

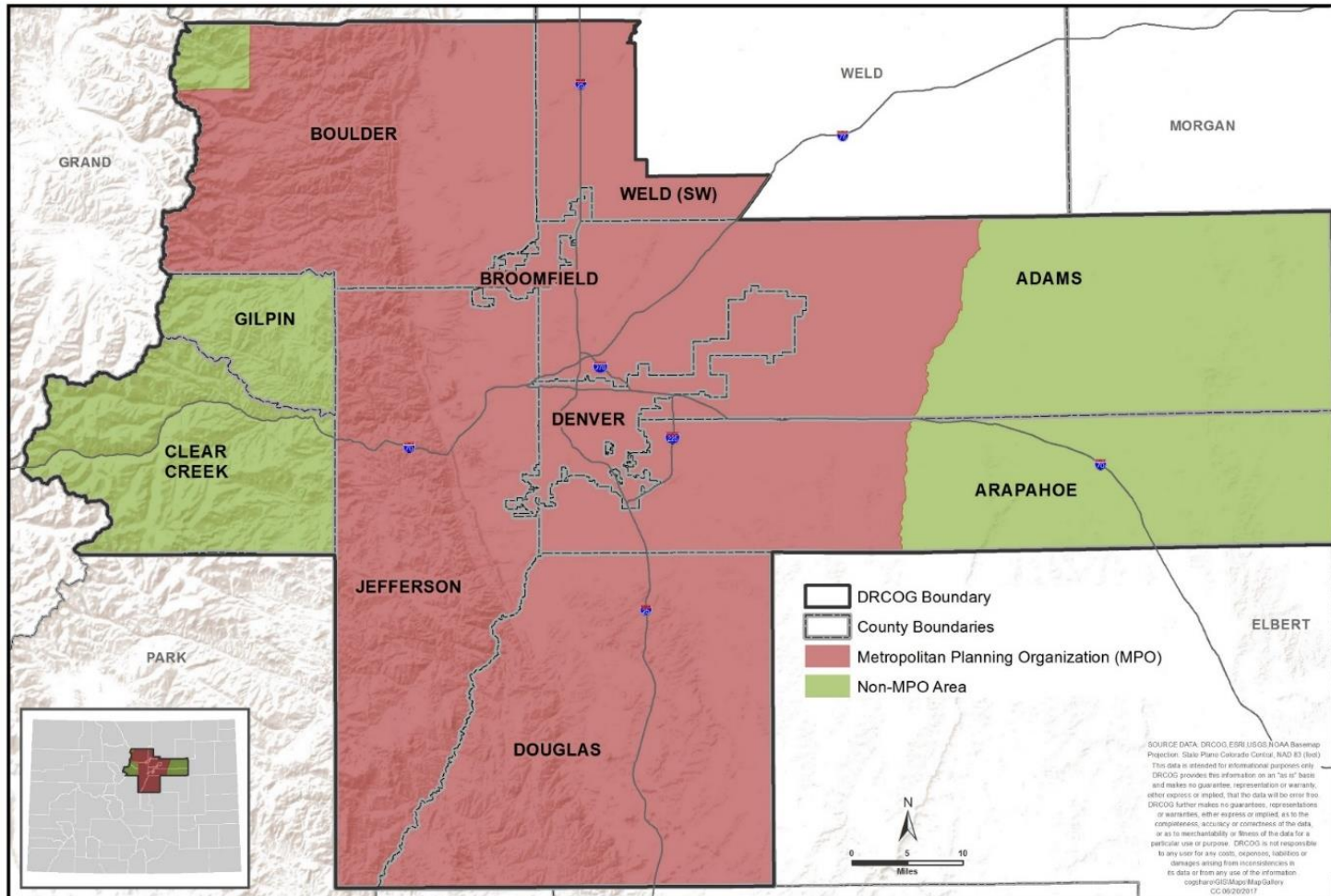


*Presented by:*  
**Emily Lindsey**  
September 23, 2019

# Active Transportation in the Denver Region



# Denver Region



**Today**

**3.1 million  
people**

**1.7 million  
jobs**

**2040**

**4.3 million  
people**

**2.4 million  
jobs**



# Metro Vision

*Metro Vision includes important active transportation elements and promotes “livable communities that meet the needs of people of all ages, incomes and abilities.”*



**Theme 1:** An Efficient and Predictable Development Pattern

**Theme 2:** A Connected Multimodal Region

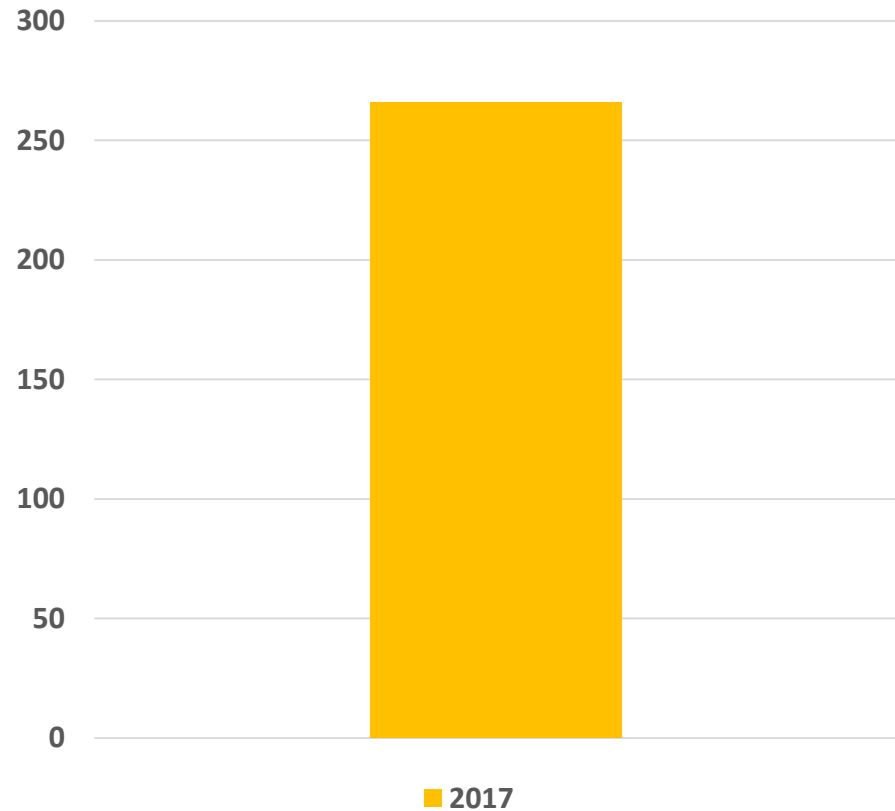
**Theme 3:** A Safe and Resilient Natural and Built Environment

**Theme 4:** Healthy, Inclusive and Livable Communities

**Theme 5:** A Vibrant Regional Economy



# Metro Vision 2040 Target: Safety



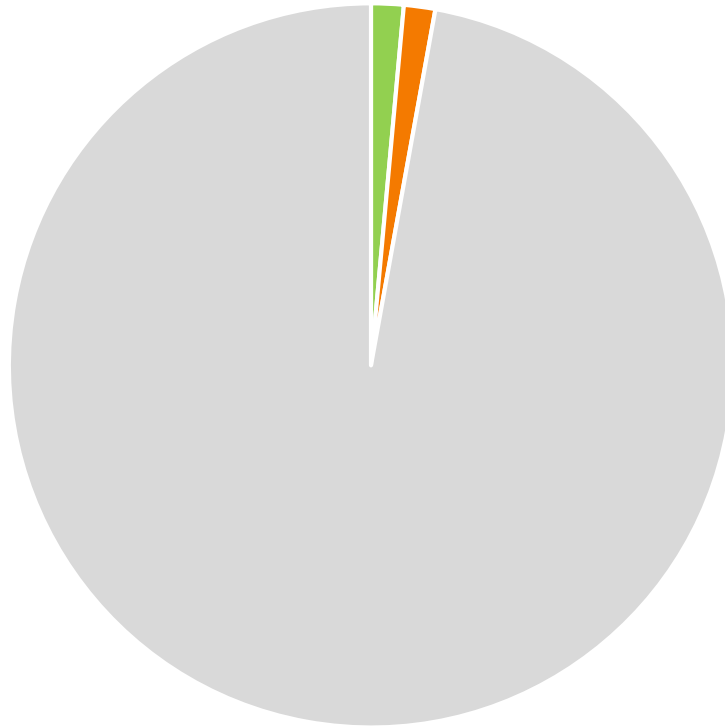
**Fewer than 100** traffic fatalities by **2040**

**266** traffic fatalities in **2017**

Source: NHTSA Fatality Analysis Reporting System

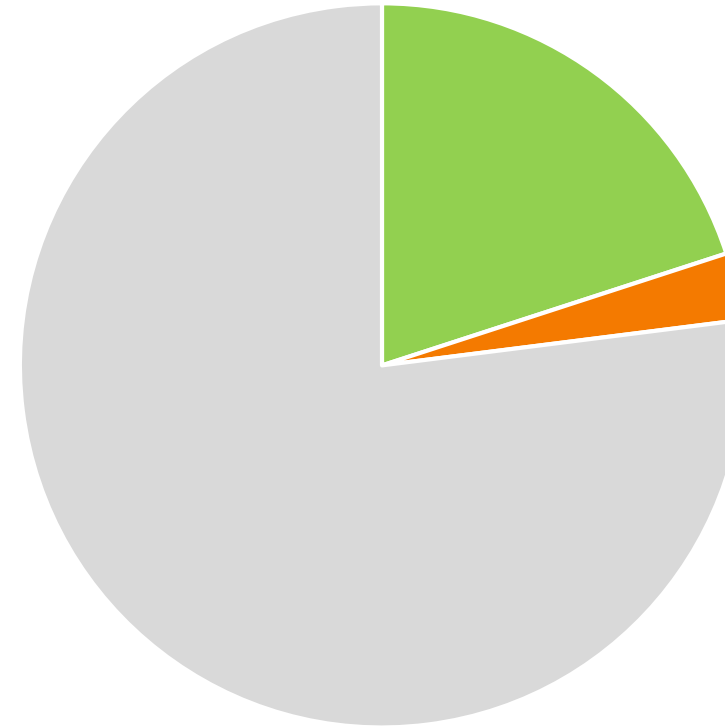


# Bicycle and Pedestrian Crashes (2010-2015)



■ Pedestrian ■ Bicycle ■ Other Modes

**2.85% of all crashes**



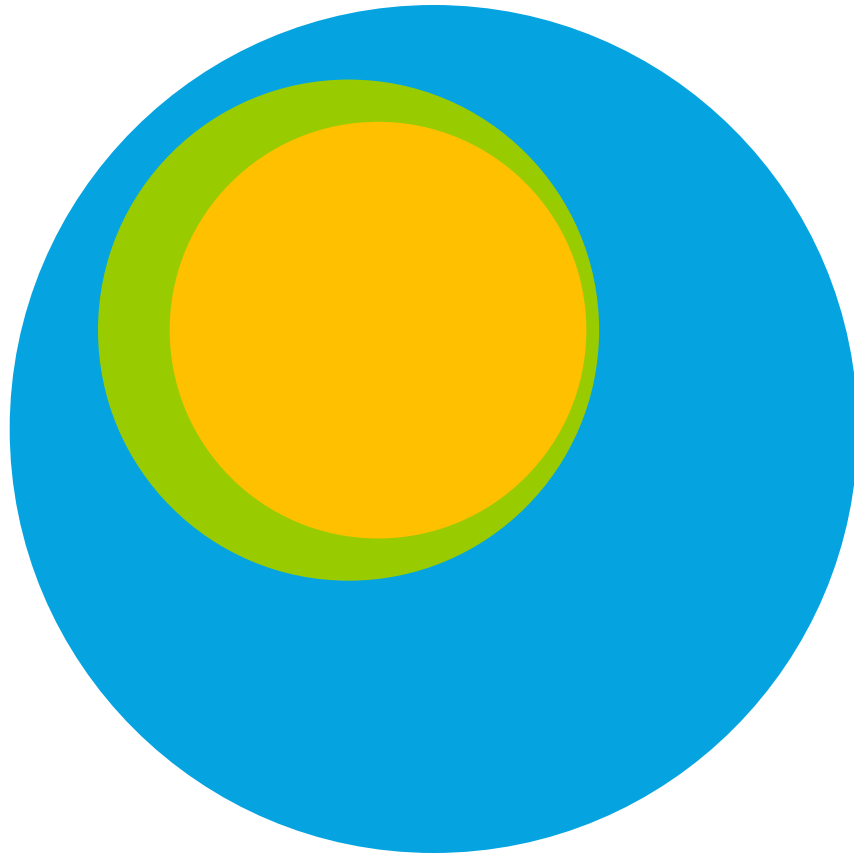
■ Pedestrian ■ Bicycle ■ Other Modes

**23.8% of fatal crashes**

Source: DRCOG-CDOT Crash Database



# Metro Vision 2040 Target: Mode Share



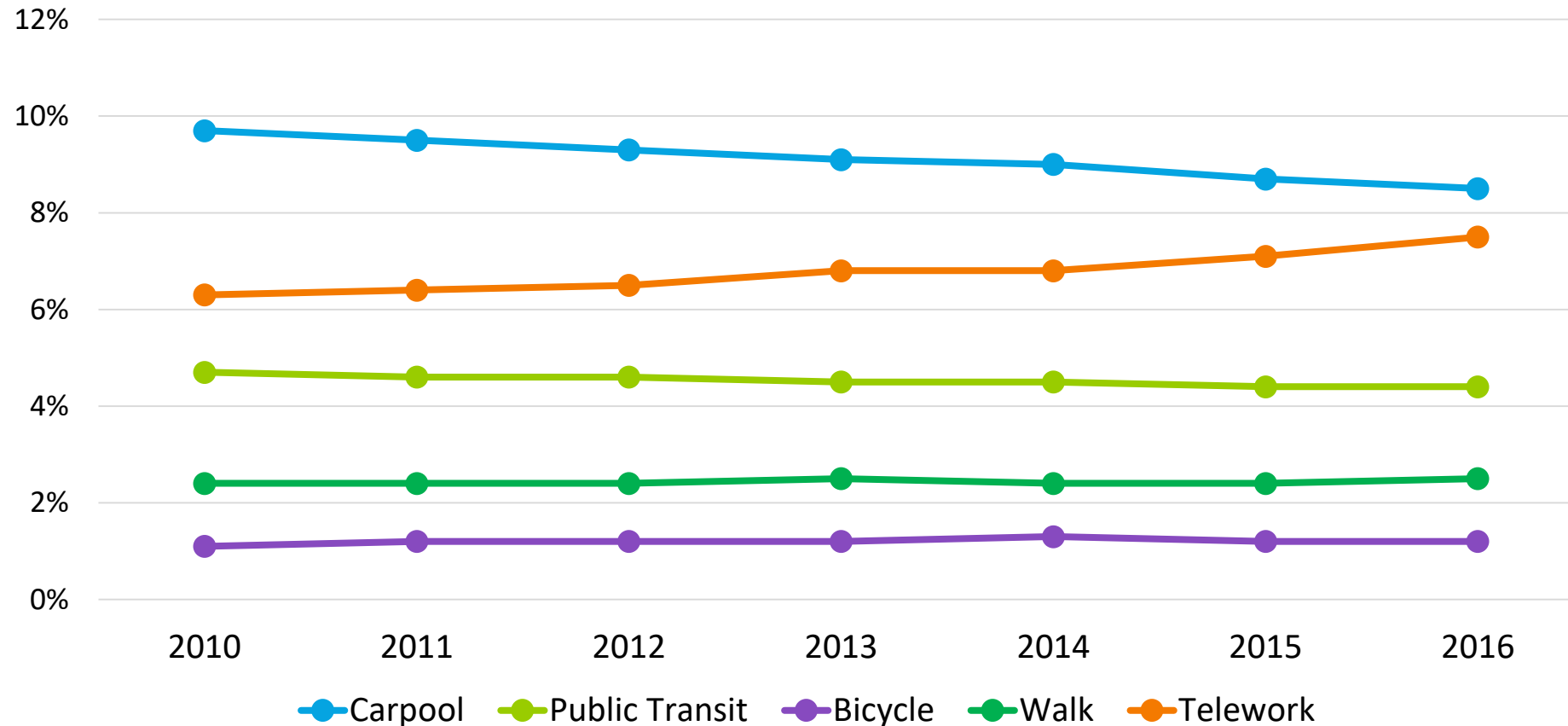
**35 percent** non-SOV mode share to work by **2040**

**24 percent** non-SOV mode share to work **today**

Source: US Census Bureau, ACS 2012-2016



# Smart commute mode share to work in the DRCOG region

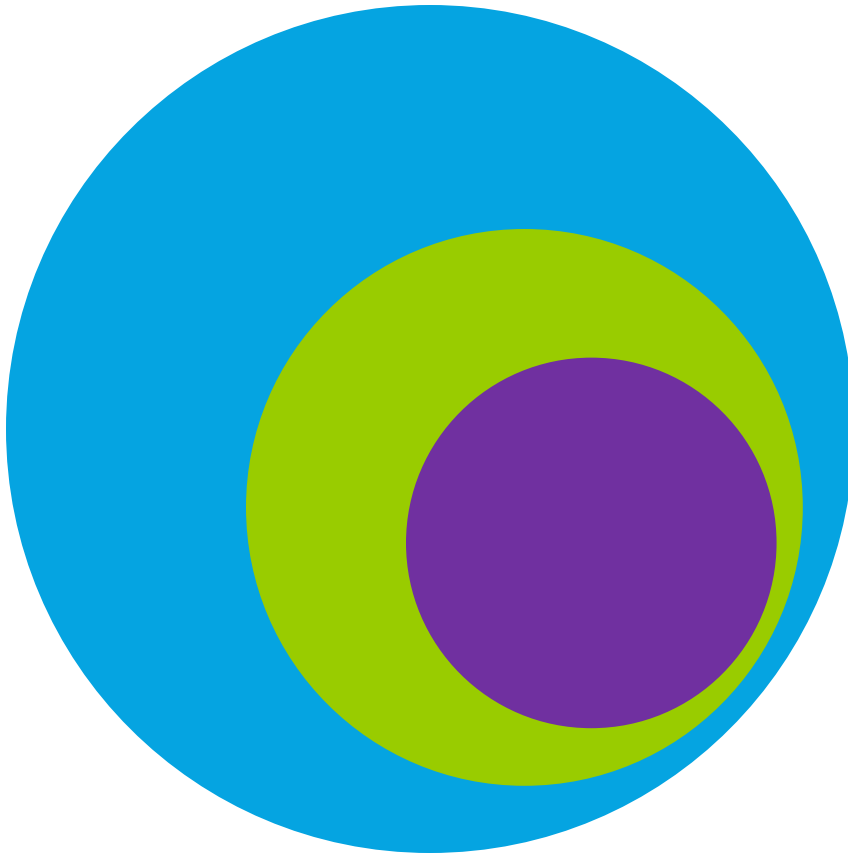


Source: American Community Survey 5-Year Estimates

\*shown final year, for example 2012-2016 is shown in 2016



## Travel trends: all trips



**43 percent** are  
less than 3 miles

**19 percent** are  
less than 1 mile

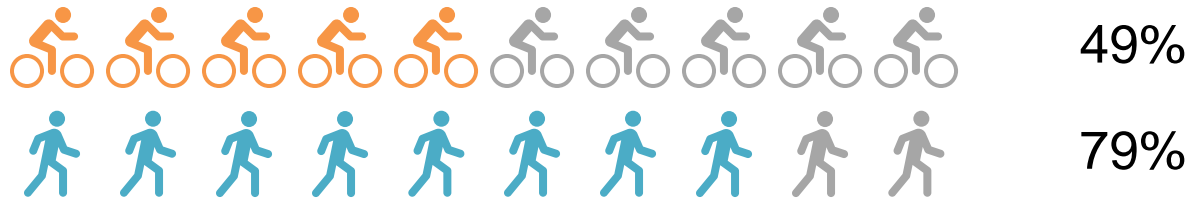
Source: 2015, RTP-2017, DRCOG Region



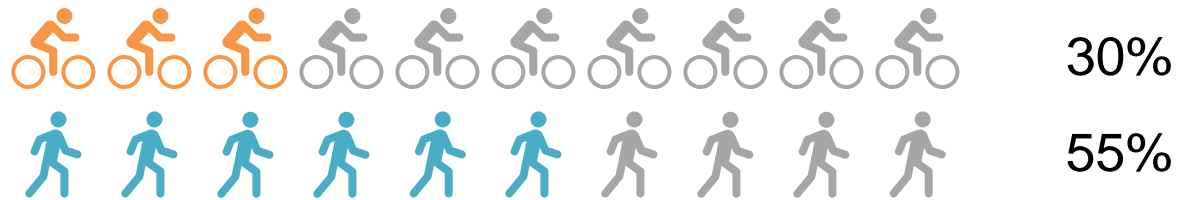


# At least once during a typical month:

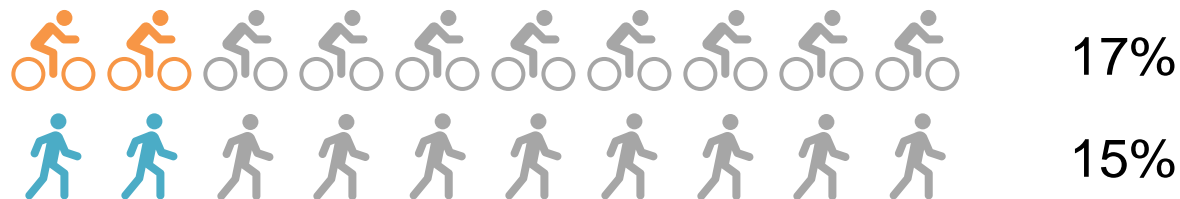
For fun or exercise



To get somewhere other than work



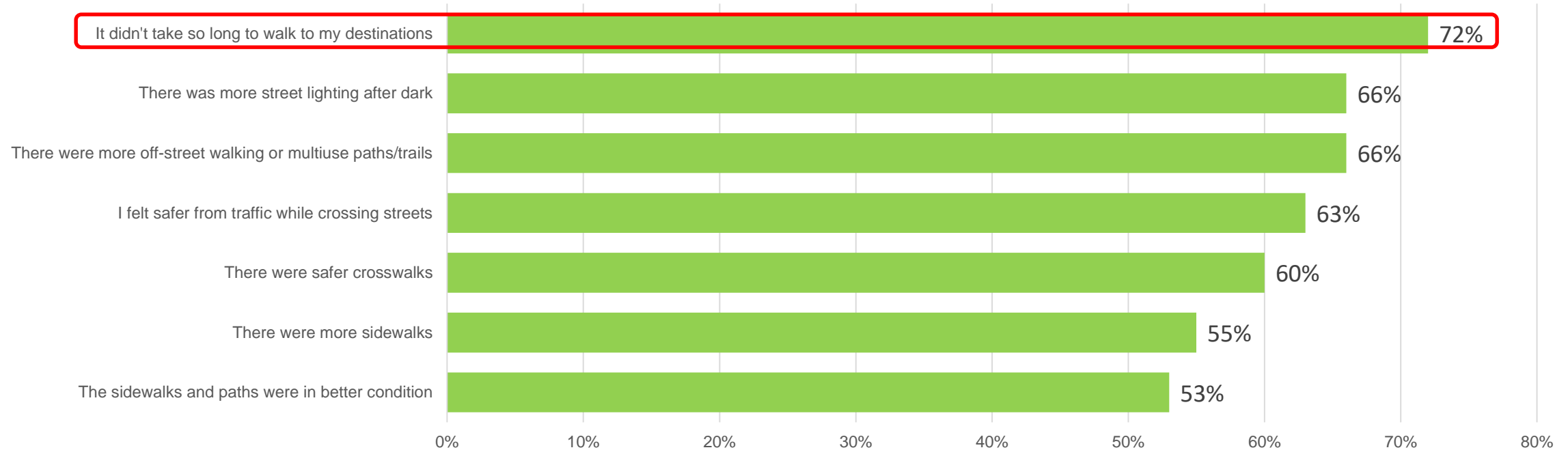
To get to work





# Resident Survey

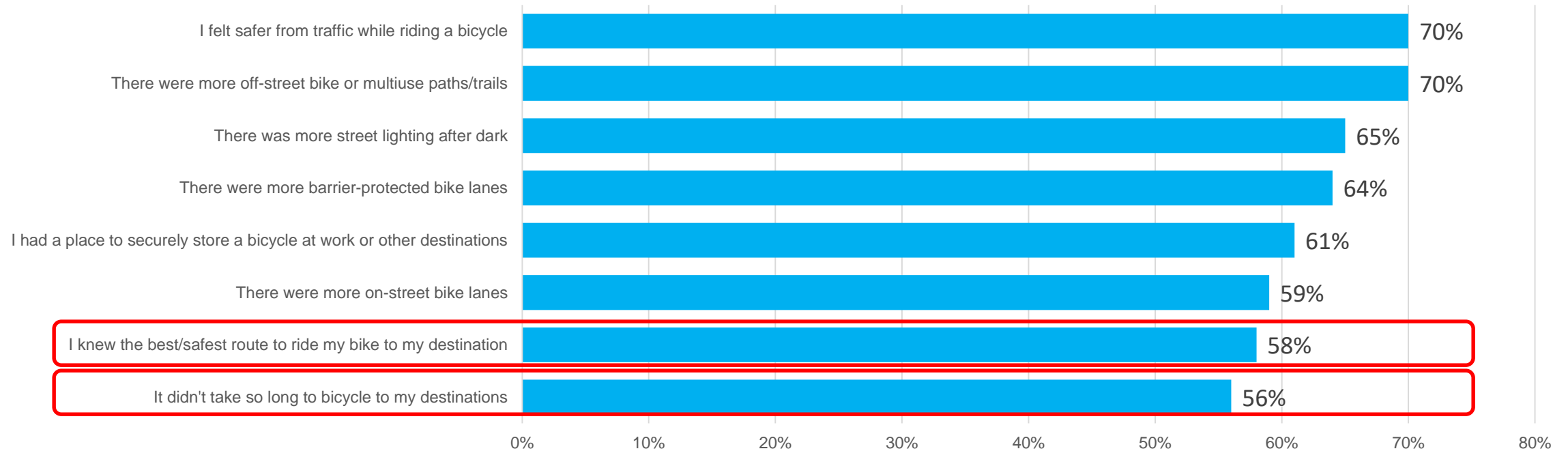
I would walk more to get places if...





# Resident Survey

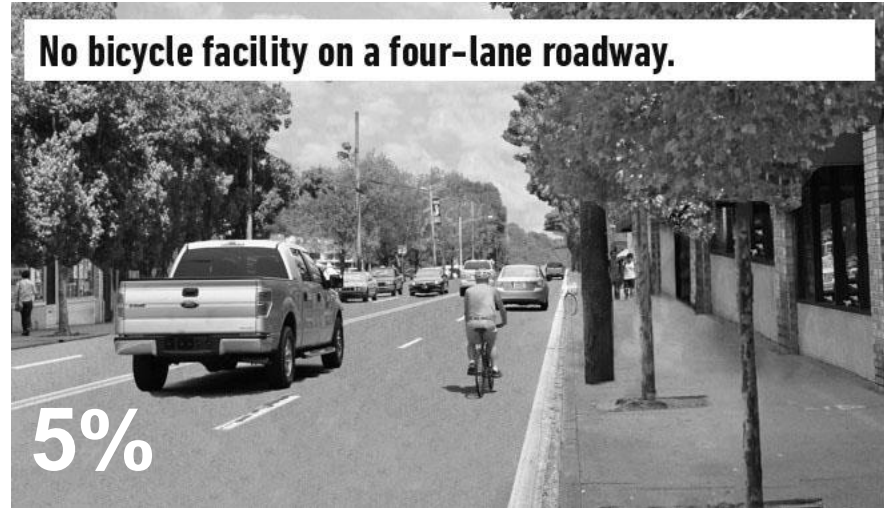
I would bike more to get places if...





# Where would people feel very comfortable?

Percent who said they would feel very comfortable:

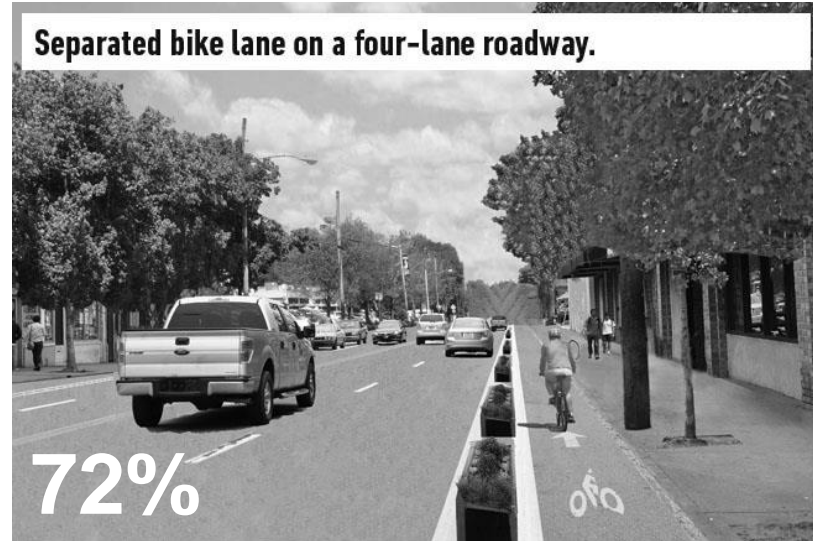






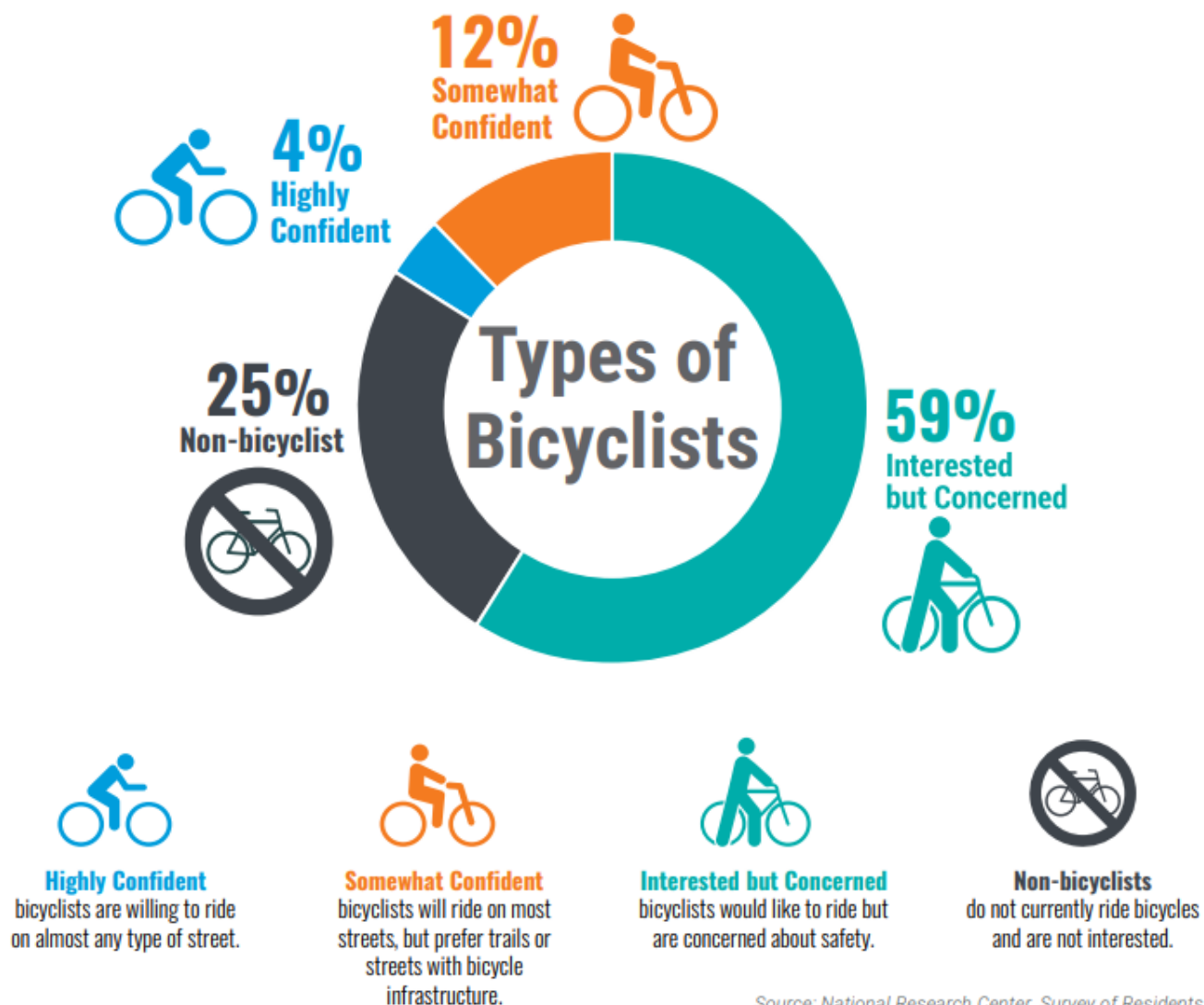
# Where would people feel very comfortable?

Percent who said they would feel very comfortable:





# Who are we planning for?



Source: National Research Center. Survey of Residents about Active Transportation: Report of Results. 2018.



# Bicycle Network Planning Principles

## Safety:

- Minimize conflicts
- Encourage yielding
- Delineate space
- Provide consistency



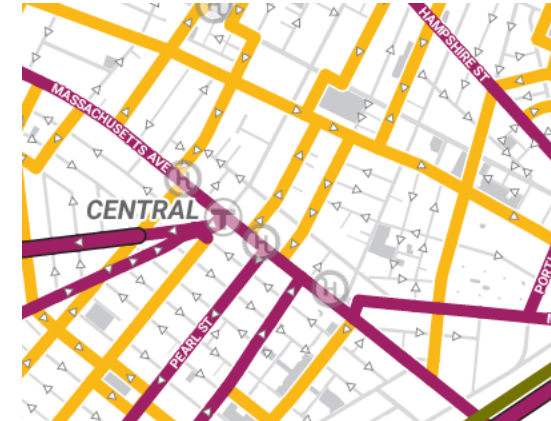
## Comfort:

- Separate modes
- Balance delay
- Accommodate passing bicyclists



## Connectivity:

- Provide direct, seamless transitions
- Integrate into multimodal network







# Pedestrian Network Planning Principles

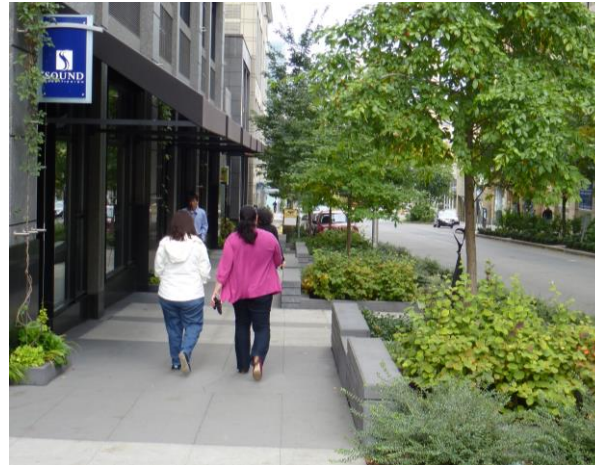
## Safety:

- Dedicated space
- Safe crossings
- Appropriate traffic speeds



## Comfort:

- Physical separation
- Pedestrian-oriented buildings
- Street trees



## Connectivity:

- Accessible routes
- Supportive land use
- Integrate into multimodal network







# Emerging Trends, Policies/Programs/Practices, Infrastructure

Adrcog Denver Regional Council of Governments

## EMERGING TRENDS

The transportation system has evolved rapidly over the past decade and continues to undergo significant change. This section addresses emerging trends, such as electric-assist bikes, dockless bike-sharing programs and other micromobility devices and automated vehicles. There is a great deal of uncertainty as to how these trends will affect active transportation. In general, these technologies can fill the niche of first- and last-mile challenges and decouple mobility from private vehicle ownership. However, most emerging mobility devices or technologies rely on electric propulsion and thus could reduce the amount of walking and bicycling. Moreover, these devices have the potential to increase conflicts on sidewalks or shared-use paths and contribute to overcrowding of walking and bicycling infrastructure.

## POLICIES, PROGRAMS AND PRACTICES

The development of a connected and safe active transportation system hinges on policies, programs and practices that support inclusion of active transportation considerations into routine decision-making. This section addresses many of the most common approaches, highlighting examples from the Denver region.

## INFRASTRUCTURE

In this section, common bicycle and pedestrian infrastructure treatments are presented. Bicycle facilities, intersections, sidewalks, crossings, signals and supporting elements are included. Additionally, guidance for selecting an appropriate bikeway, based on roadway conditions and context, is provided.



Table 5. Chapter Contents

	Topic	Page
Emerging Trends	Electric/electric-assist bicycles	45
	Micromobility solutions	46
	Ride-hailing services	47
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Policies, Programs and Practices	Systematic safety and Vision Zero	49
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	Supporting elements	71

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## Description

E-bikes are bicycles equipped with electric motors and can increase the accessibility, comfort and range of bicycling. E-bikes will influence the future design of bicycle facilities along with the rules and regulations of where they can be ridden.

Table 6. E-Bike Classes

E-bike class	Pedal Assist	Throttle	Max Speed*
I	Yes	No	20
II	No	Yes	20
III	Yes	Yes	28

\* Electric motor ceases to provide assistance when the bicycle reaches the listed maximum speed

## Local context

- » In August 2017, the Colorado state legislature expanded Colorado Revised Statutes Section 42-1-102 to permit e-bikes to be ridden wherever conventional bicycles can be ridden. However, local ordinances can be more restrictive.
- » Jeffco Open Space has initiated a pilot program to allow e-bikes on trails.
- » The City of Boulder permits e-bikes on most of its shared-use paths.

## Implementation considerations

- » The State of Colorado defines e-bikes as bikes with electric motors that provide power or pedal-assistance up to 20 mph.
- » Most governments are managing conflicts between e-bikes and other active transportation users by revisiting regulations on where they can operate. However, the prevalence of e-bikes may warrant the allocation of dedicated space in the future.

## Available resources

- » Colorado General Assembly, *Electric Bicycles*
- » Federal Highway Administration, *Framework for Considering Motorized Use on Nonmotorized Trails and Pedestrian Walkways* under 23 U.S.C. Section 217
- » PeopleForBikes, *Electric Bicycles*

### E-bike definition

The State of Colorado defines e-bikes as bikes with electric motors that provide power or pedal-assistance up to 20 mph.



Source: Jeffco Open Space



# Implementation

## Regional Opportunities to Support Bicycling and Walking

Regional opportunities are grouped into three categories: collaboration; education and assistance; and investments. These regional opportunities are intended to foster collaboration and prioritize information-sharing to ensure local communities have the tools they need to improve active transportation. DRCOG is the most likely agency to lead implementation of many of these opportunities, but others such as TMAs, RTD or CDOT could also play a role.

Table 7. Regional Opportunities to Support Bicycling and Walking

	No.	Opportunity	Case Study Example (Page No.)
Collaboration	1	Convene local, regional and statewide bicycle and pedestrian stakeholders to ensure cross-jurisdictional coordination on implementation of active transportation projects in the region and provide opportunities for local governments to learn from or adapt local approaches to bicycle and pedestrian planning.	New England Bike Walk Summit (78)
	2	Coordinate with local partners and TMAs to expand the regional transportation demand management program to include greater emphasis on bicycling and walking.	
	3	Convene local, regional and statewide bicycle and pedestrian stakeholders to coordinate policy efforts on active transportation-related issues such as e-bikes, small mobility devices, data and stop-as-yield legislation.	
	4	Coordinate with local partners to further explore traffic safety in the Denver region and develop a Vision Zero Action Plan.	
	5	Collaborate with transit providers, local communities, CDOT and stakeholders to enhance active transportation connections to and from transit.	
Education and Assistance	6	Collect and share information on local policies, plans and regulations as they pertain to active transportation plans.	
	7	Conduct analyses and provide data on topics such as level of traffic stress and crashes.	DVRPC Level of Traffic Stress Analysis (78)
	8	Continue to collect and disseminate bicycle facility inventory data, including current and proposed facilities.	PSRC Online Data Sharing (79)
	9	Collect bicycle and pedestrian counts and enhance count data sharing.	DVRPC Bicycle and Pedestrian Count Program (79)
Investments	10	Provide tools, information and education to local governments on facility design, emerging trends and related topics.	
	11	Support development of regional wayfinding for active transportation corridors.	
	12	Consider prioritization criteria that encourage investment in high-comfort bicycling and walking facilities that are part of the regional active transportation network.	Capital Area MPO Project Funding Basis (79)
	13	Prioritize walking and biking investments in transportation-disadvantaged areas.	Boston Regional MPO Transportation Equity Program (78)

## Local Opportunities to Support Bicycling and Walking

Local opportunities are also grouped into three categories: collaboration; policies, plans and regulations; and investments. These opportunities vary in terms of the amount of investment required, allowing local communities to move forward with opportunities that best align with their current capacity.

Table 8. Local Opportunities to Support Bicycling and Walking

	No.	Opportunity	Case Study Example (Page No.)
Collaboration	1	Coordinate with neighboring jurisdictions to ensure continuity and connectivity of the active transportation networks and share best practices in bicycle and pedestrian planning.	U.S. 36 Bikeway Wayfinding Project (80)
	2	Work with RTD and other transit providers on transit-supportive infrastructure, including first- and last-mile connections.	Denver South Transportation Management Association efforts (80)
	3	Work with DRCOG and local TMAs to inform and promote the use of transportation demand management strategies and services.	WalkDenver Project Shift (80)
Policies, Plans and Regulations	4	Adopt policies, regulations or standards promoting Complete Streets principles and context-sensitive design for users of all ages, incomes and abilities, including mobility-limited residents.	Aurora, Arvada and Westminster Complete Streets Consortium (81)
	5	Adopt local active transportation, bicycle or pedestrian plans that consider land use/zoning compatibility to complement comprehensive and master planning efforts.	Arvada Bicycle Master Plan (81)
	6	Adopt a Vision Zero policy with the goal to eliminate traffic fatalities and serious injuries.	Denver Vision Zero Action Plan (82)
Investments	7	Design and build low-stress bicycle networks and complete sidewalk networks that facilitate on- and off-street facility connectivity.	Denver Protected Bikeways (82), Golden's Linking Lookout Project (82), Lone Tree Pedestrian Bridge (84)
	8	Improve multimodal connectivity throughout the transportation network and prioritize investment in first- and last-mile connections to transit.	Downtown Boulder Transit Center Area Improvements (83), Aurora Metro Center Station Area Bike and Pedestrian Connector Facility (83)
	9	Incorporate wayfinding into active transportation projects.	Lafayette Walk and Wheel (81), City of Lakewood 40 West ArtLine (84)
	10	Promote educational and promotional events to encourage bicycling and walking.	Boulder Walks (80), Brighton Full Moon Ride (84)
	11	Implement safety projects that improve conditions for bicyclists and pedestrians and track their effectiveness by analyzing crash data.	Denver Vision Zero Safety Upgrades (84)
	12	Develop a regular maintenance schedule to ensure existing sidewalks and bicycle facilities are well-maintained.	Boulder Sidewalk Repair Program (83)

# THANK YOU!

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