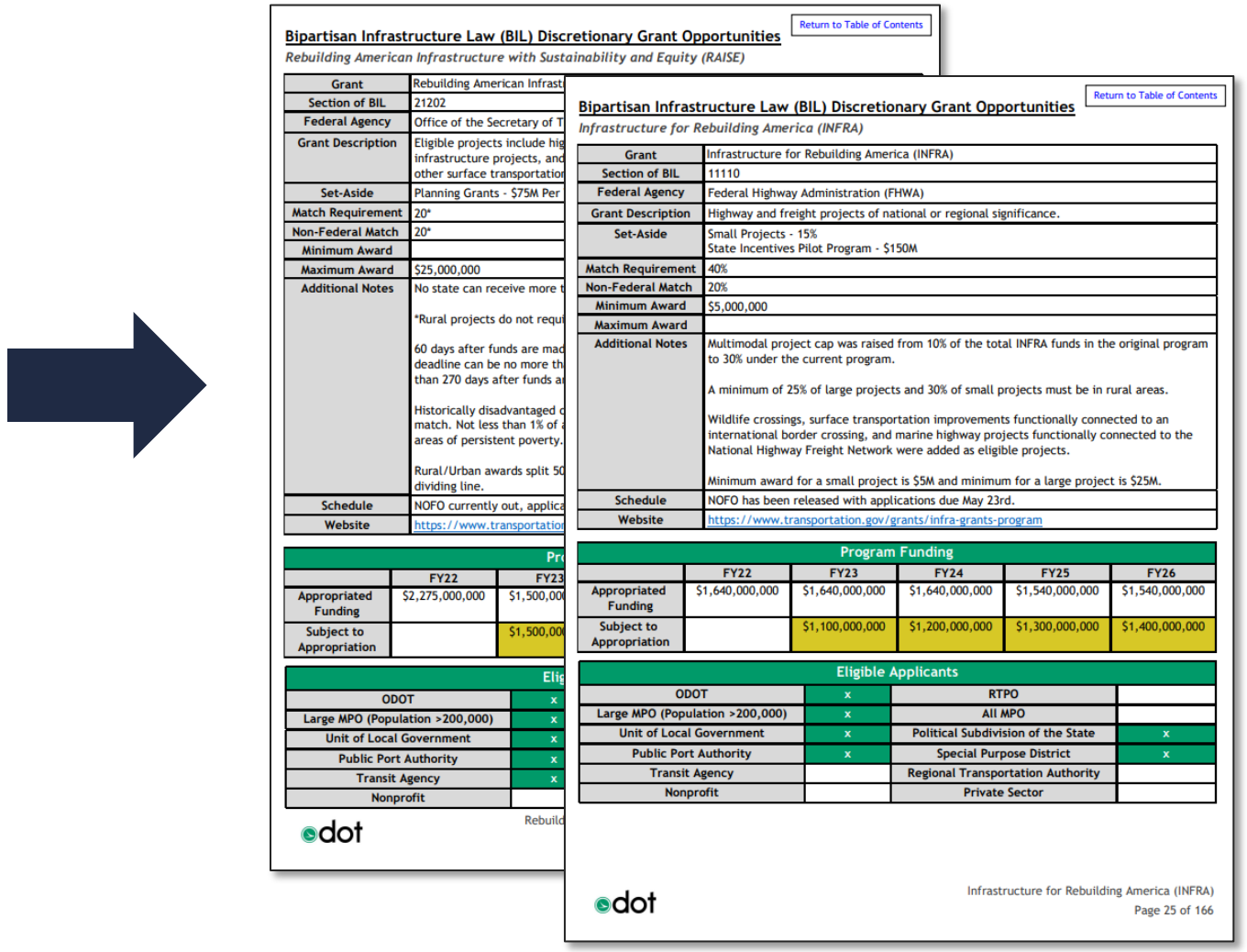


AT RELATED DISCRETIONARY GRANTS

- RAISE
- Safe Streets For All
- Reconnecting Communities
- Active Transportation Investment Program
- Rural Surface Transportation Grant Program
- Neighborhood Access and Equity Grant Program

ADDITIONAL RESOURCES





Bipartisan Infrastructure Law (BIL) Discretionary Grant Opportunities

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Rebuilding American Infrastructure with Sustainability and Equity (RAISE)

Grant	Rebuilding American Infrast
Section of BIL	21202
Federal Agency	Office of the Secretary of T
Grant Description	Eligible projects include hig infrastructure projects, and other surface transportation
Set-Aside	Planning Grants - $75M Per
Match Requirement	20*
Non-Federal Match	20*
Minimum Award	
Maximum Award	$25,000,000
Additional Notes	No state can receive more t *Rural projects do not requi 60 days after funds are mad deadline can be no more th than 270 days after funds a Historically disadvantaged c match. Not less than 1% of a areas of persistent poverty. Rural/Urban awards split 50 dividing line.
Schedule	NOFO currently out, applica
Website	https://www.transportatio

	FY22	FY23
Appropriated Funding	$2,275,000,000	$1,500,00
Subject to Appropriation		$1,500,00

ODOT	x
Large MPO (Population >200,000)	x
Unit of Local Government	x
Public Port Authority	x
Transit Agency	x
Nonprofit	

dot

Rebuild

Bipartisan Infrastructure Law (BIL) Discretionary Grant Opportunities

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Infrastructure for Rebuilding America (INFRA)

Grant	Infrastructure for Rebuilding America (INFRA)
Section of BIL	11110
Federal Agency	Federal Highway Administration (FHWA)
Grant Description	Highway and freight projects of national or regional significance.
Set-Aside	Small Projects - 15% State Incentives Pilot Program - $150M
Match Requirement	40%
Non-Federal Match	20%
Minimum Award	$5,000,000
Maximum Award	
Additional Notes	Multimodal project cap was raised from 10% of the total INFRA funds in the original program to 30% under the current program. A minimum of 25% of large projects and 30% of small projects must be in rural areas. Wildlife crossings, surface transportation improvements functionally connected to an international border crossing, and marine highway projects functionally connected to the National Highway Freight Network were added as eligible projects. Minimum award for a small project is $5M and minimum for a large project is $25M.
Schedule	NOFO has been released with applications due May 23rd.
Website	https://www.transportation.gov/grants/infra-grants-program

Program Funding

	FY22	FY23	FY24	FY25	FY26
Appropriated Funding	$1,640,000,000	$1,640,000,000	$1,640,000,000	$1,540,000,000	$1,540,000,000
Subject to Appropriation		$1,100,000,000	$1,200,000,000	$1,300,000,000	$1,400,000,000

Eligible Applicants

ODOT	x	RTPO	
Large MPO (Population >200,000)	x	All MPO	
Unit of Local Government	x	Political Subdivision of the State	x
Public Port Authority	x	Special Purpose District	x
Transit Agency		Regional Transportation Authority	
Nonprofit		Private Sector	

dot

Transportation.ohio.gov/bil

OTHER PROGRAMS TO LEVERAGE - ODNR

- Clean Ohio Trails Fund

Clean Ohio Trail Fund (ohiodnr.gov)

- Recreational Trails Program

Recreational Trails Program | Ohio Department of Natural Resources (ohiodnr.gov)

EQUITY CONSIDERATIONS

JUSTICE40

A WHOLE-OF-GOVERNMENT INITIATIVE

EQUITY CONSIDERATIONS – ODOT'S HSIP PROGRAM

- Introduced two years ago
- Local match requirement reduced or removed for project sponsors in fiscal distress
- Project scoring incorporates poverty metrics

Severe Crashes in Ohio - 2017-2019

10%

More serious injuries and deaths

Poverty rate at or above

10%

Severe Pedestrian Crashes in Ohio – 2017-2019

102%

More serious injuries and deaths

Poverty rate at or above

10%

JUSTICE 40

- New federal equity initiative

"Justice40 is an opportunity to address gaps in transportation infrastructure and public services by working toward the goal that many of our grants, programs, and initiatives allocate at least 40% of the benefits from federal investments to disadvantaged communities."

Justice40 Initiative | US Department of Transportation

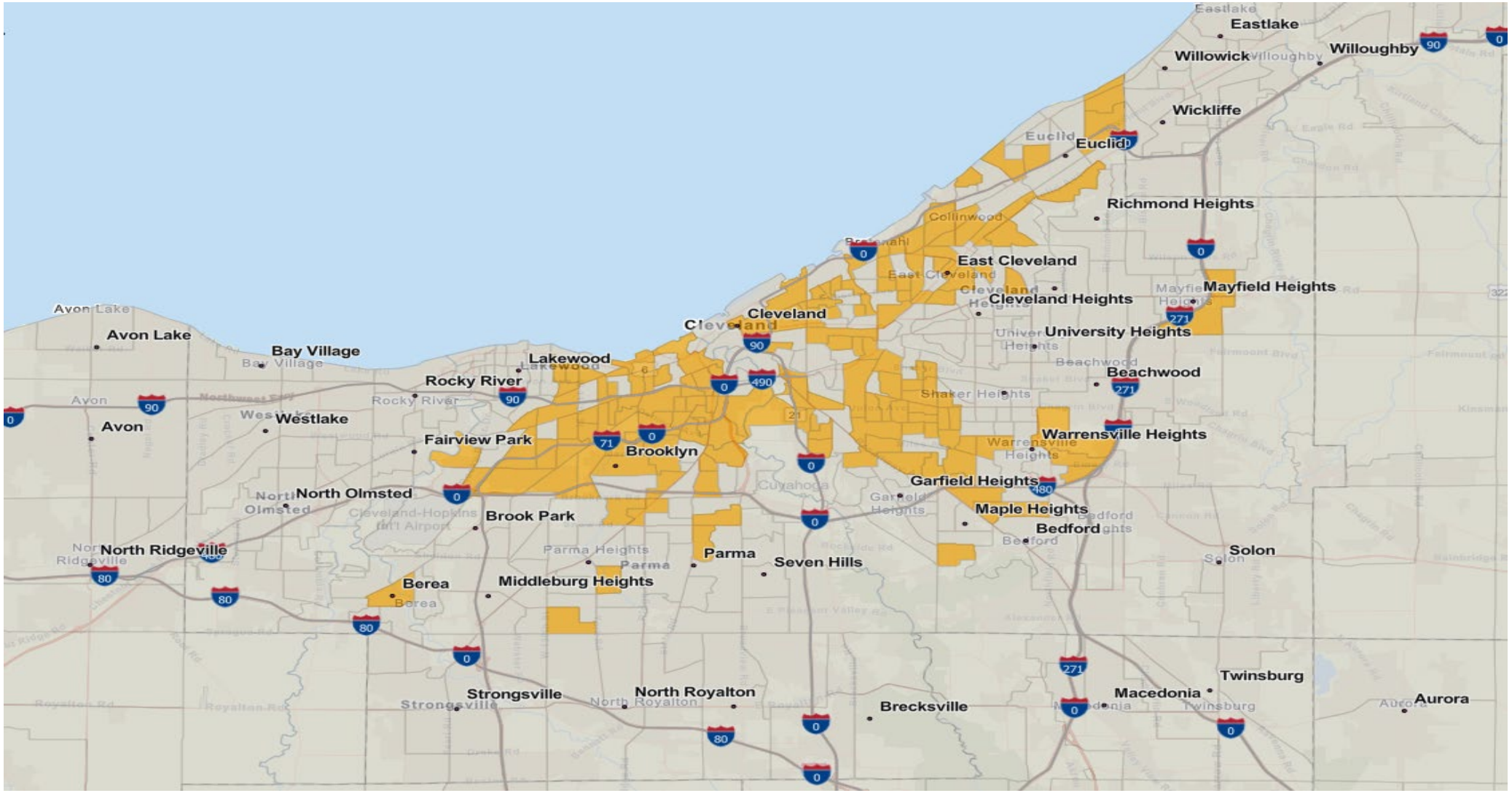
JUSTICE 40 CATEGORIES

- Transportation Access Disadvantages
- Health Disadvantages
- Environmental Disadvantages
- Economic Disadvantages
- Resilience Disadvantages
- Equity Disadvantages

JUSTICE 40 COVERED PROGRAMS

- Congestion Mitigation and Air Quality (CMAQ) Improvement Program
- Transportation Alternatives (TAP)
- Safe Streets and Roads for All (SS4A)
- Rebuilding America's Infrastructure with Sustainability and Equity (RAISE)

JUSTICE 40 TRANSPORTATION DISADVANTAGED TRACKS



WBO CONNECTION

Theme	Strategy
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.

One of the primary ways ODOT assists local communities in project development and implementation is through the provision of funding.

QUESTIONS

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Last updated 9/21/2022

OHIO DEPARTMENT OF TRANSPORTATION

Multimodal Design Guide

Planning & Guidance

Develop statewide, regional, local, and corridor planning initiatives that identify the needs of users and develop equitable recommendations across Ohio.

Establish policy recommendations such as standard operating procedures, legislation, and strategies that ensure bicycling and walking needs are addressed and improve quality of life for all Ohioans.

STRATEGIES:

- **Develop and adopt multimodal planning, design, implementation guidance.**
- **Seek opportunities to support bicycle and pedestrian facility maintenance.**
- **Develop clear, consistent and meaningful evaluation metrics and monitor performance.**

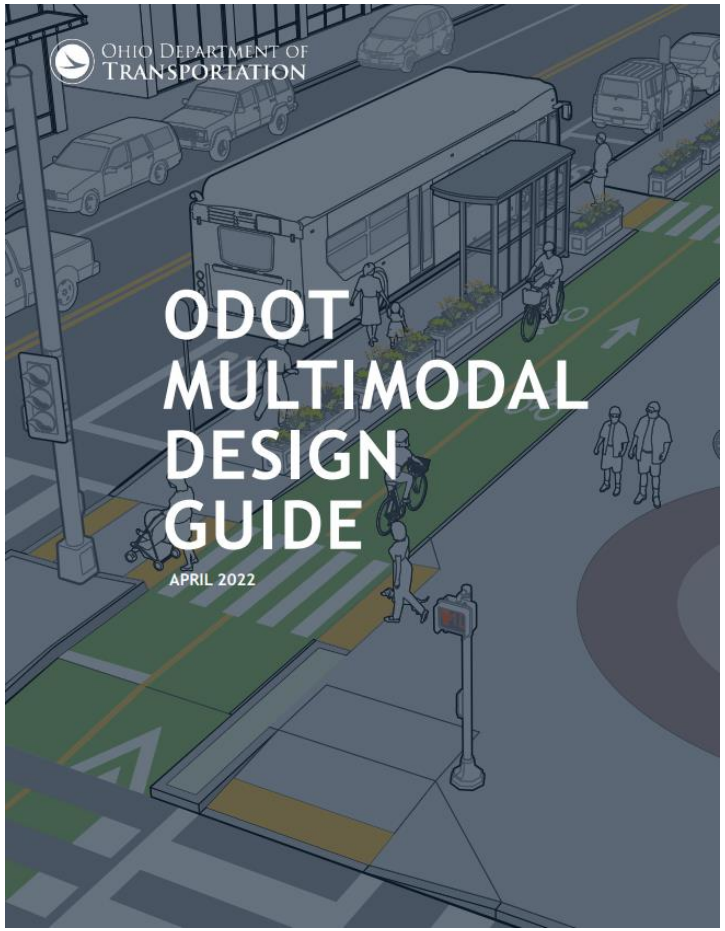
Walk.Bike.Ohio

Strategies

Planning + Guidance

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

Action Items	Category	Progress
P1.2: Develop and promote the new ODOT Multimodal Design Guide and provide training.	✓	• Published in April • 101 training videos developed • 201 trainings open for registration soon



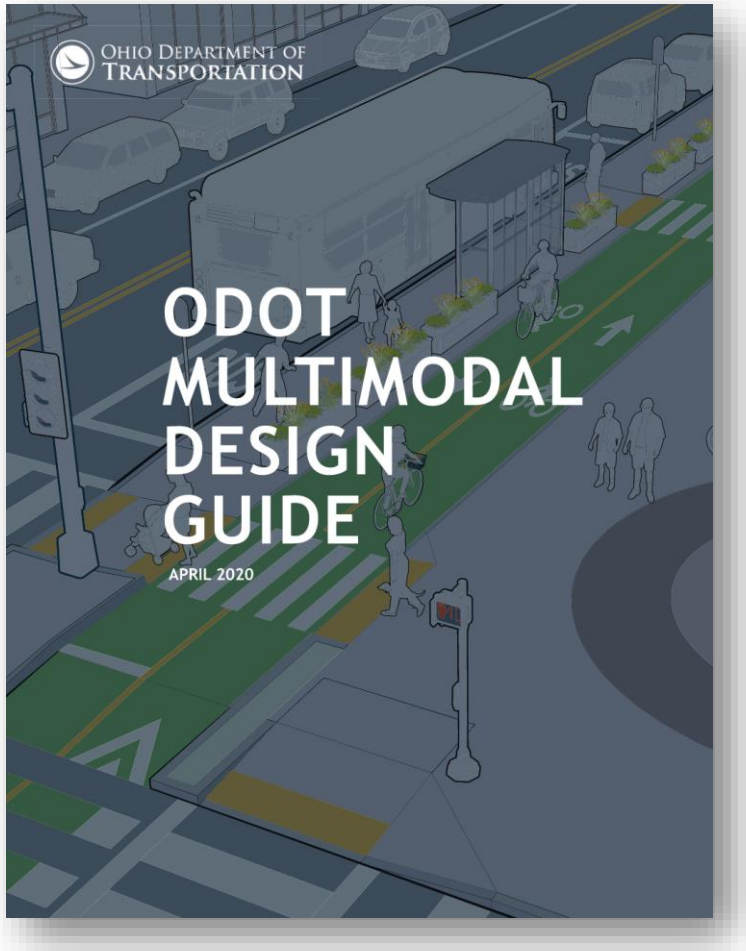
Ohio Department of Transportation

What is the Multimodal Design Guide?

1.1 Purpose

The Multimodal Design Guide (MDG) serves as a source for planners and designers implementing pedestrian and bicycle facilities in ODOT right-of-way and as part of the Local Let Process

By providing comprehensive state-of-the-practice design guidance, the MDG aligns with ODOT's current vision, mission, and goals related to walking and bicycling.

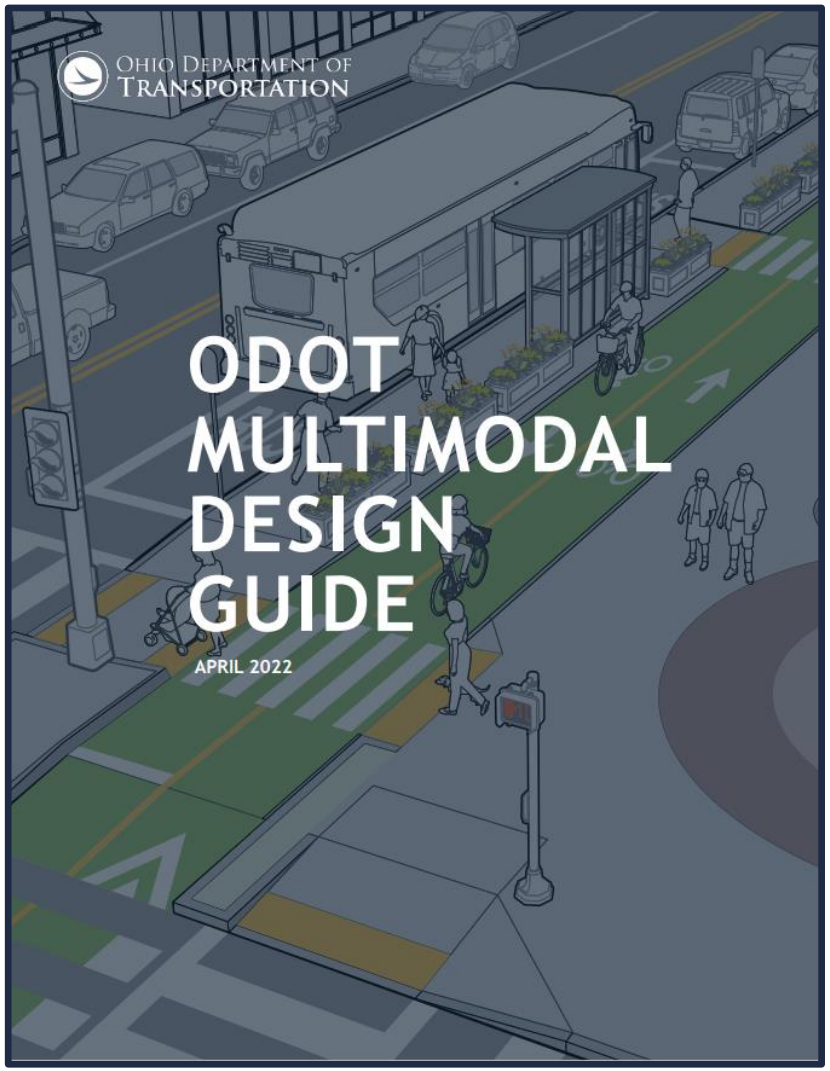


What is the MDG?

ODOT's **premier** bike & ped design resource

Built on **national** best practices

Proven design solutions



Relationship to other Standards & Guides

L&D Vol. I

- 306 Pedestrian Facilities
- 702 Shared Use Paths
- 308 On Road Bicycle Facilities

Multimodal Design Guide Outline:

1. Introduction
2. Multimodal Planning & Design Scoping Process
3. Elements of Design
4. Pedestrian Facilities
5. Shared Use Paths
6. On-Road Bicycle Facilities
7. Motor Vehicle Facilities Supporting Multimodal Accommodation
8. Signals, Beacons, and Signs
9. Multimodal Accommodations at Interchanges & Intersections
10. Transit Facilities
11. Rail Crossings
12. Maintaining Pedestrian and Bicycle Facilities

OHIO DEPARTMENT OF TRANSPORTATION

How does the MDG help Ohio?

Helping Ohio

- Safer roads **for everyone**
- **Consistent** designs

Helping Ohio

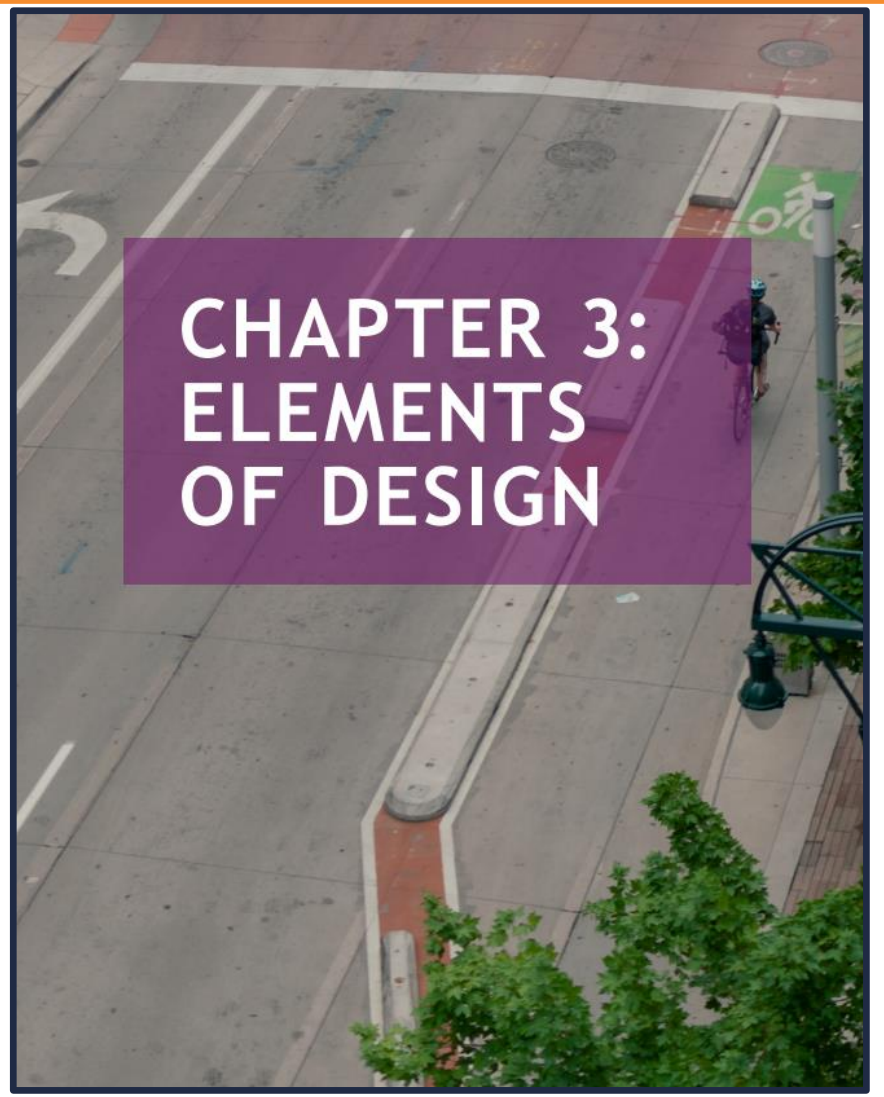
Consolidated
&
Multi-agency
resource

OHIO DEPARTMENT OF TRANSPORTATION

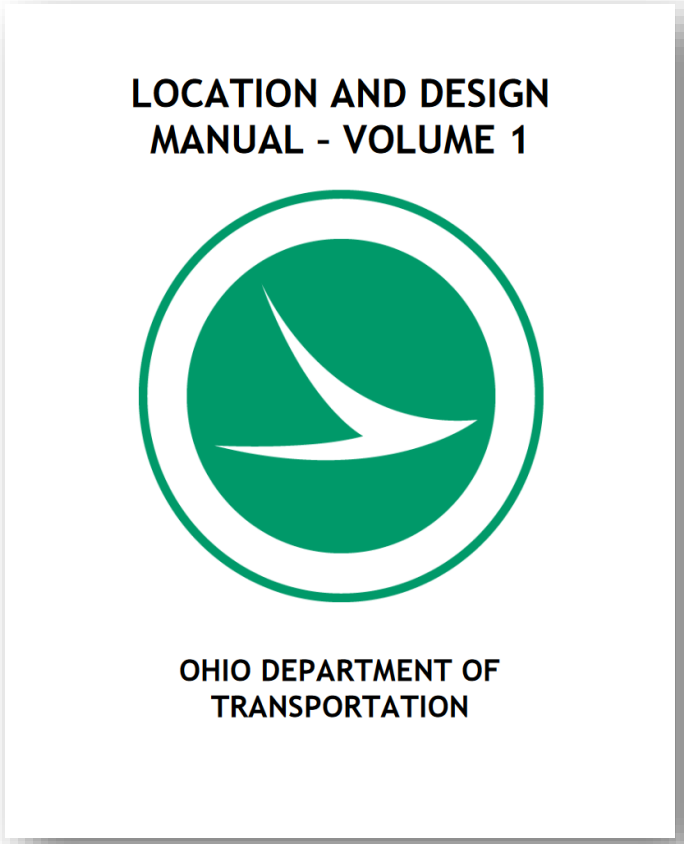
How will the MDG be used?

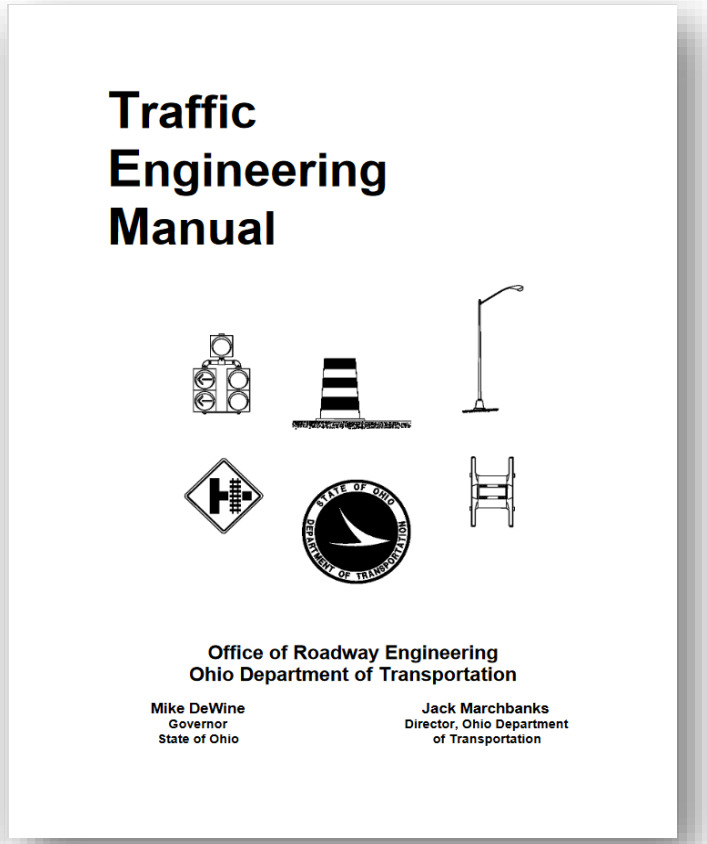
Using the MDG

- Tool to include vulnerable road users in projects
- Used in combination with other guidance based on
  - Context
  - Funding



Relationship to other Standards & Guides





OHIO DEPARTMENT OF TRANSPORTATION

Notable Topics included in the MDG

Table Of Contents

Multimodal Design Guide Outline:

Section 1.4: Definitions

Examples:

Bikeway – Any road, path, or facility intended for bicycle travel which designates space for bicyclists distinct from motor vehicle traffic. A bikeway does not include shared lanes, sidewalks, signed bicycle routes, or shared lanes with shared lane markings, but does include bicycle boulevards.

Crosswalk – The pedestrian accessible route within a street used to cross a street or portion of a street. Further defined in the *Ohio Revised Code*, Section 4511.01(LL), as (1) that part of a roadway at intersections ordinarily included within the real or projected prolongation of property lines and curb lines or, in the absence of curbs, the edges of the traversable roadway; (2) any portion of a roadway at an intersection or elsewhere, distinctly indicated for pedestrian crossing by lines or other markings on the surface; (3) Notwithstanding definitions (1) and (2), there shall not be a crosswalk where local authorities have placed signs indicating no crossing.

2.4 Context Sensitive Design

Chapter 2: Multimodal Planning & Design Scoping Process

LAND USE CONTEXT CLASSIFCATION	RURAL		RURAL TOWN	SUBURBAN		URBAN		URBAN CORE
LAND USE TYPE	*NATURAL*	*AGRICULTURAL*	*RESIDENTIAL OR COMMERCIAL*	*RESIDENTIAL*	*COMMERCIAL*	*RESIDENTIAL*	*COMMERCIAL*	*DOWNTOWN CENTER*

Source: Florida DOT Context Classifications Modified by Toole Design

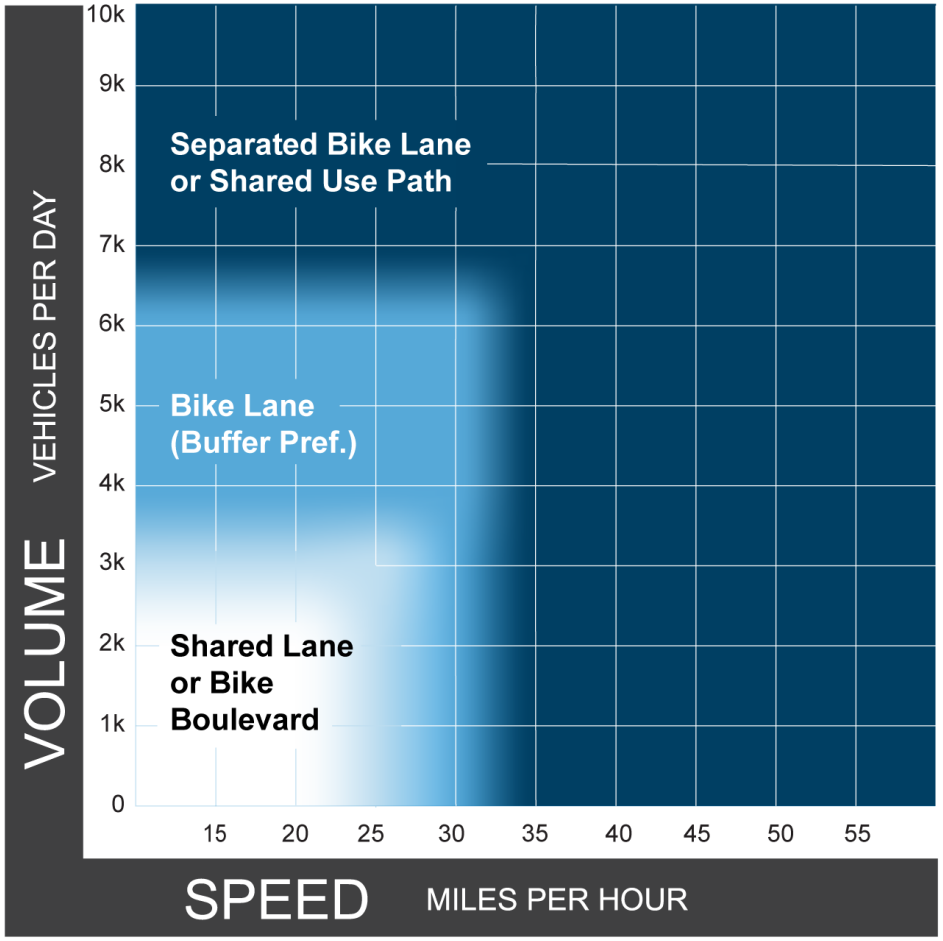
2.5.1 Pedestrian Facilities

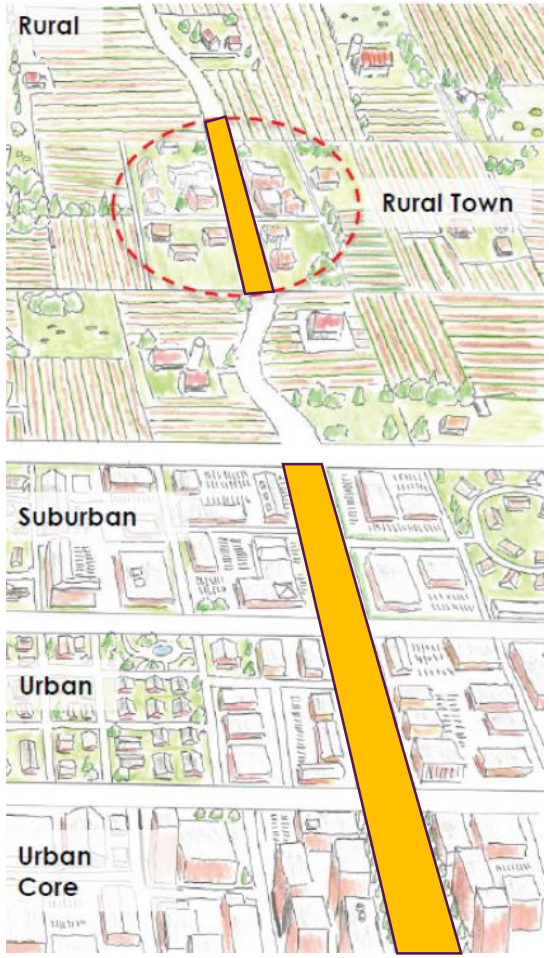
Chapter 2: Multimodal Planning & Design Scoping Process

Land Use Context Classifications	Sidewalk/Walkway
Rural	Paved shoulders
	Shared Streets
	Shared use paths
Suburban	Sidewalks on both sides of the roadway
	Shared use paths
Urban Core, Urban, and Rural Town	Sidewalks on both sides of the roadway
	Shared Streets
	Shared Use Path

2.5.2.1 Preferred Bikeway Type

Urban, Urban Core, Suburban, and Rural Town Contexts





Design User Assumption:
Interested But Concerned Bicyclist

Analysis: Bicycle Level of Traffic Stress (LTS)

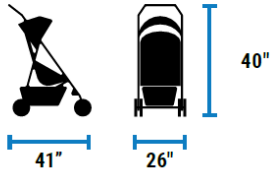
Notes

1. *Chart assumes operating speeds are similar to posted speeds. If they differ, use operating speed rather than posted speed.*
2. *See Section 2.8.1 for a discussion of alternatives if the preferred bikeway type is not feasible.*

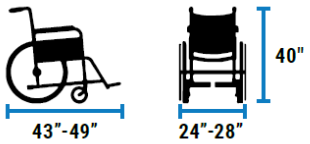
3.2.2 Devices

Chapter 3: Elements of Design

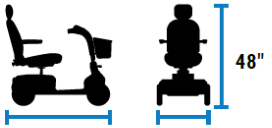
Stroller



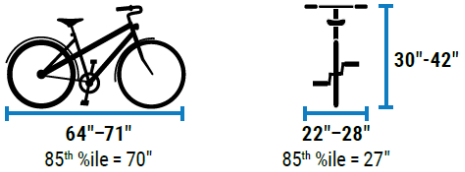
Wheelchair



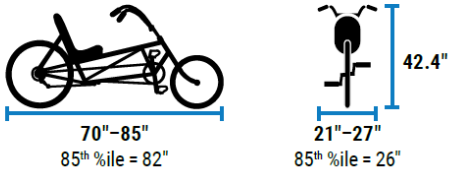
Electric Mobility Scooter



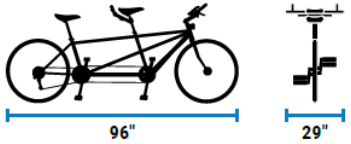
Adult Typical Bicycle



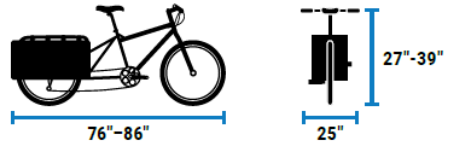
Adult Single Recumbent Bicycle



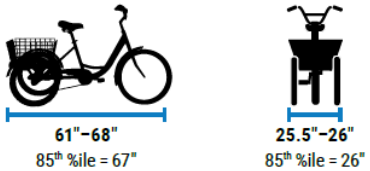
Adult Tandem Bicycle



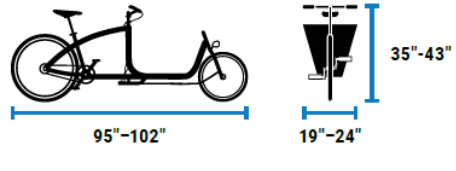
Adult Longtail Cargo Bicycle



Adult Tricycle



Adult Box Bicycle

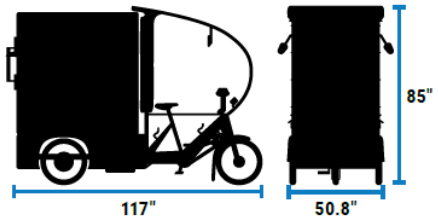


Child Trailer

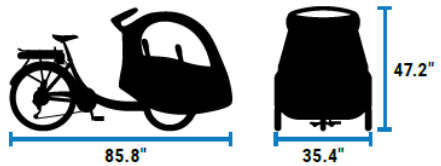
Trailer Bicycle

*note: some cargo trailers can be up to 48" wide

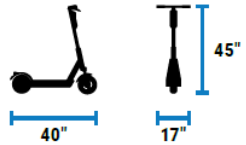
E-Assist Delivery Trike



Adult Cargo Bike



Electric Scooter

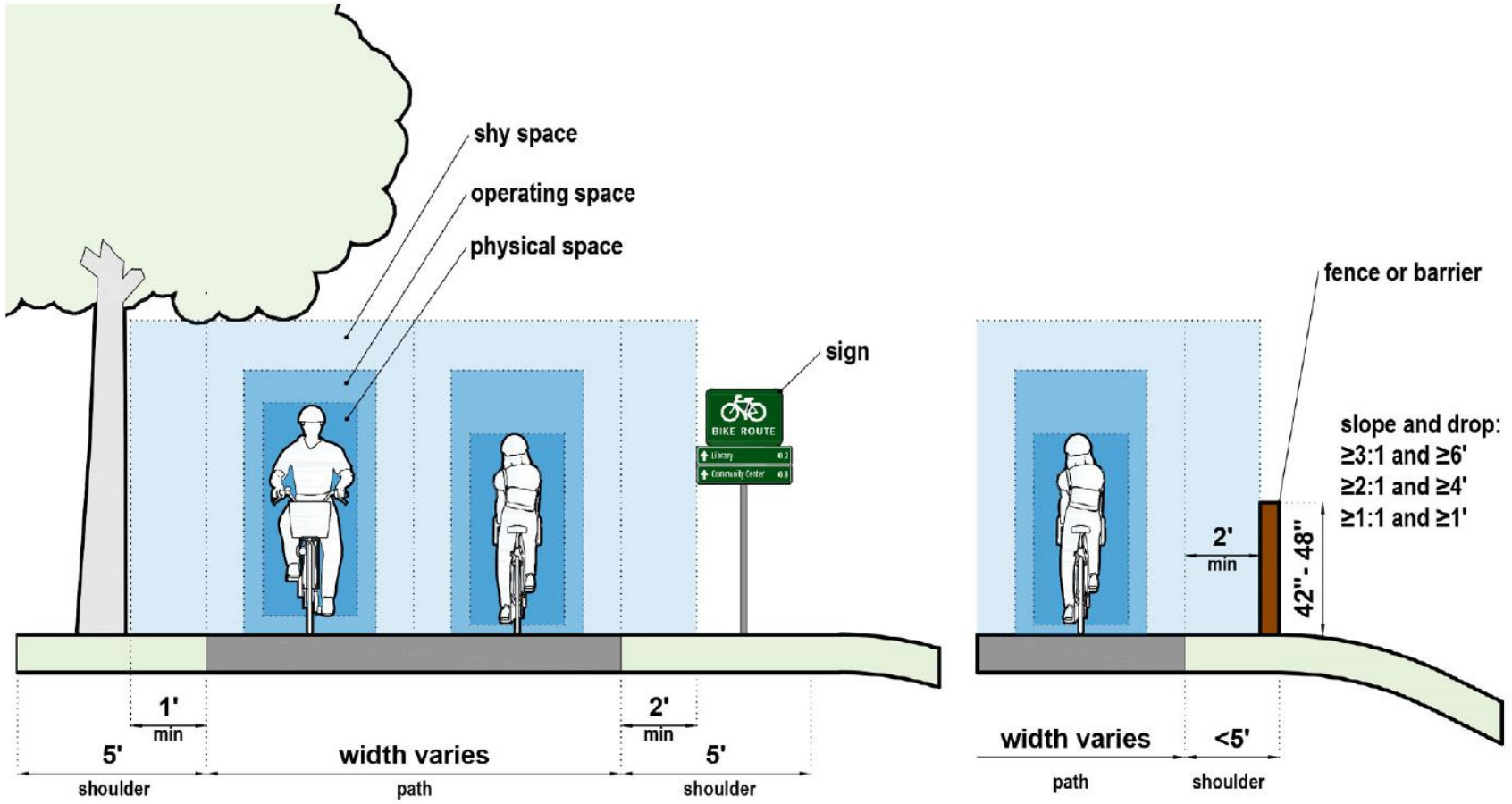


5.3.1 Width & Clearances

Chapter 5: Shared Use Paths

Shoulder Design Criteria:

- Width ≥ 5ft.
- Cross Slope 6:1 max
- Shy Space per Table 3.13



5.3.1 Width & Clearances

Chapter 5: Shared Use Paths

Table 5-1: Shared Use Path Widths for Anticipated Peak Hour Volumes

Shared Use Path Operating Widths			
Minimum (ft)	SUPLOS "C" Peak Hour Volumes at Preferable Width	Constrained (ft)	SUPLOS "D" Peak Hour Volumes at Minimum Width
10 – 12	150 - 300	8	50
12 – 15	300 - 500	11	400
16 – ≥20	500 - ≥600	15	600

5.6 Shared Use Path Intersection Design

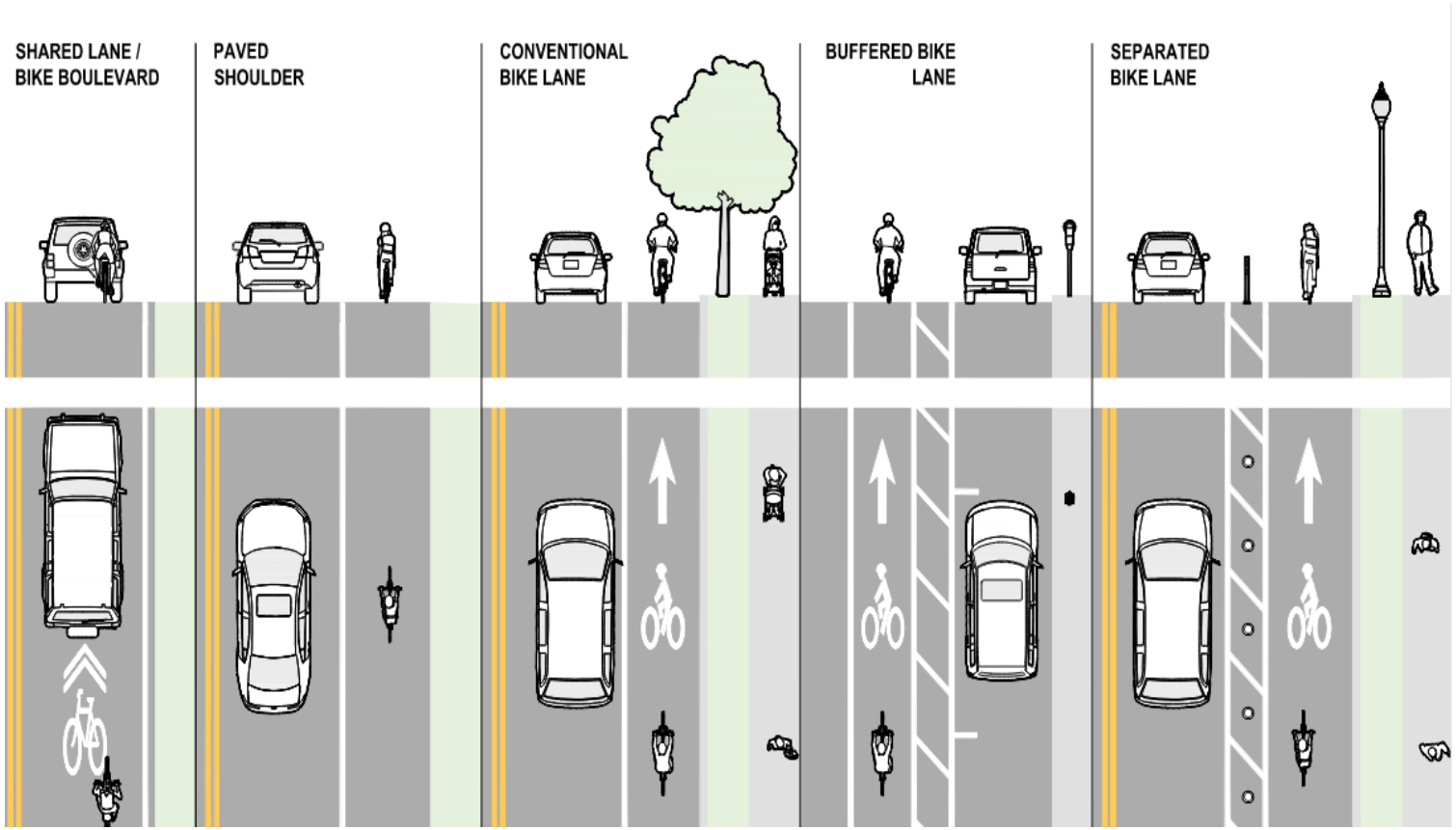
There are three primary design objectives:

- Alert the motorists and path users to the crossing
- Communicate who has the obligation to yield to whom
- Enable the motorists and/ or path users to fulfill their obligations

6.3 On Road Bicycle Facilities

Chapter 6: On-Road Bicycle Facilities

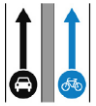
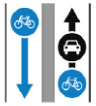
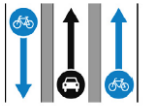
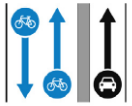
- Bicycle Routes
- Shared Lanes
- Bicycle Boulevards
- Paved Shoulders
- Conventional Bike Lanes
- Buffered Bicycle Lanes
- Raised Bicycle Lanes
- Separated Bicycle Lanes



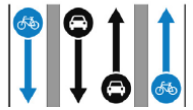
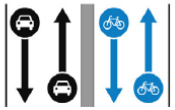
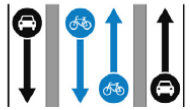
6.3.7. Separated Bicycle Lanes

Chapter 6: On-Road Bicycle Facilities

Configuration on a One-Way Street

Corridor-level Planning Considerations	One-way SBL	Counterflow SBL	One-way SBL Plus Counterflow SBL	Two-way SBL
				
Access to Destinations	Limited access to other side of street		Full access to both sides of street	Limited access to other side of street
Network Connectivity	Does not address demand for counterflow bicycling, may result in wrong way riding	Requires bicyclists traveling in the direction of traffic to share the lane (may result in wrong way riding in the SBL); counterflow progression through signals may be less efficient	Accommodates two-way bicycle travel, but counterflow progression through signals may be less efficient	
Crash Risk	Lower because pedestrians and turning drivers expect concurrent bicycle traffic	Higher because pedestrians and turning drivers may not expect counterflow bicycle traffic		
Intersection Operations	May use existing signal phases; separate bicycle phase may be required depending on vehicle volumes	Typically requires additional signal equipment; separate bicycle phase may be required depending on vehicle volumes		

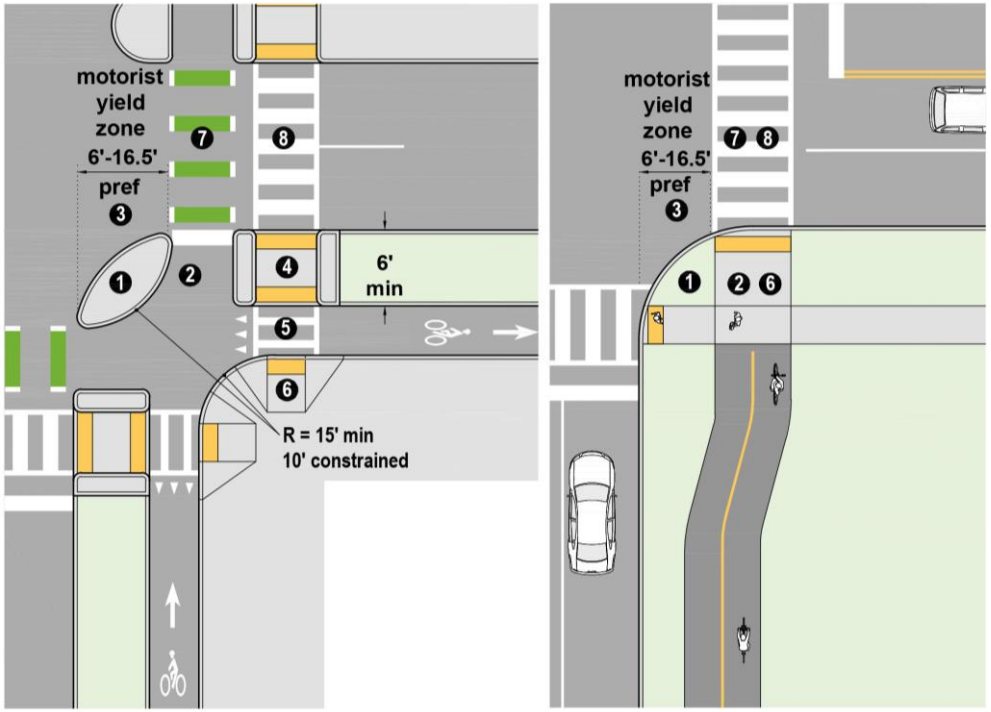
Configuration on a Two-Way Street

Corridor-level Planning Considerations	One-way SBL Pair	Two-way SBL	Median Two-way SBL
			
Access to Destinations	Full access to both sides of street	Limited access to other side of street	Limited access to both sides of street
Network Connectivity	Accommodates two-way bicycle travel		
Crash Risk	Lower because pedestrians and turning drivers expect concurrent bicycle traffic	Higher because pedestrians and turning drivers may not expect counterflow bicycle traffic	Higher because pedestrians and turning drivers may not expect counterflow bicycle traffic, but median location may improve visibility and create opportunities to separate conflicts
Intersection Operations	May use existing signal phases; separate bicycle phase may be required depending on vehicle volumes	Typically requires additional signal equipment; separate bicycle phase may be required depending on vehicle volumes	

6.5.2 SBL (& Sidepath) Intersection Design

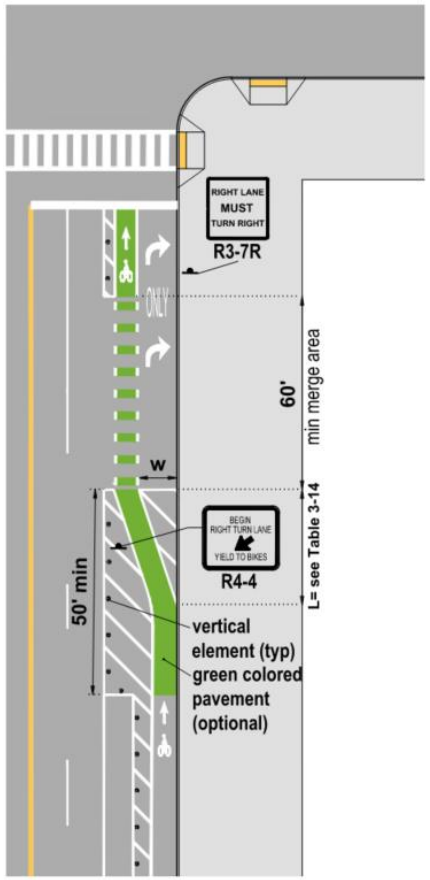
Chapter 6: On-Road Bicycle Facilities

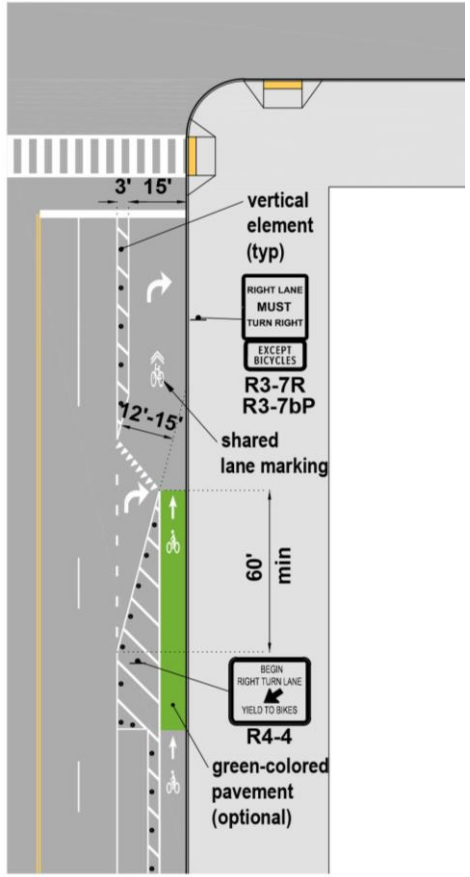
Protected Intersections Preferred



1. corner island
2. forward bicycle queuing area
3. motorist yield zone
4. pedestrian refuge island
5. pedestrian crossing of the separated bike lane
6. pedestrian curb ramp
7. bicycle crossing of travel lanes
8. pedestrian crossing of travel lanes

Mixing Zone Options for Constrained Conditions

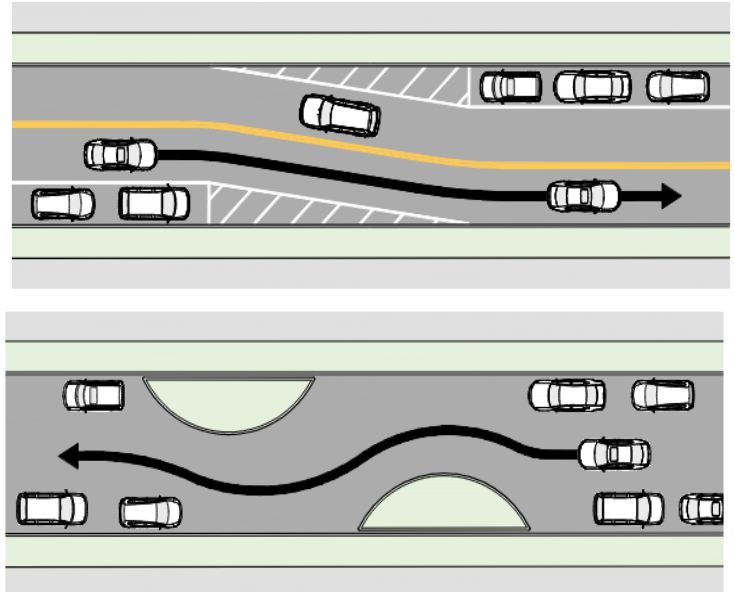




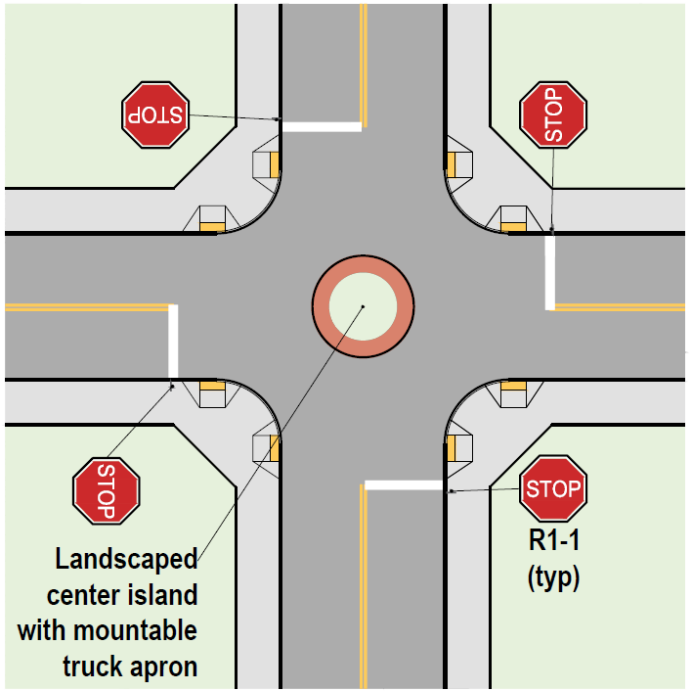
7.8.2 Horizontal Deflection

Chapter 7: Motor Vehicle Facilities Supporting Multimodal Accommodation

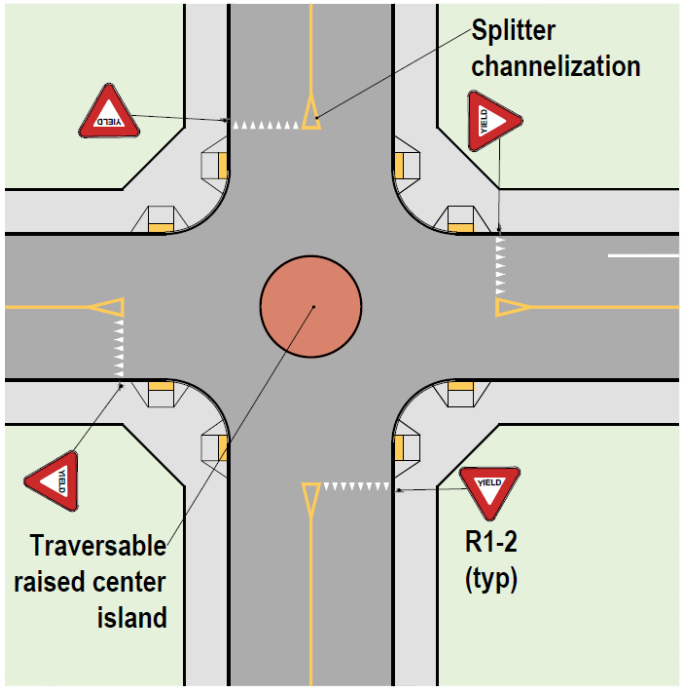
Lateral Shifts & Chicanes



Traffic Circles



Mini- and Modern Roundabouts



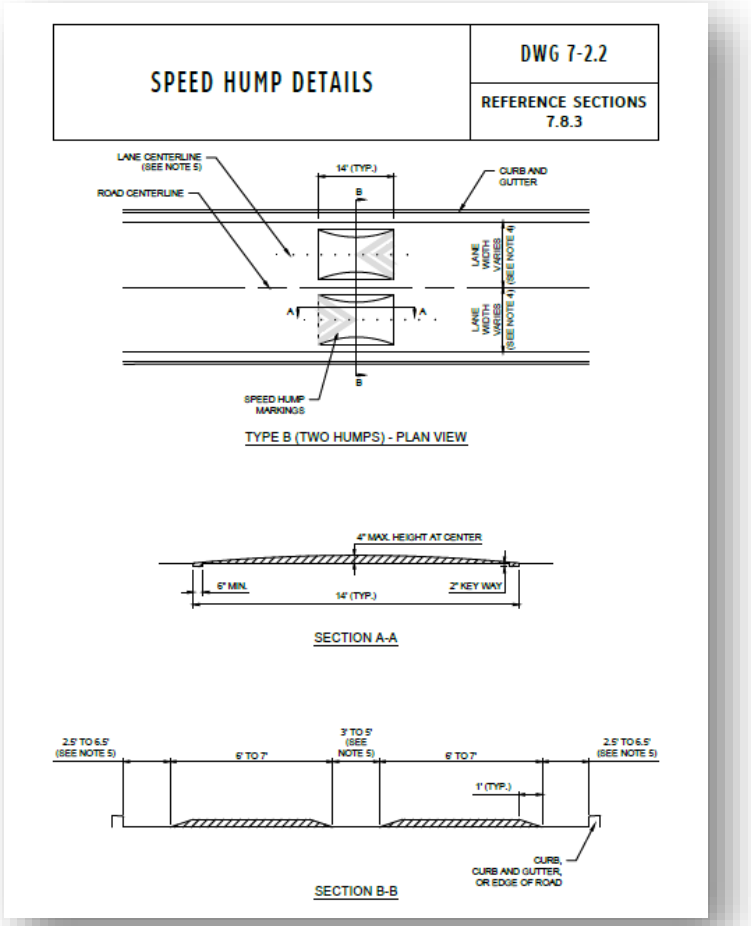
7.8.3 Vertical Deflection

Chapter 7: Motor Vehicle Facilities Supporting Multimodal Accommodation

Vertical deflection as a traffic calming measure is only permitted across local and collector streets where posted speeds are less than 35 mph and where roadway grades do not exceed 8%.

Options include:

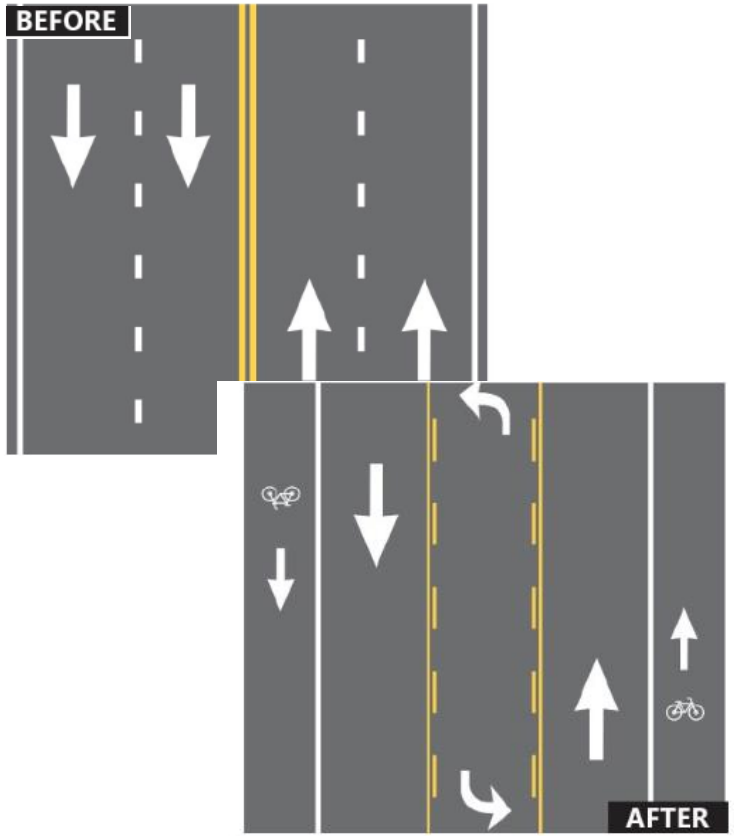
- Speed Humps
- Raised Crossings
- Speed Tables



7.8.4 Street Width Reduction

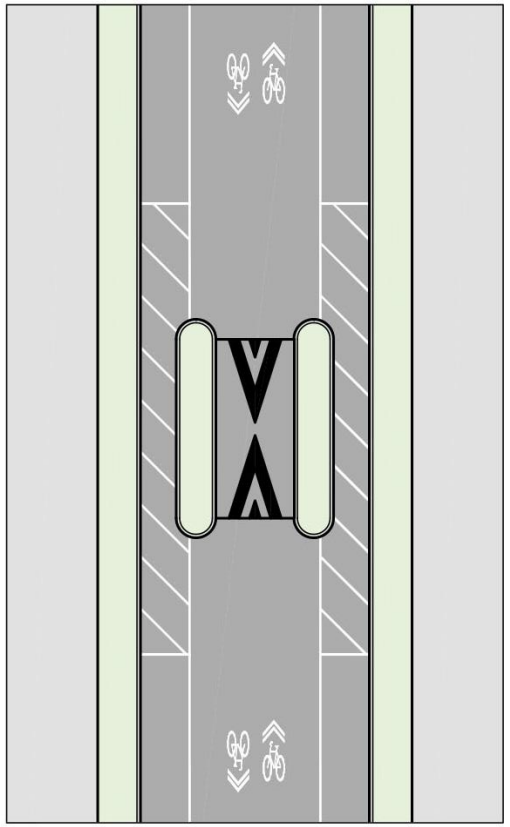
Chapter 7: Motor Vehicle Facilities Supporting Multimodal Accommodation

Road Diet



Yield Streets

One-Lane Pinch Points

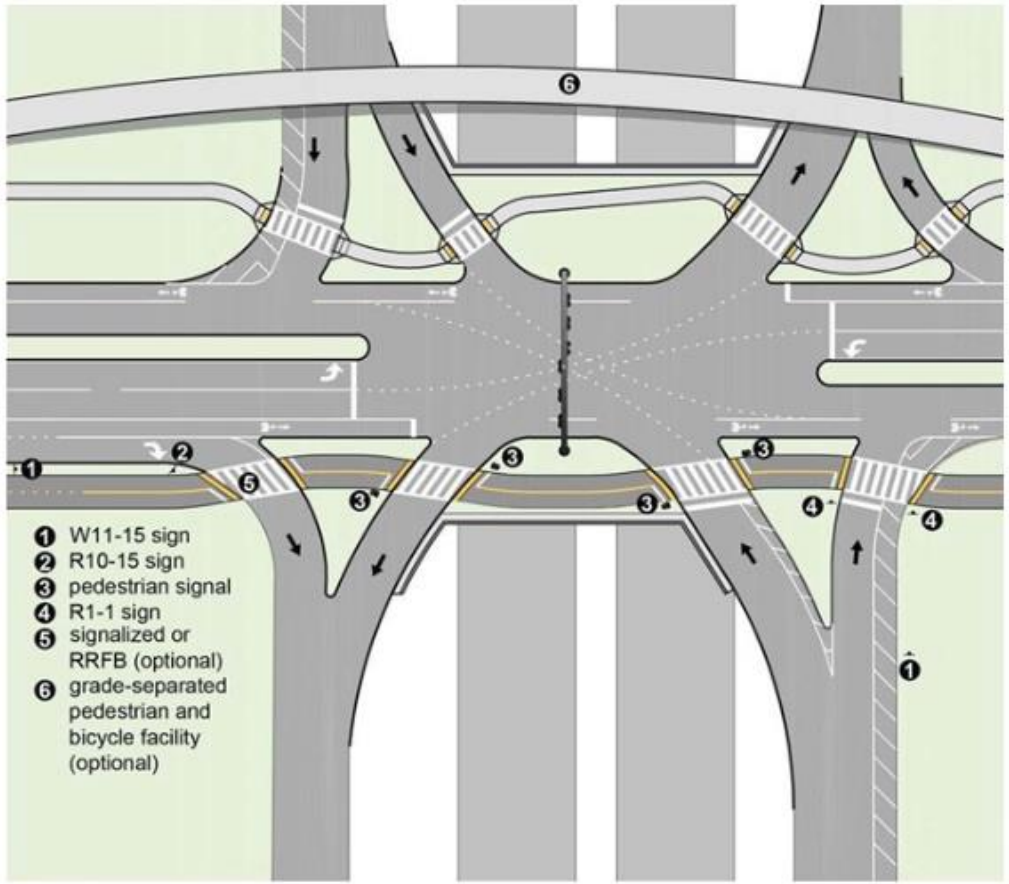


9.3 Interchanges

Chapter 9:Multimodal Accommodations at Interchanges & Intersections

- Diamond Interchanges
- Cloverleaf Interchanges
- Single Point Urban Interchanges (SPUI)
- Diverging Diamond Interchanges (DDI)

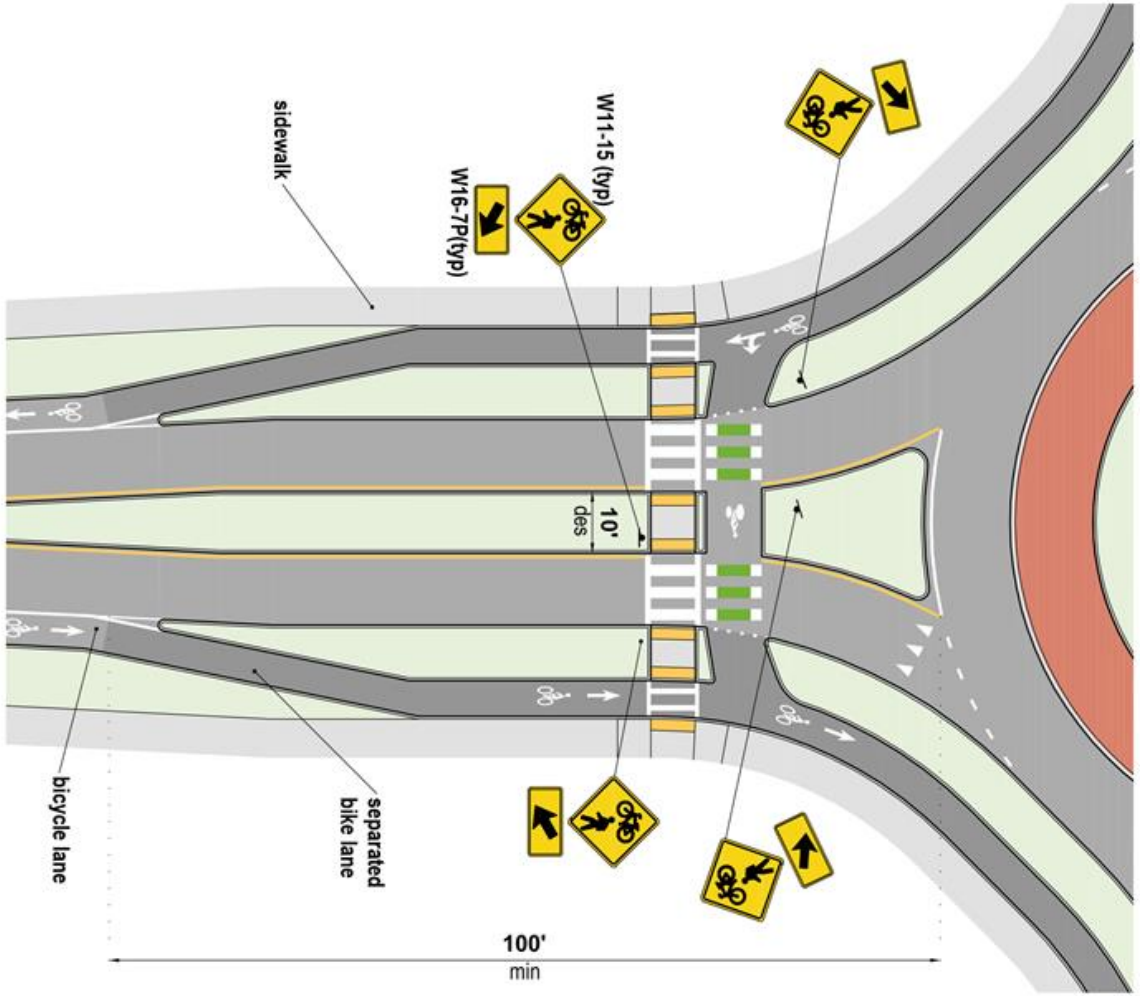
Figure 9-5: Various Bicycle and Pedestrian Treatments at a SPUI



9.4 Alternative Intersections

Chapter 9:Multimodal Accommodations at Interchanges & Intersections

- Median U-Turn (MUT) Intersections
- Restricted Crossing U-Turn (RCUT) Intersections
- Displaced Left Turn (DLT) Intersections
- Roundabout Intersections



Chapter 12: Maintenance

12.2 Management Approaches

12.3 Types of Maintenance

12.4 Winter Maintenance

12.5 Additional Resources

Pickup truck with plow
Approximate Width: 8.5 ft./2.6 meters
Walkway/Bikeway Facility Types: Trails, side paths, 2-way separated bike lanes

Skid loader with snow blower
Approximate Width: 4 ft./1.2 meters
Walkway/Bikeway Facility Types: Walkways, trails, side paths, 2-way separated bike lanes, 1-way separated bike lanes

Miniature tractor with snow blower
Approximate Width: 4 ft./1.2 meters

Lawn mower tractor (converted to winter maintenance vehicle) with broom

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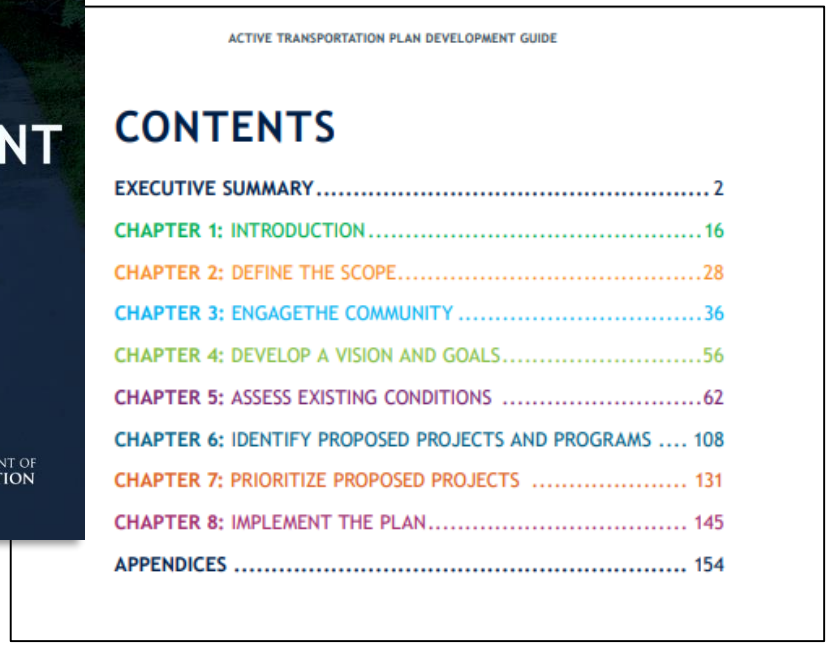
ODOT's AT Plan Guide & Template



ACTIVE TRANSPORTATION PLAN DEVELOPMENT GUIDE

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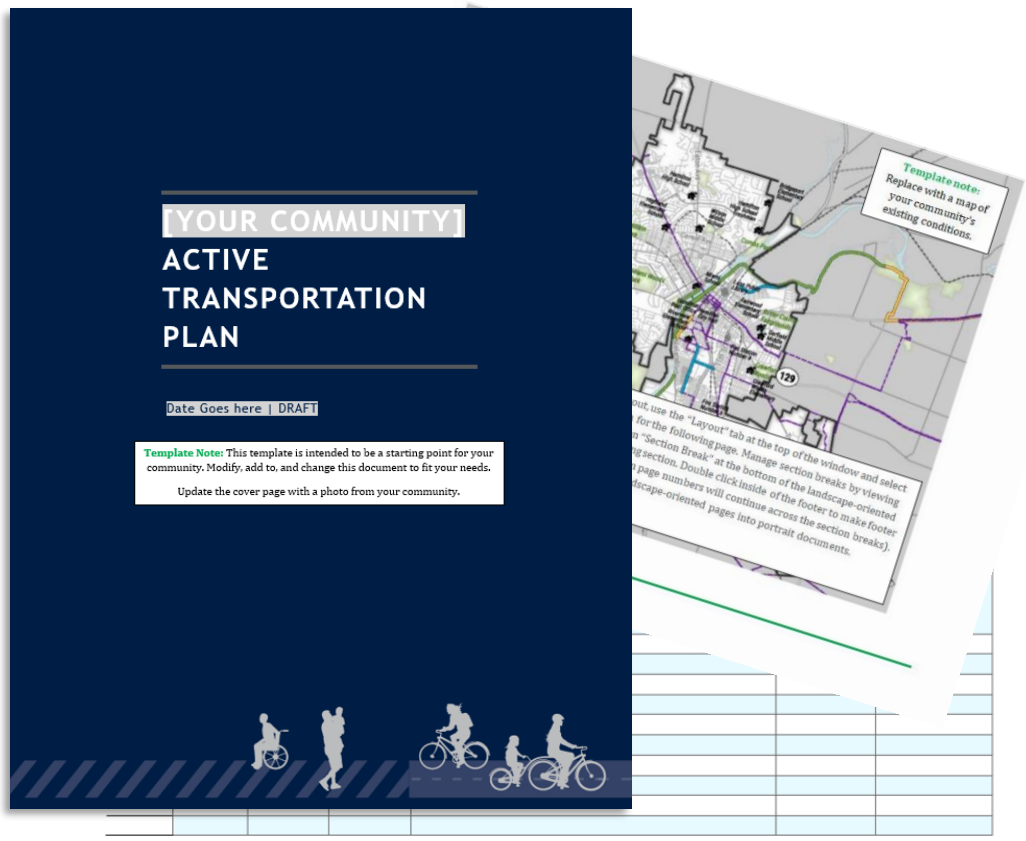


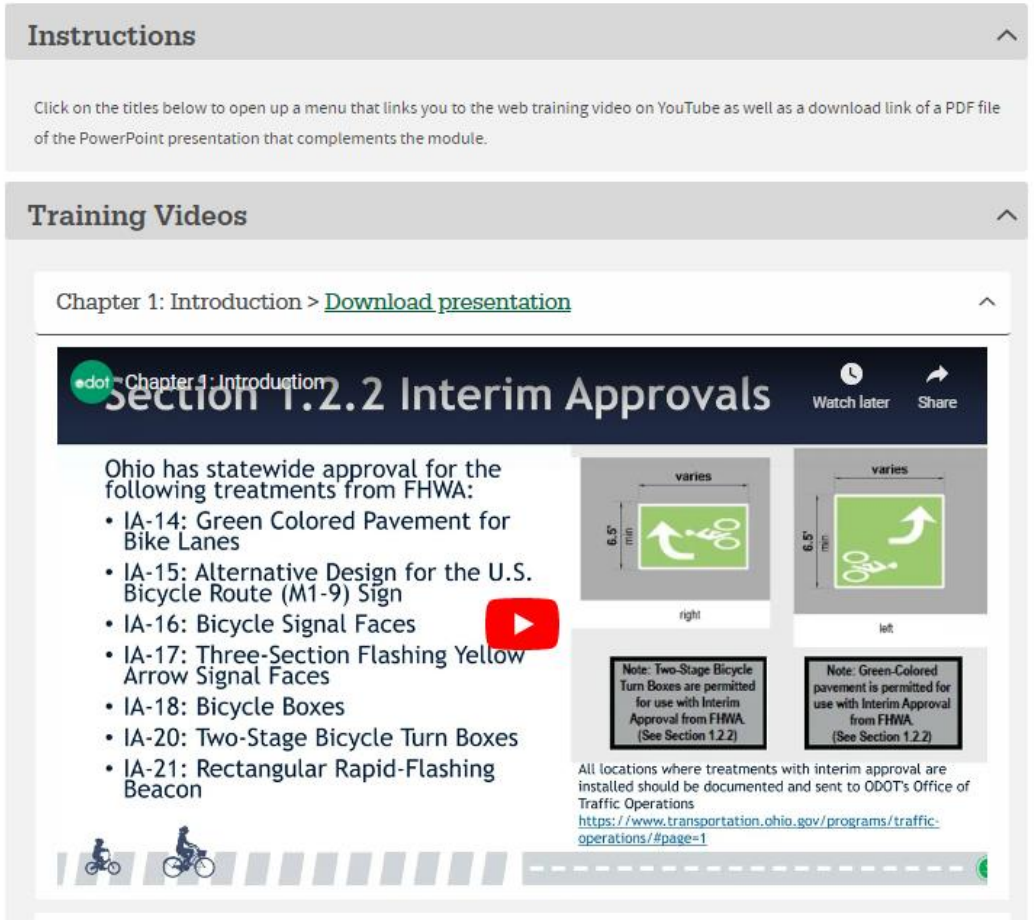
Multimodal Design Guide

Training

MDG 101 Training Videos:

Serve as a series of recorded videos providing an overview of what is in the guide and where to find content.

Coming to the ODOT MDG website soon!



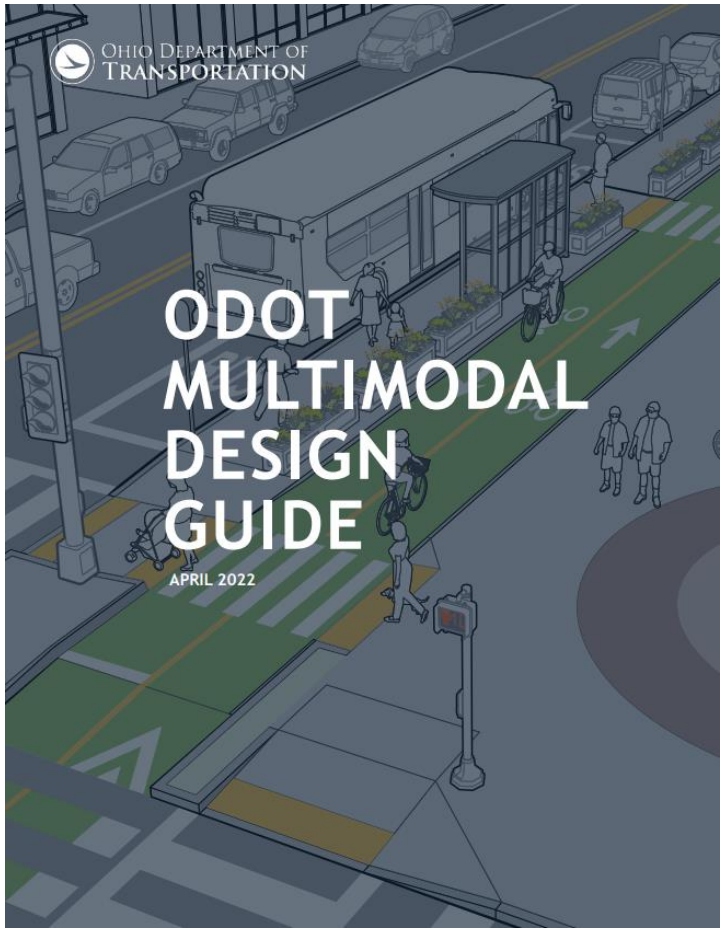
Multimodal Design Guide

Training

MDG 201 Live Trainings:

Serve as a live (but virtual) opportunity for a deeper dive on the MDG and training on applying the design guidance in practice.

- Consists of two, 3-hour training sessions offered over two days
- 201 training sessions on December 6 & 7 and January 25 & 26 will be open to local practitioners, consultants, and partners



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