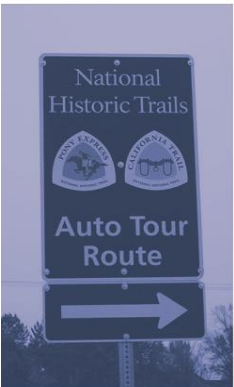
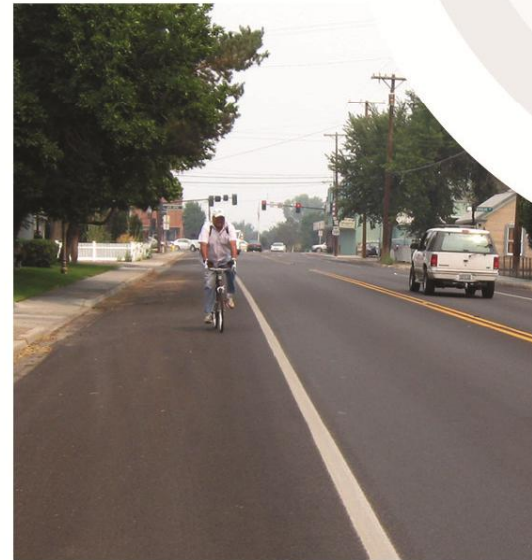




DOUGLAS COUNTY Bicycle Plan





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- Jeff Foltz, Douglas County Public Works
- Dan Doenges, Carson Area MPO
- Tim Mueller, NDOT Planning
- John Stevens, Local Cyclist/Town of Minden Board Member
- Tom Dallaire, Gardnerville Town Manager
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TABLE OF CONTENTS
DOUGLAS COUNTY BICYCLE PLAN

ACKNOWLEDGEMENTS.....I

1. INTRODUCTION..... 1

2. PUBLIC INVOLVEMENT..... 2

3. EXISTING CONDITIONS..... 7

3.1 Countywide Observations..... 7

3.2 Existing Documents, Policies, Programs and Legislation 8

 3.2.1 *Douglas County Comprehensive Trails Plan 2003* 9

 3.2.2 *Safe Routes to School Program*..... 9

 3.2.3 *Construction Standards* 9

 3.2.4 *Legislation*..... 9

3.3 Crash Data 10

4. VISION, GOALS, AND OBJECTIVES..... 13

4.1 Vision..... 13

4.2 Goals..... 13

4.3 Objectives 13

5. RECOMMENDED STRATEGIES..... 14

5.1 Objective 1..... 14

5.2 Objective 2..... 14

5.3 Objective 3..... 15

5.4 Objective 4..... 15

6. RECOMMENDED BICYCLE FACILITIES..... 16

6.1 Bicycle Facility Types 18

 6.1.1 *On-street Bicycle Facilities*..... 18

 6.1.1.1 Shared Lane 18

 6.1.1.2 Marked Shared Lane 19

 6.1.1.3 Paved Shoulder 20

 6.1.1.4 Bike Lane 21

 6.1.1.5 Buffered Bike Lane 22

 6.1.1.6 Bicycle Boulevard..... 23

 6.1.2 *Off-street Bicycle Facility*..... 24

 6.1.2.1 *Shared Use Path* 24

 6.1.2.2 *Side-Path* 25

6.2 Recommended Bicycle Network 26

6.3 High Priority Bicycle Improvement Projects 33

6.4 US Bicycle Route System 33

7. FUNDING 34

7.1 Transportation Alternatives 34



TABLE OF CONTENTS

DOUGLAS COUNTY BICYCLE PLAN

| | | |
|------------|--|-----------|
| 7.1.1 | <i>Eligible Activities for Transportation Alternatives Program</i> | 34 |
| 7.1.2 | <i>Relevance of MAP-21 to the Douglas County Bicycle Plan</i> | 35 |
| 7.2 | Surface Transportation Program | 36 |
| 7.3 | Highway Safety Improvement Program | 36 |
| 7.4 | State and Community Highway Safety Grant Program | 36 |
| 7.5 | National Highway Performance Program | 37 |



TABLE OF CONTENTS

DOUGLAS COUNTY BICYCLE PLAN

LIST OF APPENDICES

- A Nevada Statewide Bicycle Plan
- B Notes from Countywide Observations
- C Nevada Bicycle Advisory Board Letter
- D Douglas County Development Code and the Design Criteria and Improvement Standards Manual
- E Nevada Statewide Bicycle Plan Legislation
- F Example Roadway Cross Sections with Bicycle Facilities
- G Bicycle Facility Signs

LIST OF FIGURES

- Figure 1 – Douglas County Population Point Map 8
- Figure 2 – Summary of Douglas County Bicycle and Motor Vehicle Crashes 2006-2011 11
- Figure 3 – Reported Bicycle and Motor Vehicle Crashes in Douglas County 2006-2011 12
- Figure 4 – Shared Lane Facility 18
- Figure 5 – Marked Shared Lane Facility 19
- Figure 6 – Paved Shoulder Facility 20
- Figure 7 – Bike Lane Facility 21
- Figure 8 – Buffered Bike Lane Facility 22
- Figure 9 – Bicycle Boulevard Facility 23
- Figure 10 – Shared Use Path Facility 24
- Figure 11 – Side-Path Facility 25
- Figure 12 – Bicycle Network – Douglas County 27
- Figure 13 – Bicycle Network – Tahoe Basin MPO 28
- Figure 14 – Bicycle Network – Carson Valley 29
- Figure 15 – Bicycle Network – Johnson Lane and Indian Hills 30
- Figure 16 – Bicycle Network – Minden and Gardnerville 31
- Figure 17 – Bicycle Network – Gardnerville Ranchos 32

LIST OF TABLES

- Table 1 – Douglas County – Existing Bicycling Documents, Policies, Programs, and Legislation 9
- Table 2 – Summary of Douglas County Bicycle and Motor Vehicle Crashes 2008-2010 10
- Table 3 – User Group and Trip Types 17



TABLE OF CONTENTS

DOUGLAS COUNTY BICYCLE PLAN

LIST OF ACRONYMS

| | |
|--------|--|
| AASHTO | American Association of State Highway and Transportation Officials |
| FHWA | Federal Highway Administration |
| GIS | Geographic Information Systems |
| HSIP | Highway Safety Improvement Program |
| MAP-21 | Moving Ahead for Progress in the 21st Century Act |
| MPO | Metropolitan Planning Organization |
| NACTO | National Association of City Transportation Officials |
| NBAB | Nevada Bicycle Advisory Board (Converted to NBPAP in 2011) |
| NBPAB | Nevada Bicycle and Pedestrian Advisory Board |
| NDOT | Nevada Department of Transportation |
| NHPP | National Highway Performance Program |
| NHS | National Highway System |
| NHTSA | National Highway Traffic Safety Administration |
| SHSP | Strategic Highway Safety Plan |
| SRTS | Safe Routes to School |
| STP | Surface Transportation Program |
| TAP | Transportation Alternatives Programs |
| TMA | Transportation Management Areas |



1. INTRODUCTION

Communities throughout Nevada have been steadily expanding their emphasis on improving bicycling over the last few decades. In February 2013, NDOT formalized this momentum in the Nevada Statewide Bicycle Plan (State Bike Plan), which focused on areas outside of the four Metropolitan Planning Organizations (MPOs) in Nevada, including the Carson Area Metropolitan Planning Organization (CAMPO), the Regional Transportation Commission of Southern Nevada (RTC), the Regional Transportation Commission of Washoe County (RTC), and the Tahoe MPO (TMPO). Representatives from NDOT and other public and private organizations throughout the state came together to support bicycle planning within the development of this plan. The State Bike Plan focused on recommendations to improve bicycling through Policies, Programs, Legislation, Tourism, and Infrastructure Improvements. **Appendix A** contains the cover to the State Bike Plan and the website to where it can be found (www.bicyclenevada.com).

The first strategy listed within the State Bike Plan is for NDOT to assist local jurisdictions with adopting local bicycle plans that are endorsed by the Nevada Bicycle and Pedestrian Advisory Board (NBPAB). The Douglas County Bicycle Plan has been prepared in support of that strategy. This Plan references the major elements of the State Bike Plan that are relevant to Douglas County with a focus on documenting the existing and proposed infrastructure improvements desired within Douglas County, as well as adjacent areas.

This Plan has been developed with significant input from county and local representatives, cycling advocates from Douglas County and various community groups. The project is being led by NDOT in coordination with the NBPAB.



2. PUBLIC INVOLVEMENT

The development of this Plan was guided by local coordination and public input. Public input was initially gathered during the development of the State Bike Plan. A public meeting for the State Bike Plan was held in Minden, Nevada on November 18, 2011. This meeting was attended by seven people and the following summarizes the key topics identified at the meeting:

Largest Need:

- Wider shoulders, additional bike lanes and paths

Biggest Issue:

- Lack of connectivity within Douglas County

Greatest Asset:

- Proximity to Lake Tahoe

Additional Information:

- A driving tour and field assessment of bike facilities was completed by members of the project team and local representatives.
- There is a need to improve connectivity between residential and commercial centers of the County;
- There are limited bike education events in Douglas County.
- Alternative design standards for roads should be explored to allow for the addition of bike facilities.
- Douglas County is working to preserve and utilize historic rights-of-way and corridors, such as the Virginia & Truckee Railroad and the Old Kingsbury Grade.

Section 3 of the State Bike Plan includes a summary of all public input received, which was from 15 public meetings throughout the state and 777 responses to a user survey. The following is a summary of 51 key issues identified from the surveys that were typical to bicycling in rural counties in Nevada.

1. Advocacy Groups Lacking – Lack of organized bicycle advocacy groups at the local level.
2. Alternate Roadway Corridors Not Inventoried – There are old roads that parallel newer roads in many places throughout rural Nevada. However, they are in various states of repair (some are used, others look partially or entirely abandoned); they are often hard to access and there is not an inventory of their availability (locations) or suitability for bicycling.
3. Alternate Corridors Not Preserved – Former railroad rights-of-way corridors that would make excellent trails are being (or were) lost due to lack of information and knowledge regarding the acquisition and preservation of rail corridors. Stretched budgets have also resulted in a lack of staff resources to pursue rail-trail opportunities.
4. ATVs on Bike Facilities – ATVs, while regulated, are often allowed to ride on designated bicycle facilities including paved pathways and mountain bike trails.
5. Bicyclists Not Respected by Motorists – Many motorists do not respect bicyclists - bicycling is not a legitimate part of local culture. Bicyclists relayed stories of harassment and intimidation by motorists.
6. Bicyclists Often Riding Wrong Way – Observed a lot of wrong-way riding by bicyclists.
7. Bike Lane Width Sometimes Includes Gutter – Gutter pan sometimes included in the width of a bicycle lane even if pavement to gutter pan edge is not smooth.
8. Bike Plans for Communities Lacking – Towns and counties do not have adopted, current bicycle plans. Since NDOT requires that proposed bicycle facilities are in an adopted plan, opportunities to construct



bicycle facilities as part of NDOT projects or to receive state/federal funds are often lost. Many towns and counties do not have the time, money, or expertise to develop a bicycle plan.

9. Bikeways Not Coordinated Across Jurisdictional Boundaries – Town and county bicycle planning is not always coordinated. As a result, there is often a lack of connectivity between the more urbanized town areas and bicycle destinations (e.g. state parks, public lands, mountain bike trails, and low-volume country roads) in the rural, county areas.
10. Bikeway Innovation Lagging – Newer bicycle facility options such as shared lane markings are not widely known about or used.
11. Bikeways Have Ridge at Edge – Some overlays stop at the shoulder resulting in a ridge (lip) a ridge that can cause bicyclists to fall.
12. Bikeways Lacking in Tunnels – There are few provisions for bicyclists going through tunnels (e.g. lack of signs or bicycle activated flashing lights to warn motorists as is done at tunnel in Tahoe).
13. Bikeways Lacking Along Hwy 50 – Highway 50 is the most popular cross county bicycling route and has significant bicycle travel but lacks a bikeable shoulder through many mountain passes with limited visibility around curves.
14. Bikeways Lacking Access to Mountain Bike Areas – Mountain bike areas close to rural towns are often not accessible by bicycle from the town due to lack of facilities (e.g. road leading out of town is high speed and does not have shoulders). Consequently, bicyclists find it necessary to load their bikes on their motor vehicles and drive to nearby mountain bike trail heads.
15. Bikeway Terms Not Understood – There is a lack of understanding and use of terms to describe various bicycle facilities (e.g. bike route, bicycle lane, bicycle path etc.).
16. Bikeway Variances – Local zoning boards give variances to developers, thereby losing opportunities to install bike lanes and paths required by local zoning regulations.
17. Education Materials Not Readily Available – Locals don't know where to get bicycle educational materials for schools, summer recreational programs, etc.
18. Education Programs Lacking – There are very few bicycle safety education programs offered to children in country towns. In the past, rodeos and other safety programs were more available through schools, and local police and sheriff's departments. These have become less frequent or have disappeared over time.
19. Enforcement Lacking and Uninvolved – Law enforcement officials are typically not involved in bicycle safety (i.e. they do not ticket motorists or bicyclists and they no longer provide safety training rodeos for children).
20. Facilities for Aging Populations Lacking – There are aging populations in many of the small country towns that lack adequate trail (sidewalk) facilities to exercise and access local services.
21. Funding Opportunity Awareness Lacking - Local, rural jurisdictions are not always aware of state funding opportunities. Consequently, there are times when there is a lack of applications for some pots of money.
22. Funding Shortage for Bike Infrastructure – Lack of funding for bicycle infrastructure improvements.
23. Gravel on Facilities – Existing bicycle facilities are not maintained (e.g. trails in disrepair, bicycle lanes and shoulders are full of gravel).
24. Gravel on Shoulder – Gravel on roadways at locations where there are access roads/driveways.
25. Helmet Use Low – Helmet use by bicyclists, especially children is low.
26. High Speed Right Turn Lanes – High speed right turn add lanes on arterial streets create a challenge for bicyclists going straight.
27. Infrastructure Inconsistent – There is a lack of consistency with regard to the design of NDOT vs. non-NDOT roads (e.g. lane width, shoulder width, curbs radii etc.).
28. Interstate Access – For bicyclists traveling from urbanized to rural areas, there are no informational signs to indicate where they are allowed to access interstate freeways.



29. Rumble Strip Takes Up Shoulder – Rumble strips are often placed to right of white edge line on the 12- to 24-inch shoulder forcing bicyclists to ride to the left of the edge line. Also, design and application of rumble strips are inconsistent.
30. Interstate By-pass Wayfinding Lacking – There are no way-finding signs to guide bicyclists through towns in rural areas. This is particularly important for bicyclists who have exited an interstate freeway and must travel through town and back to a freeway entrance.
31. Interstate Locations That Bikes Must Exit Unclear – It is not clear where bicyclists traveling on interstate freeways entering urbanized areas are required to exit the freeway.
32. Interstate Way-Finding Lacking – For bicyclists traveling on interstate freeways, there are no way-finding signs to indicate where they should exit to access small towns.
33. Legality of Bicycling on Sidewalks Not Clear – Lack of clarity regarding bikes on sidewalks. State law says that bicyclists are not allowed on sidewalks unless granted “permission” by “owner”.
34. Locals feel NDOT Not Prioritizing Bicycling – Some locals feel NDOT doesn’t really care about bicyclists and does not recognize the importance of touring bicyclists to economies of small towns. Examples cited include: a) rumble strips in narrow shoulders of NDOT roads; 2) NDOT projects that ignored local requests for bicycle facilities; and 3) non-responsiveness of NDOT officials in district offices. Some locals are concerned that NDOT does not value their input. Locals complained that by the time they find out about a project, it is already scoped, budgeted, and designed.
35. Maps of Local Bike Facilities Lacking – Lack of bicycle maps at the local level that show bicycle facilities, water, bike shop and destinations such as mountain bike areas.
36. Rumble Strips Next to Guard Rail – Rumble strips are sometimes installed immediately adjacent to guardrails, which is inconsistent with state guidelines.
37. School Crossing Guards Lacking – There are often no school crossing guards at crossings of arterial streets near schools (state, county and local roads).
38. School Kid’s Bikes Need Repairs – Children don’t know how to fix their bikes (e.g. flat tires due to puncturevine, also known as goatheads).
39. School Support and Facilities Lacking – Some local school districts do not recognize or support bicycling and/or walking to school; and they are not aware of SRTS programs and grants. Children often cannot bicycle to school due to lack of bicycle facilities.
40. Schools Lacking Adequate Bike Parking – There is often a lack of bicycle parking facilities at schools.
41. Shared Use Path Crossing Advanced Motorist Signing Lacking – Inadequate warning/crossing signs for motorists at locations where paths cross roadways.
42. Shared Use Path Intersection Priority – Assignment of right-of-way at trail crossings. Some trails arbitrarily require trail users to stop at all crossings, including driveways.
43. Shoulders Lacking or Too Narrow – Many state, county and local highways do not have a shoulder, have a very narrow shoulder, and/or have the entire shoulder covered in a rumble strip.
44. Special Event Participants Lacking – Special events (century rides, etc.) need more participants.
45. Special Event Permitting Unclear – Lack of clarity as to whether permits are required for special events with more than 50 participants and the requirements for the application. Regional NDOT offices may have different policies.
46. Special Event Signing Requirements Not Clear – Lack of clarity with regard to state rules regarding way-finding guidance (arrows on the pavement and temporary signs) to direct bicyclists participating in special events (e.g. century ride).
47. Touring Bicyclist Economic Impact Not Quantified – There are no numbers regarding the importance (or potential) of bicycling to the economy of rural towns.
48. Touring Bicyclist Travel on Through – Bicycle tourism in Nevada is an untapped resource. Touring bicyclists do not stop in Nevada to bike (they go on to Utah, Colorado, and other destinations).



49. Touring Bicyclists Lack Water – Touring bicyclists lack places where they can find water. NDOT facilities in rural areas may be able to provide water.
50. Utility Corridors Don't Officially Allow Bikes – Authorities (agencies) that operate irrigation and drainage networks do not allow bicycle facilities on dikes and service roads. However, informal use is widespread and often tolerated.
51. Workzones – On interstate freeways, state highways and local roadways, space for bicyclists is not routinely provided through construction zones. For example, it is not uncommon to see motorists channeled into one lane or on the shoulder, leaving no place for the bicyclists to ride.

These issues identified in the State Bike Plan were used as a baseline for a workshop held specifically for development of the Douglas County Bicycle Plan.

The two-day workshop was held on August 27 and 28, 2013, in Minden, Nevada. The purpose of the workshop was to gain input from representatives of the local community on specific bicycling conditions in Douglas County and to develop recommendations on proposed bicycle facility improvements as well as recommendations for policy, program, legislation, and tourism improvements for bicycling. The following is a list of attendees at the workshop:

- Dirk Goering, Douglas County Planning
- Jeff Foltz, Douglas County Public Works
- Dan Doenges, Carson Area MPO
- Tim Mueller, NDOT Planning
- John Stevens, Local Cyclist/Town of Minden Board Member
- Tom Dallaire, Gardnerville Town Manager
- Karen Fink, Tahoe MPO
- Mel Maalouf, Local Cyclist/Alta Alpina Cycling Club
- Bill Story, NDOT Project Manager
- Mike Colety, Kimley-Horn
- Peter Lagerwey, Toole Design Group





The two-day workshop covered a variety of bicycling topics, and included a field assessment. The workshop schedule is included below.

| | | |
|-------|--------------|--|
| DAY 1 | 8:00 – 8:30 | Meet-and-Greet |
| | 8:30 – 9:00 | Overview of planning process, review Statewide Bike Plan |
| | 9:00 – 9:30 | Review bicycle facility types |
| | 9:30 – 12:00 | Review maps, identify opportunities, barriers |
| | 12:00 | Adjourn |
| | 1:00 – 6:00 | Field assessment* |
| DAY 2 | 8:00 – 12:00 | Field assessment* |
| | 1:00 – 2:30 | Review maps |
| | 2:30 – 5:00 | Plan development – interactive exercise |
| | 5:00 | Adjourn |

**The field assessment was attended by a subset of the workshop attendees and then presented to the group.*

The attendees offered input on existing bicycling conditions, existing issues, desired routes, necessary programs and policies, and then specified on priorities. The field assessment reviewed existing conditions and identified potential areas for improvement. Notes from the countywide field assessments are included in **Appendix B**.

Additional public input and comments were received at the following outreach efforts:

- Town Meetings
 - Gardnerville (March 4, 2014)
 - Genoa (April 1, 2014)
 - Minden (April 2, 2014)
- Planning Commission Meeting (March 11, 2014)
- General Improvement District Meeting
 - Gardnerville Ranchos (April 2, 2014)
- Alta Alpina Cycling Club Meeting (May 5, 2014)



3. EXISTING CONDITIONS

3.1 Countywide Observations

Bicycling conditions throughout Douglas County were observed as part of the development of the State Bike Plan and during the field assessment as a part of the workshop. The following are examples of preferred existing bicycling conditions in Douglas County:

- Bike lanes
- Shared use paths
- Wide shoulders
- Bike parking
- Bike shops
- Bike amenities and lodging

Similarly, the following are examples of non-desirable conditions that were observed in Douglas County:

- Narrow shoulders
- No shoulders
- Pinch points for bicyclists
- Lack of directional signage
- Lack of amenities
- Lack of funding
- Development requirements to provide bicycle facilities not always followed
- Lack of advocates or champions

Douglas County had a population of 46,997 as of the 2010 census. The county seat, Minden, had a population of 3,001 in the 2010 census and the following are the areas within Douglas County with a population over 5,000:

- Gardnerville
- Gardnerville Ranchos
- Johnson Lane
- Indian Hills

Figure 1 shows a map of population areas found within Douglas County from the 2010 census.



Source: 2010 Census

Figure 1 – Douglas County Population Point Map

3.2 Existing Documents, Policies, Programs and Legislation

Existing bicycle related documents from Douglas County were collected as part of the development of the State Bike Plan. The following sections are a summary of bicycle related documents, policies, programs and legislation in Douglas County in matrix form (**Table 1**) and paragraph form.



| | Douglas County |
|--|----------------|
| Douglas County Comprehensive Trails Plan (Not Approved by NBAB) Existing/Proposed Facility Map | 2003 |
| Major Bikeway Initiatives | No |
| Laws | No |
| Policies | Yes |
| Safe Routes to School Program | Limited |
| Construction Standards | Yes |
| Maintenance Expectations and Protocols | No |
| Cycle Tourism Initiatives | No |

Table 1 – Douglas County – Existing Bicycling Documents, Policies, Programs, and Legislation

3.2.1 Douglas County Comprehensive Trails Plan 2003

The purpose of the 2003 Douglas County Comprehensive Trails Plan was to provide enhancement and development of a coherent, workable community trails program which assists with the creation of a system of hard and soft surface multi-use paths through Douglas County. The Trails Plan established specific public access points, trailheads, and trail locations to be developed over the life of the Master Plan.

The plan was submitted to the Nevada Bicycle Advisory Board (later changed to the NBPAB) for adoption in 2010. On November 22, 2010, NDOT received a response letter stating the Board did not approve the plan. The letter identified 13 issues that needed to be addressed for the plan to be approved. A copy of that letter is included in **Appendix C**. The Douglas County Bicycle Plan addresses all of the 13 issues identified in the response letter.

3.2.2 Safe Routes to School Program

Douglas County has access to resources within the Carson City Health and Human Services Safe Routes to School Program (SRTS). The program incorporates the Five Es: Evaluation, Education, Encouragement, Engineering and Enforcement. The goal of SRTS is to increase the number of children bicycling and walking to schools safely on a daily basis. This improves facilities for non-motorized vehicles and pedestrians and increases opportunities for healthy physical activities for everyone. The State currently funds an SRTS coordinator who is available to assist the county and school district personnel in program expansion and implementation.

3.2.3 Construction Standards

The Douglas County Development Code and the Design Criteria and Improvement Standards Manual include bicycle access (bicycle parking and bicycle connections) standards, path design standards, roadway design standards with bike lanes (urban) and shoulder (rural) bikeways, definitions, and pedestrian access standards. These documents can be found in **Appendix D**.

3.2.4 Legislation

Although no specific bicycle related legislation was identified in Douglas County, existing statewide legislation related to bicycling is summarized in Section 4.3.9 on Page 39 of the State Bike Plan. This legislation is found in **Appendix E**.



3.3 Crash Data

As part of the State Bike Plan, bicycle crashes with motor vehicles were reviewed. NDOT annually completes a crash data review for the preceding three (3) years. The most recent report includes the years 2008 to 2010. It is important to recognize that most bicycle crash data only includes bicycle crashes with motor vehicles that are significant enough to require a police report. The data included in NDOT's report does not include minor collisions with bicycles and motor vehicles that do not have a police report, nor does it include bicycle crashes that do not include a motorist (i.e., crashes between two bicycles or a single bicycle crash). A summary of the bicycle and motor vehicle crashes for years 2008 to 2010 in Douglas County is presented in **Table 2**.

| COUNTY | 2008 | | | | 2009 | | | | 2010 | | | |
|------------|----------------------|----------------|---------------------|------------------|----------------------|----------------|---------------------|------------------|----------------------|----------------|---------------------|------------------|
| | TOTAL INJURY CRASHES | TOTAL INJURIES | TOTAL FATAL CRASHES | TOTAL FATALITIES | TOTAL INJURY CRASHES | TOTAL INJURIES | TOTAL FATAL CRASHES | TOTAL FATALITIES | TOTAL INJURY CRASHES | TOTAL INJURIES | TOTAL FATAL CRASHES | TOTAL FATALITIES |
| CARSON | 11 | 12 | | | 6 | 6 | | | 8 | 8 | | |
| CHURCHILL | 5 | 5 | 1 | 1 | 3 | 3 | | | 1 | 1 | | |
| CLARK | 243 | 250 | 6 | 6 | 421 | 432 | 5 | 5 | 380 | 399 | 3 | 3 |
| DOUGLAS | 6 | 6 | | | 9 | 9 | | | 10 | 10 | | |
| ELKO | 3 | 3 | | | 4 | 4 | | | 1 | 1 | | |
| ESMERALDA | | | | | | | | | | | | |
| EUREKA | | | | | | | | | | | | |
| HUMBOLDT | 2 | 2 | | | | | | | | | | |
| LANDER | | | | | | | | | | | | |
| LINCOLN | | | | | | | | | | | | |
| LYON | 1 | 1 | | | 4 | 4 | | | 2 | 2 | | |
| MINERAL | | | | | | | | | | | | |
| NYE | | | | | 2 | 2 | | | 4 | 4 | | |
| PERSHING | | | | | | | | | | | | |
| STOREY | 1 | 1 | | | | | | | | | | |
| WASHOE | 111 | 115 | | | 106 | 112 | 1 | 1 | 98 | 102 | 3 | 3 |
| WHITE PINE | | | | | | | | | | | | |
| TOTAL | 383 | 395 | 7 | 7 | 555 | 572 | 6 | 6 | 504 | 527 | 6 | 6 |

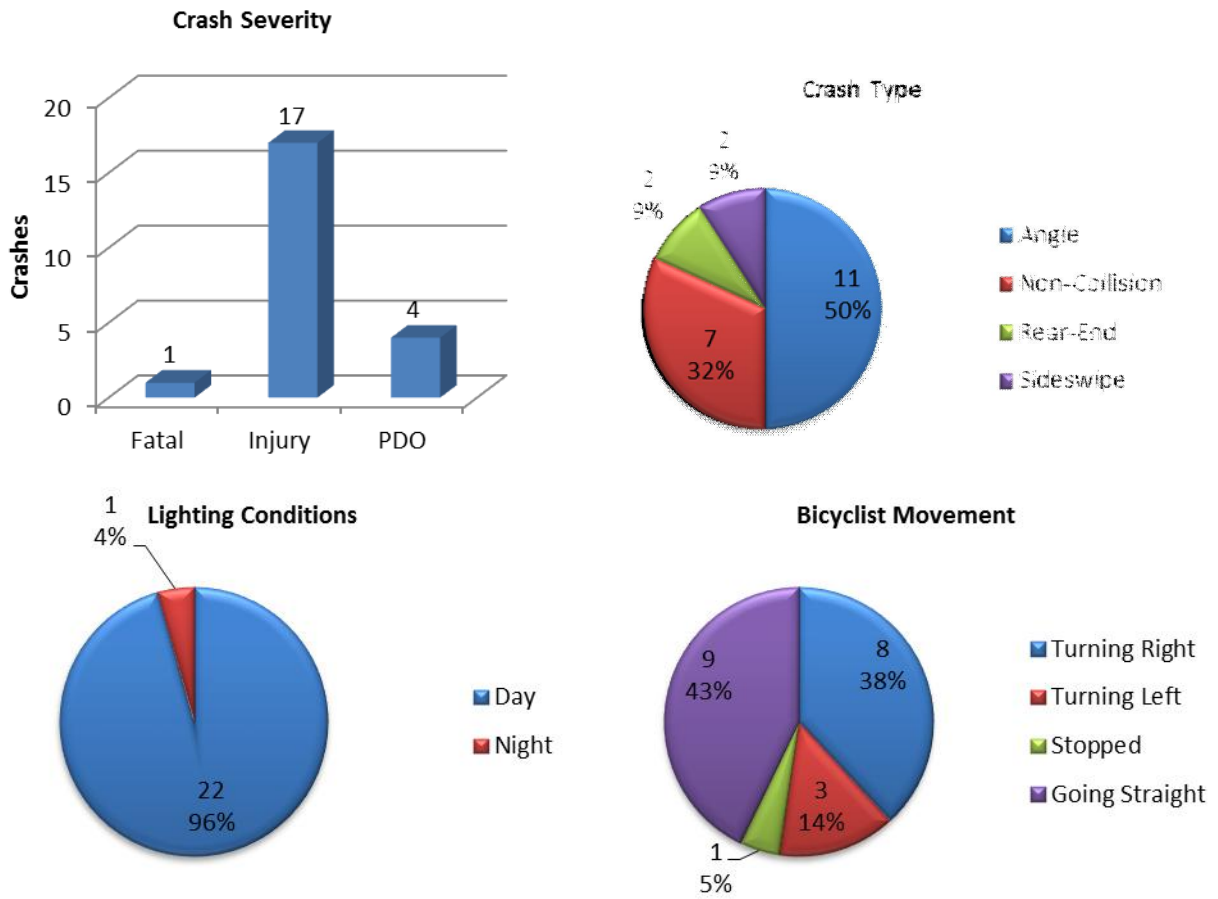
Source: NDOT Crash Data Report 2008-2010

Table 2 – Summary of Douglas County Bicycle and Motor Vehicle Crashes 2008-2010

The following are additional key results from the NDOT crash data for all crashes that occurred outside of the four MPOs in Nevada between the years 2008 and 2010:

- Bicycle crashes trended up over the three years, but fatalities decreased slightly.
- Failure to yield is the most common motorist factor.
- Improper crossing and riding on the wrong side of road are the most common bicyclist factors, followed by darting, failure to obey signs, signals, or officer, and failure to yield right-of-way. Not visible, inattentive and lying in roadway are minor contributing factors.
- There are typically more bicycle crashes and fatalities per day on weekdays than on weekends. Most collisions are between 3:00 and 5:00 PM, with Noon to 3:00 PM being secondary.

NDOT also provided Geographic Information System (GIS) bicycle crash data for Nevada from 2006 to 2011. **Figure 2** contains a summary of the crash data provided for Douglas County.



Source: NDOT Crash Data 2006-2011

Figure 2 – Summary of Douglas County Bicycle and Motor Vehicle Crashes 2006-2011



The data from NDOT has been spatially located to where the event occurred, and is coded with information related to the incident including crash severity and type. **Figure 3** is a GIS map illustrating the exact location of each crash within Douglas County.

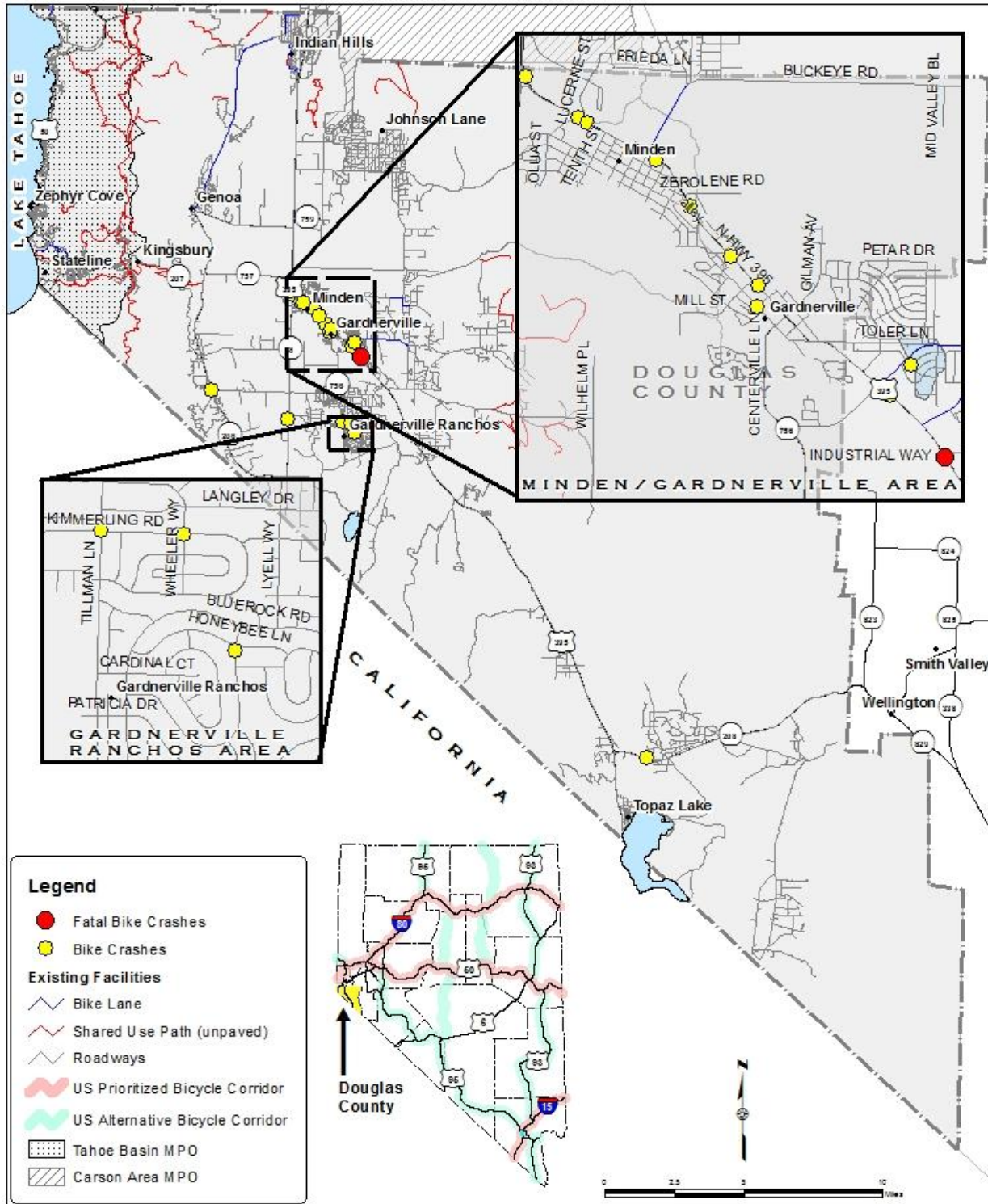


Figure 3 – Reported Bicycle and Motor Vehicle Crashes in Douglas County 2006-2011



4. VISION, GOALS, AND OBJECTIVES

The Vision, Goals, and Objectives for the Douglas County Bicycle Plan are described in the following sections.

4.1 Vision

For Douglas County residents and visitors of all ages and abilities to experience a convenient, pleasant, and safe bicycling environment.

4.2 Goals

There are two major goals of the Douglas County Bicycling Plan that will guide the specific objectives and strategies within this plan:

- Increase bicycling's mode share throughout Douglas County in and between communities, both by residents and tourists.
- Reduce crashes involving bicyclists and eliminate all bicyclist fatalities in support of Nevada's "Zero Fatalities" and the national "Towards Zero Deaths" initiatives.

4.3 Objectives

The following objectives are the specific tasks to be evaluated in order to determine the success of this Plan and bicycling in Nevada:

- Objective 1: Increase Local Support of Bicycling.
- Objective 2: Increase Bicycle Tourism.
- Objective 3: Accommodate Appropriate Bicycling Facilities on all Roadways in Nevada Open to Bicycling.
- Objective 4: Increase Motorists' and Bicyclists' Compliance with Laws Associated with Bicycling.



5. RECOMMENDED STRATEGIES

The following strategies have been developed for Douglas County to support the four main objectives of this Plan.

5.1 Objective 1

Increase Local Support of Bicycling

- Strategy 1A:* Improve the connectivity of bicycle facilities between population centers in a safe and effective manner.
- Strategy 1B:* Provide guidance and technical support to the local jurisdictions, including the towns and general improvement districts for developing bicycle plans that are consistent with the County and State Bicycle Plans.
- Strategy 1C:* Collaborate with the towns and general improvement districts to employ consistent design and maintenance policies for bicycle facilities.
- Strategy 1D:* Work with local agencies on the creation of funding mechanisms for bicycle related projects.
- Strategy 1E:* Collaborate with local agencies in applying for available state and federal funding opportunities and programs that are available for bicycle related projects.
- Strategy 1F:* Work with the Douglas County School District and other health advocates and agencies to promote bicycling as part of a healthy lifestyle for children and adults, including Safe Routes to School, Bike Month, and Nevada Moves Day.
- Strategy 1G:* Work with the Douglas County School District, towns, and general improvement districts to develop bicycle plans that identify safe routes and identify needed bicycle facilities for each school and incorporate the needs of each school into the County's Community Development Plan.
- Strategy 1H:* Establish a Bicycle Advisory Committee or Bicycle and Pedestrian Advisory Committee that provides guidance to the County Commission on bicycle (and pedestrian) related issues in Douglas County.
- Strategy 1I:* Adopt a bicycle accommodation or complete street policy specifying that all design projects with new roadways or modifications to existing roadways are required to include appropriate bicycle accommodation.

5.2 Objective 2

Increase Bicycle Tourism

- Strategy 2A:* Encourage the County's Economic Vitality Division to collaborate with the State's Office of Economic Development, local and state tourism agencies, local governmental agencies, and business organizations to promote bicycle tourism.
- Strategy 2B:* Assist in the development of bicycle tourism materials related to road and mountain bicycling, including maps that show destinations and designated routes, if supported by local business and local agencies.
- Strategy 2C:* Encourage NDOT to establish US Bicycle Routes and regional bicycle routes in Douglas County, Nevada.
- Strategy 2D:* Review the County's existing permit process for bicycle events, and if needed, develop a streamlined permitting process that establishes clear rules and guidelines along with acceptable temporary wayfinding methods.



5.3 Objective 3

Accommodate Appropriate Bicycling Facilities on All Roadways in Nevada Open to Bicycling

- Strategy 3A:* Adopt Countywide design guidelines and specifications that address bicycle facility design, including wayfinding and informational signs, and accommodating bicycle facilities in work zones.
- Strategy 3B:* Develop protocols with the state and local agencies that review maintenance projects which require restriping, to evaluate redesign options for adding bicycle facilities.
- Strategy 3C:* Define, inventory, and preserve, as necessary, alternate corridors such as railroad, irrigation easements, utility, and roadway rights-of-way for bicycling.
- Strategy 3D:* Maintain a list of high priority bicycle improvement projects and evaluate the improvements as part of the County Capital Improvement Plan process.
- Strategy 3E:* Strengthen requirements for developers to provide the space for a bicycle facility as part of street design standards. Provide guidance on when developer is to install the bicycle facility and when the developer must provide the space and funding for a future County improvement if it is not appropriate to install the facility at the time of development.

5.4 Objective 4

Increase Motorists' and Bicyclists' Compliance with Laws Associated with Bicycling

- Strategy 4A:* Encourage bicycle training for youth and adult bicyclists, through County, state, local, and private sector organization partnerships.
- Strategy 4B:* Provide assistance with state and local bicycle media and safety campaigns, materials, and outreach.
- Strategy 4C:* Work with the Douglas County Sheriff's Office and state law enforcement agencies to encourage the enforcement of state laws related to bicycling from a motorist's and bicyclist's perspective, regarding unsafe and unlawful behaviors.
- Strategy 4D:* Encourage a state sponsored Bicycle Infraction Diversion Program that allows violators of bicycling related infractions (motorists and bicyclists) to complete a training course instead of paying a fine.
- Strategy 4E:* Continue to work with advocates and the State to address legislative issues and needed changes related to bicycling during Nevada's bi-annual legislative sessions.



6. RECOMMENDED BICYCLE FACILITIES

Recommendations within the State Bike Plan are based upon the Vision, Goals and Objectives developed from the review of existing conditions and bicyclists' needs discovered through public input and stakeholder improvement processes.

The Douglas County Bike Plan's primary focus is to document the proposed bicycle infrastructure in Douglas County. The facility recommendations take into account that bicycle accommodation is not a one-size-fits-all approach and that bicycling accommodation should be responsive to the preferences of different bicycling user groups and trip types. The 2012 American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities (2012 AASHTO Bike Guide) defines two user groups based on bicyclist skill and comfort level: Experienced and Confident, and Casual and Less Confident. Characteristics of the two groups are described below:

Experienced and Confident:

- Most comfortable riding with vehicles on streets and are able to navigate streets like a motor vehicle, including using the full width of a narrow travel lane when appropriate and using left-turn lanes.
- While comfortable on most streets, some prefer on-street bike lanes, paved shoulders or shared use paths when available.
- Ride with the flow of traffic on streets and avoid riding on sidewalks.
- Typically ride at speeds of 15 to 25 miles per hour on level grades and can reach up to 45 miles per hour on steep descents.

Casual and Less Confident:

- Prefer shared use paths, bicycle boulevards, or bike lanes along low-volume streets.
- May have difficulty gauging traffic and may be unfamiliar with rules of the road as they pertain to bicyclists; more likely to walk bike across intersections.
- May use less direct route to avoid arterials with heavy traffic volumes.
- May ride on sidewalk if no on-street facility is available.
- Typically ride around 8 to 12 miles per hour.
- Typically cycle shorter distances, one to five miles.

Bicyclists generally also have different preferences based on local versus long distance trips. Local trips are often more utilitarian (e.g., biking to a shopping destination or school) and long trips more recreational (e.g., biking for exercise or sport), although there are also short recreation trips and long utilitarian trips. Local trips typically do not go much further beyond the populated area; whereas, long distance trips may be cross-state, touring type trips, or regional trips between destinations.

These trip types are also based on information in the 2012 AASHTO Bike Guide and generally have the following characteristics:

Long-Distance Trips:

- Directness of route not as important as visual interest, shade, and protection from wind.
- Loop trips may be preferred to back tracking; start and end points are often the same with an exception being bicycle touring trips.
- Trips typically range from under a mile to over 50 miles.
- Short term parking is needed at recreational sites, parks, trailheads and other activity centers.



- Varied topography may be desired, depending on the fitness and skill level of the bicyclist.
- More likely to be riding in a group.
- Sometimes drive with bicycle to starting point of ride.
- Typically ride on the weekend or on weekday before or after commute hours.

Local Trips:

- Directness of route and connected, continuous facilities more important.
- Trips generally travel from residential to schools, shopping or work areas.
- Trips typically range from 1 to 10 miles in length.
- Short-term and long-term bicycle parking is needed at destinations.
- Flat topography preferred.
- Often ride individually.
- Bicycle is primary mode of transportation for the trip; may transfer to public transportation and may not have access to a car for the trip.

Table 3 summarizes the preferences of both trip types for the two user groups.

| | | Experienced/Confident Bicyclists | | Casual/Less Confident Bicyclists | |
|---------------|---------------------|----------------------------------|-------|----------------------------------|-------|
| | | Long Distance | Local | Long Distance | Local |
| Facility Type | Bicycle Lane | ✓ | ✓ | ✓ | ✓ |
| | Paved Shoulder | ✓ | ✓ | ✓ | ✓ |
| | Shared Lanes | ✓ | ✓ | | |
| | Marked Shared Lanes | | ✓ | | ✓ |
| | Shared Use Path | | | ✓ | ✓ |

Table 3 – User Group and Trip Types

As displayed in **Table 3**, all of the different facility types are preferred by at least one particular user group for either a local or long distance trip. Therefore, the recommendations of this Plan recognize that each of these different facility types serve a particular purpose and should be considered for particular conditions and in some cases two facilities may be appropriate within the same area or corridor.



6.1 Bicycle Facility Types

The following bicycle facility type terms, descriptions and design standards from the 2012 AASHTO Bike Guide and the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide will be used for this Plan:

6.1.1 On-street Bicycle Facilities

6.1.1.1 Shared Lane

Bicycles may be operated on all roadways except where prohibited by statute or regulation. There are no roadways in Douglas County that prohibit bicycles. Generally speaking, roadways that carry very low to low volumes of traffic, and may also have traffic typically operating at low speeds (typically 25 mph or less), may be suitable as shared lanes in their present condition. There are two categories of shared lanes for bicycling. Shared lanes where a bicycle and motor vehicle can share side by side, which is generally considered to be 14 or 15 feet or greater. The second category is a shared lane where the lane is too narrow for a motor vehicle and bicycle to share side by side, which is a lane that is less than 14 or 15 feet wide. Various design features can make shared lanes more compatible with bicycling, such as good pavement quality; adequate sight distances; roadway designs that encourage lower speeds; and bicycle-compatible drainage grates, bridge expansion joints, and railroad crossings (2012 AASHTO Bike Guide Section 4.3). **Figure 4** represents an example shared lane facility.



Figure 4 – Shared Lane Facility



6.1.1.2 Marked Shared Lane

In situations where it is desirable to provide a higher level of guidance to bicyclists and motorists, marked shared lanes include the shared-lane marking. On streets with on-street parallel parking, shared-lane markings should be placed at least 11 feet from the face of curb, or edge of the traveled way where there is no curb. Without on-street parallel parking, shared-lane markings should be placed at least four feet from the face of curb, or edge of the traveled way where there is no curb (2012 AASHTO Bike Guide Section 4.4). **Figure 5** represents an example marked shared lane facility.



Figure 5 – Marked Shared Lane Facility



6.1.1.3 Paved Shoulder

Adding or improving paved shoulders can greatly improve bicyclists' accommodation on roadway with higher speeds or traffic volumes as well as benefit motorists, and are most often used on rural roadways. A shoulder with at least five feet is recommended from the face of a guardrail, curb, or other roadside barrier to provide additional operating width, as bicyclists generally shy away from a vertical face. On uncurbed cross sections with no vertical obstructions immediately adjacent to the roadway, paved shoulders should be at least four feet (2012 AASHTO Bike Guide Section 4.5). Douglas County requires a minimum four foot shoulder on all rural arterials and collector roadways. **Figure 6** represents an example paved shoulder facility.



Figure 6 – Paved Shoulder Facility



6.1.1.4 Bike Lane

A portion of the roadway designated for preferential use by bicyclists. One-way facilities that typically carry bicycle traffic in the same direction as adjacent motor vehicle traffic. Bike lanes are the appropriate and preferred bicycle facilities for thoroughfares in both urban and suburban areas. Under most circumstances the recommended width for bike lanes is five feet. A width of four feet may be used on roadways with no curb and gutter and no on-street parking (2012 AASHTO Bike Guide Section 4.6). **Figure 7** represents an example bike lane facility.



Figure 7 – Bike Lane Facility



6.1.1.5 Buffered Bike Lane

A buffered bike lane is a conventional bike lane paired with a designated buffer space separating the bike lane from the adjacent motor vehicle travel lane and/or parking lane. The design standards for a conventional bike lane apply. The buffer shall be marked with two solid white lines and the interior of the marked buffer shall have diagonal cross hatching or chevron markings if the buffer is three feet in width or wider (NACTO Urban Bikeway Design Guide page 19). **Figure 8** represents an example buffered bike lane facility.



Figure 8 – Buffered Bike Lane Facility



6.1.1.6 Bicycle Boulevard

A bicycle boulevard is a local street or series of continuous street segments that have been modified to function as a through street for bicyclists, while discouraging through automobile travel (2012 AASHTO Bike Guide Section 4.10). A bicycle boulevard incorporates several design elements to accommodate bicyclists. These design elements include, but are not limited to:

- Traffic diverters at key intersections to reduce through motor vehicle traffic while permitting passage for through bicyclists.
- At two-way, stop-controlled intersections, priority assignment that favors the bicycle boulevard, so bicyclists can ride with few interruptions.
- Neighborhood traffic circles and mini-roundabouts at minor intersections that slow motor vehicle traffic but allow bicyclists to maintain momentum.
- Other traffic-calming features to lower motor vehicle speeds where deemed appropriate.

Figure 9 represents an example bicycle boulevard facility.



Figure 9 – Bicycle Boulevard Facility



6.1.2 Off-street Bicycle Facility

6.1.2.1 Shared Use Path

Bikeways that are physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way. Paths are most commonly designed for two-way travel. Shared use paths can be paved or unpaved. A paved surface is generally preferred over un-paved surfaces, however unpaved surface may be appropriate on rural paths or as a temporary measure before funding is available for paving (2012 AASHTO Bike Guide Section 5.1). The usable width and the horizontal clearance for a shared use path are the primary design considerations. The minimum paved width for a two-direction shared use path is 10 feet with a typical range from 10 to 14 feet. A path width of eight feet may be used for a short distance due to a physical constraint (2012 AASHTO Bike Guide Section 5.2). **Figure 10** represents an example shared lane bicycle facility.



Figure 10 – Shared Use Path Facility



6.1.2.2 Side-Path

A shared use path that is adjacent to a roadway. The provision of a side-path is not a substitute for an on street bicycle accommodation. Side-paths can create operational issues, but can function along a highway for short sections, or for longer sections where there are few street and/or driveway crossings. A side path should use the same design as a shared use path (2012 AASHTO Bike Guide Section 5.2.2). **Figure 11** represents an example side-path facility.



Figure 11 – Side-Path Facility

All bicycle facilities recommended in this Plan should be designed and constructed based on the most current version of the AASHTO Bike Guide, the NACTO Urban Bikeway Design Guide and any applicable NDOT and County design standards. Typical roadway cross sections by facility type can be found in **Appendix F**. In addition to the recommended on-street and off-street bicycle facilities, individual improvement projects should include:

- Signage and marking (See **Appendix G**)
 - Bicycle guide signs and wayfinding
 - Signage to alert motorists to the potential presence of bicyclists in travel lanes where no bicycle lane or adjacent shoulders, usable by bicyclists, are present and where travel lanes are too narrow for bicyclists and motor vehicles to operate side by side such as:
 - Mountainous areas with limited sight visibility
 - Narrow bridges
 - Narrow lanes (<14 feet wide) without bike lanes or shoulders (less than 4 feet wide usable)
- Bicycle parking at destinations



- Roadway crossings and intersection accommodations (including signal detection)

When changing roadway characteristics result in the narrowing of the roadway and create the need for bicyclists to use the full lane, warning signs may be used to alert both bicyclists and motorists. These warning signs may be installed in advance of the area followed by a “Bicycle May Use Full Lane” sign (R4-11). Signs may be repeated at regular intervals when the narrow roadway condition persists for an extended distance. For specific guidance on how and when to use these different signs, found in **Appendix G**, refer to the latest version of the Manual on Uniform Traffic Control Devices.

Schools within Douglas County are a part of the SRTS Program operated by Carson City Health and Human Services. As such, the bicycle facility recommendations took into account SRTS within Douglas County.

6.2 Recommended Bicycle Network

A major purpose of this plan was to document the recommended bicycle network for Douglas County. The recommended bicycle network was developed based on input from the Bicycle Plan Workshop and coordination with Douglas County. As discussed previously, bicycles are permitted on all roadways in Douglas County and bicycles should be accommodated on all roadways in Douglas County. Opportunities for additional bicycle facilities that are not identified in this bicycle plan may develop and should be pursued. The recommended bicycle network identified as part of this Plan is included in the following Figures:

- **Figure 12** – Bicycle Network – Douglas County
- **Figure 13** – Bicycle Network – Tahoe Basin MPO
- **Figure 14** – Bicycle Network – Carson Valley
- **Figure 15** – Bicycle Network – Johnson Lane and Indian Hills
- **Figure 16** – Bicycle Network – Minden and Gardnerville
- **Figure 17** – Bicycle Network – Gardnerville Ranchos

Improvements to a roadway that has a proposed bicycle facility must provide the recommended bicycle facility and necessary right-of-way. In situations where strict compliance with the proposed bicycle facility may not act to protect public health and safety, a variance to the required improvements may be requested.

It is acknowledged that there may be constraints such as a lack of right-of-way or narrow bridges that make it infeasible to implement the recommended bicycle facilities in specific spot locations. In those situations and upon approval by Douglas County, engineering judgment should be used to provide the best accommodation for bicycles that is feasible at that time, while maintaining the potential for a future improvement to accommodate the recommended bicycle facility. This may include providing a shared use path or alternative route connection around the constraint. Locations with limited width should include warning signage as was described in the previous subsection.

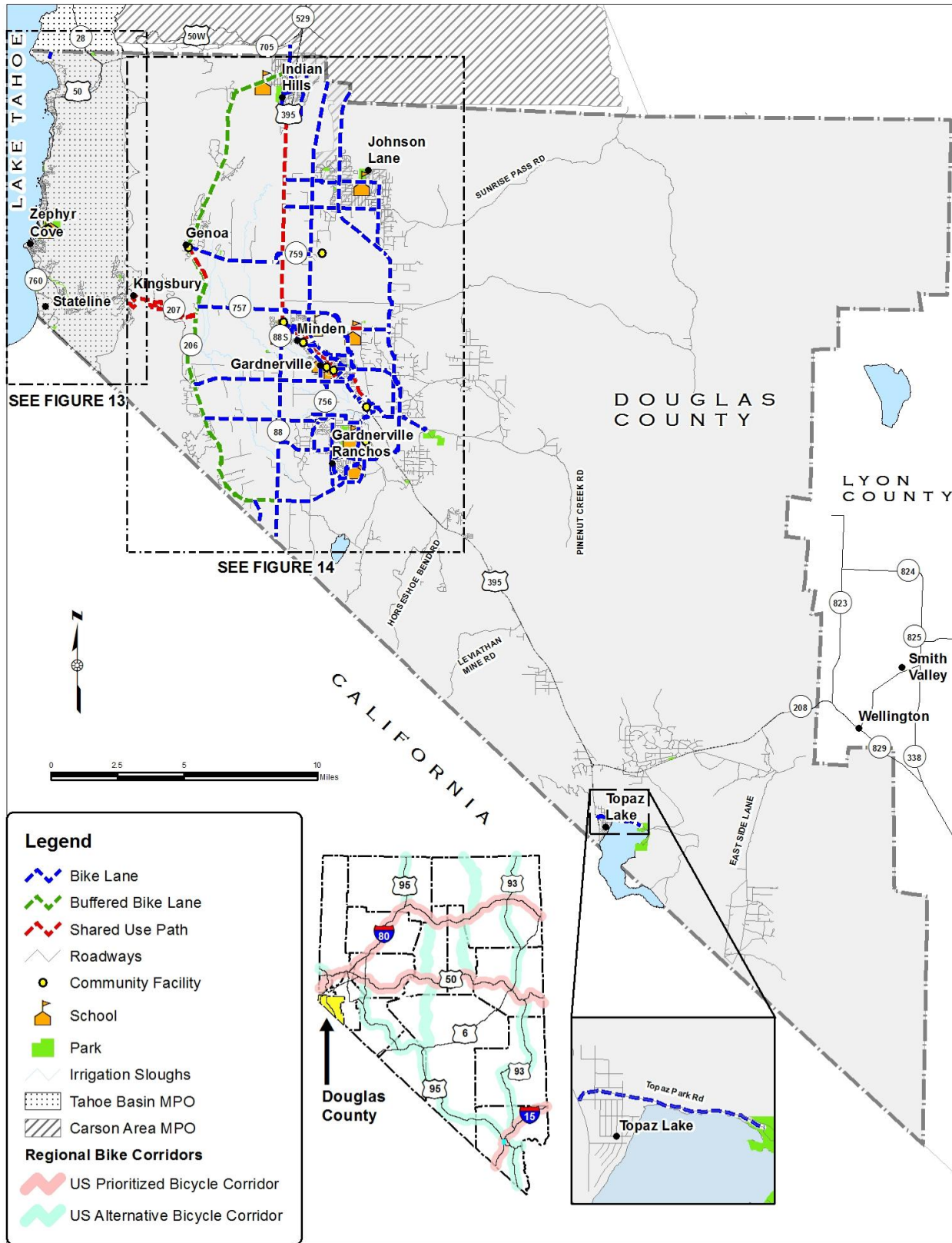


Figure 12 – Bicycle Network – Douglas County

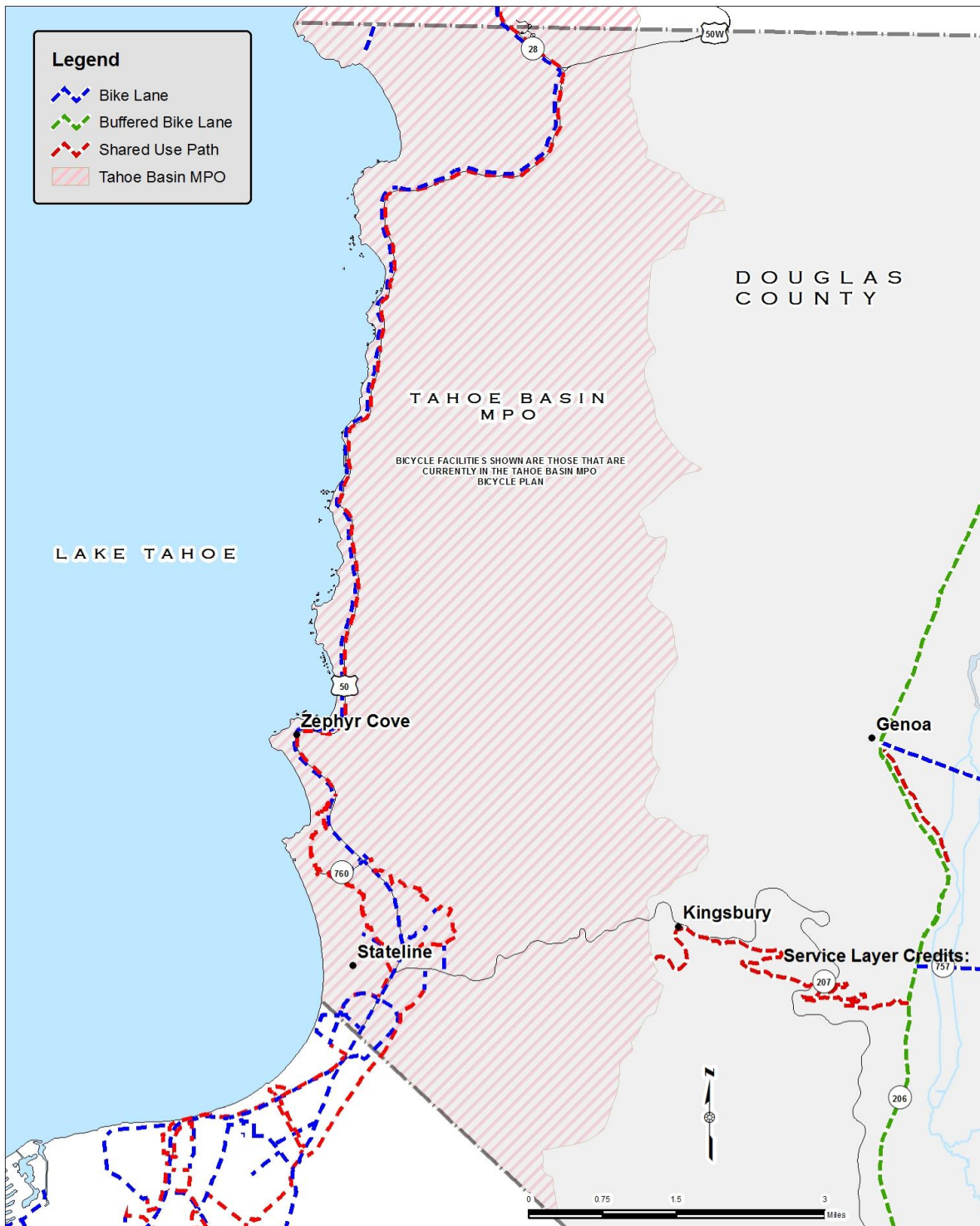


Figure 13 – Bicycle Network – Tahoe Basin MPO

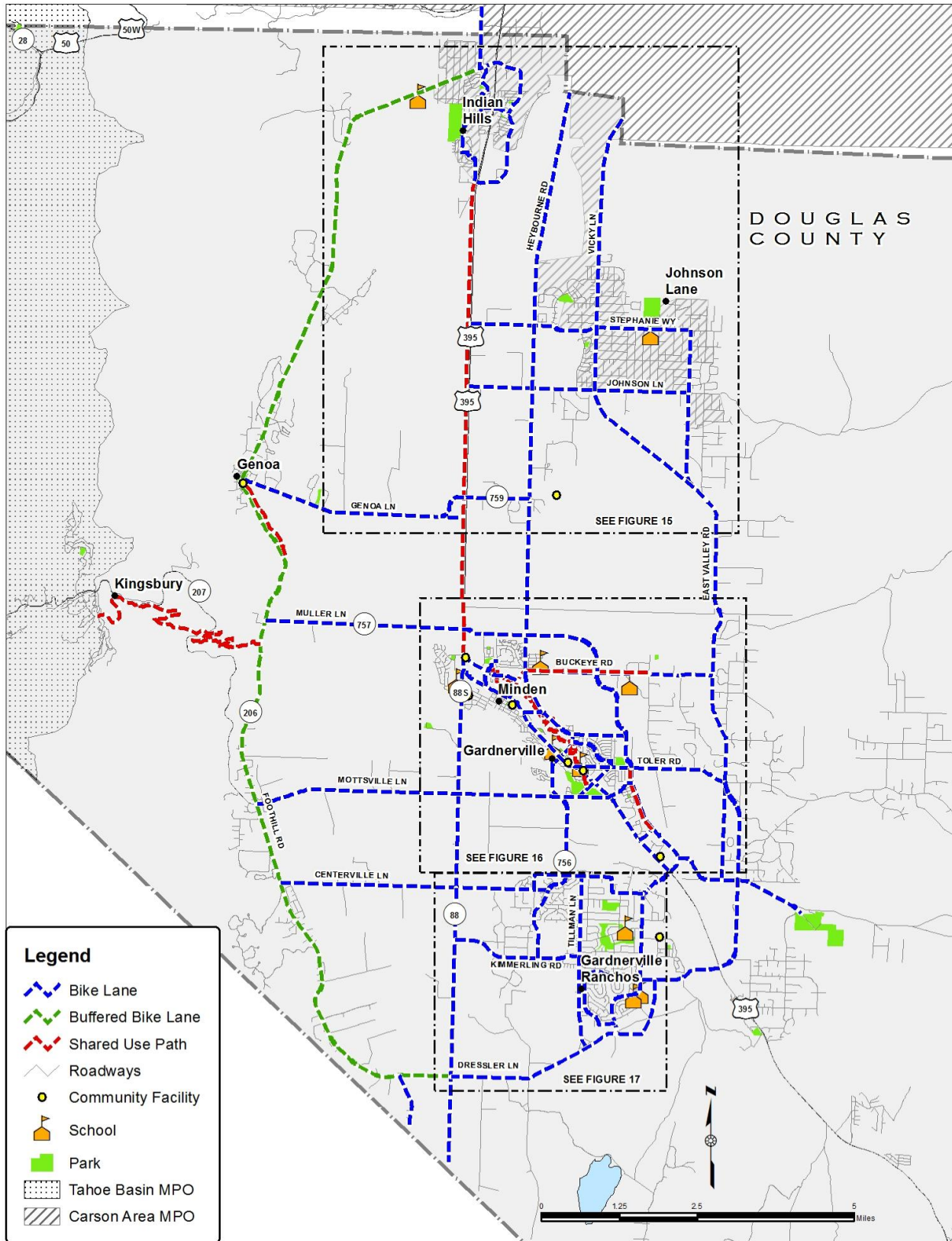


Figure 14 – Bicycle Network – Carson Valley

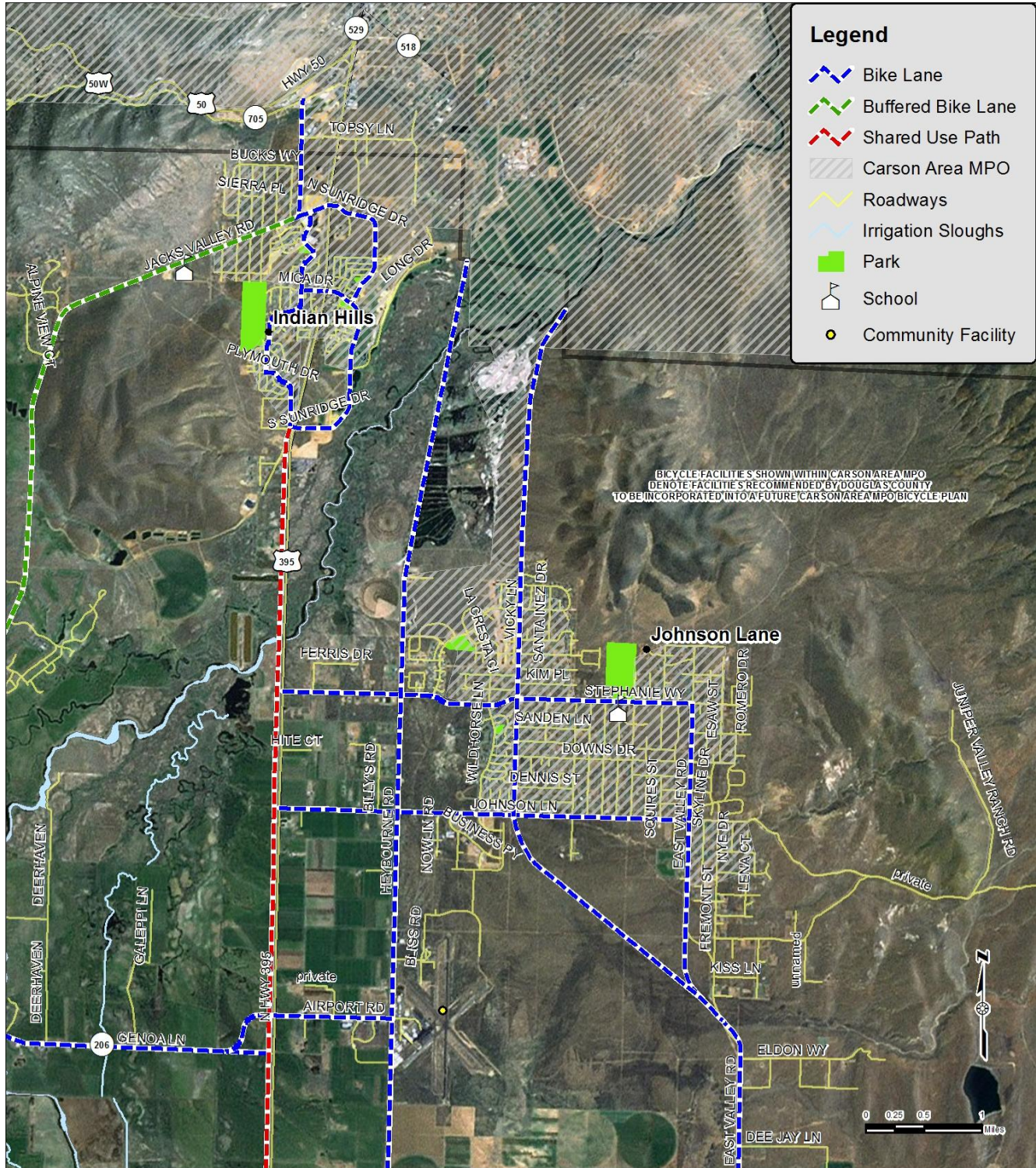


Figure 15 – Bicycle Network – Johnson Lane and Indian Hills

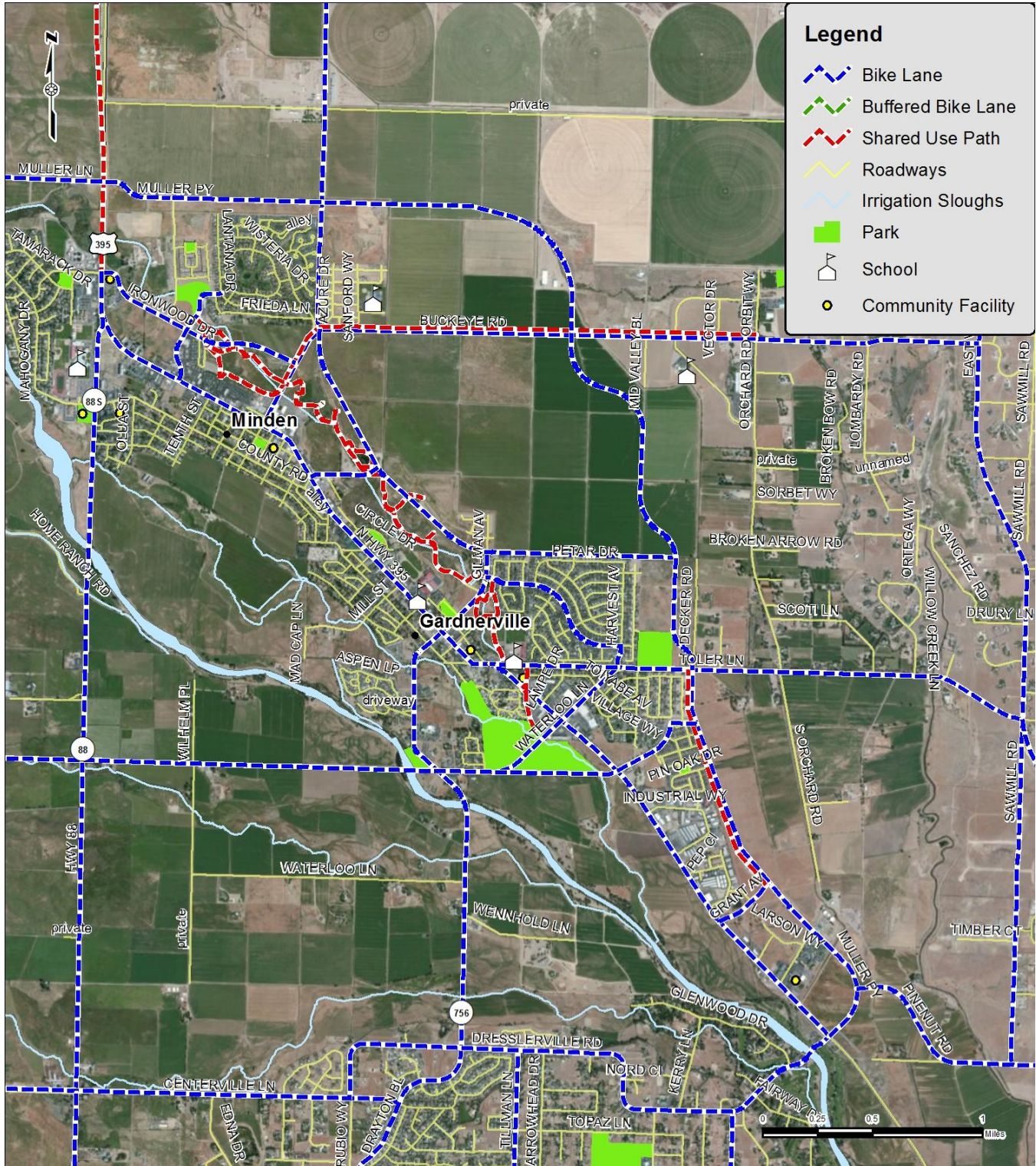


Figure 16 – Bicycle Network – Minden and Gardnerville

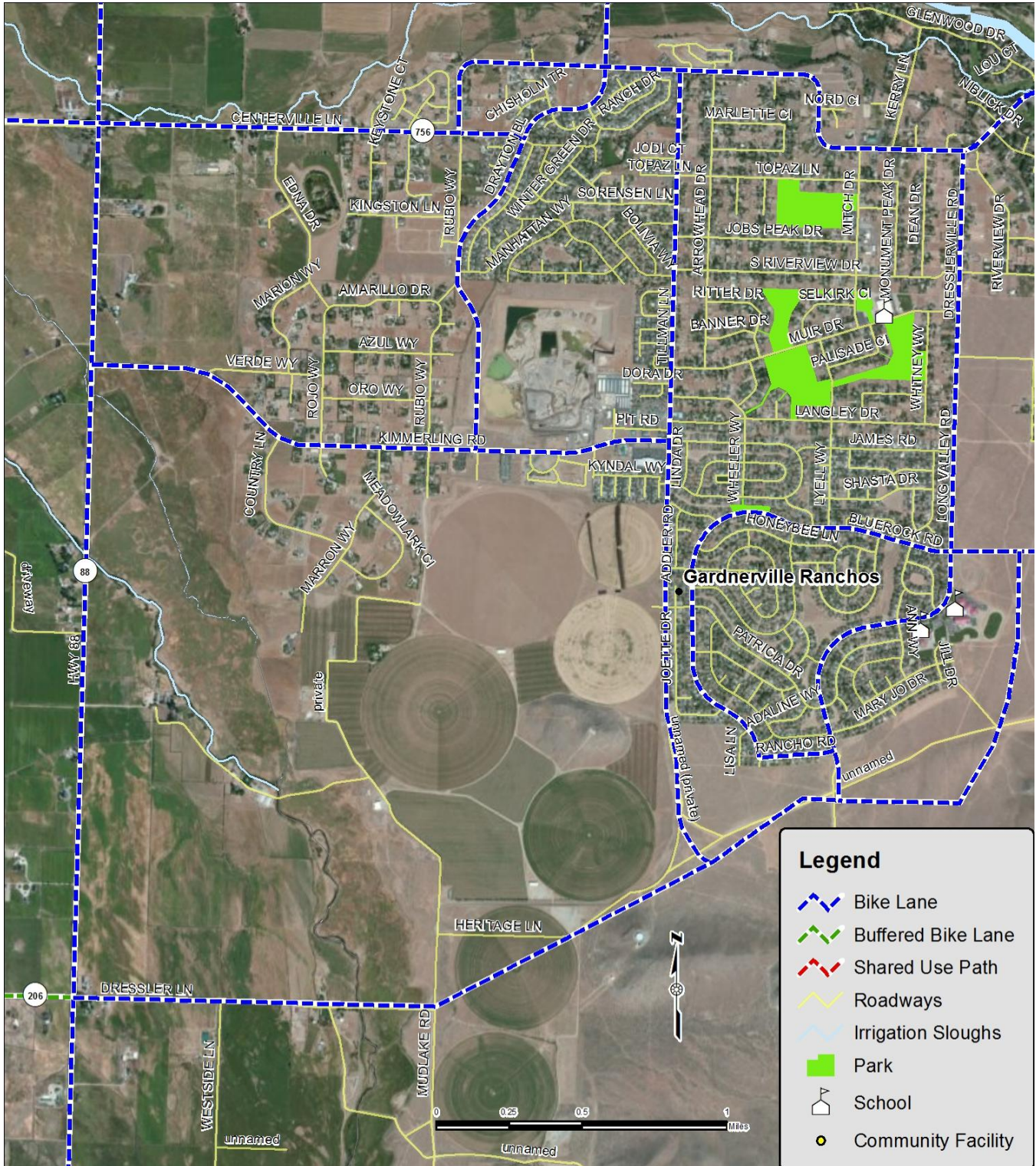


Figure 17 – Bicycle Network – Gardnerville Ranchos



6.3 High Priority Bicycle Improvement Projects

The list below identifies high priority bicycle improvement projects identified through the creation of this Plan. The initial project list was developed through the two-day bike plan workshop where input was collected from individuals representing local, regional and state agencies or organizations and a few members of the public who participated in the workshop. Some of these projects were originally identified in the 2003 trail plan developed by Douglas County. High priority bicycle improvement projects include:

- Bicycle Lane: Centerville Lane, Hwy 395 to Dresslerville Road
- Bicycle Lane: Buckeye Road, Hwy 395 to Orchard Road
- Bicycle Lane: Hwy 395, Riverview Drive to Ironwood Lane
- Buffered Bicycle Lane: Jacks Valley Rd/Foothill Road, 395 to Highway 88 (Emigrant Trail Route)
- Bicycle Lane: Tillman Lane, Kimmerling Road to Dresslerville Road
- Bicycle Lane, Vista Grande – Jacks Valley Road to Clear Creek (future road connection)
- Bicycle crossing of Hwy 395 between SR 88 and Mica Drive – signalized crossing or separate grade
- Shared Use Path: Old Kingsbury ROW (Pony Express Route)

6.4 US Bicycle Route System

The US Bicycle Route System is an emerging national network of bicycle routes that are of national or regional significance. Routes in the network provide important links to cities, towns, transportation hubs, and scenic, cultural, and historic destinations. They are continuous, crossing state and, maybe in the future, international borders. These routes are on roads and trails and offer facilities that are suitable for bicycle travel. Currently there are no US Bicycle Routes planned in Douglas County.



7. FUNDING

Funding for bicycling improvements can come from federal, state, and local sources. At the state level, plan recommendations may be implemented by incorporating bicycle infrastructure local improvements into NDOT's Statewide Transportation Improvement Program. Localities may take similar actions by dedicating staff and budget resources to support bicycle planning and programs (e.g., education, encouragement, and enforcement), incorporating bicycle improvements into capital improvement programs, and routinely accommodating bicycle facilities when making major roadway improvements.

Federal transportation funding is an important source of funding for states and localities. With passage of the most recent federal transportation bill, Moving Ahead for Progress in the 21st Century Act (MAP-21), the Transportation Enhancements, SRTS, Recreational Trails, and redevelopment of underused highways to boulevards programs have been consolidated into the Transportation Alternatives Program (TAP). The TAP builds upon the legacy of the Transportation Enhancement program by expanding travel choices, strengthening the local economy, improving the quality of life, and protecting the environment.

The TAP is one component of the total federal transportation funding apportionment that states receive. Other programs that are part of the federal apportionment to states, and which could be important for supporting this Plan's recommendations, include the National Highway Performance Program, the Surface Transportation Program (STP), and the Highway Safety Improvement Program (HSIP). The Section 402 State and Community Highway Safety Grant Program is another potential source of funding for certain types of projects that may benefit bicyclists. The following are details for each of these funding sources.

7.1 Transportation Alternatives

MAP-21 gives states more flexibility in how they allocate federal monies. States have the option to increase funding that supports walking and bicycling, keep funding levels the same, or decrease funding. Under the new bill, state DOTs are to distribute 50% of TAP funding to defined Transportation Management Areas (TMA), which consists of cities or metro areas with populations greater than 200,000. TMAs (Regional Transportation Commissions in Nevada and often MPOs) are required to distribute these funds through a competitive grant process. The other 50% of funds are distributed directly by state DOTs through a competitive grant process with no sub-allocation of funding by population. Governors are given the authority to opt-in or out of the Recreational Trails program on an annual basis. If they choose to opt-out funding set aside for the Recreational Trails program automatically goes into the TAP.

7.1.1 Eligible Activities for Transportation Alternatives Program

The following activities are eligible to receive funding from TAP (from MAP-21):

- Construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other nonmotorized forms of transportation, including sidewalks, bicycle infrastructure, pedestrian and bicycle signals, traffic calming techniques, lighting and other safety-related infrastructure, and transportation projects to achieve compliance with the Americans with Disabilities Act of 1990.
- Construction, planning, and design of infrastructure-related projects and systems that will provide safe routes for non-drivers, including children, older adults, and individuals with disabilities to access daily needs.
- Conversion and use of abandoned railroad corridors for trails for pedestrians, bicyclists, or other nonmotorized transportation users.
- Construction of turnouts, overlooks, and viewing areas.
- Inventory, control, or removal of outdoor advertising.



- Historic preservation and rehabilitation of historic transportation facilities.
- Vegetation management practices in transportation rights-of-way to improve roadway safety, prevent against invasive species, and provide erosion control.
- Archaeological activities relating to impacts from implementation of transportation projects eligible under this title.
- Any environmental mitigation activity, including pollution prevention and pollution abatement activities and mitigation to address stormwater management, control, and water pollution prevention or abatement related to highway construction or due to highway runoff, including activities described in sections 133(b)(11), 328(a), and 329; or reduce vehicle-caused wildlife mortality or to restore and maintain connectivity among terrestrial or aquatic habitats.

In addition to the eligibilities listed above from Section 101 of MAP-21, eligible TAP projects also include any projects eligible under the Recreational Trails Program and SRTS Program. Major changes to SRTS funding include elimination of the requirement that states spend between 10 and 30 percent of SRTS funds on non-infrastructure activities (e.g., public awareness campaigns and outreach to press and community leaders, traffic education and enforcement, student training, and funding for training, volunteers, and managers of SRTS programs), and state SRTS coordinators are no longer mandated, but are an eligible use of funds. Law enforcement activities within 2 miles of a K-8 school remain eligible for funding as SRTS projects. SRTS-related law enforcement activities can also be funded by HSIP funds, if SRTS is identified in the Strategic Highway Safety Plan (SHSP).

Eligible TAP projects also include the “planning, designing, or constructing boulevards and other roadways largely in the right-of-way of former Interstate System routes or other divided highways” as stated in Section 213(b)(4) of title 23 U.S.C. Lastly, although the language for the national Scenic Byways program will stay intact, funding for projects has not been included in the new transportation bill. There will be no national Scenic Byways funding program.

The TAP is a part of the Federal-aid Highway Program. Although the program is a “grant” program under federal regulation, it is not an “up-front” grant program and funds are available only on a reimbursement basis. Only after a project has been approved by the State Department of Transportation or MPO and the Federal Highway Administration (FHWA) division office, can costs become eligible for reimbursement. This means project sponsors must incur the cost of the project prior to being repaid. Costs must be incurred after FHWA division office project approval or they are not eligible for reimbursement.

7.1.2 Relevance of MAP-21 to the Douglas County Bicycle Plan

MAP-21’s TAP may be instrumental in funding bicycling improvements in areas with a population less than 200,000, such as Douglas County. For areas with populations less than 200,000, MAP-21 directs state DOTs to administer a competitive grant process.

Recreational trails, and the development of new trails, are an important component of Douglas County’s bicycling system, and therefore the Recreational Trails Program could prove to be a vital funding source for expanding the County’s trail system.

More information, including updates, on MAP-21 and final rulemaking can be found at Advocacy Advance <http://www.advocacyadvance.org/MAP21> and from the FHWA at <http://www.fhwa.dot.gov/map21/>.



7.2 Surface Transportation Program

The STP provides flexible funding that may be used by States and localities for projects on any Federal-aid highway, including the National Highway System (NHS), bridge projects on any public road, transit capital projects, and intracity and intercity bus terminals and facilities. Among the eligible activities under STP are projects relating to intersections that: have disproportionately high crash rates; have high congestion; and are located on a Federal-aid highway.

7.3 Highway Safety Improvement Program

The HSIP emphasizes a data-driven, strategic approach to improving highway safety that focuses on results. A highway safety improvement project corrects or improves a hazardous road location, or addresses a highway safety problem. Funds may be used for projects on any public road or publicly owned bicycle and pedestrian pathway or trail. Each State must have a SHSP to be eligible to use up to 10 percent of its HSIP funds for other safety projects under US Code Title 23 (including education, enforcement, and emergency medical services).

7.4 State and Community Highway Safety Grant Program

Highway Safety Funds are used to support State and Community programs to reduce deaths and injuries on the highways. In each State, funds are administered by the Governor's Representative for Highway Safety. Pedestrian safety has been identified as a National Priority Area and is therefore eligible for Section 402 funds. Section 402 funds can be used for a variety of safety initiatives including conducting data analyses, developing safety education programs, and conducting community-wide pedestrian safety campaigns. Since the Section 402 Program is jointly administered by the National Highway Traffic Safety Administration (NHTSA) and FHWA, Highway Safety Funds can also be used for some limited safety-related engineering projects. A State is eligible for these formula grants by submitting a Performance Plan, which establishes goals and performance measures to improve highway safety in the State, and a Highway Safety Plan, which describes activities to achieve those goals.

Additional information is available from the following web sites:

- NHTSA Section 402 Programs and Grants
 - <http://www.nhtsa.gov/>
- Traffic Safety Fact Sheets for Section 402 and Related Programs
 - <http://www.nhtsa.gov/Laws+&+Regulations/Section+402+SAFETEA-LU+Fact+Sheet>
- Uniform Guidelines for State Highway Safety Programs
 - <http://www.nhtsa.gov/nhtsa/whatsup/tea21/tea21programs/>
- Traffic Safety Fact Sheets—Links to laws
 - <http://www.nhtsa.dot.gov/people/injury/TSFLaws/PDFs/810728W.pdf>



7.5 National Highway Performance Program

The National Highway Performance Program (NHPP) provides support for the condition and performance of the NHS, for the construction of new facilities on the NHS, and to ensure that investments of Federal-aid funds in highway construction are directed to support progress toward the achievement of performance targets established in a State's asset management plan for the NHS.

NHPP projects must be on an eligible facility and support progress toward achievement of national performance goals for improving infrastructure condition, safety, mobility, or freight movement on the NHS, and be consistent with Metropolitan and Statewide planning requirements. Eligible activities include:

- Construction, reconstruction, resurfacing, restoration, rehabilitation, preservation, or operational improvements of NHS segments.
- Construction, replacement (including replacement with fill material), rehabilitation, preservation, and protection (including scour countermeasures, seismic retrofits, impact protection measures, security countermeasures, and protection against extreme events) of NHS bridges and tunnels.
- Bridge and tunnel inspection and evaluation on the NHS and inspection and evaluation of other NHS highway infrastructure assets.
- Training of bridge and tunnel inspectors.



APPENDIX A
NEVADA STATEWIDE BICYCLE PLAN

A copy of this plan is available at
www.bicyclenevada.com



NEVADA STATEWIDE BICYCLE PLAN

Prepared by  Kimley-Horn
and Associates, Inc.

FEBRUARY 2013



APPENDIX B
NOTES FROM COUNTYWIDE OBSERVATIONS

Douglas County Field Review Notes (Not Final Recommendations)

| ID | EXISTING | | | | | | | PROPOSED | | |
|------|------------------|-------------------|-------------------|--------|--------------|---------|-------|----------------------|--------------------|---------------------|
| | STREET NAME | FROM | TO | ONEWAY | NUMBER LANES | MEDIAN | WIDTH | RECOMMENDED FACILITY | RECOMMENDED ACTION | CROSS SECTION WIDTH |
| D001 | SPRUCE | WILD ROSE | DOUGLAS | N | 2 | NONE | 37 | BBldv | W | |
| D002 | DOUGLAS | SPRUCE | 756 GILMAN | N | 2 | NONE | 37 | BBldv | W | |
| D003 | GILMAN | DOUGLAS | COTTONWOOD SLOUGH | N | 2 | NONE | 44 | BL | RD | 44 |
| D004 | GILMAN | COTTONWOOD SLOUGH | DRESLERVILLE ROAD | N | 2 | NONE | 27 | BL | WS | 34 |
| D005 | DRAYTON | DRESSLERVILLE | PLEASANTVIEW | N | 2 | NONE | 38 | BL | RS | 38 |
| D006 | PLEASANTVIEW | DRAYTON | RUBIO | N | 2 | NONE | 28 | BL | WS | 34 |
| D007 | CENTERVILLE | RUBIO | E OF EDNA | N | 2 | STRIPED | 44 | BL | RS | 44 |
| D008 | CENTERVILLE | E OF EDNA | HWY 88 | N | 2 | NONE | 26 | PS | WS | 32 |
| D009 | CENTERVILLE | HWY 88 | FOOTHILL | N | 2 | NONE | 24 | PS | WS | 32 |
| D010 | FOOTHILL | CENTERVILLE | FREDRICKS | N | 2 | NONE | 25 | BFBL (1) | WS | 40 |
| D011 | FAIRVIEW | FOOTHILL | HWY 88 | N | 2 | NONE | 25 | BFBL (1) | WS | 40 |
| D012 | FREDRICKSVILLE | FOOTHILL | CA STATE LINE | N | 2 | NONE | 24 | BL | WS | 34 |
| D013 | DRESSLER LN | HWY 88 | END OF PAVEMENT | N | 2 | NONE | 23 | SR | NAC | |
| D014 | HWY 88 | DRESSLER LANE | KIMBERLING | N | 2 | NONE | 33.5 | PS | WS | 36 |
| D015 | KIMBERLING | HWY 88 | E OF RUBIO | N | 2 | NONE | 28 | PS | WS | 32 |
| D016 | KIMBERLING | E OF RUBIO | TILLMAN | N | 2 | STRIPED | 38.5 | BL | WS | 43 |
| D017 | TILLMAN | KIMBERLING | S OF REDMON | N | 2 | NONE | 35 | | | 38 |
| D018 | TILLMAN | S OF REDMON | 756 DRESSLERVILLE | N | 2 | NONE | 24 | | | 38 |
| D019 | DRESSLERVILLE | 756 | RIVER VIEW | N | 2 | NONE | 24 | PS | WS | 32 |
| D020 | MITCH | DRESSLERVILLE RD | MUIR | N | 2 | NONE | | SRD | NAC | |
| D021 | DRESSLERVILLE | DRESSLERVILLE | N OF BLUE ROCK | N | 2 | NONE | 44 | BL | MC | 44 |
| D022 | DRESSLERVILLE | N OF BLUE ROCK | PATRICIA | N | 2 | NONE | 62 | BFBL | | 62 |
| D023 | BLUEROCK | PATRICIA | CARDINAL | N | 2 | NONE | 61 | SH | RS | |
| D024 | OPEN SPACE | LYELL NEAR SHASTA | | N | 0 | NONE | | | | |
| D025 | LANGLEY | TILLMAN | LONG VALLEY | N | 2 | NONE | 25 | SH | NAC | |
| D026 | MUIR | | | N | 2 | NONE | | SH | NAC | |
| D027 | RIVER VIEW | DRESSLERVILLE | FAIRWAY DRIVE | N | 2 | NONE | 24 | CT1-1 (WB), SH (EB) | | 30 |
| D028 | RIVER VIEW | FAIRWAY DR | | N | 2 | NONE | 36 | BL | S | |
| D029 | CARSON RIVER | GLENWOOD | | N | 2 | NONE | | | S | |
| D030 | MUELLER | 395 | PINENUT | N | 2 | CURB | | | | |
| D031 | PINENUT | MUJELLER | | N | 2 | STRIPED | | | | |
| D032 | PINENUT | | SAWMILL | N | 2 | NONE | | | | |
| D033 | DUMP ROAD | E OF MUELLER | FAIRGROUNDS | N | 2 | NONE | 24 | PA | WS | 32 |
| D034 | PINENUT | DUMP RD | | N | 2 | NONE | | | | |
| D035 | E VALLEY RD | PINENUT | RED HAWK | N | 2 | NONE | 32.5 | PS | NAC | |
| D036 | E VALLEY RD | RED HAWK | FISH SPRINGS | N | 2 | NONE | 24.5 | PS | WS | 32 |
| D037 | FISH SPRINGS | E VALLEY RD | ELGES | N | 2 | NONE | 33 | BL | RS | 33 |
| D039 | ORCHARD | FISH SPRINGS | BUCKEYE | N | 2 | NONE | | BBldv | | |
| D040 | TOELLER WATERLOO | ELGES | HARVEST | N | 2 | STRIPED | | BL | NAC, ASM, BL | |
| D041 | WATERLOO | HARVEST | E OF LAMPE PARK | N | 2 | CURB | 32 | BFBL | RS | 32 |
| D042 | WATERLOO | E OF LAMPE PARK | 756 | N | 2 | NONE | 30 | BL | WS | 5-12-102-5 |
| D043 | DOUGLAS | GILMAN | MEADOW | N | 2 | NONE | | BBldv | ASM | |
| D044 | MEADOW | DOUGLAS | LAMPING PARK | N | 2 | NONE | | BBldv | ASM | |
| D045 | GILLMAN | 395 | EZELL | N | 2 | CURB | | BL | | |
| D046 | GILLMAN | EZELL | HAYBORN | N | 2 | NONE | 46 | BL | RS | 7-6-10-10-6-7 |
| D047 | CHICHESTER | GILMAN | HARVEST | N | 2 | NONE | | BBldv | | |
| D048 | HARVEST | CHICHESTER | WATERLOO | N | 2 | NONE | | BBldv | | |
| D049 | KITTYHAWK | ELGES | STODICK | N | 2 | NONE | | BBldv | | |
| D050 | MULLER | 395 | GRANT | N | 2 | NONE | 30 | BL | RS | 5-10-10-5 |
| D051 | MULLER | GRANT | 395 | N | 2 | CURB | | | NAC | |
| D052 | ORCHARD | TOLLER | BUCKEYE | N | 2 | NONE | 27 | PS | | 5-11-11-5 |
| D053 | BUCKEYE | ORCHARD | E OF 395 | N | 2 | NONE | 29 | PS / SUP | S | 5-12-12-5-5-10 |
| D054 | V & T | ALONG HAYBORN | | N | 2 | NONE | | S | | |
| D055 | COUNTY RD | 3RD | OLVA | N | 2 | NONE | 42 | BL | RS | 8-6-11-11-6 |
| D056 | COUNTY RD | OLVA | HWY 88 | N | 2 | STRIPED | 42 | BL | RS | 5-11-10-11-5 |
| D057 | COUNTY RD | HWY 88 | WESTWOOD | N | 2 | NONE | 42 | BL | RS | 8-6-11-11-6 |
| D058 | MAHOGANY | WESTWOOD | IRONWOOD | N | 2 | NONE | 42 | BBldv | ASM | |

| LEGEND |
|---|
| FACILITY CODE |
| SRD - Shared Roadway |
| SH - Sharrow (Shared Lane Marking) |
| PS - Paved Shoulder |
| BL - Bike Lane |
| BFBL (1) - Buffered Bike Lan (BL & Travel Lane) |
| BFBL (2) - Buffered Bike Lane (BL & Parked Car) |
| SUP - Shared Used Path |
| SWBP - Sidewalk w/ Bike Permitted |
| S - Further Study Needed |
| CT1-1 - Cycle Track (1side 1way) |
| CT2-1 - Cycle Track (2sides 1 way) |
| CT2-2W - Cycle Track (2 way operation) |
| BBldv - Bicycle Boulevard |
| CFBL - Contra-Flow Bike Lane |
| CL - Climbing Lane & Sharrow |
| WOL - Wide Outside Lane |
| B/BL - Bus/Bike Lane |
| PHB/BL - Peak Hour Bus/Bike Lane |
| Action Code |
| NAC - No Action Needed |
| ASM - Add Striping/Marking |
| LD - Lane Diet |
| RD - Road Diet |
| RP1 - Remove Parking 1 Side |
| RP2 - Remove Parking 2 Sides |
| FTP1 - Add Full Time Parking 1 Side |
| FTP2 - Add Full Time Parking 2 Sides |
| WS - Widen Street |
| WSw - Widen Sidewalk |
| CFD - Construct Bike Facility w/ Future Development |
| S - Further Study Needed |
| MC - Move Center Line |
| RhExB - Rehabilitate Existing Bike Fac. |
| PShdr - Pave Existing Shoulder |
| RECON - Reconstruct Roadway |
| W - Wayfinding |
| RS - Restripe |

Douglas County Field Review Notes (Not Final Recommendations)

| ID | EXISTING | | | | | | | PROPOSED | | | LEGEND |
|------|-----------------------|---------------------|---------------------|--------|--------------|--------|--------|----------------------|--------------------|-----------------------|---|
| | STREET NAME | FROM | TO | ONEWAY | NUMBER LANES | MEDIAN | WIDTH | RECOMMENDED FACILITY | RECOMMENDED ACTION | CROSS SECTION WIDTH | |
| D061 | IRONWOOD | MAHOGANY | TAMARACK | N | 2 | NONE | 42 | | ASM | | <p>FACILITY CODE</p> <p>SRD - Shared Roadway SH - Sharrow (Shared Lane Marking) PS - Paved Shoulder BL - Bike Lane BFBL (1) - Buffered Bike Lan (BL & Travel Lane BFBL (2) - Buffered Bike Lane (BL & Parked Car) SUP - Shared Used Path SWBP - Sidewalk w/ Bike Permitted S - Further Study Needed CT1-1 - Cycle Track (1side 1way) CT2-1 - Cycle Track (2sides 1 way) CT2-2W - Cycle Track (2 way operation) BBldv - Bicycle Boulevard CFBL - Contra-Flow Bike Lane CL - Climbing Lane & Sharrow WOL - Wide Outside Lane B/BL - Bus/Bike Lane PHB/BL - Peak Hour Bus/Bike Lane</p> <p>Action Code</p> <p>NCA - No Action Needed ASM - Add Striping/Marking LD - Lane Diet RD - Road Diet RP1 - Remove Parking 1 Side RP2 - Remove Parking 2 Sides FTP1 - Add Full Time Parking 1 Side FTP2 - Add Full Time Parking 2 Sides WS - Widen Street WSw - Widen Sidewalk CFD - Construct Bike Facility w/ Future Development S - Further Study Needed MC - Move Center Line RhExB - Rehabilitate Existing Bike Fac. PShdr - Pave Existing Shoulder RECON - Reconstruct Roadway</p> |
| D062 | IRONWOOD | TAMARACK | 395 | N | 2 | NONE | 62 | BBldv (1) | RS | 8-3-6-3-12-12-3-6-3-8 | |
| D063 | MUELLER | 395 | 206 | N | 2 | NONE | 25 | PS | WS | 5-12-12-5 | |
| D064 | FOOTHILL 206 | ENTIRE ROUTE | MULLER | N | 2 | NONE | 25 | BFBL (1) | WS | 6-2-12-12-2-6 | |
| D065 | MOTTSVILLE | FOOTHILL 206 | HWY 88 | N | 2 | NONE | 24 | PS | WS | 5-12-12-5 | |
| D066 | KINGSBURY GRADE | FOOTHILL | TRAMWAY | N | 2 | NONE | 24 | PS | ASM / S | 4-12-12-4 | |
| D067 | OLD KINGSBURY GRADE | BOTTOM | TOP | N | GRAVEL | NONE | VARIES | SUP | | | |
| D068 | FOOTHILL 206 | MUELLER | GENOA LANE | N | 2 | NONE | 30 | BLBL (1) | WS | 6-2-12-12-2-6 | |
| D069 | GENOA LANE | FOOTHILL 206 | 395 | N | 2 | NONE | 26 | BL | WS | 5-12-12-5 | |
| D070 | JACKS VALLEY RD | GENOA LANE | W OF HOUSES | N | 2 | NONE | 34 | BFBL (1) | WS | 6-2-12-12-2-6 | |
| D071 | JACKS VALLEY RD | W OF HOUSES | VISTA GRANDE | N | 2 | NONE | 29 | BFBL (1) | | 6-2-12-12-2-6 | |
| D073 | VISTA GRANDE | JACKS VALLEY | OLD CLEAR CREEK | N | | NONE | | | | | |
| D074 | VISTA GRANDE | JACKS VALLEY | CURVE BEHIND HOME D | N | 2 | NONE | 42 | BFBL (1) | WS | 5-11-11-5-2-8 | |
| D075 | VISTA GRANDE | CURVE BEHIND HOME D | PLYMOUTH | N | 2 | NONE | 42 | BBldv | ASM | | |
| D076 | MICA | VISTA GRANDE | 395 | N | 2 | NONE | 39 | BL | ASM | | |
| D077 | PLYMOUTH | VISTA GRANDE | TENNANT | N | 2 | NONE | 40 | BBldv | ASM | | |
| D078 | PLYMOUTH | TENNANT | 395 | N | 2 | NONE | 27 | BBldv | ASM | | |
| D079 | 395 | PLYMOUTH | IRONWOOD | N | 4 | NONE | | | SUP | | |
| D080 | CARSON RIVER | CARSON CITY/CAMPO | 395 | N | | NONE | | SUP | | | |
| D081 | STEPHANIE | 395 | EAST END | N | 2 | NONE | 27 | BL | WS | 5-12-12-5 | |
| D082 | VICKY | JOHNSON LANE | END OF ROAD | N | 2 | NONE | 23 | PS | WS | 5-12-12-5 | |
| D083 | JOHNSON LANE | 395 | SUNRISE PASS | N | 2 | NONE | 24 | BL | WS | 5-12-12-5 | |
| D084 | FREMONT ST | EAST VALLEY | JOHNSON | N | 2 | NONE | 24 | BL | WS | 5-12-12-5 | |
| D085 | EAST VALLEY | SOUTH END | FREMONT ST | N | 2 | NONE | 24 | BL | WS | 5-12-12-5 | |
| D086 | HEYBOURNE | JOHNSON | AIRPORT RD | N | 2 | NONE | 29 | PS | WS | | |
| D087 | AIRPORT RD | AIRPORT | 395 | N | 2 | NONE | 25 | | | 5-12-12-5 | |
| D088 | IRONWOOD | 395 | LUCERNE | N | 2 | CURB | 14-14 | SH | ASM | | |
| D089 | LUCERNE | LANTANA | 395 | N | 2 | NONE | 40 | Srd | NAC | | |
| D090 | EASEMENT W OF LANTANA | LUCERNAE | HEYBOURNE | N | 2 | NONE | | SUP | S | | |
| D091 | HEYBOURNE | BUCKEYE | MONTERRA | N | 2 | NONE | 48 | | NAC | | |
| D092 | 395 | PINENUT | HWY 88 | N | 4 | NONE | | BL / SH | | | |



APPENDIX C

NEVADA BICYCLE ADVISORY BOARD LETTER

*Robinette Bacon
Dept. Of Education*

*Dennis Taylor
Dept. Of Transportation*

*Rick Keller
Div. of State Parks*

*Dean Reynolds
Dept of Public Safety*

*Kandi Qualls
Health Division*

*Connie Mancillas
Commission on Tourism*

SIGURD JAUNARAJA, Chair
*Div. of Environmental
Protection*

(775) 888-RIDE

State of Nevada
JIM GIBBONS
Governor



BICYCLE ADVISORY BOARD

P. O. Box 251
Carson City, Nevada 89702

*Timothy Rowe
Org. Promoting Bicycling*

*Denis Coyne
Org. on Bicycle Safety/Education*

*Robin Munier
General Public*

*Richard Staley
Bicycle Business*

*Mark Kimbrough
Org. on Environmental Issues*

*Dennis Stark
General Public*

*Noah Jennings
Under 21 Years of Age*

WWW.BICYCLENEVADA.COM

November 22, 2010

Susan Martinovich, P.E., Director
Nevada Department of Transportation
1263 South Stewart Street
Carson City, NV 89712

Subject: Douglas County Bicycle Plan

Dear Susan,

The Nevada Bicycle Advisory Board has recently reviewed the Douglas County Comprehensive Trails Plan submitted by Douglas County to satisfy an update to their Bicycle Plan. The members of the Nevada Bicycle Advisory Board (Board) independently and in an unbiased manner have reviewed the plan submitted. Issues and concerns with the plan were discussed at our meeting and are outlined below. The Board unanimously agreed to NOT RECOMMEND APPROVAL of the plan.

Some of the issues raised with the plan in its current form are:

- It is very out of date (2003 – 8 years old).
- It does not reflect the newer planning jurisdictions of Tahoe MPO and Carson Area MPO and the connectivity with respect to their adopted Bicycle & Pedestrian Elements of their Regional Transportation Plans.
- It is written as a recreational trails plan and not a transportation plan providing for a functional integrated network of bicycle facilities as an alternative to vehicle use.
- Many of the maps are either difficult or impossible to read.
- It is difficult to determine on which side of a roadway a path facility is proposed.
- The plan does not follow FHWA, MUTCD and/or AASHTO nomenclature and definitions (shared-use path, bicycle lane, bicycle route, signed shared roadway, shared roadway, shared lane marking (sharrow), etc.)
- It does not identify and characterize potential bicycle traffic generators (major employers, schools, shopping centers, community centers, etc.) on which a non-motorized network would be based.
- It does not address user types and abilities as it relates to facility type selection.
- It does not address bicycle parking issues or improvements.
- It does not identify existing network gaps, intermodal connections (transit, park-and-rides, etc.), or linkages with nationally recognized bicycle routes such as the Western Express Route, etc.
- It does not discuss directional signage or a wayfinding plan for the network.

- There is no discussion of bicycle crash data analysis, conflict points, mode shift goals, bicycle/vehicle education, Safe Routes to School needs, or local codes, ordinances or laws related to bicyclists use of the network.

The Board does not take its recommendation to Not Approve a plan lightly. We would be happy to assist Douglas County in any way we can towards their development of an effective and current Bicycle Transportation Plan.

The Board was glad to again be of service to you on this issue. We look forward to working with you and NDOT on future Bicycle Plans and other bicycle projects.

Sincerely,



Sigurd Jaunarajs
Chairman
Nevada Bicycle Advisory Board



APPENDIX D

DOUGLAS COUNTY DEVELOPMENT CODE AND THE DESIGN CRITERIA AND IMPROVEMENT STANDARDS MANUAL

2.6 Bicycle Access

- 2.6.1 When required by the development code, bicycle racks shall be installed close to building entrance(s). Within multi-building projects, the racks shall be placed so that they are convenient to all buildings/entrances. (see Figure 2.10)

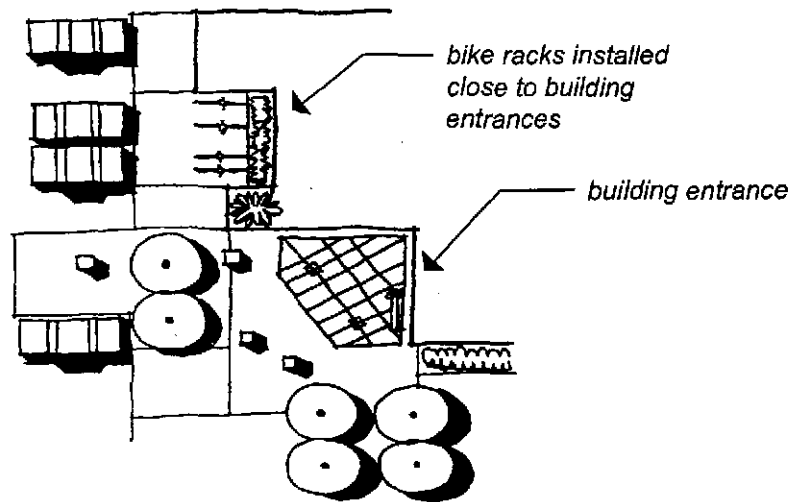
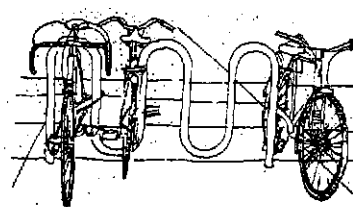


FIGURE 2.10

- 2.6.2 Bicycle racks shall be aesthetically treated. Such treatments can include inverted “U” shaped bollards, metal piping ribbons, planters, etc. All racks shall be permanently affixed and not obtrusive to pedestrian and vehicular circulation. (see Figure 2.11)
- 2.6.3 Bicycle linkages to any adjacent bikeways and/or routes shall be provided.



treated bicycle racks

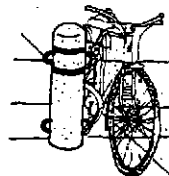
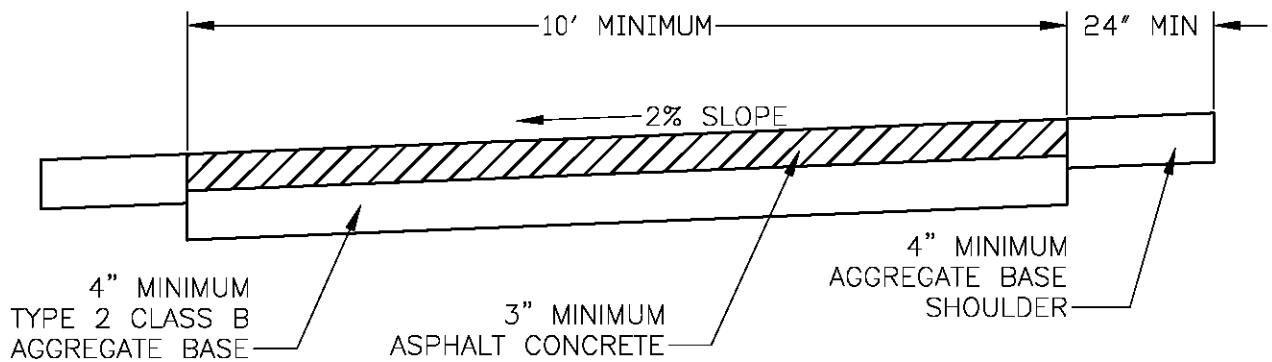


FIGURE .11

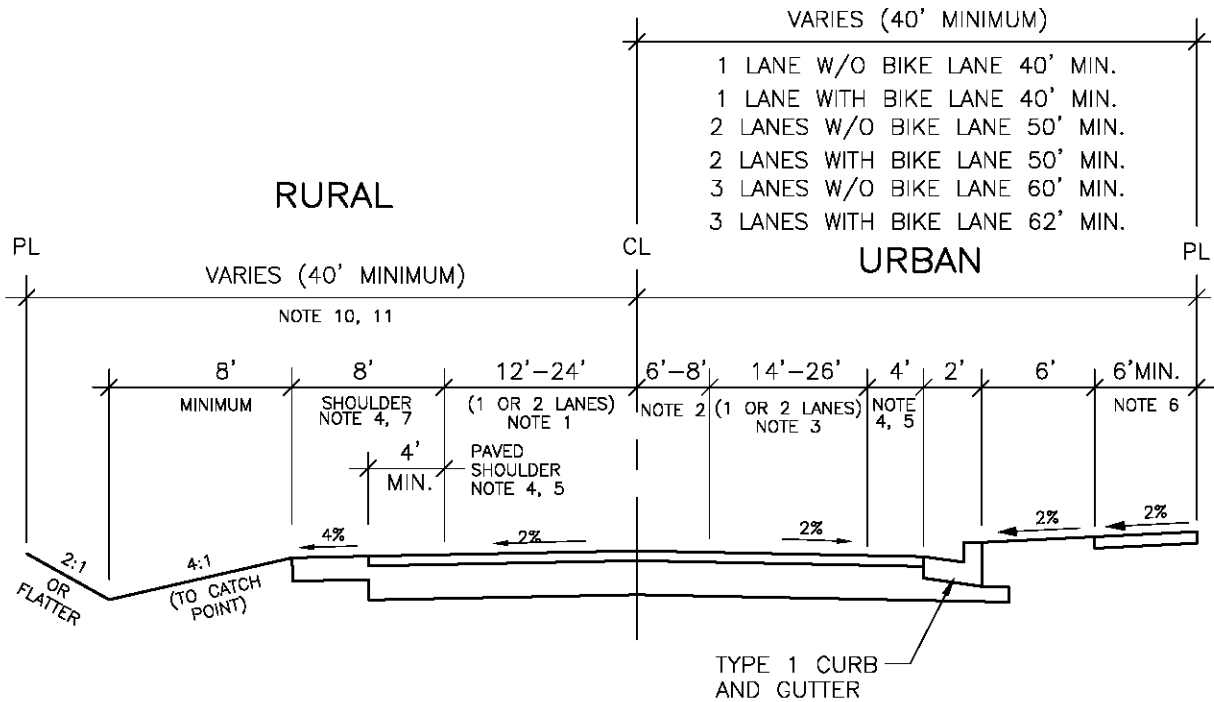


NOTES:

1. TYPE 3 PLANTMIX BITUMINOUS MIX WITH PG 64-28 ASPHALT CEMENT SHALL BE USED.
2. PREPARE SUBGRADE IN ACCORDANCE WITH SECTION 302 OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
3. BICYCLE FACILITIES SHALL BE DESIGNED IN ACCORDANCE WITH CURRENT AASHTO STANDARDS.

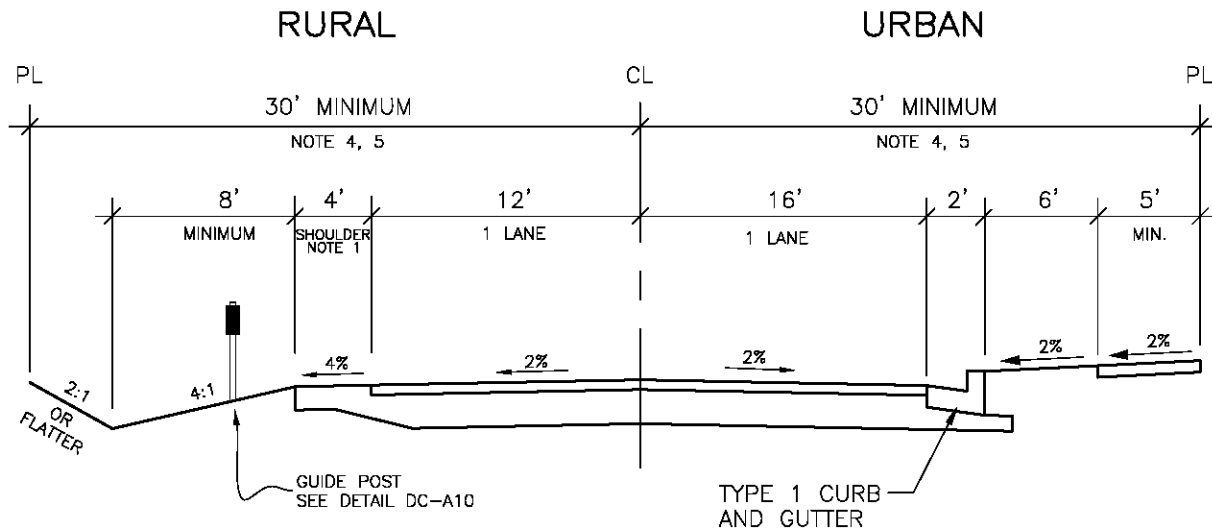
| | | | | |
|-----|----------|------|---|--------------------|
| NO. | REVISION | DATE | STANDARD DETAIL FOR PUBLIC WORKS CONSTRUCTION | SECTION |
| | | | PEDESTRIAN PATH/BIKEWAY CLASS I | DOUGLAS COUNTY |
| | | | | DATE: 6/07/2007 |
| | | | | DWG: DC A35 |
| | | | | |

20. **Best Management Practice Handbook** - The most current edition of the Nevada Division of Environmental Protection manual addressing non-point source water quality practices, for the non-designated area water quality plan.
21. **Bicycle Lane (Bike Lane)** - A portion of a roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists.
22. **Bicycle Path (Bike Path)** - A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the roadway right-of-way or within an independent right-of-way.
23. **Bicycle Route (Bike Route)** - A segment of a system of bikeways designated by the jurisdiction having authority with appropriate directional and informational markers, with or without specific bicycle route number.
24. **Bikeway** - Any road, path or way which in some manner is specifically designated as being open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.
25. **Block** - A tract of land bounded by streets, or by a combination of streets and public parks, cemeteries, railroads, shorelines of waterways, or boundary lines of municipalities.
26. **Board** - The Board Douglas County Commissioners, unless otherwise specified.
27. **Building** - Any structure having a roof supported by columns or walls, not including a travel trailer or Recreational Vehicle.
28. **Capital Improvements Program** - A proposed schedule of all future projects listed in order of construction priority together with cost estimates and the anticipated means of financing each project. All major projects requiring the expenditure of public funds over and above the annual local government's operating expenses, for the purchase, construction, or replacement of the physical assets for the community must be included.
29. **Channel** - A natural or artificial watercourse with definite bed and banks to confine and conduct flowing water.
30. **Collector Sewer** - A sewer line which is in a public right-of-way or easement that has only service laterals tributary to it.
31. **Commercial Unit** - Separately identifiable structure or portion thereof utilized or to be utilized by a person engaged in selling, warehousing or distributing a commodity, or in some business activity, or in a profession or some form of economic or social activity or other utilization not falling under single family dwelling or industrial unit.
32. **Connection Charge** - A charge made by the County or utility provider for providing a service to a customer.
33. **Construction Plans** - The maps or drawings and specifications accompanying a development permit application showing the specific location and design of improvements to be installed of



1. NUMBER OF LANES DETERMINED BY TRANSPORTATION ELEMENT OF THE DOUGLAS COUNTY MASTER PLAN.
2. USE 8 FEET AND A RAISED MEDIAN WITH CURB AND GUTTER ON 4 LANE SECTIONS AND RESIDENTIAL COLLECTORS. A CONTINUOUS CENTER TURN LANE MAY BE REQUIRED ON COMMERCIAL AND INDUSTRIAL ARTERIAL/COLLECTORS.
3. THE OUTSIDE LANE WIDTH SHALL BE 14 FEET FOR URBAN SECTIONS WHEN NO BIKE LANE IS REQUIRED. PARKING SHALL NOT BE ALLOWED ON STREET.
4. BIKE LANES SHALL BE PROVIDED IN ACCORDANCE WITH THE DOUGLAS COUNTY COMPREHENSIVE TRAIL PLAN. BIKE LANES IN RURAL AREAS SHALL BE 5 FEET WIDE AND CONSTRUCTED WITH THE SAME STRUCTURAL SECTION AS THE ROADWAY. WHERE THE BIKE LANE IS ADJACENT TO CURB AND GUTTER, THE BIKE LANE SHALL HAVE A MINIMUM 4 FOOT WIDTH MEASURED FROM THE TRAFFIC LANE TO THE LONGITUDINAL JOINT BETWEEN THE GUTTER PAN AND ROADWAY SURFACE.
5. BIKE LANES AND BIKE ROUTES SHALL BE SIGNED AND STRIPED IN ACCORDANCE WITH THE AASHTO "GUIDE FOR THE DEVELOPMENT OF BICYCLE CONTROL FACILITIES" AND THE FHWA "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
6. SIDEWALKS SHALL HAVE A MINIMUM WIDTH OF 6 FEET. SIDEWALKS WIDTHS GREATER THAN 6 FEET MAY BE REQUIRED BY THE COUNTY, TOWN OF GARDNERVILLE OR TOWN OF MINDEN. ADDITIONAL RIGHT-OF-WAY SHALL BE DEDICATED AS REQUIRED TO ACCOMMODATE THE REQUIRED SIDEWALK WIDTH.
7. PAVED SHOULDERS SHALL HAVE THE SAME STRUCTURAL SECTION AS THE ROADWAY. AGGREGATE SHOULDERS SHALL HAVE A MINIMUM OF 6 INCHES OF AGGREGATE BASE.
8. STRUCTURAL SECTION TO BE DETERMINED BY ENGINEERING DESIGN, BUT IN NO CASE SHALL THE ASPHALT CONCRETE BE LESS THAN 4 INCHES THICK AND THE AGGREGATE BASE LESS THAN 8 INCHES THICK.
9. TYPE 3 OVER TYPE 2 PLANTMIX BITUMINOUS SHALL BE USED. PG 64-28 NV SHALL BE USED FOR ALL BITUMINOUS MIXES. MINIMUM COMPACTED LIFT THICKNESS SHALL BE 2 INCHES.
10. DRAINAGE AND IRRIGATION SYSTEMS SHALL BE ACCOMMODATED ON ADJOINING PROPERTY BY PERMANENT EASEMENT OR BY ADDITIONAL RIGHT-OF-WAY.
11. PERMANENT SLOPE EASEMENTS MAY BE REQUIRED TO ACCOMMODATE CONSTRUCTION OF THE ROADWAY AND DRAINAGE FACILITIES.

| NO. | REVISION | DATE | STANDARD DETAIL FOR PUBLIC WORKS CONSTRUCTION | SECTION |
|-----|----------|------|--|--------------------|
| | | | ARTERIAL/COLLECTOR TYPICAL ROAD SECTION | DOUGLAS COUNTY |
| | | | | DATE: 6/07/2007 |
| | | | | DWG: DC A01 |



1. AGGREGATE SHOULDERS SHALL HAVE A MINIMUM OF 6 INCHES OF AGGREGATE BASE.
2. STRUCTURAL SECTION TO BE DETERMINED BY ENGINEERING DESIGN, BUT IN NO CASE SHALL THE ASPHALT CONCRETE BE LESS THAN 3 INCHES THICK AND THE AGGREGATE BASE LESS THAN 6 INCHES THICK.
3. TYPE 3 PLANTMIX BITUMINOUS PAVEMENT WITH PG 64-28 NV SHALL BE USED ON THE TOP 3 INCHES. TYPE 2 OR TYPE 3 PLANTMIX BITUMINOUS PAVEMENT WITH PG 64-28 NV SHALL BE USED ON LOWER PAVEMENT LIFTS.
4. DRAINAGE AND IRRIGATION SYSTEMS SHALL BE ACCOMMODATED ON ADJOINING PROPERTY BY PERMANENT EASEMENT OR BY ADDITIONAL RIGHT-OF-WAY.
5. PERMANENT SLOPE EASEMENTS MAY BE REQUIRED TO ACCOMMODATE CONSTRUCTION OF THE ROADWAY AND DRAINAGE FACILITIES.
6. BIKE LANES SHALL BE PROVIDED IN ACCORDANCE WITH THE DOUGLAS COUNTY COMPREHENSIVE TRAIL PLAN. BIKE LANES IN RURAL AREAS SHALL BE 5 FEET WIDE AND CONSTRUCTED WITH THE SAME STRUCTURAL SECTION AS THE ROADWAY. WHERE THE BIKE LANE IS ADJACENT TO CURB AND GUTTER, THE BIKE LANE SHALL HAVE A MINIMUM 4 FOOT WIDTH MEASURED FROM THE TRAFFIC LANE TO THE LONGITUDINAL JOINT BETWEEN THE GUTTER PAN AND ROADWAY SURFACE.
7. BIKE LANES AND BIKE ROUTES SHALL BE SIGNED AND STRIPED IN ACCORDANCE WITH THE AASHTO "GUIDE FOR THE DEVELOPMENT OF BICYCLE CONTROL FACILITIES" AND THE FHWA "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."

| NO. | REVISION | DATE | STANDARD DETAIL FOR PUBLIC WORKS CONSTRUCTION | SECTION |
|-----|----------|------|---|--------------------|
| | | | LOCAL ROAD SECTION | DOUGLAS COUNTY |
| | | | | DATE: 6/07/2007 |
| | | | | DWG: DC A02 |
| | | | | |



APPENDIX E

NEVADA STATEWIDE BICYCLE PLAN LEGISLATION

4.3.9 *Legislation*

The Nevada Revised Statutes (NRS) contains legislature pertaining to the use of bicycles. The following is a summary of current laws.

NRS 484A.025 includes a definition of a bicycle as “a device propelled by human power upon which a person may ride, having two tandem wheels either of which is over 14 inches in diameter, or every such device generally recognized as a bicycle though equipped with two front or two rear wheels except a moped.” In addition, most legislation also pertains to the use of an electric bicycle, which has been defined in NRS 484B.017 as “a device upon which a person may ride, having two or three wheels, or every such device generally recognized as a bicycle that has fully operable pedals and is propelled by a small electric engine which produces not more than 1 gross brake horsepower and which produces not more than 750 watts final output.” NRS 408.579 includes legislation that permits electric bicycles to be used on trails and walkways that are intended for bicycles.

According to NRS 408.321, the Nevada Department of Transportation shall:

- Consider bicycle lanes and routes, facilities, signs, and turnouts into their designs;
- Develop a bicycle and pedestrian safety education program;
- Provide secretarial services to the Nevada Bicycle and Pedestrian Safety Advisory Board; and
- Have the authority to prohibit the use of bicycles on highways or require a permit



According to NRS 408.321, the Nevada Bicycle and Pedestrian Safety Advisory Board shall:

- (a) At its first meeting and annually thereafter, elect a Chair from among its members.
- (b) Meet regularly at least once each calendar quarter and may meet at other times upon the call of the Chair.
- (c) Promote programs and facilities for the safe use of bicycles and pedestrian safety in this State.
- (d) Advise appropriate agencies of the State on policies, programs and facilities for the safe use of bicycles and pedestrian safety.

Relating to the responsibilities of an individual operating a bicycle or electric bicycle, NRS has defined that users shall:

- Be subject to the duties applicable to those driving a motor vehicle, except for an individual operating while on duty, including a peace officer, firefighter, emergency medical technician, or employee of a pedestrian mall (NRS 484B.777);
- Use hand signals when appropriate (484B.769);
- Ride upon an attached seat with no more persons than intended by design (NRS 484B.770);
- Ride as near to the right side of the roadway as practical when appropriate (NRS 484B.777); and
- Utilize a headlamp and red rear reflectors when operating at night (NRS 484B.783).

In addition, an operator of a bicycle or electric bicycle shall not:

- Attach themselves to a motor vehicle (NRS 484B.773);
- Carry an article that prevents them from using at least one hand (NRS 484B.780); and
- Intentionally interfere with the movement of a motor vehicle (NRS 484.324).

Relating to the responsibilities of an individual operating a motor vehicle, NRS 484B.270 has defined that users shall:

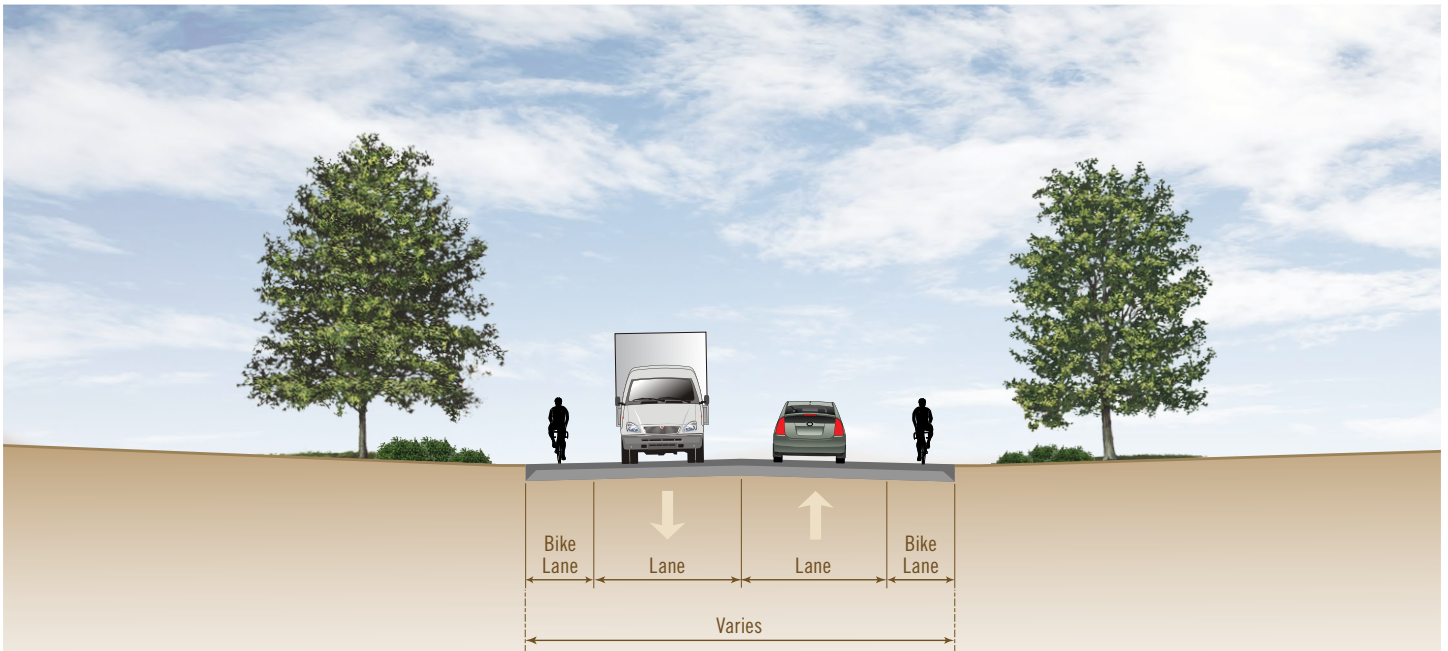
- Not intentionally interfere with an individual operating a bicycle or electric bicycle, and utilize due care. This includes moving to the lane to the immediate left if possible when passing. If this is not possible, no less than 3 feet should be provided;
- Yield to bicycles and electric bicycles riding on a pathway or lane; and
- Be subject to additional penalty if found to be at fault for a collision.

NRS 455 contains legislature relating to skate parks. Relating to bicyclists utilizing these facilities, NRS 455B.290 states that a person shall not use a skate park to ride a bicycle while under the influence of a controlled substance. In addition, NRS 205.2741 includes language making it illegal to willfully damage a bicycle, making the offense subject to a penalty no less than a misdemeanor.



APPENDIX F

EXAMPLE ROADWAY CROSS SECTIONS WITH BICYCLE FACILITIES

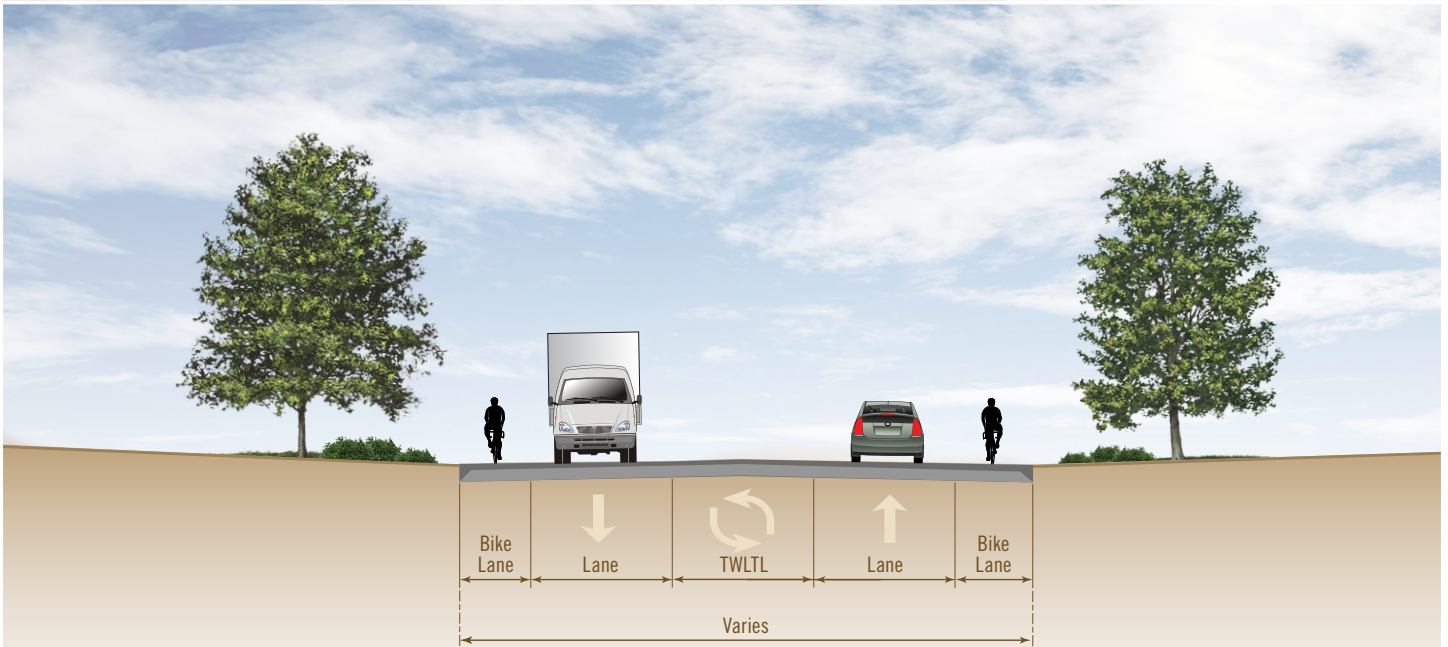


Two Lanes Each Direction with Bike Lane

Travel Lane: 10'-12'*

Bike Lane: 4'-6'* (2012 AASHTO Bike Guide Section 4.6)

*Twelve foot lanes and six foot shoulders (36' cross sections) preferred for high speed rural highways. Narrower cross section may be appropriate on lower speed and/or lower volume roadways.

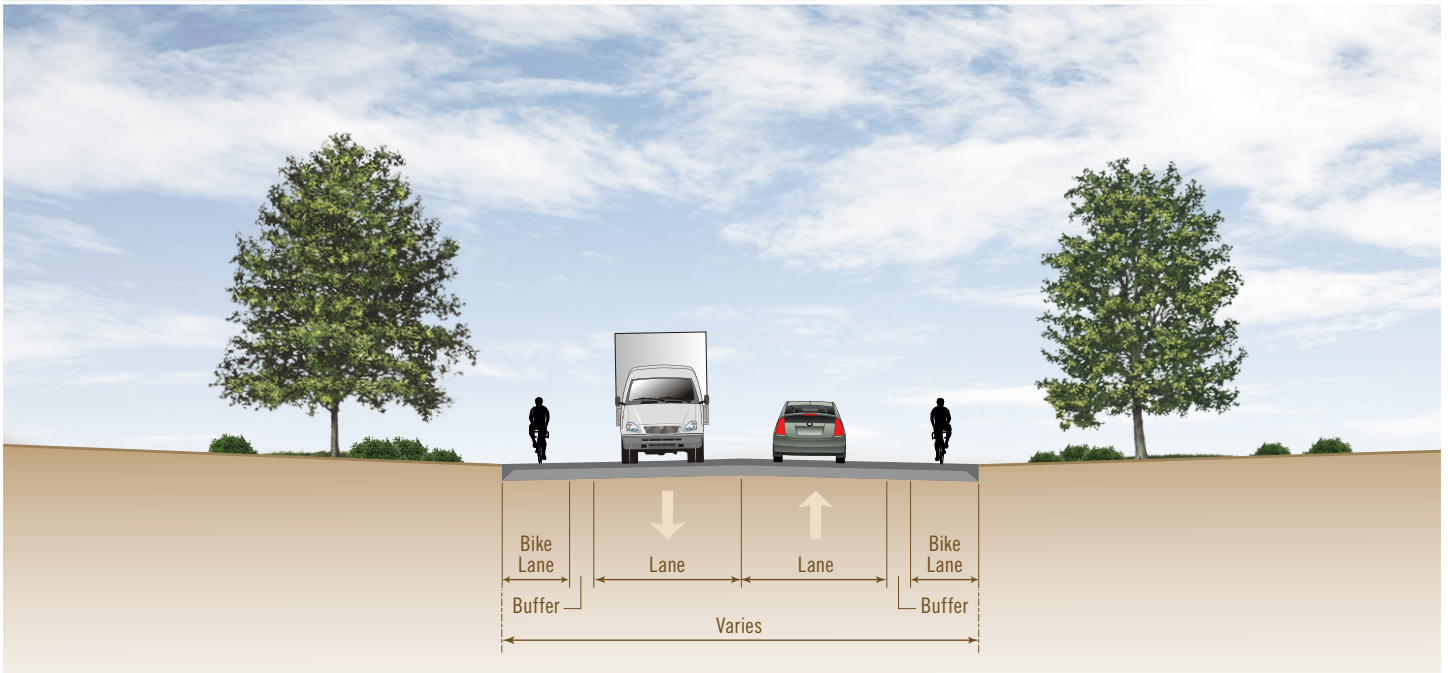


Two Lanes Each Direction with TWLTL and Bike Lane

Travel Lane: 10'-12'

TWLTL: 12'-14'

Bike Lane: 4'-6' (2012 AASHTO Bike Guide Section 4.6)

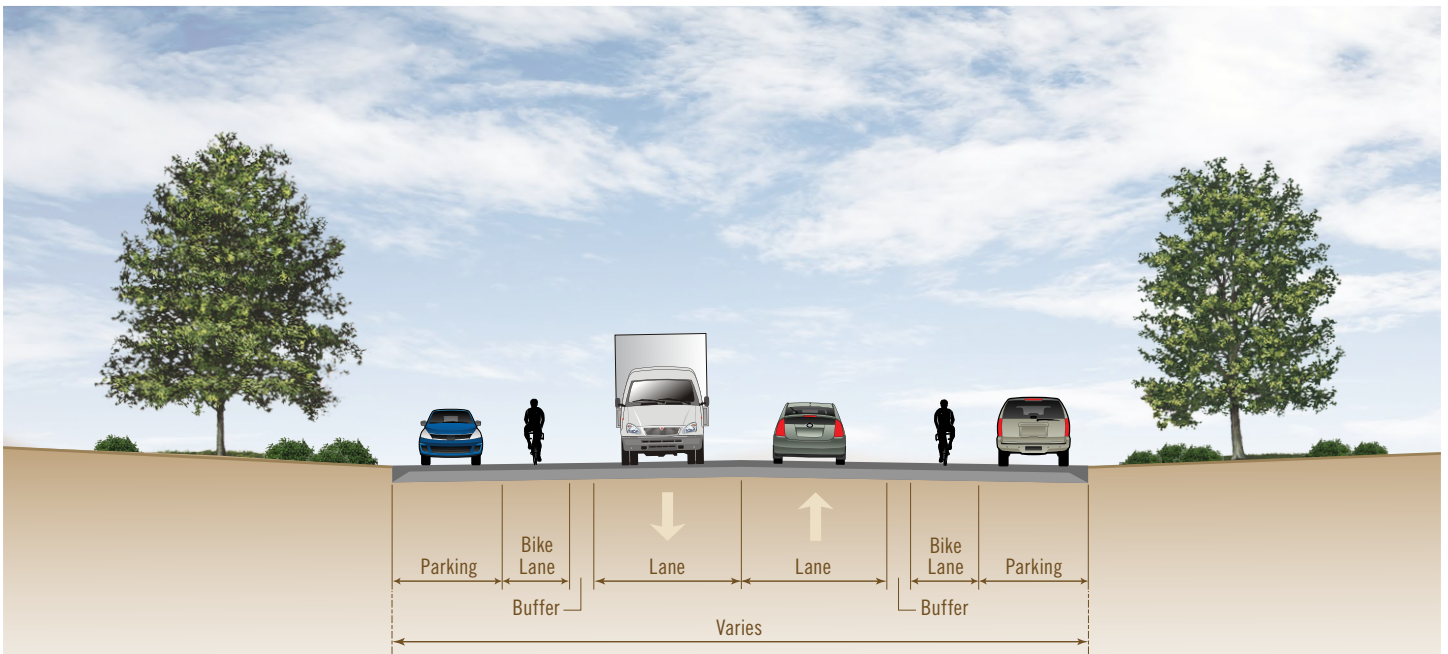


Buffered Bike Lane

Travel Lane: 10'-12'

Buffer: 2'-3' (NACTO Urban Bikeway Design Guide)

Bike Lane: 4'-6' (2012 AASHTO Bike Guide Section 4.6)



Buffered Bike Lane with Parking

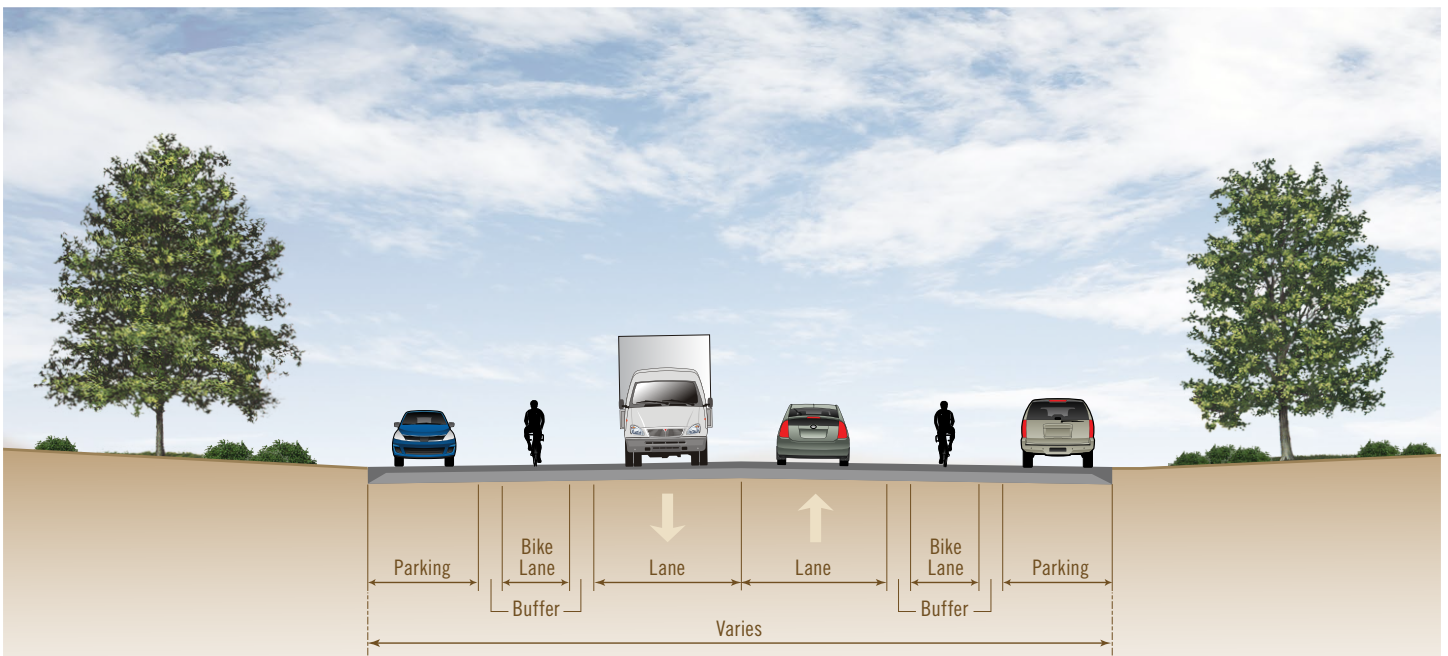
Travel Lane: 10'-12'

Buffer: 2'-3'* (NACTO Urban Bikeway Design Guide)

Bike Lane: 4'-6'* (2012 AASHTO Bike Guide Section 4.6)

Parking: 9'-12'

*When on-street parking is present a minimum of 5' is needed for a bike lane if no buffer is provided.



Double Buffered Bike Lane with Parking

Travel Lane: 10'-12'

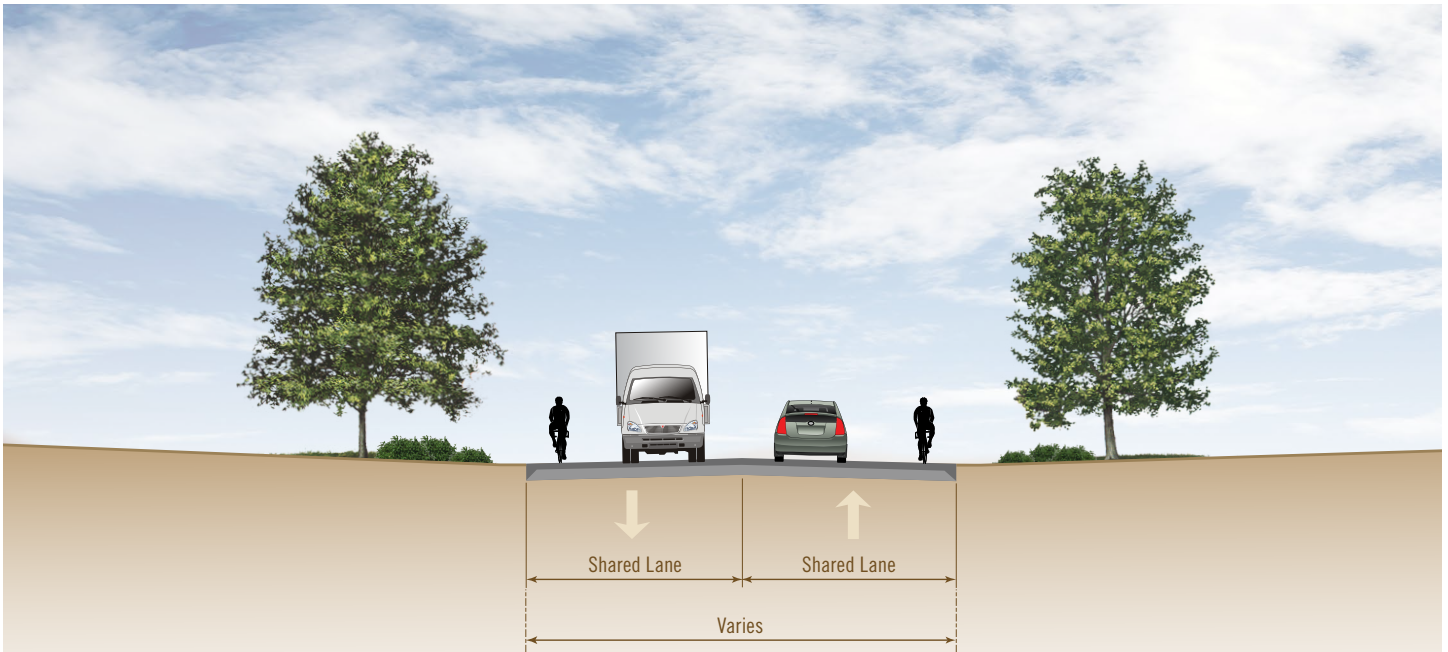
Buffer: 2'-3'* (NACTO Urban Bikeway Design Guide)

Bike Lane: 4'-6'* (2012 AASHTO Bike Guide Section 4.6)

Buffer: 2'-3'

Parking: 9'-12'

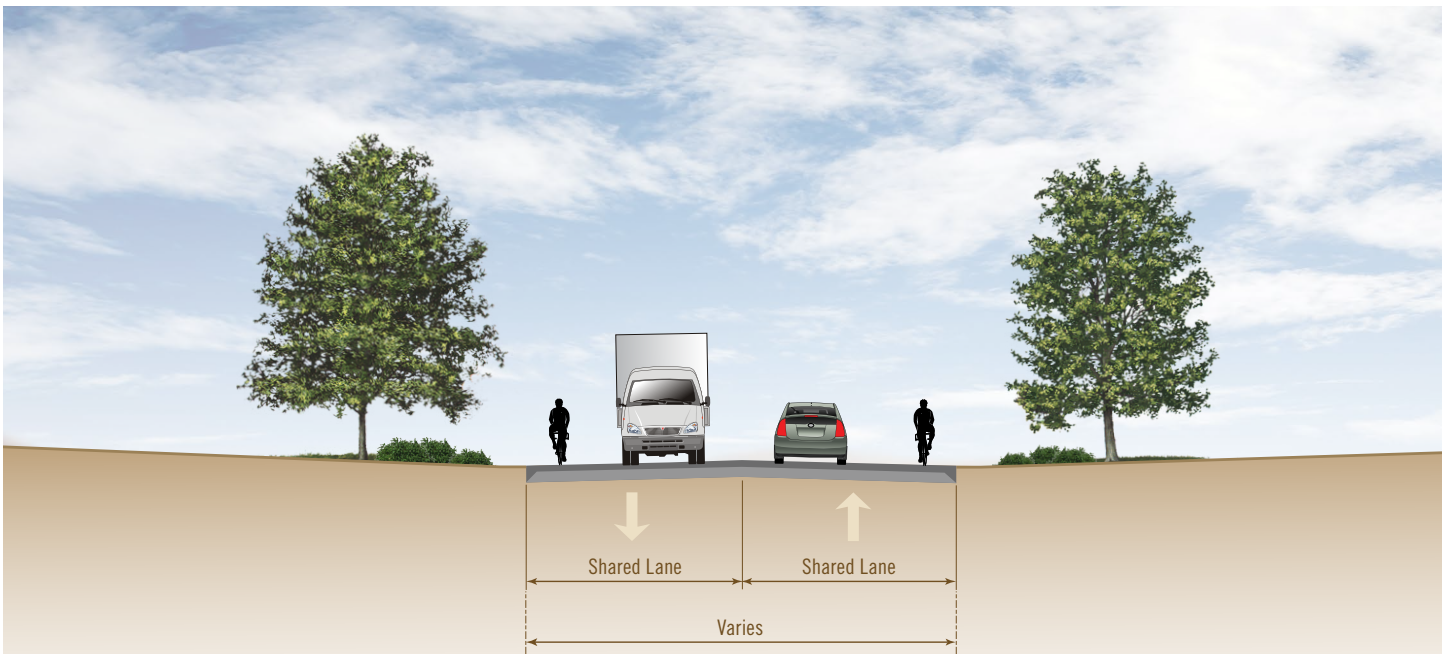
*When on-street parking is present a minimum of 5' is needed for a bike lane if no buffer is provided.



Shared Lane (14' Wide or Greater)

Shared Lane* (2012 AASHTO Bike Guide Section 4.6)

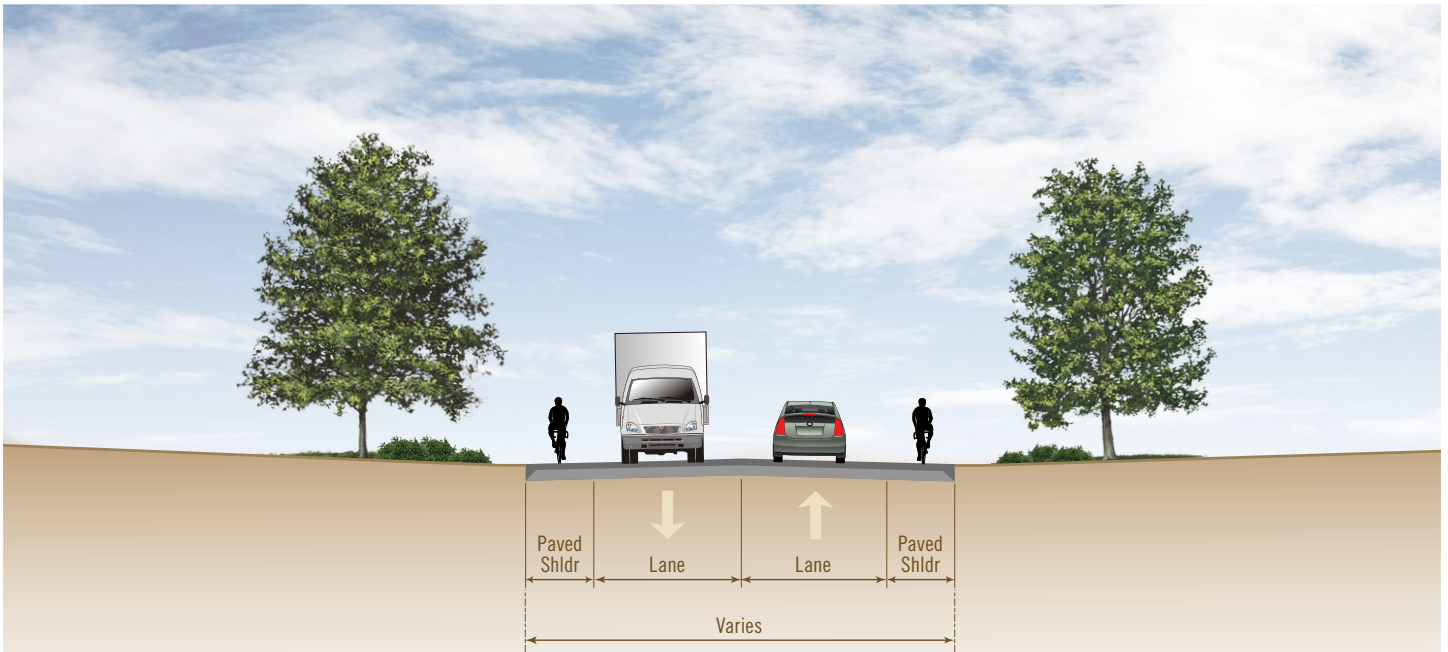
*14' minimum needed for motor vehicles to pass bicycles in the travel lane with 3' of clear. With less than 14' motor vehicles and bicycles will not be able to share the travel lane side by side.



Shared Lane (Less than 14' Wide)

Shared Lane* (2012 AASHTO Bike Guide Section 4.6)

*14 feet minimum needed for motor vehicles to pass bicycles in the travel lane with 3 feet of clear. With less than 14 feet, motor vehicles and bicycles will not be able to share the travel lane side by side. A Shared Lane less than 14 feet wide is typically appropriate for roadways with a speed limit of 25 miles per hour or less, but may be appropriate on roadways with higher speed limits if there is a low volume of motor vehicles. Shared Lane Markings should only be used on roadways with a speed limit of 35 mph or less (2009 MUTCD Section 9C.07).



Paved Shoulder

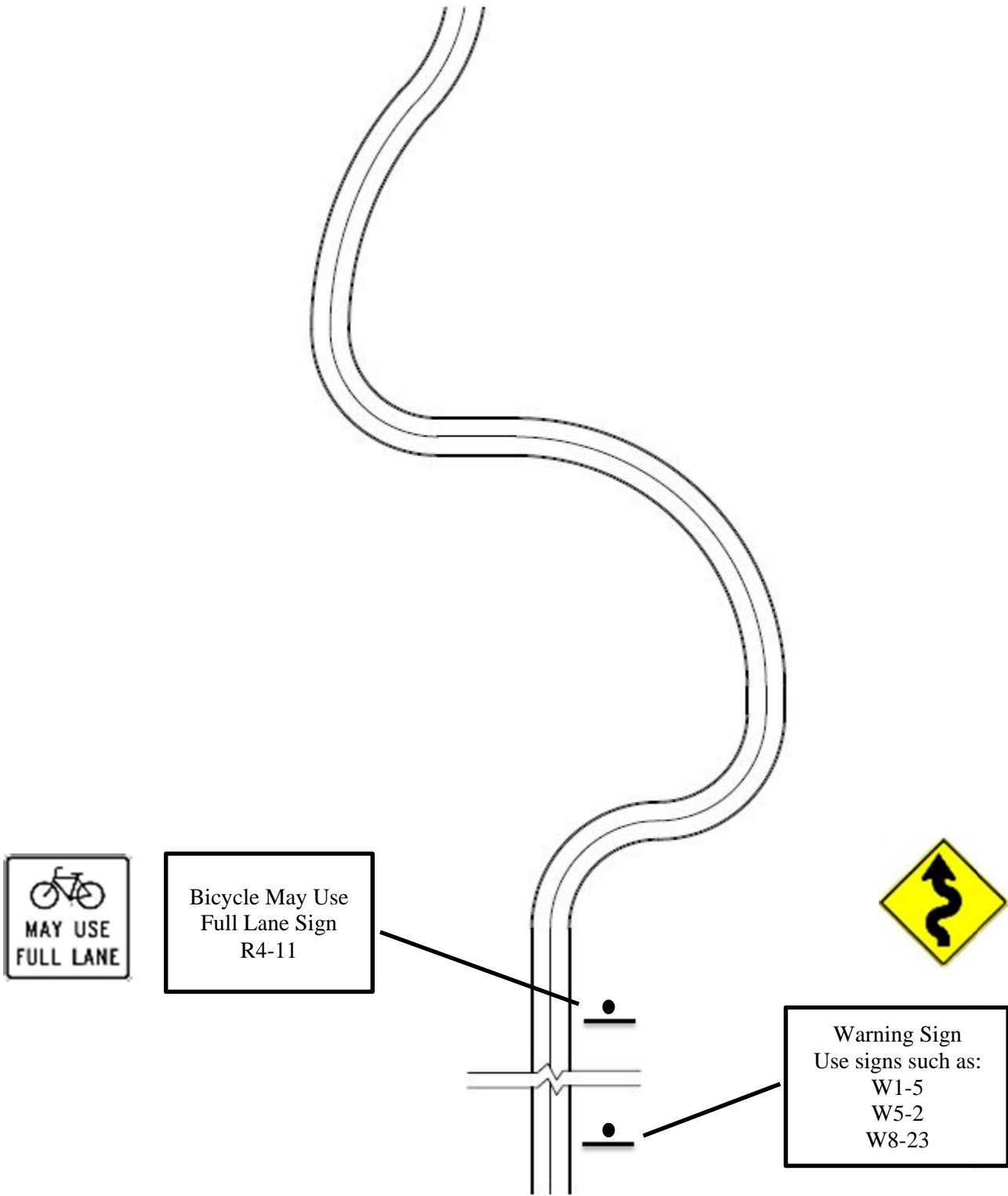
Travel Lane: 10'-12'
Paved Shoulder: 4' minimum



APPENDIX G

BICYCLE FACILITY SIGNS

Sign Placement



Bicycle May Use Full Lane Sign R4-11



Warning Sign
Use signs such as:
W1-5
W5-2
W8-23

Warning Sign



W1-5 – Horizontal Alignment Warning Sign



W5-3 – One Lane Bridge Sign



W5-1 – Road Narrows Sign



W8-23 – No Shoulder Sign



W5-2 – Narrow Bridge Sign



W8-25 – Shoulder Ends Sign

Regulatory Signs for Bicycle Facilities



R4-11 – Bicycle May Use Full Lane Sign

This sign should be installed after a warning sign and in advance of the area

Guide Signs for Bicycle Facilities



D1-3c – Bicycle Guide Sign



M1-9 – Bicycle Route Sign (US Routes)



M1-8a – Bicycle Route Sign (Regional Routes)

*Guidance on how and when these signs are to be used can be found in the latest version of the Manual on Uniform Traffic Control Devices.

4.3.9 *Legislation*

The Nevada Revised Statutes (NRS) contains legislature pertaining to the use of bicycles. The following is a summary of current laws.

NRS 484A.025 includes a definition of a bicycle as “a device propelled by human power upon which a person may ride, having two tandem wheels either of which is over 14 inches in diameter, or every such device generally recognized as a bicycle though equipped with two front or two rear wheels except a moped.” In addition, most legislation also pertains to the use of an electric bicycle, which has been defined in NRS 484B.017 as “a device upon which a person may ride, having two or three wheels, or every such device generally recognized as a bicycle that has fully operable pedals and is propelled by a small electric engine which produces not more than 1 gross brake horsepower and which produces not more than 750 watts final output.” NRS 408.579 includes legislation that permits electric bicycles to be used on trails and walkways that are intended for bicycles.

According to NRS 408.321, the Nevada Department of Transportation shall:

- Consider bicycle lanes and routes, facilities, signs, and turnouts into their designs;
- Develop a bicycle and pedestrian safety education program;
- Provide secretarial services to the Nevada Bicycle and Pedestrian Safety Advisory Board; and
- Have the authority to prohibit the use of bicycles on highways or require a permit



According to NRS 408.321, the Nevada Bicycle and Pedestrian Safety Advisory Board shall:

- (a) At its first meeting and annually thereafter, elect a Chair from among its members.
- (b) Meet regularly at least once each calendar quarter and may meet at other times upon the call of the Chair.
- (c) Promote programs and facilities for the safe use of bicycles and pedestrian safety in this State.
- (d) Advise appropriate agencies of the State on policies, programs and facilities for the safe use of bicycles and pedestrian safety.

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