

**Bannock Transportation
Planning Organization**



Bicycle and Pedestrian Master Plan



**Appendix A Design Guidelines,
Manuals, References**

Contents

Introduction -----	1
Street Design Manuals -----	1
Bicycle-----	Error! Bookmark not defined.
Pedestrian-----	Error! Bookmark not defined.
Other Topics-----	5

Introduction

Complete streets is the latest national effort by planners, engineers, and communities to change the way transportation infrastructure is planned, designed and operated. There are many definitions of complete streets, and the Smart Growth America's definition sums it up with "Complete Streets are streets for everyone": Today streets are identified by how vehicles use the facility. The design of a Complete Streets can be different from roadway to roadway. Many factors such as the number and speed of vehicles, surrounding land uses connectivity of the transportation network, and other factors. This section will review the different guidelines, manual, and best practices for designing bicycle and pedestrian within a complete street. Most streets were constructed for vehicles and the only other user considered was pedestrians and then usually in residential areas.

Over the last twenty-years, national standards for design have started to incorporate the Complete Street definition that streets are for everyone. The research in the field and the implementation of designs are evolving. The approved national, State or local design standards have controlled the design of the transportation system. The classification or ownership of the street controls the design standards used. Federal-aid highways must use national manuals; State highways use a combination of the national and state modified manuals. Local streets can have their locally approved manuals. These manuals and design guidelines did not always address the changing needs of bicycles and pedestrians.

Street design manuals, street elements, and specific topics are the three types of material reviewed. Street design manuals cover the entire street or network. Specific elements are those which address a specific aspect of the street like bicycle lanes, sidewalks, traffic control, or stormwater management. The last area, specific topics covers the remaining topics. These can include network design, level of service or urban design principals who help create complete streets. The lists are not comprehensive only those used in the development of the Bicycle and Pedestrian Master Plan or those which local governments already are required to follow.

The last section is a list of other reference form website, organizations, or documents that can serve as a resource in designing bicycle and pedestrian facilities.

Street Design Manuals

A Policy on Geometric Design of Highways and Streets

American Association of State Highway and Transportation Officials, 2018

Known as the Green Book, the policy provides nationally approved guidance on the design of all elements of roadways from the width to acceptable turning radius for specific vehicle types. The manual is considered the standard and variances from the manual require design exceptions from another engineering-based approach to ensure the safety of the public. The manual is primarily for motor vehicle travel lanes. The



Bicycle and Pedestrian Master Plan

policy references other guidelines for bicycle and pedestrian facilities. Specific bicycle design guidance was mostly removed from the document.

Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) American Association of State Highway and Transportation Officials, 2009

The MUTCD provides guidance on all types of traffic control devices. The manual provides guidance on lane striping, signage, and traffic signals. Traffic control devices for bicycle and pedestrian facilities are the sections which most apply to the Bicycle and Pedestrian Master Plan.

Urban Street Design Guide, 2013

National Association of City Transportation Officials, 2013

Urban Street Design Guide focuses on the design of streets within cities and urban areas. The needs and ability to provide streets for all users sometimes restricted by the Green Book. The guide provides street design principals for various roadway types. Also covered in the guide are sidewalks, stormwater management, and intersections. The guide provides a discussion on the elements which comprise the design. This discussion allows the design to fit into many existing physical constraints.

Model for Living Streets Design Manual

Los Angeles County, 2011

The manual is one of many which provide design guidelines on retrofitting and designing streets as not to eliminate the presence of bicycle or pedestrians. The manual covers everything from street, pedestrian, bicycle facilities, transit system, and street elements. The manual also includes streetscape and how to incorporate place back into street design.

Street Elements

Guide for the Development of Bicycle Facilities – Fourth Edition

American Association of State Highway and Transportation Officials, 2012

The guide provides the basics in planning for and implementing bicycle networks. There are discussions on public input and way finding requirements. The guide is comparable to the Green Book, but specifically for bicycle facilities.

Separate Bikeways

Institute of Transportation Engineers, 2013

The report defines the current types of bicycle facilities used in the United States. The report provides examples of different type of separate bikeways. The report shows how different bikeways can comply with the MUTCD.



Bicycle and Pedestrian Master Plan

Urban Bikeway Design Guide

National Association of City Transportation Officials, 2014

The guide provides a comprehensive review of the common bicycle facilities. Included in the evaluation are benefits, typical applications, and case studies.

Fundamentals of Bicycle Boulevard Planning and Design

Association of Pedestrian and Bicycle Professions, Lindsay Walker, Mike Tresidder, Mia Birk, 2009

The guide introduces bicycle boulevards and provides to design guidelines. There are specific treatment options to address many design challenges in creating a bicycle boulevard. For each treatment, a summary of the treatment, design recommendations, cost, and reference are provided.

Appendix B Bicycle Facility Toolbox

Toole Design Group for the Colorado Springs Bike Master Plan, 2018

The Bicycle Facility Toolbox was developed for the Colorado Springs Bike Master Plan. The Toolbox provides one of the best graphics driven reference-based explanation of every type of bicycle facility currently used.

Guide for the Planning, Design, and Operation of Pedestrian Facilities

American Association of State Highway and Transportation Officials, 2014

The guide provides regulation and design guidelines for pedestrian facilities. The guide describes sidewalks design and placement as well as the types of crossings. Other topics include strategies for the signal timing to improve and safety and mobility of pedestrians.

Specific Topics

NCHRP Report 562 Improving Pedestrian Safety at Unsignalized Crossings

Transportation Research Board, 2006

The report provides information on how to analysis un-signalized pedestrian crossing for potential safety improvements. A listing of potential treatments is listed including if the treatment is controlled by the MUTCD.

Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations

Federal Highway Administration Office of Highway Safety, 2018

This guide assists local transportation or traffic safety departments who are considering developing a policy or guide to support the installation of countermeasures at uncontrolled pedestrian crossing locations. This document provides guidance to agencies, including best practices for each step involved in selecting countermeasures. The guide provides a step by step guide to analysis a specific location and recommends potential countermeasures.



Bicycle and Pedestrian Master Plan

Field Guide for Selecting Countermeasures at Uncontrolled Pedestrian Crossing Locations

Federal Highway Administration Office of Highway Safety, 2018

The Field Guide is a companion to the Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations. The field guide provides form and charts for quick analysis in the field or a quick version of the guide.

How to Develop a Pedestrian and Bicycle Safety Action Plan

Federal Highway Administration, 2017

The plan provides a step by step approach to developing a safety program from the establishment of goals to implementation. There are lots of recommendations for working with neighborhood stakeholders.

Transit Street Design Guide

National Association of City Transportation Officials, 2016

The design guide describes incorporating transit, bicycle, and pedestrian facilities into the streetscape. Bicycle facilities at transit stops and stations can provide challenges which the guide provides solutions. The guides principles are an overview of the difference in bicycle facility design depending on land uses and bicycle activity levels.

Achieving Multimodal Networks Applying Design Flexibility and Reducing Conflicts

Federal Highway Administration, 2016

The report is a resource in developing multimodal networks where design challenges that create barriers and reduce safety for all users. Twenty four design topics range from transit stops and intersections with separated bicycle facilities.

Planning Urban Roadway System an ITE Recommended Practice

Institute of Transportation Engineers, 2013

The recommended practice defines the principals of defining a roadways network. The Practice provides an overview of the different context zones and the types of roadways for each. The roadway system planning process provides for elements for bicycle and pedestrian networks.

Small Town and Rural Multimodal Networks

Federal Highway Administration, 2016

The reference provides recourse for identifying safe, accessible, and comfortable active transportation system. The primary focus is small cities and rural communities, but there are many areas within the BTPO planning area which fall into this category. Many of the treatments described are still under FHWA review and approval is conditional.



Bicycle and Pedestrian Master Plan

Road Diet Informational Guide

Federal Highway Administration, 2014

The guidelines provide information on the safety and other benefits of a road diet. A road diet converts an existing four-lane road into a two-lanes with a center two-way center left turn lane. Road diets often provide Improvements to bicycle and pedestrian facilities.

Other Topics

NCHRP Report 797 Guidebook on Pedestrian and Bicycle Volume Data Collection

National Cooperative Highway Research Program, 2012

The guidebook provides guidance on how to collect bicycle and pedestrian data. The report presents case studies and information on manual and automated count programs.

NCHRP Report 803 Pedestrian and Bicycle Transportation Along Existing Roads – Active Trans Priority Tool Guidebook

National Cooperative Highway Research Program, 2012

The report provides a methodology for prioritizing active transportation projects. The understanding that not every project can be accomplished at once the report provides information on weighting factors used in the prioritization process.

Bikesafe Bicycle Countermeasures Selection System

Federal Highway Administration, 2006

Bikesafe is an expert system that provides resources and tools to identify countermeasures to improved bicycle safety and mobility. Many case studies are provided. Users provide site characteristics and the type of safety problem, and the system helps identify countermeasures.

