



## 5. IMPLEMENTATION PLAN

The timing of and priority for implementing the Regional Bicycle Corridors has been intentionally excluded from this Regional Bicycle Plan. The primary purpose of this plan was to coordinate bicycle planning efforts between the communities of the NFRMPO and to identify corridors that are of highest significance for regional bicycle travel and that provide connections between communities. While the NFRMPO will support implementation of the Regional Bicycle Corridors through continued regional coordination and funding pursuit, it is primarily the responsibility of the local communities to implement the segments of the corridors within their boundaries.

The NFRMPO member governments have successfully demonstrated an ability to collaborate in an effort to procure funding for bicycle infrastructure. The Poudre River Trail, the Great Western Trail, and the Mason Trail (BNSF Corridor) are examples of highly successful trail implementation in the NFRMPO region. With the upcoming completion of the Poudre River Trail, an opportunity exists to coalesce around the “next” regional corridor to bring funding into the region. The local agencies should build upon the lessons learned from these trail corridors, including the value of forming trail coalitions to coordinate funding applications and right of way acquisition.

### Funding

There are a variety of funding mechanisms available for bicycle improvement projects and programs. While some funding sources are specific to bicycle/pedestrian enhancements, bicycle projects are eligible for funding from almost all major federal highway, transit, safety, and other programs. To receive federal funding, bicycle projects must be “principally for transportation, rather than recreation, purposes” and must be consistent with State and MPO transportation plans. Below is a listing of potential state and federal funding sources along with the types of bicycle projects and programs that are applicable to each funding source.

**National Highway System** – Funds may be used to construct bicycle transportation facilities on land adjacent to any highway on the National Highway System.

**Surface Transportation Program (STP)** – Funds may be used for the construction of bicycle transportation facilities or non-construction projects (such as maps, brochures, and public service announcements) related to safe bicycle use.

**Hazard Elimination and Railway-Highway Crossing programs** – This program is a set aside from STP funds specifically to correct locations that are unsafe, and these funds may be used to address bicycle and pedestrian safety issues.

**Transportation Alternatives Program (TAP)** – This federal funding program authorized under MAP-21 provides funding for transportation alternatives programs and projects, including on- and off-road pedestrian and bicycle facilities, recreational trail programs, and safe routes to schools.

**Congestion Mitigation and Air Quality Improvement Program (CMAQ)** – Funds may be used for either the construction of bicycle transportation facilities and pedestrian walkways, or non-construction projects (such as maps, brochures, and public service announcements) related to safe bicycle use.



**Recreational Trails Program** – Funds may be used for all kinds of trail projects.

**Federal Lands Highway Program** – Bicycle provisions are eligible for some categories of funding through this program in conjunction with roads, highways, and parkways.

**National Scenic Byways Program** – Funds may be used for “construction along a scenic byway of a facility for pedestrians and bicyclists.”

**Job Access and Reverse Commute** – Grants are available to support projects, including bicycle-related services, designed to transport welfare recipients and eligible low-income individuals to and from employment.

**Federal Transit Administration (FTA) Grants** – Transit grants such as Urbanized Area Formula, Capital Investment, and Formula Program for Other than Urbanized Area can be used for improving bicycle and pedestrian access to transit facilities and vehicles.

**Safe Routes to School** – Grants can be used for bicycle and pedestrian education programs and projects that provide connections and/or improve the safety along routes to K-8 schools.

**FASTER Safety** – This state funding source can be used for adding shoulders when combined with a surface treatment project.

**FASTER Transit** – This state funding source can be used for bicycle amenities such as bike racks, lockers and bike parking at multimodal stations or enhanced modal connections, such as trails and bike lanes providing access to major transit stations that would enhance transit ridership.

**Greater Outdoors Colorado (GOCO)** – This state funding program uses a portion of lottery proceeds for projects that protect and enhance Colorado’s trails and open space.

**Rivers, Trails, and Conservation Assistance Program (RTCA)** – This community assistance arm of the Nation Park Service provides support for community-led trail development, but does not provide direct grants.

## Regional Collaboration

The NFRMPO Bike TAC expressed an interest in continued collaboration to coordinate bicycle planning efforts and to advance the implementation of the Regional Bicycle Corridors. Regional collaboration could include the follow elements:

- ▶ **Education** – Quarterly or semi-annual meetings to discuss case studies, planning and engineering challenges, and staff education regarding bicycle-related topics
- ▶ **Data Reporting** – Annual meeting to discuss the collection of regional bicycle data (crash, counts, etc.) and deployment of temporary and permanent counters
- ▶ **Corridor Progress and Funding Cycles** – Review the progress of infrastructure development along the Regional Bicycle Corridors and collaborative efforts to prepare for funding cycle applications



## Bicycle Project Scoring Guide

Evaluation of and comparison between potential bicycle improvement projects in the NFRMPO could be done using the evaluation criteria established in Chapter 4:

- ▶ Consistent with Local/State Planning
- ▶ Supports Tourism and Local/Regional Economy
- ▶ Connects Multiple Jurisdictions
- ▶ Improves Bicycle LOS
- ▶ Provides Multimodal Connections
- ▶ Connects to Regional Trails/Trailheads
- ▶ Obstacles to Implementation
- ▶ Public Input

Other resources for consideration include the scoring guidance developed by the Weld County Trails Committee for the St. Vrain Valley Open Lands and Trails Plan (the criteria used are included in **Appendix F** of this document); and benefit-cost analysis tools such as this example funded by the National Cooperative Highway Research Program and the Minnesota Department of Transportation [\[link\]](#).

## Bicycle Planning and Design Resources

### Bicycle Level of Service

The 2010 *Highway Capacity Manual* (HCM - Transportation Research Board) includes bicycle level of service calculations that quantify how well a facility operates from the traveler's perspective. Conditions that affect bicycle level of service include:

- ▶ Effective travel width for the bicyclists (how much space is available to maneuver within the bikeway)
- ▶ On-street parking encroachments (drivers opening the door of their parked vehicles is a hazard for bicyclists)
- ▶ Volume of motor vehicles and percent heavy vehicles (less vehicular traffic and fewer heavy vehicles creates a more comfortable environment for bicyclists)
- ▶ Speed of traffic (slower vehicular speeds create a more comfortable environment for the bicyclist)
- ▶ Pavement surface condition (poor surface conditions require bicyclists to maneuver around pot holes and cracks)

The Bicycle and Pedestrian chapter (Chapter 14) of CDOT's *Roadway Design Guide* provides maximum design daily traffic for given shoulder widths and posted speeds to achieve different bicycle levels of service based on the HCM methodology.

### Design Guidelines

In addition to design guidelines and standards specific to local jurisdictions, there are state and national resources that provide guidelines for design and implementation of bicycle facilities:



- ▶ CDOT's *Road Design Guide*, Chapter 14: Bicycle and Pedestrian (adopted in November 2011)
- ▶ American Association of State Highway and Transportation Officials' (AASHTO) *Guide to the Development of Bicycle Facilities* (Fourth Edition, 2012)
- ▶ National Association of City Transportation Officials' (NACTO) *Urban Bikeway Design Guide* (2011)

A listing of some of the more common design elements in each of these documents is included in **Table 2**. As the local communities progress with implementation of the Regional Bicycle Corridors, the design guidance provided in the AASHTO Bicycle Guide should be considered the desirable standard for future regional corridors, including:

- ▶ Minimum paved width of 10 feet for two-direction shared use paths
- ▶ Minimum bike lane width of 4 feet (5 feet if immediately adjacent to a curb)

## Railroad and Ditch Coordination

Several of the Regional Bicycle Corridors are shown along, near, or crossing railroad rights-of-way and irrigation ditches. Industry professionals who have successfully negotiated and implemented trail corridors in railroad rights-of-way and along irrigation ditches presented information on their experiences and lessons learned to the NFRMPO Bike TAC. These presentations, which identify obstacles and opportunities for coordination with railroad and ditch companies, are included for reference in **Appendix G**.

## Best Practices

### *Bicycle Crash Reporting*

The NFRMPO region recommends collecting bicycle crash-related data from each the member governments to ensure locations unsafe for bicycle commuting are identified and infrastructure improvements addressed. The data can also substantiate and measure bicycle education programs to promote safe commuting habits.

Few NFRMPO governments currently collect bicycle crash data as of the writing of this plan. The region could aim to consistently collect data to include the following fields:

- ▶ Date / Time
- ▶ Location (Street Address / Intersection)
- ▶ Crash with Motorist/Cyclist/Pedestrian/Stationary object
- ▶ Injury (Fatal/Critical/Non-Critical)
- ▶ Bicyclist Wearing Helmet (Yes/No)

Bicycle Crash data could be collected from:

- ▶ Police
- ▶ Ambulance Reports
- ▶ Online and Cell-phone Application Reporting (see Bike Crash Kit app: <https://itunes.apple.com/us/app/bike-crash-kit/id512949294?mt=8>)



Bicycle Crash data could be reported in the following ways:

- ▶ Congestion Management Process (described below)
- ▶ Online Crash Map (see <http://bostoncyclistsunion.org/resources/crash-map/>)

### *Bicycle Thefts Reporting*

Bicycle theft reporting is not consistently collected by the NFRMPO governments. Consistent bicycle theft data will help decision-makers appropriate funding for additional bicycle lockers, interior bicycle lockers, and surveillance.

The region recommends collecting consistent data to include the following data fields:

- ▶ Date / Time
- ▶ Location (Street Address / Intersection)
- ▶ Was Bicycle Locked (Yes/No)
- ▶ Bicycle Registration # (Yes/No)
- ▶ Bicycle Tracking Device?
- ▶ Was Bicycle Recovered?

## **Integration with other Regional Planning Processes**

### **Regional Transportation Plan**

The NFRMPO is responsible for developing and regularly updating a Regional Transportation Plan (RTP). Pursuant to federal requirements, this Regional Bicycle Plan will become the bicycle component of the region's next RTP. The NFRMPO's current RTP (dated September 2011) is a corridor-based plan and includes corridor visions for each of the region's 12 Regionally Significant Corridors (RSC). Eleven of the RSCs are multi-modal and include varying levels of emphasis on bicycle accommodation. The 12<sup>th</sup> RSC is the "River Trail Corridors" and includes portions of trail corridors along the Big Thompson, Little Thompson, Cache le Poudre, and South Platte rivers outside the municipal boundaries. To fully integrate this Regional Bicycle Plan into the region's next (2040) RTP, it is recommended that the Regional Bicycle Corridors replace the "River Trails Corridor," and that corridor visions commensurate with multi-modal corridors are developed in the RTP.

### **Congestion Management Process**

The NFRMPO is required to maintain a Congestion Management Process (CMP) and use it to make informed transportation planning decisions. The MPO's CMP (dated September 2010) outlines goals and objectives for managing congestion in the region. Several of the objectives, as highlighted below, specifically address alternative transportation modes, including bicycle:

- ▶ Goal: Improve Mobility
  - Objective: Provide transportation alternatives
- ▶ Goal: Decrease reliance on Single Occupancy Vehicles (SOV)
  - Objective: Encourage active travel by expanding bicycle and pedestrian facilities
- ▶ Goal: Improve accessibility for all modes of travel



- Objective: Maximize access to alternative transportation systems

To help achieve these goals and objectives, and to measure the region's progress toward meeting them, the CMP identifies performance measures. The following performance measures from the CMP relate specifically to bicycle accommodation:

- ▶ Miles of bicycle and pedestrian facilities
- ▶ Bicycle and pedestrian volumes

As described in Chapter 4, bicycle count data collection has been identified as a way to measure the positive benefits of investment in bicycle infrastructure and to make informed program and funding decisions for future bicycle projects and programs. Bicycle count data will be compiled annually in the CMP progress report. The MPO currently tracks miles of bicycle and pedestrian within a ¼ mile of the Tier 1 Regionally Significant Corridors. It is recommended that, as a part of the CMP Annual Progress Report, the MPO also tracks the miles of implementation of the 12 Regional Bicycle Corridors recommended in this plan to demonstrate progress toward full implementation.



## APPENDIX A CITATIONS



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## APPENDIX B CDOT.BICYCLE.AND.PEDESTRIAN.POLICY.DIRECTIVE

<b>COLORADO DEPARTMENT OF TRANSPORTATION</b>		<input checked="" type="checkbox"/> <b>POLICY DIRECTIVE</b> <input type="checkbox"/> <b>PROCEDURAL DIRECTIVE</b>
Subject <b>Bike and Pedestrian</b>		Number <b>1602.0</b>
Effective <b>10/22/09</b>	Supersedes <b>7/1/77</b>	Originating Office <b>Division of Transportation Development</b>

**PURPOSE**

The purpose of this policy is to promote transportation mode choice by enhancing safety and mobility for bicyclists and pedestrians on or along the state highway system by defining the policies related to education and enforcement, planning, programming, design, construction, operation and maintenance of bicycle and pedestrian facilities and their usage.

**AUTHORITY**

- Colorado Transportation Commission
- Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), 2005
- 23 USC 104 (Federal funds), 23 USC 109 (existing routes), 23 USC 134 and 135 (planning for all modes), 23 USC 217 (due consideration for bike/ped), 23 USC 402 (highway safety), 23 USC 652 (bike/ped accommodation in projects)
- 43-1-104 (CDOT Bike/Ped staff), 42-1-109 (education outreach), 42-2-1412 (bicycles subject to same rights and responsibilities as motor vehicles)
- TC Policy Directive 902.0

**APPLICABILITY**

This Policy Directive applies to the Colorado Department of Transportation (CDOT) and its subdivisions.

**POLICY**

It is the policy of the Colorado Transportation Commission to provide transportation infrastructure that accommodates bicycle and pedestrian use of the highways in a manner that is safe and reliable for all highway users. The needs of bicyclists and pedestrians shall be included in the planning, design, and operation of transportation facilities, as a matter of routine. A decision to not accommodate them shall be documented based on the exemption criteria in the procedural directive.

**POLICY BACKGROUND**

Multimodal transportation is a key element of CDOT’s mission in providing improvements to the statewide transportation system. Federal surface transportation law places a strong emphasis on creating a seamless transportation system that persons of all ages and abilities can utilize for safe and convenient access to jobs, services, schools and recreation.

Today the bicycle is more than a recreational conveyance. It has become an acceptable mode of transportation. With the increasing public interest in the environment, personal health, and energy

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conservation, the bicycle offers a viable alternative to the auto, particularly for local trips or those that are combined with another mode such as transit. Because of the increased interest and use in bicycle transportation by Coloradans, full consideration for their safety and mobility on the roadway system needs to be an integral part of CDOT's project development process.

The challenge for transportation planners and highway engineers is to balance the needs of all roadway users and to develop a transportation infrastructure that provides connectivity and access for all, opportunity for modal choice, and safety for each mode of travel. More choice equates to more capacity.

**FISCAL IMPACT**

Implementation will have a fiscal impact as part of project and maintenance costs and may lead to reprioritizing work.

**IMPLEMENTATION**

This policy is effective immediately upon approval and shall be implemented by all Divisions, Branches, Regions, and Offices of CDOT.

**REVIEW DATE**

This Policy shall be reviewed in October 2015.

  
\_\_\_\_\_  
Transportation Commission Secretary

**10/22/09**

\_\_\_\_\_  
Date