WALK BIKE
Northwest Arkansas



APPENDIX

NWA Regional Bicycle and Pedestrian Master Plan | 2014

Prepared for the Northwest Arkansas Regional Planning Commission
Prepared by Alta Planning + Design

WALK BIKE NORTHWEST ARKANSAS REGIONAL BICYCLE AND PEDESTRIAN MASTER PLAN

NWA Regional Planning Commission

alta PLANNING + DESIGN

CONTENTS

RESOURCE APPENDICES

A-1 Design Guidelines

B-1 Sample Complete Streets Resolution

C-1 Needs Analysis

D-1 Program Recommendations

E-1 Public Involvement

F-1 Plan Review

G-1 Policy Review

H-1 Funding Resources

I-1 Community Self-Evaluation Summary

J-1 Complete Project List

A DESIGN GUIDELINES

Appendix Outline:

Overview

Shared Use Facility Design

Pedestrian Facility Design

Bicycle Facility Design

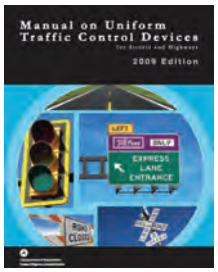
OVERVIEW

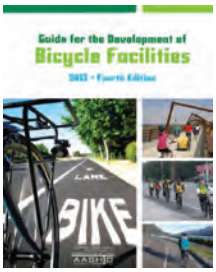
The sections that follow serve as an inventory of bicycle and pedestrian design treatments and provides guidelines for their development. These treatments and design guidelines are important because they represent the tools for creating a safe, accessible community. The guidelines are not, however, a substitute for a more thorough evaluation by a landscape architect or engineer upon implementation of facility improvements. Some improvements may also require cooperation with the Arkansas State Highway and Transportation Department for specific design solutions. The following standards and guidelines are referred to in this guide:

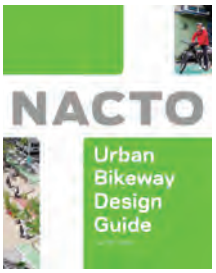
- The Federal Highway Administration's **Manual on Uniform Traffic Control Devices** (MUTCD) is the primary source for guidance on lane striping requirements, signal warrants, and recommended signage and pavement markings.
- American Association of State Highway and Transportation Officials (AASHTO) **Guide for the Development of Bicycle Facilities**, updated in June 2012 provides guidance on dimensions, use, and layout of specific bicycle facilities.
- The National Association of City Transportation Officials' (NACTO) 2012 **Urban Bikeway Design Guide** is the newest publication of nationally recognized bicycle-specific design standards, and offers guidance on the current state of the practice designs. Most NACTO treatments are compatible within AASHTO/MUTCD guidance, though some NACTO endorsed designs may not be permitted on state roads at this time.
- Offering similar guidance for pedestrian design, the 2004 AASHTO **Guide for the Planning, Design and Operation of Pedestrian Facilities** provides comprehensive guidance on planning and designing for people on foot.
- Meeting the requirements of the Americans with Disabilities Act (ADA) is an important part of any bicycle facility project. The United States Access Board's proposed Public Rights-of-Way Accessibility Guidelines (PROWAG) and the 2010 ADA Standards for Accessible Design (2010 Standards) contain standards and guidance for the construction of accessible facilities.

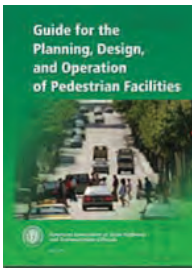
Should the national standards be revised in the future and result in discrepancies with this chapter, the national standards should prevail for all design decisions. A qualified engineer or landscape architect should be consulted for the most up to date and accurate cost estimates.

Nationally recognized bikeway standards such as NACTO, AASHTO, the MUTCD, along with guidance from the State of Arkansas shall have all informed the content of this appendix.









DESIGN NEEDS OF BICYCLISTS

The purpose of this section is to provide the facility designer with an understanding of how bicyclists operate and how their bicycle influences that operation. Bicyclists, by nature, are much more affected by poor facility design, construction and maintenance practices than motor vehicle drivers. Bicyclists lack the protection from the elements and roadway hazards provided by an automobile's structure and safety features. By understanding the unique characteristics and needs of bicyclists, a facility designer can provide quality facilities and minimize user risk.

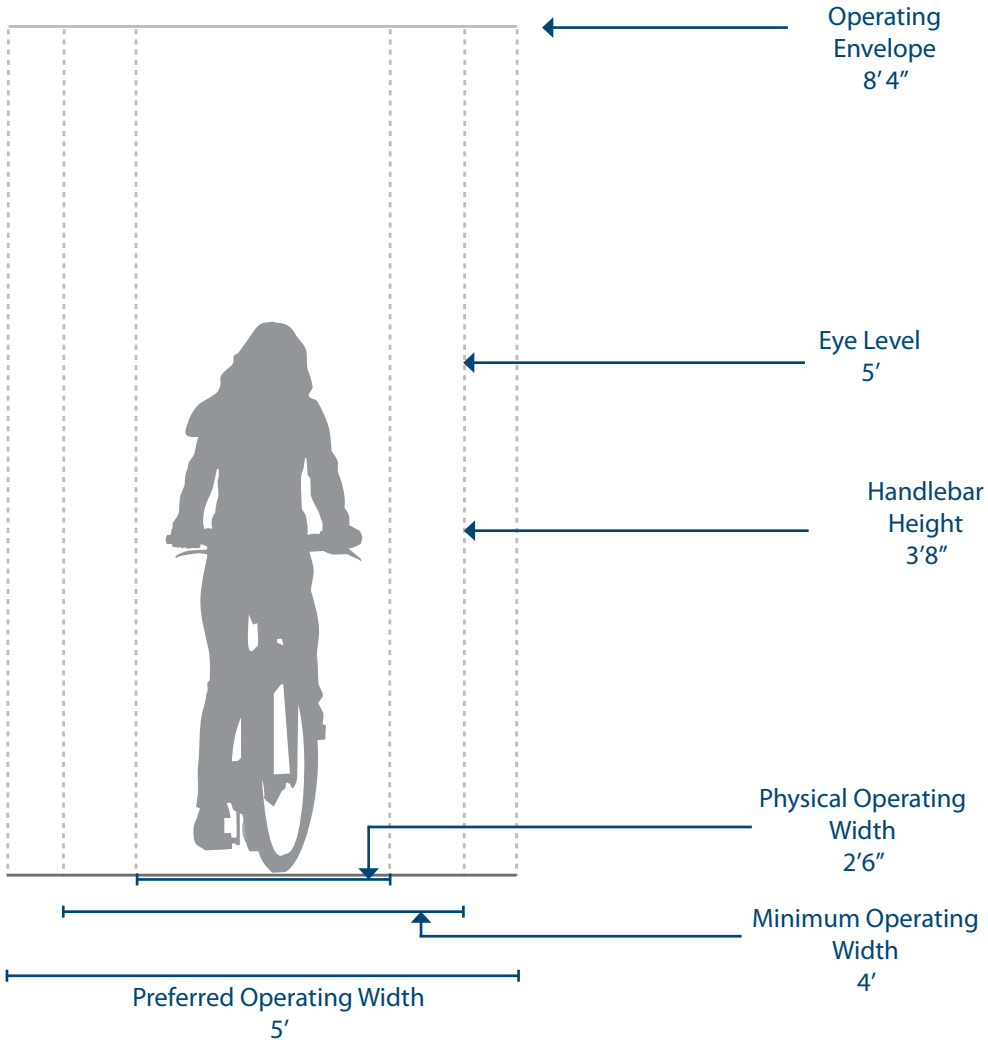
BICYCLE AS A DESIGN VEHICLE

Similar to motor vehicles, bicyclists and their bicycles exist in a variety of sizes and configurations. These variations occur in the types of vehicle (such as a conventional bicycle, a recumbent bicycle or a tricycle), and behavioral characteristics (such as the comfort level of the bicyclist). The design of a bikeway should consider reasonably expected bicycle types on the facility and utilize the appropriate dimensions.

The figure below illustrates the operating space and physical dimensions of a typical adult bicyclist, which are the basis for typical facility design. Bicyclists require clear space to operate within a facility. This is why the minimum operating width is greater than the physical dimensions of the bicyclist. Bicyclists prefer five feet or more operating width, although four feet may be minimally acceptable.

In addition to the design dimensions of a typical bicycle, there are many other commonly used pedal-driven cycles and accessories to consider when planning and designing bicycle facilities. The most common types include tandem bicycles, recumbent bicycles, and trailer accessories. The figure and table below summarize the typical dimensions for bicycle types.

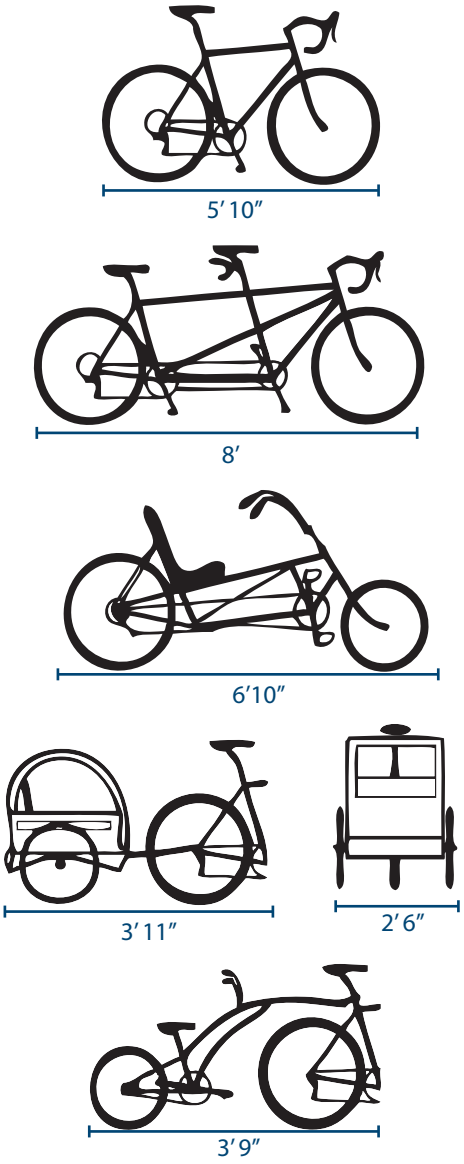
Standard Bicycle Rider Dimensions



Source: *AASHTO Guide for the Development of Bicycle Facilities*, 4th Edition. 2012.

Design Speed Expectations

The expected speed that different types of bicyclists can maintain under various conditions also influences the design of facilities such as shared use paved trails. The table to the right provides typical bicyclist speeds for a variety of conditions.



Bicycle as Design Vehicle - Typical Dimensions

Source: *AASHTO Guide for the Development of Bicycle Facilities,* 3rd Edition *AASHTO does not provide typical dimensions for tricycles.

Bicycle as Design Vehicle - Typical Dimensions

Bicycle Type	Feature	Typical Dimensions
Upright Adult Bicyclist	Physical width	2 ft 6 in
	Operating width (Minimum)	4 ft
	Operating width (Preferred)	5 ft
	Physical length	5 ft 10 in
	Physical height of handlebars	3 ft 8 in
	Operating height	8 ft 4 in
	Eye height	5 ft
	Vertical clearance to obstructions (tunnel height, lighting, etc)	10 ft
	Approximate center of gravity	2 ft 9 in - 3 ft 4 in
Recumbent Bicyclist	Physical length	6 ft 10 in
	Eye height	3 ft 10 in
Tandem Bicyclist	Physical length	8 ft
Bicyclist with child trailer	Physical length	9 ft 9 in
	Physical width	2 ft 6 in

Bicycle as Design Vehicle - Design Speed Expectations

Bicycle Type	Feature	Typical Speed
Upright Adult Bicyclist	Paved level surfacing	8-15 mph
	Downhill	20-30+ mph
	Uphill	5 -12 mph
Recumbent Bicyclist	Paved level surfacing	11-18 mph

*Tandem bicycles and bicyclists with trailers have typical speeds equal to or less than upright adult bicyclists.

Types of Bicyclists

It is important to consider bicyclists of all skill levels when creating a non-motorized plan or project. Bicyclist skill level greatly influences expected speeds and behavior, both in separated bikeways and on shared roadways. Bicycle infrastructure should accommodate as many user types as possible, with decisions for separate or parallel facilities based on providing a comfortable experience for the greatest number of people.

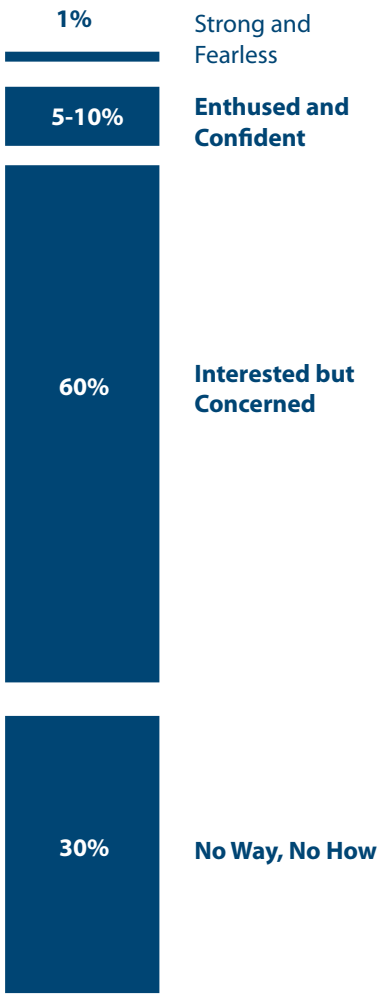
The bicycle planning and engineering professions currently use several systems to classify the population which can assist in understanding the characteristics and infrastructure preferences of different bicyclists. The current AASHTO Guide to the Development of Bicycle Facilities encourages designers to identify their rider type based on the trip purpose (Recreational vs Transportation) and on the level of comfort and skill of the rider (Causal vs Experienced). A more detailed framework for understanding of the US population's relationship to transportation focused bicycling is illustrated in the figure below. Developed by planners in Portland, OR[1] and supported by research[2], this classification provides the following alternative categories to address varying attitudes towards bicycling in the US:

- **Strong and Fearless** (approximately 1% of population) – Characterized by bicyclists that will typically ride anywhere regardless of roadway conditions or weather. These bicyclists can ride faster than other user types, prefer direct routes and will typically choose roadway connections -- even if shared with vehicles -- over separate bicycle facilities such as shared use paved trails.

- **Enthused and Confident** (5-10% of population) - This user group encompasses bicyclists who are fairly comfortable riding on all types of bikeways but usually choose low traffic streets or shared use paved trails when available. These bicyclists may deviate from a more direct route in favor of a preferred facility type. This group includes all kinds of bicyclists such as commuters, recreationalists, racers and utilitarian bicyclists.

- **Interested but Concerned** (approximately 60% of population) – This user type comprises the bulk of the cycling population and represents bicyclists who typically only ride a bicycle on low traffic streets or multi-use trails under favorable weather conditions. These bicyclists perceive significant barriers to their increased use of cycling, specifically traffic and other safety issues. These people may become "Enthused & Confident" with encouragement, education and experience.

- **No Way, No How** (approximately 30% of population) – Persons in this category are not bicyclists, and perceive severe safety issues with riding in traffic. Some people in this group may eventually become more regular cyclists with time and education. A significant portion of these people will not ride a bicycle under any circumstances.



Typical Distribution of Bicyclist Types

1 Roger Geller, City of Portland Bureau of Transportation. *Four Types of Cyclists.* http://www.portlandonline.com/transportation/index.cfm?&a=237507. 2009.

2 Dill, J., McNeil, N. *Four Types of Cyclists? Testing a Typology to Better Understand Bicycling Behavior and Potential.* 2012.

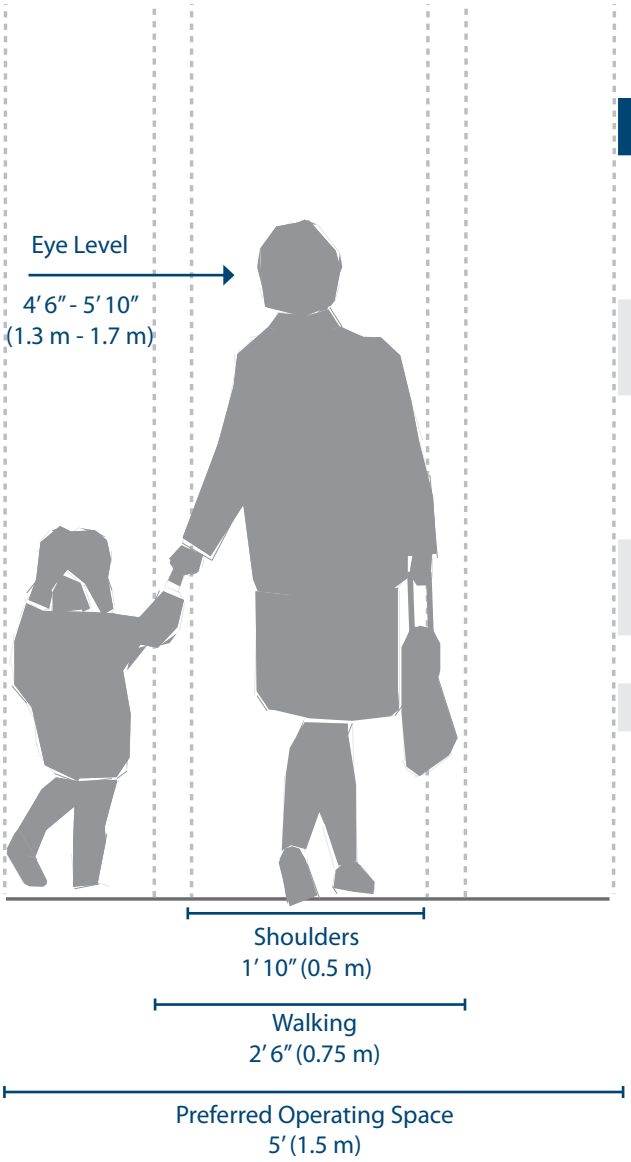
DESIGN NEEDS OF PEDESTRIANS

Types of Pedestrians

Pedestrians have a variety of characteristics and the transportation network should accommodate a variety of needs, abilities, and possible impairments. Age is one major factor that affects pedestrians' physical characteristics, walking speed, and environmental perception. Children have low eye height and walk at slower speeds than adults. They also perceive the environment differently at various stages of their cognitive development. Older adults walk more slowly and may require assistive devices for walking stability, sight, and hearing. The table below summarizes common pedestrian characteristics for various age groups.

The MUTCD recommends a normal walking speed of 3.5 feet per second when calculating the pedestrian clearance interval at traffic signals. The walking speed can drop to 3 feet per second for areas with older populations and persons with mobility impairments. While the type and degree of mobility impairment varies greatly across the population, the transportation system should accommodate these users to the greatest reasonable extent.

The table below summarizes common physical and cognitive impairments, how they affect personal mobility, and recommendations for improved pedestrian-friendly design.



Pedestrian Characteristics by Age

Age	Characteristics
0-4	Learning to walk
	Requires constant adult supervision
	Developing peripheral vision and depth perception
5-8	Increasing independence, but still requires supervision
	Poor depth perception
9-13	Susceptible to "dart out" intersection dash
	Poor judgment
	Sense of invulnerability
14-18	Improved awareness of traffic environment
	Poor judgment
19-40	Active, fully aware of traffic environment
41-65	Slowing of reflexes
65+	Difficulty crossing street
	Vision loss
	Difficulty hearing vehicles approaching from behind

Source: AASHTO. *Guide for the Planning, Design, and Operation of Pedestrian Facilities*, Exhibit 2-1. 2004.

Disabled Pedestrian Design Considerations

Impairment	Effect on Mobility	Design Solution
Wheelchair and Scooter Users	Difficulty propelling over uneven or soft surfaces.	Firm, stable surfaces and structures, including ramps or beveled edges.
	Cross-slopes cause wheelchairs to veer downhill.	Cross-slopes of less than two percent.
	Require wider path of travel.	Sufficient width and maneuvering space.
Walking Aid Users	Difficulty negotiating steep grades and cross slopes; decreased stability.	Smooth, non-slipperly travel surface.
	Slower walking speed and reduced endurance; reduced ability to react.	Longer pedestrian signal cycles, shorter crossing distances, median refuges, and street furniture.
Hearing Impairment	Less able to detect oncoming hazards at locations with limited sight lines (e.g. driveways, angled intersections, channelized right turn lanes) and complex intersections.	Longer pedestrian signal cycles, clear sight distances, highly visible pedestrian signals and markings.
Vision Impairment	Limited perception of trail ahead and obstacles; reliance on memory; reliance on non-visual indicators (e.g. sound and texture).	Accessible text (larger print and raised text), accessible pedestrian signals (APS), guide strips and detectable warning surfaces, safety barriers, and lighting.
Cognitive Impairment	Varies greatly. Can affect ability to perceive, recognize, understand, interpret, and respond to information.	Signs with pictures, universal symbols, and colors, rather than text.

DESIGN NEEDS OF WHEELCHAIR USERS

As the American population ages, the number of people using mobility assistive devices (such as manual wheelchairs, powered wheelchairs) increases.

Manual wheelchairs are self-propelled devices. Users propel themselves using push rims attached to the rear wheels. Braking is done through resisting wheel movement with the hands or arm. Alternatively, a second individual can control the wheelchair using handles attached to the back of the chair.

Power wheelchairs user battery power to move the wheelchair. The size and weight of power wheelchairs limit their ability to negotiate obstacles without a ramp. Various control units are available that enable users to control the wheelchair movement, based on their ability (e.g., joystick control, breath controlled, etc).

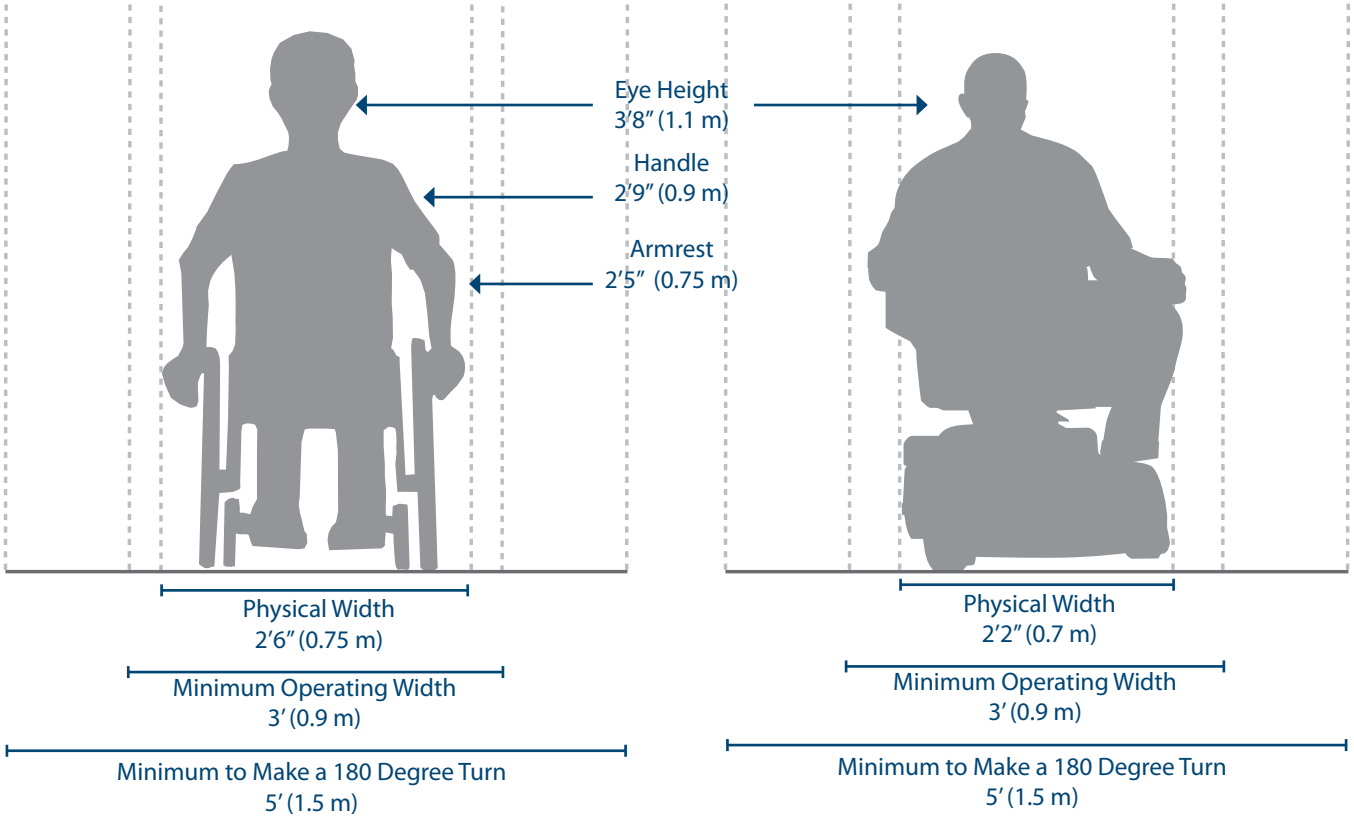
Maneuvering around a turn requires additional space for wheelchair devices. Providing adequate space for 180 degree turns at appropriate locations is an important element for accessible design.

Wheelchair User Typical Speed

User	Typical Speed
Manual Wheelchair	3.6 mph
Power Wheelchair	6.8 mph

Wheelchair User Design Considerations

Effect on Mobility	Design Solution
Difficulty propelling over uneven or soft surfaces.	Firm, stable surfaces and structures, including ramps or beveled edges.
Cross-slopes cause wheelchairs to veer downhill.	Cross-slopes of less than two percent.
Require wider path of travel.	Sufficient width and maneuvering space.



Source: FHWA. *Characteristics of Emerging Road and Trail Users and Their Safety.* 2004.
USDOJ. *2010 ADA Standards for Accessible Design.* 2010.

PEDESTRIAN CROSSING LOCATION AND FACILITY SELECTION

Midblock Crossings

Midblock crossings are an important street design element for pedestrians. They can provide a legal crossing at locations where pedestrians want to travel, and can be safer than crossings at intersections because traffic is only moving in two directions. Locations where midblock crossings should be considered include:

- long blocks (longer than 600 ft) with destinations on both sides of the street.
- locations with heavy pedestrian traffic, such as schools, shopping centers.
- at midblock transit stops, where transit riders must cross the street on one leg of their journey.

Crossing Treatment Selection

The specific type of treatment at a crossing may range from a simple marked crosswalk to full traffic signals or grade separated crossings. Crosswalk lines should not be used indiscriminately, and appropriate selection of crossing treatments should be evaluated in an engineering study should be performed before a marked crosswalk is installed. The engineering study should consider the number of lanes, the presence of a median, the distance from adjacent signalized intersections, the pedestrian volumes and delays, the average daily traffic (ADT), the posted or statutory speed limit or 85th-percentile speed, the geometry of the location, the possible consolidation of multiple crossing points, the availability of street lighting,and other appropriate factors.

PEDESTRIAN CROSSING CONTEXTUAL GUIDANCE At unsignalized locations		Local Streets 15-25 mph		Collector Streets 25-30 mph			Arterial Streets 30-45 mph							
FACILITY TYPE		2 lane	3 lane	2 lane	2 lane with median refuge	3 lane	2 lane	2 lane with median refuge	3 lane	4 lane	4 lane with median refuge	5 lane	6 lane	6 lane with median refuge
1	Crosswalk Only (high visibility)	✓	✓	EJ	EJ	X	EJ	EJ	X	X	X	X	X	X
2	Crosswalk with warning signage and yield lines	EJ	✓	✓	✓	✓	EJ	EJ	EJ	X	X	X	X	X
3	Active Warning Beacon (RRFB)	X	EJ	✓	✓	✓	✓	✓	✓	X	✓	X	X	X
4	Hybrid Beacon	X	X	EJ	EJ	EJ	EJ	✓	✓	✓	✓	✓	✓	✓
5	Full Traffic Signal	X	X	EJ	EJ	EJ	EJ	EJ	EJ	✓	✓	✓	✓	✓
6	Grade separation	X	X	EJ	EJ	EJ	X	EJ	EJ	EJ	EJ	EJ	✓	✓

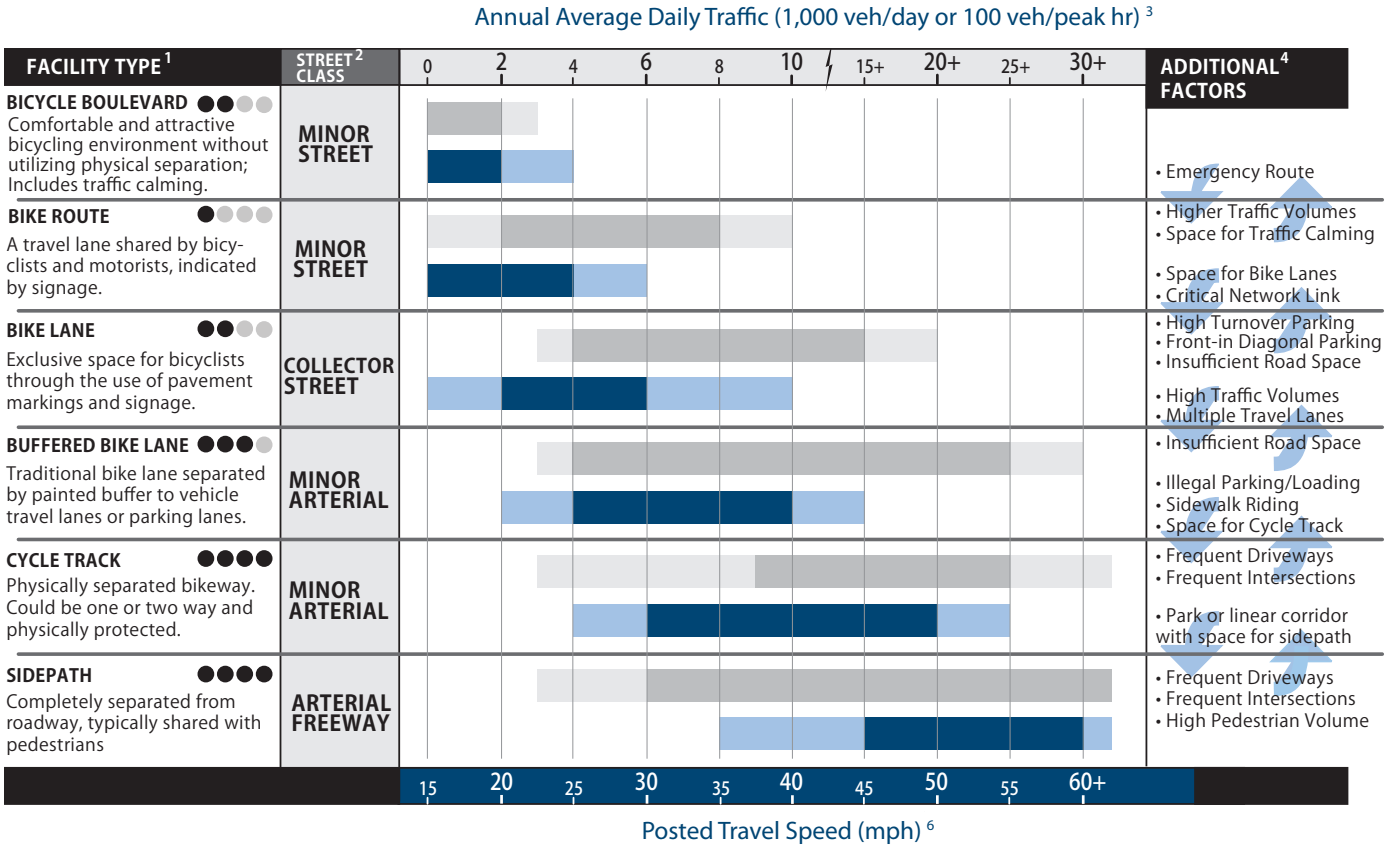
LEGEND	
Most Desirable	✓
Engineering Judgement	EJ
Not Recommended	X

Source: Based on professional experience and recommendations from the FHWA 2005 report *Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations.*

BICYCLE FACILITY CONTEXTUAL GUIDANCE

Selecting the best bikeway facility type for a given roadway can be challenging, due to the range of factors that influence bicycle users' comfort and safety. There is a significant impact on cycling comfort when the speed differential between bicyclists and motor vehicle traffic is high and motor vehicle traffic volumes are high. As a starting point to identify a preferred facility, the chart below can be used to determine the recommended type of bikeway to be provided in particular roadway speed and volume situations. To use this chart, identify the appropriate daily traffic volume and travel speed on or the existing or proposed roadway, and locate the facility types indicated by those key variables.

Other factors beyond speed and volume which affect facility selection include traffic mix of automobiles and heavy vehicles, the presence of on-street parking, intersection density, surrounding land use, and roadway sight distance. See the right column of the chart for other key issues to consider when selecting an appropriate facility type.



LEGEND

SEPARATION [5]	
●○○○	Minimal Separation
●●○○	Moderate Separation
●●●○	Good Separation
●●●●	High Separation

min	VOLUME	max
min	SPEED	max
Acceptable	Desired	Acceptable

Notes:

1. Refers to specific bicycle facilities described in the design guidelines. Many local roads function just fine as they are due to their low traffic volume and speed.

2. The use of functional classes provides some general context for the cases in which bicycle facilities are most likely to be implemented. Land use and additional factors (see 4) should always take precedence in determining which facility type to select.

3. Urban peak hour factors typically range from 8 to 12 percent of AADT. For the purposes of this chart, the peak hour is assumed to be 10 percent of AADT.

4. Noted additional factors include a selection of considerations that may influence the selection of bicycle facility type where roadway speed/volume values overlap over multiple facilities. Many of the factors that suggest increasing separation are common across multiple facility types like bike lanes, buffered bike lanes and cycle tracks.

5. Increased separation of bicycle facilities from motor vehicle traffic typically results in higher levels of user comfort and appeals to wider skill levels of bicyclists.

6. This chart considers posted speed limit only. The 85th percentile speed may vary, and may change with implementation of a bikeway.

COMPLETE STREETS CROSS SECTIONS

The 2035 Northwest Arkansas Regional Transportation Plan (RTP) available at http://nwarpc.org/transportation/2035-plan/ identifies a series of recommended cross sections for streets. The recommendations offer a good starting point for cities and counties, and as encouraged by the RTP, "cross-sections should be determined on a project by project basis."

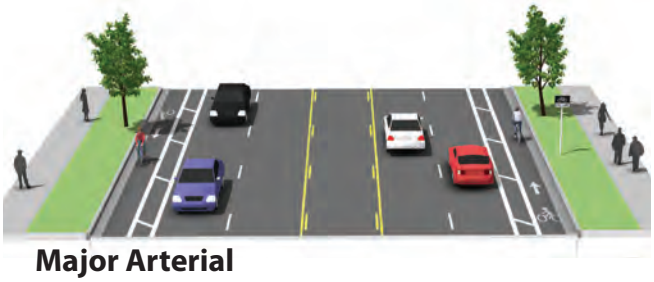
The following pages offer alternative cross-sections built upon the RTP recommendations. This set of alternative striping conforms to acceptable AASHTO standards, and illustrates how the treatments featured in this guide may be applied within the recommended standard right-of-way and curb-to-curb dimensions.

Alternative Cross Sections

Minor Street

Collector Street

Minor Arterial



Major Arterial

MINOR STREET

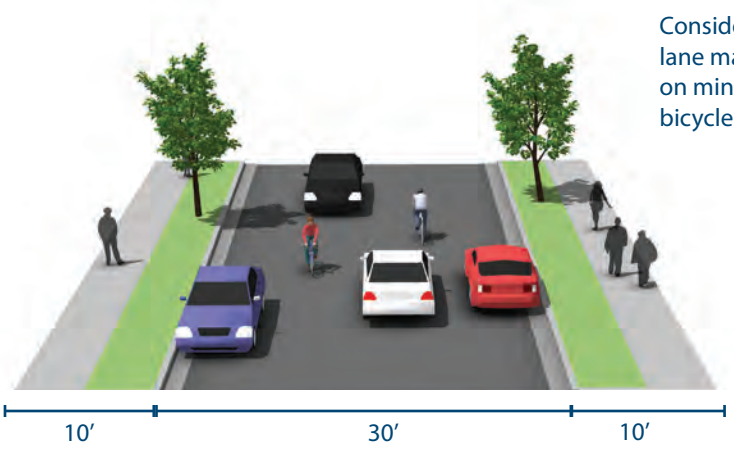
Description

Provides access to properties within a neighborhood or district. Not intended for long-distance auto trips.

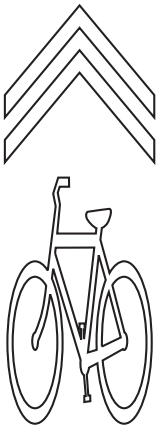
Conforms to RTP Minor Street dimensions of 30 feet from curb-to-curb.

Guidance

- Minor streets generally require no lane markings.
- Minor streets can be further optimized for bicycle travel by applying bicycle boulevard treatments described in these design guidelines.
- Parking may be permitted or prohibited based on demand and adjacent land use.



Consider shared lane markings on minor street bicycle routes.



COLLECTOR STREET

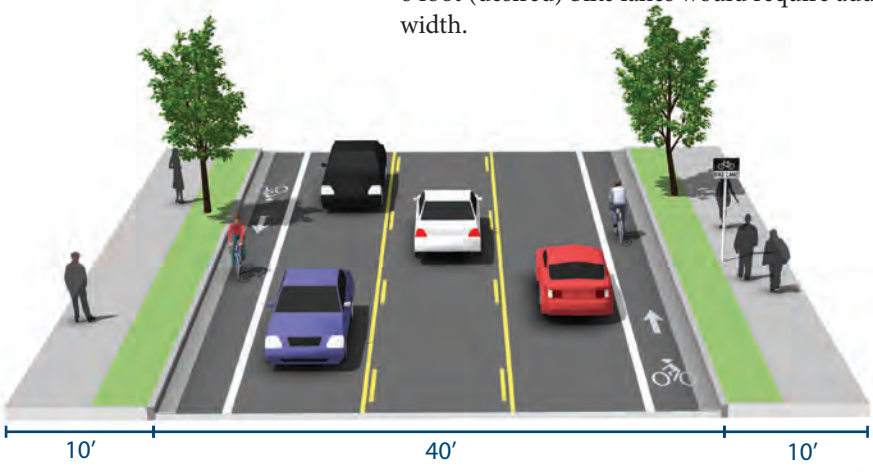
Description

Provides traffic circulation within neighborhoods, commercial and industrial areas. Collects traffic from local streets in neighborhoods and channels it into the arterial system.

Conforms to RTP Collector Street dimensions of 40 feet from curb-to-curb.

Guidance

- Providing 5 foot bike lanes within the 40 foot curb-to-curb identified in the RTP would require reducing travel lanes to 10 feet.
- A cross section without a center turn lane may allow for more generous dimensions for all users, such as 12 ft travel lanes and 8 ft buffered bike lanes.
- Providing three 12 foot travel lanes plus two 5 foot (minimum) or 6 foot (desired) bike lanes would require additional curb-to-curb width.



MINOR ARTERIAL

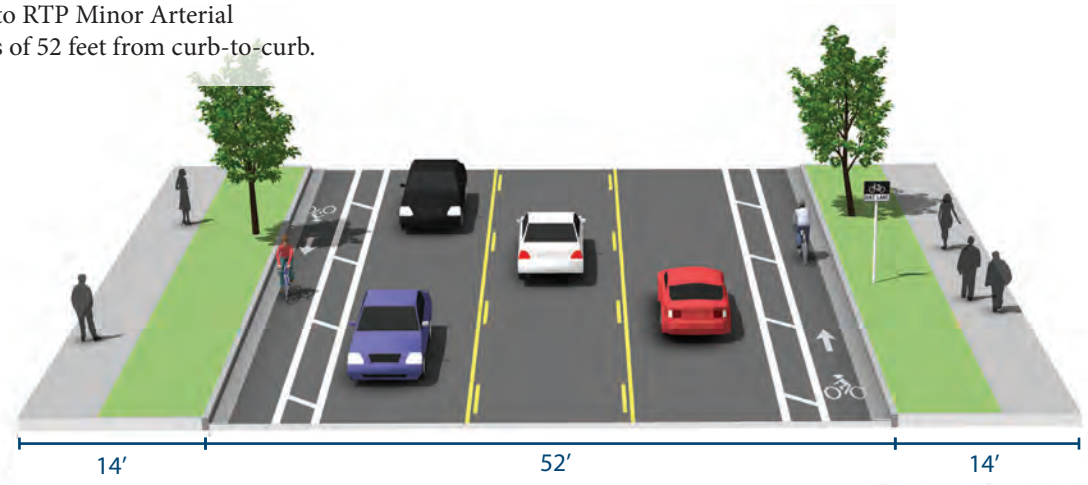
Description

Connects higher functional class facilities, activity centers, regions of the area, and major county roads at the edge of the metropolitan area. Traffic is composed predominantly of trips across and within regions.

Conforms to RTP Minor Arterial dimensions of 52 feet from curb-to-curb.

Guidance

- Providing 5 foot (minimum) bike lanes would require reducing the four travel lanes shown in the RTP to an average of 10.5 feet.
- A three lane cross section, as shown below, would allow for the provision of 12 foot travel lanes and two 8 foot buffered bike lanes (5 foot bike lane plus 3 foot buffer).



MAJOR ARTERIAL

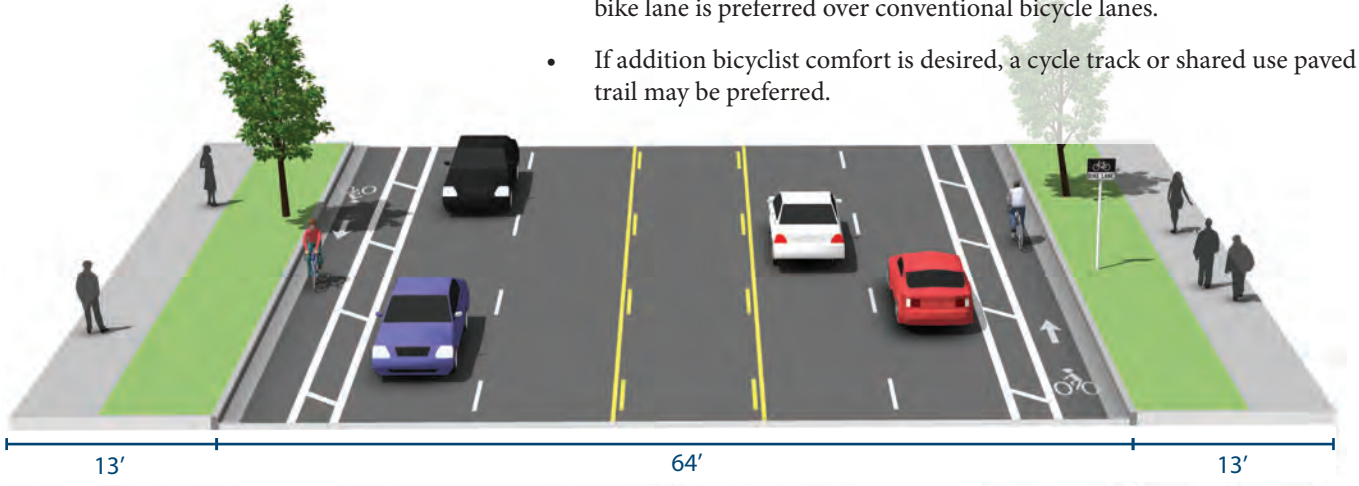
Description

Connects freeway/expressways, rural highways at the edge of the metropolitan area, and major urban activity centers within the metropolitan area. Traffic is composed predominantly of traffic across or through the city.

Conforms to RTP Major Arterial dimensions of 64 feet from curb-to-curb.

Guidance

- Providing 5 foot (minimum) bike lanes would require reducing travel lanes to approximately 10.5 feet. Reducing lane widths to 10 feet would allow for two 7 foot buffered bike lanes (5 foot bike lane plus 2 foot buffer).
- Additional curb-to-curb would be required to accommodate the desired 8 foot buffered bike lanes (5 foot bike lane plus 3 foot buffer) and wider travel lanes.
- Because of higher traffic volumes and speeds on an arterial, a wide buffered bike lane is preferred over conventional bicycle lanes.
- If addition bicyclist comfort is desired, a cycle track or shared use paved trail may be preferred.



SHARED USE PAVED TRAIL DESIGN

This Page Intentionally Left Blank

SHARED USE PAVED TRAILS AND OFF-STREET FACILITIES

A shared use paved trail (also known as a greenway) allows for two-way, off-street bicycle use and also may be used by pedestrians, skaters, wheelchair users, joggers and other non-motorized users. These facilities are frequently found in parks, along rivers, beaches, and in greenbelts or utility corridors where there are few conflicts with motorized vehicles. Trail facilities can also include amenities such as lighting, signage, and fencing (where appropriate).

Key features of shared use paved trails include:

- Frequent access points from the local road network.
- Directional signs to direct users to and from the trail.
- A limited number of at-grade crossings with streets or driveways.
- Terminating the trail where it is easily accessible to and from the street system.
- Separate treads for pedestrians and bicyclists when heavy use is expected.


Trails in River and Utility Corridors


Trails in Abandoned Rail Corridors


Trails in Existing Active Rail Corridors


Natural Surface Trail


Boardwalks

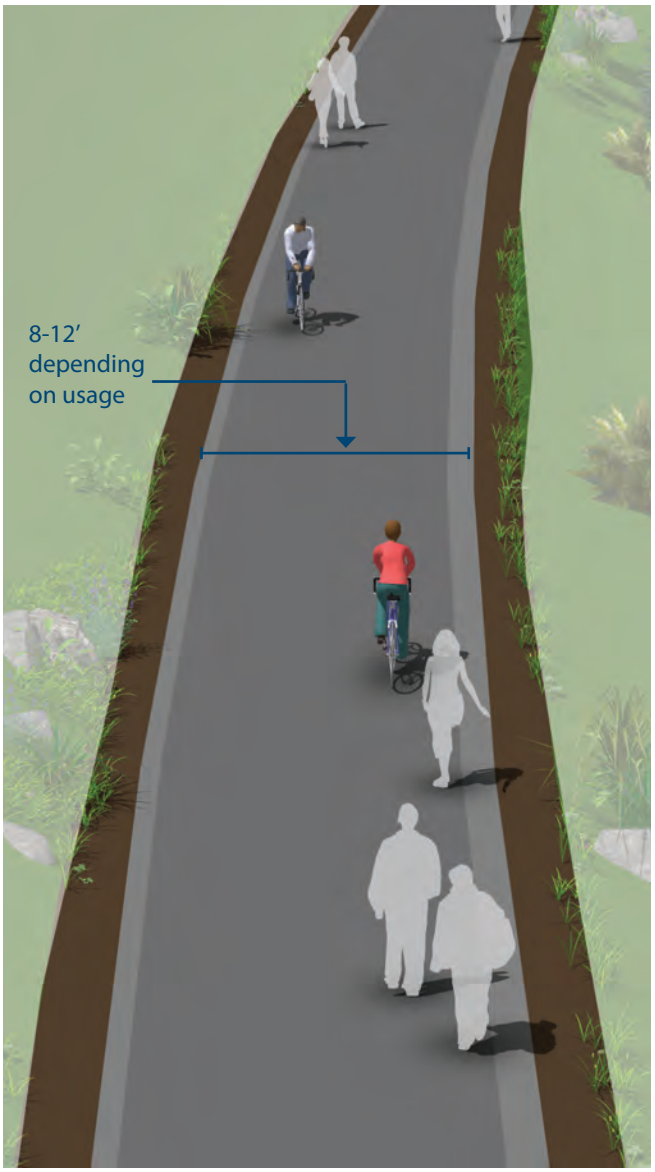

General Design Practices


Sidepaths: Trails Along Roadways

GENERAL DESIGN PRACTICES

Description

Shared use paved trails can provide a desirable facility, particularly for recreation, and users of all skill levels preferring separation from traffic. Bicycle trails should generally provide directional travel opportunities not provided by existing roadways.



Guidance

Width

- 8 feet is the minimum allowed for a two-way bicycle trail and is only recommended for low traffic situations.
- 10 feet is recommended in most situations and will be adequate for moderate to heavy use.
- 12 feet is recommended for heavy use situations with high concentrations of multiple users. A separate track (5' minimum) can be provided for pedestrian use.

Lateral Clearance

- A 2 foot or greater shoulder on both sides of the trail should be provided. An additional foot of lateral clearance (total of 3') is required by the MUTCD for the installation of signage or other furnishings.
- If bollards are used at intersections and access points, they should be colored brightly and/or supplemented with reflective materials to be visible at night.

Overhead Clearance

- Clearance to overhead obstructions should be 8 feet minimum, with 10 feet recommended.

Striping

- When striping is required, use a 4 inch dashed yellow centerline stripe with 4 inch solid white edge lines.
- Solid centerlines can be provided on tight or blind corners, and on the approaches to roadway crossings.

Discussion

Terminate the trail where it is easily accessible to and from the street system, preferably at a controlled intersection or at the beginning of a dead-end street.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
FHWA. *Manual on Uniform Traffic Control Devices.* 2009.
Flink, C. *Greenways: A Guide To Planning Design And Development.* 1993.

Materials and Maintenance

Asphalt is the most common surface for bicycle trails. The use of concrete for trails has proven to be more durable over the long term. Saw cut concrete joints rather than troweled improve the experience of trail users.

SHARED USE PAVED TRAILS IN ABANDONED RAIL CORRIDORS

Description

Commonly referred to as Rails-to-Trails or Rail-Trails, these projects convert vacated rail corridors into off-street trails. Rail corridors offer several advantages, including relatively direct routes between major destinations and generally flat terrain.

In some cases, rail owners may rail-bank their corridors as an alternative to a complete abandonment of the line, thus preserving the rail corridor for possible future use.

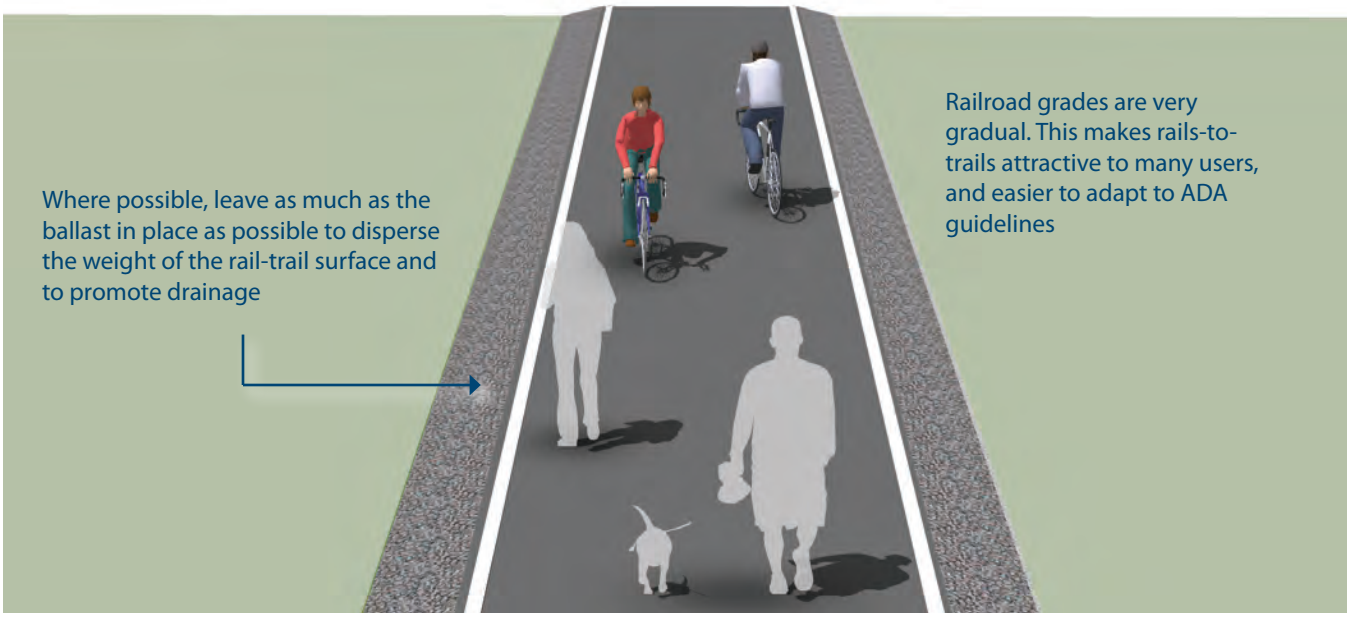
The railroad may form an agreement with any person, public or private, who would like to use the banked rail line as a trail or linear park until it is again needed for rail use. Municipalities should acquire abandoned rail rights-of-way whenever possible to preserve the opportunity for trail development.

Guidance

Shared use paved trails in abandoned rail corridors should meet or exceed general design practices. If additional width allows, wider trails, and landscaping are desirable.

In full conversions of abandoned rail corridors, the sub-base, superstructure, drainage, bridges, and crossings are already established. Design becomes a matter of working with the existing infrastructure to meet the needs of a rail-trail.

If converting a rail bed adjacent to an active rail line, see Shared use paved trails in Existing Active Rail Corridors.



Discussion

It is often impractical and costly to add material to existing railroad bed fill slopes. This results in trails that meet minimum trail widths, but often lack preferred shoulder and lateral clearance widths.

Rail-to-trails can involve many challenges including the acquisition of the right of way, cleanup and removal of toxic substances, and rehabilitation of tunnels, trestles and culverts. A structural engineer should evaluate existing railroad bridges for structural integrity to ensure they are capable of carrying the appropriate design loads.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
FHWA. *Manual on Uniform Traffic Control Devices.* 2009.
Flink, C. *Greenways: A Guide To Planning Design And Development.* 1993.

Materials and Maintenance

Asphalt is the most common surface for bicycle trails. The use of concrete for trails has proven to be more durable over the long term. Saw cut concrete joints rather than troweled improve the experience of trail users.

SHARED USE PAVED TRAILS IN EXISTING ACTIVE RAIL CORRIDORS

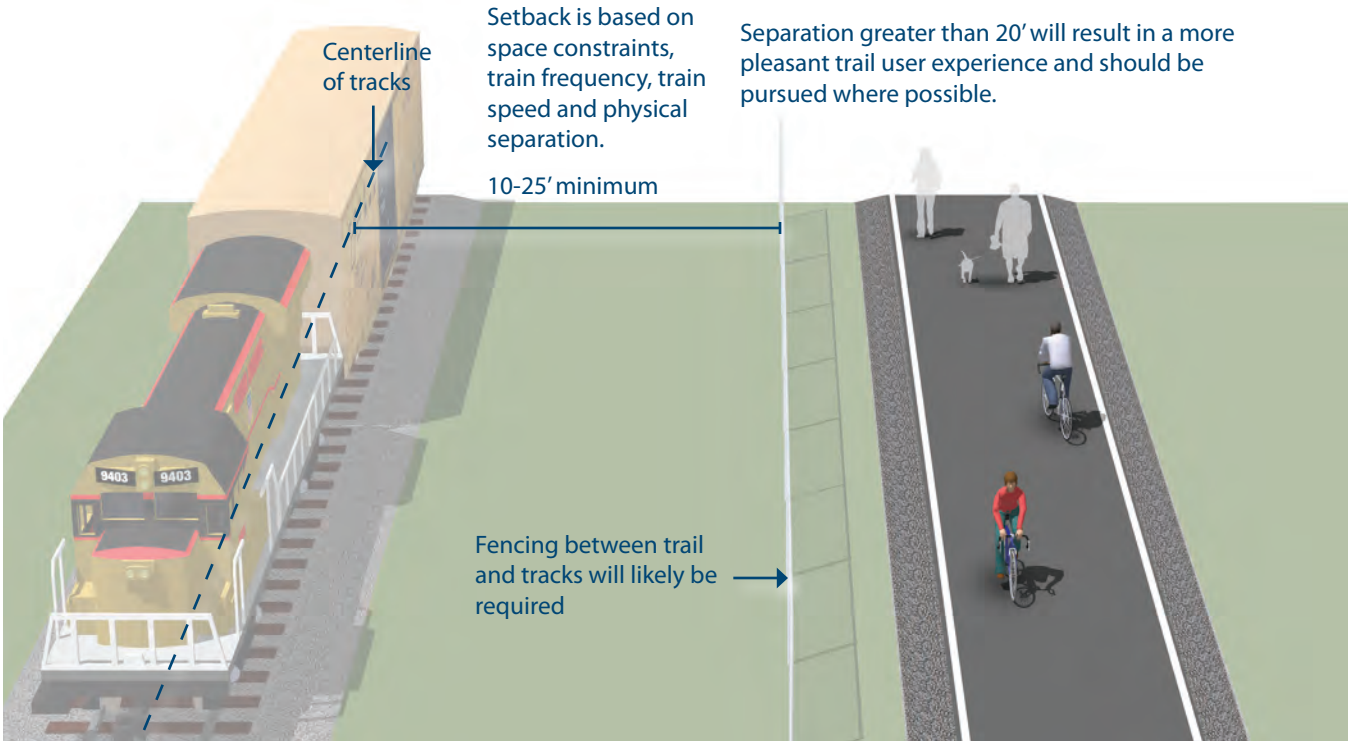
Description

Rails-with-Trails projects typically consist of trails adjacent to active railroads. It should be noted that some constraints could impact the feasibility of rail-with-trail projects. In some cases, space needs to be preserved for future planned freight, transit or commuter rail service. In other cases, limited right-of-way width, inadequate setbacks, concerns about safety/trespassing, and numerous mid-block crossings may affect a project's feasibility.

Guidance

Shared use paved trails in utility corridors should meet or exceed general design standards. If additional width allows, wider trails, and landscaping are desirable.

If required, fencing should be a minimum of 5 feet in height with higher fencing than usual next to sensitive areas such as switching yards. Setbacks from the active rail line will vary depending on the speed and frequency of trains, and available right-of-way.



Discussion

Railroads may require fencing with rail-with-trail projects. Concerns with trespassing and security can vary with the volume and speed of train traffic on the adjacent rail line and the setting of the shared use paved trail, i.e. whether the section of track is in an urban or rural setting.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities*. 2012.
FHWA. *Manual on Uniform Traffic Control Devices*. 2009.
FHWA. *Rails-with-Trails: Lessons Learned*. 2002.

Materials and Maintenance

Asphalt is the most common surface for bicycle trails. The use of concrete for trails has proven to be more durable over the long term. Saw cut concrete joints rather than troweled improve the experience of trail users.

SHARED USE PAVED TRAILS IN RIVER AND UTILITY CORRIDORS

Description

Utility and waterway corridors often offer excellent shared use paved trail development and bikeway gap closure opportunities. Utility corridors typically include powerline and sewer corridors, while waterway corridors include canals, drainage ditches, rivers, and beaches. These corridors offer excellent transportation and recreation opportunities for bicyclists of all ages and skills.

Guidance

Shared use paved trails in utility corridors should meet or exceed general design practices. If additional width allows, wider trails, and landscaping are desirable.

Access Points
Any access point to the trail should be well-defined with appropriate signage designating the trail as a bicycle facility and prohibiting motor vehicles.

Trail Closure
Public access to the trail may be prohibited during the following events:

- Canal/flood control channel or other utility maintenance activities
- Inclement weather or the prediction of storm conditions

Discussion

Similar to railroads, public access to flood control channels or canals may be undesirable. Hazardous materials, deep water or swift current, steep, slippery slopes, and debris all may constitute risks for public access. If desired, consider appropriate fencing to keep trail users within the designated travel way. Creative design of fencing is encouraged to make the trail facility feel welcoming to the user.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
FHWA. *Manual on Uniform Traffic Control Devices.* 2009.
Flink, C. *Greenways: A Guide To Planning Design And Development.* 1993.

Materials and Maintenance

Asphalt is the most common surface for bicycle trails. The use of concrete for trails has proven to be more durable over the long term. Saw cut concrete joints rather than troweled improve the experience of trail users.

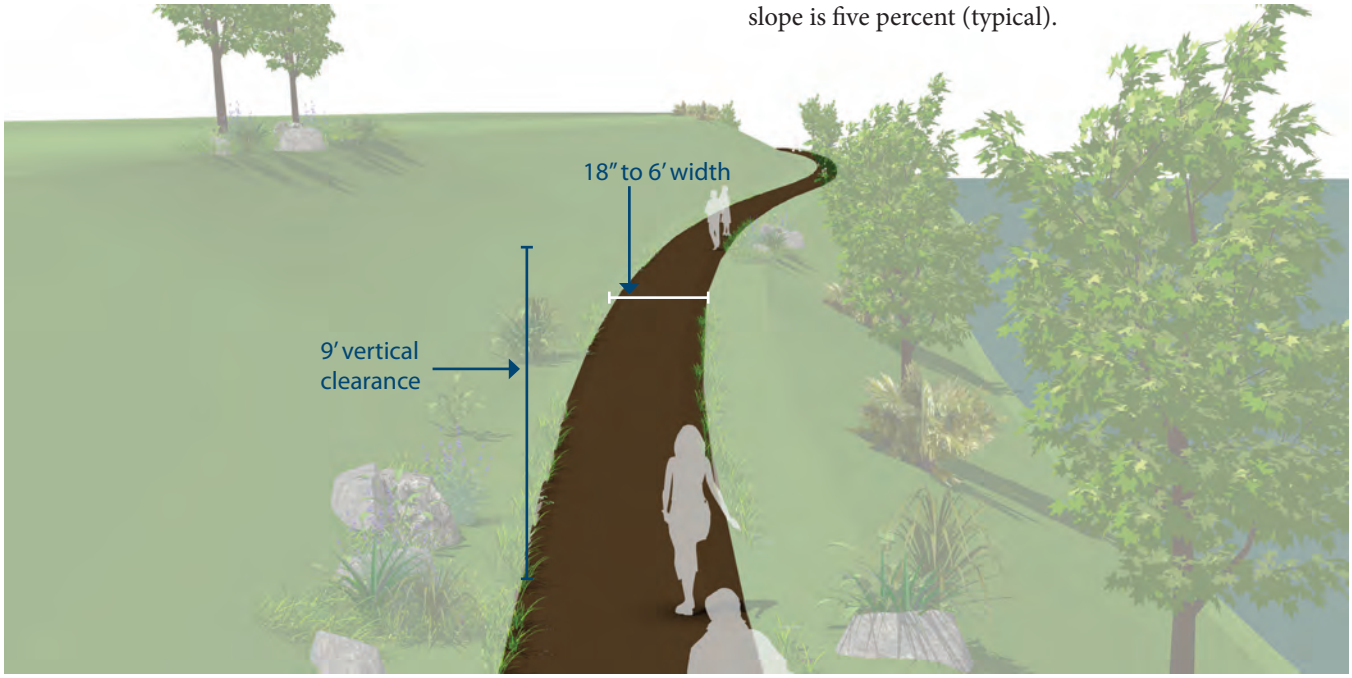
NATURAL SURFACE TRAIL

Description

Sometimes referred to as footpaths, hiking trails or single track trails, the soft surface shared use trail is used along corridors that are environmentally-sensitive but can support bare earth, wood chip, or boardwalk trails. Natural surface trails are a low-impact solution and found in areas with limited development or where a more primitive experience is desired.

Guidance

- Trails can vary in width from 18 inches to 6 feet or greater; vertical clearance should be maintained at nine-feet above grade.
- Mountain bike trails are typically 18-24 inches wide and have compacted bare earth or leaf litter surfacing.
- Base preparation varies from machine-worked surfaces to those worn only by usage.
- Trail surface can be made of dirt, rock, soil, forest litter, or other native materials. Some trails use crushed stone (a.k.a. "crush and run") that contains about 4% fines by weight, and compacts with use.
- Provide positive drainage for trail tread without extensive removal of existing vegetation; maximum slope is five percent (typical).



Discussion

Trail erosion control measures include edging along the low side of the trail, steps and terraces to contain surface material, and water bars to direct surface water off the trail; use bedrock surface where possible to reduce erosion.

Due to their narrow width and ability to contour with the natural topography, single-track mountain bike trails typically require the least amount of disturbance and support features of all types of trails.

Additional References and Guidelines

IMBA. *Managing Mountain Biking.* 2007.
IMBA. *Trail Solutions.* 2004.
Flink, C. *Greenways: A Guide To Planning Design And Development.* 1993.

Materials and Maintenance

Consider implications for accessibility when weighing options for surface treatments.

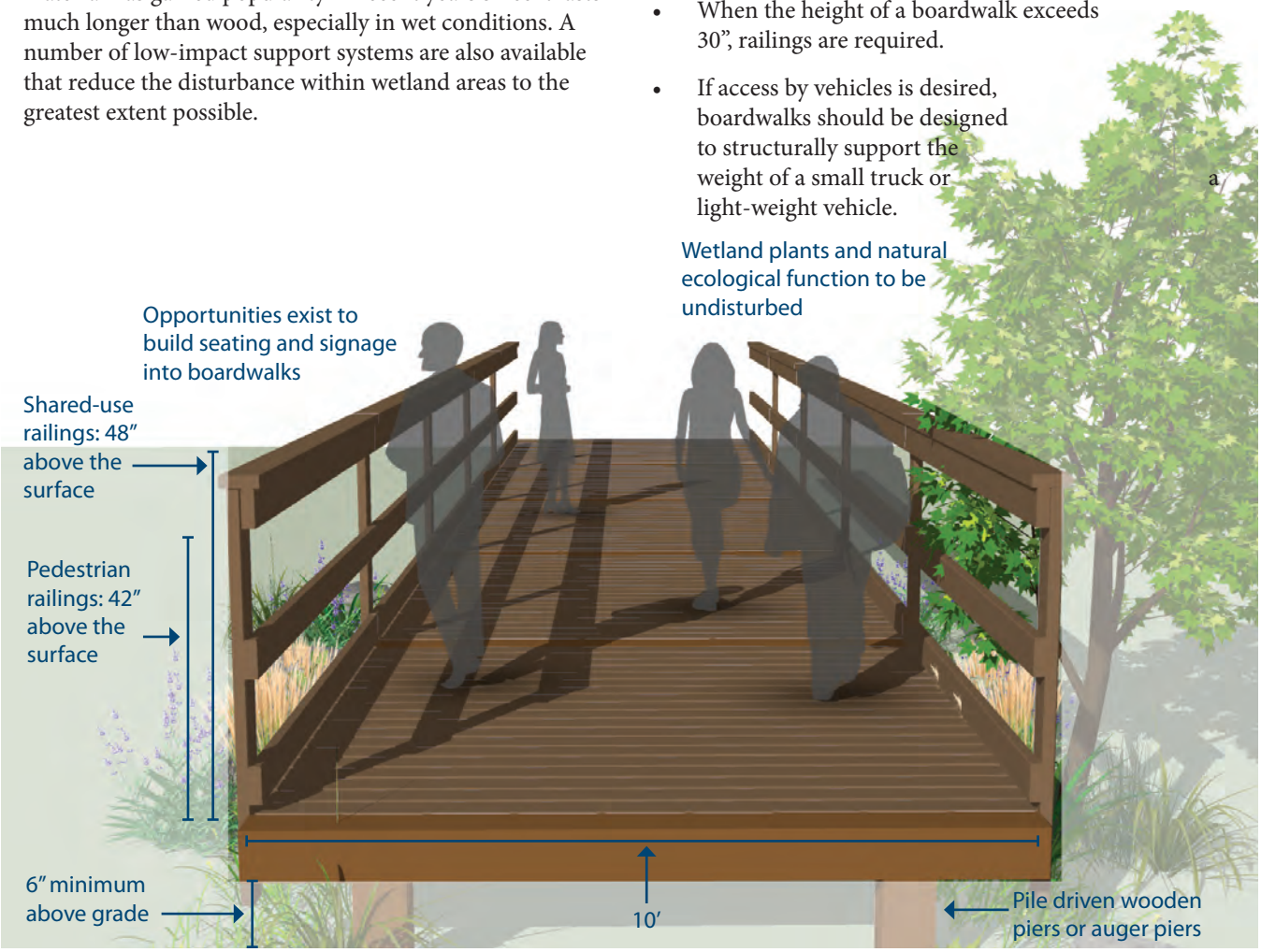
BOARDWALKS

Description

Boardwalks are typically required when crossing wetlands or other poorly drained areas. They are usually constructed of wooden planks or recycled material planks that form the top layer of the boardwalk. The recycled material has gained popularity in recent years since it lasts much longer than wood, especially in wet conditions. A number of low-impact support systems are also available that reduce the disturbance within wetland areas to the greatest extent possible.

Guidance

- Boardwalk width should be a minimum of 10 feet when no rail is used. A 12 foot width is preferred in areas with average anticipated use and whenever rails are used.
- When the height of a boardwalk exceeds 30", railings are required.
- If access by vehicles is desired, boardwalks should be designed to structurally support the weight of a small truck or light-weight vehicle.[a]



Discussion

In general, building in wetlands is subject to regulations and should be avoided.

The foundation normally consists of wooden posts or auger piers (screw anchors). Screw anchors provide greater support and last much longer.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
FHWA. *Wetland Trail Design and Construction.* 2007.

Materials and Maintenance

Decking should be either non-toxic treated wood or recycled plastic. Cable rails are attractive and more visually transparent but may require maintenance to tighten the cables if the trail has snow storage requirements.

SIDEPATHS: SHARED USE PAVED TRAILS ALONG ROADWAYS

Description

Shared use paved trails along roadways, also called Sidepaths, are a type of trails that run adjacent to a street.

Because of operational concerns it is generally preferable to place trails within independent rights-of-way away from roadways. However, there are situations where existing roads provide the only corridors available.

Along roadways, these facilities create a situation where a portion of the bicycle traffic rides against the normal flow of motor vehicle traffic and can result in wrong-way riding where bicyclists enter or leave the trail.

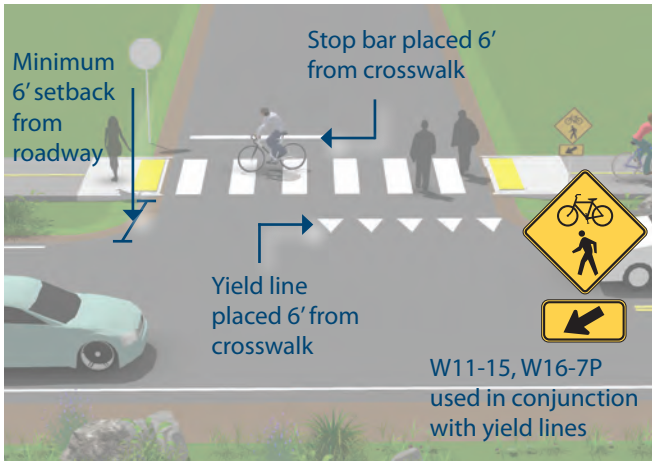
The AASHTO Guide for the Development of Bicycle Facilities cautions practitioners of the use of two-way sidepaths on urban or suburban streets with many driveways and street crossings.

In general, there are two approaches to crossings: adjacent crossings and setback crossings, illustrated below.

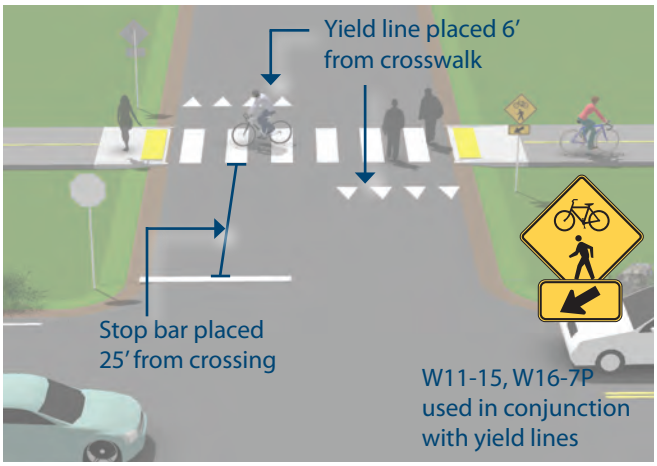
Guidance

- Guidance for sidepaths should follow that for general design practises of shared use paved trails.
- A high number of driveway crossings and intersections create potential conflicts with turning traffic. Consider alternatives to sidepaths on streets with a high frequency of intersections or heavily used driveways.
- Where a sidepath terminates special consideration should be given to transitions so as not to encourage unsafe wrong-way riding by bicyclists.
- Crossing design should emphasize visibility of users and clarity of expected yielding behavior. Crossings may be STOP or YIELD controlled depending on sight lines and bicycle motor vehicle volumes and speeds.

Adjacent Crossing - A separation of 6 feet emphasizes the conspicuity of riders at the approach to the crossing.



Setback Crossing - A set back of 25 feet separates the trail crossing from merging/turning movements that may be competing for a driver's attention.



Discussion

The provision of a shared use paved trail adjacent to a road is not a substitute for the provision of on-road accommodation such as paved shoulders or bike lanes, but may be considered in some locations in addition to on-road bicycle facilities.

To reduce potential conflicts in some situations, it may be better to place one-way sidepaths on both sides of the street.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
NACTO. *Urban Bikeway Design Guide.* See entry on Raised Cycle Tracks. 2012.

Materials and Maintenance

Asphalt is the most common surface for bicycle trails. The use of concrete for trails has proven to be more durable over the long term. Saw cut concrete joints rather than troweled improve the experience of trail users.

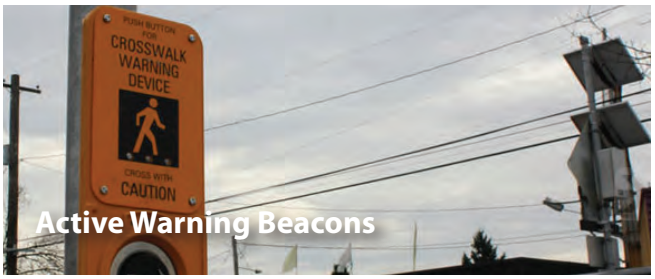
TRAIL/ROADWAY CROSSINGS

At-grade roadway crossings can create potential conflicts between trail users and motorists, however, well-designed crossings can mitigate many operational issues and provide a higher degree of safety and comfort for trail users. This is evidenced by the thousands of successful facilities around the United States with at-grade crossings. In most cases, at-grade trail crossings can be properly designed to provide a reasonable degree of safety and can meet existing traffic and safety standards. Trail facilities that cater to bicyclists can require additional considerations due to the higher travel speed of bicyclists versus pedestrians.

Consideration must be given to adequate warning distance based on vehicle speeds and line of sight, with the visibility of any signs absolutely critical. Directing the active attention of motorists to roadway signs may require additional alerting devices such as a flashing beacon, roadway striping or changes in pavement texture. Signing for trail users may include a standard "STOP" or "YIELD" sign and pavement markings, possibly combined with other features such as bollards or a bend in the trail to slow bicyclists. Care must be taken not to place too many signs at crossings lest they begin to lose their visual impact.

A number of striping patterns have emerged over the years to delineate trail crossings. A median stripe on the trail approach will help to organize and warn trail users. Crosswalk striping is typically a matter of local and State preference, and may be accompanied by pavement treatments to help warn and slow motorists. In areas where motorists do not typically yield to crosswalk users, additional measures may be required to increase compliance.

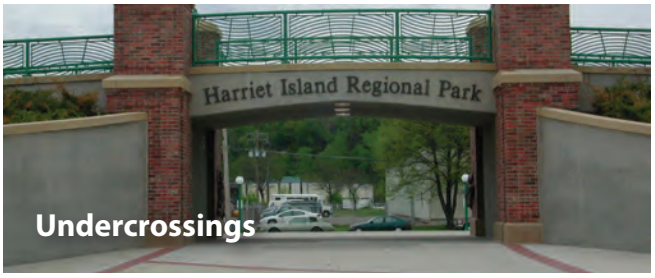

Marked/Unsignalized Crossings



Active Warning Beacons


Route Users to Existing Signals


Hybrid Beacons



Undercrossings


Overcrossings

MARKED/UNSIGNALIZED CROSSINGS

Description

A marked/unsignalized crossing typically consists of a marked crossing area, signage and other markings to slow or stop traffic. The approach to designing crossings at mid-block locations depends on an evaluation of vehicular traffic, line of sight, trail traffic, use patterns, vehicle speed, road type, road width, and other safety issues such as proximity to major attractions.

When space is available, using a median refuge island can improve user safety by providing pedestrians and bicyclists space to perform the safe crossing of one side of the street at a time.

Guidance

Maximum traffic volumes

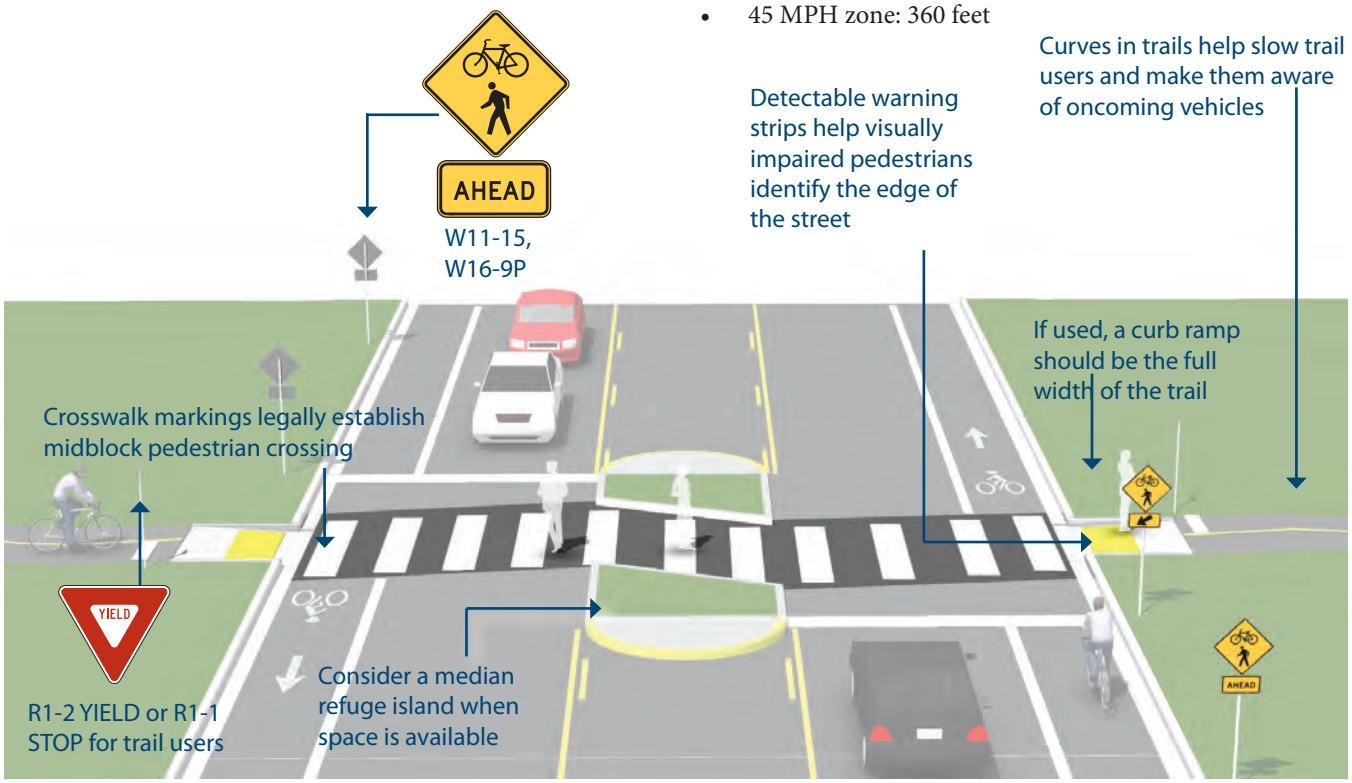
- ≤9,000-12,000 Average Daily Traffic (ADT) volume
- Up to 15,000 ADT on two-lane roads, preferably with a median
- Up to 12,000 ADT on four-lane roads with median

Maximum travel speed

- 35 MPH

Minimum line of sight

- 25 MPH zone: 155 feet
- 35 MPH zone: 250 feet
- 45 MPH zone: 360 feet



Discussion

Unsignalized crossings of multi-lane arterials over 15,000 ADT may be possible with features such as sufficient crossing gaps (more than 60 per hour), median refuges, and/or active warning devices like rectangular rapid flash beacons or in-pavement flashers, and excellent sight distance. For more information see the discussion of active warning beacons.

On roadways with low to moderate traffic volumes (<12,000 ADT) and a need to control traffic speeds, a raised crosswalk may be the most appropriate crossing design to improve pedestrian visibility and safety.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
FHWA. *Manual on Uniform Traffic Control Devices.* 2009.

Materials and Maintenance

Locate markings out of wheel tread when possible to minimize wear and maintenance costs.

ACTIVE WARNING BEACONS

Description

Enhanced marked crossings are unsignalized crossings with additional treatments designed to increase motor vehicle yielding compliance on multi-lane or high volume roadways.

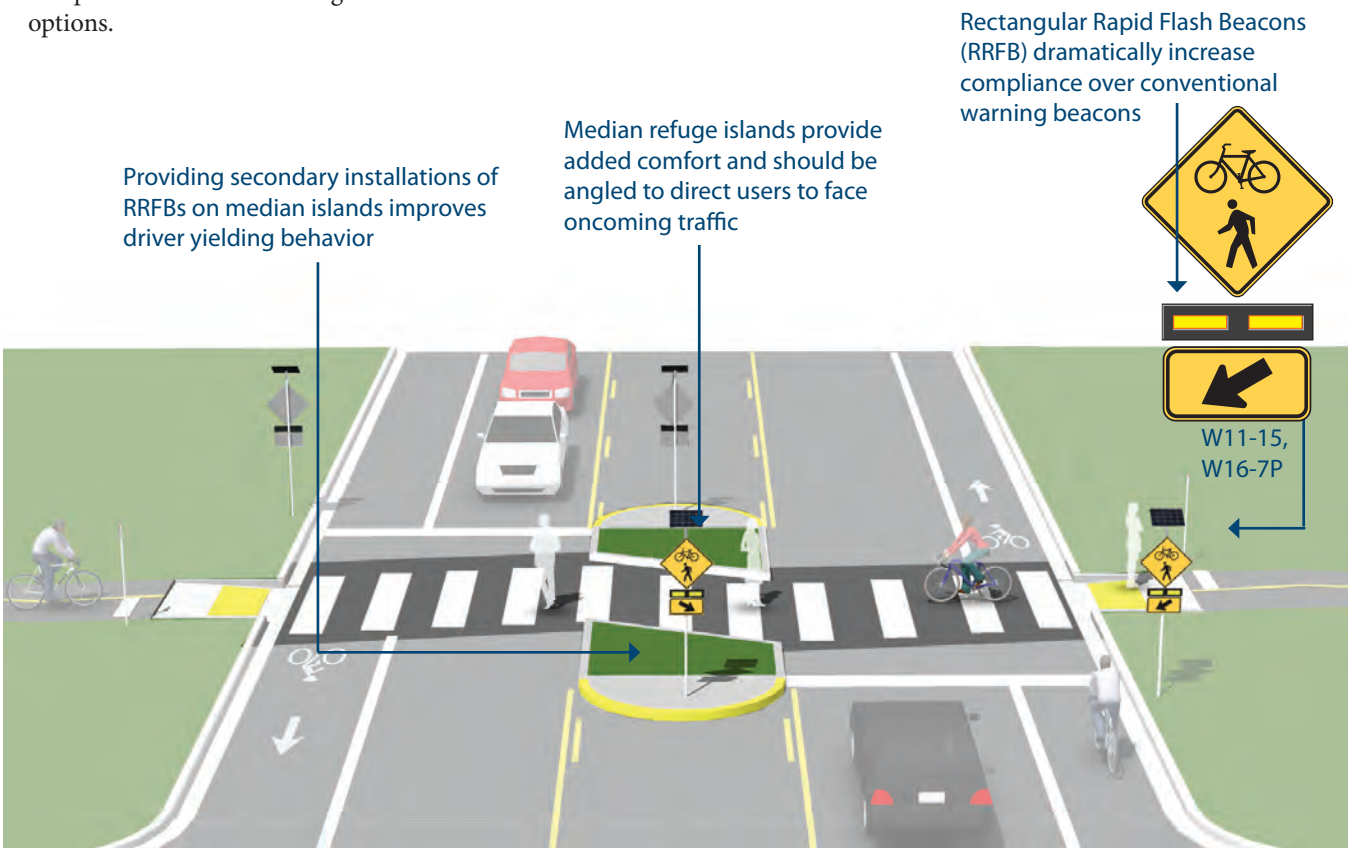
These enhancements include trail user or sensor actuated warning beacons, Rectangular Rapid Flash Beacons (RRFB) shown below, or in-roadway warning lights.

Rectangular rapid flash beacons show the most increased compliance of all the warning beacon enhancement options.

Guidance

Guidance for marked/unsignalized crossings applies.

- Warning beacons shall not be used at crosswalks controlled by YIELD signs, STOP signs, or traffic control signals.
- Warning beacons shall initiate operation based on user actuation and shall cease operation at a predetermined time after the user actuation or, with passive detection, after the user clears the crosswalk.



Discussion

An FHWA report presented study results showing of the effectiveness of going from a no-beacon arrangement to a two-beacon RRFB installation increased yielding from 18 percent to 81 percent. A four-beacon arrangement raised compliance to 88%. Additional studies of long term installations show little to no decrease in yielding behavior over time. Additional studies in Oregon reported compliance rates as high as 99% when actuated.

Additional References and Guidelines

FHWA. *Manual on Uniform Traffic Control Devices.* 2009.
FHWA. *MUTCD - Interim Approval for Optional Use of Rectangular Rapid Flashing Beacons (IA-11).* 2008.
FHWA. *Effects of Yellow Rectangular Rapid-Flashing Beacons on Yielding at Multilane Uncontrolled Crosswalks.* 2010.
Alhajri, F., Carlso, K., Foster, N., Georde, D. *A Study on Driver's Compliance to Rectangular Rapid Flashing Beacons.* 2013.

Materials and Maintenance

Locate markings out of wheel tread when possible to minimize wear and maintenance costs. Signing and striping need to be maintained to help users understand any unfamiliar traffic control.

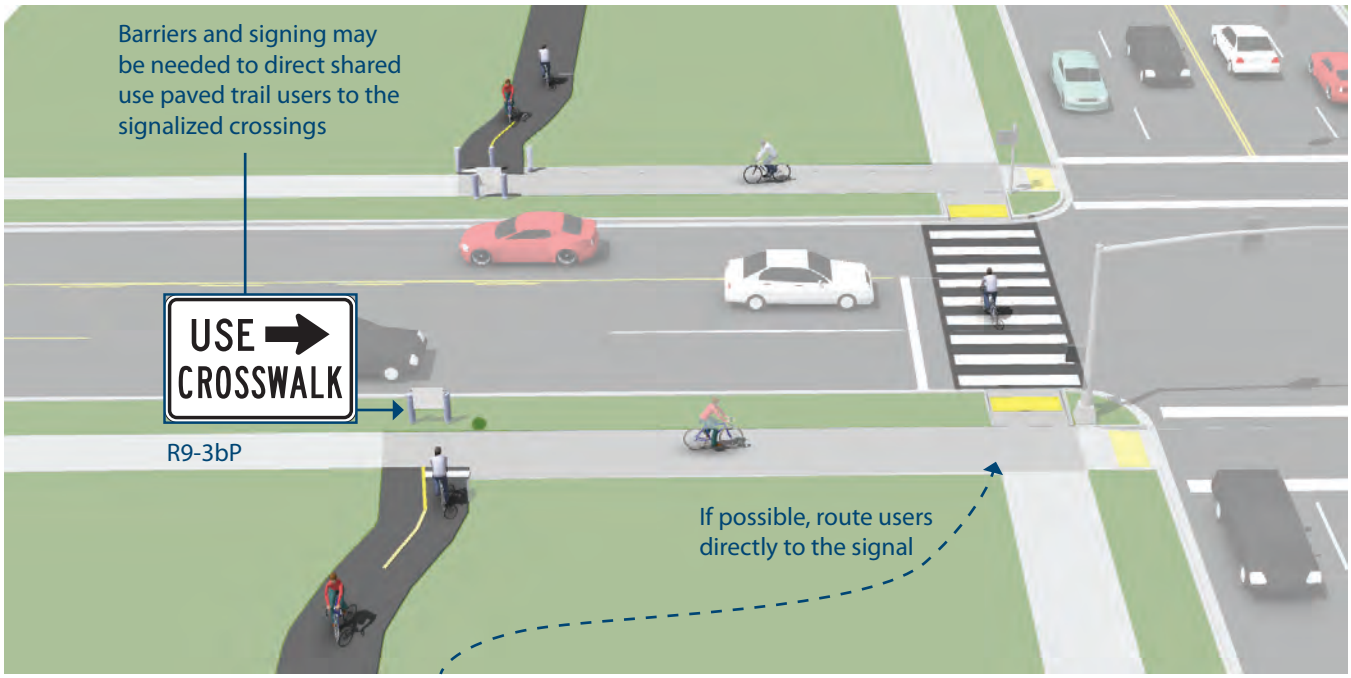
ROUTE USERS TO SIGNALIZED CROSSINGS

Description

Trail crossings within approximately 400 feet of an existing signalized intersection with pedestrian crosswalks are typically diverted to the signalized intersection to avoid traffic operation problems when located so close to an existing signal. For this restriction to be effective, barriers and signing may be needed to direct trail users to the signalized crossing. If no pedestrian crossing exists at the signal, modifications should be made.

Guidance

Trail crossings should not be provided within approximately 400 feet of an existing signalized intersection. If possible, route trail directly to the signal.



Discussion

In the US, the minimum distance a marked crossing can be from an existing signalized intersection varies from approximately 250 to 660 feet. Engineering judgement and the context of the location should be taken into account when choosing the appropriate allowable setback. Pedestrians are particularly sensitive to out of direction travel and jaywalking may become prevalent if the distance is too great.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
AASHTO. *Guide for the Planning, Design, and Operation of Pedestrian Facilities.* 2004.

Materials and Maintenance

If a sidewalk is used for crossing access, it should be kept clear of snow and debris and the surface should be level for wheeled users.

PEDESTRIAN HYBRID BEACON CROSSINGS

Description

Pedestrian hybrid beacons provide a high level of comfort for crossing users through the use of a red-signal indication to stop conflicting motor vehicle traffic.

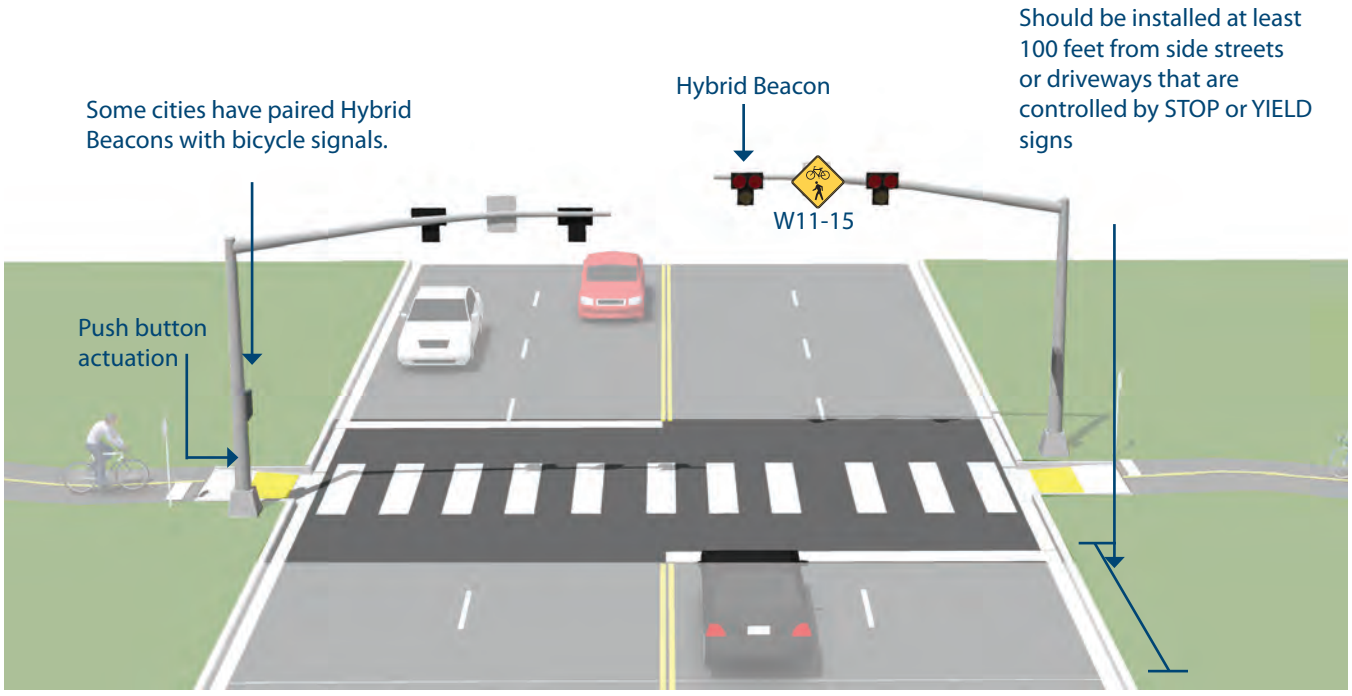
Hybrid beacon installation faces only cross motor vehicle traffic, stays dark when inactive, and uses a unique 'wig-wag' signal phase to indicate activation. Vehicles have the option to proceed after stopping during the final flashing red phase, which can reduce motor vehicle delay when compared to a full signal installation.

Guidance

Hybrid beacons (illustrated here) may be installed without meeting traffic signal control warrants if roadway speed and volumes are excessive for comfortable trail crossings.

FHWA does not allow bicycle signals to be used with Hybrid beacons, though some cities have done so successfully.

To maximize safety when used for bicycle crossings, the flashing 'wig-wag' phase should be very short and occur after the pedestrian signal head has changed to a solid "DON'T WALK" indication as bicyclists can enter an intersection quickly.



Discussion

Shared use paved trail signals are normally activated by push buttons but may also be triggered by embedded loop, infrared, microwave or video detectors. The maximum delay for activation of the signal should be two minutes, with minimum crossing times determined by the width of the street.

Each crossing, regardless of traffic speed or volume, requires additional review by a registered engineer to identify sight lines, potential impacts on traffic progression, timing with adjacent signals, capacity and safety.

Additional References and Guidelines

FHWA. *Manual on Uniform Traffic Control Devices.* 2009.
NACTO. *Urban Bikeway Design Guide.* 2012.

Materials and Maintenance

Hybrid beacons are subject to the same maintenance needs and requirements as standard traffic signals. Signing and striping need to be maintained to help users understand any unfamiliar traffic control.

FULL TRAFFIC SIGNAL CROSSINGS

Description

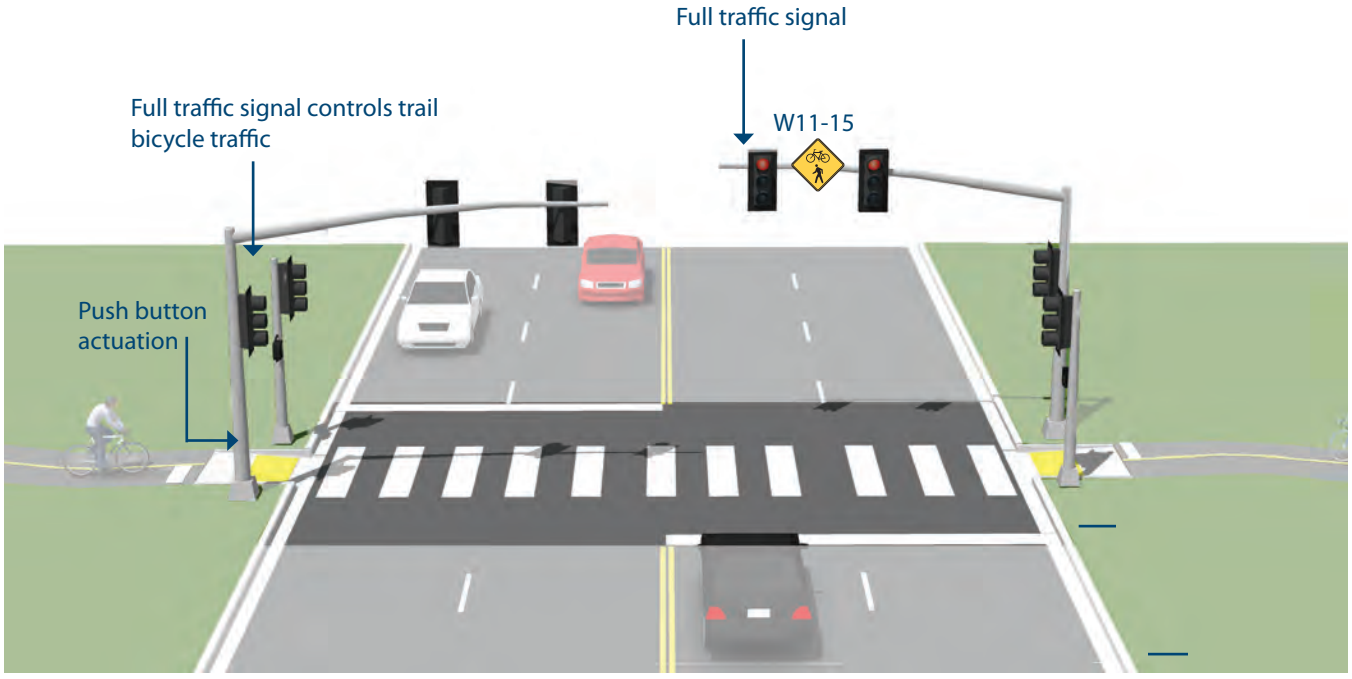
Signalized crossings provide the most protection for crossing trail users through the use of a red-signal indication to stop conflicting motor vehicle traffic.

A full traffic signal installation treats the trail crossing as a conventional 4-way intersection and provides standard red-yellow-green traffic signal heads for all legs of the intersection.

Guidance

Full traffic signal installations must meet MUTCD pedestrian, school or modified warrants. Additional guidance for signalized crossings:

- Located more than 300 feet from an existing signalized intersection
- Roadway travel speeds of 40 MPH and above
- Roadway ADT exceeds 15,000 vehicles



Discussion

Shared use paved trail signals are normally activated by push buttons but may also be triggered by embedded loop, infrared, microwave or video detectors. The maximum delay for activation of the signal should be two minutes, with minimum crossing times determined by the width of the street.

Each crossing, regardless of traffic speed or volume, requires additional review by a registered engineer to identify sight lines, potential impacts on traffic progression, timing with adjacent signals, capacity and safety.

Additional References and Guidelines

FHWA. *Manual on Uniform Traffic Control Devices.* 2009.
NACTO. *Urban Bikeway Design Guide.* 2012.

Materials and Maintenance

Traffic signals require routine maintenance. Signing and striping need to be maintained to help users understand any unfamiliar traffic control.

UNDERCROSSINGS

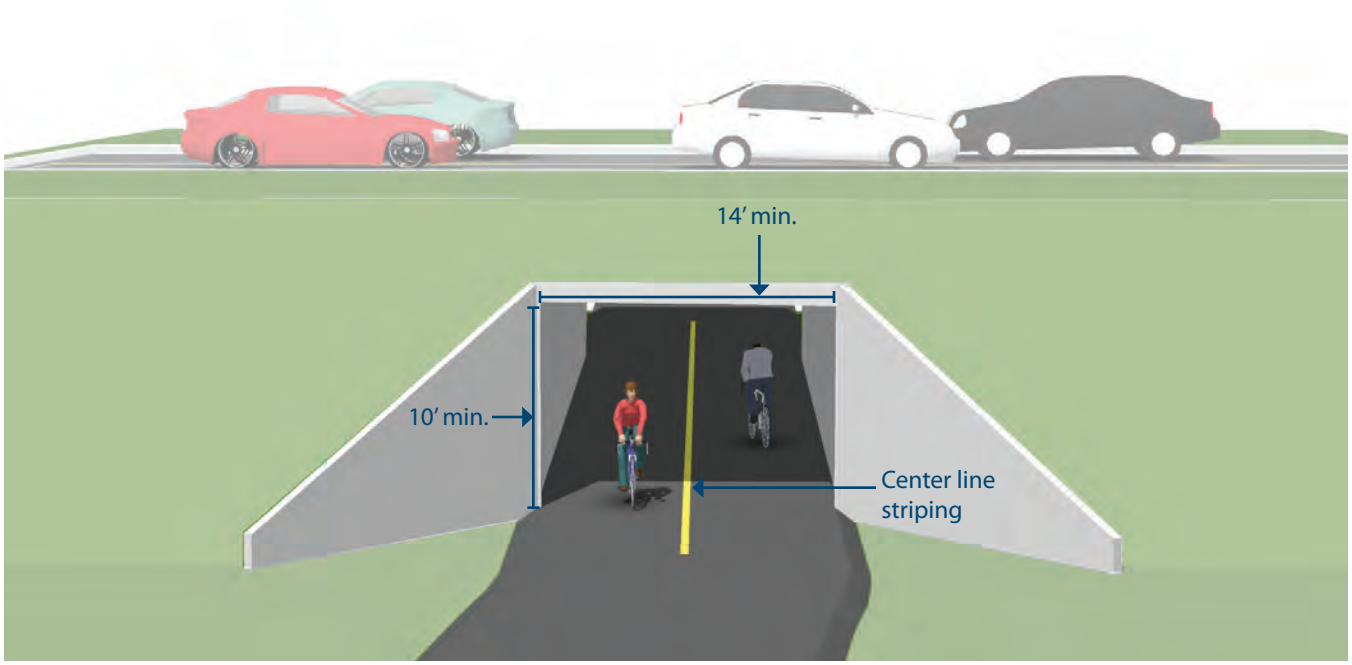
Description

Bicycle/pedestrian undercrossings provide critical non-motorized system links by joining areas separated by barriers such as railroads and highway corridors. In most cases, these structures are built in response to user demand for safe crossings where they previously did not exist.

There are no minimum roadway characteristics for considering grade separation. Depending on the type of facility or the desired user group grade separation may be considered in many types of projects.

Guidance

- 14 foot minimum width, greater widths preferred for lengths over 60 feet.
- 10 foot minimum height.
- The undercrossing should have a centerline stripe even if the rest of the trail does not have one.
- Lighting should be considered during the design process for any undercrossing with high anticipated use or in culverts and tunnels.



Discussion

Safety is a major concern with undercrossings. Shared use paved trail users may be temporarily out of sight from public view and may experience poor visibility themselves. To mitigate safety concerns, an undercrossing should be designed to be spacious, well-lit, equipped with emergency cell phones at each end and completely visible for its entire length from end to end.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
AASHTO. *Guide for the Planning, Design, and Operation of Pedestrian Facilities.* 2004.

Materials and Maintenance

14 foot width allows for maintenance vehicle access.

Potential problems include conflicts with utilities, drainage, flood control and vandalism.

OVERCROSSINGS

Description

Bicycle/pedestrian overcrossings provide critical non-motorized system links by joining areas separated by barriers such as deep canyons, waterways or major transportation corridors. In most cases, these structures are built in response to user demand for safe crossings where they previously did not exist.

There are no minimum roadway characteristics for considering grade separation. Depending on the type of facility or the desired user group grade separation may be considered in many types of projects.

Overcrossings require a minimum of 17 feet of vertical clearance to the roadway below versus a minimum elevation differential of around 12 feet for an undercrossing. This results in potentially greater elevation differences and much longer ramps for bicycles and pedestrians to negotiate.

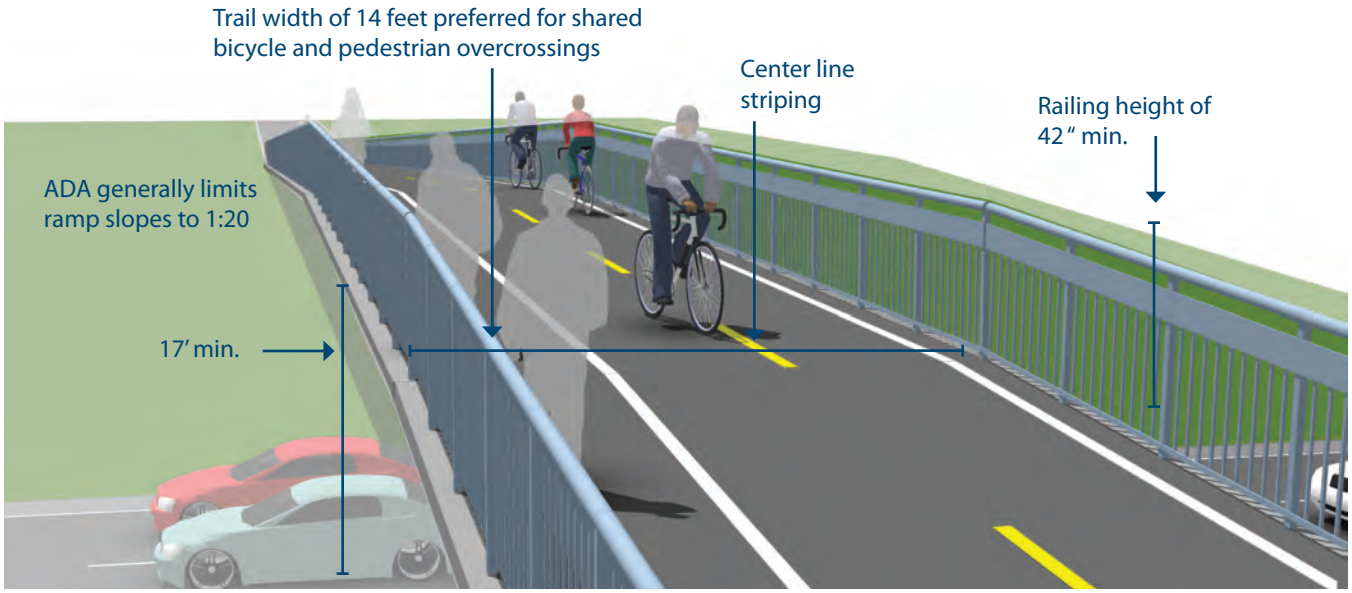
Guidance

8 foot minimum width, 14 feet preferred. If overcrossing has any scenic vistas additional width should be provided to allow for stopping. A separate 5 foot pedestrian area may be provided for facilities with high bicycle and pedestrian use.

10 foot headroom on overcrossing; clearance below will vary depending on feature being crossed.

Roadway:	17 feet
Freeway:	18.5 feet
Heavy Rail Line:	23 feet

The overcrossing should have a centerline stripe even if the rest of the trail does not have one.



Discussion

Overcrossings for bicycles and pedestrians typically fall under the Americans with Disabilities Act (ADA), which strictly limits ramp slopes to 5% (1:20) with landings at 400 foot intervals, or 8.33% (1:12) with landings every 30 feet.

Overcrossings pose potential concerns about visual impact and functional appeal, as well as space requirements necessary to meet ADA guidelines for slope.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
AASHTO. *Guide for the Planning, Design, and Operation of Pedestrian Facilities.* 2004.

Materials and Maintenance

Potential issues with vandalism.

Overcrossings can be more difficult to clear of snow than undercrossings.

PEDESTRIAN FACILITY DESIGN

This Page Intentionally Left Blank

SIDEWALKS

Sidewalks are the most fundamental element of the walking network, as they provide an area for pedestrian travel that is separated from vehicle traffic. Sidewalks are typically constructed out of concrete and are separated from the roadway by a curb or gutter and sometimes a landscaped planting strip area. Sidewalks are a common application in both urban and suburban environments.

Attributes of well-designed sidewalks include the following:

Accessibility: A network of sidewalks should be accessible to all users.

Adequate width: Two people should be able to walk side-by-side and pass a third comfortably. Different walking speeds should be possible. In areas of intense pedestrian use, sidewalks should accommodate the high volume of walkers.

Safety: Design features of the sidewalk should allow pedestrians to have a sense of security and predictability. Sidewalk users should not feel they are at risk due to the presence of adjacent traffic.

Continuity: Walking routes should be obvious and should not require pedestrians to travel out of their way unnecessarily.

Landscaping: Plantings and street trees should contribute to the overall psychological and visual comfort of sidewalk users, and be designed in a manner that contributes to the safety of people.

Drainage: Sidewalks should be well graded to minimize standing water.

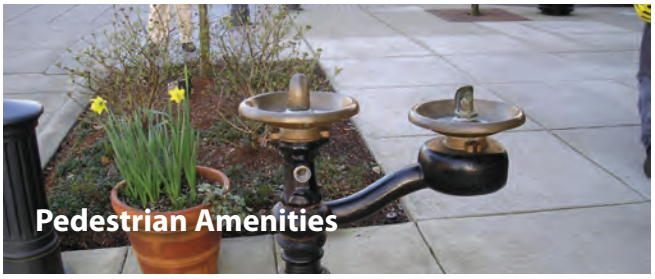
Social space: There should be places for standing, visiting, and sitting. The sidewalk area should be a place where adults and children can safely participate in public life.

Quality of place: Sidewalks should contribute to the character of neighborhoods and business districts.


Zones in the Sidewalk Corridor


Sidewalk Widths


Driveways and Sidewalk Obstructions


Pedestrian Amenities

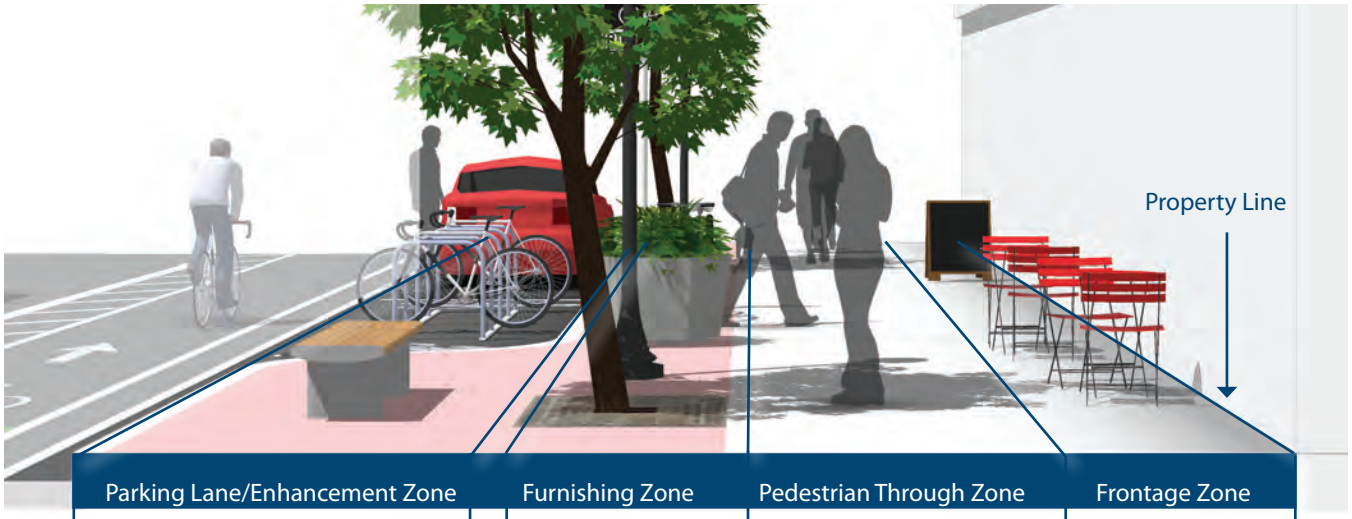

Transit Stop Infrastructure


Pedestrian-scale Lighting

ZONES IN THE SIDEWALK CORRIDOR

Description

Sidewalks are the most fundamental element of the walking network, as they provide an area for pedestrian travel separated from vehicle traffic. A variety of considerations are important in sidewalk design. Providing adequate and accessible facilities can lead to increased numbers of people walking, improved safety, and the creation of social space.



Parking Lane/Enhancement Zone	Edge Zone	Furnishing Zone	Pedestrian Through Zone	Frontage Zone
The parking lane can act as a flexible space to further buffer the sidewalk from moving traffic. Curb extensions and bike corrals may occupy this space where appropriate. In the edge zone there should be a 6 inch wide curb.		The furnishing zone buffers pedestrians from the adjacent roadway, and is also the area where elements such as street trees, signal poles, signs, and other street furniture are properly located.	The through zone is the area intended for pedestrian travel. This zone should be entirely free of permanent and temporary objects. Wide through zones are needed in downtown areas or where pedestrian flows are high.	The Frontage Zone allows pedestrians a comfortable "shy" distance from the building fronts. It provides opportunities for window shopping, to place signs, planters, or chairs. Not applicable if adjacent to a landscaped space.

Discussion

Sidewalks should be more than areas to travel; they should provide places for people to interact. There should be places for standing, visiting, and sitting. Sidewalks should contribute to the character of neighborhoods and business districts, strengthen their identity, and be an area where adults and children can safely participate in public life.

Additional References and Guidelines

USDOJ. *ADA Standards for Accessible Design*. 2010.
United States Access Board. *Proposed Accessibility Guidelines for Pedestrian Facilities in the Public-Right-of-Way (PROWAG)*. 2011.
AASHTO. *Guide for the Planning, Design, and Operation of Pedestrian Facilities*. 2004.
NACTO. *Urban Street Design Guide*. 2013.

Materials and Maintenance

Sidewalks are typically constructed out of concrete and are separated from the roadway by a curb or gutter and sometimes a landscaped space. Colored, patterned, or stamped concrete can add distinctive visual appeal.

SIDEWALK WIDTHS

Description

The width and design of sidewalks will vary depending on street context, functional classification, and pedestrian demand. Below are preferred widths of each sidewalk zone according to general street type. Standardizing sidewalk guidelines for different areas of the city, dependent on the above listed factors, ensures a minimum level of quality for all sidewalks.

Street Classification	Parking Lane/ Enhancement Zone	Furnishing Zone	Pedestrian Through Zone	Frontage Zone	Total
Local Streets	Varies	2 - 5 feet	4 - 6 feet	N/A	6 - 11 feet
Commercial Areas	Varies	4 - 6 feet	6 - 12 feet	2.5 - 10 feet	11 - 28 feet
Arterials and Collectors	Varies	2 - 6 feet	4 - 8 feet	2.5 - 5 feet	8 -19 feet

Areas that have significant accumulations of snow during the winter may prefer a wider furnishing zone for snow storage.

Six feet enables two pedestrians (including wheelchair users) to walk side-by-side, or to pass each other comfortably

Discussion

It is important to provide adequate width along a sidewalk corridor. Two people should be able to walk side-by-side and pass a third comfortably. In areas of high demand, sidewalks should contain adequate width to accommodate the high volumes and different walking speeds of pedestrians. The Americans with Disabilities Act requires a 4 foot clear width in the pedestrian zone plus 5 foot passing areas every 200 feet.

Additional References and Guidelines

USDOJ. *ADA Standards for Accessible Design*. 2010.
United States Access Board. *Proposed Accessibility Guidelines for Pedestrian Facilities in the Public-Right-of-Way (PROWAG)*. 2011.
AASHTO. *Guide for the Planning, Design, and Operation of Pedestrian Facilities*. 2004.
NACTO. *Urban Street Design Guide*. 2013.

Materials and Maintenance

Sidewalks are typically constructed out of concrete and are separated from the roadway by a curb or gutter and sometimes a landscaped boulevard. Surfaces must be firm, stable, and slip resistant. Colored, patterned, or stamped concrete can add distinctive visual appeal.

DRIVEWAYS AND SIDEWALK OBSTRUCTIONS

Description

Driveway crossings can present challenges and potential conflicts for pedestrians, especially if they are designed with the movement of the motor vehicle prioritized at the expense of pedestrian circulation.

Reducing the number of accesses reduces the need for special provisions. This strategy should be pursued first.

Guidance

To the extent possible the sidewalk should be flat and uninterrupted through driveways, so that the priority is always with the pedestrian flow. Vehicles may be required to drive up or down to cross over the sidewalk, but this reinforces to the motorist that they need to use caution and slow speeds when crossing the pedestrian zone.

The use of a landscaped buffer area between the sidewalk and the street allows driveway slopes to occur within the landscape zone, and allows for a flat and level pedestrian through zone is always maintained through the driveway area.

Dipping the entire sidewalk at the driveway approaches keeps the cross-slope at a constant grade. This is the least-preferred driveway option.

Where constraints preclude a planter strip, wrapping the sidewalk around the driveway allows the sidewalk to still remain level.

When sidewalks abut hedges, fences, or buildings, an additional two feet of lateral clearance should be added to provide appropriate shy distance.

Planter strips allow sidewalks to remain level, with the driveway grade change occurring within the planter strip.

When sidewalks abut angled on-street parking, wheel stops should be used to prevent vehicles from overhanging in the sidewalk.

Discussion

According to the United States Federal Highway Administration (FHWA):

Well defined driveways clearly mark the area where motorists will be crossing the pedestrian's path. Non-defined vehicle access points with continuous access to parking create a long conflict area between pedestrians and motorists. This added area of ambiguity complicates the motorist's task of watching for pedestrians.

Additional References and Guidelines

United States Access Board. *Proposed Accessibility Guidelines for Pedestrian Facilities in the Public-Right-of-Way (PROWAG).* 2011.
AASHTO. *Guide for the Planning, Design, and Operation of Pedestrian Facilities.* 2004.
U.S. Department of Transportation Federal Highway Administration. (2006). How to Develop a Pedestrian Safety Action Plan, p 56

Materials and Maintenance

Sidewalks are typically constructed out of concrete and are separated from the roadway by a curb or gutter and sometimes a landscaped space. Surfaces must be firm, stable, and slip resistant.

PEDESTRIAN AMENITIES

Street Trees

In addition to their aesthetic and environmental value, street trees can slow traffic and improve safety for pedestrians. Trees add visual interest to streets and narrow the street's visual corridor, which may cause drivers to slow down. It is important that trees do not block light or the vision triangle.

Street Furniture

Providing benches at key rest areas and viewpoints encourages people of all ages to use the walkways by ensuring that they have a place to rest along the way. Benches should be 20" tall to accommodate elderly pedestrians comfortably. Benches can be simple (e.g., wood slats) or more ornate (e.g., stone, wrought iron, concrete). If alongside a parking zone, street furniture should be placed to minimize interference with passenger loading.

Green Features

Green stormwater strategies may include bioretention swales, rain gardens, tree box filters, and pervious pavements (pervious concrete, asphalt and pavers).

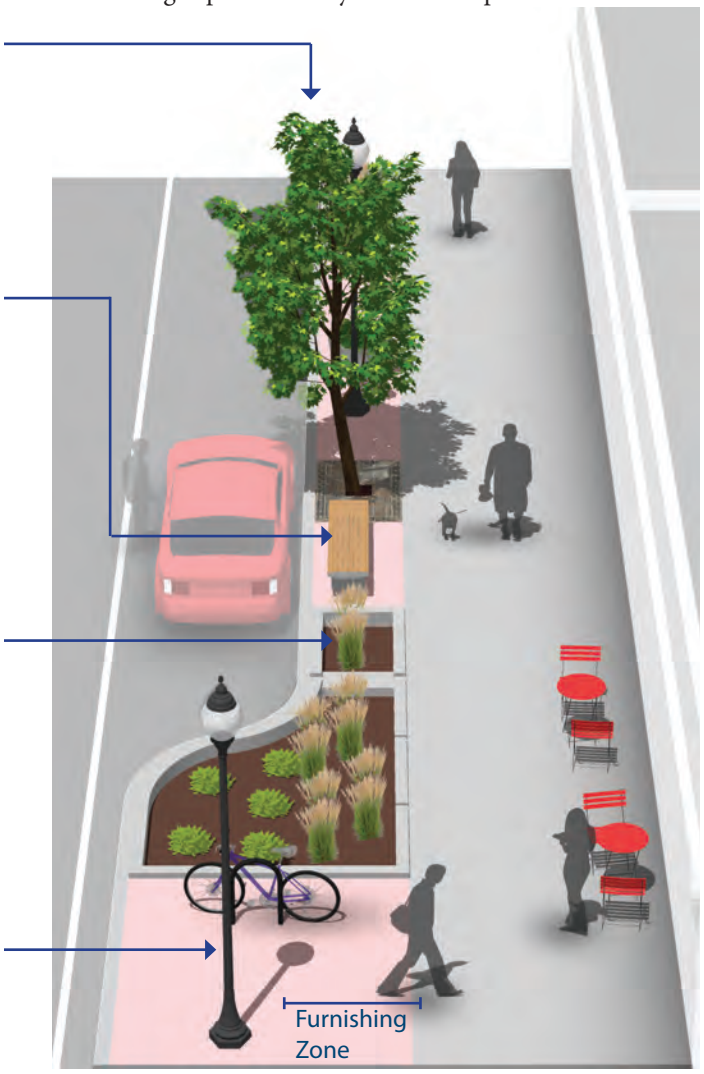
Bioswales are natural landscape elements that manage water runoff from a paved surface. Plants in the swale trap pollutants and silt from entering a river system.

Lighting

Pedestrian scale lighting improves visibility for both pedestrians and motorists - particularly at intersections. Pedestrian scale lighting can provide a vertical buffer between the sidewalk and the street, defining pedestrian areas. Pedestrian scale lighting should be used in areas of high pedestrian activity.

Description

A variety of streetscape elements can define the pedestrian realm, offer protection from moving vehicles, and enhance the walking experience. Key features are presented below.



Discussion

Additional pedestrian amenities such as banners, public art, special paving, along with historical elements and cultural references, promote a sense of place. Public activities should be encouraged and commercial activities such as dining, vending and advertising may be permitted when they do not interfere with safety and accessibility.

Pedestrian amenities should be placed in the furnishing zone on a sidewalk corridor. See Zones in the Sidewalk Corridor for a discussion of the functional parts of a sidewalk. Signs, meters, tree wells should go between parking spaces.

Additional References and Guidelines

United States Access Board. *Proposed Accessibility Guidelines for Pedestrian Facilities in the Public-Right-of-Way (PROWAG)*. 2011.
NACTO. *Urban Street Design Guide*. 2013.

Materials and Maintenance

Establishing and caring for your young street trees is essential to their health. Green features may require routine maintenance, including sediment and trash removal, and clearing curb openings and overflow drains.

TRANSIT STOP INFRASTRUCTURE

Description

A variety of streetscape elements can define the pedestrian realm, offer protection from moving vehicles, and enhance the walking experience. Key features are presented below.

Guidance

Signs at bus stops are an important element of good transit service. Signs serve as a source of information to patrons and operators regarding the location of the bus stop and are excellent marketing tools to promote transit use.

Benches provide comfort and convenience at bus stops and are usually installed on the basis of existing or projected ridership figures. A bench may be installed by itself or as part of a shelter.

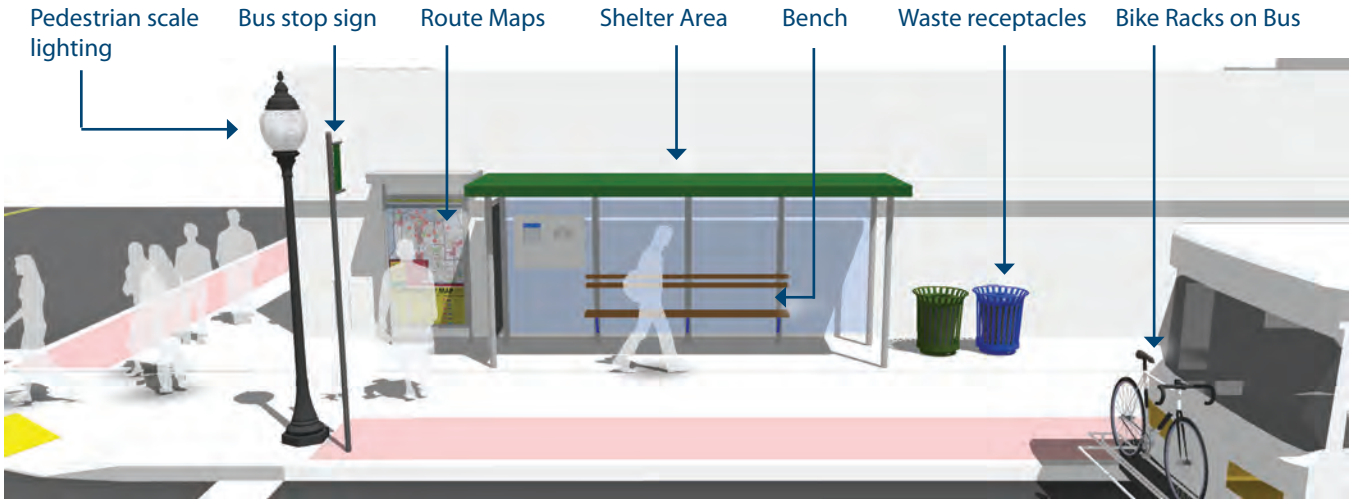
Lighting is important for safety and security of transit patrons. A brightly lit bus stop makes it easier for the bus driver to observe waiting passengers and allows motorists to see pedestrians moving to and from the bus stop.

Shelters provide protection from the elements and seating while for patrons waiting for rides. An attractive, well designed shelter can also be a positive addition to a streetscape that contributes to a sense of place. It also provides an excellent opportunity to improve the visibility of the transit service and to provide maps and other informational signage to help people use the service.

Waste receptacles can be provided at higher use transit stops to reduce unwanted items being brought on the transit vehicle.

Marked Crossings should help pedestrians safely navigate to bus stops and the surrounding destinations.

Bicycle Accommodations are important to encourage multimodal trip making. Consider bicycle racks on busses, and bike parking at transit stations.



Discussion

Signs and/or pavement markings identifying a bus stop and restricting parking are the bare minimum bus stop infrastructure. Ideally traffic regulations should be established prohibit parking, standing, or stopping at bus stops. An allowance for passenger vehicles to stop to load or unload passengers in the bus stops may be included.

Additional References and Guidelines

FHWA. (2006). *Federal Highway Administration University Course on Bicycle and Pedestrian Transportation. Lesson 18: Bicycle and Pedestrian Connections to Transit*

Materials and Maintenance

Features should be maintained to ensure proper lighting, comfort and security.

PEDESTRIAN SCALE LIGHTING

Description

Pedestrian scale lighting improves visibility for both pedestrians and motorists - particularly at intersections and in areas of high pedestrian activity.

Pedestrian scale lighting is characterized by short light poles (around 15 feet high), close spacing, low levels of illumination (except at crossings), and the use of LED lamps to produce good color rendition, long service life and high energy efficiency.

Guidance

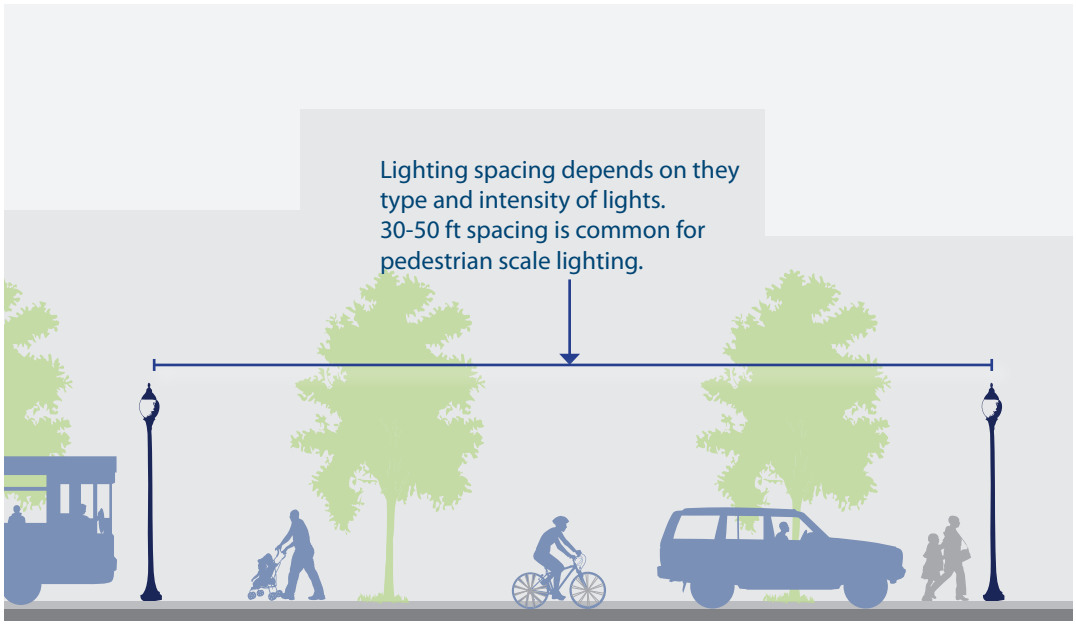
Locate lighting at the following locations:

- Pedestrian oriented areas
- Street crossings (intersection and mid block)
- Entrances and exits of bridges
- Areas near churches, schools, and community centers with nighttime pedestrian activity.

Placement details and dimensions:

- Spacing should be provid minimum illumination levels while limiting excess light pollution
- Luminaries should direct light downward
- Ligting poles should be placed in the furniture zone of the sidewalk and not interfere with pedestrian travel.

Solar powered lights are available where utility collection is difficult.



Discussion

Both street and pedestrian lighting levels should be considered for the same street corridor, especially in areas with tree canopy. "Dark Sky" lighting should be considered within residential districts.

Additional References and Guidelines

Illuminating Engineering Society of North America. *American National Standard Practice for Roadway Lighting.* 2005.
AASHTO. *Guide for the Development of Bicycle Facilities.* 2012
FHWA. *Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations.* 2005.

Materials and Maintenance

Low-cost light emitting diodes (LED) offer a wide range of light levels and can reduce long term utility costs.

This Page Intentionally Left Blank

PEDESTRIANS AT INTERSECTIONS

Attributes of pedestrian-friendly intersection design include:

Clear Space: Corners should be clear of obstructions. They should also have enough room for curb ramps, for transit stops where appropriate, and for street conversations where pedestrians might congregate.

Visibility: It is critical that pedestrians on the corner have a good view of vehicle travel lanes and that motorists in the travel lanes can easily see waiting pedestrians.

Legibility: Symbols, markings, and signs used at corners should clearly indicate what actions the pedestrian should take.

Accessibility: All corner features, such as curb ramps, landings, call buttons, signs, symbols, markings, and textures, should meet accessibility standards and follow universal design principles.

Separation from Traffic: Corner design and construction should be effective in discouraging turning vehicles from driving over the pedestrian area. Crossing distances should be minimized.

Lighting: Adequate lighting is an important aspect of visibility, legibility, and accessibility.

These attributes will vary with context but should be considered in all design processes. For example, suburban and rural intersections may have limited or no signing. However, legibility regarding appropriate pedestrian movements should still be taken into account during design.


Marked Crosswalks


Median Refuge Islands


Minimizing Curb Radii


Curb Extensions


ADA Compliant Curb Ramps


Pedestrians at Signalized Crossings

MARKED CROSSWALKS

Description

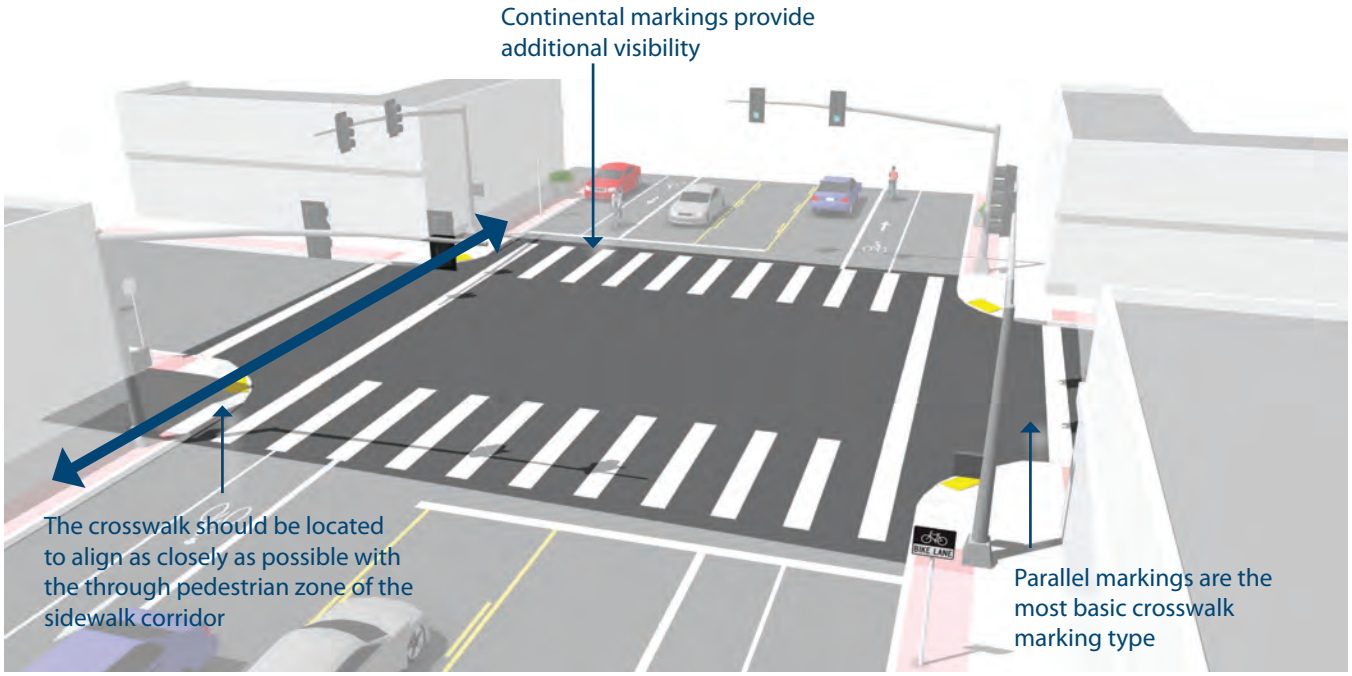
A marked crosswalk signals to motorists that they must stop for pedestrians and encourages pedestrians to cross at designated locations. Installing crosswalks alone will not necessarily make crossings safer especially on multi-lane roadways.

At mid-block locations, crosswalks can be marked where there is a demand for crossing and there are no nearby marked crosswalks.

Guidance

At signalized intersections, all crosswalks should be marked. At un-signalized intersections, crosswalks may be marked under the following conditions:

- At a complex intersection, to orient pedestrians in finding their way across.
- At an offset intersection, to show pedestrians the shortest route across traffic with the least exposure to vehicular traffic and traffic conflicts.
- At an intersection with visibility constraints, to position pedestrians where they can best be seen by oncoming traffic.
- At an intersection within a school zone on a walking route.



Discussion

Continental crosswalk markings should be used at crossings with high pedestrian use or where vulnerable pedestrians are expected, including: school crossings, across arterial streets for pedestrian-only signals, at mid-block crosswalks, and at intersections where there is expected high pedestrian use and the crossing is not controlled by signals or stop signs.

See intersection signalization for a discussion of enhancing pedestrian crossings.

Additional References and Guidelines

FHWA. *Manual on Uniform Traffic Control Devices. (3B.18). 2009.*
AASHTO. Guide for the Planning, Design, and Operation of Pedestrian Facilities. 2004.
FHWA. *Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations.* 2005.
FHWA. *Crosswalk Marking Field Visibility Study.* 2010.
NACTO. *Urban Street Design Guide.* 2013.

Materials and Maintenance

Because the effectiveness of marked crossings depends entirely on their visibility, maintaining marked crossings should be a high priority. Thermoplastic markings offer increased durability than conventional paint.

MEDIAN REFUGE ISLANDS

Description

Median refuge islands are located at the mid-point of a marked crossing and help improve pedestrian safety by allowing pedestrians to cross one direction of traffic at a time. Refuge islands minimize pedestrian exposure by shortening crossing distance and increasing the number of available gaps for crossing.

Guidance

- Can be applied on any roadway with a left turn center lane or median that is at least 6' wide.
- Appropriate at signalized or unsignalized crosswalks
- The refuge island must be accessible, preferably with an at-grade passage through the island rather than ramps and landings.
- The island should be at least 6' wide between travel lanes (to accommodate bikes with trailers and wheelchair users) and at least 20' long.
- On streets with speeds higher than 25 mph there should also be double centerline marking, reflectors, and "KEEP RIGHT" signage.

Discussion

If a refuge island is landscaped, the landscaping should not compromise the visibility of pedestrians crossing in the crosswalk. Shrubs and ground plantings should be no higher than 1 ft 6 in.

On multi-lane roadways, consider configuration with active warning beacons for improved yielding compliance.

Additional References and Guidelines

FHWA. Manual on Uniform Traffic Control Devices. 2009.
AASHTO. Guide for the Planning, Design, and Operation of Pedestrian Facilities. 2004.
NACTO. Urban Bikeway Design Guide. 2012.
NACTO. *Urban Street Design Guide.* 2013.

Materials and Maintenance

Refuge islands may collect road debris and may require somewhat frequent maintenance. Refuge islands should be visible to snow plow crews and should be kept free of snow berms that block access.

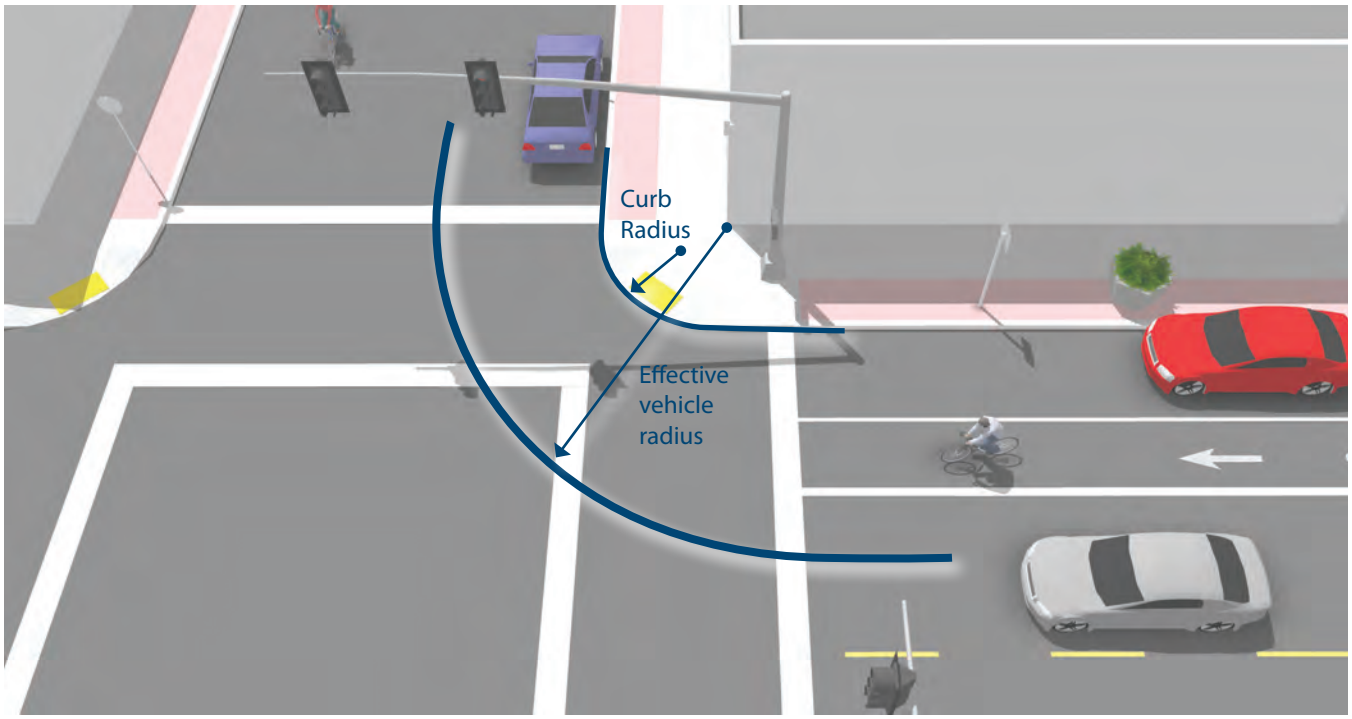
MINIMIZING CURB RADII

Description

The size of a curb's radius can have a significant impact on pedestrian comfort and safety. A smaller curb radius provides more pedestrian area at the corner, allows more flexibility in the placement of curb ramps, results in a shorter crossing distance and requires vehicles to slow more on the intersection approach. During the design phase, the chosen radius should be the smallest possible for the circumstances.

Guidance

The radius may be as small as 3 ft where there are no turning movements, or 5 ft where there are turning movements, adequate street width, and a larger effective curb radius created by parking or bike lanes.



Discussion

Several factors govern the choice of curb radius in any given location. These include the desired pedestrian area of the corner, traffic turning movements, street classifications, design vehicle turning radius, intersection geometry, and whether there is parking or a bike lane (or both) between the travel lane and the curb.

Additional References and Guidelines

AASHTO. *Guide for the Planning, Design, and Operation of Pedestrian Facilities.* 2004.
AASHTO. *A Policy on Geometric Design of Highways and Streets.* 2004.
NACTO. *Urban Street Design Guide.* 2013.

Materials and Maintenance

Improperly designed curb radii at corners may be subject to damage by large trucks.

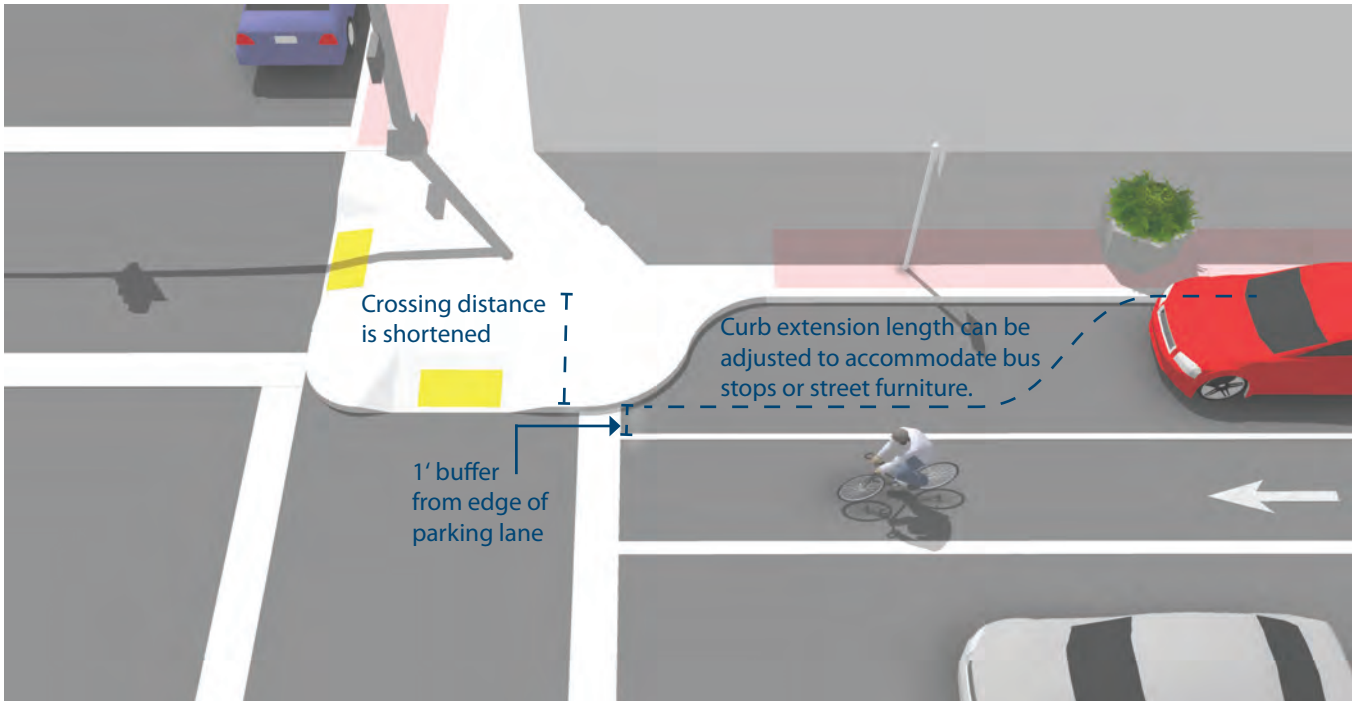
CURB EXTENSIONS

Description

Curb extensions minimize pedestrian exposure during crossing by shortening crossing distance and giving pedestrians a better chance to see and be seen before committing to crossing. They are appropriate for any crosswalk where it is desirable to shorten the crossing distance and there is a parking lane adjacent to the curb.

Guidance

- In most cases, the curb extensions should be designed to transition between the extended curb and the running curb in the shortest practicable distance.
- For purposes of efficient street sweeping, the minimum radius for the reverse curves of the transition is 10 ft and the two radii should be balanced to be nearly equal.
- Curb extensions should terminate one foot short of the parking lane to maximize bicyclist safety.



Discussion

If there is no parking lane, adding curb extensions may be a problem for bicycle travel and truck or bus turning movements.

Additional References and Guidelines

AASHTO. *Guide for the Planning, Design, and Operation of Pedestrian Facilities.* 2004.
AASHTO. *A Policy on Geometric Design of Highways and Streets.* 2004.
NACTO. *Urban Street Design Guide.* 2013.

Materials and Maintenance

Planted curb extensions may be designed as a bioswale, a vegetated system for stormwater management.

ADA COMPLIANT CURB RAMPS

Description

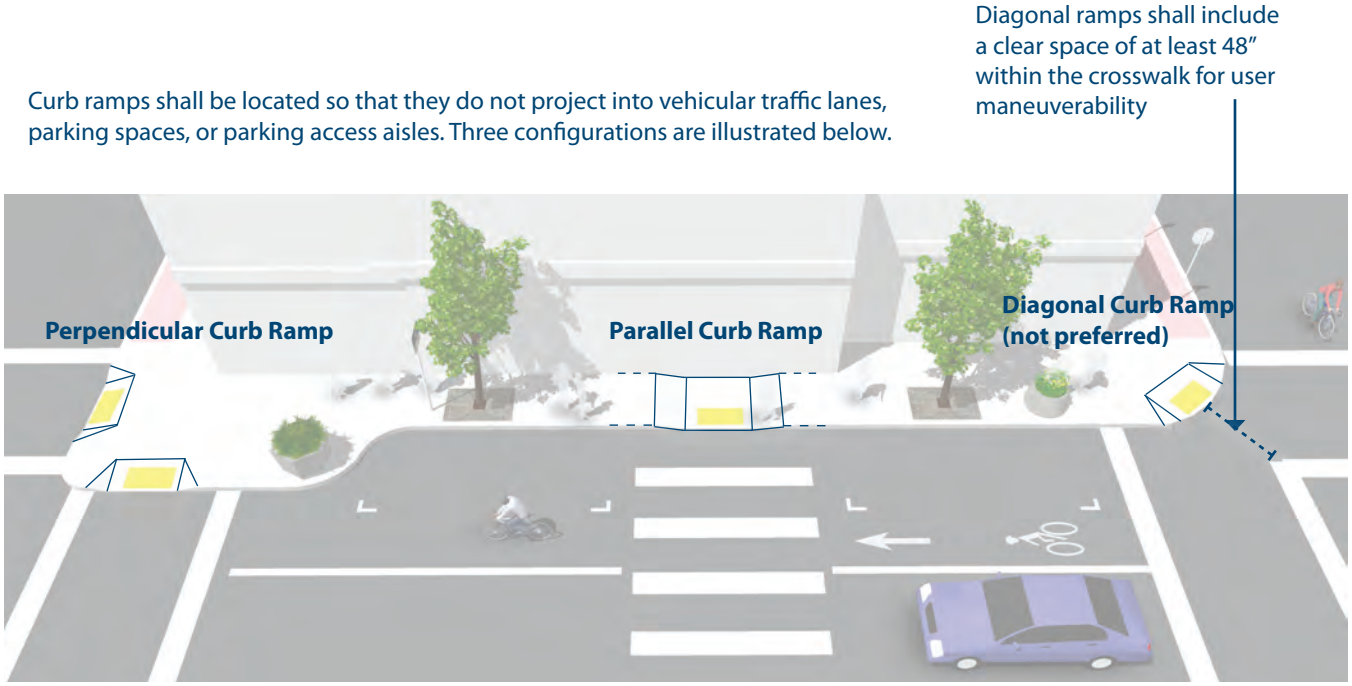
Curb ramps are the design elements that allow all users to make the transition from the street to the sidewalk. There are a number of factors to be considered in the design and placement of curb ramps at corners. Properly designed curb ramps ensure that the sidewalk is accessible from the roadway. A sidewalk without a curb ramp can be useless to someone in a wheelchair, forcing them back to a driveway and out into the street for access.

Although diagonal curb ramps might save money, they create potential safety and mobility problems for pedestrians,including reduced maneuverability and increased interaction with turning vehicles, particularly in areas with high traffic volumes. Diagonal curb ramp configurations are the least preferred of all options.

Guidance

- The landing at the top of a ramp shall be at least 4 feet long and at least the same width as the ramp itself.
- The ramp shall slope no more than 1:12 , with a maximum cross slope of 2.0%.
- If the ramp runs directly into a crosswalk, the landing at the bottom will be in the roadway.
- If the ramp lands on a dropped landing within the sidewalk or corner area where someone in a wheelchair may have to change direction, the landing must be a minimum of 5'-0" long and at least as wide as the ramp, although a width of 5'-0" is preferred.

Curb ramps shall be located so that they do not project into vehicular traffic lanes, parking spaces, or parking access aisles. Three configurations are illustrated below.



Crosswalk spacing not to scale. For illustration purposes only.

Discussion

The edge of an ADA compliant curb ramp may be marked with a tactile warning device (also known as truncated domes) to alert people with visual impairments to changes in the pedestrian environment. Contrast between the raised tactile device and the surrounding infrastructure is important so that the change is readily evident. These devices are most effective when adjacent to smooth pavement so the difference is easily detected. The devices should provide color contrast so partially sighted people can see them.

Additional References and Guidelines

United States Access Board. *Accessibility Guidelines for Buildings and Facilities.* 2002.
United States Access Board. *Proposed Accessibility Guidelines for Pedestrian Facilities in the Public-Right-of-Way (PROWAG).* 2011.
USDOJ. *ADA Standards for Accessible Design.* 2010.

Materials and Maintenance

It is critical that the interface between a curb ramp and the street be maintained adequately. Asphalt street sections can develop potholes at the foot of the ramp, which can catch the front wheels of a wheelchair.

PEDESTRIANS AT SIGNALIZED CROSSINGS

Description

Pedestrian Signal Head

Pedestrian signal indicators demonstrate to pedestrians when to cross at a signalized crosswalk. All traffic signals should be equipped with pedestrian signal indications except where pedestrian crossing is prohibited by signage.

Countdown pedestrian signals are particularly valuable for pedestrians, as they indicate whether a pedestrian has time to cross the street before the signal phase ends. Countdown signals should be used at all signalized intersections.

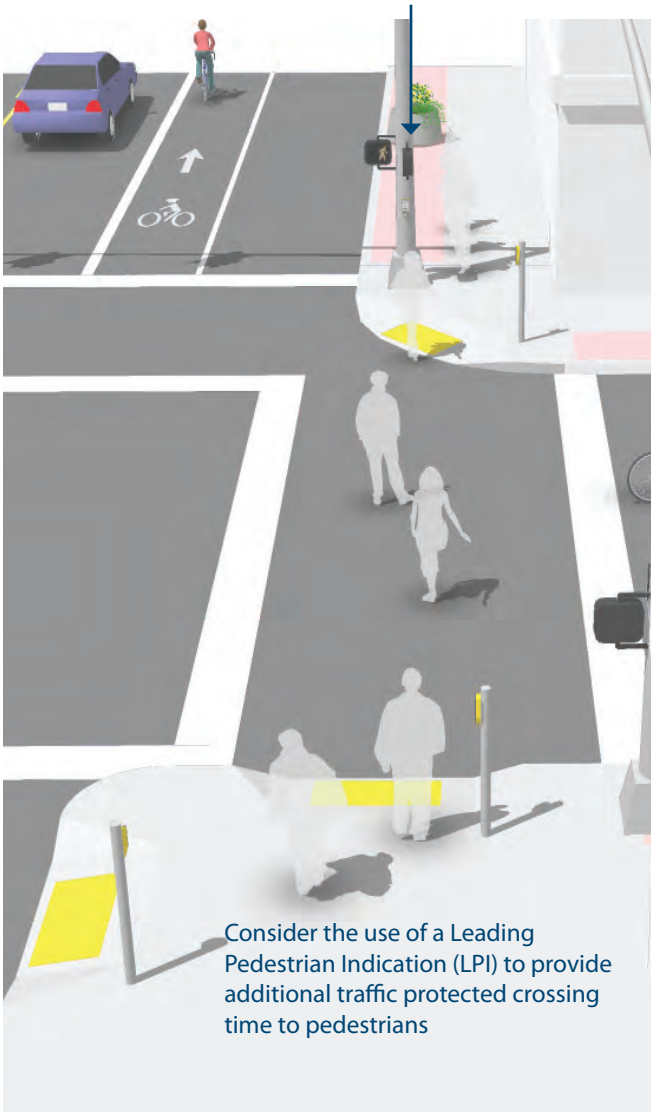
Signal Timing

Providing adequate pedestrian crossing time is a critical element of the walking environment at signalized intersections. The MUTCD recommends traffic signal timing to assume a pedestrian walking speed of 3.5' per second, meaning that the length of a signal phase with parallel pedestrian movements should provide sufficient time for a pedestrian to safely cross the adjacent street.

At crossings where older pedestrians or pedestrians with disabilities are expected, crossing speeds as low as 3' per second may be assumed. Special pedestrian phases can be used to provide greater visibility or more crossing time for pedestrians at certain intersections.

In busy pedestrian areas such as downtowns, the pedestrian signal indication should be built into each signal phase, eliminating the requirement for a pedestrian to actuate the signal by pushing a button.

Audible pedestrian traffic signals provide crossing assistance to pedestrians with vision impairment at signalized intersections



Consider the use of a Leading Pedestrian Indication (LPI) to provide additional traffic protected crossing time to pedestrians

Discussion

When push buttons are used, they should be located so that someone in a wheelchair can reach the button from a level area of the sidewalk without deviating significantly from the natural line of travel into the crosswalk, and marked (for example, with arrows) so that it is clear which signal is affected.

In areas with very heavy pedestrian traffic, consider an all-pedestrian signal phase to give pedestrians free passage in the intersection when all motor vehicle traffic movements are stopped.

Additional References and Guidelines

United States Access Board. *Proposed Accessibility Guidelines for Pedestrian Facilities in the Public-Right-of-Way (PROWAG).* 2011.
AASHTO. *Guide for the Planning, Design, and Operation of Pedestrian Facilities.* 2004.
NACTO. *Urban Street Design Guide.* 2013.

Materials and Maintenance

It is important to repair or replace traffic control equipment before it fails. Consider semi-annual inspections of controller and signal equipment, intersection hardware, and loop detectors.

This Page Intentionally Left Blank

TRAFFIC CALMING

Traffic calming is a design principle that seeks to lower vehicular traffic speeds using physical and visual cues. These tools are typically self-enforcing: the roadway's physical conditions influence drivers rather than regulatory devices and enforcement measures. Traffic calming works best on local streets with residential areas and highly trafficked commercial corridors. Extensive research shows that slower motorist speeds reduce overall crash severity and frequency, and improve cyclist and pedestrian comfort within and adjacent to traffic. Slower traffic also tends to reduce roadway noise, which contributes to overall neighborhood livability and walking comfort.

An area applying traffic calming measures must make special considerations for bicyclists. Measures such as narrowing the roadway may adversely affect bicyclists' ability to share the road, while introducing vertical or horizontal deflections to slow traffic may introduce an unexpected hazard to the cyclist. Conversely, carefully designed and applied traffic calming measures can enhance bicyclist safety and access.


Vertical Traffic Calming


Horizontal Traffic Calming


Traffic Diversion

VERTICAL TRAFFIC CALMING

Description

Motor vehicle speeds affect the severity of crashes that can occur with pedestrians and bicyclists. Maintaining low motor vehicle speeds greatly improves the comfort of people walking along and across a street. Slower vehicular speeds also improve motorists' ability to see and react to bicyclists and minimize conflicts at driveways and other turning locations.

Vertical speed control measures are composed of slight rises in the pavement, on which motorists and bicyclists must reduce speed to cross.

Guidance

- Local neighborhood streets should have a maximum posted speed of 25 mph. Use traffic calming to maintain an 85th percentile speed below 22 mph.
- Speed humps are raised areas usually placed in a series across both travel lanes. A 14' long hump reduces impacts to emergency vehicles. Speed humps can be challenging for bicyclists, gaps can be provided in the center or by the curb for bicyclists and to improve drainage. Speed humps can also be offset to accommodate emergency vehicles.
- Speed lumps or cushions have gaps to accommodate the wheel tracks of emergency vehicles.
- Speed tables are longer than speed humps and flat-topped. Raised crosswalks are speed tables that are marked and signed for a pedestrian crossing.
- For all vertical traffic calming, slopes should not exceed 1:10 or be less steep than 1:25. Tapers should be no greater than 1:6 to reduce the risk of bicyclists losing their balance. The vertical lip should be no more than a 1/4" high.

Speed Hump

Offset Speed Hump

Temporary Speed Cushion

Raised Crosswalk

Discussion

Emergency vehicle response times should be considered where vertical deflection is used. Because emergency vehicles have a wider wheel base than passenger cars, speed lumps/cushions allow them to pass unimpeded while slowing most other traffic. Alternatively, speed tables are recommended because they cannot be straddled by a truck, decreasing the risk of bottoming out. Traffic calming can also deter motorists from driving on a street. Monitor vehicle volumes on adjacent streets to determine whether traffic calming results in inappropriate volumes. Traffic calming can be implemented on a trial basis.

Additional References and Guidelines

Ewing, Reid. *Traffic Calming: State of the Practice.* 1999.
Ewing, Reid and Brown, Steven. *U.S. Traffic Calming Manual.* 2009.
NACTO. *Urban Street Design Guide.* 2013.

Materials and Maintenance

Traffic calming should be designed to minimize impacts to snowplows. Vegetation should be regularly trimmed to maintain visibility and attractiveness.

HORIZONTAL TRAFFIC CALMING

Description

Horizontal traffic calming devices cause drivers to slow down by constricting the roadway space or by requiring careful maneuvering.

Such measures may reduce the design speed of a street, and can be used in conjunction with reduced speed limits to reinforce the expectation of lowered speeds.

Guidance

- Maintain a minimum clear width of 20 feet (or 28 feet with parking on both sides), with a constricted length of at least 20 feet in the direction of travel.
- Chicanes are a series of raised or delineated curb extensions, edge islands, or parking bays on alternating sides of a street forming an "S"-shaped curb, which reduce vehicle speeds by requiring motorists to shift laterally through narrowed travel lanes.
- Pinchpoints are curb extensions placed on both sides of the street, narrowing the travel lane and encouraging all road users to slow down. When placed at intersections, pinchpoints are known as chokers or neckdowns. They reduce curb radii and further lower motor vehicle speeds.
- Traffic circles are raised or delineated islands placed at intersections that reduce vehicle speeds by narrowing turning radii and the travel lane. Traffic circles can also include a paved apron to accommodate the turning radii of larger vehicles like fire trucks or school buses.

Temporary Curb Extension

Chicane

Choker or Neckdown

Pinchpoint with Bicycle Access

Discussion

Horizontal speed control measures should not infringe on bicycle space. Where possible, provide a bicycle route outside of the element so bicyclists can avoid having to merge into traffic at a narrow pinch point. This technique can also improve drainage flow and reduce construction and maintenance costs. Traffic calming can also deter motorists from driving on a street. Monitor vehicle volumes on adjacent streets to determine whether traffic calming results in inappropriate volumes. Traffic calming can be implemented on a trial basis.

Additional References and Guidelines

Ewing, Reid. *Traffic Calming: State of the Practice.* 1999.
Ewing, Reid and Brown, Steven. *U.S. Traffic Calming Manual.* 2009.
NACTO. *Urban Street Design Guide.* 2013.

Materials and Maintenance

Traffic calming should be designed to minimize impacts to snowplows. Vegetation should be regularly trimmed to maintain visibility and attractiveness.

TRAFFIC DIVERSION

Description

Motor vehicle traffic volumes affect the quality of life on local neighborhood streets. Higher vehicle volumes reduce user comfort and can result in more conflicts.

Implement volume control treatments based on the context of the neighborhood greenway, using engineering judgment. Target motor vehicle volumes range from 1,000 to 3,000 vehicles per day, above which the route should be striped as a bike lane or considered a signed shared roadway.

Guidance

- Traffic diversion treatments reduce motor vehicle volumes by completely or partially restricting through traffic on a neighborhood greenway.
- Partial closures restrict vehicle access to one way traffic at that point.
- Diagonal diverters require all motor vehicle traffic to turn.
- Street closures create a "T" that blocks motor vehicles from continuing along a street at an intersection. Full closures can accommodate emergency vehicles with the use of mountable curbs (maximum of six inches high).

No matter what form of traffic diversion is used, bicycle access through the diverter should be maintained and accommodated.

Partial Closure

Diagonal Diverter


Median Diverter


Full Closure

Discussion

A good volume target for local neighborhood streets is 3,000 maximum vehicles per day.

Additional References and Guidelines

Ewing, Reid. *Traffic Calming: State of the Practice.* 1999.
Ewing, Reid and Brown, Steven. *U.S. Traffic Calming Manual.* 2009.
Oregon Department of Transportation. *Right-In Right-Out Channelization.* 1998.

Materials and Maintenance

Depending on the diverter type, these treatments can be challenging to keep clear of snow and debris. Vegetation should be regularly trimmed to maintain visibility and attractiveness.

BICYCLE FACILITY DESIGN

This Page Intentionally Left Blank

SHARED ROADWAYS

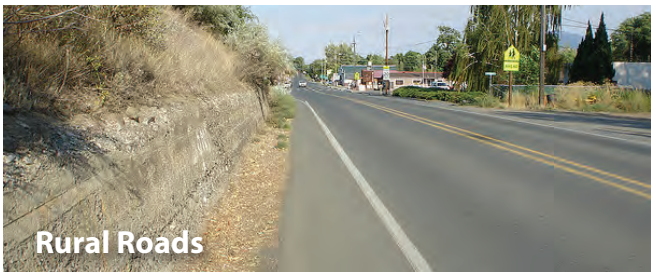
On shared roadways, bicyclists and motor vehicles use the same roadway space. Sharing may include side-by-side operation, or single lane in-line operation depending on the configuration.

These facilities are typically used on roads with low speeds and traffic volumes, however they can be used on higher volume roads with wide outside lanes or shoulders. A motor vehicle driver will usually have to cross over into the adjacent travel lane to pass a bicyclist, unless a wide outside lane or shoulder is provided.

Shared roadways employ a large variety of treatments from simple signage and shared lane markings to more complex treatments including directional signage, traffic diverters, chicanes, chokers, and/or other traffic calming devices to reduce vehicle speeds or volumes.

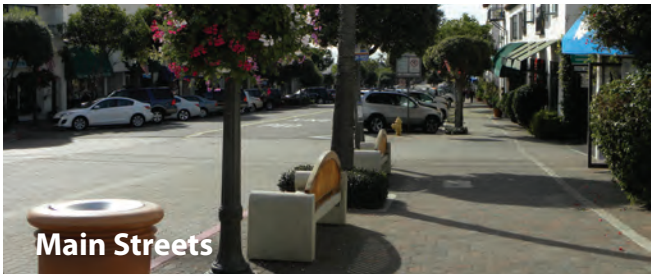
Bicycle Boulevards

Bicycle boulevards are a special class of shared roadways designed for a broad spectrum of bicyclists. They are low-volume local streets where motorists and bicyclists share the same travel lane. Treatments for bicycle boulevards are selected as necessary to create appropriate automobile volumes and speeds, and to provide safe crossing opportunities of busy streets.


Rural Roads

Signed Shared Roadway


Marked Shared Roadway


Main Streets


Bicycle Boulevards

RURAL ROADS

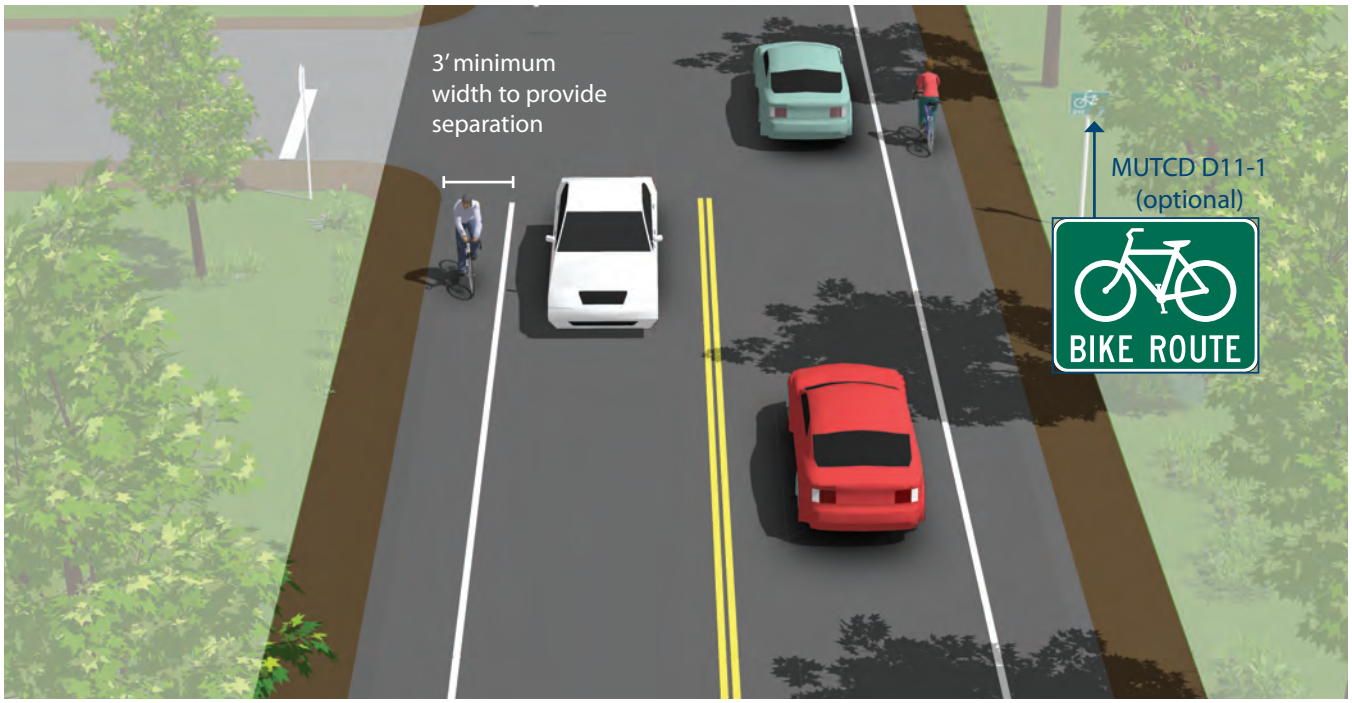
Description

Rural roads are often the primary routes connecting communities. These roads pass through less-dense areas, and are usually paved roadways with striped shoulders, but no curb and gutter. Sidewalk provision on rural roads is uncommon.

Shoulders wide enough for bicycle travel are the preferred type of bicycle facility on rural roads. Shoulder bikeways often, but not always, include signage alerting motorists to expect bicycle travel along the roadway.

Guidance

- If 4 feet or more is available for bicycle travel, the full bike lane treatment of signs, legends, and an 6" bike lane line would be provided.
- If it is not possible to meet minimum bicycle lane dimensions, a reduced width paved shoulder can still improve conditions for bicyclists on constrained roadways. In these situations, a minimum of 3 feet of operating space should be provided.
- Rumble strips are not recommended on shoulders used by bicyclists unless there is a minimum 4 foot clear path. 12 foot gaps every 40-60 feet should be provided to allow access as needed.



Discussion

A wide outside lane may be sufficient accommodation for bicyclists on streets with insufficient width for bike lanes but which do have space available to provide a wider (14'-16') outside travel lane. Consider configuring as a marked shared roadway in these locations.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
FHWA. *Manual on Uniform Traffic Control Devices.* 2009.

Materials and Maintenance

Paint can wear more quickly in high traffic areas or in winter climates. Shoulder bikeways should be cleared of snow through routine snow removal operations.

SIGNED SHARED ROADWAY

Description

Signed shared roadways are facilities shared with motor vehicles. They are typically used on roads with low speeds and traffic volumes, however can be used on higher volume roads with wide outside lanes or shoulders. A motor vehicle driver will usually have to cross over into the adjacent travel lane to pass a bicyclist, unless a wide outside lane or shoulder is provided.

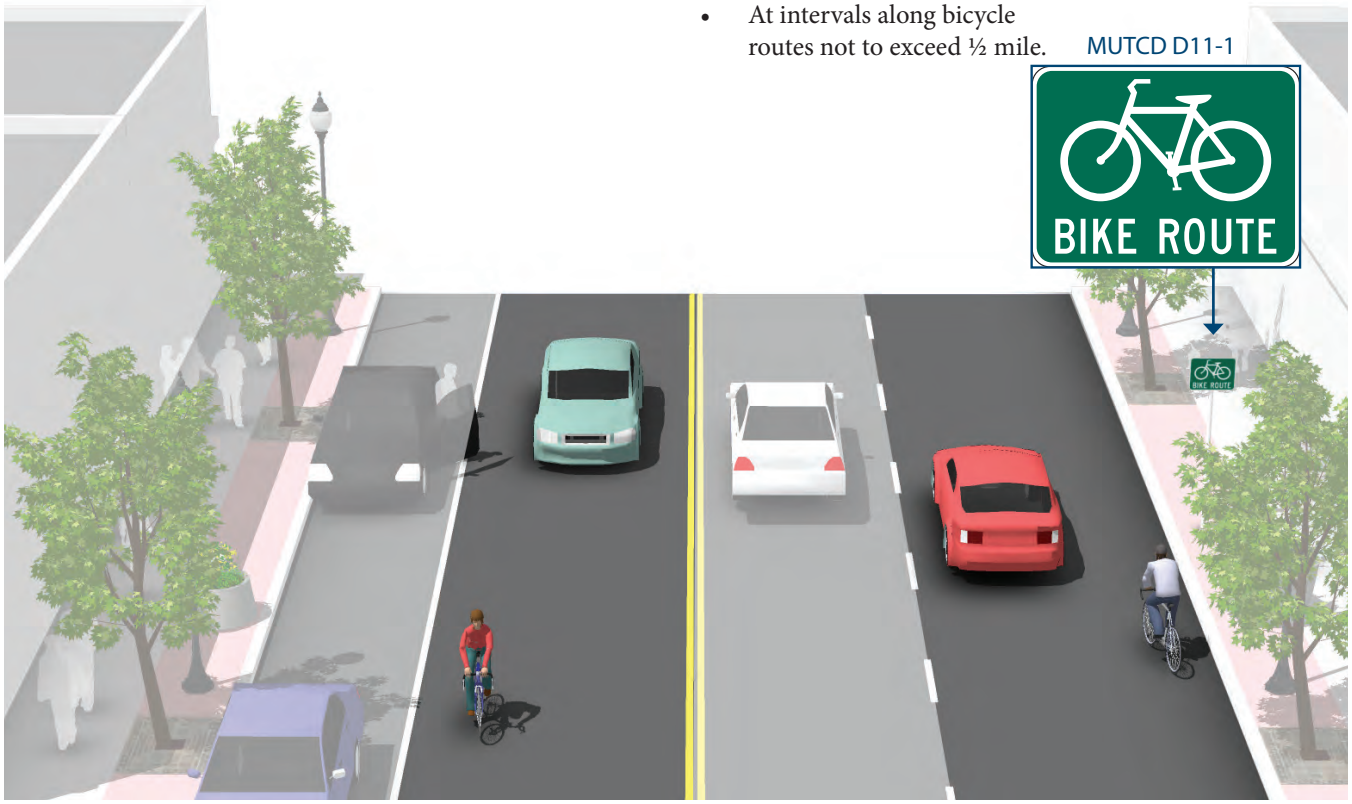
Guidance

Lane width varies depending on roadway configuration.

Bike route signage (D11-1) should be applied at intervals frequent enough to keep bicyclists informed of changes in route direction and to remind motorists of the presence of bicyclists. Commonly, this includes placement at:

- Beginning or end of Bicycle Route.
- At major changes in direction or at intersections with other bicycle routes.
- At intervals along bicycle routes not to exceed ½ mile.

MUTCD D11-1



Discussion

Signed Shared Roadways serve either to provide continuity with other bicycle facilities (usually bike lanes) or to designate preferred routes through high-demand corridors.

This configuration differs from a neighborhood greenway due to a lack of traffic calming, wayfinding, pavement markings and other enhancements designed to provide a higher level of comfort for a broad spectrum of users.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
FHWA. *Manual on Uniform Traffic Control Devices.* 2009.

Materials and Maintenance

Maintenance needs for bicycle wayfinding signs are similar to other signs, and will need periodic replacement due to wear.

MARKED SHARED ROADWAY

Description

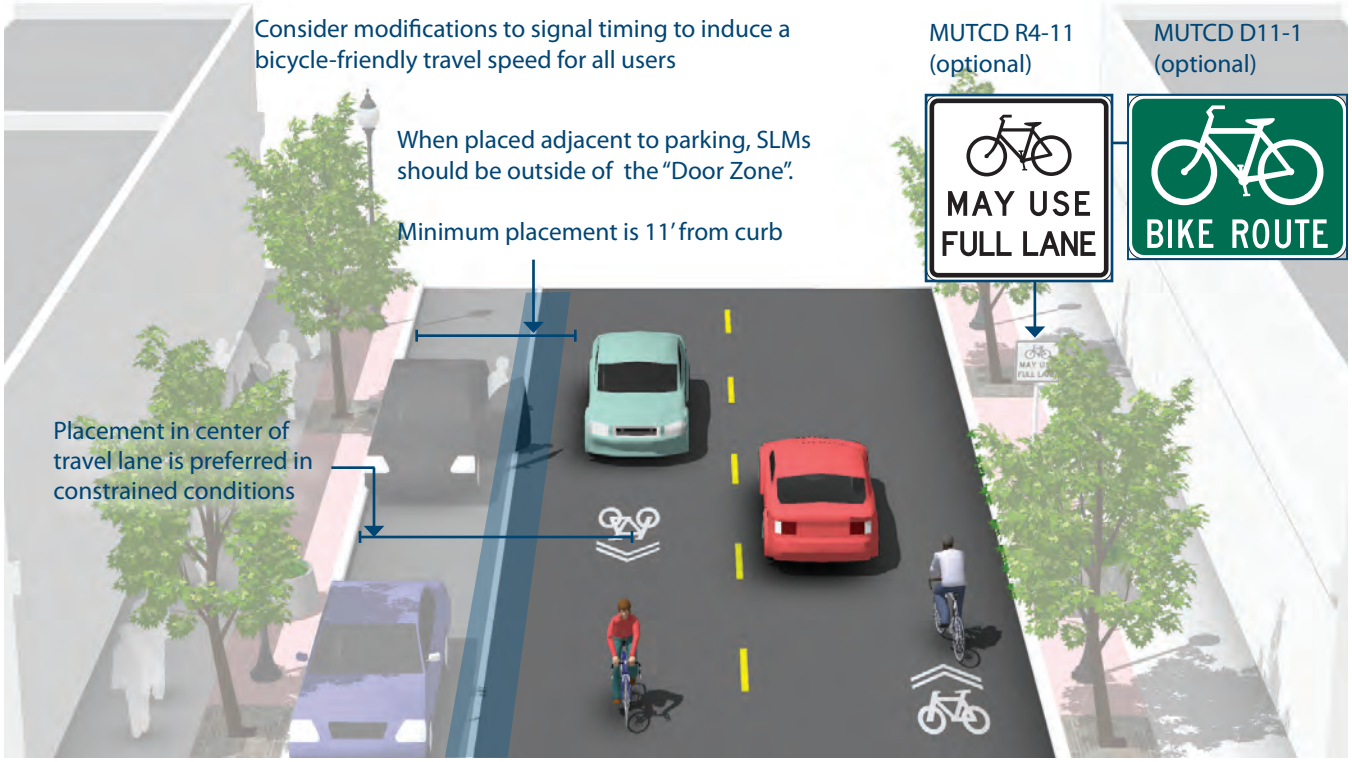
A marked shared roadway is a general purpose travel lane marked with shared lane markings (SLM) used to encourage bicycle travel and proper positioning within the lane.

In constrained conditions, the SLMs are placed in the middle of the lane to discourage unsafe passing by motor vehicles. On a wide outside lane, the SLMs can be used to promote bicycle travel to the right of motor vehicles.

In all conditions, SLMs should be placed outside of the door zone of parked cars.

Guidance

- May be used on streets with a speed limit of 35 mph or under. Lower than 30 mph speed limit preferred.
- In constrained conditions, preferred placement is in the center of the travel lane to minimize wear and promote single file travel.
- Minimum placement of SLM marking centerline is 11 feet from edge of curb where on-street parking is present, 4 feet from edge of curb with no parking. If parking lane is wider than 7.5 feet, the SLM should be moved further out accordingly.



Regular Lane Adjacent to Parking **Wide Lane without Parking**

Discussion

If collector or arterial, this should not be a substitute for dedicated bicycle facilities if space is available.

Bike Lanes should be considered on roadways with outside travel lanes wider than 15 feet, or where other lane narrowing or removal strategies may provide adequate road space. SLMs shall not be used on shoulders, in designated bike lanes, or to designate bicycle detection at signalized intersections. (MUTCD 9C.07)

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
FHWA. *Manual on Uniform Traffic Control Devices.* 2009.
NACTO. *Urban Bikeway Design Guide.* 2012.

Materials and Maintenance

Placing SLMs between vehicle tire tracks will increase the life of the markings and minimize the long-term cost of the treatment.

MAIN STREETS

Description

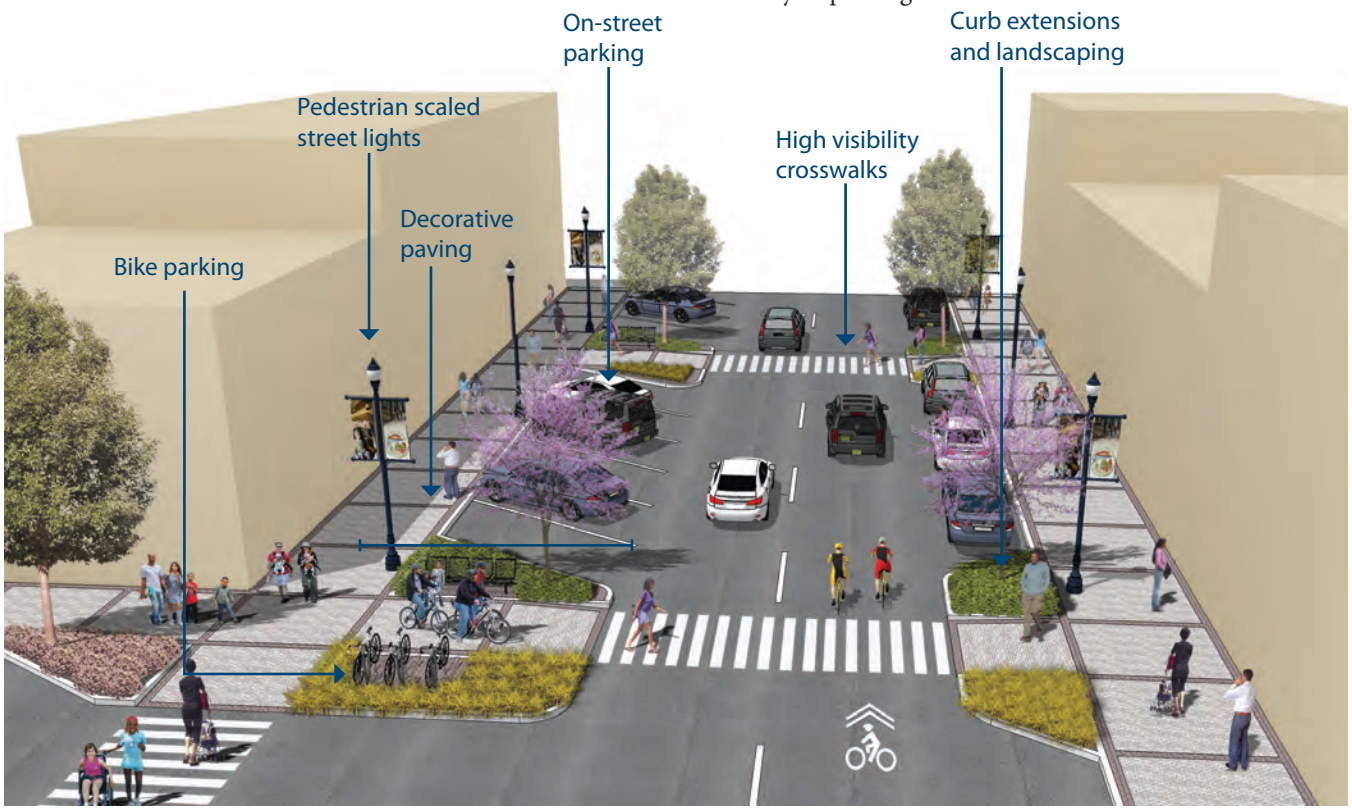
Inviting, walkable streets form the historic and cultural core of many communities. These streets are the primary streets through the middle of community "downtowns," and they serve many uses as a commercial hub, social space and transportation corridor.

Main streets should prioritize the needs of pedestrians through the urban form of land uses, the provision of on street parking and the calming of traffic to make street crossing opportunities frequent, safe and comfortable.

Guidance

Main Streets have a variety of design characteristics in different communities, but they often include the following key components:

- Wide sidewalks
- Lighting and furnishings
- Parking between the sidewalk and lanes of travel
- Curb extensions
- Landscaping
- Decorative pavers
- High visibility crosswalks
- Bicycle parking



Discussion

If the main street area is configured as a couplet, these design elements should extend, at a minimum, to both ends of the couplet, and on both streets.

Other streets within a main street district can also benefit from improvements. If connecting streets have commercial uses or functions as a secondary gateway to the main street, they should at a minimum, have wide sidewalks, pedestrian lighting and street trees.

Additional References and Guidelines

ITE. *Designing Walkable Urban Thoroughfares.* 2010.
FHWA. *Manual on Uniform Traffic Control Devices.* 2009.
NACTO. *Urban Street Design Guide.* 2013.

Materials and Maintenance

Placing Shared Lane Markings between vehicle tire tracks will increase the life of the markings and minimize the long-term cost of the treatment.

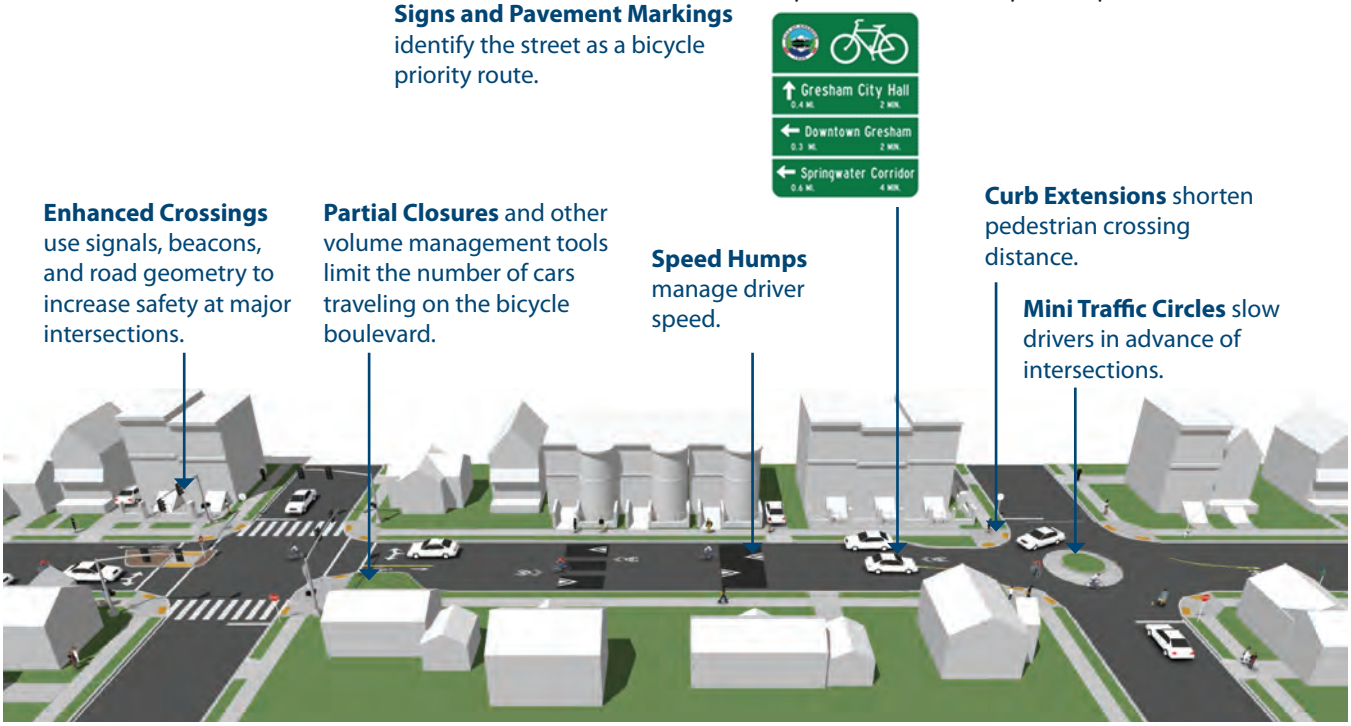
BICYCLE BOULEVARD

Description

Bicycle boulevards are low-volume, low-speed streets modified to enhance bicyclist comfort by using treatments such as signage, pavement markings, traffic calming and/or traffic reduction, and intersection modifications. These treatments allow through movements of bicyclists while discouraging similar through-trips by non-local motorized traffic.

Guidance

- Signs and pavement markings are the minimum treatments necessary to designate a street as a bicycle boulevard.
- Bicycle boulevards should have a maximum posted speed of 25 mph. Use traffic calming to maintain an 85th percentile speed below 22 mph.
- Implement volume control treatments based on the context of the bicycle boulevard, using engineering judgment. Target motor vehicle volumes range from 1,000 to 3,000 vehicles per day in most communities.
- Intersection crossings should be designed to enhance safety and minimize delay for bicyclists.



Discussion

Bicycle boulevard retrofits to local streets are typically located on streets without existing signalized accommodation at crossings of collector and arterial roadways. Without treatments for bicyclists, these intersections can become major barriers along the bicycle boulevard and compromise safety.

Traffic calming can deter motorists from driving on a street. Anticipate and monitor vehicle volumes on adjacent streets to determine whether traffic calming results in inappropriate volumes. Traffic calming can be implemented on a trial basis. For more information see the *Traffic Calming* section in this guide.

Additional References and Guidelines

Alta Planning + Design and IBPI. *Bicycle Boulevard Planning and Design Handbook*. 2009.
BikeSafe. *Bicycle countermeasure selection system.*
Ewing, Reid and Brown, Steven. *U.S. Traffic Calming Manual.* 2009.

Materials and Maintenance

Vegetation should be regularly trimmed to maintain visibility and attractiveness.

SEPARATED BIKEWAYS

Designated exclusively for bicycle travel, separated bikeways are segregated from vehicle travel lanes by striping, and can include pavement stencils and other treatments. Separated bikeways are most appropriate on arterial and collector streets where higher traffic volumes and speeds warrant greater separation.

Separated bikeways can increase safety and promote proper riding by:

- Defining road space for bicyclists and motorists, reducing the possibility that motorists will stray into the bicyclists' path.
- Discouraging bicyclists from riding on the sidewalk.
- Reducing the incidence of wrong way riding.
- Reminding motorists that bicyclists have a right to the road.

It is important to note that the recommendations in this plan are part of a specific context with a multitude of variables that evolve over time. As implementation opportunities arise, flexibility must be afforded for the proper facility selection to ensure the most effective and efficient use of resources. A specific example of this would be a community opting to build a sidepath rather than bike lanes where this option would better meet the needs of the community.


Shoulder Bikeways


Bicycle Lanes


Buffered Bike Lanes


Cycle Tracks

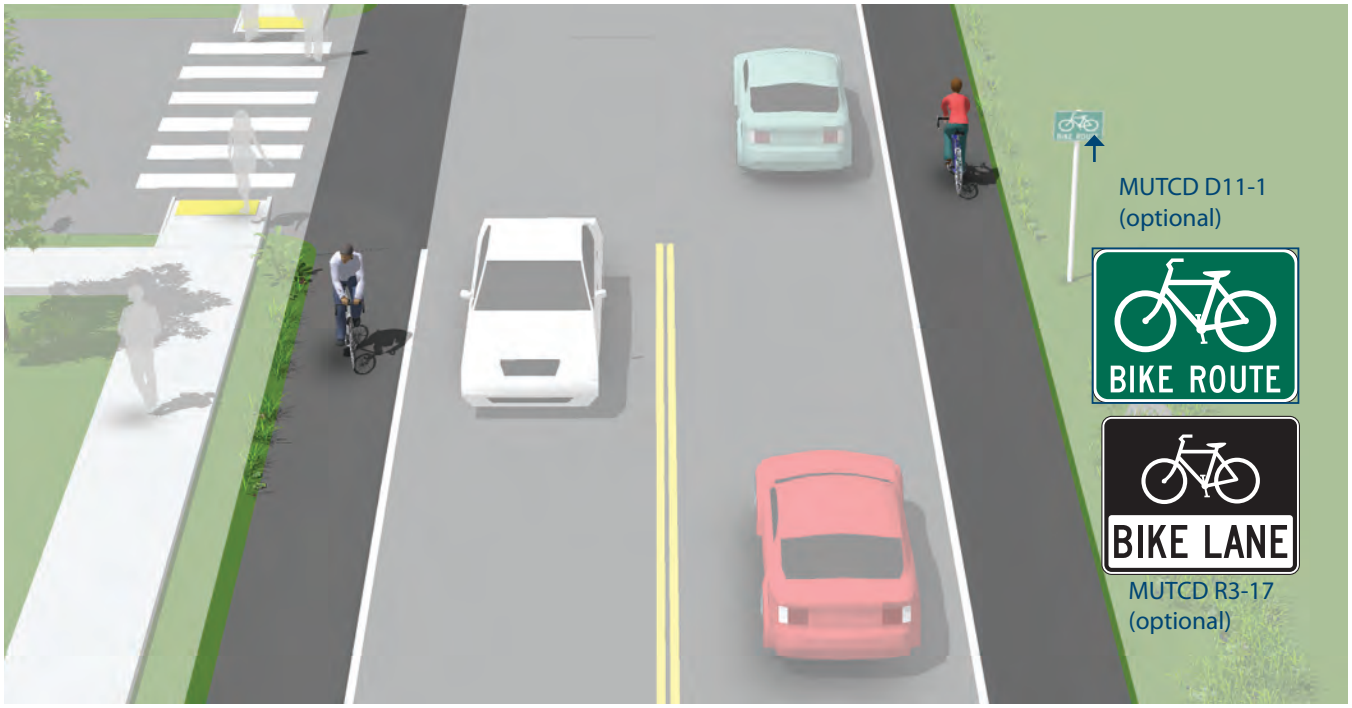
SHOULDER BIKEWAYS

Description

Typically found in less-dense areas, shoulder bikeways are paved roadways with striped shoulders (4'+) wide enough for bicycle travel. Shoulder bikeways often, but not always, include signage alerting motorists to expect bicycle travel along the roadway. Shoulder bikeways should be considered a temporary treatment, with full bike lanes planned for construction when the roadway is widened or completed with curb and gutter. This type of treatment is not typical in urban areas and should only be used where constraints exist.

Guidance

- If 4 feet or more is available for bicycle travel, the full bike lane treatment of signs, legends, and an 8" bike lane line would be provided.
- If it is not possible to meet minimum bicycle lane dimensions, a reduced width paved shoulder can still improve conditions for bicyclists on constrained roadways. In these situations, a minimum of 3 feet of operating space should be provided.
- Rumble strips are not recommended on shoulders used by bicyclists unless there is a minimum 4 foot clear path. 12 foot gaps every 40-60 feet should be provided to allow access as needed.



Discussion

A wide outside lane may be sufficient accommodation for bicyclists on streets with insufficient width for bike lanes but which do have space available to provide a wider (14'-16') outside travel lane. Consider configuring as a marked shared roadway in these locations.

Where feasible, roadway widening should be performed with pavement resurfacing jobs.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
FHWA. *Manual on Uniform Traffic Control Devices.* 2009.

Materials and Maintenance

Paint can wear more quickly in high traffic areas or in winter climates. Shoulder bikeways should be cleared of snow through routine snow removal operations.

BICYCLE LANE

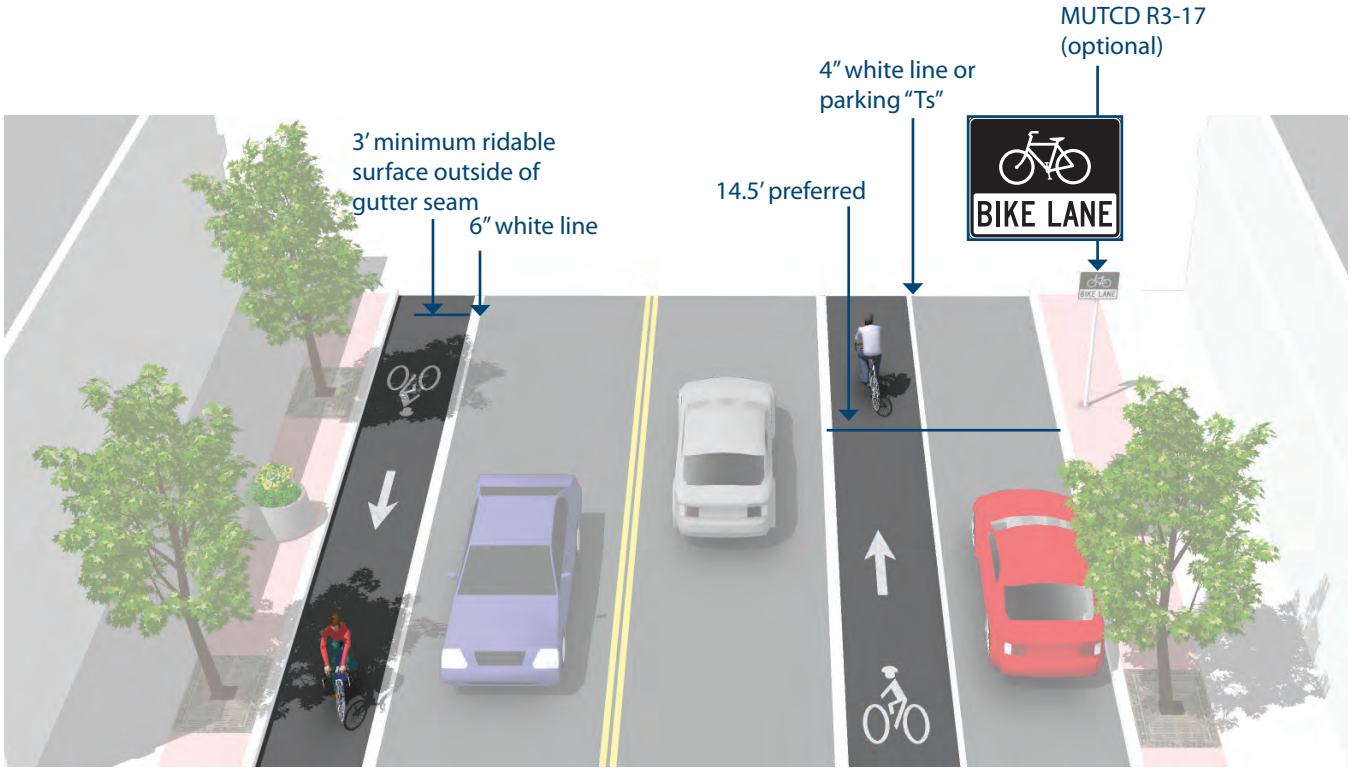
Description

Bike lanes designate an exclusive space for bicyclists through the use of pavement markings and signage. The bike lane is located adjacent to motor vehicle travel lanes and is used in the same direction as motor vehicle traffic. Bike lanes are typically on the right side of the street, between the adjacent travel lane and curb, road edge or parking lane.

Many bicyclists, particularly less experienced riders, are more comfortable riding on a busy street if it has a striped and signed bikeway than if they are expected to share a lane with vehicles.

Guidance

- 4 foot minimum when no curb and gutter is present.
- 5 foot minimum when adjacent to curb and gutter or 3 feet more than the gutter pan width if the gutter pan is wider than 2 feet.
- 14.5 foot preferred from curb face to edge of bike lane. (12 foot minimum).
- 7 foot maximum width for use adjacent to arterials with high travel speeds. Greater widths may encourage motor vehicle use of bike lane.



Discussion

Wider bicycle lanes are desirable in certain situations such as on higher speed arterials (45 mph+) where use of a wider bicycle lane would increase separation between passing vehicles and bicyclists. Appropriate signing and stenciling is important with wide bicycle lanes to ensure motorists do not mistake the lane for a vehicle lane or parking lane. Consider buffered bike lanes when further separation is desired.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
FHWA. *Manual on Uniform Traffic Control Devices.* 2009.
NACTO. *Urban Bikeway Design Guide.* 2012.

Materials and Maintenance

Paint can wear more quickly in high traffic areas or in winter climates. Bicycle lanes should be cleared of snow through routine snow removal operations.

BUFFERED BIKE LANE

Description

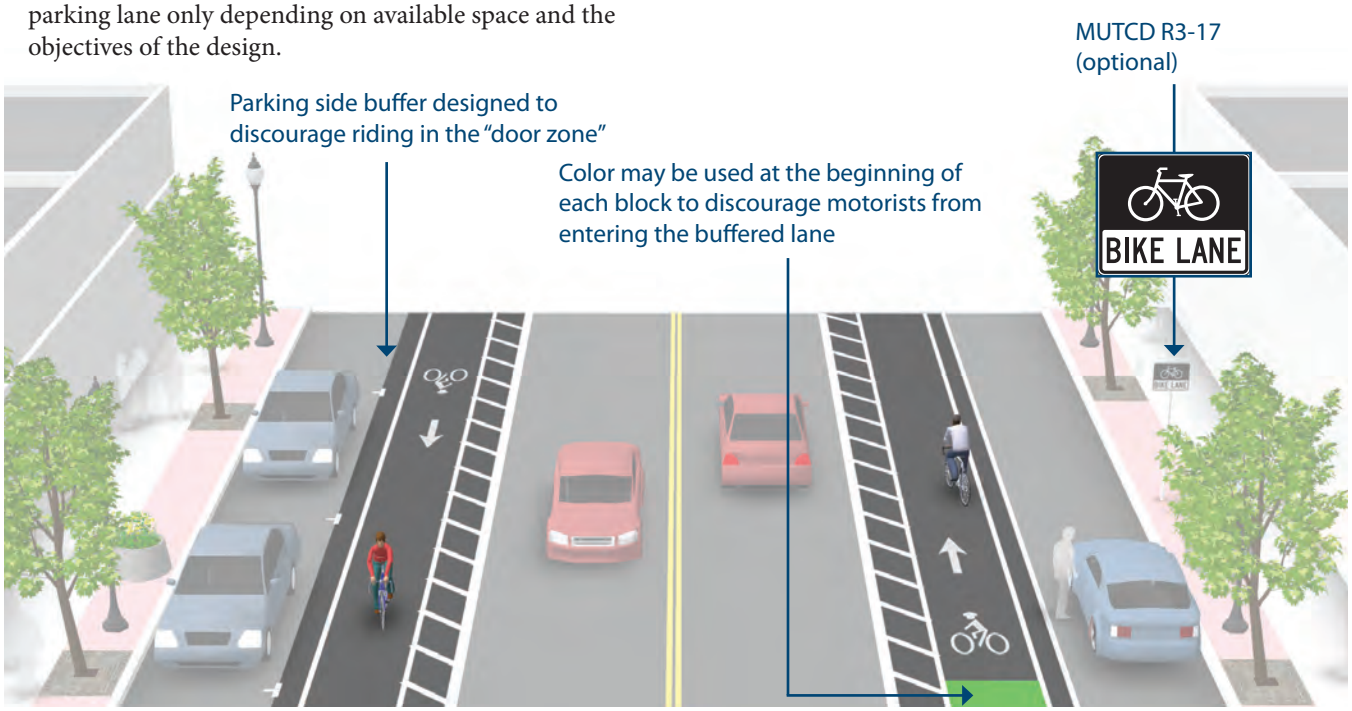
Buffered bike lanes are conventional bicycle lanes paired with a designated buffer space, separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane. Buffered bike lanes follow general guidance for buffered preferential vehicle lanes as per MUTCD guidelines (section 3D-01).

Buffered bike lanes are designed to increase the space between the bike lane and the travel lane and/or parked cars. This treatment is appropriate for bike lanes on roadways with high motor vehicle traffic volumes and speed, adjacent to parking lanes, or a high volume of truck or oversized vehicle traffic.

Buffered bike lanes can buffer the travel lane only, or parking lane only depending on available space and the objectives of the design.

Guidance

- The minimum bicycle travel area is 5 feet wide.
- Buffers should be at least 2 feet wide. If 3 feet or wider, mark with diagonal or chevron hatching. For clarity at driveways or minor street crossings, consider a dotted line for the inside buffer boundary where cars are expected to cross.



Discussion

Frequency of right turns by motor vehicles at major intersections should determine whether continuous or truncated buffer striping should be used approaching the intersection. Commonly configured as a buffer between the bicycle lane and motor vehicle travel lane, a parking side buffer may also be provided to help bicyclists avoid the 'door zone' of parked cars.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
FHWA. *Manual on Uniform Traffic Control Devices. (3D-01).* 2009.
NACTO. *Urban Bikeway Design Guide.* 2012.

Materials and Maintenance

Paint can wear more quickly in high traffic areas or in winter climates. Bicycle lanes should be cleared of snow through routine snow removal operations.

CYCLE TRACKS

Guidance

Cycle tracks should ideally be placed along streets with long blocks and few driveways or mid-block access points for motor vehicles.

One-Way Cycle Tracks

- 7 foot recommended minimum to allow passing. 5 foot minimum width in constrained locations.

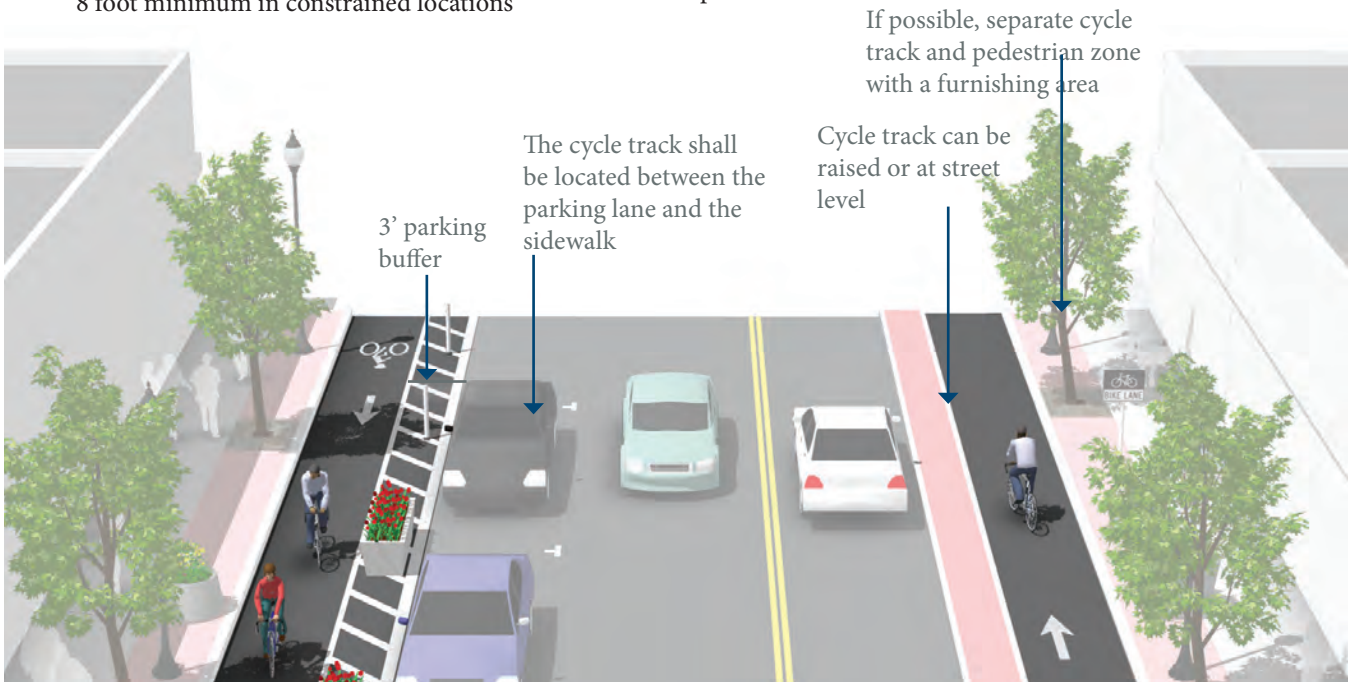
Two-Way Cycle Tracks

- Cycle tracks located on one-way streets have fewer potential conflict areas than those on two-way streets.
- 12 foot recommended minimum for two-way facility. 8 foot minimum in constrained locations

Description

A cycle track is an exclusive bike facility that combines the user experience of a separated trail with the on-street infrastructure of a conventional bike lane. A cycle track is physically separated from motor traffic and distinct from the sidewalk. Cycle tracks have different forms but all share common elements—they provide space that is intended to be exclusively or primarily used by bicycles, and are separated from motor vehicle travel lanes, parking lanes, and sidewalks.

Raised cycle tracks may be at the level of the adjacent sidewalk or set at an intermediate level between the roadway and sidewalk to separate the cycle track from the pedestrian area.



Discussion

Special consideration should be given at transit stops to manage bicycle and pedestrian interactions. Driveways and minor street crossings are unique challenges to cycle track design. Parking should be prohibited within 30 feet of the intersection to improve visibility. Color, yield markings and "Yield to Bikes" signage should be used to identify the conflict area and make it clear that the cycle track has priority over entering and exiting traffic. If configured as a raised cycle track, the crossing should be raised so that the sidewalk and cycle track maintain their elevation through the crossing.

Additional References and Guidelines

NACTO. *Urban Bikeway Design Guide.* 2012.

Materials and Maintenance

In cities with winter climates, barrier separated and raised cycle tracks may require special equipment for snow removal.

This Page Intentionally Left Blank

SEPARATED BIKEWAYS AT INTERSECTIONS

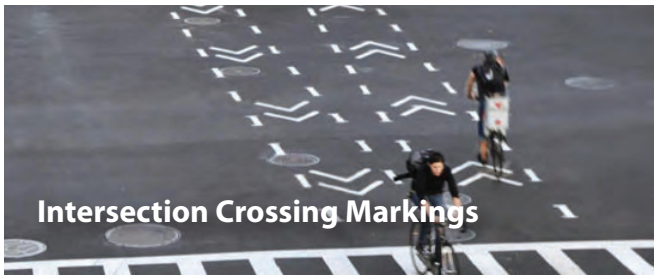
Intersections are junctions at which different modes of transportation meet and facilities overlap. An intersection facilitates the interchange between bicyclists, motorists, pedestrians and other modes in order to advance traffic flow in a safe and efficient manner. Designs for intersections with bicycle facilities should reduce conflict between bicyclists (and other vulnerable road users) and vehicles by heightening the level of visibility, denoting clear right-of-way and facilitating eye contact and awareness with other modes. Intersection treatments can improve both queuing and merging maneuvers for bicyclists, and are often coordinated with timed or specialized signals.

The configuration of a safe intersection for bicyclists may include elements such as color, signage, medians, signal detection and pavement markings. Intersection design should take into consideration existing and anticipated bicyclist, pedestrian and motorist movements. In all cases, the degree of mixing or separation between bicyclists and other modes is intended to reduce the risk of crashes and increase bicyclist comfort. The level of treatment required for bicyclists at an intersection will depend on the bicycle facility type used, whether bicycle facilities are intersecting, and the adjacent street function and land use.


Bike Boxes


Bike Lanes at Right Turn Only Lanes


Colored Bike Lanes in Conflict Areas


Intersection Crossing Markings


Two Stage Turn Boxes


Single Lane Modern Roundabouts

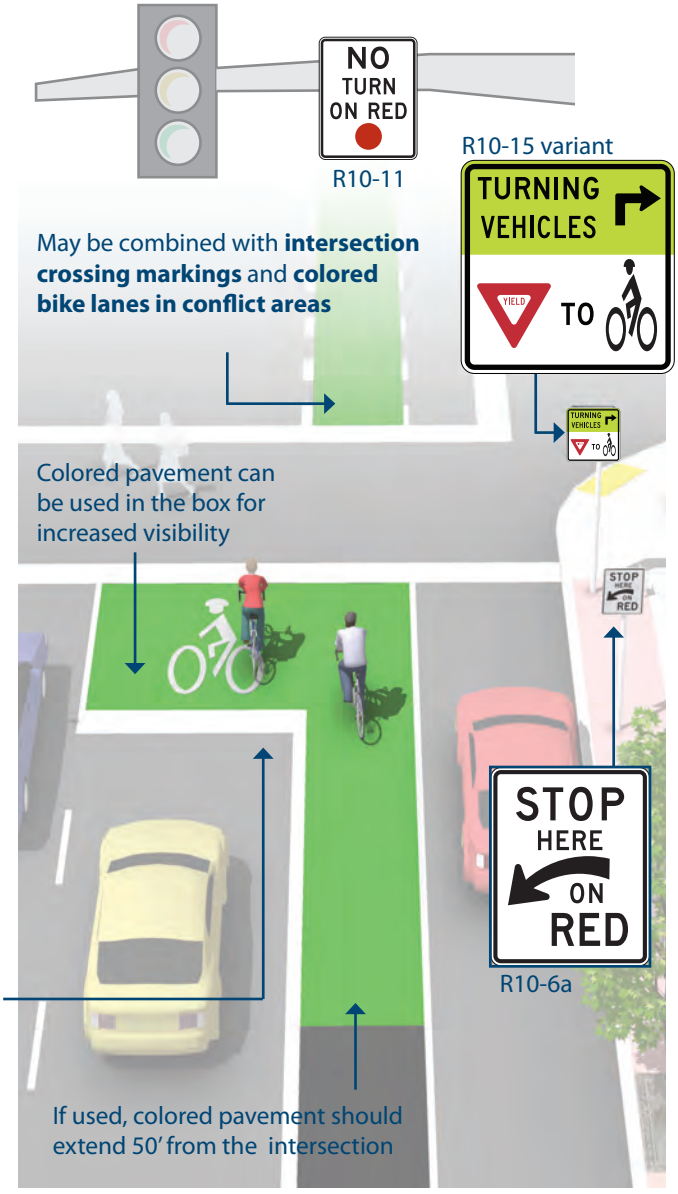
BIKE BOX

Description

A bike box is a designated area located at the head of a traffic lane at a signalized intersection that provides bicyclists with a safe and visible space to get in front of queuing motorized traffic during the red signal phase. Motor vehicles must queue behind the white stop line at the rear of the bike box.

Guidance

- 14' minimum depth
- A "No Turn on Red" (MUTCD R10-11) sign shall be installed overhead to prevent vehicles from entering the Bike Box.
- A "Stop Here on Red" sign should be post-mounted at the stop line to reinforce observance of the stop line.
- A "Yield to Bikes" sign should be post-mounted in advance of and in conjunction with an egress lane to reinforce that bicyclists have the right-of-way going through the intersection.
- An ingress lane should be used to provide access to the box.
- A supplemental "Wait Here" legend can be provided in advance of the stop bar to increase clarity to motorists.



Discussion

Bike boxes are considered experimental by the FHWA.

Bike boxes should be placed only at signalized intersections, and right turns on red shall be prohibited for motor vehicles. Bike boxes should be used in locations that have a large volume of bicyclists and are best utilized in central areas where traffic is usually moving more slowly. Prohibiting right turns on red improves safety for bicyclists yet does not significantly impede motor vehicle travel.

Additional References and Guidelines

NACTO. *Urban Bikeway Design Guide.* 2012.
FHWA. Interim Approval (IA-14) has been granted. Requests to use green colored pavement need to comply with the provisions of Paragraphs 14 through 22 of Section 1A.10. 2011.

Materials and Maintenance

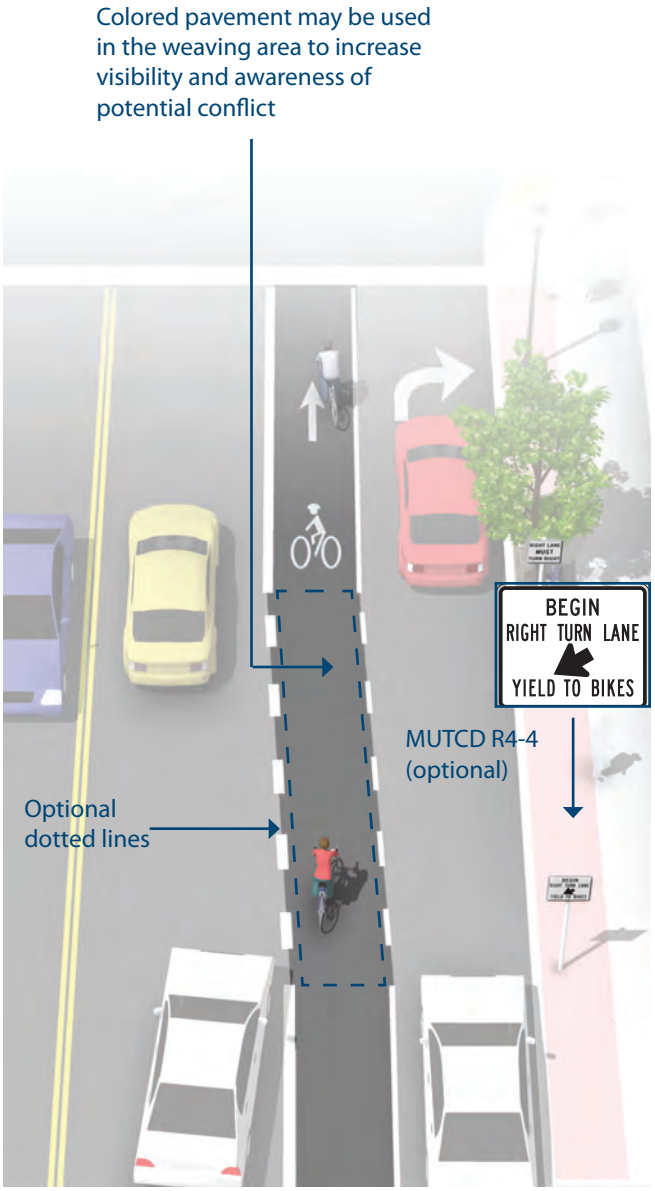
Because the effectiveness of markings depends entirely on their visibility, maintaining markings should be a high priority.

BIKE LANES AT RIGHT TURN ONLY LANES

Description

The appropriate treatment at right-turn lanes is to place the bike lane between the right-turn lane and the right-most through lane or, where right-of-way is insufficient, to use a shared bike lane/turn lane.

The design (right) illustrates a bike lane pocket, with signage indicating that motorists should yield to bicyclists through the conflict area.



Guidance

At auxiliary right turn only lanes (add lane):

- Continue existing bike lane width; standard width of 5 to 6 feet or 4 feet in constrained locations.
- Use signage to indicate that motorists should yield to bicyclists through the conflict area.
- Consider using colored conflict areas to promote visibility of the mixing zone.

Where a through lane becomes a right turn only lane:

- Do not define a dotted line merging path for bicyclists.
- Drop the bicycle lane in advance of the merge area.
- Shared lane markings may be used to indicate shared use of the lane in the merging zone.

Discussion

For other potential approaches to providing accommodations for bicyclists at intersections with turn lanes, please see shared bike lane/turn lane, bicycle signals, and colored bike facilities.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
FHWA. *Manual on Uniform Traffic Control Devices.* 2009.
NACTO. *Urban Bikeway Design Guide.* 2012.

Materials and Maintenance

Because the effectiveness of markings depends entirely on their visibility, maintaining markings should be a high priority.

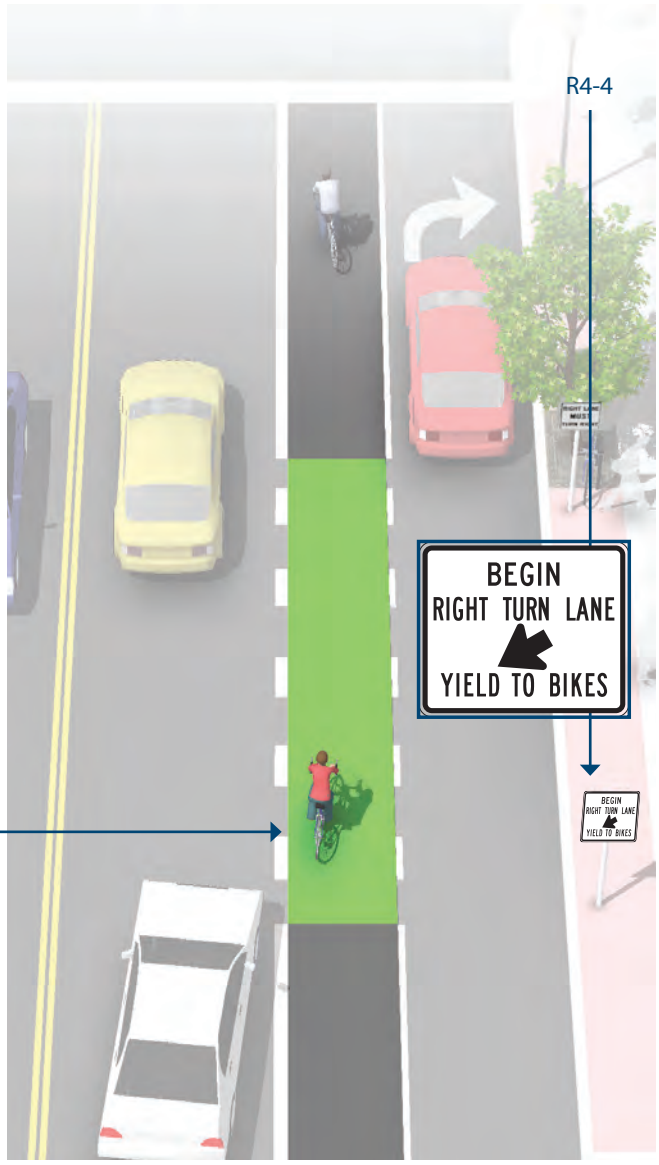
COLORED BIKE LANES IN CONFLICT AREAS

Description

Colored pavement within a bicycle lane increases the visibility of the facility and reinforces priority of bicyclists in conflict areas.

Guidance

- Green colored pavement was given interim approval by the Federal Highways Administration in March 2011. See interim approval for specific color standards.
- The colored surface should be skid resistant and retro-reflective.
- A "Yield to Bikes" sign should be used at intersections or driveway crossings to reinforce that bicyclists have the right-of-way in colored bike lane areas.



Discussion

Evaluations performed in Portland, OR, St. Petersburg, FL and Austin, TX found that significantly more motorists yielded to bicyclists and slowed or stopped before entering the conflict area after the application of the colored pavement when compared with an uncolored treatment.

Additional References and Guidelines

FHWA. Interim Approval (IA-14) has been granted. Requests to use green colored pavement need to comply with the provisions of Paragraphs 14 through 22 of Section 1A.10. 2011.
NACTO. *Urban Bikeway Design Guide.* 2012.

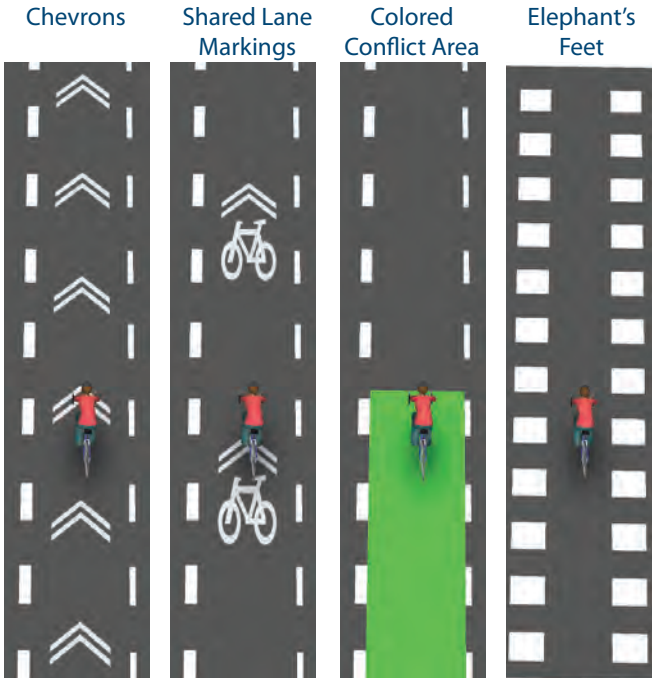
Materials and Maintenance

Because the effectiveness of markings depends entirely on their visibility, maintaining markings should be a high priority.

INTERSECTION CROSSING MARKINGS

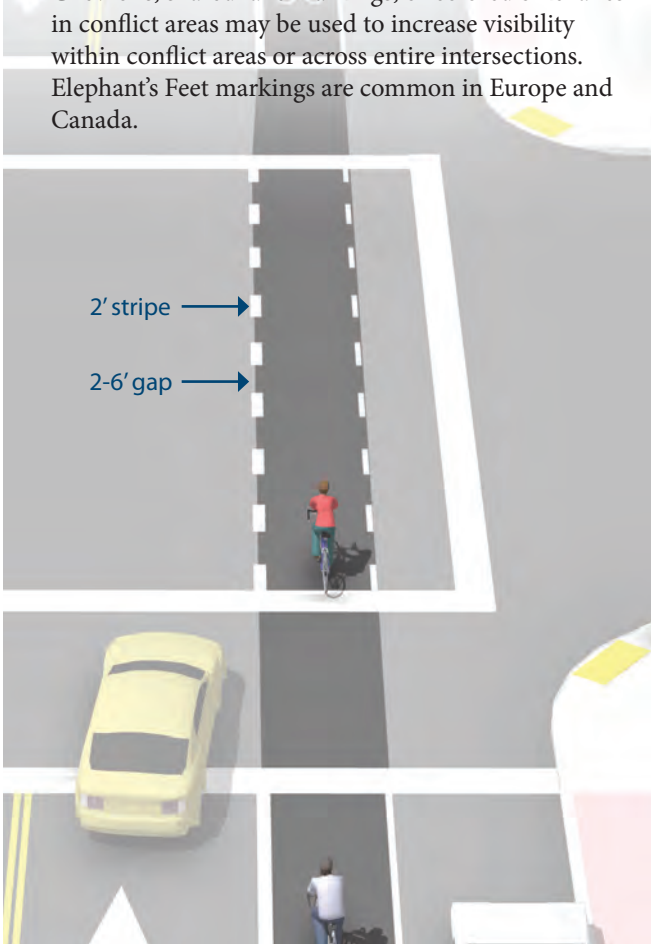
Description

Bicycle pavement markings through intersections indicate the intended path of bicyclists through an intersection or across a driveway or ramp. They guide bicyclists on a safe and direct path through the intersection and provide a clear boundary between the paths of through bicyclists and either through or crossing motor vehicles in the adjacent lane.



Guidance

- See MUTCD Section 3B.08: "dotted line extensions"
- Crossing striping shall be at least six inches wide when adjacent to motor vehicle travel lanes. Dotted lines should be two-foot lines spaced two to six feet apart.
- Chevrons, shared lane markings, or colored bike lanes in conflict areas may be used to increase visibility within conflict areas or across entire intersections. Elephant's Feet markings are common in Europe and Canada.



Discussion

Additional markings such as chevrons, shared lane markings, or colored bike lanes in conflict areas are strategies currently in use in the United States and Canada. Cities considering the implementation of markings through intersections should standardize future designs to avoid confusion.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
FHWA. *Manual on Uniform Traffic Control Devices. (3A.06).* 2009.
NACTO. *Urban Bikeway Design Guide.* 2012.

Materials and Maintenance

Because the effectiveness of marked crossings depends entirely on their visibility, maintaining marked crossings should be a high priority.

TWO-STAGE TURN BOXES

Description

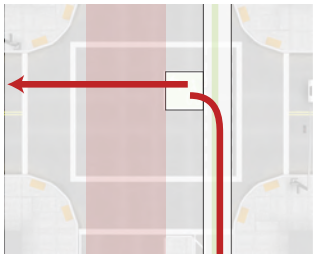
Two-stage turn queue boxes offer bicyclists a safe way to make left turns at multi-lane signalized intersections from a right side cycle track or bike lane.

On right side cycle tracks, bicyclists are often unable to merge into traffic to turn left due to physical separation, making the provision of two-stage left turn boxes critical. Design guidance for two-stage turns apply to both bike lanes and cycle tracks.

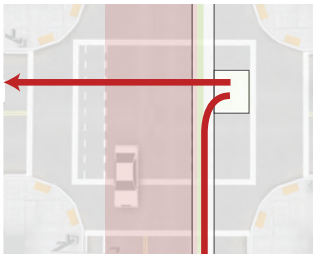
Guidance

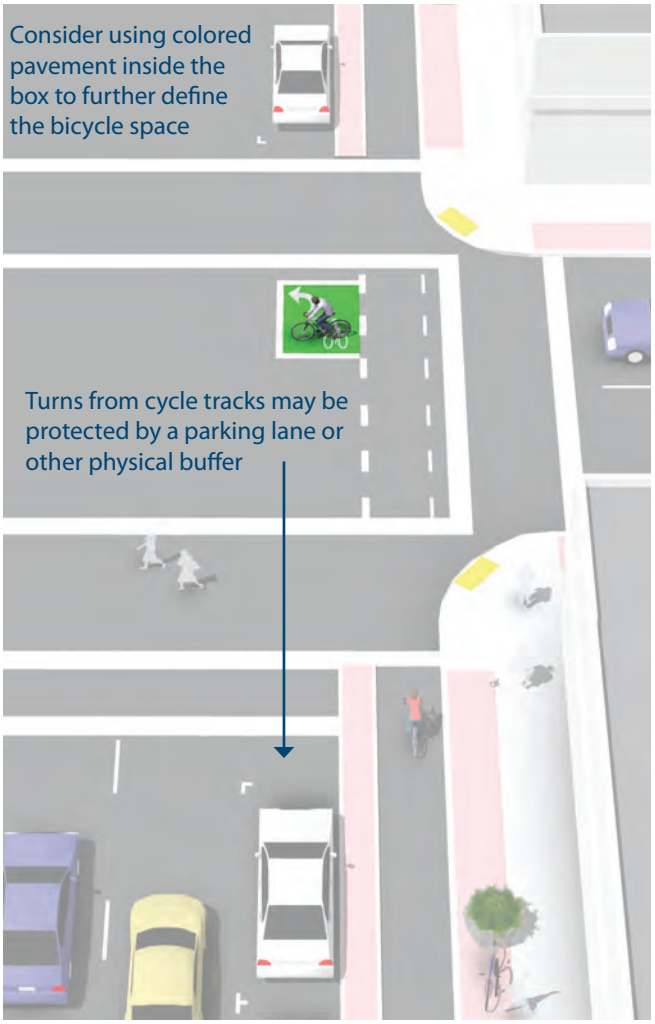
- The queue box shall be placed in a protected area. Typically this is within an on-street parking lane or cycle track buffer area.
- 6' minimum depth of bicycle storage area
- Bicycle stencil and turn arrow pavement markings shall be used to indicate proper bicycle direction and positioning.
- A "No Turn on Red" (MUTCD R10-11) sign may be installed on the cross street to prevent vehicles from entering the turn box.

Cycle track turn box protected by physical buffer:



Bike lane turn box protected by parking lane:





Discussion

Two-Stage Turn boxes are considered experimental by FHWA.

While two stage turns may increase bicyclist comfort in many locations, this configuration will typically result in higher average signal delay for bicyclists due to the need to receive two separate green signal indications (one for the through street, followed by one for the cross street) before proceeding.

Additional References and Guidelines

NACTO. *Urban Bikeway Design Guide*. 2012.

Materials and Maintenance

Paint can wear more quickly in high traffic areas or in winter climates.

BICYCLISTS AT SINGLE LANE MODERN ROUNDABOUTS

Description

Roundabouts are circular intersection designed with yield control for all entering traffic, channelized approaches and geometry to induce desirable speeds. They are used as an alternative to intersection signalization.

Other circulatory intersection designs exist but they function differently than the modern roundabout. These include:

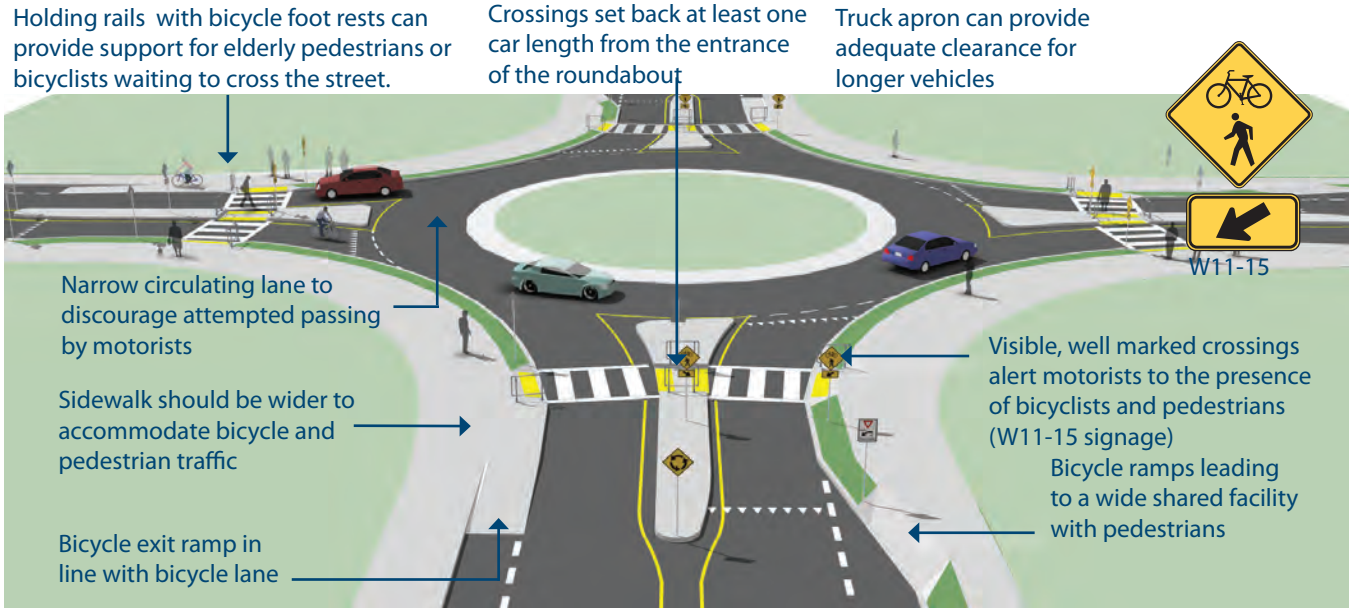
Traffic circles (also known as rotaries) are old style circular intersections used in some cities in the US where traffic signals or stop signs are used to control one or more entry.

Neighborhood Traffic Circles are small-sized circular intersections of local streets. They may be uncontrolled or stop controlled, and do not channelize entry.

Guidelines

It is important to indicate to motorists, bicyclists and pedestrians the right-of-way rules and correct way for them to circulate, using appropriately designed signage, pavement markings, and geometric design elements.

- 25 mph maximum circulating design speed.
- Design approaches/exits to the lowest speeds possible.
- Encourage bicyclists navigating the roundabout like motor vehicles to "take the lane."
- Maximize yielding rate of motorists to pedestrians and bicyclists at crosswalks.
- Provide separated facilities for bicyclists who prefer not to navigate the roundabout on the roadway.



Discussion

Research indicates that while single-lane roundabouts may benefit bicyclists and pedestrians by slowing traffic, multi-lane roundabouts may present greater challenges and significantly increase safety problems for these users.

On bicycle routes a roundabout or neighborhood traffic circle is preferable to stop control as bicyclists do not like to lose their momentum due to physical effort required. At intersections of shared use paved trails, pedestrian and bicycle only roundabouts are an excellent form of non-motorized user traffic control.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
TRB. *NCHRP 672 Roundabouts: An Informational Guide.* 2010.
TRB. *NCHRP Report 572 Roundabouts in the United States.* 2007.
Hourdos, John et al. *Investigation of Pedestrian/Bicyclist Risk in Minnesota Roundabout Crossings.* 2012
TRB. *NCHRP 674 Crossing Solutions at Roundabouts and Channelized Turn Lanes for Pedestrians with Vision Disabilities.* 2011.
Shaw and Moler. *Bicyclist- and Pedestrian-Only Roundabouts.* 2009. FHWA.
Brown, Rick. *The Case of Roundabouts: Doing Laps Around the Circle City.* 2012.

Materials and Maintenance

Signage and striping require routine maintenance.

This Page Intentionally Left Blank

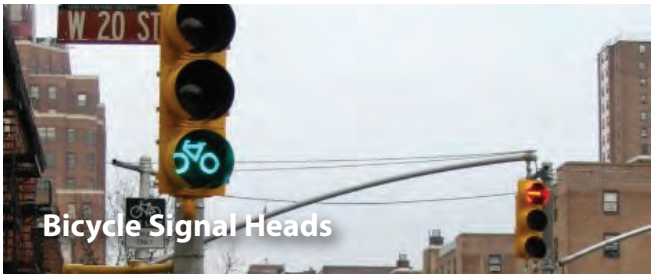
BIKEWAY SIGNALIZATION

Bicycle signals and beacons facilitate bicyclist crossings of roadways. Bicycle signals make crossing intersections safer for bicyclists by clarifying when to enter an intersection and by restricting conflicting vehicle movements. Bicycle signals are traditional three lens signal heads with green, yellow and red bicycle stenciled lenses that can be employed at standard signalized intersections. Flashing amber warning beacons can be utilized at unsignalized intersection crossings. Push buttons, signage, and pavement markings may be used to supplement these facilities for both bicyclists and motorists.

Determining which type of signal or beacon to use for a particular intersection depends on a variety of factors. These include speed limits, Average Daily Traffic (ADT), anticipated bicycle crossing traffic, and the configuration of planned or existing bicycle facilities. Signals may be necessary as part of the construction of a protected bicycle facility such as a cycle track with potential turning conflicts, or to decrease vehicle or pedestrian conflicts at major crossings. An intersection with bicycle signals may reduce stress and delays for a crossing bicyclist, and discourage illegal and unsafe crossing maneuvers.


Bicycle Detection and Actuation


Hybrid Beacons (HAWK)



Bicycle Signal Heads

BICYCLE DETECTION AND ACTUATION

Description

Push Button Actuation

User-activated button mounted on a pole facing the street.

Loop Detectors

Bicycle-activated loop detectors are installed within the roadway to allow the presence of a bicycle to trigger a change in the traffic signal. This allows the bicyclist to stay within the lane of travel without having to maneuver to the side of the road to trigger a push button.

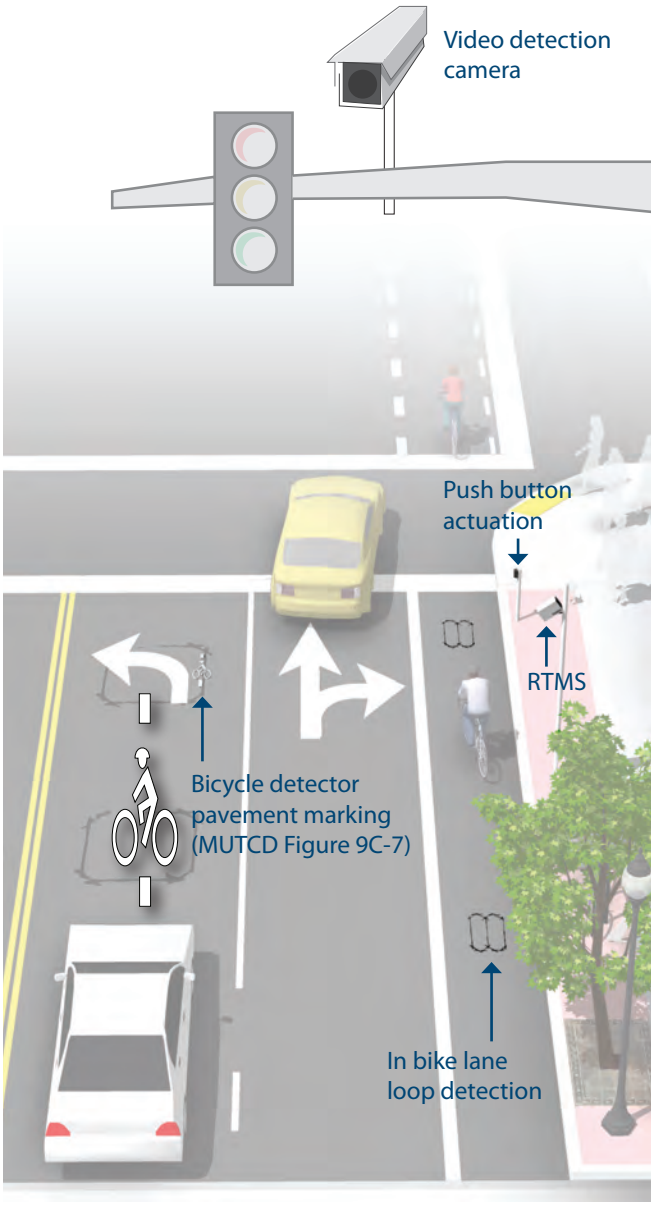
Loops that are sensitive enough to detect bicycles should be supplemented with pavement markings to instruct bicyclists how to trip them.

Video Detection Cameras

Video detection systems use digital image processing to detect a change in the image at a location. These systems can be calibrated to detect bicycles. Video camera system costs range from $20,000 to $25,000 per intersection.

Remote Traffic Microwave Sensor Detection (RTMS)

RTMS is a system which uses frequency modulated continuous wave radio signals to detect objects in the roadway. This method marks the detected object with a time code to determine its distance from the sensor. The RTMS system is unaffected by temperature and lighting, which can affect standard video detection.



Discussion

Proper bicycle detection should meet two primary criteria: 1) accurately detects bicyclists and 2) provides clear guidance to bicyclists on how to actuate detection (e.g., what button to push, where to stand).

Bicycle loops and other detection mechanisms can also provide bicyclists with an extended green time before the light turns yellow so that bicyclists of all abilities can reach the far side of the intersection.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
FHWA. *Manual on Uniform Traffic Control Devices.* 2009.
NACTO. *Urban Bikeway Design Guide.* 2012.

Materials and Maintenance

Signal detection and actuation for bicyclists should be maintained with other traffic signal detection and roadway pavement markings.

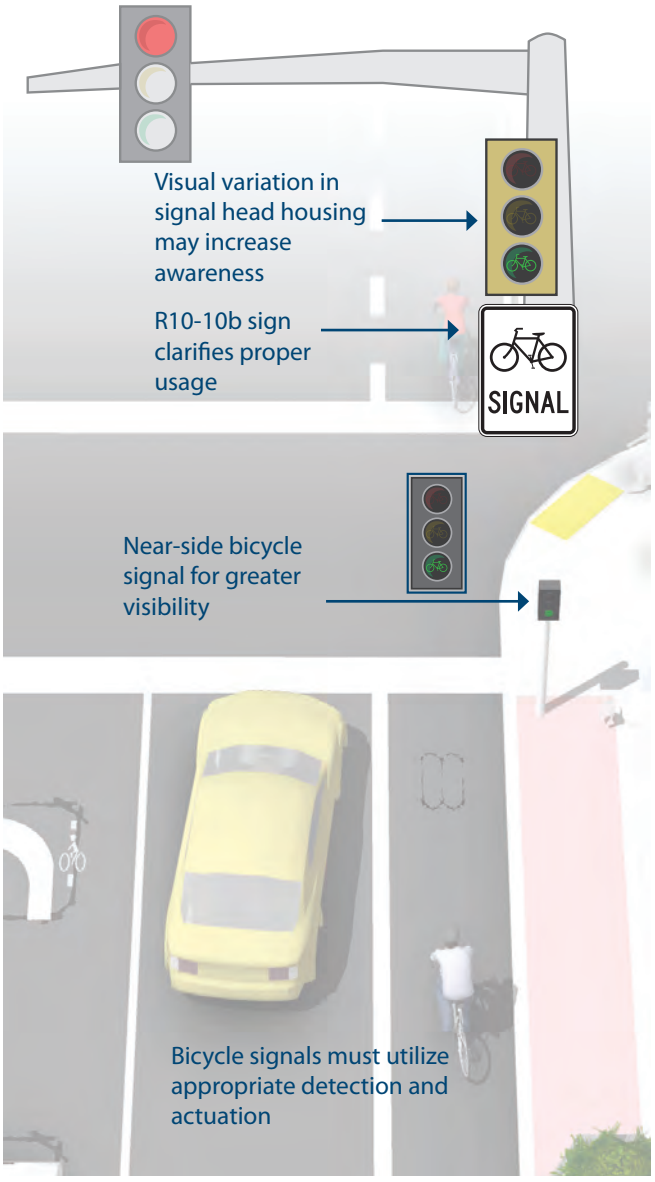
BICYCLE SIGNAL HEADS

Description

A bicycle signal is an electrically powered traffic control device that should only be used in combination with an existing traffic signal. Bicycle signals are typically used to improve identified safety or operational problems involving bicycle facilities. Bicycle signal heads may be installed at signalized intersections to indicate bicycle signal phases and other bicycle-specific timing strategies. Bicycle signals can be actuated with bicycle sensitive loop detectors, video detection, or push buttons.

Bicycle signals are typically used to provide guidance for bicyclists at intersections where they may have different needs from other road users (e.g., bicycle-only movements).

FHWA currently limits the use of bicycle signal faces to where bicyclists would not be in conflict with any other vehicle movements, however many cities have successfully experimented with bicycle signals in other ways including the use of leading bicycle intervals.



Guidance

Specific locations where bicycle signals have had a demonstrated positive effect include:

- Those with high volume of bicyclists at peak hours
- Those with high numbers of bicycle/motor vehicle crashes, especially those caused by turning vehicle movements
- At T-intersections with major bicycle movement along the top of the "T."
- At the confluence of an off-street bike trail and a roadway intersection
- Where separated bike paths run parallel to arterial streets

Discussion

Local municipal code should be checked or modified to clarify that at intersections with bicycle signals, bicyclists should only obey the bicycle signal heads. For improved visibility, smaller (4 inch lens) near-sided bicycle signals should be considered to supplement far-side signals.

Additional References and Guidelines

FHWA. *MUTCD - Interim Approval for Optional Use of a Bicycle Signal Face (IA-16).* 2013.
NACTO. *Urban Bikeway Design Guide.* 2012.

Materials and Maintenance

Bicycle signal heads require the same maintenance as standard traffic signal heads, such as replacing bulbs and responding to power outages.

This Page Intentionally Left Blank

BIKEWAY SIGNING

The ability to navigate through a city is informed by landmarks, natural features and other visual cues. Signs throughout the city should indicate to bicyclists:

- Direction of travel
- Location of destinations
- Travel time/distance to those destinations

These signs will increase users' comfort and accessibility to the bicycle systems.

Signage can serve both wayfinding and safety purposes including:

- Helping to familiarize users with the bicycle network
- Helping users identify the best routes to destinations
- Helping to address misperceptions about time and distance
- Helping overcome a "barrier to entry" for people who are not frequent bicyclists (e.g., "interested but concerned" bicyclists)

A community-wide bicycle wayfinding signage plan would identify:

- Sign locations
- Sign type – what information should be included and design features
- Destinations to be highlighted on each sign – key destinations for bicyclists
- Approximate distance and travel time to each destination

Bicycle wayfinding signs also visually cue motorists that they are driving along a bicycle route and should use caution. Signs are typically placed at key locations leading to and along bicycle routes, including the intersection of multiple routes. Too many road signs tend to clutter the right-of-way, and it is recommended that these signs be posted at a level most visible to bicyclists rather than per vehicle signage standards.


Wayfinding Sign Types


Wayfinding Sign Placement

WAYFINDING SIGN TYPES

Description

A bicycle wayfinding system consists of comprehensive signing and/or pavement markings to guide bicyclists to their destinations along preferred bicycle routes. There are three general types of wayfinding signs:

Confirmation Signs

Indicate to bicyclists that they are on a designated bikeway. Make motorists aware of the bicycle route.

Can include destinations and distance/time. Do not include arrows.

Turn Signs

Indicate where a bikeway turns from one street onto another street. Can be used with pavement markings.

Include destinations and arrows.

Decisions Signs

Mark the junction of two or more bikeways.

Inform bicyclists of the designated bike route to access key destinations.

Destinations and arrows, distances and travel times are optional but recommended.

Discussion

There is no standard color for bicycle wayfinding signage. Section 1A.12 of the MUTCD establishes the general meaning for signage colors. Green is the color used for directional guidance and is the most common color of bicycle wayfinding signage in the US, including those in the MUTCD.

See image at right for an example of a regional logo used for visual communication for the Razorback Regional Greenway.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
FHWA. *Manual on Uniform Traffic Control Devices.* 2009.
NACTO. *Urban Bikeway Design Guide.* 2012.

Materials and Maintenance

Maintenance needs for bicycle wayfinding signs are similar to other signs and will need periodic replacement due to wear.

WAYFINDING SIGN PLACEMENT

Along a route to indicate a nearby destination.

Confirmation Signs

Every ¼ to ½ mile on off-street facilities and every 2 to 3 blocks along on-street bicycle facilities, unless another type of sign is used (e.g., within 150 ft of a turn or decision sign). Should be placed soon after turns to confirm destination(s). Pavement markings can also act as confirmation that a bicyclist is on a preferred route.

Turn Signs

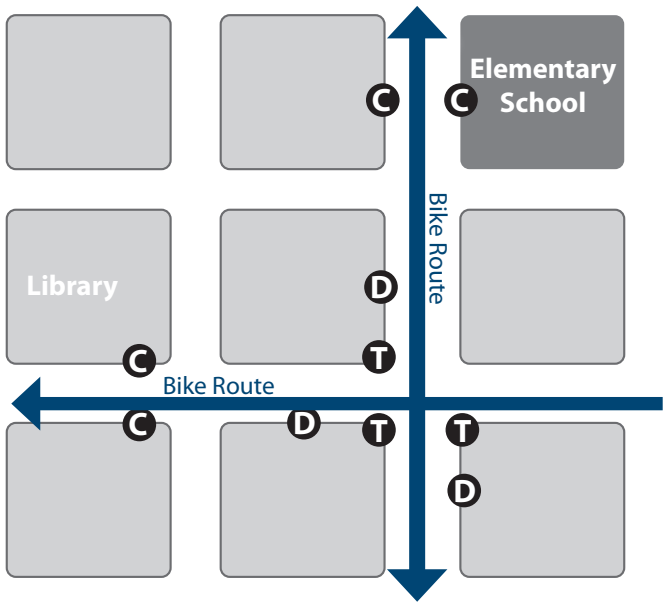
Near-side of intersections where bike routes turn (e.g., where the street ceases to be a bicycle route or does not go through). Pavement markings can also indicate the need to turn to the bicyclist.

Guidance

Signs are typically placed at decision points along bicycle routes – typically at the intersection of two or more bikeways and at other key locations leading to and along bicycle routes.

Decisions Signs

Near-side of intersections in advance of a junction with another bicycle route.



Discussion

It can be useful to classify a list of destinations for inclusion on the signs based on their relative importance to users throughout the area. A particular destination's ranking in the hierarchy can be used to determine the physical distance from which the locations are signed. For example, primary destinations (such as the downtown area) may be included on signage up to 5 miles away. Secondary destinations (such as a transit station) may be included on signage up to two miles away. Tertiary destinations (such as a park) may be included on signage up to one mile away.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
FHWA. *Manual on Uniform Traffic Control Devices.* 2009.
NACTO. *Urban Bikeway Design Guide.* 2012.

Materials and Maintenance

Maintenance needs for bicycle wayfinding signs are similar to other signs and will need periodic replacement due to wear.

This Page Intentionally Left Blank

BICYCLE SUPPORT FACILITIES

Bicycle Parking

Bicyclists expect a safe, convenient place to secure their bicycle when they reach their destination. This may be short-term parking of 2 hours or less, or long-term parking for employees, students, residents, and commuters.

Access to Transit

Safe and easy access to bicycle parking facilities is necessary to encourage commuters to access transit via bicycle. Providing bicycle access to transit and space for bicycles on buses and rail vehicles can increase the feasibility of transit in lower-density areas, where transit stops are beyond walking distance of many residences. People are often willing to walk only a quarter- to half-mile to a bus stop, while they might bike as much as two or more miles to reach a transit station.

Roadway Construction and Repair

Safety of all roadway users should be considered during road construction and repair. Wherever bicycles are allowed, measures should be taken to provide for the continuity of a bicyclist's trip through a work zone area.

Only in rare cases should pedestrians and bicyclists be detoured to another street when travel vehicle lanes remain open. Contractors performing work should be made aware of the needs of bicyclists and be properly trained in how to safely route bicyclists through or around work zones.


Bicycle Racks


Bicycle Corral


Bicycle Lockers


Secure Parking Areas

BICYCLE RACKS

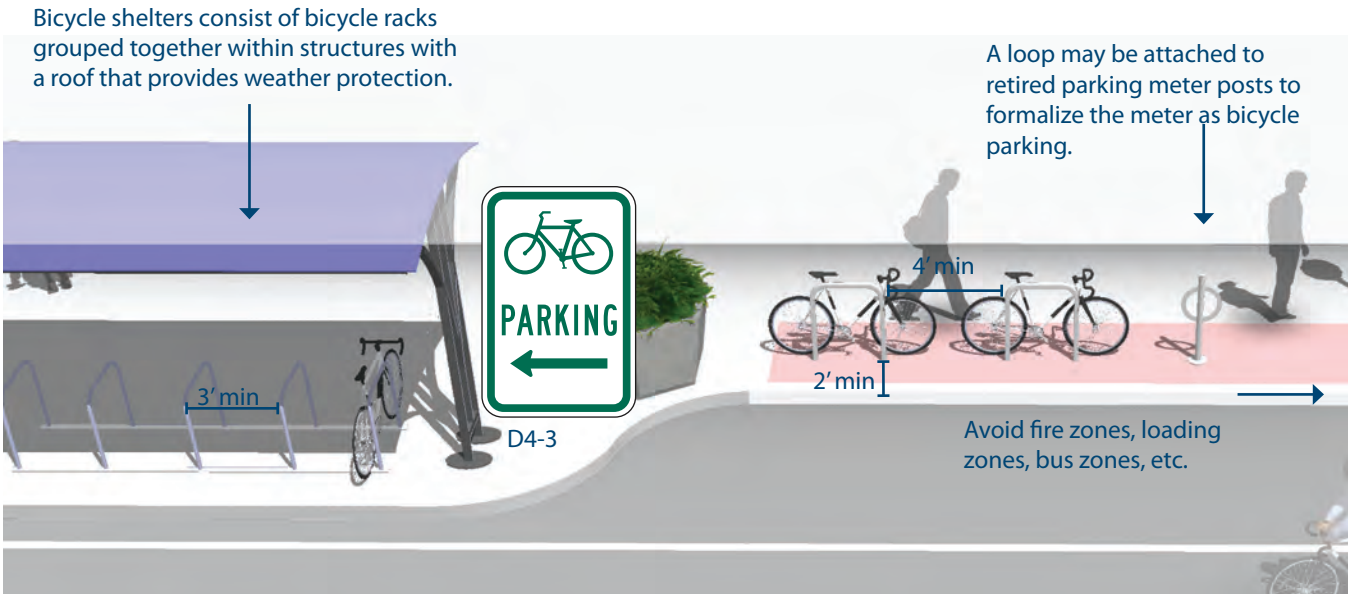
Description

Short-term bicycle parking is meant to accommodate visitors, customers, and others expected to depart within two hours. It should have an approved standard rack, appropriate location and placement, and weather protection. The Association for Pedestrian and Bicycle Professionals (APBP) recommends selecting a bicycle rack that:

- Supports the bicycle in at least two places, preventing it from falling over.
- Allows locking of the frame and one or both wheels with a U-lock.
- Is securely anchored to ground.
- Resists cutting, rusting and bending or deformation.

Guidance

- 2' minimum from the curb face to avoid 'dooring.'
- Close to destinations; 50' maximum distance from main building entrance.
- Minimum clear distance of 6' should be provided between the bicycle rack and the property line.
- Should be highly visible from adjacent bicycle routes and pedestrian traffic.
- Locate racks in areas that cyclists are most likely to travel.



Discussion

Where the placement of racks on sidewalks is not possible (due to narrow sidewalk width, sidewalk obstructions, street trees, etc.), bicycle parking can be provided in the street where on-street vehicle parking is allowed in the form of on-street bicycle corrals.

Some types of bicycle racks may meet design criteria, but are discouraged except in limited situations. This includes undulating "wave" racks, schoolyard "wheel bender" racks, and spiral racks.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
APBP. *Bicycle Parking Guide 2nd Edition.* 2010.

Materials and Maintenance

Use of proper anchors will prevent vandalism and theft. Racks and anchors should be regularly inspected for damage. Educate snow removal crews to avoid burying racks during winter months.

ON-STREET BICYCLE CORRAL

Description

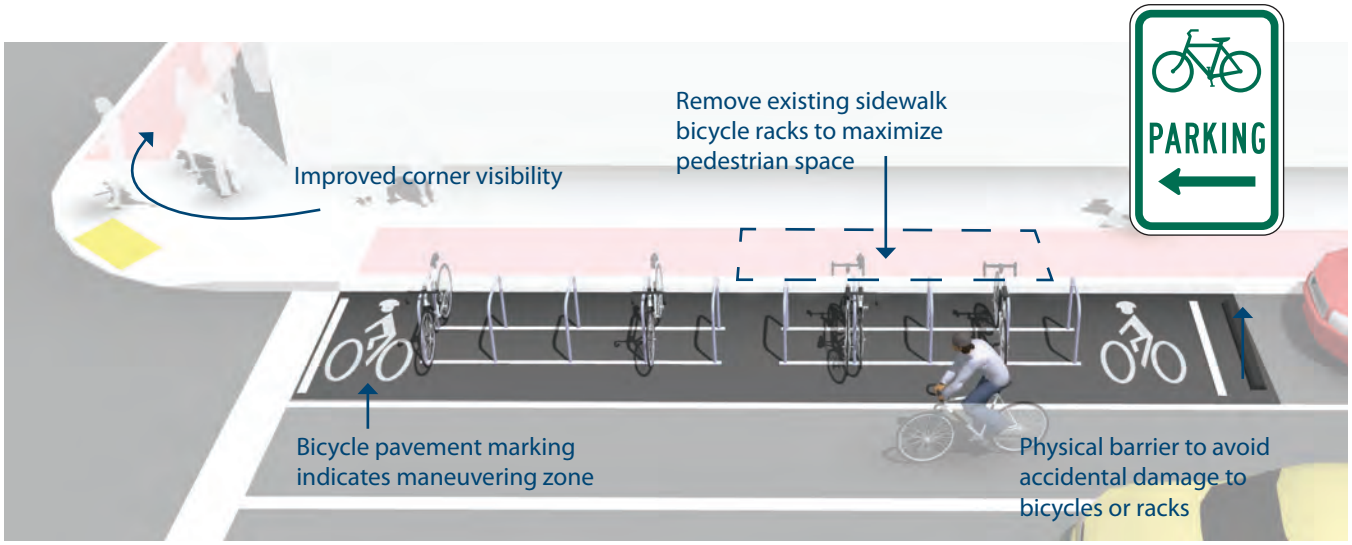
Bicycle corrals (also known as on-street bicycle parking) consist of bicycle racks grouped together in a common area within the street traditionally used for automobile parking. Bicycle corrals are reserved exclusively for bicycle parking and provide a relatively inexpensive solution to providing high-volume bicycle parking. Bicycle corrals can be implemented by converting one or two on-street motor vehicle parking spaces into on-street bicycle parking. Each motor vehicle parking space can be replaced with approximately 6-10 bicycle parking spaces.

Bicycle corrals move bicycles off the sidewalks, leaving more space for pedestrians, sidewalk café tables, etc. Because bicycle parking does not block sightlines (as large motor vehicles would do), it may be possible to locate bicycle parking in 'no-parking' zones near intersections and crosswalks.

Guidance

See guidelines for sidewalk bicycle rack placement and clear zones.

- Bicyclists should have an entrance width from the roadway of 5' – 6'.
- Can be used with parallel or angled parking.
- Parking stalls adjacent to curb extensions are good candidates for bicycle corrals since the concrete extension serves as delimitation on one side.



Discussion

In many communities, the installation of bicycle corrals is driven by requests from adjacent businesses, and is not a city-driven initiative. In such cases, the city does not remove motor vehicle parking unless it is explicitly requested. In other areas, the city provides the facility and business associations take responsibility for the maintenance of the facility. Communities can establish maintenance agreements with the requesting business. Bicycle corrals can be especially effective in areas with high bicycle parking demand or along street frontages with narrow sidewalks where parked bicycles would be detrimental to the pedestrian environment.

Additional References and Guidelines

APBP. *Bicycle Parking Guide 2nd Edition*. 2010.

Materials and Maintenance

Physical barriers may obstruct drainage and collect debris. Establish a maintenance agreement with neighboring businesses. In snowy climates the bicycle corral may need to be removed during the winter months.

BICYCLE LOCKERS

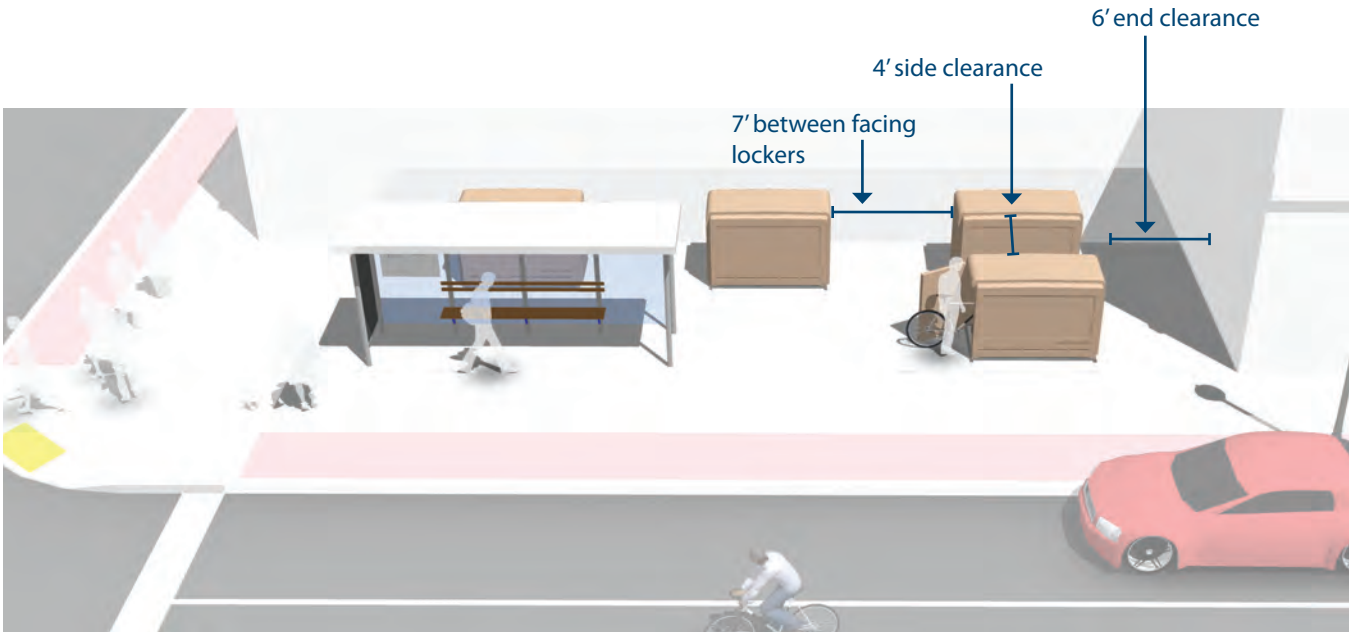
Description

Bicycle lockers are intended to provide long-term bicycle storage for employees, students, residents, commuters, and others expected to park more than two hours. Long-term facilities protect the entire bicycle, its components and accessories against theft and against inclement weather, including snow and wind-driven rain.

Bicycle lockers provide space to store a few accessories or rain gear in addition to containing the bicycle. Some lockers allow access to two users - a partition separating the two bicycles can help users feel their bike is secure. Lockers can also be stacked, reducing the footprint of the area, although that makes them more difficult to use.

Guidance

- Minimum dimensions: width (opening) 2.5'; height 4'; depth 6'.
- 4 foot side clearance and 6 foot end clearance.
- 7 foot minimum distance between facing lockers.
- Locker designs that allow visibility and inspection of contents are recommended for increased security.
- Access is controlled by a key or access code.



Discussion

Long-term parking facilities are more expensive to provide than short-term facilities, but are also significantly more secure. Although many bicycle commuters would be willing to pay a nominal fee to guarantee the safety of their bicycle, long-term bicycle parking should be free wherever automobile parking is free. Potential locations for long-term bicycle parking include transit stations, large employers, and institutions where people use their bikes for commuting and not consistently throughout the day.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities.* 2012.
APBP. *Bicycle Parking Guide 2nd Edition.* 2010.

Materials and Maintenance

Regularly inspect the functioning of moving parts and enclosures. Change keys and access codes periodically to prevent access to unapproved users.

SECURE PARKING AREAS (SPA)

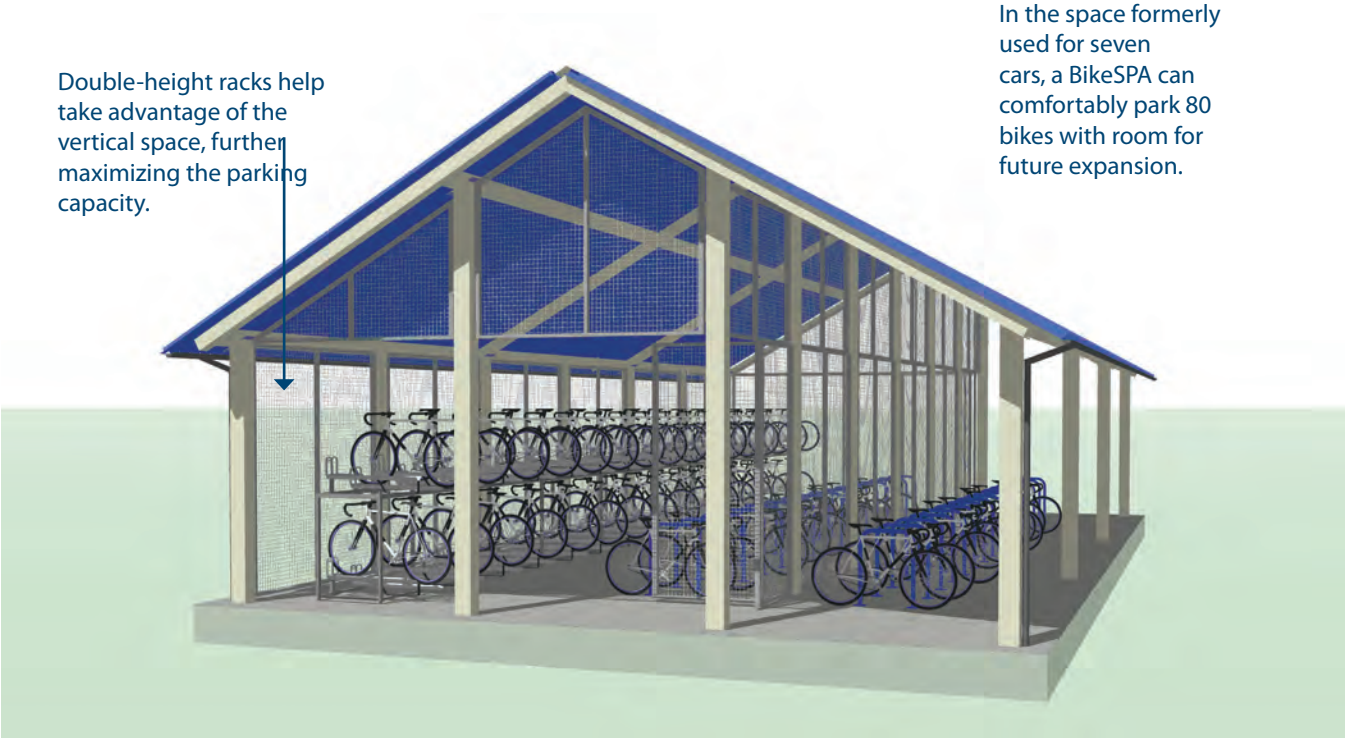
Description

A Secure Parking Area for bicycles, also known as a BikeSPA or Bike & Ride (when located at transit stations), is a semi-enclosed space that offers a higher level of security than ordinary bike racks. Accessible via key-card, combination locks, or keys, BikeSPAs provide high-capacity parking for 10 to 100 or more bicycles. Increased security measures create an additional transportation option for those whose biggest concern is theft and vulnerability.

Guidance

Key features may include:

- Closed-circuit television monitoring.
- Double high racks & cargo bike spaces.
- Bike repair station with bench.
- Bike tube and maintenance item vending machine.
- Bike lock "hitching post" – allows people to leave bike locks.
- Secure access for users.



Discussion

Long-term parking facilities are more expensive to provide than short-term facilities, but are also significantly more secure. Although many bicycle commuters would be willing to pay a nominal fee to guarantee the safety of their bicycle, long-term bicycle parking should be free wherever automobile parking is free. BikeSPAs are ideal for transit centers, airports, train stations, or wherever large numbers of people might arrive by bicycle and need a secure place to park while away.

Additional References and Guidelines

AASHTO. *Guide for the Development of Bicycle Facilities*. 2012.
APBP. *Bicycle Parking Guide 2nd Edition*. 2010.

Materials and Maintenance

Regularly inspect the functioning of moving parts and enclosures. Change keys and access codes periodically to prevent access to unapproved users.

This Page Intentionally Left Blank

BIKEWAY MAINTENANCE

Regular bicycle facility maintenance includes sweeping, maintaining a smooth roadway, ensuring that the gutter-to-pavement transition remains relatively flat, and installing bicycle-friendly drainage grates. Pavement overlays are a good opportunity to improve bicycle facilities. The following recommendations provide a menu of options to consider to enhance a maintenance regimen.

Recommended Walkway and Bikeway Maintenance Activities

Maintenance Activity	Frequency
Inspections	Seasonal – at beginning and end of Summer
Pavement sweeping/ blowing	As needed, with higher frequency in the early Spring and Fall
Pavement sealing	5 - 15 years
Pothole repair	1 week – 1 month after report
Culvert and drainage grate inspection	Before Winter and after major storms
Pavement markings replacement	As needed
Signage replacement	As needed
Shoulder plant trimming (weeds, trees, brambles)	Twice a year; middle of growing season and early Fall
Tree and shrub plantings, trimming	1 – 3 years
Major damage response (washouts, fallen trees, flooding)	As soon as possible

This Section Includes:

- Sweeping
- Signage
- Roadway Surface
- Pavement Overlays
- Drainage Grates
- Gutter to Pavement Transition
- Landscaping
- Maintenance Management Plan


Sweeping


Roadway Surface


Drainage Grates


Gutter to Pavement Transition


Landscaping


Maintenance Management Plan

SWEEPING

Description

Bicyclists often avoid shoulders and bike lanes filled with gravel, broken glass and other debris; they will ride in the roadway to avoid these hazards, potentially causing conflicts with motorists. Debris from the roadway should not be swept onto sidewalks (pedestrians need a clean walking surface), nor should debris be swept from the sidewalk onto the roadway. A regularly scheduled inspection and maintenance program helps ensure that roadway debris is regularly picked up or swept.

Guidance

- Establish a seasonal sweeping schedule that prioritizes roadways with major bicycle routes.
- Sweep walkways and bikeways whenever there is an accumulation of debris on the facility.
- In curbed sections, sweepers should pick up debris; on open shoulders, debris can be swept onto gravel shoulders.
- Pave gravel driveway approaches to minimize loose gravel on paved roadway shoulders.
- Perform additional sweeping in the Spring to remove debris from the Winter.
- Perform additional sweeping in the Fall in areas where leaves accumulate .

SIGNAGE

Description

Bike lanes, shared shoulders, Bicycle Boulevards and trails all have different signage types for wayfinding and regulations. Such signage is vulnerable to vandalism or wear, and requires periodic maintenance and replacement as needed.

Guidance

- Check regulatory and wayfinding signage along bikeways for signs of vandalism, graffiti, or normal wear.
- Replace signage along the bikeway network as-needed.
- Perform a regularly-scheduled check on the status of signage with follow-up as necessary.
- Create a Maintenance Management Plan.

ROADWAY SURFACE

Description

Bicycles are much more sensitive to subtle changes in roadway surface than are motor vehicles. Various materials are used to pave roadways, and some are smoother than others. Compaction is also an important issue after trenches and other construction holes are filled. Uneven settlement after trenching can affect the roadway surface nearest the curb where bicycles travel. Sometimes compaction is not achieved to a satisfactory level, and an uneven pavement surface can result due to settling over the course of days or weeks. When resurfacing streets, use the smallest chip size and ensure that the surface is as smooth as possible to improve safety and comfort for bicyclists.

Guidance

- Maintain a smooth pothole-free surface.
- Ensure that on new roadway construction, the finished surface on bikeways does not vary more than ¼".
- Maintain pavement so ridge buildup does not occur at the gutter-to-pavement transition or adjacent to railway crossings.
- Inspect the pavement 2 to 4 months after trenching construction activities are completed to ensure that excessive settlement has not occurred.
- If chip sealing is to be performed, use the smallest possible chip on bike lanes and shoulders. Sweep loose chips regularly following application.
- During chip seal maintenance projects, if the pavement condition of the bike lane is satisfactory, it may be appropriate to chip seal the travel lanes only. However, use caution when doing this so as not to create an unacceptable ridge between the bike lane and travel lane.

PAVEMENT OVERLAYS

Description

Pavement overlays represent good opportunities to improve conditions for bicyclists if done carefully. A ridge should not be left in the area where bicyclists ride (this occurs where an overlay extends part-way into a shoulder bikeway or bike lane). Overlay projects also offer opportunities to widen a roadway, or to re-stripe a roadway with bike lanes.

Guidance

- Extend the overlay over the entire roadway surface to avoid leaving an abrupt edge.
- If the shoulder or bike lane pavement is of good quality, it may be appropriate to end the overlay at the shoulder or bike lane stripe provided no abrupt ridge remains.
- Ensure that inlet grates, manhole and valve covers are within ¼ inch of the finished pavement surface and are made or treated with slip resistant materials.
- Pave gravel driveways to property lines to prevent gravel from being tracked onto shoulders or bike lanes.

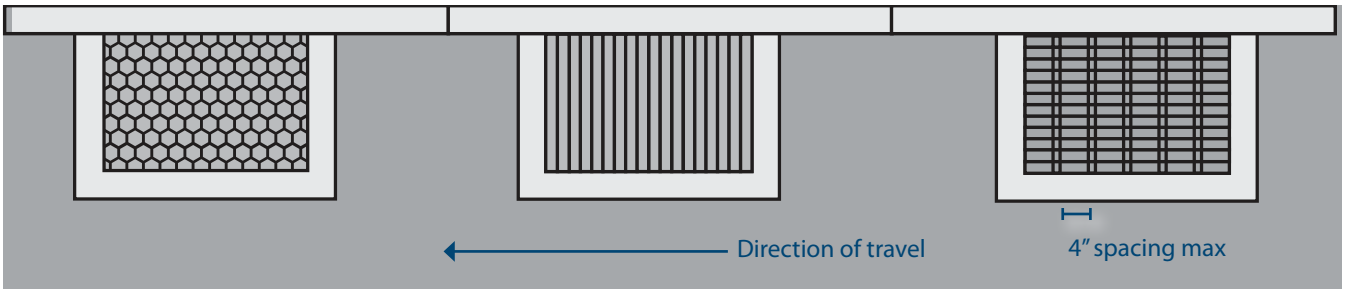
DRAINAGE GRATES

Description

Drainage grates are typically located in the gutter area near the curb of a roadway. Drainage grates typically have slots through which water drains into the municipal storm sewer system. Many older grates were designed with linear parallel bars spread wide enough for a tire to become caught so that if a bicyclist were to ride on them, the front tire could become caught in the slot. This would cause the bicyclist to tumble over the handlebars and sustain potentially serious injuries.

Guidance

- Require all new drainage grates be bicycle-friendly, including grates that have horizontal slats on them so that bicycle tires and assistive devices do not fall through the vertical slats.
- Similarly, tree grates that are in the path of travel for bicycles and assitive devices should also have slats that are perpendicular to the direction of travel.
- Create a program to inventory all existing drainage grates, and replace hazardous grates as necessary – temporary modifications such as installing rebar horizontally across the grate should not be an acceptable alternative to replacement.



GUTTER TO PAVEMENT TRANSITION

Description

On streets with concrete curbs and gutters, 1 to 2 feet of the curbside area is typically devoted to the gutter pan, where water collects and drains into catch basins. On many streets, the bikeway is situated near the transition between the gutter pan and the pavement edge. This transition can be susceptible to erosion, creating potholes and a rough surface for travel.

The pavement on many streets is not flush with the gutter, creating a vertical transition between these segments. This area can buckle over time, creating a hazardous condition for bicyclists.

Guidance

- Ensure that gutter-to-pavement transitions have no more than a ¼" vertical transition.
- Examine pavement transitions during every roadway project for new construction, maintenance activities, and construction project activities that occur in streets.
- Inspect the pavement 2 to 4 months after trenching construction activities are completed to ensure that excessive settlement has not occurred.
- Provide at least 3 feet of pavement outside of the gutter seam.

LANDSCAPING

Description

Bikeways can become inaccessible due to overgrown vegetation. All landscaping needs to be designed and maintained to ensure compatibility with the use of the bikeways. After a flood or major storm, bikeways should be checked along with other roads, and fallen trees or other debris should be removed promptly.

Guidance

- Ensure that shoulder plants do not hang into or impede passage along bikeways
- After major damage incidents, remove fallen trees or other debris from bikeways as quickly as possible

MAINTENANCE MANAGEMENT PLAN

Description

Bikeway users need accommodation during construction and maintenance activities when bikeways may be closed or unavailable. Users must be warned of bikeway closures and given adequate detour information to bypass the closed section. Users should be warned through the use of standard signing approaching each affected section (e.g., "Bike Lane Closed," "Trail Closed"), including information on alternate routes and dates of closure. Alternate routes should provide reasonable directness, equivalent traffic characteristics, and be signed.

Guidance

- Provide fire and police departments with map of system, along with access points to gates/bollards
- Enforce speed limits and other rules of the road
- Enforce all trespassing laws for people attempting to enter adjacent private properties

This Page Intentionally Left Blank

B SAMPLE COMPLETE STREETS RESOLUTION

Appendix Contents:

Sample Complete Streets Resolution for NWA Communities

SAMPLE COMPLETE STREETS RESOLUTION FOR NWA COMMUNITIES

WHEREAS Complete Streets are important for our community's economy, health, mobility, and quality of life for residents, businesses and visitors,

LET IT BE RESOLVED that *[Municipality / Adopting body]* hereby recognizes the importance of creating Complete Streets that enable safe travel by all users, including pedestrians, bicyclists, transit riders and motorists, and people of all ages and abilities, including children, youth, families, older adults, and individuals with disabilities.

BE IT FURTHER RESOLVED that *[Municipality / Adopting body]* affirms that Complete Streets infrastructure addressing the needs of all users can be incorporated into all planning, design, approval, and implementation processes for construction, reconstruction, retrofit, maintenance, alteration, or repair of streets, bridges, or other portions of the transportation network; provided, however, that such infrastructure may be excluded, upon written approval by *[insert senior manager, such as City Manager or the head of an appropriate agency]*, where documentation and data indicate that: 1. Use by non-motorized users is prohibited by law; 2. The cost would be excessively disproportionate to the need or probable future use over the long term; 3. There is an absence of current or future need; or 4. Inclusion of such infrastructure would be unreasonable or inappropriate in light of the scope of the project.

By including this fourth exception, a jurisdiction gains considerable flexibility, but at the cost of potentially implementing Complete Streets practices less thoroughly. Jurisdictions should consider this trade-off in determining whether to include this exception.

BE IT FURTHER RESOLVED that the head of each affected agency or department should report back to the *[Adopting body] [annually / within one year of the date of passage of this resolution]* regarding: the steps taken to implement this Resolution; additional steps planned; and any desired actions that would need to be taken by [Adopting body] or other agencies or departments to implement the steps taken or planned.

BE IT FURTHER RESOLVED that a committee is hereby created, to be composed of [insert desired committee composition] and appointed by *[the Mayor / President of adopting body / other]*, to recommend short-term and long-term steps, planning, and policy adoption necessary to create a comprehensive and integrated transportation network serving the needs of all users; to assess potential obstacles to implementing Complete Streets in *[Municipality]*; and to suggest revisions to the *[insert name of Municipality's comprehensive plan equivalent]*, zoning code, subdivision code, and other applicable law.

[Blank page for double-sided printing]

C NEEDS ANALYSIS

Appendix Contents:

Technical Memo:
User Needs Assessment

TECHNICAL MEMO: USER NEEDS ASSESSMENT

This document provides an assessment of user needs for walking and biking. It is comprised of three sections. The first estimates existing and future bicycle and pedestrian trips and their corresponding benefits, including reduced emissions and health care costs. The second section identifies needs from a safety perspective based on a review of crash data and existing safety education programs. The final section presents a methodology for using counts to benchmark walking and bicycling levels and measure changes over time.

[Blank page for double-sided printing]

MEMORANDUM

To: John McLarty, Northwest Arkansas Regional Planning Commission

From: Dennis Blind, Matt Berkow, and Stephen Bzomowski, Alta Planning + Design

Date: February 28, 2014

Re: User Needs Assessment (Task 5)

This document provides an assessment of user needs for walking and biking. It is comprised of three sections. The first estimates existing and future bicycle and pedestrian trips and their corresponding benefits, including reduced emissions and health care costs. The second section identifies needs from a safety perspective based on a review of crash data and existing safety education programs. The final section presents a methodology for using counts to benchmark walking and bicycling levels and measure changes over time.

TABLE OF CONTENTS

1 Bicycle / Pedestrian Demand and Benefits Analysis 2

1.1 Economic Benefits of Bicycling and Walking 2

2 Safety Needs Analysis 7

2.1 Existing Pedestrian and Bicycle Safety Education Programs 7

2.2 Crash Data Analysis 10

3 Bicyclist and Pedestrian Counts 23

3.1 Data Collection Methodology 23

3.2 Suggested Count Locations 26

4 Conclusions and Recommendations 28

1 BICYCLE / PEDESTRIAN DEMAND AND BENEFITS ANALYSIS

The increased walking and bicycling opportunities provided by the Razorback Regional Greenway, combined with potential increases from projects proposed in this and other plans, will result in quantifiable benefits. As more people walk and bike more often, individuals and communities in the region will enjoy economic, health and environmental benefits, such as those that have been carefully documented in many cities and regions known for their high quality of life. This section benchmarks existing activity that can be used to track future progress.

1.1 Economic Benefits of Bicycling and Walking

The following benefit analysis uses the methodology pioneered in the 2010 Razorback Regional Greenway TIGER II grant application. Monetizing the benefits of the walking and bicycling projects helps to demonstrate the financial return on an investment, and will be an important part of attracting ongoing economic development in Northwest Arkansas, ultimately helping the region compete successfully for state and federal funding dollars.

Calculating these benefits requires several different sources. Data from the US Census Bureau captures work commute trips made by foot or by bicycle. Safe Routes to School data are used to estimate daily walking and bicycling trips to school or college, while the 2009 National Household Travel Survey and 2004 University of Arkansas Travel Survey data are used to estimate the number of shopping and other utilitarian trips made by area residents. Together, these databases are used to estimate annual trip making, by trip types, which, when combined with an average length per trip type, provides an estimate of the total number of miles walked or biked. A variety of benefits can then be extrapolated based on the estimated number of reduced vehicle miles traveled (VMT), local emissions factors and health and maintenance costs.

Baseline (Current) Benefits

Current levels of walking and bicycling in Northwest Arkansas are estimated to create $27 million in annual benefits to the region, using the estimation method described above, which conservatively describes the reduction in vehicle miles traveled caused by current walking and bicycling activity. Vehicle miles traveled reductions are calculated using average bicycle trip distances for each trip purpose category and the vehicular mode share of that trip type. These benefits are actualized through improved air quality, reduced traffic congestion and crashes, and savings in maintenance, transportation, and health care costs.

Table 1 – Estimated annual benefits of walking and bicycling in the NWA region

	Annual Benefits		
Benefit Factor	**Bicycling**	**Walking**	**Combined**
Annual Vehicle Miles Traveled (VMT) Reduced	1,891,035	16,443,233	18,334,268
Reduced Hydrocarbons (pounds/year)	5,670	49,302	54,971
Reduced Particulate Matter (pounds/year)	42	366	408

Benefit Factor	Annual Benefits		
	Bicycling	Walking	Combined
Reduced Nitrous Oxides (pounds/year)	3,961	34,439	38,399
Reduced Carbon Monoxide (pounds/year)	51,696	449,514	501,210
Reduced Carbon Dioxide (pounds/year)	1,538,368	13,376,664	14,915,032

Table 2 - Estimated annual benefits of walking and bicycling in the NWA region (monetized)[1]

Benefit Factor	Annual Benefits		
	Bicycling	Walking	Combined
Reduced Vehicle Emissions	$39,862	$346,613	$386,475
Reduced Traffic Congestion	$77,524	$674,100	$751,624
Reduced Vehicle Crashes	$1,058,979	$9,208,210	$10,267,190
Roadway Maintenance Costs	$283,655	$2,466,485	$2,750,140
Household Transportation Savings	$1,068,435	$9,290,427	$10,358,861
Reduced Health Care Costs	$187,300	$2,782,955	$2,970,254
Total Annual Benefits	**$2,715,755**	**$24,768,790**	**$27,484,544**

Potential Future Benefits/Community Comparison

By creating new opportunities for the region's residents to walk and bike, the NWA Regional Bicycle and Pedestrian Master Plan projects will increase these economic benefits associated with bicycling and walking. Over time, regional investments in greenways and other facilities can grow walking and bicycling rates in Northwest Arkansas to levels similar to the comparison metro areas referenced in Table 3 below.

Table 3 - Bicycling and walking rates in Northwest Arkansas and comparison metro areas

Metro Area	Bike Mode Share	Walk Mode Share	Combined Bike/Walk Mode Share
Little Rock, AR	0.09%	1.24%	1.33%
Chattanooga, TN	0.20%	1.87%	2.07%
Austin, TX	0.81%	1.84%	2.65%
Northwest Arkansas	**0.18%**	**2.57%**	**2.75%**
Dayton, OH	0.32%	2.55%	2.87%
Columbia, MO	0.88%	4.81%	5.69%
Portland, OR	2.24%	3.48%	5.72%
Boulder, CO	4.28%	4.50%	8.78%

Source: 2008-2012 American Community Survey 5-Year Estimates

[1] Monetized benefits are drawn from studies and reports that have placed an estimated dollar value for each benefit type as a function of VMT reduction or newly physically active persons. Source authors include AAA, EPA, IRS and academic and professional journals.

Potential Bicycling and Walking Rates and Benefits in NWA

The table below features a range of potential low, medium, and high mode share scenarios for Northwest Arkansas. As indicated in Table 5 and Table 6, increased walking and bicycling as a result of implementing the NWA Regional Bicycle and Pedestrian Master Plan will result in significant benefits to the region.

Table 4 – Existing and potential bicycling and walking rates in the NWA region

	Commute Mode Share		K-12 Mode Share		College Mode Share	
Scenario	**Bike**	**Walk**	**Bike**	**Walk**	**Bike**	**Walk**
Current*	0.18%	2.57%	0.67%	10.57%	0.77%	11.26%
Low	1.00%	3.00%	2.00%	12.00%	2.00%	12.00%
Medium	3.00%	4.00%	4.00%	15.00%	4.00%	13.00%
High	5.00%	5.00%	8.00%	18.00%	8.00%	14.00%

**Sources: 2008-2012 American Community Survey 5-Year Estimates; National Safe Routes to School Data; 2004 University of Arkansas Travel Survey*

Building on the projections in Table 4, the following tables identify the benefits that would result from increased levels of walking and bicycling.

Table 5 – Potential annual benefits of walking and bicycling in the NWA region

	Annual Walking and Bicycling Benefits			
Benefit Factor	**Baseline**	**Low Scenario**	**Medium Scenario**	**High Scenario**
Annual VMT Reduced	18,334,268	27,466,522	46,755,325	68,227,588
Reduced Hydrocarbons (pounds/year)	54,971	82,353	140,186	204,566
Reduced Particulate Matter (pounds/year)	408	612	1,041	1,519
Reduced Nitrous Oxides (pounds/year)	38,399	57,526	97,924	142,895
Reduced Carbon Monoxide (pounds/year)	501,210	750,861	1,278,165	1,865,159
Reduced Carbon Dioxide (pounds/year)	14,915,032	22,344,174	38,035,726	55,503,535

Table 6 – Estimated annual benefits of walking and bicycling in the NWA region (monetized)

	Annual Walking and Bicycling Benefits			
Benefit Factor	**Baseline**	**Low Scenario**	**Medium Scenario**	**High Scenario**
Reduced Vehicle Emissions	$386,475	$578,978	$985,575	$1,438,198
Reduced Traffic Congestion	$751,624	$1,126,007	$1,916,763	$2,797,031
Reduced Vehicle Crashes	$10,267,190	$15,381,252	$26,182,982	$38,207,449
Roadway Maintenance Costs	$2,750,140	$4,119,978	$7,013,299	$10,234,138
Household Transportation Savings	$10,358,861	$15,518,585	$26,416,759	$38,548,587
Reduced Health Care Costs	$2,970,254	$3,944,740	$5,706,420	$7,889,337
Total Annual Benefits	**$27,484,544**	**$40,669,540**	**$68,221,798**	**$99,114,740**

Benchmarking and Evaluation

Continued efforts to track increases in walking and bicycling, and quantify the resulting benefits, will be an invaluable tool to demonstrate the value of the Razorback Regional Greenway and the NWA Regional Bicycle and Pedestrian Master Plan. A comprehensive benchmarking program will use usage and facility data such as those in the example table presented below to track future progress towards the goal of creating a more livable and vibrant Northwest Arkansas. The NWA Regional Bicycle and Pedestrian Master Plan will include recommendations for benchmarking and evaluation strategies, such as an annual report card to highlight the successes of NWA Regional Bicycle and Pedestrian Master Plan projects while identifying levels of investment, safety trends and the number of people walking and bicycling.

Report Cards

Some jurisdictions develop regular reports to monitor bicycle and pedestrian facility investment and usage. For example, US cities such as San Francisco, Portland and New York issue annual bicycle count and facility lane mile reports. Other excellent examples come from outside of the United States and include cities such as Copenhagen and Melbourne, who bring metrics of the bicycle network and cycling rates together with survey results of cyclists' perceptions into bi-annual Bicycle Account reports. These user-friendly reports use a table format to report progress towards plan goals and show bi-annual indicators such as miles of bicycle facilities, the number of crashes, cycling volumes and perceptions of the network (see figure below from the *Melbourne Bicycle Account*).

Overall cycling	2008	2007	2006
Bikes as a percentage of vehicles in the central city¹ between 7am and 10am	9%	8%	4%
Cycling infrastructure and safety	**2008**	**2007**	**2006**
Pedestrian/cyclist shared lanes	66km	63km	61km
On-road cycle lane	51km	50km	47km
On-road green painted cycle lane	0.7km (20 locations)	0.5 km (15 locations)	0.3km (8 locations)
'Copenhagen' cycle lane	1km	1km	0km
Cycle track maintenance (AUD)	$230,000	$230,000	$230,000
Cycling capital works (AUD)	$2,300,000	$3,000,000	$2,390,000
On-street cycle parking spaces	1,450	1,330	1,220

Figure 1 - This table presents a number of cycling metrics in a single table, including kilometers of facilities, number of bike parking spaces, bicycles as a percentage of central city vehicles, and annual maintenance expenditures.
Source: Melbourne Bicycle Account Cycling Census 2008, City of Melbourne.

Report cards are also an excellent way to measure progress towards achieving stated policy goals. For example, a key purpose of the Copenhagen Bicycle Account is to measure the City's progress in achieving its goals set out in "Good, Better, Best - The City of Copenhagen's Bicycle Strategy 2012 – 2025." Some of Copenhagen's goals relate to:

- Increasing the proportion of people who cycle to their place of work and education.
- Reducing the number of cyclists seriously injured in Copenhagen traffic
- Increasing the proportion of Copenhagen cyclists who feel safe in traffic.

COPENHAGEN'S BICYCLE STRATEGY 2011-2025

	'96	'98	'00	'02	'04	'06	'08	'10	'12	'15	'20	'25
Percentage that cycle to work or education (%)*	30	30	34	32	36	36	37	35	36	50	50	50
Percentage of cyclists that feel safe (%)*	60	58	57	56	58	53	51	67	76	80	85	90
Seriously injured cyclists (number per year)*	252	173	146	152	125	97	121	92	102	56	45	34
Share of the PLUS net that has three lanes (%)**									17	40	60	80
Reduction in cyclists' travel time (%)**									0	5	10	15
Satisfaction with the condition of cycle tracks (%)	48	51	40	45	50	48	54	50	61	70	75	80
Satisfaction with bicycle culture's benefit to city life (%)								67	73	70	75	80

*) These goals appear in the City of Copenhagen's 'Eco-metropolis - Our Vision for Copenhagen 2015' **) New methodology starting in 2012

Accomplishment of goal requires dramatically increased municipal commitment.
Goal will be achieved with increased municipal commitment.
Goal will be achieved in time with unchanged level of municipal commitment.

Figure 2 – Copenhagen measures its progress towards achieving its policy goals around cycling in a bi-annual Cycling Account Report. Source: Copenhagen City of Cyclists Bicycle Account 2012, City of Copenhagen.

Figure 3 - This effective figure, adapted from the annual City of Portland Bike Count Report (2013) shows the number of bikeway miles and the number of cyclists crossing four main Portland bridges.

A Northwest Arkansas Walking and Bicycling Report Card should be developed to track trends for relevant metrics such as levels of investment (e.g., miles of facilities), the number of people walking and bicycling (e.g., count volumes), and crash history / safety trends, as well as user perceptions (if desired). To help gather the required data at the regional scale, NWARPC should develop a format for local communities to submit their walking and bicycling facility inventory and investments to NWARPC on an annual or bi-annual basis. The levels of walking and biking will be informed by the count data recommended later in this report, while the safety metrics can be updated by periodically requesting data from the Arkansas State Highway and Transportation Department. This report card will help NWA measure its progress toward achieving its policy goals.

2 SAFETY NEEDS ANALYSIS

2.1 Existing Pedestrian and Bicycle Safety Education Programs

In addition to providing appropriate infrastructure to facilitate walking and bicycling, education and enforcement actions can play a significant role in the safety of pedestrians and bicyclists. As part of this planning process, the 25 communities across the region were invited to complete a survey of existing practices based on the Walk Friendly Community and Bike Friendly Community assessment surveys. Each of these surveys is based on best practices from across the country. At the time of this document, 17 of the 25 communities had submitted a completed survey.

This section provides a review of community responses that relate to promoting safety through education and enforcement activities that are suggested by these audits to result in more walk and bike friendly communities. There is significant variation in the number and type of active bicycle and pedestrian education and enforcement programs reported. Bentonville, Fayetteville, and Rogers employ the widest range of safety related education and enforcement strategies. There is a great opportunity to build on existing efforts and increase educational and enforcement programming, particularly in the smaller towns in the region.

Below is a summary of the programs or activities that are most and least commonly practiced in Northwest Arkansas communities. Refer to Table 7 for a more complete summary of responses to the survey questions relevant to safety.

The following activities are more commonly practiced in the NWA region:

- Police Officer Training - More than half (59%) of communities reported that they train officers on issues specifically related to walking and bicycling safety.
- Police Officer Patrol on Bicycles - Roughly one-third of communities surveyed employ public safety or other law enforcement officers that patrol on bicycles, for at least part of the year.
- Police Collaboration with City Staff - Law enforcement officers collaborate with planners and engineers to identify areas in need of pedestrian countermeasures in approximately one-third of NWA communities.
- Safe Routes to School (SRTS) - About a quarter of communities have an existing Safe Routes to School program, although not all of these include programmatic educational or enforcement components (they are infrastructure only).
- Walking/Biking Maps - About a quarter of communities offer walking maps or walking tours. While only 20% of communities distribute an up-to-date bicycle map, these communities (Bentonville, Fayetteville, and Rogers) do cover a large portion of the geographic area.

The following activities are not as common in the NWA region:

- Safety Education for Adults - Only Bentonville and Fayetteville have offered adult safety education courses.
- Systematic Approach to Identifying Pedestrian Safety Countermeasures - Only two communities in NWA have a systematic approach to identifying pedestrian safety

countermeasures. No communities report having a plan or program to reduce cyclist/motor vehicle crashes.

- Training Programs for City Staff - Only Fayetteville has offered training programs for city staff on bicycle and pedestrian safety.
- Targeted Enforcement Actions - Only Fayetteville has deployed targeted enforcement actions.
- Safety Campaigns - Education and/or promotional campaigns focusing on bicycle and pedestrian safety are not common.

Table 7 – Summary of community responses to Bike and Pedestrian Audit questions related to safety education and enforcement activities

Question	Yes	No	Description of Current Practices
3.1 Does your community have Traffic Safety officers that are trained in traffic law as it applies to pedestrians and bicyclists?	10 (59%)	7 (41%)	• Bella Vista, Bentonville, Cave Springs, Centerton, Decatur, Fayetteville, Gravette, Greenland, Rogers, and Siloam Springs have Traffic Safety Officers that are trained in traffic law as it applies to pedestrians and bicyclists.
3.2 Does your community have law enforcement or other public safety officers on bikes?	5 (29%)	12 (71%)	• Bentonville, Fayetteville, Rogers, Siloam Springs, and Springdale have law enforcement/public safety officers that patrol on bikes. • In Rodgers, School Resource Officers act as bike patrol officers on a full time basis in the summer months. For the rest of the year, all trained officers are authorized overtime to patrol on bicycles. • Siloam Springs' bicycle patrol program is also limited to the summer months. • Centerton ended this practice in 2006.
3.6 Do police work regularly with traffic engineers and planners to review sites in need of safety?	5 (29%)	12 (71%)	• Police Officers regularly work with traffic engineers and planners to review sites in need of safety in Bentonville, Decatur, Rogers, Springdale, and Siloam Springs. • In Bentonville, this practice is formalized through the Traffic Safety and Signage committee. • Police are involved with site review in Bella Vista only when development calls for changes to a roadway and/or intersection improvements.
2.1 Has your community implemented Safe Routes to School (SRTS) programs in any of the local schools within the last 18 months? Does it include both bicycle and pedestrian education?	4 (24%)	13 (76%)	• Bentonville Public Schools and Fayetteville-area schools have implemented Safe Routes to School programs. • The City of Springdale has implemented SRTS infrastructure improvements but has not offered educational programming to date. • The City of Decatur recently received a SRTS planning grant. • The City of Centerton and the City of Gravette have applied for STRS grants; neither has been awarded funds.

Question	Yes	No	Description of Current Practices
2.9 Does your community offer walking route maps, guides, or tours for residents and visitors?	4 (24%)	13 (76%)	• Bentonville, Fayetteville, Gravette, and Siloam Springs offer walking route maps, guides, or tours for residents and visitors. Fayetteville's Trail Guide is available at hotels and the visitor's bureau.
2.4 Does your community have an up-to-date bicycle map?	3 (18%)	14 (82%)	• Bentonville, Fayetteville, and Rodgers currently have up-to-date bicycle maps.
2.3 Does your community educate motorists, pedestrians and cyclists on their rights and responsibilities as road users (e.g., as part of drivers education curriculum, test manual, or bus driver training)	2 (13%)	14 (88%)	• Bentonville periodically includes articles on this topic in the City newsletter that is distributed to all utility customers. • The State of Arkansas driver's education manual includes questions that deal with walking and bicycling as well as driving.
2.2 Are there bicycling education courses available for adults in the community?	2 (12%)	15 (88%)	• Adult bicycling education courses are available in Bentonville. • League Cycling Instructor (LCI) certification courses have been offered in Fayetteville periodically. • Adult bicycling courses have been offered in Centerton in the past, but not in the past 5-7 years.
3.5 Does your community have a systematic strategy for selecting locations and countermeasures for traffic and pedestrian safety?	2 (12%)	15 (88%)	• Gravette and Rodgers have systematic strategies for selecting safety countermeasures locations. • In Rogers, the ten intersections with the most collisions are monitored on a monthly and annual basis. Enforcement efforts are then focused on these intersections.
2.7 Has your community implemented any education and training programs related to pedestrian education, safety, or design for city staff?	1 (6%)	16 (94%)	• Only Fayetteville has implemented pedestrian safety trainings for city staff: Crosswalk Safety Awareness Day
3.4 Does your community use targeted enforcement programs to promote pedestrian safety in crosswalks (such as a "crosswalk sting", media campaign regarding pedestrian-related laws, progressive ticketing, etc.)	1 (6%)	15 (94%)	• The City of Fayetteville conducts crosswalk enforcements at North Street and the Scull Creek Trail.

2.2 Crash Data Analysis

This section reviews data (2009-2013) for crashes involving pedestrians and bicyclists in Benton and Washington Counties, as reported by the Arkansas State Highway and Transportation Department.

What

Number of Crashes - Per Figure 4, in the Northwest Arkansas Region from 2009-2013 there were:

- 289 reported pedestrian crashes
- 168 reported bicycle crashes

Bicycle crashes in particular appear to be trending upwards, perhaps reflecting the fact that bicycling is becoming more common. Additional data on the number of bicycle trips that took place each year would be needed to understand if the crash rate (i.e., crashes per bicycle trip) is going up or down.

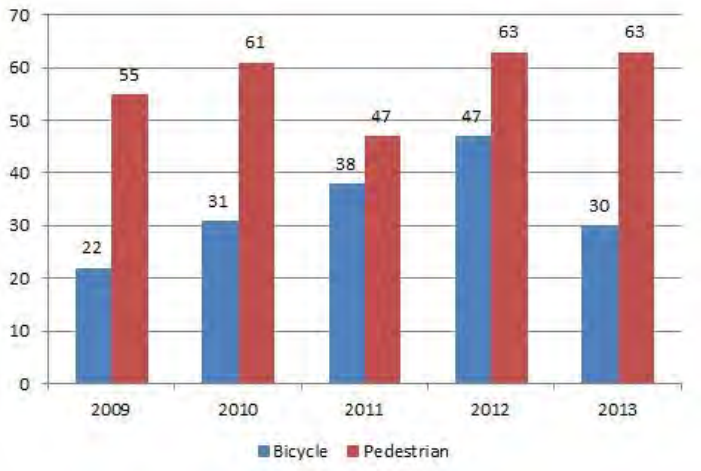


Figure 4 - Number of bicycle and pedestrian crashes (2009-2013)

Severity of Crashes - Table 8 illustrates that the 457 pedestrian and bicycle crashes resulted in:

- 27 fatalities (25 were pedestrians)
- 56 incapacitating (severe) injuries
- 163 less severe injuries

Table 8 - Number and severity of bicycle and pedestrian crashes (2009-2013)

Severity	Bicycle	Pedestrian	Total
Fatal Injury	2	25	27
Incapacitating Injury	14	42	56
Non-Incapacitating Injury	54	109	163
Possible Injury	63	71	111
Non-Injury/Property Damage Only	35	42	77
Grand Total	168	289	457

When

Day of Week - Pedestrian and bicycle crashes happen throughout the week, likely indicating that people walk and bike for both recreational and utilitarian purposes. Collision activity appears to be lower on Sundays.

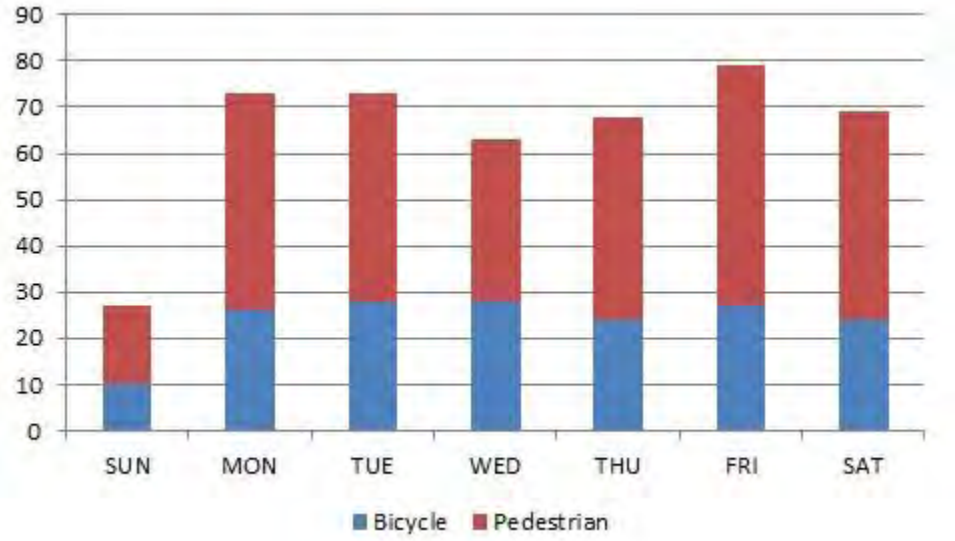


Figure 5 – Number of bicycle and pedestrian crashes (Day of Week)

Month of Year - Similar to the distribution across the week, pedestrian and bicycle crashes occur throughout the year, though the levels are somewhat higher in the warm summer months when activity is likely higher, due to the pleasant weather and longer daylight hours. Nonetheless, walking and biking appear to be year-round activities in Northwest Arkansas.

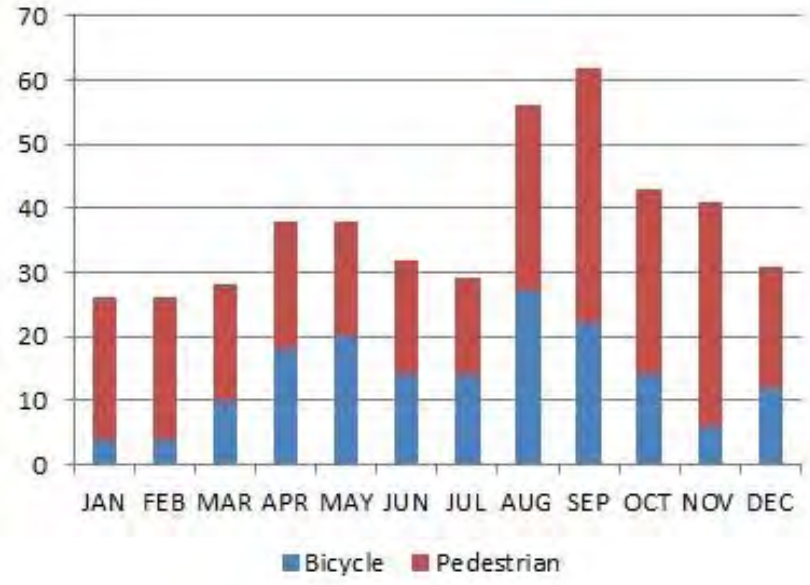


Figure 6 – Number of bicycle and pedestrian crashes (Month)

Time of Day - The crash data show some peaking in the morning and evening commute periods, as well as a small spike in the evening hours, where visibility may be an issue.

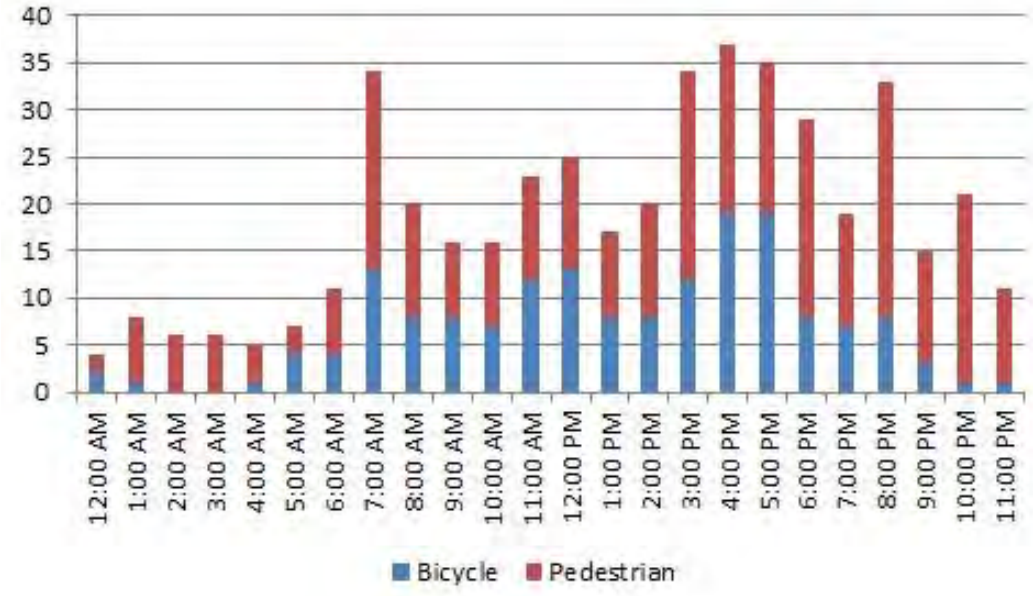


Figure 7 –Number of bicycle and pedestrian crashes (Time of Day)

Why

The contributing factors for bicycle and pedestrian collisions during this period were identified for less than half of the collisions. This data is extremely important for the development of effective education and enforcement programs. Figure 8 indicates that there may be opportunities to improve reporting of the contributing factor of crashes involving pedestrians or bicycles.

- More than 40% of crashes listed the contributing factor as 'none' while over 10% listed the factor as 'unknown'.
- The most common categories were 'careless/prohibited driving' and 'failure to yield.'

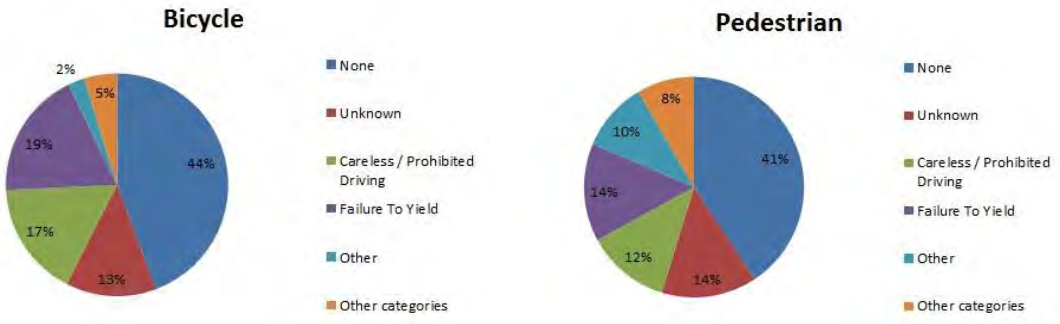


Figure 8 –Contributing factor of bicyle and pedestrian crashes

Where

Location on Roadway - As illustrated in Figure 9, pedestrian and bicycle crashes exhibit different trends:

- Pedestrian crashes were most common away from intersections (e.g., mid-block locations) representing 47% of all crashes. Another 40% took place at intersections or were intersection related, while 13% took place at driveways.
- Bicycle crashes, by contrast, most commonly occurred at intersections or were intersection related (66%). 18% took place away from intersections, and 15% took place at driveways.

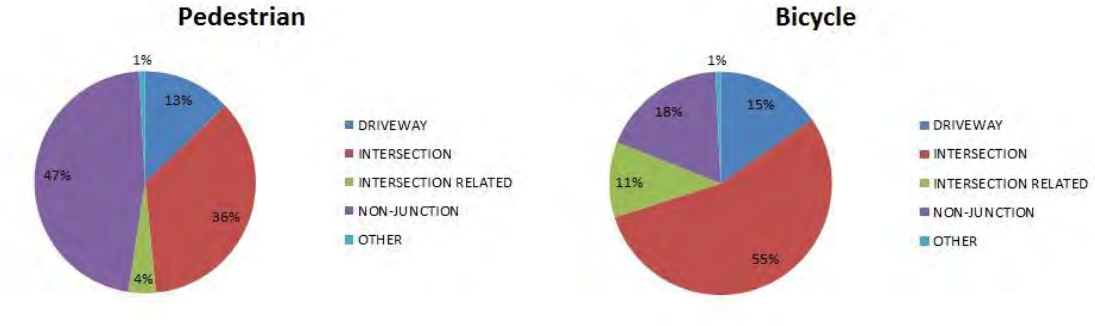


Figure 9 – Location of pedestrian and bicyle crashes

Vehicle Action - Table 9 identifies the vehicle action during the crash. Most crashes involve vehicles traveling straight, including 70% of pedestrian collisions and 54% of bicycle collisions. The single most common vehicle action involved a vehicle going straight away from an intersection, representing 44% of all collisions. Vehicles turning left or right at intersections accounted for 14% of pedestrian crashes and 32% of bicycle crashes.

Table 9 – Summary of location and vehicle action

	Crash Location					
Vehicle Action	**Inter-section**	**Inter-section Related**	**Non-Junction**	**Driveway**	**Other**	**Total**
Pedestrian Crashes						
Going Straight	19%	4%	40%	7%	1%	**70%**
Making left turn	8%	0%	0%	1%	0%	**9%**
Making Right Turn	4%	0%	0%	1%	0%	**5%**
Other	5%	0%	6%	4%	0%	**15%**
Total	**36%**	**4%**	**46%**	**13%**	**1%**	**100%**
Bicycle Crashes						
Going Straight	25%	6%	15%	7%	1%	**54%**
Making left turn	10%	1%	0%	1%	0%	**12%**
Making Right Turn	13%	3%	0%	4%	0%	**20%**
Other	7%	1%	3%	3%	0%	**14%**
Total	**55%**	**11%**	**18%**	**15%**	**1%**	**100%**

Pedestrian/Bicycle Action - A pedestrian action/location field indicates the action of the pedestrian and bicyclist involved in crashes. Figure 10, a response of other or N/A was provided for 32% of pedestrian crashes and 65% of bicycle crashes. Regular trainings with police officers could result in a higher response rate to this category for both bicycle and pedestrian involved crashes.

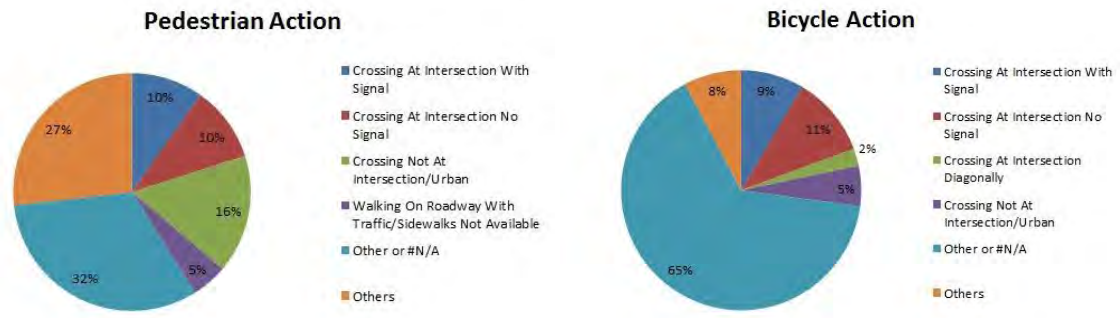


Figure 10 – Bicycle and Pedestrian Actions

Crashes by City

Table 10 identifies the number of crashes that have occurred in individual cities in Northwest Arkansas. As expected, bicycle and pedestrian crashes are more common in larger cities where there are likely more people walking and bicycling. It is important to note that cities with higher numbers of crashes are not necessarily less safe than those with fewer crashes. Indeed, cities that have invested in walking and bicycling improvements may have higher activity levels and thus are more likely to have crashes. To assess relative safety, it would be necessary to have data on the amount of walk and bike activity so the number of crashes could be compared (or normalized) to the amount of activity.

Table 10 - Bicycle and pedestrian crashes by city

	In City				Outside of City		
City	Bicycle	Pedestrian	Total		Bicycle	Pedestrian	Grand Total
Bentonville	23	27	50		-	1	51
Bethel Heights	-	3	3		-	-	3
Canehill	-	-	0		-	1	1
Cave Springs	1	-	1		-	-	1
Centerton	2	3	5		-	-	5
Elkins	-	-	0		-	1	1
Farmington	1	2	3		-	-	3
Fayetteville	60	113	173		-	1	174
Gentry	1	3	4		1	1	6
Gravette	-	1	1		1	-	2
Lincoln	-	1	1		-	3	4
Lowell	-	2	2		-	-	2
Pea Ridge	1	1	2		1	1	4
Prairie Grove	2	3	5		-	-	5
Rogers	32	41	73		-	-	73

	In City				Outside of City		
City	Bicycle	Pedestrian	Total		Bicycle	Pedestrian	Grand Total
Siloam Springs	8	9	17		-	-	17
Springdale	31	56	87		-	1	88
Tontitown	-	1	1		-	1	2
West Fork	-	-	0		-	3	3
Grand Total	**162**	**266**	**428**		**3**	**15**	**446**

Roadway Ownership

As indicated in Figure 11, approximately 70% of bicycle crashes occurred on city streets, more than 10% occurred on State Highways and US Highways each. For pedestrians, approximately 50% occurred on city streets, 20% occurred on State Highways and another 20% occurred on US Highways.

Figure 11- Crashes by roadway ownership

Who

Driver

As indicated in Figure 12, young adults age 16-25 are most likely to be the drivers in crashes involving bicyclists or pedestrians. Males are slightly over-represented as drivers (60% of all crashes).

Figure 12 – Age and gender of drivers involved in pedestrian and bicycle crashes

Bicycle

As indicated in Figure 13, males are much more likely to be involved in bicycle crashes (75% of all crashes). This is likely indicative of males being over-represented in the total population of people bicycling.

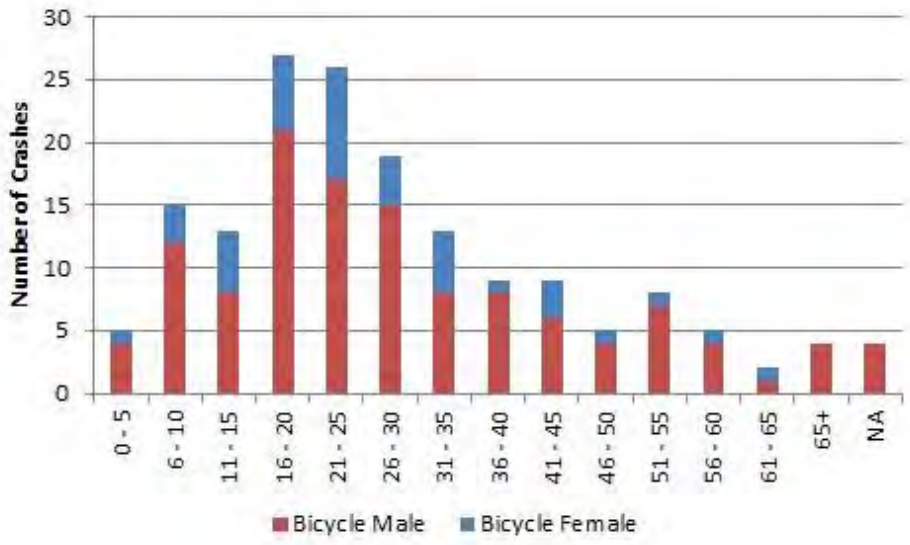


Figure 13 - Age and gender of bicyclists involved in crashes

Pedestrian

As indicated in Figure 14, there is more parity in the number of men and women involved in pedestrian crashes as compared to bicycle crashes, with a split of approximately 60% male to 40% female. 8% of crashes involve people 65 or older.

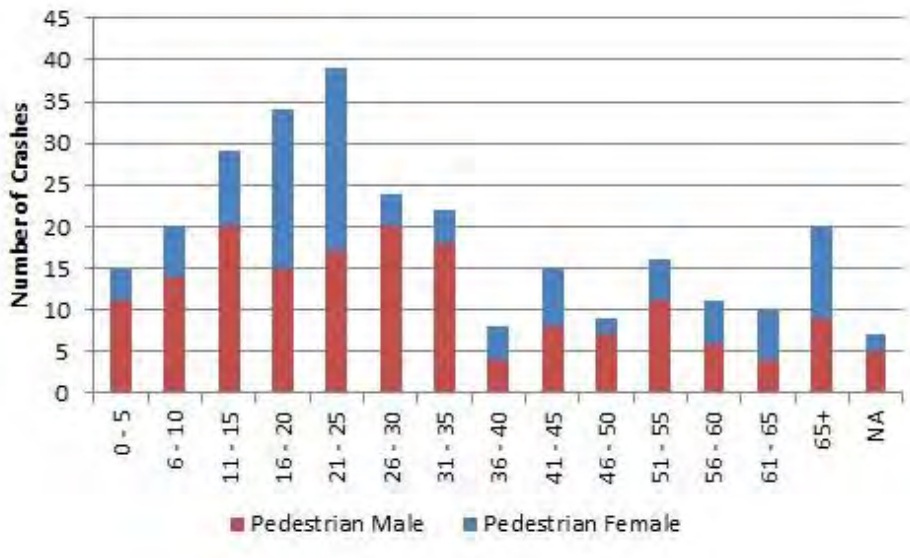


Figure 14 - Age and gender of pedestrians involved in crashes

Bicycle and Pedestrian Crash Maps

A series of maps on the following pages illustrate the location and severity of reported bicycle and pedestrian crashes in Northwest Arkansas. These include:

- Location and severity of pedestrian crashes (Figure 15)
- Location and severity of bicycle crashes (Figure 16)
- Zoomed in views of pedestrian and bicycle crashes in Bentonville/Rogers (Figure 17) and Fayetteville/Springdale (Figure 18)

These maps illustrate several themes:

- Downtown Centers – Clusters of bicycle and pedestrian crashes are found in the downtown centers of Rogers, Springdale, and Fayetteville. Within these cities, there are many crashes along higher traffic corridors where bicyclists and pedestrians are likely attempting to access business, schools, and connect to residential areas. These higher crash corridors include:
    - Walnut St, Dixieland Rd, and 8th St in Rogers
    - Thompson St and Sunset Ave in Springdale
    - North St, Garland Ave, Razorback Rd, Maple St, US 71B, and Martin Luther King Jr Blvd in Fayetteville
- University of Arkansas – Thousands of students from the University of Arkansas in downtown Fayetteville walk and bike to campus daily. The crash data highlights several corridors through campus where conflicts occur, with Garland Ave, Razorback Rd, Dickson St, Maple St, and Martin Luther King Blvd each experiencing multiple crashes.
- Arterial Corridors – Northwest Arkansas has many wide, high traffic roads that are difficult to walk or bike along and which also serve as barriers that inhibit connectivity between adjacent areas that are more comfortable for walking and biking. Several of these corridors have experienced multiple reported crashes, including US 71, AR 112, US 62, and US 412. See Table 11 below for a list of streets that have experienced multiple bicycle and pedestrian crashes.

Table 11 – Streets in NWA that experienced multiple bicycle and pedestrian crashes from 2009-2013.

Street	Bicycle	Pedestrian	Total	% of Total	City (number of crashes)
US 71	13	38	51	11%	Rogers (14), Fayetteville (15), Springdale(13)
AR 112	7	23	30	7%	Fayetteville (26)
US 62	6	11	17	4%	Rogers (7), Fayetteville (5), Prairie Grove (2), Farmington (2)
US 412	4	11	15	3%	Springdale(9), Siloam Springs (4)
AR 265	3	5	8	2%	Fayetteville (3), Springdale (5)
AR 102	4	8	12	3%	Bentonville (9), Centerton (3)
AR 16	2	8	10	2%	Fayetteville (10)

Street	Bicycle	Pedestrian	Total	% of Total	City (number of crashes)
AR 180	4	10	14	3%	Fayetteville (14)
North St	5		5	1%	Fayetteville (5)
I-49		9	9	2%	West Fork (3), Fayetteville (5)
Maple St	1	8	9	2%	Fayetteville (9)
N West Ave		5	5	1%	Fayetteville (5)
Others	119	153	272	59%	
Total	168	289	457	100%	

In densely populated areas of the region and communities with wide, high volume streets, there is often limited infrastructure to accommodate the needs of people walking and bicycling. Therefore we see more collisions happening there.

There are several areas where infrastructure improvements have been made and where the data suggest fewer problems. These include:

- 8th Street in Bentonville – Hundreds of employees cross SW 8th St in Bentonville on a daily basis to travel between a parking lot and Walmart's home office. Only one pedestrian crash was recorded along this section, perhaps due to the highly visible crosswalks, pedestrian signage, and lower speed limits along this high traffic road.
- Bike lanes – While Northwest Arkansas currently has only 11 miles of bike lanes, there was only one reported bicycle crash along a roadway with a bike lane (US 62 in Farmington).

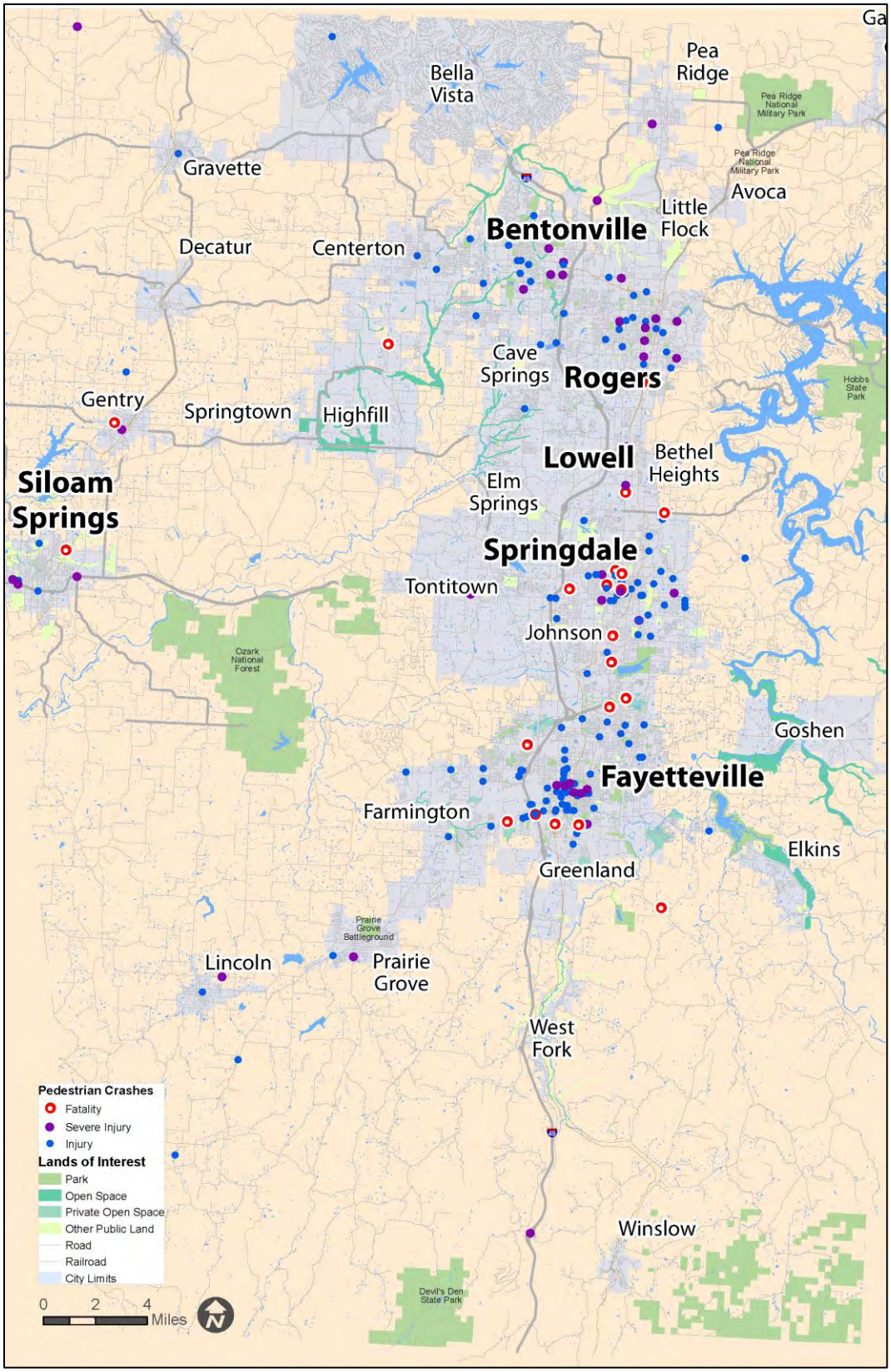


Figure 15 - Pedestrian crash locations in Northwest Arkansas by severity (2009-2013)

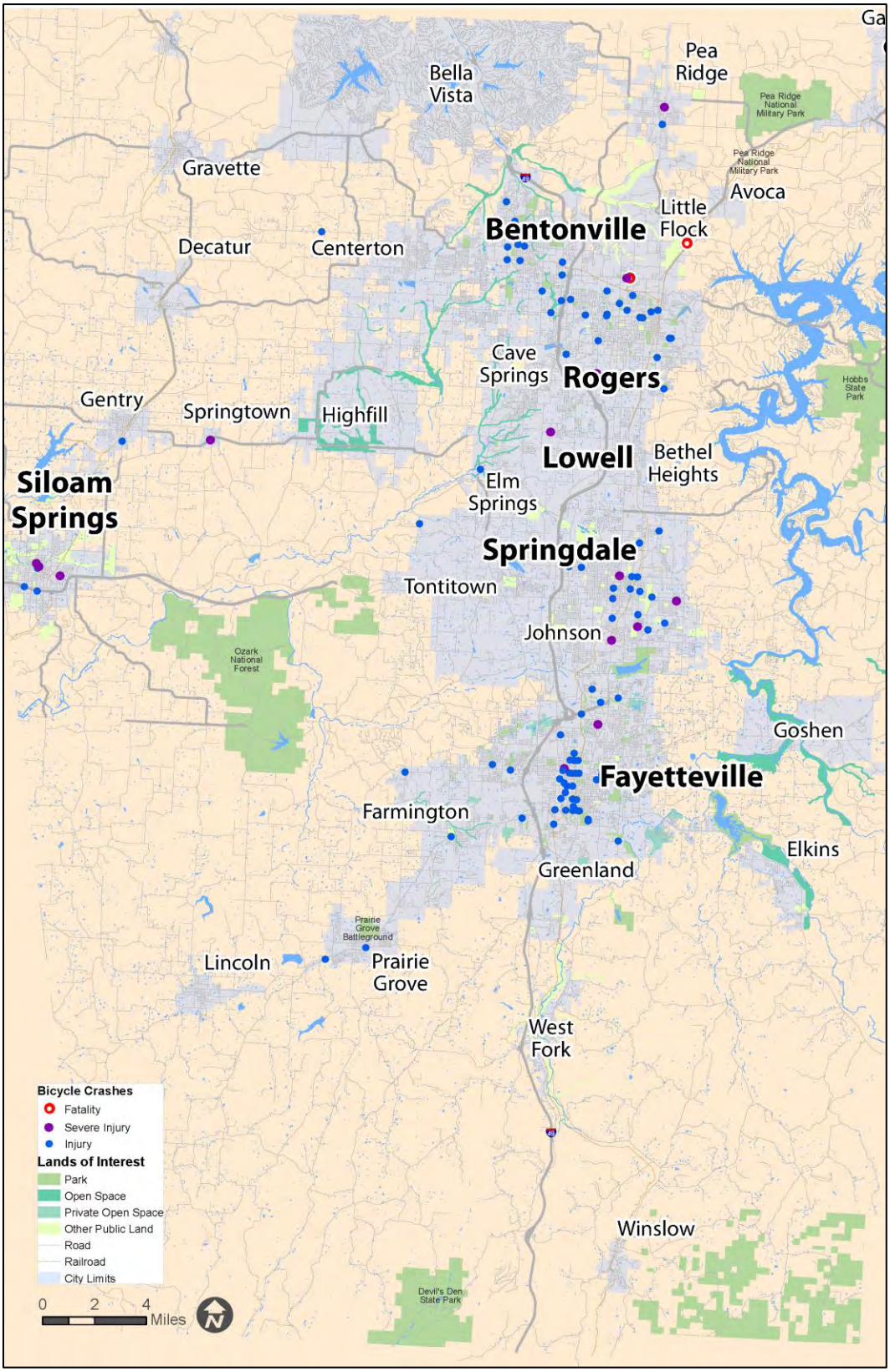


Figure 16 - Bicycle crash locations in Northwest Arkansas by severity (2009-2013)

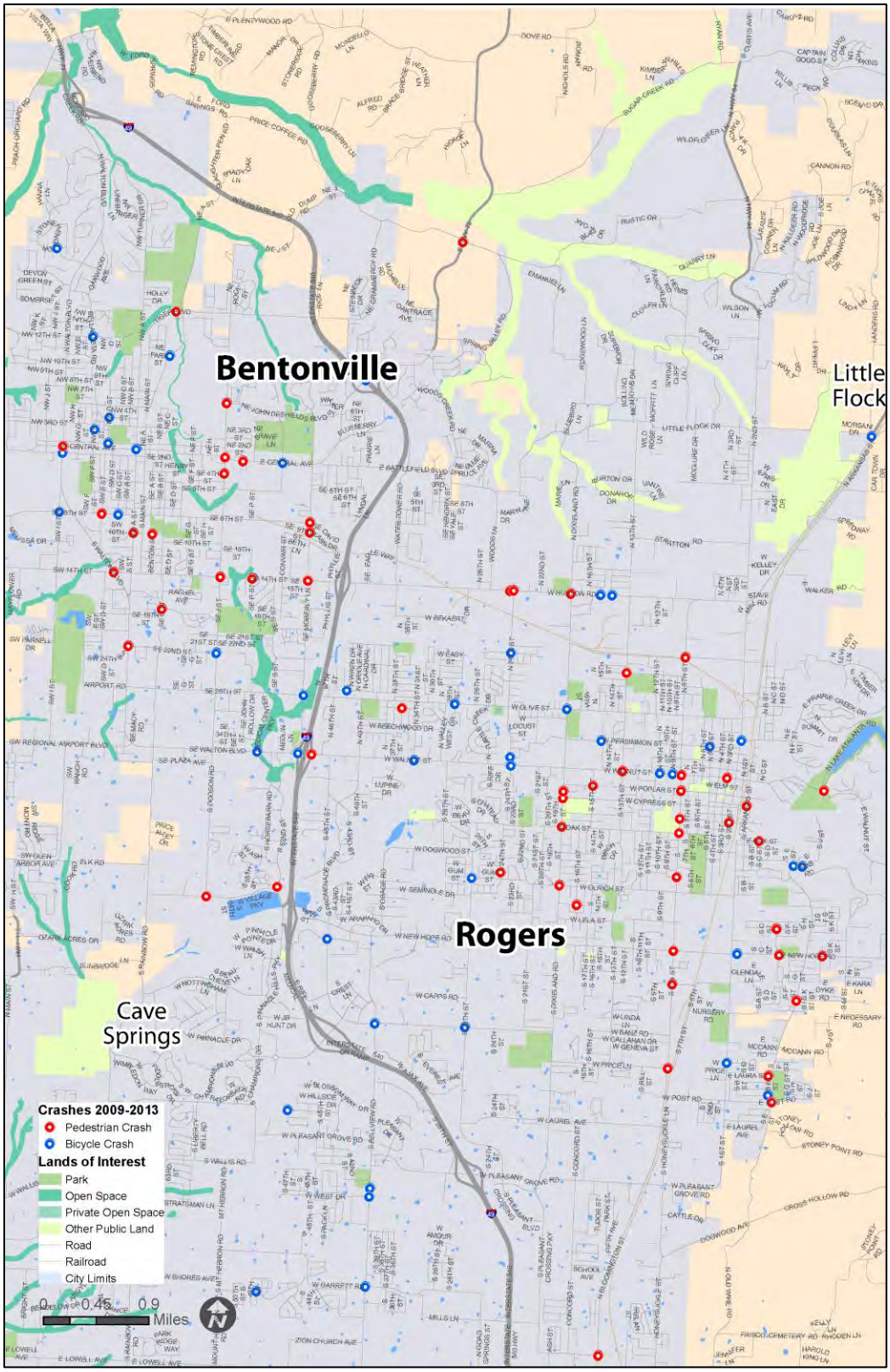


Figure 17 - Bicycle & Pedestrian Crash Locations (Bentonville & Rogers) (2009-2013)

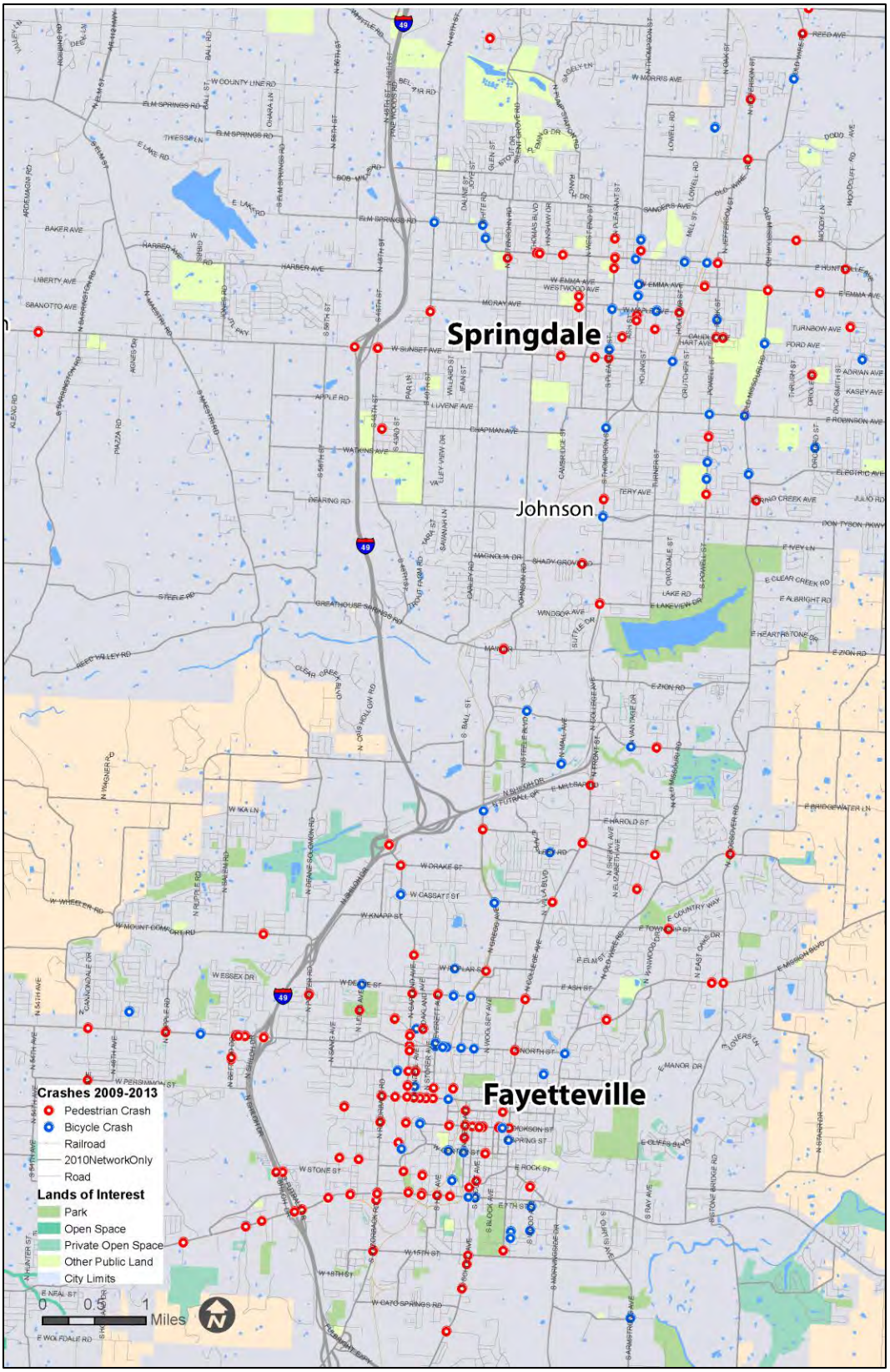


Figure 18 - Bicycle & Pedestrian Crash Locations (Fayetteville & Springdale) (2009-2013)

3 BICYCLIST AND PEDESTRIAN COUNTS

3.1 Data Collection Methodology

A regular bicycle and pedestrian count program is instrumental for measuring change over time. This empirical data can be used to monitor the plan's success at helping residents of the Northwest Arkansas region walk and bicycle more. This section identifies a methodology and locations for an annual bicycle and pedestrian count data collection program. It includes suggested count dates and times, pre-count preparation steps, and resources that will help agency staff with the count effort. The end of this section identifies 15 potential locations to include in the count program.

Pedestrian and Bicycle Counts Program

The purpose of initiating a count program in NWA is to gather important benchmarking information about walking and bicycling rates. This information will be useful to Agency staff, and local and regional stakeholders, for understanding the whether there is an association between plan implementation and walking and bicycling activity. A manual count program, with annual data collection efforts, requires the partnership of community members. In Northwest Arkansas, the likely partners are the NWARPC, advisory committees, and cycling clubs.

At a minimum, this program should tally the number of pedestrians and bicyclists at key locations around the region (particularly at pinch points, in downtowns, near schools, and on trails); the same locations should be counted in the same manner annually. If major walking or greenway infrastructure projects are planned, baseline and post-construction user counts can be performed through this coordinated annual count process for maximum efficiency. This will provide the Northwest Arkansas Regional Planning Commission (NWARPC) and partner agencies with information about growth of walking and bicycling.

It is recommended that the data collection program use methodology developed by the National Bicycle and Pedestrian Documentation project (NBPD). Counters can be volunteers or agency staff, as long as proper training and support is provided. Alternatively, NWARPC may prefer to invest in automatic bicycle and pedestrian counters rather than coordinate a manual count program.

If desired, surveys can also be included in the data collection effort to learn more about walking and bicycling demographics, trip origin/destinations, etc. The NBPD website includes count and survey instructions, forms, and participant training materials: http://bikepeddocumentation.org. NBPD recommends conducting screenline rather than intersection counts. Screenline counts document the number of users passing an imaginary line at either a mid-block or intersection location.

Selecting Count Locations

NWARPC should conduct counts at 15 locations in the Northwest Arkansas region where high levels of walking and biking are expected. Locations should be visited prior to the count date to ensure the location will capture the maximum bicycle and pedestrian flows in the area, as bicyclists and

pedestrians may tend towards certain routes, intersections, or areas, so it is important to verify that the count location will capture that activity.

The NBPD website provides guidelines for selecting count locations, based on access to transit, proximity to main entrances for shopping or employment areas, and high density downtown or residential areas. Locations with recently completed or planned bicycle or pedestrian projects also should be considered. Based on these guidelines, NWARPC should conduct counts at 15 locations in the Northwest Arkansas region where high levels of walking and bicycling are expected. Since some communities are expected to see more change than others, the list includes multiple counts in Bentonville and Fayetteville. If NWARPC desires greater geographic parity in its count program, additional count locations should be chosen.

Count Dates and Times

As described on the National Bicycle and Pedestrian Documentation Project (NBPD) website www.bikepeddocumentation.org, counts at each location should be performed on both a weekday and a weekend during the second week in September as follows:

- Weekday counts: Tuesday, Wednesday, or Thursday from 5-7 PM
- Weekend counts: Saturday from noon – 2 pm

Addressing Variability in Bicycle and Pedestrian Count Data

Bicycle and pedestrian count volumes tend to vary from day to day due to factors such as weather. This variation can make it more difficult for a count program to measure changes in walking and bicycling activity over time. There are several ways to address this issue:

- A greater number of counts provides more data points and can help reduce variability in the count data. This can be achieved by either counting a large number of different locations or by conducting two weekday and two weekend counts at each location during the recommended time period (see above) each year.
- Automatic counters that monitor activity continuously year round eliminate the variability inherent in a short-duration (e.g., 2 hour) count.

Resources from National Bicycle and Pedestrian Documentation Project Website

The National Bicycle and Pedestrian Documentation project provides logistic and training recommendations for the site selection and for the counters. The following resources can be found on the downloads page (http://bikepeddocumentation.org/downloads):

- Instructions – select the Data Collection Instructions link for detailed instructions on performing counts.
- Count Forms – select the Forms link and use the Standard Screenline Count Form found on page 3.

- Count Training – select the Volunteer Training Presentation - Counts link for a presentation that can be delivered to volunteer counters.

Automatic Counters

Data collected by automatic bike and pedestrian count equipment offers additional information on trends in walking and bicycling as compared to an annual count program where counts are conducted over a two hour period. Multiple data points over time tend to be more reliable indicators of change and can be instrumental in understanding a region's daily, monthly and seasonal variation or establishing extrapolation factors for locations where manual counts are conducted. A continuous counter provides information on:

- How many people are using the facility? The data allows for an understanding of annual, monthly, daily and hourly totals.
- When are people using the facility? The data identifies activity levels by month of year, day of the week, and hour of the day as well as peak travel periods.
- What purpose are people using the facility? Relative activity levels and usage patterns between weekend and weekdays provide insight into trip purpose (i.e., recreational vs. utilitarian trips).

Existing Counts

Several communities in Northwest Arkansas already have automatic counters, including:

- Bentonville - counters at the Bella Vista Lake Trail, Crystal Bridges Trail, Town Branch Trail and South Bentonville Trail.
- Rogers - one counter on 1st Street near Nursery Road (near several schools).
- Fayetteville - has several counters that it rotates throughout its trail system.

These counters are thoughtfully placed to document trail use in Bentonville and Fayetteville and school use in Rogers. The next section recommends additional count locations in the region.

3.2 Suggested Count Locations

The following 15 locations are proposed for inclusion in an annual count program or for installation of automatic counters, depending on the preference of NWARPC. If NWARPC desires greater geographic parity in its count program, an additional 10-15 count locations should be chosen. A map of proposed count locations is provided in Figure 19 on the following page.

Table 12 - Proposed locations for annual pedestrian and bicycle counts

#	Location	Reason for Count Location	Jurisdiction
1	Central Avenue and SW A Street	Downtown Bentonville	Bentonville
2	Razorback Regional Greenway at 3rd Street (Crystal Bridges Trailhead)	Razorback Regional Greenway in Bentonville	Bentonville
3	Downtown Trail at SW E Street	Access to Walmart home office	Bentonville
4	1st Street at Elm Street	Downtown Rogers	Rogers
5	Razorback Regional Greenway at I-49 and New Hope Road	Razorback Regional Greenway in Rogers	Rogers
6	Emma Avenue at US 71B	Downtown Springdale	Springdale
7	Razorback Regional Greenway at Emma Ave	Razorback Regional Greenway in Springdale	Springdale
8	Razorback Regional Greenway just north of Don Tyson Boulevard	Razorback Regional Greenway in Springdale	Springdale
9	Mountain Street and Block Avenue	Downtown Fayetteville Square	Fayetteville
10	Razorback Regional Greenway between Maple Street and Arsaga's Espresso café	Razorback Regional Greenway in Fayetteville	Fayetteville
11	Maple Street at Garland Avenue (AR 112)	Captures walk / bike activity at University of Arkansas access point.	Fayetteville
12	University Street and Broadway Street or Dogwood Springs Trail at University Street	Downtown Siloam Springs. Lively walking area with university nearby.	Siloam Springs
13	E Main Street at Collins Avenue	Central location near library.	Gentry
14	E Buchanan Street between Mock Street and Neal Street	Downtown Prairie Grove. High pedestrian traffic, antique stores.	Prairie Grove
15	Creekside Park Trail	Recreational destination	Farmington
16	Lake Lincoln Trail	Regional recreational destination	Lincoln

Note that while the count locations proposed in Bentonville and Fayetteville appear close together on the map, they represent different contexts that are either highly trafficked and/or will experience investments in the near future. Table 12 identifies the reason for each proposed count location.

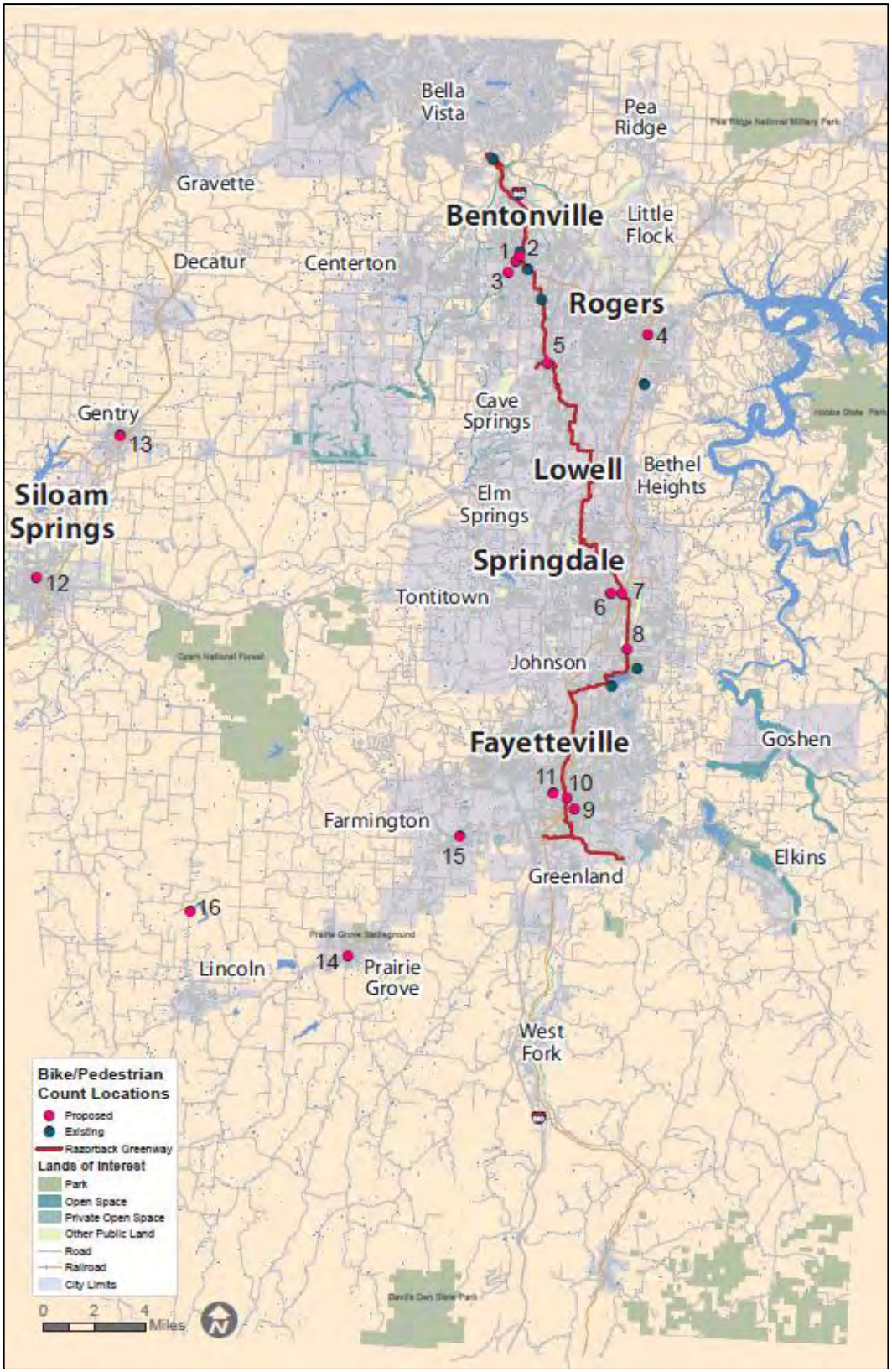


Figure 19 – Map of proposed bicycle and pedestrian count locations.

4 CONCLUSIONS AND RECOMMENDATIONS

This memo provides an overview of existing walking and biking activity and corresponding benefits, issues related to safety that are likely preventing more people from walking/ biking, and a methodology for conducting counts to track activity over time. This section summarizes the trends, and recommends action items to address the needs of people walking and biking.

Reporting and Benchmarking

- Develop an annual or bi-annual report card at the regional level that tracks trends for relevant metrics such as levels of investment (e.g., miles of facilities), the number of people walking and bicycling (e.g., count volumes), and crash history / safety trends, as well as user perceptions.
- Develop a format for local communities to submit their walking and bicycling facility inventory and investments to NWARPC on an annual or bi-annual basis to inform the regional report.

Opportunities for Improved Safety Programs

- NWA has a strong foundation of local programs in select Northwest Arkansas communities that contribute to pedestrian and bicycle safety. These include police officer training related to walking and biking safety, police collaboration with city staff to identify areas in need of improved bicycle and pedestrian accommodation, and safe routes to school programs. These programs should serve as models for developing regional resources and programs that facilitate more communities in Northwest Arkansas engaging in these activities.
- There are additional actions that are uncommon in the region that would contribute positively to pedestrian and bicycle safety. These include safety campaigns, trainings for city staff on bicycle and pedestrian safety needs, targeted enforcement actions, and systematic processes for identifying locations and countermeasures to improve pedestrian and bicycle safety. Several of these items can be orchestrated at the regional level to increase local participation (e.g., regional trainings of local staff) and reduce unnecessary duplication of effort (e.g., developing a regional walking and bicycling safety campaign).

Walking and Bicycling Safety Issues Identified in the Crash Data

- The crash data indicate approximately 80-90 reported crashes annually that have resulted in 150 or more injuries and 15 fatalities over the course of three years. Crashes occur throughout the week and at all times of year, likely indicating that many people in NWA walk and bike on a regular basis. Bicycle crashes appear to be trending upwards, potentially indicative of increased levels of bicycling combined with limited facilities to accommodate it.
- The crash maps indicate that many of these crashes are occurring in the most densely populated downtown centers as well as along wide, high speed urban and rural corridors. These areas should be targeted for more detailed collision analysis and potential improvements. The streets with the highest number of collisions are identified in Table 11.

- Bicycle crashes were most common at intersections (66%), with about half of those involving a turning vehicle. The design guidelines developed as part of this plan will include treatments for accommodating bicycles at intersections.
- Over half of pedestrian crashes occurred away from intersections. Additional mid-block crossing opportunities, including facilities such as median refuge islands, can help pedestrians across wide, high volume streets.
- 12% of both pedestrian and bicycle crashes occurred at driveways. Design standards for driveways, which will be developed as part of this plan, can help alert drivers to be more aware of the potential presence of pedestrians and bicyclists.
- Young adults aged 16-25 are most likely to be the drivers in crashes involving bicyclists or pedestrians, with males slightly over-represented as drivers (60% of all crashes). Nearly ¼ of people involved in collisions while riding a bicycle or while walking were15 or younger, while 10% of pedestrian crashes involved people 65 or older. These trends in the age and gender of drivers and victims can inform the development of targeted educational and other campaigns to improve safety.
- NWARPC should coordinate with state and federal agencies to address safety issues on State Highways (10% of bicycle crashes, 20% of pedestrian crashes) and US Highways (15% of bicycle crashes, 20% of pedestrian crashes).

Opportunities for Improved Crash Data

- The crash data provides only limited information to understand the nature of crashes involving pedestrian and bicycle involved crashes. Below are three categories that could be improved or added to the data to provide greater clarity and increase the ability to match appropriate countermeasures with particular safety issues:
    - There may be opportunities to change and increase use of the contributing factor field for collision reports. More than 40% of crashes listed the contributing factor as 'none' while another 15% listed the factor as 'unknown'. Common contributing factors are 'careless/prohibited driving' and 'failure to yield,' which yield little insight.
    - Similarly, the pedestrian action/location listed a response of other or N/A for 31% of pedestrian crashes and nearly 70% of bicycle crashes. Regular trainings with police officers could result in a higher response rate to this category for both bicycle and pedestrian involved crashes.

Count Data

- Conduct annual manual counts or install automatic counters at the 15 locations recommended in this memorandum to track trends in walking and bicycling. Include results in the regional report card.

- Carefully planned before and after counts and surveys can be used to identify changes in use, understand interactions between vehicles and non-motorized users, and gauge perceptions of safety.

D PROGRAM RECOMMENDATIONS

Chapter Contents:

Introduction
Engineering
Education
Encouragement
Enforcement
Evaluation
Economy
Conclusion

INTRODUCTION

This section identifies potential programs to improve bicycle and pedestrian engineering, education, encouragement, enforcement and evaluation efforts. Each program description includes the recommended action, a description of existing efforts around the region (based on a Community Self-Evaluation Survey), identification of regional and local roles for implementation, and sample programs from elsewhere in the country. The conclusion of this memo presents the programmatic recommendations as short-, medium-, and long-term priorities. The short-term priorities for each 'E' are identified in the next section.

A Comprehensive Approach

A comprehensive approach to bicycle and walk-friendly communities is more effective than a singular approach that only addresses infrastructure issues. Recognizing this, the national Bicycle Friendly Community program, administered by the League of American Bicyclists, and the Walk Friendly Community program, administered by the National Center for Walking and Bicycling, recommend a multi-faceted approach based on the five E's: Engineering, Education, Encouragement, Enforcement, and Evaluation. A sixth 'E', Equity, is included in order to fulfill the goals and vision of this Plan. The recommendations in this Plan are based on addressing all of these categories at the regional and local level. An additional category of 'Economy' is included to promote economic development and tourism. Short-term recommendations are made based upon an assessment of community readiness and need.

Engineering

Designing, engineering, operating, and maintaining quality roadways and pedestrian and bicycle facilities is a critical element in producing a pedestrian-friendly and bicycle friendly environment. Safe and connected infrastructure for bicyclists and pedestrians is one crucial piece of a comprehensive approach to increasing bicycling and walking activity. This category may include adding new bicycle and pedestrian specific infrastructure, improvements to street crossings, traffic calming, trail design, traffic management, school zones, or other related strategies such as adopting a complete streets policy.

Short Term Program Recommendations:

- Bike/Pedestrian Facility Inclusion in Engineering Documents, Plans, and Drawings
- Non-Motorized Transportation Training for Engineers and Planners

Education

Providing bicycle and pedestrian educational opportunities is critical for bicycle and pedestrian safety. Education should span all age groups and include motorists as well as cyclists and pedestrians. The focus of an educational campaign can range from information about the rights and responsibilities of road users (e.g. Share the Road campaigns) to tips for safe behavior; from Safe Routes to School programs to technical trainings for municipality staff.

Short Term Program Recommendations:

- Safe Routes to School (SRTS) Program
- Share the Road Campaign

Encouragement

Encouragement programs are critical for promoting and increasing walking and bicycling. These programs should address all ages and user groups from school children, to working adults, to the elderly and also address recreation and transportation users. The goal of encouragement programs is to increase the amount of bicycling and walking that occurs in a community. Programs can include work-place commuter incentives, group walks or rides, bicycle and walk-friendly route maps, and a regional walking and bicycling website.

Short Term Program Recommendations:

- Regional Biking, Walking, and Trails Website and Maps
- Razorback Regional Greenway Transportation Promotion

Enforcement

Enforcement is critical to ensure that motorists, bicyclists, and pedestrians are obeying laws. It serves as a means to educate and protect all users. The goal of enforcement is for bicyclists, pedestrians, and motorists to recognize and respect each other's rights on the roadway. In many cases, officers and citizens do not fully understand state and local laws for motorists, bicyclists, and pedestrians, making targeted education an important component of every enforcement effort.

Short Term Program Recommendations:

- Targeted Bicycle and Pedestrian Enforcement
- Regional Trainings for Law Enforcement Officers

Evaluation

Evaluation methods can include quarterly or annual meetings, development of an annual performance report, update of bicycle and pedestrian infrastructure databases, pedestrian and bicycle counts, assessments of new facilities, and plan updates. NWARPC, its partners, and municipalities will monitor implementation of this Plan on a regular basis and establish policies that ensure long-term investment in the bikeway and walkway network. Monitoring progress of implementation will facilitate continued momentum and provide opportunities for updates and changes to the process if necessary. Additionally, communities in the NWA region will

adopt policies that promote investment in and improvements to the bicycling and walking environment in accordance with the recommendations of this Plan.

Short Term Program Recommendations:

- Active Transportation Committee (ensure this Plan's recommendations are followed, projects are implemented, and evaluate progress)
- Evaluate Need for Regional Bicycle, Pedestrian and Trails Staff

Equity

Equity in transportation planning refers to the distribution of impacts (benefits and costs) and whether that distribution is considered appropriate. Transportation planning decisions have significant and diverse equity impacts. Equity in bicycle and pedestrian planning decisions should reflect community needs and values. Communities may choose to give special attention to variances in age, income, ability, gender, or other characteristics. While not a separate category in this memo, equity will be incorporated into the other E's. NWARPC and its partner implementation agencies will target outreach with a diversity of programs and events, and ensure appropriate geographic distribution of pedestrian and bicycle facilities, programs and educational programs.

The consultant team utilized the League of American Bicyclist's Bicycle Friendly Communities (BFC) program and the Pedestrian and Bicycle Information Center's Walk Friendly Communities (WFC) program as evaluation tools for the cities of NWA in the development of this Plan.

The following sections describe best practices within each category to create a menu of options to select from for making NWA communities more bikeable and walkable.

Engineering

Complete Streets Policy

Develop resources to support the development of complete streets policies in cities throughout the region. Complete streets policies direct transportation planners and engineers to consistently design the right of way to accommodate all users (drivers, transit riders, pedestrians, and bicyclists, as well as for older people, children, and people with disabilities). Fayetteville Rogers each have a full Complete Streets policy. Bentonville, Gentry, Gravette, and Siloam Springs have sidewalk requirements for new subdivision developments, but these policies do not address bicycle infrastructure.

Lead Agency: Local municipalities

Regional Role: Assemble resources and guidance on NWARPC webpage and periodically convene meetings or trainings to assist local communities to develop Complete Streets policies. Provide sample policy language.

Local Role: Adopt local complete streets policies

Sample/Model Programs: National Complete Streets Coalition: http://www.smartgrowthamerica.org/complete-streets

NACTO Urban Street Design Guide: http://nacto.org/usdg/

ITE - Designing Walkable Urban Thoroughfares: A Context Sensitive Approach: http://www.ite.org/css/RP-036A-E.pdf

ADA Transition Plans

Assist communities in the region to increase universal access by creating an online source of information with guidance on the development of Americans with Disabilities Act (ADA) transition plans and design recommendations for accessible rights of way. The webpage may include sample ADA plans, field survey forms and best practice plans. The goal is for accessibility considerations and infrastructure designs to be made on a planned, network-wide basis to ensure accessibility and non-motorized connectivity to community destinations for persons with disabilities.

ADA is a civil rights act which specifies that physical access to facilities must be granted to all, regardless of their ability status. The United States Access Board's proposed Public Rights-of-Way Accessibility Guidelines (PROWAG) and the 2010 ADA Standards for Accessible Design (2010 Standards) contain standards and guidance for improving the public way.

Commonly used road treatments discussed throughout ADA transition plans are upgrades such as: truncated domes, accessible pedestrian signals, curb ramps, and high visibility crosswalks. More than half (57%) of local cities report having some form of accommodations for people with disabilities, however the type of accommodations vary considerably.

Lead Agency: Local municipalities

Regional Role: Develop online source for best practices for inventorying accessibility features and barriers along local transport networks, recommend method for prioritizing locations for accessibility improvements, and current PROWAG expectations; facilitate coordination meetings with local cities and other agencies

Local Role: Develop ADA Transition Plan(s), which include inventorying existing resources and barriers; access regional resources and guidance to define the plan process. Fund an annual program for increasing access in the public way.

Sample Program: ADA Transition Plans for Your Community: Accessibility for People with Disabilities- Chicago Metropolitan Agency for Planning (CMAP): http://www.cmap.illinois.gov/documents/10180/96803/ADA_Transition_Plans_Community_Briefing_Paper.pdf/5cb74bd0-061a-42d7-a494-0007173f5378

http://www.cmap.illinois.gov/programs-and-resources/local-ordinances-toolkits/ada-transition-plans

Non-Motorized Transportation Training for Engineers and Planners

Develop training sessions for engineers and planners on best practices for bike and pedestrian improvements. The Fayetteville City Trails Coordinator provides regular training to city staff. NWARPC can organize and convene similar trainings to benefit staff from communities throughout the region. Example activities include:

- Training sessions that reflect the latest design guidance for bicycle and pedestrian improvements, including those contained in the design guidelines developed as part of this Plan.
- Study tours that take transportation engineers and planners to some of the most bicycle-friendly areas of the world and offer immersion experiences to understand how the infrastructure was conceived and implemented.
- Invite international experts to work with staff in visioning charrettes and context-sensitive solutions.

Webinars or other digital options might be particularly useful to facilitate regular exchange of ideas throughout NWA. These solutions would allow professionals to regularly meet and share lessons learned or barriers encountered. Webinars or in-person training could also allow transportation professionals to interact with national innovators such as the Congress for New Urbanism (CNU) or the Initiative for Bicycle & Pedestrian Innovation (IBPI) from Portland State University.

Lead Agency: NWARPC

Regional Role: Coordinate regional trainings and plan logistics; establish a regional conference call/webinar system to check in on progress; establish a regional email distribution list to encourage communication between participants

Local Role: Attend trainings convened by NWARPC. Support NWARPC in planning trainings.

Sample/Model Programs: FHWA Bike and Pedestrian Webinars: http://safety.fhwa.dot.gov/ped_bike/ped_focus/webinar.cfm

The Kickstand Sessions- Copenhagenize Design Company/ Mobycon: http://kickstandsessions.com

ThinkBike- Dutch Cycling Embassy: http://www.dutchcycling.nl/index.cfm?page=ThinkBike+workshops

The Green Lane Project- People for Bikes: http://www.peopleforbikes.org/green-lane-project/pages/events

Initiative for Bicycle & Pedestrian Innovation at Portland State University: http://www.pdx.edu/ibpi/professional_development

Bicycle Parking

Expand bike parking mandates and incentives to private commercial developments to increase the density and number of trust-worthy bicycle parking places. NWARPC could also seek funding to support the implementation of bicycle parking by purchasing racks in bulk and then working with jurisdictions on their installation.

Three local cities report having bike parking "readily available" throughout the community. The scope of this parking and under what circumstances it is mandated varies considerably. For example, downtown Bentonville offers bike parking in all public parks and at all public schools. Fayetteville requires all new developments to install bike parking. Most other local cities experience a dearth of bicycle parking. Although bicycles can be locked to street furniture such as light poles or signs, these are less effective in stopping crime and do not provide riders confidence that they will have 'end-of-trip facilities' available once they arrive at their destination. Guidance on providing short-term and long-term bicycle parking is found in the design guidelines developed as part of this Plan.

Lead Agency: Local municipalities

Regional Role: Funding role (e.g., bulk purchase of bicycle racks); distribution and coordination

Local Role: Provide input regarding advantageous parking locations (or apply for bike parking racks as part of regional program); install bike parking following this plan's design guidance

Sample/Model Program: APBP Bicycle Parking Guidelines, 2nd Edition: http://www.apbp.org/store/ViewProduct.aspx?id=502098

Regional Trail Wayfinding Program

Establish a regional trail wayfinding program to increase user confidence and accessibility to the trail system, providing consistent information that aids user to navigate the existing and growing network of regional trails, by providing destination, distance, and directional information. NWARPC can provide guidance on placement, standard design and relevant destinations.

Lead Agency: Northwest Arkansas Council, NWARPC

Regional Role: Expand regional wayfinding guidelines developed for the Razorback Regional Greenway for use with additional regional trails

Local Role: Implement signage in accordance with adopted wayfinding guidelines

Sample/Model Program: MUTCD Chapter 9 (Section 9b.20)

NACTO Urban Bikeway Design Guide http://nacto.org/cities-for-cycling/design-guide/bikeway-signing-marking/bike-route-wayfinding-signage-and-markings-system/

Enhanced Funding for Bike and Pedestrian Projects

Identify additional funding for bicycle and pedestrian projects. MAP-21 provides Metropolitan Planning Organizations (MPO) with the flexibility to shift funds from each major funding program to fit the priorities of the region. Bicycle and pedestrian projects are eligible for all major federal highway funding programs, and establishing a set percentage of Surface Transportation Program, Highway Safety Improvement Program, and Congestion Mitigation and Air Quality programs that will be dedicated to bicycle and pedestrian projects can help align policy goals with spending. As the region's MPO, NWARCP must distribute funds via a competitive grant process. Targets for bicycle and pedestrian investments can either be built into the terms of the competitive grant process for STP, HSIP, and CMAQ; or at the state level, Arkansas DOT can transfer up to 50% of funds from these pots into the Transportation Alternatives (TA) program. If federal funding sources are insufficient to meet the goals of implementing this Plan, other funding solutions include a local transportation sales tax, which has helped build infrastructure in other places in the US.

Lead Agency: NWARPC, local municipalities

Regional Role: Explore options from public and private sources for increasing funding for bicycle and pedestrian projects

Local Role: Similar to the regional role, local municipalities can consider additional revenue sources to fund bicycle and pedestrian projects

Sample Program: Capital Area Metropolitan Planning Organization (CAMPO) - Austin: http://www.campotexas.org/

Seattle, WA: http://www.seattle.gov/transportation/bridgingthegap.htm

Nashville, TN: http://www.nashvillempo.org/plans_programs/tip/TDOT_MMAF.aspx

Bike/Ped Facility Inclusion in Engineering Documents, Plans, and Drawings

Include bicycle and pedestrian facilities in standard roadway details. As described in the Complete Streets Policy section, it is important to consider the needs of all roadway users in roadway design. The 2040 Northwest Arkansas Metropolotan Transportation Plan (MTP) identifies a series of recommended cross sections for different street typologies. Most of these cross sections include accommodation for

pedestrians but not bicycles. The Complete Streets Cross Sections of the design guidelines developed as part of this Plan offer alternative cross-sections that build upon the MTP recommendations to include bicycle accommodations.

NWARPC can use these cross sections to update the Regional Transportation Plan and local agencies can use them when creating local Master Street Plans. NWARPC can also provide webinars or in person trainings (Non-Motorized Transportation Training for Engineers and Planners) and plan review services.

Lead Agency: NWARPC, local municipalities

Regional Role: Update MTP cross sections to include bicycle facilities on appropriate roadway types (refer to Complete Streets Cross Sections found in the design guidelines developed as part of this Plan); provide trainings (see Non-Motorized Transportation Training for Planners and Engineers) and plan review services to local communities

Local Role: Update Master Street Plans to include the bicycle and pedestrian networks identified in the individual community plans; update road design standards to include pedestrian and bicycle accommodation (refer to Complete Streets Cross Sections found in the design guidelines developed as part of this Plan); consider the needs of pedestrians and bicyclists in all roadway design projects

Sample/Model Programs: The Master Street Plan for Fayetteville has typical roadway sections that include bicycle and pedestrian facilities

Transportation Planning and Land Use Planning Considerations

Evaluate current state and regional transportation planning policy to ensure land use is considered in concert with transportation. Providing enhanced, ongoing staff support to surrounding communities would help coordinate land use and transportation planning efforts.

Land use and transportation are closely related, inasmuch as the size and distribution of different land uses affect the location and capacity of streets, and subsequently, how easy it is to make trips on foot or by bicycle. While land use planning and transportation planning decisions are often made separately, the importance of each on achieving outcomes related to active transportation, economic development and other factors has led many areas to increase efforts to coordinate land use and transportation planning. Although land use decisions are made locally, since these decisions can impact both local and regional transportation, the NWA region should take steps to provide model land use planning practices for use by cities in the region.

Lead Agency: NWARPC

Regional Role: Develop a best practices report of land use strategies to support active transportation; develop regular conferences and meetings to foster interest and knowledge pertaining to the topic

Local Role: Attend local planning trainings, conferences, and/or webinars related to this topic; apply concepts to update local policies related to land development

Sample/Model Programs: Congress for the New Urbanism: https://www.cnu.org/

Congress for the New Urbanism, Arkansas planning documents (Fayetteville 2025: Controlled Growth, Fayetteville 2025 Development Plan Aerial): http://www.cnu.org/taxonomy/term/1004

Education

Safe Routes to School (SRTS)

Safe Routes to School (SRTS) programs enable students to safely walk and bicycle for their school commute. SRTS includes planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution around schools. A regional SRTS program will coordinate local efforts and provide resources efficiently to schools and parents. A regional task force, SRTS coordinator, and website will coordinate efforts and initiate region-wide encouragement programs and evaluation efforts. Individual school teams can connect with technical assistance and resources. A funding task force will identify and expand available SRTS funding sources.

Local jurisdictions are starting to participate in formal SRTS programs. Bentonville Public Schools and Fayetteville-area schools have implemented SRTS programs, including three Bike Train groups in Fayetteville, who ride together to school. The City of Springdale has implemented SRTS infrastructure improvements. Several local cities are planning for future SRTS programs: Prairie Grove will implement a program in 2014 and Decatur has received a planning grant. The Bicycle Coalition of the Ozarks (BCO) currently provides bicycle educational programming to third and fifth graders in Fayetteville schools and has helped schools throughout the region acquire bicycles for future programming. BCO also helps organize Walk to School days in the region.

Lead Agency: Bicycle Coalition of the Ozarks and Bike Bentonville

Regional Role: Support existing and future SRTS efforts locally through a regional SRTS Task Force, develop SRTS Plan for implementing a regional SRTS program, identify funding opportunities to build local and regional programming, and assist with organizing a regional summit

Local Role: Participate in regional SRTS Task Force, apply for funding, and run programs at individual schools

Model Program: Spare the Air Youth: San Francisco Bay Area Regional SRTS program: http://www.sparetheairyouth.org/,

East Central Wisconsin's SRTS program: http://eastcentralsrts.org/

LCI Instructor Training

The League of American Bicyclists (LAB) organizes a training program for those interested in teaching adult and child bicycle skills classes. Per the LAB website, the 'goal is to help people feel more secure about getting on a bike, to create a mindset that bikes are treated as a vehicle, and to ensure that people on bikes know how to ride safely and legally.' Completing the program earns participants recognition as League Certified Instructors (LCI) and enables individuals to teach the League's Smart Cycling classes to children and adults.

Two communities in the region reported having adult education courses available. Fayetteville has periodically offered LCI certification courses. Organizing annual LCI trainings in the NWA region would build capacity for local communities. The sustainability of the bicycle education program can be achieved by teaching new participants how to lead classes themselves.

Lead Agency: Northwest Arkansas Council

Regional Role (Regional Trails Coordinator): Arrange periodic LCI trainings in coordination with local advocacy organizations such as Bicycle Coalition of the Ozarks

Local Role: Publicize trainings to encourage local community members to become league certified instructors; organize trainings in local community

Model Program: LCI Program Website: https://www.bikeleague.org/content/become-instructor

League Certified Bicycling Skills Classes

Organize LAB Smart Cycle classes, led by League Certified Instructors (LCIs), to educate the general public about bicycle skills, safety and use of bicycles for transportation. Provide courses in both English and Spanish, at rotating locations to serve the widest geographic area possible.

Lead Agency: Northwest Arkansas Council

Regional Role (Regional Trails Coordinator): Coordinate dates and session organizing with LAB and local advocacy organizations such as Bicycle Coalition of the Ozarks (BCO).

Local Role: Publicize skills classes to encourage attendance by local community members; assist in organization of skills classes in local community

Model Program: League of American Bicyclists Smart Cycling program: https://www.bikeleague.org/content/take-class

Share the Road Campaign

Develop and implement regional bicycle and/or pedestrian safety education campaigns, with a goal of reducing the frequency and severity of bicycle and pedestrian involved crashes. Educating the public about the over-representation of bicyclists and pedestrians in local and national crash data helps the general public

acknowledge the need to protect 'vulnerable' road users. Safety campaigns can specifically highlight the hazards to children and the elderly as well as the need for planning initiatives to lower risks to people when they are walking or bicycling. Campaigns can correspond with road or trail improvement projects to alert the community to new investments, remind them to be aware of active transportation users, and encourage them to take advantage of enhanced transportation options.

NWARPC or another regional entity can develop campaign materials, while local communities can access the regional resources and spread safety messaging by including them in utility bills or other routine mailings, through print and social media campaigns, or by placing pavement markings, posters, or other signs in the public way. FHWA offers resources for developing pedestrian safety campaigns (see Sample/Model Programs Below).

Lead Agency: Bicycle Coalition of the Ozarks, Bike Bentonville and Northwest Arkansas Council

Regional Role: Create messaging (including wording, images, and overall graphic design); distribute materials to local cities; provide funding for campaigns

Local Role: Implement campaigns at the local level; provide recommendations to regional campaigns regarding preferences of local residents for receiving information

Sample/Model Programs: Federal Highway Administration (FHWA) Pedestrian Safety Campaign: http://safety.fhwa.dot.gov/local_rural/pedcampaign/

Bikes Belong Foundation – A Review of Bicycle Safety Campaigns http://bikesbelong.oli.us/Bikes%20Belong%20Foundation%20Safety%20Campaign%20Best%20Practices%20Report_reduced.pdf

University Pedestrian and Bicycle Planning & Design Studio

A Pedestrian and Bicycle Planning & Design Studio, potentially within the University of Arkansas, would serve to educate college students on active transportation planning, engineering, and design concepts and professions. This type of programming at the university level would, over time, increase the number of transportation professions in the region and beyond that can practice innovative non-motorized transportation planning and design practices.

There are several examples of similar programs. For example, the Initiative for Bicycle and Pedestrian Innovation at Portland State University teaches students about best practices, uses the city as a "living laboratory", and provides information sharing through professional development webinars and courses. The University of Washington offers a ScanDesign Fellowship directed by the College of Built Environments. Students study public space and public life, including the role of bicycle and pedestrian improvements, with professional architects.

Lead Agency: Potential partnership with the University of Arkansas

Regional Role: Assist in planning and researching lessons learned from established programs.

Local Role: Promote the program; collaborate to promote the new studio at planning-related events and fairs for high school and college students

Sample Programs: Initiative for Bicycle & Pedestrian Innovation at Portland State University: http://www.pdx.edu/ibpi/

Scan | Design Fellowship at University of Washington: http://www.be.washington.edu/scandesign/learnaboutfellowship.html

University of Albany – Initiative for Healthy Infrastructure: http://www.albany.edu/ihi/

Encouragement

Regional Biking, Walking, and Trails Website

The NWARPC website currently has a section devoted to Trails (Bikes/Pedestrian) Network. Redeveloping the website to provide more resources for biking and walking more generally would increase public knowledge of these transportation choices. The availability of these resources should be promoted to local agencies in order to reach a broader range of residents and visitors.

The Northwest Arkansas Council regional trails coordinator is currently organizing encouragement activities and has a goal to make the Northwest Arkansas Trails website a clearinghouse for trail event listings (e.g., Clear Creek Trail Celebration) and planning information (e.g., Fayetteville City Council). NWARPC should collaborate to ensure events are cross-promoted on each website and that each references a complete directory related to upcoming events.

Lead Agency: Northwest Arkansas Council

Regional Role (Regional Trails Coordinator): Develop, host, and distribute content related to trails as well as other walking and bicycling materials and events to the public and local jurisdictions; coordinate content between NWARPC and Northwest Arkansas Council websites; host a common regional events calendar

Local Role: Distribute content to constituents, publicize resources

Sample Program: Minnesota statewide biking website: http://www.pedalmn.com/

Regional Walking, Bicycling and Trails Maps

Encourage walking and biking by providing route and facility information and highlighting walking and bicycling destinations. NWARPC maintains digital and physical copies of several trail maps, some of which are available on the NWARPC website while others such as the NWA Heritage Trail Map are also available in hard copy at the NWARPC office. On a local level, Bentonville, Fayetteville, and Rogers currently have up-to-date bicycle maps.

Ideally, NWARPC would develop regional walking, bicycling, and trails maps, which would be supplemented by more detailed local maps of communities in the region. Maps should be printed as needed, regularly updated, and actively distributed to residents and visitors. An online map (PDF or other format) should also be posted,

and information about it disseminated through municipalities, social media, and biking and walking clubs. Websites that host regional and local maps should also contain information telling residents and visitors where to find the maps in person.

Lead Agency: NWARPC and Northwest Arkansas Council

Regional Role: Develop regional walking and bicycling maps and make them available online at the Northwest Arkansas Council website and in print at various locations across the region; periodically update maps; manage print resources; provide guidance to local communities on developing local walking and bicycling maps

Local Role: Publicize regional maps (e.g., on city website) and assist in distributing hard copy maps at community locations; develop local walking and bicycling maps

Sample Program: Miami Valley Bike Trails, Miami Valley Regional Planning Commission- Miami, OH (example of digital map): http://www.miamivalleytrails.org/miami-valley-bike-trails

Walking Promotion Activities

Walking promotion activities take multiple forms from family walking events, senior walking clubs, or other events. These events can occur as often as warranted or occur at predetermined frequencies. Nearly a quarter of local cities report hosting events that promote walking. Examples include: Siloam Springs "Bridges to Wellness" event, the Gravette Chamber of Commerce annual 5K run, walks and runs on Fayetteville's trails, and Bentonville walking and running events on car-free streets.

Northwest Arkansas Council should coordinate and promote walking events by assisting local jurisdictions with new and existing events. It could also choose to centralize some local activities, such as coordinating one date for a regional walk day, for more participation. Northwest Arkansas Council can also direct communities to potential funding sources such as grant funding pools or local foundations.

Lead Agency: Local jurisdictions and Northwest Arkansas Council

Regional Role (Regional Trails Coordinator): Help coordinate local efforts; manage logistics such as permitting, scheduling, and promotion

Local Role: Implement local events annually or at a determined frequency, coordinated through the Northwest Arkansas Council

Sample Program: Walk [Your City]: http://walkyourcity.org/

Razorback Regional Greenway Transportation Promotion

Develop an individualized marketing program and/or media campaign to promote use of the Razorback Regional Greenway for recreation and transportation. Individualized Marketing programs are proven to reduce drive-alone trips and increase bicycling and walking within a target area. These programs can complement a new transportation facility, such as a new transit line or multi-use trail, by alerting

the community to its presence and offer resources to support its use. These programs invite residents of the target area to order a customized information packet containing transportation maps and resources and a free incentive gift. The programs also host encouragement activities such as group walks, guided bicycle rides, and classes and workshops. Trained staff can appear at community or employer events to answer questions about walking, bicycling, and transit use. Implementing an individualized marketing or media program related to the Razorback Regional Greenway would help maximize the active living benefits of this invaluable community asset as local residents use it during their daily lives.

Lead Agency: Northwest Arkansas Council

Regional Role: Develop campaign materials for an individualized marketing program; fund and implement program operations

Local Role: Communication/promotion

Sample Program: Go Bronzeville- Chicago, IL: http://www.gobronzeville.org/

Bike and Walk Month

Bike and walk month programs can take place at any geographic level. Approaching this programming option from a regional perspective is particularly useful for NWA because of the region's abundance of trail resources. Programming can encourage residents to visit multiple trail sections throughout the month and can encourage hesitant riders to try biking for transportation. Several Bike Months throughout the US are timed to correspond with bike commute-related events such as Bike to Work Day/Week/Month. Bike and walk program options are only limited by budget and imagination, but could include:

- Commute Challenge competitions
- Bike and walk transportation seminars and workshops
- Bike recognition days with discounts or small gifts for bikers who stop at participating businesses
- Community walking events and group rides

Fayetteville's annual Bike Month is celebrated with the mayor reading a proclamation before a community bike ride. The Bicycle Coalition of the Ozarks hosts a Commuter Challenge in celebration of Bike to Work Week. Scaling these programs to a unified, regional-level would provide residents with several options for local involvement. By showcasing the plethora of trail systems present in NWARPC territory, the region would become an example for the rest of the state.

Lead Agency: Northwest Arkansas Council in partnership with local jurisdictions

Regional Role (Regional Trails Coordinator): Expand bike month programming options in coordination with local jurisdictions and local advocacy groups; provide local jurisdictions with ready-made, customizable advertising materials; host the Bike and Walk Month website

Local Role: Publicize events to community groups, community leaders, media outlets and other local agencies; connect Northwest Arkansas Council with staff or volunteers to help organize events

Sample Programs:

Tacoma-Pierce County Bike Month- Tacoma-Pierce County, WA:

https://pt.memberclicks.net/bike-month

Colorado Bike Month: http://www.coloradodot.info/programs/bikeped/colorado-bike-month

Group Rides and Walks for Women and Families

Group rides and walks for women and families can encourage use of the Razorback Regional Greenway, mountain bike trails, and other trail systems throughout the region. Rides and walks can be implemented by stakeholders at the local level, while the regional-level reach of NWARPC can streamline event publicity efforts. NWARPC can promote a centralized events calendar by listing upcoming events and contact information of local organizers.

Group events can also incorporate hands-on seminars or workshops related to family walking and biking. Integrating group walks and rides with initiatives of other organizations such as International Women's Day events or parent group functions would promote the trail system to residents who may not otherwise use it. Group event organizers could also coordinate functions with the proposed equity-focused programs presented in this section.

Lead Agency: Northwest Arkansas Council

Regional Role (Regional Trails Coordinator): Provide support where needed such as: coordinating local efforts; support and resources in planning, fundraising, and implementation; host and promote a centralized calendar of events

Local Role: Implement local events on a recurring basis; collaborate with regional and local jurisdictions for required permits and other event planning details

Sample/Model Programs: Bicycle Trails Council of the East Bay- California: http://www.btceb.org/

Women on Bikes- Portland, Oregon: https://www.portlandoregon.gov/transportation/44100

Get Your Tail on the Trail- Delaware and Lehigh National Heritage Corridor (D&L), Pennsylvania: http://tailonthetrail.org/

Equity-Oriented Programs

Equity-oriented programs take a variety of forms, but the central mission is to provide transportation access and information to vulnerable or low-income people in the community or region.

The following actions can impact equity:

- Apply environmental justice criteria to project selection criteria. Transportation planning decisions can have a significant effect on the distribution of impacts (benefits and costs) of investment decisions. Based on local needs and values,

communities may choose to give special attention to vulnerable populations based on age, income, ability, gender, or other characteristics. The goal is to distribute bike and pedestrian (as well as other transportation modes) facilities, programs and educational programs appropriately across the region.

- Provide transportation options and information to vulnerable populations through trusted distribution channels that are easy to access.
- "Bicycle kitchens" are mainly volunteer-staffed, non-profit bike shops that operate with a "do it yourself" attitude to teach clients basic repairs and self-sufficiency related to bike mechanics. Build-A-Bike programs (sometimes called Build-A-Commuter) operate under a similar premise. Instead of paying the full price for a bicycle, participants participate in a series of workshops to construct bikes out of recycled or donated parts. Some programs ask participants to build two bicycles: one to keep and the other to donate to the non-profit, which then distributes the bicycles in the community or sells them to continue operations. Regional or foundation grant programs could distribute funds to interested local agencies wishing to begin a program similar to those described above.

Lead Agency: NWARPC, Northwest Arkansas Council, or other partner

Regional Role: Add equity criteria to competitive transportation grant programs (NWARPC); provide information and resources to vulnerable populations (Northwest Arkansas Council)

Local Role: Submit transportation project applications that meet environmental justice criteria; direct residents to regional resources; consider implementing a bicycle kitchen or build a bike program.

Sample Programs:

The Bicycle Kitchen- Los Angeles, CA: http://www.bicyclekitchen.com/

Community Cycling Center- Portland, OR: www.communitycyclingcenter.org

Open Streets Events

Coordinate and support local open streets events. Northwest Arkansas Council can support local open street events by serving as a resource to assist local jurisdictions in the planning, fundraising, and implementation of annual events. For example, it could host regional workshops, or coordinate with local jurisdictions that may prefer to stagger event dates to avoid competing for participants. Large scale sponsorships could also be solicited at the regional level. Fayetteville has organized an open street event in the past.

Open Streets events are periodic street closures that create a 'temporary park' open to the public for walking, bicycling, roller-skating, and other activities. The purpose of car-free street events, which have proven extremely popular in communities across the US and around the world, is to encourage walking and biking for the general public. The Open Streets Project aims to share information and resources about Open Streets events with communities around North America. The Open

Streets Project offers an interactive website and free (electronic) Open Streets Guide to assist organizers. The guide provides best practices for implementing a successful event and sustaining efforts into the future.

Lead Agency: Northwest Arkansas Council and local jurisdictions

Regional Role (Regional Trails Coordinator): Coordinate local efforts; provide support and resources in planning, fundraising, permitting, and implementation

Local Role: Implement local event annually

Model Program:

Open Streets Project: http://openstreetsproject.org/

Open Streets Guide: http://www.peoplepoweredmovement.org/site/index.php/site/openstreetsguidedownload/

Stewardship Programs

Stewardship programs foster a sense of community engagement and ownership over public resources such as regional trails. Proposed stewardship programs for the NWA region take three forms:

- Adopt-a-Trail Program
- 10,000 Trees Initiative
- Stewardship Award Program

Similar in structure to Adopt-a-Highway clean-up programs, Adopt-a-Trail programs encourage civic engagement and care for local natural resources. Bentonville and Fayetteville already engage in Adopt-a-Trail volunteer programs. Volunteers in the programs of both cities are asked to clean the "adopted" trail three times per year. Regional and local agencies should work together to coordinate resources from participating municipalities.

A 10,000 Trees Initiative would coordinate and implement the planting of 10,000 trees throughout the region. Similar programs in other areas have tremendous buy-in from large numbers of organizations and individuals who volunteer. The 10,000 Trees for the Rouge group in Canada, for example, has helped restore over 150 acres of land; each planting attracts about 1,500 volunteers. Setting a firm goal of 10,000 trees would illustrate the commitment of NWA to protecting the environment. Encouraging the program in natural and urban areas would unite communities throughout the region and show support for these varying typologies.

Stewardship Award Programs recognize outstanding volunteers whose work might otherwise go unnoticed. After a small public, in-person recognition, local and regional agencies can post volunteer names to their respective websites. Such an initiative would continue the region's momentum towards civic engagement. For example, Fayetteville has been named Arkansas Volunteer Community of the Year on multiple occasions.

Lead Agency: Northwest Arkansas Council

Regional Role (Regional Trails Coordinator): Identify potential partners for stewardship programs, coordinate the inclusion of regional trails in their activities, and support the program with funding support

Local Role: Publicize to constituents and the media; connect interested individuals and organizations to program organizers and the Regional Trails Coordinator; attend coordination meetings, conference calls, or webinars

Sample Programs: City of Bentonville Adopt a Trail Program Information Packet & Application: http://www.bentonvillear.com/docs/Parks/adopt-a-trail.pdf

Fayetteville Adopt a Trail Program Volunteer Handbook: http://www.accessfayetteville.org/government/parks_and_recreation/documents/misc/Volunteer%20Handbook.pdf

10,000 Trees for the Rouge Valley- Toronto, Canada: http://www.10000trees.com/aboutus.html

Regional Mountain Bike Trail Network Development

The NWA region is well on its way to developing a high-quality mountain bike trail network that will be the cornerstone of tourism, and will contribute to quality of life and physical activity for residents. Northwest Arkansas Council can provide a forum for coordinating planning, implementing, and marketing mountain bike trails, in order to build out the network as well and as quickly as possible. Future integration should facilitate non-motorized access to trails through implementation of on-road bicycle facilities, wayfinding, etc.

Lead Agency: Northwest Arkansas Council

Regional Role (Regional Trails Coordinator): Host a quarterly meeting and a list-serve for local partners who are working on mountain bike issues; assist with tourism marketing

Local Role: Attend quarterly meeting and participate in list serve; share information; take advantage of resources offered

Sample/Model Programs: Palmetto Trail MTB Trails http://www.sctrails.net/Trails/alltrails/mountainbike/MTN%20BIKE.html

Maah Daa Hey Trail, North Dakota: http://mdhta.com/ and https://www.imba.com/epics/maah-daah-hey-trail

Enforcement

Targeted Bicycle and Pedestrian Enforcement

Based on crash data analysis and observed patterns of behavior, use consistent targeted enforcement to focus on key violations such as motorists speeding, failure to yield to pedestrians at marked crossings, passing too closely to cyclists, parking in bicycle lanes, etc. The goal is for pedestrians, bicyclists, and motorists to recognize and respect each other's rights on the roadway. Refer to the 'Annual Meeting with Police, Planners and Engineers to Identify Collision Trends, Infrastructure Needs and Areas for Targeted Enforcement' section for additional details.

Regional Trainings for Law Enforcement Officers

Law enforcement officer knowledge of current bicycle and pedestrian related laws is important to ensure laws are properly enforced to protect the safety and rights of 'vulnerable' roadway users. Currently, 62% (13 of 21) local cities report that traffic safety officers are trained in law that applies to pedestrians and bicyclists.

Trainings organized at the regional scale can aim to achieve the following:

- Educate police on current bike/pedestrian laws, common collision types, and community education programs.
- Review protocols for properly completing collision forms when pedestrians and bicycles are involved in a collision, to ensure information is completed in sufficient detail to allow for effective lessons learned from periodic crash analyses.

Improved collision data is an essential element of performance measure reporting. For example, the Pedestrian Location Action field was marked as other or NA for over 30% of pedestrian involved collisions and nearly 70% of bicycle involved collisions. Regular reviews of these processes, for example, may yield insight into whether issues relate to insufficient choices on the form itself or to a misunderstanding of how to properly complete this field.

Lead Agency: Bicycle Coalition of the Ozarks, Bike Bentonville and Northwest Arkansas Council

Regional Role: Coordinate convening of local law enforcement branches either at one regional training or at various trainings offered throughout the year. Expand the program over time to offer additional training topics.

Local Role: Encourage or require officer attendance. Assist regional coordinator in selecting logistics (e.g., location, time, topics covered).

Sample/Model Programs: Partnering with Law Enforcement- Federal Highways Administration (FHWA): http://www.fhwa.dot.gov/environment/bicycle_pedestrian/ntpp/partner_law.cfm

Bike and Foot Patrol Units

Officers patrolling on bike and on foot are an excellent tool for community and neighborhood policing because they are more accessible to the public and able to mobilize in areas where cars cannot fit (e.g., access ways, overcrossings and trails).

Bicycle officers can also serve as excellent outreach personnel to the public at parades, street fairs, and other gatherings. Police on bicycles should be models for other cyclists by wearing helmets and riding accordingly.

Regional patrol unit trainings would allow for information sharing between cities, including lessons learned from the nearly 30% of local cities who report they already have officers that patrol on bicycles. In Rogers, for instance, School Resource Officers act as bike patrol officers on a full-time basis in the summer months.

Lead Agency: Lead Agency: Bicycle Coalition of the Ozarks, Bike Bentonville and Northwest Arkansas Council

Regional Role: Coordinate trainings and solicit recommendations from local agencies.

Local Role: Encourage or require law enforcement officer attendance; implement and fund local walk/bike police patrols.

Sample/Model Programs: "Bringing Back Bicycle Patrol"- Police Magazine: http://www.policemag.com/channel/patrol/articles/2013/08/bringing-back-bicycle-patrol.aspx

Central Point (OR) Bike Team: http://www.centralpointoregon.gov/police.aspx?id=530

"Starting a Bike Patrol"- International Police Mountain Bike Association (IPMBA) News: http://ipmba.org/blog/comments/starting-a-bike-patrol

Annual Meeting with Police, Planners and Engineers to Evaluate Collision Trends, Infrastructure Needs and Areas for Targeted Enforcement

An annual meeting with police, planners and engineers would offer the opportunity for representatives of these three disciplines to share their unique perspectives to develop comprehensive strategies for enhancing pedestrian and bicycle safety.

Compiling and analyzing crash data gives planners and engineers an idea of where and under what circumstances crashes commonly occur. Identifying common features across intersections (e.g., long crossing distances, lack of bicycle treatment) or corridors (e.g., high speeds, low visibility) can help engineers plan improvements. Moreover, law enforcement officers can use annual crash analysis reports to plan where to position additional officers or enforcement technology such as speed cameras or other devices. The collision analysis completed as part of this plan identified the following themes:

- The need to accommodate bicycles at intersections
- The need to provide mid-block crossing opportunities
- The occurrence of pedestrian/bicycle/vehicle conflicts at driveways

The City of Fayetteville has conducted crosswalk enforcement to promote pedestrian safety in crosswalks. Two cities (Gravette and Rogers) have strategies in place for collaboratively selecting locations to install safety countermeasures. Rogers monitors the ten intersections with the most collisions and focuses enforcement efforts in these places.

Lead Agency: Lead Agency: Bicycle Coalition of the Ozarks, Bike Bentonville and Northwest Arkansas Council; local law enforcement agencies

Regional Role: Coordinate data gathering for crash analysis reports; release findings to local agencies and the public; convene local community staff and offers to develop strategies to address the results; coordinate the stationing of law enforcement officers; discuss enforcement tactics with local cities; lead or help support public outreach efforts to educate about the program

Local Role: Delegate law enforcement officers as needed; implement targeted enforcement actions and infrastructure improvements based on the annual meeting outcomes

Sample/Model Programs: San Francisco Police Department and Walk SF Targeted Enforcement Program: http://sf.streetsblog.org/2012/03/29/sfpd-issues-targeted-enforcement-plan-to-reduce-pedestrian-injuries/

San Francisco Pedestrian Safety Task Force: http://www.sfmta.com/vi/about-sfmta/organization/committees/pedestrian-safety-task-force

Evaluation

Active Transportation Committee

NWARPC should continue the regional Active Transportation Committee (ACT). The Active Transportation Committee is made up of agency staff, business leaders, appointed citizens and community leaders. In addition to its other roles, ACT can ensure this Plan's recommendations are followed and projects are implemented. Members can evaluate progress and make recommendations for further progress.

Lead Agency: NWARPC

Regional Role: Local cities; local cities' respective active transportation-related committees or other groups

Local Role: Encourage citizens to participate in committee-related public meetings, workshops, or other functions

Sample/Model Programs: Existing program

Evaluate Need for Regional Bicycle, Pedestrian and Trails Staff

As the NWA region increases its commitment to supporting walking and biking, entities at both the regional and local level will need to evaluate whether existing staff resources are sufficient. Fayetteville is the only community in the region that currently has a staff member exclusively dedicated to non-motorized transportation.

Each community in the region should have a main point staff person for planning and other issues related to non-motorized transportation. Local and regional (NWARPC and Regional Trails Coordinator) bicycle/pedestrian/trails staff should work collaboratively to advance the role of walking, biking and trails in the region. Staffing will likely need to increase over time as more communities become actively engaged in this type of planning.

At the regional level, NWARPC should assess the need for a staff member dedicated to walking, biking and trails planning. This would include the role of applying for and coordinating grants. With the responsibility of transit, this may be sufficient to require a full time position.

The Coordinator's key tasks and job duties could include:

- Coordinate the development and implementation of the regional bicycle and pedestrian program initiatives
- Plan, design, and review roadway projects to ensure bicycle and pedestrian access is innovative and congruent with the program's goals
- Coordinate public input and involvement including partnerships with regional and local jurisdictions and advocacy groups
- Plan, organize, and implement bicycle education, encouragement, and enforcement programs
- Evaluate regional bicycle program growth including performance measures

Lead Agency: NWARPC

Regional Role: Assess the need for an NWARPC staff member solely dedicated to walking, biking and trails planning

Local Role: Ensure that there is at least one staff member dedicated to issues related to walking, biking and trails; some larger communities may warrant a staff member solely dedicated to this topic area

Sample/Model Programs: California Department of Transportation (Caltrans) District Bicycle and Pedestrian Coordinator: http://www.dot.ca.gov/dist11/departments/planning/pages/bicyclepages.htm

Safety Issues on State and US Highways

Coordinate with state agencies to address safety issues on State and US highways. The crash analysis conducted as part of this Plan indicates that approximately ¼ of crashes involving bicyclists and more than 1/3 crashes involving pedestrians occur on state or US highways. This represents a sizable portion of crashes and NWARPC should coordinate with AHTD to identify crash patterns and potential actions to mitigate frequency and severity. Programs to reduce crashes may take a variety of forms across the Five E's described in this section.

Lead Agency: NWARPC

Regional Role: Work with AHTD to identify solutions to safety issues on state and US highways.

Local Role: Identify safety issues on state routes that pass through each local community.

Sample/Model Programs: MnDOT and Minnesota Department of Public Safety (DPS) Strategic Highway Safety Plan (SHSP): http://tlcminnesota.typepad.com/blog/2013/10/collaboration-planning-for-bicycle-and-pedestrian-safety.html

Oregon "Bike Bill" and Use of Highway Funds: http://www.oregon.gov/ODOT/HWY/BIKEPED/Pages/bike_bill.aspx

Regional Bicycle, Pedestrian, and Trail Count Program

Establish a regional bicycle, pedestrian and trail count program to allow for the analysis of trends in walk and bike activity across the region. These data can support continued trail and bikeway expansion and illustrate usage patterns and benefits to members of the public and local media. The foundation of a regional count program is already in place, with four automatic counters currently installed on the Razorback Regional Greenway. Three cities in the region have ongoing count and/or survey programs. The Users Needs memo created for this Plan outlines 15 recommended locations for either installation of automatic counters or to be surveyed annually as part of a manual count program. There is a potential future opportunity to move the task of analyzing these data to the University of Arkansas Bicycle and Pedestrian Planning & Design Studio recommended earlier in this section. Results of the bicycle, pedestrian, and trail count program should be included in the Regional Report Card described in this section.

Lead Agency: NWARPC

Regional Role: Develop a regional count program in line with the recommendations presented in the Users Needs memo

Local Role: Help recruit local volunteers, if the region elects for a volunteer driven manual count program rather than installing automatic counters

Sample/Model Programs: Bike Count Data Clearinghouse- Luskin Center, UCLA: http://www.bikecounts.luskin.ucla.edu/Default.aspx

Regional Walking, Bicycling and Trails Report Card

Develop a regional bicycle and pedestrian report card (annual or bi-annual) to measure investments and track progress over time. Potential topics to include in the report are listed below:

- Facility investments (e.g., miles of sidewalks, trails, bike lanes, etc.)
- Count volumes for bicycling and walking
- Crash history and safety trends

Many leading bike-friendly cities produce annual reports, sometimes called a 'bicycle account,' that track ridership trends, number and quality of bicycle parking facilities, new infrastructure developed by year, crash statistics, and more. NWARPC can develop a similar report to track the progress of this Plan and other initiatives related to walking, bicycling, and trails.

Lead Agency: NWARPC

Regional Role: Conduct crash and count data analysis. Collect infrastructure data and other information from local cities; coordinate report development; provide guidance to cities on local data collection efforts

Local Role: Participate in annual or bi-annual reporting process; direct regional coordinators to data and/or information about the local progress to-date

Sample/Model Programs: Bicycle Account Guidelines-League of American Bicyclists (LAB): http://www.bikeleague.org/sites/lab.huang.radicaldesigns.org/files/Bicycle_Account_Guidelines.pdf

Standardized Regional GIS Portal

Develop a format for local cities to submit bicycle, pedestrian and trails infrastructure data to a regional GIS portal, which will greatly streamline the process of gathering and summary of regional report card to monitor bicycle and pedestrian investment over time. By submitting an inventory of walking and bicycling facilities to this portal, local cities can help create a resource that tracks the progress of network building. The consolidated resources and information clearinghouse will save staff time and leave a digital footprint of activities and investments in the region. The portal can also be expanded to include usage (i.e., count data) or other data related to walking and bicycling.

NWARPC can work with local agencies to develop the standardized data submission format. As an example, GIS databases can inventory bike and pedestrian facilities by showing sidewalk (or other facility) location, condition, and year constructed. Fayetteville maintains such a database. Bentonville and Centerton have GIS files depicting their respective current and proposed sidewalk networks.

Lead Agency: NWARPC

Regional Role: Develop a GIS portal and a standardized protocol instructing local cities how to collect and submit data; provide staff training/outreach as needed

Local Role: Submit information on an agreed-upon schedule (e.g., annually)

Sample/Model Programs: Northeast Ohio Areawide Coordinating Agency (NOACA) Transportation Data Portal, Greater Cleveland, Ohio: http://www.noaca.org/index.aspx?page=94 and http://gis.noaca.org/flexviewers/gisportal/

Los Angeles County GIS Data Portal (in progress), Los Angeles County, California: http://egis3.lacounty.gov/dataportal/2013/05/29/bike-paths/

Economy

Economic Impact Report for Razorback Regional Greenway

Publishing information on how trails impact local economies can help make the case for continued investment in these natural spaces. Economic impact reports will help inform the bicycle tourism strategy presented in the Encouragement recommendation section. These reports should include region-specific information such as the following:

- Regional revenue as a result of trail-related ventures
- Number of new trail-related businesses
- Number of visitors and average visitor economic contribution

- Economic impact for specific local cities and their experiences regarding economic development

The reports displayed in the "Sample/Model Programs" links in the 'Bicycle Tourism Strategy' recommendation will direct NWARPC and other agencies to example reports. Others are listed below.

Lead Agency: NWARPC

Regional Role: Develop format and content for economic impact reports and share results of studies with local jurisdictions

Local Role: Provide NWARPC with case studies, relevant data, and suggestions for performance measures and other metrics; publicize the initiative to local industry professionals, organizations, media outlets, residents, and other interested individuals

Sample/Model Programs:

Economic Benefits of Trails and Greenways- Rails to Trails Conservancy: http://www.railstotrails.org/resources/documents/resource_docs/tgc_economic.pdf

Impacts of Trails & Trail Use (Resources and Library)- National Trails Training Partnership: http://www.americantrails.org/resources/adjacent/

Bicycle and Walking Tourism Strategy

A coordinated bicycle and walking tourism strategy would greatly enhance the economic potential of the region. Trail-generated tourism is already a major market in the United States. Oregon, for instance, estimates bicycle tourism's economic impact to be about $400 million generated annually.

The NWA region's steady investment has produced high-quality trails for a variety of recreational, adventure, and leisure activities. Developing the tourism strategy would include producing communication and promotional materials in digital, print, and multi-media formats to broadcast the area's touristic offerings to the rest of the state and the rest of the country. These materials should direct interested parties to a centralized and routinely updated website. 19% of local communities currently offer free walking route guides, maps, or tours to visitors (Bentonville, Fayetteville, Gravette, and Siloam Springs).

Stakeholders in the tourism industry such as business owners (e.g., hotels, campgrounds, and tour companies), local and regional policy makers, NWARPC, and industry professionals from outside the region can convene for bike tourism summits that would increase the regional capacity regarding marketing, management, and other business-oriented skills. Temporary bike parking at events would enhance visitors' overall comfort level throughout their stay, as would provision of pedestrian-friendly sidewalks and benches throughout towns. Similarly, creating scenic bikeway and walking designations would show visitors the very best that Arkansas has to offer and would quickly allow visitors access to these places of particular natural beauty, roadside attractions, and bikeway and hiking trail best practice.

Lead Agency: Northwest Arkansas Council

Regional Role: Organize local jurisdiction representatives and industry professionals for an annual bike tourism summit; provide financial support for the summit and seek sponsors among local stakeholder groups; produce tourism materials for the region, including brochures and multi-media advertisements; organize, plan, and implement a regional economic development initiative (see resources below)

Local Role: Produce marketing and advertising materials such as brochures and websites; promote summit attendance among industry stakeholders and other residents; participate in the regional economic development initiative (see the resources below)

Sample Programs:

Three Sisters Scenic Bikeway- Central Oregon Visitors Association: http://www.visitcentraloregon.com/sights-a-activities/three-sisters-scenic-bikeway

Greater Allegheny Passage (GAP) Program: http://www.trailtowns.org/initiatives.aspx

"Kentucky Trail Towns: A How-To Guide for Communities"- Kentucky Trail Towns Program: http://www.kentuckytourism.com/!userfiles/Industry/Adventure/4%20-%20Trail%20Town%20How%20to%20Guide.pdf

CONCLUSION

This section has presented a variety of programmatic recommendations that constitute a comprehensive approach to supporting walking and bicycling in NWA through engineering, education, encouragement, enforcement and evaluation. Table D.1 below presents a summary of recommendations organized by category and which identifies the lead entity and time-frame for implementation. Short term actions are those that can be implemented within 1 year, medium-term actions can be implemented within 2-3 years, while long term actions can be implemented in three years or longer. Implementation of these programs over time will improve conditions for walking and bicycling across NWA and help the region and individual communities achieve recognition as Walk and Bicycle Friendly Communities.

Table D.1 - Summary of Programmatic Recommendations for Improved Walking and Bicycling in NWA

Program	Term	Lead Entity
Engineering		
Non-Motorized Transportation Training for Engineers and Planners	Short	NWARPC
Bike/Pedestrian Facility Inclusion in Engineering Documents, Plans, and Drawings	Short	NWARPC, Local municipalities
Complete Streets Policy	Medium	Local municipalities
ADA Transition Plans	Medium	Local municipalities
Bicycle Parking	Medium	Local municipalities
Regional Trail Wayfinding Program	Medium	NWARPC
Enhanced Funding for Bike and Pedestrian Projects	Medium	NWARPC, Local municipalities
Transportation Planning and Land Use Planning Considerations	Long	NWARPC
Education		
Safe Routes to School (SRTS)	Short	Bicycle Coalition of the Ozarks (BCO) and Bike Bentonville (BB); Local school districts
Share the Road Campaign	Short	BCO, BB and Northwest Arkansas Council
LCI Instructor Training	Medium	Northwest Arkansas Council
League Certified Bicycling Skills Classes	Medium	Northwest Arkansas Council
University Pedestrian and Bicycle Planning & Design Studio	Long	Potential partners with the University of Arkansas

Program	Term	Lead Entity
Encouragement		
Regional Biking, Walking, and Trails Website	Short	Northwest Arkansas Council
Regional Walking, Bicycling and Trails Maps	Short	NWARPC, Northwest Arkansas Council
Walking Promotion Activities	Short	Northwest Arkansas Council, Local municipalities
Razorback Regional Greenway Transportation Promotion	Short	Northwest Arkansas Council
Bike and Walk Month	Medium	Northwest Arkansas Council, Local municipalities
Group Rides and Walks for Women and Families	Medium	Northwest Arkansas Council
Equity-Oriented Programs	Medium	NWARPC, Northwest Arkansas Council
Open Streets Events	Medium	Northwest Arkansas Council, Local municipalities
Regional Mountain Bike Trail Network Development	Medium	Northwest Arkansas Council
Stewardship Programs	Long	Northwest Arkansas Council
Enforcement		
Targeted Bicycle and Pedestrian Enforcement	Short	Local law enforcement agencies
Regional Trainings for Law Enforcement Officers	Short	BCO, BB and Northwest Arkansas Council
Bike and Foot Patrol Units	Medium	BCO, BB and Northwest Arkansas Council
Annual Meeting with Police, Planners and Engineers to Evaluate Collision Trends, Infrastructure Needs and Areas for Targeted Enforcement	Medium	BCO, BB and Northwest Arkansas Council
Evaluation		
Active Transportation Committee	Short	NWARPC
Evaluate Need for Regional Bicycle, Pedestrian and Trails Staff	Short	NWARPC
Regional Bicycle, Pedestrian, and Trail Count Program	Short	NWARPC
Regional Walking, Bicycling and Trails Report Card	Medium	NWARPC
Standardized Regional GIS Portal	Medium	NWARPC
Safety Issues on State and US Highways	Long	NWARPC
Economy		
Economic Impact Report for Razorback Regional Greenway	Medium	Northwest Arkansas Council
Bicycle and Walking Tourism Strategy	Medium	Northwest Arkansas Council

WALK FRIENDLY COMMUNITY (WFC) & BICYCLE FRIENDLY COMMUNITY (BFC) APPLICATION PROCESS

The WFC and BFC are independent award programs that are administered through separate organizations, Walk Friendly Communities and the League of American Bicyclists (LAB). However, both award programs have been developed as similar models with many overlapping information requirements. They are similarly comprehensive in terms of scale and level of effort and much requested information will likely come from the same local and regional sources. Applying for each of these awards is a significant undertaking due to the comprehensive and rigorous process involved.

The Walk Friendly Community Application Process

The WFC program is a national recognition program developed to encourage communities to support safer walking environments as a local priority. The program recognizes communities which have achieved high levels of walking and low rates of pedestrian crashes while also recognizing communities which are making progress in achieving these two goals through policies, projects and programs. The thorough and detailed application process is a key part of becoming more walk-friendly by:

- Building new local partnerships.
- Collecting data for future planning efforts.
- Documenting all local walking-related programs, projects, and policies.
- Identifying areas of needed improvement.
- Providing tools to develop specific solutions before the application is submitted.
- Offering feedback and further suggestions to the community after application review.
- Creating momentum for future projects.

Preparing a WFC application requires a multi-faceted approach to collecting and presenting information about a community. The core of the application effort is completion of the WFC Assessment Tool which assesses the community in Engineering, Education, Encouragement, Enforcement, and Evaluation as well as other elements such as planning. These are the combination of criteria that best assist communities to become more walkable and to set clear goals and plans for achieving those goals. The tool is also designed to recognize that there are many different ways that communities achieve walkability and that every location is unique.

Most of the information requested for completion of the assessment tool can be estimated or can generally be found relatively easy through existing sources. However, assistance will be needed from municipal staff and stakeholders to show local progress in the eight categories assessed:

- *Community Profile:* In this section, applicants describe their communities through the local geographic, demographic, and economic makeup. This local profile can help explain the challenges and opportunities that the community faces when planning for walking.

- *Status of Walking:* This assesses how much people are walking and how safe they are from traffic when they are doing so.
- *Planning:* Pedestrian issues are addressed at many different levels of planning, ranging from neighborhood plans to city, state, and federal policies and plans. A comprehensive plan for pedestrians should address the topics of education, encouragement, enforcement, engineering and evaluation as well how best to engage the public in future plans and decisions.
- *Education and Encouragement:* Education and encouragement are primary components in creating a successful walk friendly community. This section of the assessment will examine existing programs, policies and strategies the community uses to inform, encourage, motivate and reward the walking public in the community.
- *Engineering:* Designing, engineering, operating, and maintaining walking facilities and crossings is a critical element in becoming a walk-friendly environment. Designers and engineers have a large and increasing array of design elements and low-cost interventions that can make walking safer, comfortable and more accessible. By accommodating and improving roadways for pedestrians, roads become safer for all users providing a wider community benefit. This section of the assessment will examine the details of the facility design, operation and maintenance in the community.
- *Enforcement:* In many communities, enforcement is often an under-used technique for making communities safer for walking. Even with engineering improvements or urban design features, pedestrian safety concerns may remain if traffic laws are not properly or adequately enforced. Enforcement activities are most successful when integrated with other education and awareness activities in the community.
- *Evaluation:* Measuring and evaluating the results of the planning, education, encouragement, engineering, and enforcement efforts is critical in determining effectiveness for pedestrian safety and walkability. Evaluation of local conditions plays a crucial role in identifying problems and determining how best to improve and understand pedestrian needs and safety issues. Current evaluation of the local walking environment by the community will be identified.
- *Additional Questions:* The final section is a self-assessment where the community is asked to discuss why they should be designated a WFC awardee as well as what aspects of local operations are most in need of improvement. The community is also asked to explain how it would use the WFC award to increase walking rates and make walking safer.

Due to the information preparation involved, it is recommended to commence the application process several months before the deadline. Generally, there are two submission dates annually. The first application round opens on May 1 and closes on June 15. The second round of applications opens on November 1 and closes December 15. **Applications can be submitted through the online application at http://www.walkfriendly.org/assessment/**. Whereas businesses, universities, regional governments, and states are encouraged to apply for bicycle friendly designation, **walk friendly designations are only available to cities/towns**. Currently, no communities in Arkansas have received any kind of WFC designation.

WFC Award Levels

Platinum - Exemplary responses and results in all sections.

Gold Level - The community displays a commitment to programs and initiatives in all sections of the application.

Silver - Most categories have advanced programs, but one or two areas may need improvement.

Bronze - Impressive programs in 2-3 areas, particularly planning and engineering, with evidence of recent progress toward becoming Walk Friendly.

Honorable Mention - Honorable mention is awarded to communities that have not met the criteria for Bronze but have a foundation for walkability from which to build.

About the Bicycle Friendly Community Application

The high standards of the LAB BFC program make receiving an award designation both an achievement and an honor recognizing local progress in bicycling. Communities that have received awards have gone on to see significant increases in bicycle traffic as compared to non-BFCs.

The League BFC program works because it:

- Inspires action among those who want to improve conditions for bicyclists.
- Guides progress by setting standards and acting as a roadmap for becoming bicycle friendly.
- Rewards persistence as communities make progress in changing their culture and built environment.
- Provides a widely-recognized accolade that celebrates local advancement.

The application process is thorough and is in itself a key part of becoming more bicycle-friendly since it:

- Aids communities in building new partnerships.
- Develops new local measurement metrics.
- Creates momentum for improvement projects.
- Provides a checklist of implementation ideas even before submission.
- Collects data useful for future planning efforts.
- Generates feedback and implementable guidance from LAB.

Preparing a BFC application requires a multi-faceted approach to collecting and presenting information about the community beyond describing the traditional engineering and infrastructure projects. Information will be collected about local progress in the categories known as the Five E's: Engineering, Education, Encouragement, Enforcement, and Evaluation & Planning. This task is of considerable importance for completion of the BFC application as LAB requires specific data and information to be submitted for each of these categories:

- *Engineering:* The most tangible evidence of a bicycle friendly community is the presence of infrastructure such as bike lanes, priority routes, network connectivity, quiet neighborhood routes, connections to outside communities, and innovative designs.
- *Education:* Bicycling education is relatively easy to implement when compared to infrastructure projects or policy changes. Local programs that contribute to the educational process will be identified. Low-cost efforts that can be readily put in place will be recommended for immediate deployment. However, lasting educational programs are labor intensive and must be repeated and widespread to have a permanent impact; long-term suggestions and partnership opportunities are important elements of these programs.
- *Encouragement:* Encouragement programs can include an incredibly varied range of activities designed to increase the rate of bicycling participation among all ages and abilities. Local encouragement practices will be identified and highlighted with unique aspects of the local bicycling culture identified for profiling in the application. Bicycling encouragement may be readily added to local community events even as the application is in progress and could include brown bag presentations, Streetfilms screenings and targeted social media campaigns.
- *Enforcement:* This is the process of protecting the rights of bicyclists to operate legally on the roads and protecting them against careless drivers as well as ensuring that cyclists themselves follow the rules and operate safely. Information is gathered about local laws and legislation, bicycle safety training for law enforcement staff, use of bicycles in the course of law enforcement work, enforcement of local laws and local public safety campaigns.
- *Evaluation and Planning:* This step involves collecting available information to create local bicycling metrics. Available information such as any bicycle counts, bike parking data, American Community Survey and census information, crash data, and any other performance data on local bicycle use will be compiled and formatted. Estimates may need to be prepared to determine requested data such as average commuting distances and bicycling to school rates. In addition, relevant bicycling planning information, data and surveys will be excerpted from previous master planning documents. Where required application information is not available, assistance may be sought from stakeholders in development of submission data.

LAB advises that communities commence application preparation as early as six to nine months before the deadline to take full advantage of the program benefits. There are two application deadlines annually. In 2015 the two deadlines are in February and August respectively.

Businesses, universities, regional governments, and states are encouraged to apply for bicycle friendly designation. Along with the cities of NWA, NWARPC can apply under the Bicycle Friendly Community program online at - http://apply.bikeleague.org/member.php?act=login. Currently, there are only seven regional government organizations that have been awarded any kind of BFC designation. Six have been awarded bronze and one has been awarded gold. Four communities in the state of Arkansas (including Bentonville and Fayetteville) have been awarded any kind of BFC designation at the time of this writing.

BFC Award Levels

The following list is a general description from the LAB website of each award category. A graphic highlighting specific benchmarks for each award level is also found below:

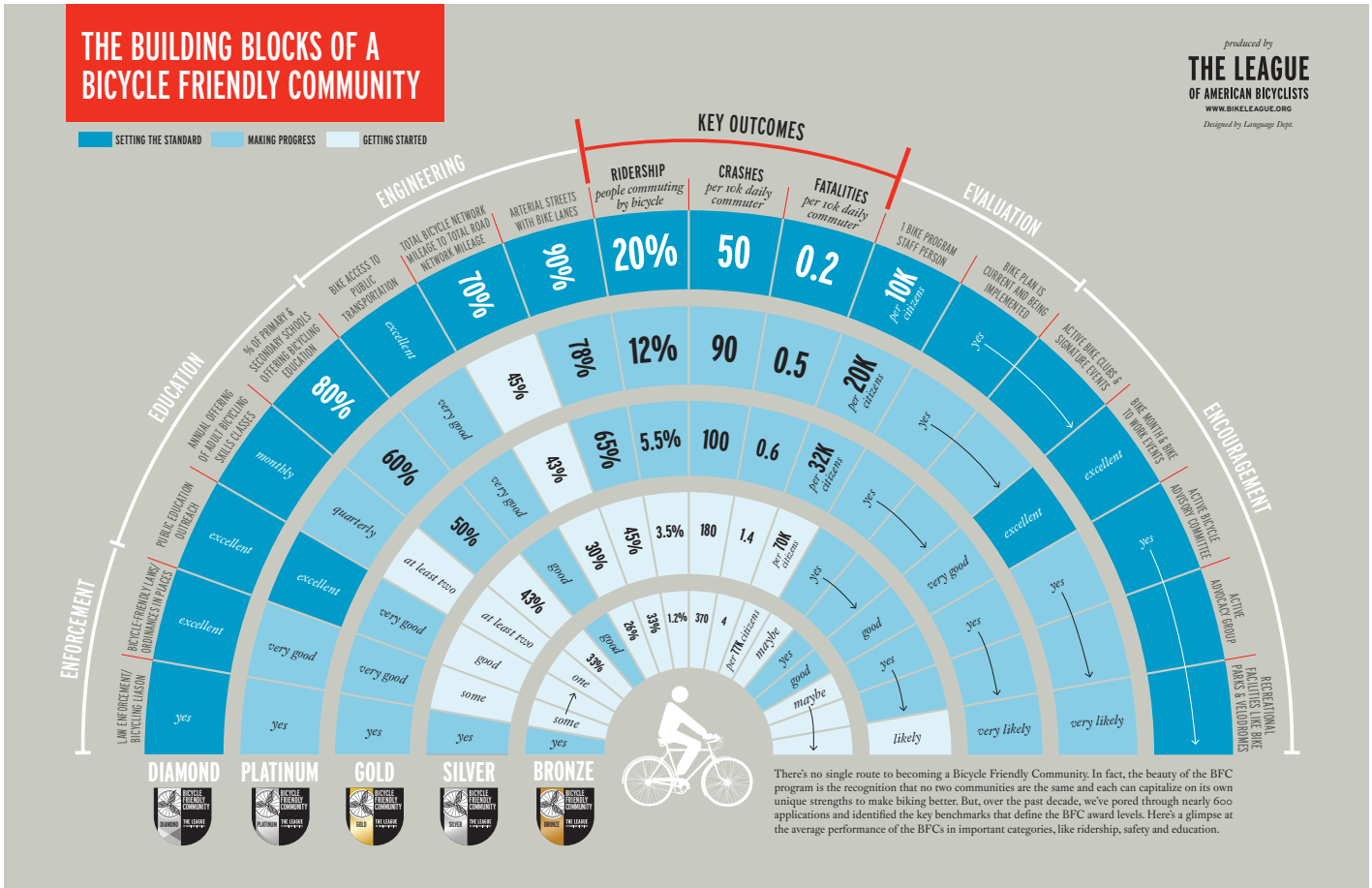
Diamond is a new award category that serves as the highest BFC honor with the most demanding benchmarks. At the time of this writing, no entity had received the diamond award level.

Platinum communities usually show excellence across the board. These are the type of communities that have a comfortable and safe bike network, excellent bike parking, great bike education programs, a supportive police force and just people on bikes everywhere.

Gold communities do have strong bike cultures as well, but may still need to complete their bike network or reach more children with Safe Routes to School programs.

Silver communities are somewhat welcoming to bikes and are easy to navigate for intermediate and experienced cyclists. But there is still a lot of work left to do in 2 or 3 of the Es.

Bronze communities might not necessarily feel bike friendly. These communities may only have a couple bike lanes in place and motorists may not yet be aware that they need to share the road with bicyclists. However, important steps are being taken in all five E's but particularly in one or two Es. For example, a community



might have several cycling instructors that give regular cycling skill classes for adults and there is a Safe Routes to School program at most schools.

Applicants in the **Honorable Mention** category are just starting to address the needs of cyclists. There are probably few cyclists on the road and most of them will be very experienced. However, there may be a popular shared use path cutting through the community, a popular community-wide bike event or a new bike plan.

Applicants that do not receive any recognition have yet to address the needs of cyclists.

WFC/BFC Action Plans

The walk/bike friendly regional action plan for NWA is summarized on pages 5-1 to 5-5 in Chapter 5. The recommendations are based on WFC/BFC criteria that are described in the application process above, and references are provided where further details can be found.

Individual community walk/bike action plans are detailed in Chapter 6 for the 25 NWA cities with a population of 1,000 or more. These include specific infrastructure recommendations along with specific program and policy recommendations that are directly linked to the walk/bike friendly regional action plan found at the beginning of Chapter 5.

E PUBLIC INVOLVEMENT

Appendix Contents:

Technical Memo:
Public Involvement

TECHNICAL MEMO: PUBLIC INVOLVEMENT

This document provides a summary of public involvement during the planning process. Public engagement was instrumental to identifying issues, needs, and visions of residents and tourists. A variety of methods were used to engage the public and are described in this memo.

MEMORANDUM

To: John McLarty, Northwest Arkansas Regional Planning Commission

From: Dennis Blind, Matt Berkow, and Steve Bzomowski, Alta Planning + Design

Date: September 5, 2014

Re: Public Involvement

This document details the public involvement process for the NWA Regional Bicycle and Pedestrian Plan. This process included online resources, media outreach, and in person community meetings and workshops. The project team held public meetings in all 25 communities with a population over 1,000. Input from citizens and community leaders formed the backbone of local and regional recommendations.

1 ONLINE RESOURCES AND MEDIA COMMUNICATIONS

1.1 Project Website

The purpose of the project website was to provide members of the public an outlet to receive updated project information, ask questions, and provide input. Key components of the website included:

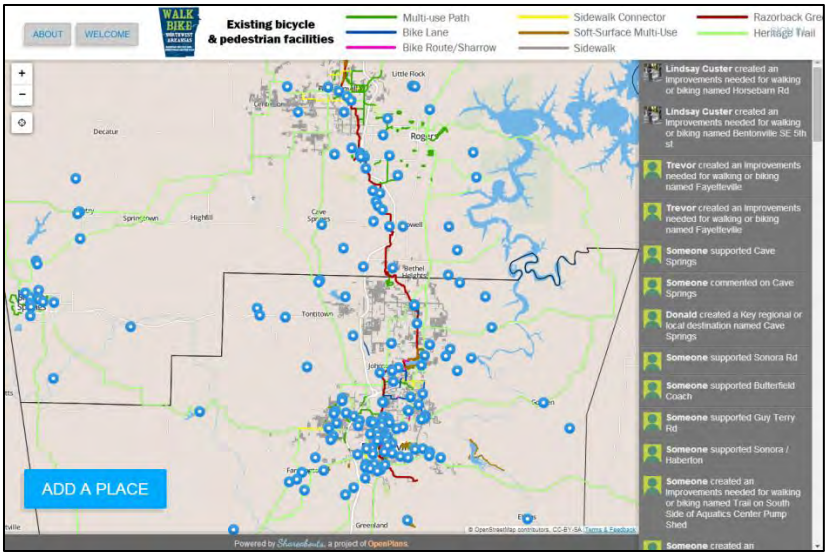
- Project overview, purpose, and background
- Public input opportunities:
    - Online Survey
    - Online Input Map
    - Time, date, and location of community meetings and regional workshops
    - Project team contact information
- Project Documents
    - Technical memorandums
    - Draft NWA Regional Bicycle and Pedestrian Master Plan

1.2 Online Survey

The online survey was developed to contribute to an understanding of general needs and concerns surrounding bicycling and walking across the region. The survey was available in hard copy format at all community meetings and distributed to community leaders. A link to the online survey was provided on several pages of the project website. Over 650 surveys were completed during the planning process. This feedback, along with other public input received, served to inform regional and local recommendations of the plan.

1.3 Online Input Map

The online input map was developed to provide an opportunity for the public to provide suggestions at specific locations to identify them as key destinations, priorities areas for walking and bicycling, or candidates for infrastructure improvements. The public placed points at 227 specific locations on the map, along with 171 supporting comments or 'support' clicks. This feedback also informed regional and local recommendations.



1.4 Project Information Cards

Project information cards were distributed at meetings and by community leaders throughout Northwest Arkansas. These included general project information, project team contact information, and a link to the project website and online input opportunities. Over 1,000 information cards were distributed during the planning process.

1.5 Media Releases and E-Communications

Several media releases and other forms of communication were used to spread project information to the general public, as described below.

Newspaper Articles and Interviews

Radio and Television Interviews: One television and two radio interviews were recorded during the planning process, aiding in the dissemination of information to the public. These included the following:

- Radio –Ozarks at Large, KUAF 91.3 NPR – http://kuaf.com/programs/ozarks-large: Two radio interviews of the project team regarding the NWA Regional Bicycle and Pedestrian Master Plan were aired on the local NPR station, KUAF 91.3. The first took place at the beginning of the planning process (aired on October 9, 2013 by Christina Karnatz) and the second during the Draft Plan Regional Meetings (aired on August 17, 2014 by Timothy Dennis). These interviews provided an overview of the project, highlighted the purpose and scope of the plan, and identified public input opportunities.

- Television – KNWA-TV - http://www.nwahomepage.com/home: One television interview of the project team was recorded on the local KNWA news station. This interview aired on October 16, 2013 and also provided an overview of the project, highlighted the purpose and scope of the plan, and identified public input opportunities.

Newspaper Articles: Several newspaper articles were written about the plan in local newspapers. The most extensive articles were covered in the *Arkansas Democrat Gazette* – www.nwaonline.com. These included front page articles published on October 14, 2013 and August 11, 2014. Similar to the interviews, the articles also provided an overview of the project and purpose, planning process, and identified where residents could find further information and opportunities to provide public input.

Social Networking and Other Public Announcements

A project Facebook page was used to disseminate information to the public including links to the project website, photos, meeting announcements, and links to the draft plan. Several communities, stakeholders, and local newspapers also posted announcements of public input opportunities on their Facebook page, website, or in print.

2 COMMUNITY MEETINGS

The project team attended community events or meetings in each of the 25 municipalities with a population over 1,000. These events and meetings offered an opportunity for each community to communicate specific local efforts, goals, and needs with the project team in addition to disseminating information about the plan. The meetings informed mapping of existing conditions, local and regional network recommendations, as well as bicycle/pedestrian related programming and education. A complete list of community events/meetings, followed by meeting notes (compiled from these public input opportunities with the public and meetings with local staff) are provided below:

Schedule of Community Meetings

- February 13, 2014 -Prairie Grove - Open house in the District Court Room, 3-5pm
- February 12, 2014 - Lincoln - Open house in the Community Building on the Square, 3-5pm
- February 11, 2014 - Goshen - Council Meeting, 6:30pm
- February 10, 2014 - Decatur - Council Meeting, 6pm
- November 21, 2013 - Elkins - Council Meeting, 7pm
- November 19, 2013 - Bethel Heights - Council Meeting, 7pm
- November 18, 2013 - Little Flock - Planning Commission Meeting, 7pm
- November 16, 2013 - Centerton - Coffee with the Mayor, 9am
- November 14, 2013 - Gravette - Committee of the Whole Meeting, 6pm
- November 11, 2013 - Cave Springs - Council Meeting, 6:30pm
- November 11, 2013 - Bella Vista - POA Recreation Committee Meeting, 3pm
- November 8, 2013 - Greenland - HS Football, West Fork at Greenland, 7pm
- November 5, 2013 - Tontitown - Council Meeting, 6pm
- October 31, 2013 - Siloam Springs - Halloween event downtown, 3:30-6pm
- October 29, 2013 - Springdale - Open house - City Council Chambers, 5pm
- October 26, 2013 - Lowell - Mudfest, 8-3pm
- October 25, 2013 - Farmington - HS Football, Ozark at Farmington, 7pm
- October 22, 2013 - West Fork - Open house, Council Room, 6:30pm
- October 21, 2013 - Elm Springs - Council Meeting, 6:30pm
- October 15, 2013 - Bentonville - City Expo, 5-7pm
- October 13, 2013 - Gentry - Fall Festival, 12-5pm
- October 12, 2013 - Rogers - Farmers Market, 7:30am-12pm
- October 10, 2013 - Pea Ridge - Farmers Market, 2-6pm
- October 8, 2013 - Johnson - Council Meeting, 6pm
- October 3, 2013 - Fayetteville - First Thursday, 5-8pm

2.1 Bella Vista

November 11, 2013

POA Recreation Committee Meeting (3pm)

Riordan Hall, Bella Vista, AR

Project team and local staff: Chris Suneson – City of Bella Vista; Clem Morgan – Bella Vista Property Owners Association (POA); Celia Silkwood-Scott – NWARPC; Steve Bzomowski – Alta Planning + Design

The focus of the November 11 Recreation Committee Meeting was on the NWA Regional Bicycle and Pedestrian Master Plan. The consultant provided an overview of the planning process to the Recreation Committee and other meeting attendees and solicited local input to inform the plan. In addition to the Bella Vista POA Recreation Committee Meeting, the project team met with Chris Suneson and Jennifer Bonner with the City of Bella Vista and Clem Morgan with the Bella Vista POA on November 7. This meeting included a 'walk-through' of a map of Bella Vista, trail planning efforts to date by the community, opportunities, challenges, and local destinations within the city.

Notes regarding local opportunities, constraints, and key destinations

- Destinations
    - Cooper Elementary School; Sugar Creek Soccer Park
    - Connections to Lake Bella Vista and Bentonville Trails
        - Veterans Wall of Honor
    - Blowing Springs trails
    - Seven Bella Vista lakes
    - Sugar Creek shopping center area
- Link needed across US 71 connecting to Lake Bella Vista
- Utilize soft surface trail connection between Blowing Springs trails to Manchester Dr
- Metfield Park area – tie into trail system
- Lake Bella Vista – active living 'hub'
- Connect Lake Bella Vista to Missouri border (toward Pineville, MO and Huckleberry Ridge Conservation Area) via POA land, Sugar Creek can serve as 'spine'
- Improvements to crossings of Dartmoor Rd between Cooper Elementary and Sugar Creek Soccer Park
- Businesses along US 71
- Connect to recreation areas, parks and lakes – key access opportunities
- Tanyard Creek Park area has several miles of walking trails – mainly natural surface
- Loch Lomond walking trail – 3,300 feet (see Bella Vista website)
- Some sidewalks exist in business areas, but generally limited
- Neighborhoods do not have sidewalks mainly due to topographical constraints
- Euston Rpad serves key connection, however, it floods and leaves sand bars
- Sugar Creek is a proposed water trail
    - Opportunities to connect bicycle/pedestrian trails and access with water trail
    - Key natural feature and element of green infrastructure

- Branchwood Golf Course (par 3) – golf course was damaged by a flood and will no longer operate as a golf course
    - This is a trail opportunity that is widely supported
    - Tennis, basketball, and racquetball included
    - Strong trailhead opportunity
- Connect to Sulphur Springs, Gravette, Bentonville, and Pea Ridge
- Five 18 hole golf courses in Bella Vista (and one smaller golf course)
- New school may be constructed in Gravette near southwest border of Bella Vista
- Connections generally needed east/west across US 71
- Trail access needed
- Intersections needing Improvements
    - Intersection of AR 279 and AR 340 needs sidewalk and crossing improvements – sidewalk exists for short section on the northeast corner
    - US 71 and Riordan Rd
    - US 71 and Dartmoor Rd
    - US 71 and Oldham Dr/Sugar Creek Center intersection
    - Dartmoor Rd and Blowing Springs Rd intersection
    - US 71 and AR 340
- Development of the Bella Vista Master Trail Plan Draft
    - Follows POA land and valleys/ravines
    - Strong opportunity for multi-use soft surface trails
    - Concrete trail opportunities for the spine (Lake Bella Vista to Missouri border; sidepaths along key east/west thoroughfares)
    - Connects to lakes and other key Bella Vista destinations
    - 20+miles of trail
- Heritage Trail, Razorback Greenway, and Bella Vista trail development linkage opportunities

From the Bella Vista 2013 *Comprehensive Amenities Needs Assessment and Action Plan*, signage and maps to/within amenities, trails, and natural areas combined with a number of trails and natural areas were some of the most often cited amenities and services to be improved in Bella Vista.

2.2 Bentonville

October 15, 2013

City Expo (5-7pm)

Bentonville Library, Bentonville, AR

Project team: Misty Murphy – NWA Council; Dennis Blind – Alta Planning + Design; Steve Bzomowski – Alta Planning + Design

At the City Expo, the project team engaged citizens and provided an interview with local news channel KNWA. Information and an overview of the NWA Regional Bicycle and Pedestrian Master Plan were provided to attendees and the KNWA news team. In addition to the public meeting at City Expo on October 15, 2013, the project team met with David Wright and Shelli Kerr of the City of Bentonville

in August 2013 and in the Spring of 2014. This meeting with the City of Bentonville included a 'walk-through' of a map of Bentonville, trail planning efforts to date by the City (including the City of Bentonville 2012 Bicycle and Pedestrian Plan), opportunities, constraints, and local destinations within the City.

Notes regarding local opportunities, constraints, and key destinations

- Key planning and development to date: 2012 Bicycle and Pedestrian Master Plan
- Programs
    - Bike Bentonville is doing a tremendous amount of programming and is involved in Safe Routes to School, several encouragement activities such as rides, and most significantly the Slaughter Pen Jam
    - Bike Bentonville purchased 500+ bikes for local schools for use as part of gym class
    - Mountain biking programs and network are doing very well – Slaughter Pen Trails so close to downtown is a unique feature that sets Bentonville apart
    - Education campaigns will be important for motorists along with non-motorized transportation users
    - Trails coordinator needed in near future
- Destinations
    - Crystal Bridges
    - Bentonville Square
    - Walmart Home Office
    - Sam's Home Office
    - Slaughter Pen Trails
    - Park Springs Trails
    - Lake Bella Vista
    - New Community Center
    - Phillips Park
    - Memorial Park
    - Schools including new Bentonville High School being constructed in Centerton
- Sidewalk network exists, especially in the downtown core
- Would like to begin incorporating bike facilities on roads through the city
- Better east/west connections needed across Walton Boulevard
- Difficult streets to cross
    - I-49
    - Walton Boulevard
    - 14th Street
    - Moberly
    - 28th Street
    - J Street
- Continuing to expand trail network along Walton Boulevard and linking west Bentonville across (and under) Walton Boulevard

- Communicating planned bicycle and pedestrian improvements with AHTD will be critical in future state roadway improvements

2.3 Bethel Heights

November 18, 2013

Council Meeting (7pm)

Bethel Heights City Hall, Bethel Heights, AR

Project team and local staff: Mayor Jeff Hutcheson – City of Bella Vista; City Council; Celia Silkwood-Scott – NWARPC; Steve Bzomowski – Alta Planning + Design

Information and an overview of the NWA Regional Bicycle and Pedestrian Master Plan was presented to the council and attendees of the meeting, followed by general questions and discussion. Discussion included connectivity to the Razorback Greenway, cost, types of facilities, funding, access, maintenance, programming, and project timeline. In addition to the City of Bethel Heights council meeting, the project team met with Mayor Jeff Hutcheson before the meeting. This meeting included a 'walk-through' of a map of Bethel Heights and a discussion of opportunities, constraints, and local destinations within the city.

Notes regarding local opportunities, constraints, and key destinations

- Sidewalks are found in the neighborhood around Piney Lane as well as Joy Carol Loop
    - Sidewalks are not present in the neighborhood southeast of the Apple Blossom Rd and Oak St intersection as well as the neighborhood southeast of the Kendrick Ave and N Jefferson St intersection
- City Hall, as well as the fire and police stations are located on Sunrise Dr east of US 71B
- The future AR 265 bypass will cut through the southeast section of Bethel Heights – this is a place where bicycle/pedestrian recommendations should be accounted for in planning and design of the highway
- The Razorback Greenway runs north/south just west of Bethel Heights – how to connect – previously proposed facilities include:
    - Multi-use path connection from the Razorback Greenway along Spring Creek southeast of Lake Springdale northeast along floodplain to Bethel Heights city limits
    - Multi-use path connection from the Razorback Greenway from Spring Creek near US 71B/W Bailey Ave intersection northeast along the floodplain to Old Wire Rd just south of the Bethel Heights city limits
    - Multi-use path connection along the proposed AR 265 bypass corridor
    - Multi-use path connection along the railroad line through the southern section of Bethel Heights
    - Bicycle route along AR 264 to the east
    - Bicycle route along N Jefferson St in the southeastern part of Bethel Heights
- There are no schools in Bethel Heights; kids generally attend schools in Springdale
- US 71B is a high speed, high traffic, wide arterial that is a major barrier for residents of Bethel Heights wanting to walk or bike

- AR 264 is the main east/west corridor through the city; Oak St and US 71B are the main north/south corridors – these thoroughfares and intersections are key linkages
- The Heritage Trail runs north/south along AR 265/Old Wire Rd along the eastern border of Bethel Heights
- Bethel Heights comprises a small land area that is fragmented by the city limits of Springdale

2.4 Cave Springs

November 11, 2013

Council Meeting (6:30pm)

City Hall, Cave Springs, AR

Project team and local staff: Mayor Larry Smith – City of Cave Springs; City Council; Celia Silkwood-Scott – NWARPC: Steve Bzomowski – Alta Planning + Design

At the council meeting, information and an overview of the NWA Regional Bicycle and Pedestrian Master Plan was presented to the council and attendees, followed by general questions and discussion. The project team also met with Treasurer Penny Mertes and Mayor Larry Smith for a preliminary informational meeting. In addition to the City of Cave Springs council meeting, this meeting included a 'walk-through' of a map of Cave Springs and a discussion of opportunities, constraints, and local destinations within the city.

Notes regarding local opportunities, constraints, and key destinations

- Residential areas
    - Trail/community park starts at Glenagle Dr and Bendelow Dr – trail runs north to Shores Ave (maybe 8' trail?)
    - Trail – connection from Chancery Ln to wooded/riparian area – natural surface trail observed from Kensington Dr
    - Need complete sidewalk on both sides of Clayton Rd
- Future (in development) Cave Springs Watershed Sanctuary
    - This 30 acre site is focused around the unique cave and environmental qualities – the master plan includes a network of trails and amenities for bicyclists and pedestrians
        - This will be an important regional destination
- Arkansas Natural Heritage Commission owns corridor along creek extending east from the future Watershed Sanctuary to Rainbow Rd
    - Key trail opportunity – would connect neighborhoods to downtown Cave Springs – would extend east toward Janie Darr School on Mt Hebron Rd
    - Sidepath opportunity could run from Rainbow Rd north to W Shores Ave to Mt Hebron Rd to make the connection toward Janie Darr and also further east to the Razorback Greenway
- Osage Creek to Spring Creek loop opportunity
- Heritage Trail runs north/south through town along AR 112 – narrow, high speed corridor
- Popular cyclist routes
    - Fields Ln

    - Wagon Wheel Rd
    - Mill Dam Rd west of town
    - Elk Rd
    - Rainbow Rd
    - Zion St
    - Wager Rd to Elm Springs
- Bellview School (Rogers/Lowell area) is cyclist meeting point for a group of cyclists
- Northern section of city limits is somewhat isolated, gated community
    - Heritage Trail/AR 112 runs along this edge
- Subdivision to be constructed east of Janie Darr School
- Future 412 bypass to go south of city limits
- Generally – intra and inter-neighborhood connections are patchy and need strengthening
    - Like most of NWA – newer developments generally have sidewalks incorporated while older neighborhoods often lack sidewalks

2.5 Centerton

November 16, 2013

Coffee with the Mayor event (9am)

Centerton City Hall, Centerton, AR

Project team and local staff: Bill Edwards – City of Centerton Mayor; Lorene Burns – City of Centerton; Nick Jewett – City of Centerton; Celia Silkwood-Scott – NWARPC; Steve Bzomowski – Alta Planning + Design

At the Coffee with the Mayor event, information and an overview of the NWA Regional Bicycle and Pedestrian Master Plan was delivered to the 40+ attendees, which concluded with a question and answer session. On October 23rd the project team met with Bill Edwards, Lorene Burns, Nick Jewett, Rick Hudson, and Frank Holzkamper with the City of Centerton. In addition to the public input opportunity at the Coffee with the Mayor event, this meeting included a 'walk-through' of a map of Centerton, trail planning efforts to date by the City, opportunities, constraints, and local destinations within the city.

Notes regarding local opportunities, constraints, and key destinations

- New high school to be constructed on Gamble Rd north of Seba Rd
    - ~2,200 students
    - Construction scheduled to begin in 2014, complete by 2016
    - Key opportunity to improve bicycle and pedestrian connectivity as school is built
    - Connections also needed to Gamble Elementary School on east side of Gamble Rd
- Bliss Rd is key east/west connection through Centerton subdivisions
    - Wide; room for bicycle and pedestrian improvements
- Sun Meadow Dr is heavily traveled, makes link from Bliss Rd and subdivisions to businesses along AR 102
- Similarly, Sienna Dr makes link from Town Vu Rd to AR 102 through neighborhoods/subdivision

- Main St is key north/south corridor from AR 102 to AR 72
    - Potential for sidepath
- Harvest St to D St provides another north/south connection
    - Park space along Harvest St – utility lines intersect here and could serve as potential trail link
- Key greenway opportunity along McKisic Creek
    - Would connect Centerton to Lake Bella Vista
    - Sidewalk currently makes connection between developing park on north side of AR 102 and McKisic Creek junction to Centerton City Park/City Hall/downtown Centerton
    - Greenway opportunity along the upper part of McKisic Creek northwest through town as well
- Greenway opportunity between Southland St and Township Dr
- Sidewalk development along AR 102
    - Construction currently taking place along AR 102 – new sidewalks to be installed
- Connect to parks
    - Cass Rd – Thompson Park
    - Sports Complex east of Gamble Rd – Kinyon Park
    - Harvest St – Griffith Park
    - Fish Hatchery on Fish Hatchery Rd
        - Room on Fish Hatchery for sidepath
        - Multi-use path possibility through the Fish Hatchery and following the flood zone toward the center of Centerton
    - Park developing along McKisic Creek east of the downtown area and visible from AR 102
    - City Park, downtown Centerton
- Future sewer line to Decatur – strong potential for greenway
- Downtown Centerton is another destination, potential for bike friendly businesses
    - New park improvements to include skate park
- Heritage Trail
    - AR 279/Vaughn Rd
    - Fish Hatchery Rd
    - Main St
    - AR 72
- Key intersections
    - AR 102 and Main St
    - Town Vu/Seba Rd and Main St
    - Seba Rd and Gamble Rd will be a key intersection when the school is completed
    - Generally, crossing Centerton Boulevard
- Barriers
    - AR 102
    - Narrow roads, high speeds, distances
- Cyclist routes
    - AR 72 to between Gravette and Bentonville – his wide, paved shoulder

- Seba Rd/Town Vu Rd through Centerton is a low traffic road often used by cyclists to connect to 8th Street in Bentonville
  - This road is narrow in places; key corridor
- Ginn Rd
- Bliss St is a good connector as well

Centerton draft trail system:

- Multi-use trail/greenways along the following corridors:
  - McKisic Creek
  - North and south through the Fish Hatchery connecting to Bentonville trails to the south and AR 102 to the north
  - Between AR 102 and Keller Rd
- Multi-use trail/sidepaths along the following roads:
  - Trail #1: Fish Hatchery Rd, Ginn Rd, AR 102, Main St, AR 72, Town Vu Rd, Allen Rd
  - Trail #2: Sun Meadow Dr, Bliss St, Gamble Rd, Herbaugh Rd, and AR 72
  - Trail #3: AR 102, Keller Rd, and Seba Rd
- These are all designed to link into Bentonville future trails
- Many residents of Centerton work at the Walmart Home Office
- NWARPC – these same routes were incorporated into the regional trail plan, with the following routes designated as on-street linkages:
  - Keller Rd, Seba Rd, Gamble Rd, AR 72, Main St, AR 102, and S Fish Hatchery Rd

2.6 Decatur

February 10, 2014

Council Meeting (6pm)

City Hall, Decatur, AR

Project team and local staff: Charles Linam – City of Decatur Mayor; James Boston – City of Decatur; City Council; John McLarty – NWARPC; Steve Bzomowski – Alta Planning + Design

At the February council meeting, information and an overview of the NWA Regional Bicycle and Pedestrian Master Plan was delivered to the council and attendees, including a question and answer session. The project team also met with James Boston and Charles Linam with the City of Decatur on October 29, 2013 as a preliminary informational meeting. Discussion included an overview of the NWA Regional Bicycle and Pedestrian Master Plan. This was followed by a 'walk-through' of a map of Decatur, focusing discussion on destinations, opportunities, and constraints.

Notes regarding local opportunities, constraints, and key destinations

- Residential areas
  - Community at end of Grant Avenue – only road connection is low bridge that is impassible during rain/high water events
  - Informal dirt path connects group of apartments at end of Grant Ave to Hidden Springs Dr neighborhood

    - Paved sidewalk connection links Hidden Springs Dr neighborhood with Grant Springs Dr neighborhood
    - Paved sidewalk connection then links Grant Springs Dr neighborhood to end of W Roller Ave
        - West Roller Ave needs bicycle/pedestrian improvements to chicken processing plant
    - Large amount of land purchased west of Crystal Lake
        - Development plans include airport parking for airport and home owners
        - This new development could include a critical bike/ped link through to Crystal Lake as well as Wolf Creek through several access areas.
- Connect to schools
    - Elementary school (K-4) is located at southwest corner of Mt Olive Rd and Eldson Dr
        - No sidewalk or connection currently – needs link – especially along Mt Olive Rd
    - 5-12 – located on 102/E Roller Ave near Rooster St
        - New 4'-5' sidewalk along south side of road
        - Need sidewalk or trail along Hill Ave and Stadium Ave (probably north side)
    - Programming – City was awarded SRTS grant to fund administrator position
- Connect to parks
    - New park dedicated and to be developed between Hill Ave and Buckner Ave
        - Needs connections
    - City owns 35 acres of land west of the wastewater treatment plant area
        - Could be opportunity for trail development and park land
        - Connect western terminus of Austin Ave to and around wastewater treatment plant to city owned property
    - City park and ball fields along Austin Ave and AR 102
        - Property available to the east – opportunity to enhance trail network
        - Austin Ave needs improvements/trail
        - AR 102 needs improvements/trail
        - Sidewalk connection through northern part of church property to Austin Ave and park
    - Decatur Park (old park)
        - Limited bike/pedestrian connectivity
        - Has swimming pool, tennis, basketball court etc.
    - Crystal Lake – public access
        - Currently no bike/pedestrian connection
- Key intersections
    - Main St and AR 59 split
    - AR 59 and AR 102 – center of downtown
- Greenway corridors
    - Decatur Branch through town
    - Wolf Creek heading north along the rail line and AR 59

- Rail corridor
    - Opportunity – may be opportunity for rail with trail between or alongside the active rail corridor and AR 59 (and Wolf Creek and tributary heading toward Gravette)
    - Same with heading toward Gentry (Flint Creek toward Gentry)
- Roads commonly used by cyclists
    - Y-City
    - WPA Rd
    - Columbia Hollow Rd
    - Falling Springs Rd/Ivan St
    - West Carlton
    - West Mountain
    - Mt Zion Rd
    - Turkey Ridge Rd
    - Bethlehem Rd
- Main St across bridge over rail line is highly traveled with no bicycle/pedestrian considerations – needs improvement
- North/south Main St corridor lacks bike/pedestrian connectivity
- Employment centers
    - Chicken processing factory – approximately 1,000 employees
        - Needs improved connections from downtown and western edge neighborhoods
    - FNA Group manufacturing facility employs 600-700 – northwest part of town
        - Could loop connections through park or from western end of Austin Ave
    - Chicken feed and dog food plants along AR 59 – northeast part of town – employs around 100 people
        - Only road is AR 59
        - Opportunity could be along rail line/59 and connecting to Wolf Creek – en route to Gravette
- Regional trail connection opportunities
    - Gravette to Decatur to Gentry to Siloam Springs
    - Decatur to Gravette – no direct, paved route – rail line/59/Wolf Creek greenway opportunity
    - Decatur to Gentry – rail line/59 combination and/or preferred cyclist routes
    - Decatur to Centerton - potential opportunity coupled with sewer line
- Generally – intra and inter-neighborhood connections are patchy and need strengthening

2.7 Elkins

November 21, 2013

Council Meeting (7pm)

City Hall, Elkins, AR

Project team and local staff: Bruce Ledford – City of Elkins Mayor; City Council; Celia Silkwood-Scott – NWARPC; Steve Bzomowski – Alta Planning + Design

At the November council meeting, information and an overview of the NWA Regional Bicycle and Pedestrian Master Plan was delivered to the council and attendees, including a question and answer session. The project team also met with Bruce Ledford and Don Cryder with the City of Elkins on October 23rd, 2013 as a preliminary informational meeting. Discussion included an overview of the NWA Regional Bicycle and Pedestrian Master Plan. This was followed by a 'walk-through' of a map of Elkins, focusing on destinations, opportunities, and challenges and continued with a tour of Elkins led by Mayor Ledford.

Notes regarding local opportunities, constraints, and key destinations

- Key connection possibility – old Elkins downtown area/school property (southeast part of Elkins) through to new commercial area along AR 62 (northern section of Elkins)
    - From school property (which extends to the northwest), large landowners and property lines could be used to create multi-use path to new subdivision area (connecting through detention pond areas) to connect neighborhoods and the back end of Riverview Drive
- Scenic White River trail opportunity – could run from intersection of AR 16 and AR 74 to White River making loop connection to Lake Sequoyah and proposed Fayetteville trails
- Harps Food Store at corner of AR 74/16 intersection
- Strip development businesses generally desire location along AR 16 west of the AR 74 intersection to capture state highway traffic
- Bridge improvement at Lake Sequoyah tributary northwest of Elkins on AR 16 will likely include bike lanes
- Harris Dr – strategic sidepath opportunity – connects residential area toward AR 16 and makes loop with Lacy Dr
- Lacy Dr – beautiful low traffic road but narrow and windy
- Same with Stokenbury – off-road multi-use trail through the heart of Elkins would take the pressure off these issues
- Beautiful city park along the White River east of the old downtown area and school – has trail that is widely used – could connect into trail possibility from here to AR 16/74 intersection area along White River
- Library and community center are also in the school/community park area
- Many students walk/bike from very southern end of town towards school – need bike/pedestrian improvements in this area
- AR 16 likely to be widened to 4 lanes between now and 2030
    - This is part of the Heritage Trail – should include bike/pedestrian accommodation (room for sidepath and good opportunity along north side of road)
- Old downtown used to be commercial area
- Generally – intra and inter-neighborhood connections are patchy and need strengthening
    - Like most of NWA – newer developments generally have sidewalks incorporated while older neighborhoods often lack sidewalks

- Cyclist routes:
    - AR 74
    - Sulphur City Road
    - Whitehouse Road
    - Strain Comm Road
    - Black Oak Road
    - Thunder Road (gravel grinding)

2.8 Elm Springs

October 21, 2013

Council Meeting (6:30pm)

City Hall, Elm Springs, AR

Project team and local staff: Ben Wall – City of Elm Springs Mayor; Kevin Thornton – City of Elm Springs Council; City Council; John McLarty – NWARPC; Steve Bzomowski – Alta Planning + Design

At the Council Meeting, information and an overview of the NWA Regional Bicycle and Pedestrian Master Plan was delivered to the council and attendees, including a question and answer session. The project team met with Kevin Thornton and Ben Wall for a preliminary informational meeting before the Council Meeting on October 21, 2013. Discussion included an overview of the NWA Regional Bicycle and Pedestrian Master Plan followed by a 'walk-through' of a map of Elm Springs, focusing on destinations, opportunities, and challenges.

Key opportunities, constraints, and destinations

- Destinations
    - Regional – Lake Elmdale
        - Arkansas Game and Fish Commission
    - Old downtown
    - Elm Springs Park (City Hall located here as well)
    - Future high school and sports complex – locations will be on Elm Springs and Springdale border
    - Willis Shaw Elementary School
- Spring Creek and Brush Creek – trail potential
- Heritage Trail runs north/south through town along AR 112 – narrow, high speed corridor – potential sidepath opportunities or at least shoulder
    - Branch of the Heritage Trail leaves Elm Springs along Water Avenue and north along Robbins Road
- Cyclist routes
    - Elm Springs Road
    - Lake Road
    - AR 112
    - Brush Creek Road

- Elm Springs Road and Lake Road – key east/west corridors that are narrow and little/no space for pedestrians and bicyclists
- Future 412 bypass to go through western section of Elm Springs
- Spring site, potential access
- Generally – intra and inter-neighborhood connections are patchy and need strengthening
    - Newer developments generally have sidewalk incorporated – older neighborhoods do not
- Tie into NWA and Springdale trail planning efforts

2.9 Farmington

October 25, 2013

High School Football Game (Ozark at Farmington), Information Booth (6pm)

Farmington, AR

Project team and local staff: Melissa McCarville – City of Farmington; Jenna Swain – City of Farmington; Steve Bzomowski – Alta Planning + Design

At the football game information booth in October, information and an overview of the NWA Regional Bicycle and Pedestrian Master Plan was delivered to booth attendees. The project team met with Melissa McCarville and Jenna Swain of the City of Farmington on September 25, 2013 as a preliminary informational meeting. Discussion included an overview of the NWA Regional Bicycle and Pedestrian Master Plan and the City of Farmington Master Trail Plan. This meeting included a 'walk-through' of a map of Farmington, a tour of the city, and a discussion of opportunities, constraints, and local destinations within the City.

Notes regarding local opportunities, constraints, and key destinations

- Connect Parks and public land
    - Connect to City of Fayetteville Regional Park (future) and Mt Kessler
    - Local parks Creekside Park and Ecology Park
    - Ball fields on south end of town
- Farmington town center
    - Future library site located here
    - Several businesses, possible infill and investment for downtown center
- Connect schools
        - Elementary School southwest section of Farmington
        - High School and middle school located west of town center
        - Future high school to be located adjacent to ball fields along AR 170
        - Elementary school located on Broyles Street
- Farmington Branch (and tributary undercrossing of AR 62) – potential greenway corridor
- US 62 is an east/west bike/pedestrian barrier through town
- Key Intersections
    - Crossing US 62 at the following need improvements:
        - Rheas Mill Rd

        - Southwinds Road
        - Double Springs Road
- Cyclist routes
    - Rheas Mill Road
    - AR 170
    - Double Springs Road
    - Goose Creek Road
- Regional opportunities
    - Link to Fayetteville (Farmington Branch, Regional Park)
    - Prairie Grove Battlefield State Park (AR 170)
    - Lincoln Lake via Bethel Blacktop Road
    - Lake Wedington via Farmington Branch

2.10 Fayetteville

October 3, 2013

First Thursday Event (5pm-8pm)

Town Square - Fayetteville, AR

Project team and local staff: Matt Mihalevich – City of Fayetteville; John McLarty – NWARPC; Cristina Scarlat – NWARPC; Misty Murphy – NWA Council; Dennis Blind – Alta Planning + Design; Steve Bzomowski – Alta Planning + Design

Fayetteville's First Thursday event is held in the downtown square the first Thursday of each month from Spring to Fall. At this event, information and an overview of the NWA Regional Bicycle and Pedestrian Master Plan was delivered to 40+ members of the public who engaged the project team. Discussion included specific locations across a zoom-in map of the City of Fayetteville regarding opportunities, constraints, and destinations within the city.

Notes regarding local opportunities, constraints, and key destinations

- Need improvements at intersection of Rolling Hills Drive, Appleby Rd, and US 71B
- Mud Creek Trail, new Razorback Greenway west of Lake Fayetteville, and bike lanes along N Vantage Dr will make an enjoyable loop
- Important link needs to be made from W Persimmon St (and adjacent residential areas) to Owl Street School and Dale Clark Park) – west Fayetteville
- A priority corridor should be US 71 heading south from Fayetteville to Greenland leading south along South School St
- W Cato Springs Rd in south Fayetteville needs bicycle and pedestrian facilities
- South Fayetteville – MLK/Huntsville Rd/16 are key areas of improvement
- South Fayetteville – W 15th St corridor should be high priority as well
- Washington Ave to Dickson St could use sidewalks
- Bike/pedestrian connections needed between downtown, Mt. Sequoyah Gardens, and Mount Sequoyah Woods – general challenges include hills, narrow right of way
- Maybe a pedestrian bridge needed in crossing Mission Blvd and Maple St?

- Mission Blvd and Old Wire Rd corridor should be priority
    - Plans for road improvements along corridor, should include bike/pedestrian
    - Can serve key east/northeast/west connector in Fayetteville
    - Connects many residential areas
    - Can be key link to several elementary schools and parks
    - Key improvement needs to be crossing between Vandergriff Elementary School and across Mission Blvd to the south
    - This corridor is generally flat
- Improvements up Old Wire Rd north from Mission Blvd was highlighted as well, supported as priority by public comments – Gulley Park and Butterfield Elementary School would benefit from this as well – another key suburban residential corridor connection
    - Heavy traffic, no sidewalks, ditches on each side, need to connect up to Mud Creek Trail – Niokaska Creek
- Garland Avenue – key downtown/campus connection corridor – improvements including bike lanes in 2013/2014
- Sycamore and Garland is a choke point
- Connect to libraries
- 265/S Crossover Rd – high traffic volumes and traffic speeds
- Rail with Trail – rail transit corridor should be explored
- School connectivity should be high priority
    - Fayetteville High School just south of U of A campus desperately needs connections
- Wedington Blvd corridor needs better connectivity
- Sixth St, Farmington, stronger east-west connection needed – Farmington to downtown Fayetteville no safe connection; separate from road
- Need east/west connection through campus
- Local cyclists ride Old 71 south of Fayetteville past Elkins – turn around at Winslow
- Bike share possibilities in future
- Better signage for parking at trailheads – better public parking needed
- Educational programming, continue expanding

2.11 Gentry

October 13, 2013

Fall Festival (12:00pm-5pm)

Gentry City Park, Gentry, AR

Project team and local staff: Kevin Johnston – Mayor of Gentry; John McLarty – NWARPC; Steve Bzomowski – Alta Planning + Design

The project team attended the Gentry Fall Festival at Gentry's City Park. This event included a mixture of activities and attractions including a car show, muttin bustin', food, music, and games. The project team engaged 45+ people. The project team display included a large regional map, a zoom-in map of Gentry and existing bicycle and pedestrian conditions. Project information cards were distributed and

notes from the public were recorded throughout the event. Mayor Johnston discussed City of Gentry plans regarding bicycle and pedestrian improvements directly with the project team.

Notes regarding local opportunities, constraints, and key destinations

- Possible connection from western end of Jerald Shea Rd to Eagle Watch trail – could make loop if bicycle/pedestrian improvements were completed along Hwy 12
    - Swepco owns property, possible partner
        - 65 employees at Swepco – power plant
- Golf course (no longer) between Flint Creek and Dawn Hill Rd – could use paved trails as part of trail between Gentry and Siloam Springs
- Destination – trail could tie into the Wild Wilderness campground on north side of Flint Creek just outside southwestern city limits of Gentry
- Siloam Springs Lake, connection possibility, southwest of Gentry city limits
- Cyclist route between Siloam Springs and Gentry as follows (and marked on map): from Dawn Hill Rd – Taylor Orchard Rd, Siloam City Lake Rd, Marion Lee Rd, Taylor Orchard Rd (might be this name the whole time), to Swepco Rd and into Gentry
- Greenway opportunity – Flint Creek – connection between Siloam Springs and Gentry
- Heritage Trail – Dawn Hill Rd west of Hwy 59 to Siloam Springs – beautiful road corridor and oft-cycled – narrow however but traffic not too bad
- Large orchard on Taylor Orchard Rd (but not in City limits)
- Constraint – generally not much room along active rail line for trail development
- Destination – ball fields north of Main Street along Bryer and Arkansas St
- Connect to library in town – Collins and Main
- Heritage Trail should really be highlighted through downtown/Main St
- Connecting to Centerton via Heritage Trail from Gentry – Hwy 12 has decent shoulder towards Centerton, but other places it is narrow and high speed in general
- Pioneer Lane can be key corridor past High School

Additional Materials and Maps provided by the City of Gentry:

- Map showing population by the four wards of Gentry
    - Ward 2 central and north of downtown is the most dense
    - Ward 3 to the southwest is the least dense
- Map showing bicycle/pedestrian recommendations
    - Existing sidewalks
    - Potential/recommended sidewalks/multi-use trails
        - Connects Community Park
        - Connects High School
        - Connects neighborhood along Swepco Rd
        - Partly uses corridor along rail line
        - Needs connection along north side of Main St north of Community Park
        - Need better connection to elementary school
        - Need connection to McKee Foods Corporation

        - Sidepath opportunity could exist along north side of McKee Rd
- Provided information about Safari drive-through north of town (on Safari Road) – destination
- City of Gentry Community park layout (2006)
- Flint Creek Nature Area
    - Property is adjacent to Flint Creek along the west side of Hwy 59 (along Dawn Hill Rd)
    - Could be great trailhead for potential Flint Creek Trail
    - Ponds are filled, construction beginning
    - Will include fishing area, restrooms, history and nature interpretive information
- Provided map of current City Park layout
- Provided map showing future 8' trail additions to Community Park
- Provided map of proposed golf-cart use – mainly for quiet neighborhood streets
- Also provided Gentry activity guide which includes destinations
- Local restaurant – Wooden Spoon
- All schools (primary through HS) will eventually be combined at current HS location
- Abandoned rail line between Gentry and Centerton/Bentonville – can still see some parts of it but all private property now
    - In Springtown, old rail bed still visible along south side of Flint Creek
- Springtown – old 12 road bed – owner wants to use as trail, etc. and donate – sent letter of intent
- Paved cycling corridor from Gentry to Centerton includes: Y City Rd, Tilly Hill towards Vaughn
- Good cycling roads to Decatur (although narrow); WPA Rd, Browning Rd to Falling Springs Rd
- Several children also approached the project team – their responses to where they want to bike/walk include:
    - The woods
    - McDonald's
    - Texas
- Employers
    - Cargill – adjacent to Community Park
    - School district
    - United Way supports several community programs

2.12 Goshen

February 11, 2014

Council Meeting (6pm)

Goshen City Hall, Goshen, AR

Project team and local staff: Joe Benson – City of Goshen Mayor; City Council; John McLarty – NWARPC; Steve Bzomowski – Alta Planning + Design

The February 11 Council Meeting included a discussion of the NWA Regional Bicycle and Pedestrian Master Plan and information and an overview was delivered to the Council and attendees of the meeting, followed by a question and answer session. In addition to the City of Goshen Council

Meeting on February 11, the project team met with Mayor Joe Benson on November 7, 2013 to discuss the purpose and background of the NWA Regional Bicycle and Pedestrian Master Plan. This meeting included a 'walk-through' of a map of Goshen and a discussion of opportunities, constraints, and local destinations within the city.

Key notes regarding opportunities, constraints, and destinations

- Destinations
    - Popular fishing access below AR 45 bridge over the White River – many people park here and fish for White Bass especially in the Spring
    - Floodplain along White River east of Oxford Bend Rd was old Civil War campsite
    - Schoolhouse Café and Market
    - City Hall
    - Oldest commercial section of town (a few buildings) are mostly vacant
    - Scenic area – great low traffic volume, scenic cyclist routes
- Schools – children attend schools in Springdale and Fayetteville
- Greenway opportunities
    - Previous planning efforts have considered a horse/hike/mountain bike multi-use trail from near the White River and Oxford Bend Rd intersection (utilizing floodplain – issue is that this has flooded for extensive periods of time – but also stayed dry for several years at a time)
        - Continue paralleling Riverfront Ln (have easement here; and then heading east (shallow river crossing opportunity here) along the City limits and property lines
        - Continue north along Richard's Creek under AR 45, then east along Mill Branch, head north east of White Rd and turning left toward Blue Springs Rd north of Spring Park Ln
- Commercial
    - Gas station near center of town
    - Schoolhouse Café and Market
    - Tuttle Rd/AR 45/Blue Springs Rd intersection – intersection treatments could help here
- AR 45 – Heritage Trail
    - Some cyclists use but low level of service – high traffic, high speed, narrow
    - Great opportunity for sidepath heading toward Fayetteville – very wide ROW I believe, definitely space
- Cyclist routes
    - Wyman Rd toward Fayetteville
    - Round Mountain Rd to Hummingbird Rd toward Elkins
    - Hale Rd to Ledford Rd
    - Blue Springs Rd north to Beaver Lake
    - Oxford Bend Rd to Habberton Rd toward Springdale (and Saddlebock brewery)
    -

2.13 Gravette

November 14, 2013

Committee of the Whole Meeting (6pm)

City Hall, Gravette, AR

Project team and local staff: Byron Warren – City of Gravette Mayor; City Council; John McLarty – NWARPC; Steve Bzomowski – Alta Planning + Design

At the council meeting, project information cards were distributed and an overview and discussion of the Plan was delivered to attendees. This was followed by a question and answer session. The project team met with Mayor Warren and Lori Leonard before the council meeting to discuss bicycle and pedestrian planning and ideas in the City of Gravette. This preliminary meeting included a 'walk-through' of a map of Gravette, opportunities, constraints, and destinations. At this preliminary meeting and the ensuing Committee of the Whole Meeting, the project team displayed a large regional map and a zoom-in map of Gravette with existing bicycle and pedestrian facilities.

Notes regarding local opportunities, constraints, and key destinations

- Trail, ball fields, and skate park located in southwest part of Gravette between the rail line and Dallas Street
- AR 59 carries north/south through traffic, higher speeds and does not accommodate bicycle and pedestrian traffic – this and the rail line divide the town in half
- Future bypass between Gravette and Bella Vista will alter traffic patterns
- Destinations
    - Schools
        - Large high school and middle school on east side of City
        - Elementary school located in neighborhood along El Paso Street
    - Gravette Historical Museum located on Charlotte Street
    - Ozarks Community Hospital located at southwest edge of City
    - Post Office located on west AR 72
    - Parks
        - Field E. Kindley Memorial Park between AR 72 and Main Street east of town center
        - Centennial Park west of town center
        - Old Town Park (farmers market held here) located on Main Street/AR 72 intersection
    - Most commercial activity is located along AR 59 north/south through town
- Cyclists utilize AR 72 to/through Gravette, has wide shoulder in most places
    - They take Lion Drive to Main Street upon entering the center of Gravette from AR 72 to the east (AR 72 narrows as it approaches Main Street)
- R&B Packaging is a large employer located at northern extent of the City
- Eastern Gravette/Hiwasse (recent annexation) – border with Bella Vista
    - Small commercial strip
    - Fire station

    - Community center
    - School
    - New bypass will greatly affect this rural area
        - Route through the 'Hiwasse' part of Gravette, north along the western border of Bella Vista
- Sidewalk facilities
    - Extends along Main Street from downtown to high school on east side
    - Also extends along AR 72 west of downtown center
    - Old downtown center has sidewalk facilities – these several blocks are generally void of businesses today, but has potential
    - Old sidewalks found along 2nd Street – sidewalks are generally older, children seen walking in streets
    - Little traffic in neighborhood streets
- Regional connectivity opportunities
    - Rail corridor and floodplain
    - Rural roads, cyclist routes
    - Decatur, Bella Vista, Centerton
- Heritage Trail
    - AR 72

2.14 Greenland

November 8, 2013

High School Football Game (West Fork at Greenland), Information Booth (6pm)

Greenland, AR

Project team and local staff: Bill Groom – City of Greenland Mayor; Steve Bzomowski – Alta Planning + Design

At the football game information booth in November, information and an overview of the NWA Regional Bicycle and Pedestrian Master Plan was delivered to citizens. The project team also met with Mayor Bill Groom and Chief Ricker for a discussion and tour of Greenland. This included a 'walk-through' of a map and tour of Greenland and a discussion of opportunities, constraints, and local destinations within the City.

Notes regarding local opportunities, constraints, and key destinations

- Connect Parks and public land
    - Connect to City of Fayetteville Regional Park (future) and Mt Kessler
    - Local parks Taylor Park and ball fields (Community Center located adjacent to ball fields)
- Greenland town center
    - Library and city hall located here, adjacent to schools
- Connect schools
    - All Greenland schools located on east side of US 71

- Tributary to West Fork of White River links east/west through the heart of Greenland – strong potential greenway corridor
- US 71 is a north/south barrier through town on east side – possibilities for bicycle facility or sidepaths
- I-49 is major north/south barrier on west side
- Key Intersections
    - I-49 and Wilson Street
    - Wilson Street and US 71
- Cyclist routes
    - AR 265
    - Illinois Chapel Road
    - US 71
    - Campbell Loop Road
    - Schaeffer Road
- Regional opportunities
    - Link to Fayetteville (via Cato Springs Road, developing regional park, US 71, active rail line, West Fork of White River)
    - Connect to West Fork via Campbell Loop Road and the West Fork of the White River corridor
    - Lincoln Lake via Bethel Blacktop Road
    - Connect to Lake Wilson
    - Heritage Trail runs north south along US 71 and AR 265 on east and west sides of Greenland respectively

2.15 Johnson

October 8, 2013

Council Meeting (6pm)

City Hall, Johnson, AR

Project team and local staff: Buddy Curry – City of Johnson Mayor; City Council; Steve Bzomowski – Alta Planning + Design

The project team displayed a large regional map, a zoom-in map of Johnson and existing bicycle and pedestrian conditions at the Council Meeting. An overview and discussion of the NWA Regional Bicycle and Pedestrian Master Plan was delivered to attendees, followed by a question and answer session. The project team met with Mayor Curry and Alderman Dan Cross before the Council Meeting to discuss bicycle and pedestrian planning and ideas in Johnson. The preliminary meeting included a 'walk-through' of a map of Johnson and a discussion of opportunities, constraints, and destinations.

Key opportunities, constraints, and destinations

- Current City of Johnson plans to extend a connection from the Razorback Greenway west along the Clear Creek corridor heading north past the Women's Shelter to the Greathouse

Springs Rd/New Hope/S 56th St road corridor toward Arvest Ballpark. A utility line exists along the east side of this corridor and is a strong opportunity for sidepath development.
    - Easements and preliminary engineering partially done
- Roosevelt Ave/Ball St could be a key connector but it is narrow and also a truck route
- City of Johnson owns three-acre property adjacent to the Razorback Greenway at W Yvonne Dr and Wilkerson Rd
    - Future trailhead and parking
    - Cleared space for access
- Wilkerson Rd and Main Dr could be widened to 3-lane for emergency purposes, potential for bike/pedestrian additions
- Access at the northern Wilkerson Rd/Razorback Greenway intersection possibility
- New road to link Johnson Rd and Carly Rd.
- Older part of town – east side, has few sidewalks – newer sections in the north include sidewalks
- Potential space for bike/pedestrian path on west side of Carly Rd – some sidewalk already, utility lines on both sides of the road
- POA Trail intersects Bent Trail Road
- Potential for access to Razorback Greenway at Dollar General property (Hawks Landing?) along Main Dr, would need permission from property owner
- Pavilion/public space in front of City Hall could be highlighted for bicyclists/pedestrians
- Potential access to Razorback Greenway on Ball Street

2.16 Lincoln

February 12, 2014

Open House (3pm)

Community Building on the Square, Lincoln, AR

Project team and local staff: Doug Hutchens – City of Lincoln Council; Bobby Braly – Historic Cane Hill; Misty Murphy – NWA Council; John McLarty – NWARPC; Steve Bzomowski – Alta Planning + Design

At the open house meeting in February, information and an overview of the NWA Regional Bicycle and Pedestrian Master Plan was delivered to attendees, and a question and answer session ensued. The project team also met with councilman Doug Hutchens as well as City Manager Chuck Wood in the Fall of 2013. This meeting included a 'walk-through' of a map of Lincoln and a discussion of opportunities, constraints, and local destinations within the City.

Notes regarding local opportunities, constraints, and key destinations

- Connect to Lake Lincoln
    - Greenway opportunity along Moore's Creek
    - Power lines/sidepath opportunity along Jackson Hwy/N West Ave
    - Potential to utilize McCratic Rd and High Ocean Rd to Moore's Creek and Lincoln Lake
- Connect schools

    - Middle School and Elementary School along School St to new high school along US 62 on east side of town
    - This includes the School St, County Ave, and North St corridor
        - Potential to link through the neighborhood around Chestnut Circle and the developing fun park
- Public right-of-ways are generally narrow
- Downtown square is key destination
    - New library currently under construction
    - Several businesses
    - Local government offices
- Open space around Appletown/old orchards has potential as a natural area along with soft surface trails, etc.
- Neighborhood around Cherry St has sidewalks but no access to anything outside the neighborhood
- Old railroad beds exist through town (and through the region) but no longer owned by the railroad or public agencies in most circumstances
- US 62 is a bike/pedestrian barrier through town
- Key Intersections
    - Crossing US 62 at the following need improvements:
        - Mitchell Ave
        - Main St
        - West Ave
        - Sugar Hill Rd
        - W Bean St
        - W North St
    - Some existing crosswalk markings present around downtown square – more needed
    - Crosswalk markings generally found around the schools
    - Crosswalks also present in other locations such as the School St/Main Ave intersection as well as Bean St and West Ave
- Connect to South Park
    - This park is located on S Mitchell Ave
    - Mitchell Ave is a key corridor that links residential areas south of US 62 in addition to South Park
        - Needs improvements
    - Potential to continue pathways in South Park to adjacent property and S West Ave
- Adams St is a key east/west corridor connecting residential areas through south Lincoln and connects to the High School
- Wide easement along Old Canehill Rd
- Older sidewalks along S Main Ave neighborhood need refurbished
- Need better connectivity across US 62 to west side of Lincoln – connect to Harp's grocery store
    - Bean St across US 62 and extending connection to Sunnyvale Pl could serve as key west Lincoln bike/pedestrian connection with improvements

- Potential to utilize alleys (which used to be pathway of old rail line) as bicycle/pedestrian corridors through Lincoln
- Cyclist routes
    - Jackson Highway to Lake Wedington
    - Bush Valley Rd
    - Old Canehill Rd
    - AR 45
    - AR 59
- Connect to Siloam Springs and Prairie Grove – old rail bed could make that connection but no longer property of railroad or public agencies

2.17 Little Flock

November 18, 2013

Planning Commission Meeting (7pm)

City Hall, Little Flock, AR

Project team and local staff: Buddy Blue – City of Little Flock Mayor; City Council; Steve Bzomowski – Alta Planning + Design

At the council meeting on November 18, 2013, project information cards were distributed and an overview of the NWA Regional Bicycle and Pedestrian Master Plan was delivered to attendees. This was followed by a question and answer session. The project team met with Mayor Buddy Blue as a preliminary informational meeting on October 29, 2013. Discussion included an overview of the NWA Regional Bicycle and Pedestrian Master Plan and a 'walk-through' of a map of Little Flock, focusing discussion on destinations, opportunities, and constraints.

Notes regarding local opportunities, constraints, and key destinations

- Rural, scenic community, no sidewalk network, popular among local cyclists
- Little Flock is generally a bedroom community for Bentonville and Rogers
    - Subdivisions, low density development
    - Children attend Bentonville or Rogers schools (mostly Rogers)
- Destination – Johnson Park
- Destination - Park adjacent to City Hall and fire station/police station
    - Park expansion possibilities next to fires station (new one to be constructed soon)
- Historic Baptist Church – Civil War hideout across the street from City Hall
- Little Flock is scenic cycling route used by many – generally lower traffic volumes through this area – all roads are generally narrow with no shoulder
    - Scenic roads/routes
        - Battlefield Blvd is popular access to area from Bentonville
        - Rocky Ridge Trail
        - Little Flock Dr
        - Dixieland Rd

        - 13 St – no bike lanes here as shown on map but bicycle signage present – narrow road in the city limits
- Apartments/residential clusters around south/southwestern part of city limits
- Rustic Dr scenic corridor connecting Rocky Ridge Trail to AR 94 soon to be paved
- Brush Creek, Little Sugar Creek, and tributary branch heading southeast of Brush Creek could be scenic greenway opportunities
- Challenges for trail development include amenable property availability as well as geographic constraints
- AR 94 north/south corridor to the east is dangerous, not safe for bike/pedestrians currently
- Dixieland Rd and 13 St are your main north/south connections to Rogers
- Little Sugar Creek is a scenic corridor and connection between north Bentonville and Pea Ridge area
- Airport Loop Rd could be strategic connection from Little Flock to Old Wire Rd/62 corridor north to Pea Ridge Military Park
- Hilly, scenic, and rural area
- Destination – Sunshine School on Woods Ln

2.18 Lowell

October 26, 2013

Mudfest (8am-3pm)

Ward Nail Park, Lowell, AR

Project team and local staff: Eldon Long – City of Lowell Mayor; Kris Sullivan – City of Lowell; John McLarty – NWARPC; Steve Bzomowski – Alta Planning + Design

At the Mudfest event, information and an overview of the NWA Regional Bicycle and Pedestrian Master Plan was delivered to attendees followed by discussion. The project team also met with Mayor Eldon Long and Kris Sullivan during Mudfest. This meeting included a 'walk-through' of a map of Lowell and a discussion of opportunities, constraints, and local destinations within the City.

Notes regarding local opportunities, constraints, and key destinations

- Connect parks and public land
    - Ward Nail Park
    - McClure Park
    - Lowell Park
    - City Museum
- Connect schools
    - Lowell Elementary School on McClure Avenue
    - Tucker School on School Avenue
    - Future high school location on Zion Church Avenue
    - Janie Darr Elementary School in Springdale just inside Lowell border
- Downtown center
    - Local government offices, mainly residential around center

- City adopted Master Streets/Trail Plan in 2013
- Potential sports complex site on Bellview Street near Zion Church Avenue
- Barrier Roadways
    - US 71B (north/south)
        - Commercial strip
        - Potential space for undercrossing at creek just south of Monroe Avenue intersection
    - I-49 (north/south)
    - AR 264 to a lesser extent (east/west)
    - Dixieland Road to a lesser extent (north/south)
    - Rail line runes north/south through Lowell as well (rail with trail opportunity)
- 80%/20% population split on east/west sides of I-49 respectively
- J.B. Hunt corporate headquarters located in southern Lowell (adjacent to east side of I-49)
- New AR 264 bridge over I-49 to include six foot sidewalks
- Key Intersections
    - Monroe Avenue and US 71B
    - Crossings of I-49
    - Bellview Street and Monroe Avenue
    - Dixieland Road and AR 264
- Cyclist routes
    - Bellview Street
    - Puppy Creek Road
    - Goad Springs Street has sharrows (in preparation of Razorback Greenway sidepath)
- Link to Rogers, Bethel Heights, Springdale, and Cave Springs
- Heritage Trail – Butterfield Stagecoach route runs north/south along east side of Lowell (Old Wire Road) – used to be known as Mudtown (they would muddy the roads so that through traffic would stop and do business in Lowell)

2.19 Pea Ridge

October 10, 2013

Farmers Market (2pm-6pm)

Pea Ridge, AR

Project team and local staff: Celia Silkwood-Scott – NWARPC; Misty Murphy – NWA Council; Steve Bzomowski – Alta Planning + Design

The project team displayed a large regional map, a zoom-in map of Pea Ridge and existing bicycle and pedestrian conditions, and distributed project information cards. The project team also met with Pea Ridge Mayor Jackie Crabtree before the Farmers Market to discuss bicycle and pedestrian planning and ideas in the City of Pea Ridge. In addition to the general public, Teresa Moss of *NWA Online* and Annette Beard of *The Times of Northeast Benton County* interviewed the project team.

Notes regarding local opportunities, constraints, and key destinations

- Connect to Bella Vista and the northern terminus of the Razorback Greenway
    - Cyclists use McNelly Rd and Tommy Hawk Rd coming from Pea Ridge
- Pea Ridge High School on W Pickens Road has new football field, indoor sports complex, fine arts center, and tornado shelter
    - This campus needs strong connections
- High School baseball fields located on Hwy 94 (Pickens) and Tommy Hawk Rd
- Little league ball fields located on Weston St
    - Has center turn lane; 4'-5' sidewalks on each side of the road
- West side of Pea Ridge neighborhoods are generally older and don't have sidewalks (e.g., – west of Curtis Ave/94)
- Eastern edge of downtown Pea Ridge residential area is newer – subdivision includes sidewalks
- Pea Ridge City Park is located at north edge of town along 265/Hayden Rd
- Loop of sidewalks eventually to link the City Park, High School, old downtown Pea Ridge, the commercial strip development at 72/94 intersection, and little league fields along Weston St
    - Sidewalks need (or are going to be) constructed along east side of Hayden Rd
    - Sidewalk exists along north side of Pickens Rd heading into downtown Pea Ridge
    - Portions of sidewalk exist along west side of Curtis Ave between old downtown and new strip development downtown (72/94)
        - 4'-5' sidewalk on east side of road
    - Sidewalks recently constructed along 72 west of 94 intersection/new downtown strip development to Weston St
        - Neighborhood Walmart recently constructed here as well
- Davis street parallel to Curtis Ave to the east can be good quiet cycling corridor alternative
- Greenway opportunity along riparian/creek corridor between old downtown Pea Ridge and Pea Ridge Military Park
    - City may have land for trailhead along 72/creek intersection (creek is generally dry)
- Hayden Rd/265 does have some shoulder, could be beautiful bike route
- Citizen who lives southeast of 72/94/newer strip development intersection does not feel like they have a good route for children to get to school
    - Missing links in sidewalk network, does not want kids walking in road
    - Not far from school, but need better opportunities
- E Pickens Rd/72 and Twelve Corners Rd east of town is key corridor
    - Towards Pea Ridge Military Park
    - En route to Seligman, Missouri trails
    - Part of Heritage Trail
    - Old cemetery
- Pea Ridge National Military Park
    - Future visitors center to be moved to Lee Town Rd just west of 72

    - Will make for much improved bike/pedestrian access (currently on high speed/high traffic US 62)
        - Project is years down the road, however
- Connect to Bentonville and Rogers
    - Ryan Rd from 72 (farmers market area) to Sugar Creek Rd
    - Part of Heritage Trail
        - Could serve as connection to Rogers/Bentonville and Sugar Creek riparian corridor
    - 94 corridor makes direct connection from Pea Ridge to downtown Rogers
        - Narrow, high speed, traffic, no shoulder, dangerous
    - Greenway opportunity - Spanker Creek heading southwest of Pea Ridge to Bentonville could make great connection to north Bentonville and near Lake Bella Vista
    - Old Wire Rd (unpaved) and US 62 and railroad corridor southwest from Pea Ridge Military Park to downtown Rogers could be trail opportunities
        - Heritage Trail
        - And be part of a Rogers to Pea Ridge Military Park to Pea Ridge to Bella Vista/north Bentonville loop potential
    - Greenway opportunity along Sugar Creek corridor
        - Also Sugar Creek Rd (unpaved) part of the Heritage Trail
        - Potential geographical constraints
        - Small section of Sugar Creek Rd is paved east of 94 intersection (see map)
- Bentonville Bike Club does or used to do time trials along flat section in Pea Ridge – E Pickens Rd to Lee Town, and Davis
- Comment from public at farmers market
    - Children's programs that are free would be great – nature walks – running clubs – girls on the run – school system
    - Citizens enjoy running around the community, would love to have trails and sidewalks
    - Tiger and Cub – girl cross-country running

2.20 Prairie Grove

February 13, 2014

Open House (3pm)

District Court Room, Prairie Grove, AR

Project team and local staff: Sonny Hudson – City of Prairie Grove Mayor; Larry Oelrich – City of Prairie Grove; John McLarty – NWARPC; Steve Bzomowski – Alta Planning + Design

At the open house meeting in February, information and an overview of the NWA Regional Bicycle and Pedestrian Master Plan was delivered to attendees, followed by a question and answer session. The project team also met with Mayor Sonny Hudson and Public Works Director Larry Oelrich in the Fall of 2013. This meeting included a 'walk-through' of a map of Prairie Grove and a discussion of opportunities, constraints, and local destinations within the City.

Notes regarding local opportunities, constraints, and key destinations

- Connect parks and public land
    - Prairie Grove Battlefield State Park – walking and biking trails planned as part of Master Plan - regional destination
    - Bob Kidd Lake – Arkansas Game and Fish Commission – potential connection along creek between lake and Stonewall Road
    - Rieff Park (Aquatic Park, Ball fields, Skate Park) – ½ mile trail located around perimeter of ball fields
    - Mock Park and Library
    - Donald & Peggy Parks Municipal Tennis Courts
- Downtown Prairie Grove
    - Unique, high concentration of antique shops
- Connect schools along and north of Bush St
- Muddy Fork Creek – potential greenway corridor
- Illinois River – potential greenway corridor
- Small industrial park on west side of Prairie Grove
- Small bridge being replaced on AR 170 toward Farmington – should include bike/ped
- US 62 is an east/west barrier through town
- Cleveland Street – bike boulevard opportunity
- Park Street – east side link
- Key Intersections
    - Crossing US 62 at the following need improvements:
        - Mock Street
        - Neal Street
        - Pittman and Buchanan Street
- Cyclist routes
    - Viney Grove Road
    - Hogeye Road
    - Illinois Chapel Road
    - Stonewall Road
    - AR 170

2.21 Rogers

October 12, 2013

Farmers Market (7:30am-1pm)

1st Street and Walnut Street – Rogers, AR

Project team: Steve Bzomowski – Alta Planning + Design

At the Rogers Farmers Market, the project team engaged 40+ citizens, providing an overview of the NWA Regional Bicycle and Pedestrian Master Plan, and distributed information cards. The project team also met with Director of Planning and Transportation, Steve Glass, on August 27, 2013. This meeting

included a 'walk-through' of a map of Rogers, trail planning efforts to date by the City, opportunities, constraints, and local destinations within the City. A follow-up meeting in February 2014 and coordination with Nathan Becknell, City of Rogers engineer included a tour of existing and developing facilities throughout Rogers.

Notes regarding local opportunities, constraints, and key destinations

- Key planning and development to date: 2010 Master Trail Plan and updated 2014 Rogers Greenway & Trails map – includes existing and planned facilities
- Rogers Trails Committee – mission is to procure, connect, and develop a unified greenways and trails system, which promotes conservation, restoration, recreation and community interaction
- Mountain biking/multi-use natural surface trails in development around Lake Atalanta
- Over 100 acres of greenspace adjacent to downtown
- Connect to destinations
    - Razorback Greenway
    - Old Wire Road – Heritage Trail
    - Connectivity to Bentonville – Turtle Creek Trails, Horsebarn Trails, and Razorback Greenway
    - Hobbs State Park and Beaver Lake
        - Horsehoe Bend
    - Connect to Lowell
    - Lake Atalanta
    - Downtown
    - Aquatic Center (southwest)
    - Pinnacle Hills shopping area and Mercy Hospital (Razorback Greenway connects)
        - Arkansas Music Pavilion recently completed
        - John Q Hammonds Convention Center
    - Northwest Arkansas Community College
    - Sports Park
    - Veterans Park
    - Connect to future Mt. Hebron Park and future Elementary School
    - AR 94 could utilize sidepath in connecting to Pea Ridge and Little Flock (is currently a high speed, narrow road)
- No existing sidewalk GIS layer (subsequently digitized during this planning process)
- Challenges for bicycle and pedestrian travel
    - Walnut Street and 8th Street are wide, high traffic volume, high speed roadways with high amount of commercial activity (similarly, US 62 and I-49 present challenges)
    - Local connections from residential areas – e.g., no sidewalks in residential areas east of downtown and Lake Atalanta
- Race the Train race – downtown Rogers north to Avoca – 100 cyclists
- School programs
    - Safe Routes to School – championing bike buses

        - Connect trails to schools
    - Junior high schools to bicycling as part of physical fitness programming
- Need to create more direct routes and encourage bicycling and walking as a transportation option
    - Greenway & Trails Map has 'share the road bike routes' – need to connect more local destinations and schools
    - Example: continue a sidepath along New Hope Road between Blossom Hollow Trail to 1st Street
- Heritage Trail in Rogers
    - Old Wire Road/Monte Ne Road/S E Street
    - AR 12
    - East/west link along Olive Street, floodplain, and Turtle Creek Trails
    - Cross Hollow Road

2.22 Siloam Springs

October 31, 2013

Downtown Halloween Event (3:30pm-6pm)

Downtown Siloam Springs, AR

Project team and local staff: Ben Rhoads – City of Siloam Springs; John McLarty – NWARPC; Steve Bzomowski – Alta Planning + Design

At the Halloween event, the project team distributed over 100 project information cards, engaging parents and trick-or-treaters with a discussion and overview of the NWA Regional Bicycle and Pedestrian Master Plan. The project team also met with Ben Rhoads and Scott Hodge with the City of Siloam Springs on November 8th. This meeting included a 'walk-through' of a map of Siloam Springs, trail planning efforts to date by the City, opportunities, constraints, and local destinations within the City.

Notes regarding local opportunities, constraints, and key destinations

- Existing Dogwood Springs Trail serves as key multi-use connection east/west through northern Siloam Springs neighborhoods west of railroad to downtown, to John Brown University, near several Siloam Springs public schools and residential areas north of US 412; has lights
- Connection needed from eastern extent of Dogwood Springs Trail at ball fields along Lincoln St east underneath the railroad line toward the High School, sports fields and Activity Center
    - Could also connect to residential area to the south of Tahlequah St
    - Ideal location for trail connection and continuation would be along Sager Creek underneath the railroad trestle, linking from the eastern extent of the Dogwood Trail
- Downtown is key destination – very walkable, lively, park space and river front, must connect all areas of town to downtown
- Key corridor connection would provide a link from the E. Main St/US 412 intersection west along E. Main St to downtown Siloam Springs. This would connect a diversity of segments including:
    - Downtown

    - E Main St businesses
    - Industrial section
    - Strip commercial section
    - Residential
- Other key corridors that provide key connections traversing multiple residential areas and sections through town and should include improvements (potential bike lanes, bike boulevards, etc.):
    - Cheri Whitlock St
    - Kenwood St – bike boulevard potential, low traffic but narrow
    - Tahlequah St – same, makes east/west connection though neighborhoods
    - Mt Olive St – is also part of the Heritage Trail
    - University St
    - Benton St – very wide, space for bike lanes
    - Washington St
    - Maxwell St
    - Tulsa St
    - Jefferson St
    - Holly St
    - Dogwood St
    - Carl St
    - Elm St
    - Lincoln St
- Older neighborhoods have limited sidewalk development and right-of-way
- Connect to schools; expand Dogwood Trail
- Bike parking needed, especially in downtown area
- Bike lane exists on Dogwood St
- Sidepath exists along Cheri Whitlock between Dogwood St and Mt Olive St
- Design upgrades in certain locations; examples include:
    - Maxwell St and Main St intersection – needs curb ramp
    - Sidewalks along E Main and Britt St needs to be upgraded
- North/South connections needed – make continuous north/south link from City Lake in the north to the developing Kayak Park to the south (Fisher Ford Rd/Illinois River junction)
    - How to cross US 412?
        - Rail line goes under
        - Lincoln St goes over (~2 feet, rough shoulder)
        - Both Hico St and Dawn Hill Rd (Heritage Trail) have sidepath potential
        - Utility ROW could potentially be used near City Lake
    - Explore soft surface multi-use trail opportunities along Fisher Ford Rd, S Lincoln St, and S Elm St
    - Rail-with-trail opportunity along rail line north/south through town
- AR 264 (Lincoln St) has wide paved shoulder between Cheri Whitlock Dr and East Main St
- John Brown University is a key destination
- Heritage Trail

    - AR 43
    - Mt Olive St
    - Benton St
    - Broadway St
    - E Main St
    - S Washington St
    - E Jefferson St
    - S Lincoln St
    - AR 59
    - AR 16
- Barriers
    - Railroad – key challenge for east/west connections
    - US 412 – key challenge for north/south connections
- Key intersections
    - Lincoln St and Main St
    - Downtown crossing treatments currently include parallel bar stripes with red brick pavers
    - US 412 intersections – these have had recent pedestrian crossing upgrades which have greatly improved crossing opportunities for pedestrians. However, due to the high traffic volume and roadway width, these are still not very comfortable to cross. Additional crossings of US 412 should consider the potential for pathways utilizing the rail corridor under US 412 and the Lincoln St bridge
        - Holly St
        - Carl St
        - Elm St
        - Mt Olive St
        - Washington St
- Bike shop – Dogwood Junction on Broadway St and E Main St downtown
- Bike club – the Siloam Pedal'rs
- Future park at Lake Francis Dr needs to be connected
- Regional connectivity
    - Connect to Gentry
        - Flint Creek and Dawn Hill Rd (Heritage Trail) have potential connection opportunities
    - AR 16 (Heritage Trail) to Lake Wedington
    - Several rural options to Lincoln
    - Rail-with-trail opportunity
- Cyclist routes
    - Taylor Orchard Rd
    - Dawn Hill Rd

2.23 Springdale

October 29, 2013

Open House (5pm)

City Hall, Springdale, AR

Project team and local staff: Patsy Christie – City of Springdale; John McLarty – NWARPC; Dennis Blind – Alta Planning + Design; Steve Bzomowski – Alta Planning + Design

At the open house, the project team presented an overview of the NWA Regional Bicycle and Pedestrian Master Plan along with a 'walk through' of a map of Springdale with attendees. Discussion centered on opportunities, constraints, and destinations with several key routes and priorities for Springdale identified. The project team also attended a City of Springdale Trails Task Force meeting before the open house, in which it presented an overview of the NWA Regional Bicycle and Pedestrian Master Plan followed by a question and answer session with the Task Force.

Notes regarding local opportunities, constraints, and key destinations

- Destinations
    - Razorback Greenway
    - Arvest Ballpark
    - Rodeo of the Ozarks
    - The Jones Center
    - Arts Center of the Ozarks
    - Tyson Foods Headquarters
    - Lake Springdale
    - Downtown Springdale
    - Several parks and schools
- Branches needed to/from the Razorback Greenway
- Trails Task Force meets regularly, key piece to future bicycle and pedestrian developments
- Opportunity to link east side trail loop from downtown Springdale/Razorback Greenway to the Jones Center, Rodeo of the Ozarks, neighborhoods along the eastern section of Spring Creek, JO Kelly Middle School, eventually connecting to Lake Fayetteville
- Solid sidewalk network found throughout the core of Springdale – design needs to consider buffering between the constructed sidewalk and roadway corridors. Sidewalks generally being incorporated into present and future development projects
- No on-street separated bikeways found throughout the city, some streets in the downtown core have space for bike lanes, others could potentially be incorporated into future roadway improvements
- Emma Avenue is a key corridor through town, loop to 56th Street (I-49 challenge), Arvest Ballpark, Tyson Park, and Don Tyson Parkway back to the Razorback Greenway
- Regional connectivity
    - Lake Elmdale and Elm Springs
    - Har-Ber Ave to Tontitown and proposed trails
    - Cave Springs and Spring Creek

    - Fayetteville – Razorback Greenway and AR 265
    - Lowell and JB Hunt
    - Beaver Lake
- Heritage Trail
    - Old Missouri Rd
    - Old Wire Rd
    - Mill St
    - Emma Ave
    - US 71B
    - US 412
    - Johnson Rd
    - AR 112
- US 71B, US 412, and I-49 are very difficult corridors for bicyclists and pedestrians to cross; Gutensohn Rd and Don Tyson Pkwy also key corridors with higher traffic volumes and/or speeds
- Springdale covers a large land area, from urban core to large suburban subdivision

2.24 Tontitown

November 5, 2013

Council Meeting (6pm)

Tontitown City Hall, Tontitown, AR

Project team and local staff: City Council; John McLarty – NWARPC; Steve Bzomowski – Alta Planning + Design

The council meeting agenda included discussion of the NWA Regional Bicycle and Pedestrian Plan. The project team provided information and an overview of the Plan to the council and attendees of the meeting, followed by a question and answer session. The project team met with councilman Clint Penzo and City Engineer Terry Carpenter before the meeting. This meeting included a 'walk-through' of a map of Tontitown, trail planning efforts to date by the City, opportunities, constraints, and local destinations within the city.

Notes regarding local opportunities, constraints, and key destinations

- New bridge at Brush Creek Ave and Javello Rd intersection is a destination – swimming hole here as well – Brush Creek
- Most children in Tontitown go to school at Willis D Shaw Elementary School on Grimsley Rd in Springdale, then attend Middle School and High School located on Har-Bar Ave
    - Har-Bar Ave has sidewalk network
    - Trail planning efforts in Tontitown include a connection to Har-Bar Ave along with an adjacent park development
- Greenway opportunities in southern Tontitown along Clear Creek extending west from Johnson
    - Similarly with Brush Creek along the northern city limits
- Vineyard locations

    - Dowell and Kelly Rd
    - Pianalto and Liberty Rd
    - Mantegani Rd, Liberty Rd, and Javello Rd
    - Barrington Rd and Baker Ave
    - Downtown Tontitown – Barrington Ave northeast corner – winery
        - Grape festival held here
- Commercial corridor along major US 412 artery – separated sidepath needed
- Major intersections needing further analysis
    - Barrington Rd and US 412 – town center
    - AR 112 and US 412
- AR 112 – Heritage Trail
    - Cyclists seen along this road – high traffic, high speed, narrow
- Cyclist routes
    - Pianalto Rd
    - Arbor Acres Ave
    - Barrington Rd
    - Steele Rd
    - Wheeler – connecting to Fayetteville routes
    - Reed Valley Rd
    - Liberty Ave
    - Brush Creek Rd
    - Javello Rd
    - SBanotto Ave
    - Mantegani Rd
    - Ardemagni Rd - Unpaved briefly near Scott St/Elm Springs border
- Connect to
    - Ozark National Forest to the west
    - City Hall, Fire Department
    - Tontitown Historical Museum
    - Harry Sbanotto Park

2.25 West Fork

October 22, 2013

Open House (6:30pm)

City Hall, West Fork, AR

Project team and local staff: Frances Hime; John McLarty – NWARPC; Steve Bzomowski – Alta Planning + Design

The project team presented an overview of the project and facilitated discussion with attendees including a 'walk through' of a local West Fork map. Discussion centered on opportunities, constraints, and destinations. Project information cards were distributed, and attendees (12 total) shared local and regional insights.

Notes regarding local opportunities, constraints, and key destinations

- Destinations
    - Schools
        - West Fork Elementary, Middle, and High School
    - Parks
        - Carter Park
        - Riverside Park
        - Mueller Park
    - Frank Wenzel Community Center
    - Harp's Grocery Store
    - Post Office
    - Connect residential areas to schools and center of West Fork
        - Need US 71 crossings
        - Need Main Street bridge improvements or an alternative crossing of the West Fork White River to link neighborhoods
        - Dye Creek Road low water bridge crossings in northern section of West Fork
- Sidewalk facilities
    - Some sidewalk facilities found along the main downtown area
- Regional connectivity opportunities
    - Campbell Loop Road is a low traffic, scenic road that serves as a cycling alternative to US 71 to Greenland
    - West Fork of the White River meanders through West Fork and connects West Fork and Greenland and serves as an opportunity for trail development in the riparian corridor
        - Adjacent rail line
    - Follow Heritage Trail to Winslow
    - Follow Heritage Trail to Devil's Den State Park
- Heritage Trail
    - US 71 and Main Street through West Fork
- Because of I-49, US 71 carries lower traffic volumes and could be configured to accommodate bicyclists

3 REGIONAL WORKSHOPS

3.1 December 2013 Regional Workshops

The first round of regional workshops was held during the needs assessment phase of the planning process in the first week of December, 2013. These public input opportunities focused on familiarizing attendees with the project purpose, goals, scope, schedule, as well as bicycle and pedestrian planning and design concepts. Attendees discussed strengths and weaknesses of the current bicycling and walking network as well as opportunities for improvement. A total of 67 members of the public attended the workshops. The dates and location of this first round of workshops were as follows:

- Tuesday Dec 3: Siloam Springs City Hall (4:30pm-6:00pm)
- Wednesday Dec 4: Arvest Ballpark (11:30am - 1:30pm, 4:30pm-6:30pm)
- Wednesday Dec 11: Center of Non-Profits @ St. Mary's Hospital (McAuley Hall) in Rogers (11:30am - 1:30pm, 4:30pm-6:30pm)

3.2 August 2014 Regional Workshops

The second round of regional workshops was held following the development of the Draft Northwest Aransas Regional Bicycle and Pedestrian Master Plan during the week of August 11, 2014. These public input opportunities included summary materials with supporting maps, a PowerPoint presentation, and display boards highlighting infrastructure and programmatic recommendations. A total of 132 members of the public attended the workshops. The project team facilitated the community workshops at the following times and locations:

- Monday August 11: Bentonville Public Library (4:00pm-7:00pm)
- Tuesday August 12: Fayetteville Public Library (4:00pm-7:00pm)
- Thursday August 14: Siloam Springs City Hall - Board Room (4:00pm-7:00pm)

F PLAN REVIEW

Appendix Contents:

Technical Memo: Plan Review and Stakeholder Interviews

TECHNICAL MEMO: PLAN REVIEW AND STAKEHOLDER INTERVIEWS

This document outlines previous planning efforts relevant to bicycle and pedestrian conditions in NWA. Additionally, eight stakeholder groups involved in improving the bicycle and pedestrian environment in the region were interviewed, and a summary of each interview is included at the end of this memo. The purpose of this document is to provide a better understanding of the foundation of bicycle and pedestrian infrastructure, programming, and planning in NWA.

[Blank page for double-sided printing]

MEMORANDUM

To: John McLarty, Northwest Arkansas Regional Planning Commission

From: Dennis Blind and Steve Bzomowski, Alta Planning + Design

Date: December 11, 2013

Re: Plan Review and Stakeholder Interviews (Task 1.2 and Task 1.5)

This document outlines previous planning efforts relevant to bicycle and pedestrian considerations in NWA. Additionally, eight stakeholder groups involved in improving the bicycle and pedestrian environment in the region were interviewed, and a summary of each interview is included at the end of this memo. The purpose of this document is to provide a better understanding of the foundation of bicycle and pedestrian infrastructure, programming, and planning in NWA.

1 PLAN REVIEW

Numerous plans, guidelines, and strategies have addressed topics related to bicycle and pedestrian considerations in NWA. These include improvements to existing facilities as well as suggestions for new connections. This review summarizes plans specific to bicycle and pedestrian facilities as well as long-range, neighborhood, corridor, and open space plans. These documents represent important efforts, provide valuable insight and background information, and are a building block for the development of the Regional Bicycle and Pedestrian Master Plan.

1.1 Northwest Arkansas Regional Planning Commission (NWARPC)

The NWARPC has taken significant steps toward improving bicycle and pedestrian accommodation in NWA. This includes developing the following plans:

- NWA Heritage Trail Plan (2006, updated 2013)
- NWA Regional Trail Plan (2011)
- 2035 Regional Transportation Plan (2011)
- 2013-2016 Transportation Improvement Program (TIP)

These plans reflect a variety of design guidance and ideas for bicycle and pedestrian facilities in NWA. The Heritage Trail Plan and Regional Trail Plan provide a foundation for regional bicycle and pedestrian infrastructure, and are also incorporated into long-range planning as part of the 2035 Regional Transportation Plan.

The Transportation Improvement Program (TIP) identifies major roadway improvements. The TIP can play a significant role in facilitating bicycle and pedestrian travel, but lack of adequate accommodation or consideration of these modes can lead to projects that create barriers to walking and bicycling.

NWA Heritage Trail Plan (2006, updated 2013)

The Northwest Arkansas Heritage Trail Plan is planned as "A regional network of bicycle and pedestrian facilities that connects NWA citizens and visitors to our rich heritage, our recreational and cultural assets, a healthier lifestyle, and to each other." The Trail of Tears route, Butterfield Stage Coach route, and Civil War troop movements were identified through the region. This plan designates these present day corridors (mostly roadway) to become part of the growing NWA bicycle and pedestrian transportation and recreation network. The routes crisscross the NWA region, directly linking rural and urban communities. Because it traverses a variety of terrain as well as both urban and rural environments, a variety of context-dependent bicycle and pedestrian facility treatments will be utilized along the Heritage Trail.

Goals and objectives of the plan focus on increasing bicycle and pedestrian connectivity throughout the region, emphasizing multiple benefits related to health, economy, culture, environment, safety, education, and local trail development.

Regarding bicycle and pedestrian facilities, the plan recommends:

On-Road Bicycle Facilities:

- Bicycle lanes on streets with curbs should be at least 5 feet in width.
- On rural roads with no curbs, an 8 foot shoulder makes an ideal bike route and also serves the needs of motorists with mechanical problems to pull completely off the road.
- On rural roads where an 8 foot shoulder is not possible a 5 foot shoulder should be the minimum considered for bicycle safety.

Pedestrian Facilities:

- Sidewalks should be at least 6 foot wide.

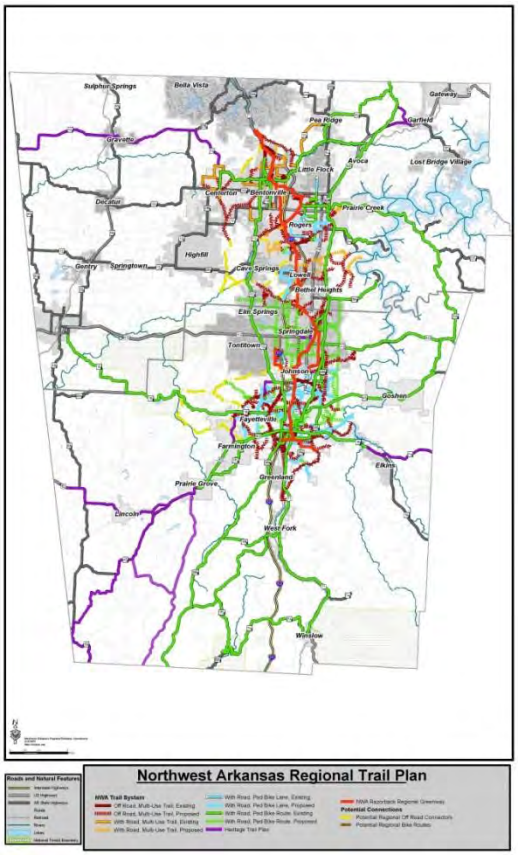
Multiuse Facilities: (parallel to the roadway or off road)

- A multiuse facility shared by bicycles and pedestrians should be at least 10 feet wide.

Special Case Accommodation for Bicycles:

When a multi-use facility parallels a road, or when ROW problems make a 5 foot bike lane impossible, accommodation should still be made for bicycles in the road way. A minimum consideration for bicycle safety is to have a road width where a motorist can safely pass a bicycle without having to cross into the on-coming traffic lane. This plan specifically recommends at least a 14 foot outside lane for minimum bicycle safety.

The Heritage Trail Plan is incorporated into the 2035 Regional Transportation Plan.



The Northwest Arkansas Regional Trail Plan (2011)

This plan details existing and proposed trails in the two-county region. The extensive network incorporates existing and planned routes from several localities. Trail types detailed include:

- Off Road, Multi-Use Trail
- With Road, Multi-Use Trail
- With Road, Ped Bike Lane

The Northwest Arkansas Regional Trail Plan is part of the 2035 Regional Transportation Plan.

2035 NWA Regional Transportation Plan (2011)

The following are key elements of the 2035 NWA Regional Transportation Plan that relate to bicycle and pedestrian accommodation.

Street Cross-Sections

Chapter V of the *Regional Transportation Plan* details recommendations for cross-sections of different streets types. Below are the bicycle and pedestrian considerations by street type:

- Minor street: 5′ sidewalk with 5′ green space for road separation
- Collector street: 5′-6′ sidewalk with 4′-5′ green space for road separation
- Minor arterial street: 6′ sidewalk with 8′ green space for road separation
- Major arterial street: 6′ sidewalk with 7′ green space for road separation
- 4-lane divided median street: 6′ sidewalk with 5′ green space

Pertaining to state roads, Arkansas State Highway and Transportation Department AHTD Policy for designated on-street bike routes requires the addition of:

- Four feet to total ROW requirements allowing for two extra feet on each outside lane for bicycle safety. OR
- Eight to ten feet to total ROW requirements allowing four to five foot striped bicycle lanes.

Further AHDT policy on page 8 details cost-sharing with local jurisdictions wishing to exceed AHDT policy regarding sidewalk and bicycle facility accommodations.

Bicycle and Pedestrian Facilities

Four types of trails and bicycle/pedestrian routes are discussed in the plan:

- Off-road trail
- With-road linkage
- Signed shared roadway
- Bike lane

The Walton Family Foundation's *Trail Design Resource Notebook* (2010) provides design detail on the following and is incorporated into the 2035 Northwest Arkansas Regional Trail Plan:

- Trails and trail-related facilities

- Bicycle facilities and related streetscape improvements
- Pedestrian facilities and related streetscape improvements

The Razorback Regional Greenway

The Regional Transportation Plan details planning and development for the Razorback Regional Greenway, designed as a 36-mile multi-use trail from Lake Bella Vista through Fayetteville. At the time of this writing, the Razorback Regional Greenway is slated for completion in the summer of 2014.

The Heritage Trail Plan

The Heritage Trail Plan is summarized separately in this Plan Review (above).

Northwest Arkansas Regional Trail Plan

The Northwest Arkansas Regional Trail Plan is summarized separately in this Plan Review (above).

City Trail Project Highlights

Tables summarizing multi-use trail developments in several NWA cities from 2006-2011 are presented in this section. They include:

Bentonville: 14.51 miles completed

Rogers: 10.87 miles completed

Fayetteville: 14.64 miles completed

AHTD Policies

Bicycle accommodation policy is detailed in this section. Locally adopted bicycle plans or master street plans showing designated bicycle routes will be given due consideration along coinciding proposed highway projects. Additional AHTD policies cover the following:

- Accommodation of bicycles on routes that have not been locally designated as bicycle routes
- Bicycle accommodations on routes with an open shoulder section
- Bicycle accommodations on routes with a curb and gutter section
- Local and regional design standards
- Shared use paths

Sidewalk policy is also detailed in this section. It covers curb and gutter, ADA Accessibility Guidelines (5' foot minimum width), and local and regional design standards in relation to AHTD policy.

Funding Alternatives

This section details a variety of funding sources available for bicycle and pedestrian facilities including:

- Federal Aid Highway Programs
    - National Highway System funds
    - Surface Transportation Program
    - Hazard Elimination and Railway-Highway Crossing Programs
    - Recreational Trails Program
    - National Scenic Byways Program

    - High Priority Projects and Designated Transportation Enhancement Activities
- Federal Transit Program
    - Transit Enhancement Activity program
    - Job Access and Reverse Commute grants
- Highway Safety Programs

Transportation Improvement Program (TIP) (2013-2016)

The 2013-2016 Northwest Arkansas Regional Transportation Study (NARTS) Transportation Improvement Program (TIP) provides a summary table of 33 Benton and Washington County projects, all of which are related to roadway improvements. It is important to note that major roadways can serve as conduits or barriers to bicycle and pedestrian travel. Incorporating bicycle and pedestrian accommodation where these projects intersect recommendations of this Regional Bicycle and Pedestrian Master Plan can save significant resources in the future, and allow for efficient development of bicycle and pedestrian infrastructure.

1.2 Fayetteville

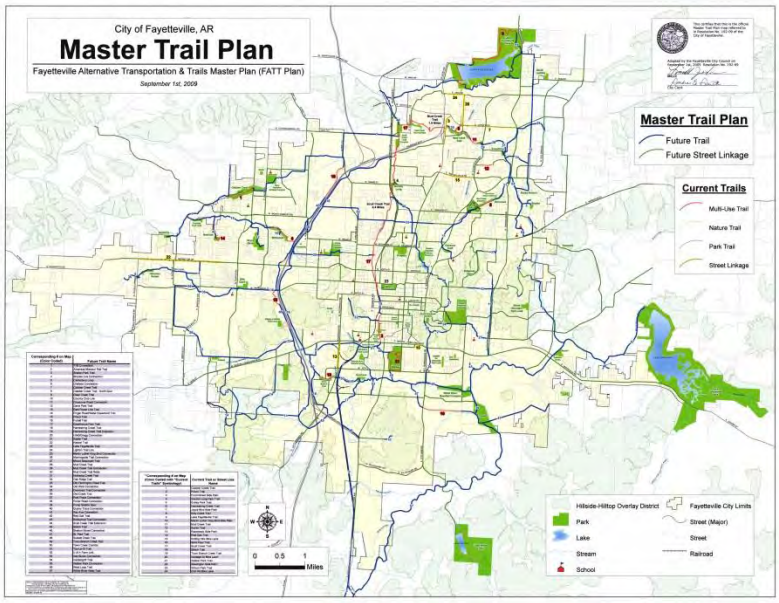
The City of Fayetteville has taken significant steps toward improving bicycle and pedestrian infrastructure. The following plans relate to improvements for walking and bicycling:

- Fayetteville Alternative Transportation and Trails (FATT) Plan and Map (2003, updated in 2009)
- Fayetteville Bicycle Friendly Community Feedback Report (2010)
- City Plan 2030
- Downtown Master Plan (2004)
- Highway 71 East Square Redevelopment District No.1 Project Plan (2005)
- Walker Park Neighborhood Master Plan (2008)
- Fayette Junction Master Plan (2009)
- Walton Arts Center expansion proposal (2010)
- Street Cross Sections - Master Transportation Plan (2011)
- Wedington Corridor Plan (2013)
- East Gate Plaza Redevelopment (ongoing)
- Transit System Shelter Project (ongoing)

The FATT Plan and Bicycle Friendly Community Feedback Report serve as the blueprint for Fayetteville's continuing improvements in bicycle and pedestrian infrastructure and programming. Comprehensive, neighborhood, and corridor planning in Fayetteville have also incorporated bicycle and pedestrian infrastructure elements. These together serve as Fayetteville's foundation for becoming a safe and comfortable place for walking and bicycling.

Fayetteville Alternative Transportation and Trails (FATT) Plan and Map (2003, updated in 2009)

The Fayetteville Master Transportation Plan is comprised of the Alternative Transportation and Trails Plan and Map, Master Street Plan Map and street cross sections. Supporting multi-modal transportation in the form of streets, sidewalks, bike lanes, trails and transit is the focus of these plans. The stated purpose of the Alternative Transportation Plan is to address the needs of citizens and visitors related to transportation, recreation and economic pursuits that are addressed through a comprehensive alternative transportation and trail system. The plan details benefits of alternative transportation, evaluates existing conditions, details design guidelines, identifies specific trail recommendations (both trails/greenways and on-street linkages), identifies funding sources, outlines a strategy for implementation and education, and details operations and management.



Specific to trails, the plan identifies 49 trail corridors (129 miles of multi-use trails) and 78 on-street linkages (163 miles of on-street linkages) throughout Fayetteville to be developed in the next 15 years.

Multi-Use Trail Corridors

The 49 proposed multi-use trail corridors (129 miles) identified in chapter 5 of the plan are shown on the following page.

Cost estimates included in the plan are the following:

- Near-term: $8.8 to $13.2 million
- Mid-term: $8.8 to $12.5 million
- Long-term: $16.8 to $25.1 million

On-Street Linkages

The 78 on-street linkages from chapter 6 of the plan are shown in the table above.

Cost estimates included in the plan are the following:

- Near-term: $406,000 to $609,000
- Mid-term: $433,400 to $650,000
- Long-term: $1.2 to 1.6 million

Fayetteville Bicycle Friendly Community Feedback Report (2010)

The League of American Bicyclists designated Fayetteville as a Bicycle Friendly Community at the Bronze level in 2010, citing Fayetteville's potential and commitment as well as a growing number of cyclists. Some of the highlights in Fayetteville identified in the report include:

- A strong and active local advocacy group
- Increase in mileage of shared use paths
- Inclusion of bicycle facilities in the FATT Master Plan
- Safe Routes to School at all Elementary schools
- Work of the Bike City Recyclery
- Regularly organized community rides
- Use of Eco-counters (automatic bike counting equipment)
- Input and interaction with the public

The BFC review team suggested four significant measures the city should take to improve cycling in the community:

- Increase the number of arterial streets that have wide shoulders or bike lanes. Continue to expand the bicycle network and increase network connectivity through the use of bike lanes, shared lane arrows and signed routes. On-street improvements coupled with the expansion of the off-street system will continue to increase use and improve safety. These improvements will also increase the effectiveness of encouragement efforts by providing a broader range of facility choices for users of various abilities and comfort levels.
- Continue to improve bicycling education opportunities for children and adults. Increase the amount of regular class offerings. Smart Cycling can be integrated into motor vehicle violation diversion programs, commuter education programs, Safe Routes to School, as well as motorist education classes for city employees.
- Continue to expand public education campaigns to promote the share the road message and the rights and responsibilities of all users. There are some new tools for you to use. See a new motorist education video at http://bikelib.org/video/index.htm It is vital to make motorists and cyclists aware of their rights and responsibilities on the road. Also, see the excellent Look Campaign from New York City: http://www.nyc.gov/html/look/html/about/about_us_text.shtml and use the valuable information from the League's Ride Better Tips in your outreach education and encouragement efforts. See the Ride Better Tips pages at http://www.bikeleague.org/resources/better/index.php.
- Offer more options for bicycle users of all ages and abilities through a system of bicycle boulevards. This is a great way to reach new cyclists in their neighborhoods. See more on how to do it at http://www.ibpi.usp.pdx.edu/guidebook.php

The BFC Feedback Report also includes further recommendations organized by the 5 E's (Engineering, Education, Encouragement, Enforcement, Evaluation/Planning). Best practices guidelines and resources are included in the recommendations.

City Plan 2030

Fayetteville's City Plan serves as the city's comprehensive land use plan. The stated vision includes specific reference to alternative transportation considerations – "All members of our community will have equitable access to neighborhoods that are healthy, walkable, and distinct." Chapter 7: Transportation of *City Plan 2030* discusses pedestrian mobility and alternative transportation in general. Key points specific to Fayetteville's sidewalk network include:

- In accordance with the Street Cross-Sections as part of the *Master Transportation Plan*, sidewalks are provided on both sides of all functional classifications of streets except for streets within the Hillside/Hilltop Overlay District.
- If called for by the plan, developers are required to provide sidewalks in accordance with the Street Cross-Sections as part of the *Master Transportation Plan* on any new street, or along existing streets that do not already have sidewalks.

The Fayetteville Alternative Transportation and Trails (FATT) Master Plan is also incorporated as part of City Plan 2030. In 2009, the FATT Master Plan was updated to include newly completed trails and improve overall connectivity of the system. Over 18 miles of multi-use trails have been constructed since the original FATT Master Plan was completed in 2003. The updated plan recommends the following for completion in the next 30 years:

- 100-mile interconnected network of multi-use trails
- 280-miles of on-street bike facilities

Downtown Master Plan (2004)

Fayetteville's Downtown Master Plan outlines actions to encourage balanced, sustainable growth in Fayetteville's downtown area, including a balance between the automotive and pedestrian environment. Six fundamental strategies are detailed in guiding the plan, and a large component of these are focused on strengthening walkability in the downtown core. The first strategy highlights this focus – "…a *superbly walkable environment* should be produced and showcased as Downtown's hallmark." Specific projects recommended as priorities for completion in the short-term included:

- Completing Dickson Street
- A Parking Lot Transformed - Infill at City parking lot adjacent to the Walton Arts Center
- Redevelopment of Mountain Inn
- Infill Along Block Avenue
- Preserving Lafayette Street
- Creating a Downtown Park
- One-way Street Conversions
- Additional On-street Parking
- Taming College Avenue
- Redesigning Archibald Yell
- Adopt New Downtown Zoning District
- Establish Downtown Organizational Structure and Funding

Longer-term projects in the downtown area include:

- Enhancing the Downtown Square
- Reinvestment in the Mill District
- Redevelopment Opportunities Along West Avenue
- Structured Parking, Initial Phases
- Continued Redevelopment and Infill along College Avenue and Archibald Yell
- Structured Parking, Subsequent Phases

Highway 71 East Square Redevelopment District No.1 Project Plan (2005)

The purpose of this plan is to encourage the commercial and residential redevelopment of a section of Fayetteville approximately bounded by Arkansas Avenue and University Avenue to the west, the College Avenue area to the east, Maple Street to the north, and the Archibald Yell Boulevard area to the south. Two projects are the focus of this plan:

- Project No. 1 – Process of removing blight in the former Mountain Inn area – catalyst project
- Project No. 2 – City sidewalk and pedestrian improvements – repair and replacement of existing sidewalks, pedestrian crossing, and new sidewalks to fill in missing segments

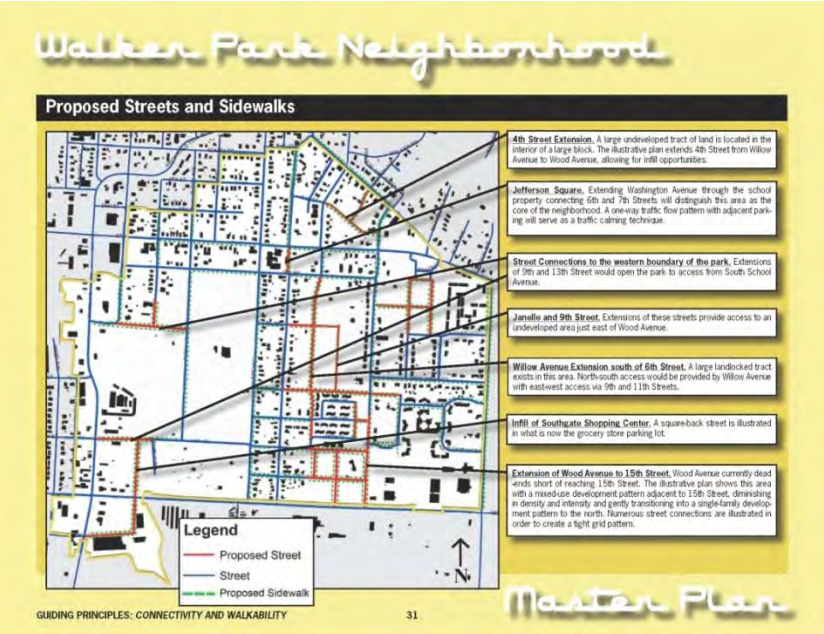
Walker Park Neighborhood Master Plan (2008)

The Walker Park Neighborhood is located south of Downtown Fayetteville. The purpose of this plan is to enable stakeholders to influence the form of future growth that encourages traditional neighborhood development and sustainability.

Several guiding principles are highlighted in the document including 'connectivity and walkability,' focusing on connection of the street grid and improved pedestrian mobility between key destinations. Other guiding principles include balance of uses and housing, Jefferson Square as a core of the neighborhood, and accessible greenspace.

Particular to connectivity and walkability, recommendations include connecting to key destinations such as:

- Downtown Fayetteville – Pedestrian improvements needed in safely crossing Archibald Yell Boulevard between Walker Neighborhood and downtown.
- Jefferson Square – The Jefferson Building and property should remain



an important core component of the Walker Neighborhood.

- Walker Park – Expanding the Park's trail access will lead to increased park usage from neighborhood and city residents.
- Southgate Shopping Center – Pedestrian connectivity and access improvements will be needed as this continues to develop as a significant retail and commercial node in the Walker neighborhood.

Important additions from the plan that will enhance the bicycle and pedestrian network include:

- South School Avenue as a Boulevard – Recommendations for this main thoroughfare along the perimeter of the community (and key link to Downtown), include traffic calming measures, pedestrian refuges, and other improvements to enable residents to cross the street safely.
- Trails in the Park – A system of paved and natural trails throughout Walker Park would provide an improved connection between neighborhood residents and business establishments across 15th Street and South School Avenue. Specific components of this could include:
    - Extensions of 9th and 13th streets
    - Trail connection at 9th Street intersection, linking Walker Park to Frisco Trail corridor
- New Street Connections and Completing the Grid – Recent developments that include dead-end cul-de-sacs have fragmented the neighborhood. The Walker Neighborhood Plan suggests, "As the larger pieces of vacant land develop, care needs to be taken to ensure that the street circulation pattern ties into and connects in a functional manner."

Adding Sidewalks – While newly constructed streets must include sidewalks, many existing streets in the Walker Park Neighborhood have discontinuous sidewalks, lack sidewalks on both sides of the street or have sidewalks in disrepair. A proposed network of sidewalks is identified on page 31.

Fayette Junction Master Plan (2009)

Fayette Junction is located in the southern section of Fayetteville. It is approximately bounded by the Arkansas Research and Technology Park to the east, 15th Street to the north, I-49 to the west and southwest, and the neighborhood south of Cato Springs Road to the southeast section of the area. Several developments have begun changing this old railroad crossroads including the Crowne apartments, BioBased Companies, and Bungalows at Cato Springs. In addition to these developments, proximity to the Arkansas Research and Technology Park (ARTP), the conservation easement placed on the Dowell Cemetery hillside, and the entrance into Fayetteville from the I-49 corridor are isolated areas this plan seeks to unite towards a sustainable development pattern.

Several guiding principles are highlighted in the document including 'multi-modal transit', focused on linking employment centers and residential neighborhoods within Fayette Junction and the surrounding area by expanding trail and transit opportunities. Other guiding principles include integration of the natural and built environments and the development of a clean tech cluster.

Regarding bicycle and pedestrian considerations, general recommendations in line with the *City Plan 2030* include developing a trail network and providing pedestrian and cyclist options on all streets, in addition to supporting regional mass transit. These include:

- The transformation of Razorback Road into a boulevard that will also accommodate pedestrians and cyclists.
- Extensive floodplains offer opportunities for a significant trail network – including the Cato Springs Branch and the Town Creek Branch in connecting each section of Fayette Junction.
- Amending the Master Street Plan to include key proposed street connections.
- Establishing a riparian buffer ordinance – this includes incorporating recreational and trail opportunities.
- Adding or repairing sidewalks along existing streets within the neighborhood including:
    - Clover Drive (north of Eden Circle), Laverne Avenue, Coleman Avenue, Laura Lee Street, Emma Avenue, Selle Drive, Brooks Avenue, Boone Street, Price Avenue, Duncan Avenue, Walker Street, Arrowhead Street, Custer Lane, Ashwood Avenue, 18th St.

Walton Arts Center expansion proposal (2010)

Submitted by the City of Fayetteville and the University of Arkansas, the Walton Arts Center Expansion proposal identifies opportunities in continuing arts-centered development. Key components include expanded theater spaces and the incorporation of the Frisco Trail as the main thoroughfare for bicycles and pedestrians. One concept idea also includes 'daylighting' an underground stream to enhance the pedestrian experience. The project area is bounded by Dickson Street to the north, School Avenue to the east, Meadow Street to the south, and a rail line to the west.

Street Cross Sections - Master Transportation Plan (2011)

As part of the 2011 Master Transportation Plan, street cross-sections are detailed and classified in accordance with the U.S. Department of Transportation's National Highway Functional Classification Study Manual. Additionally, the street cross-sections provide options for both suburban and urban developments and accommodating cyclists and low-impact development neighborhoods.

Designs specific to bicycle and pedestrian considerations include:

- All streets (not including alleys or the Hilltop-Hillside Overlay District Streets) depicted in the Plan require at least a 5' minimum sidewalk on at least one side of the street.
- Cyclist lanes on at least one side are required for collector streets while 5' cyclist lanes on both sides are required for arterial streets and principal arterial parkways.

Wedington Corridor Plan (2013)

The Wedington Corridor Plan area is located on the western side of Fayetteville, north and south of Wedington Drive from the I-49 intersection west past 51st Avenue. In the past 20 years, this area has transformed from a rural/agricultural area to a growing suburban residential and commercial corridor. Bicycle and pedestrian considerations are incorporated directly as two of four guiding principles; 'Support active and alternative transportation options' and 'Designate a greenway connecting Hamestring and Owl Creek watersheds.' The other two guiding principles – 'Redefine Wedington Drive as Wedington Parkway' and 'Envision the heart of the neighborhood at Wedington Drive and Rupple Road' - also include bicycle and pedestrian components.

The first guiding principle in the document "Redefine Wedington Drive as Wedington Parkway" focuses not only on mitigating automobile congestion and traffic issues, but proposes a separated side path for pedestrians and cyclists as well as intersection crossing improvements in strategic locations (also adding a center median to serve as a refuge for crossing pedestrians). Traffic calming measures will also include a roundabout west of the I-49 corridor. This section provides detailed recommendations with bicycle and pedestrian improvements for three distinct street cross-sections:

- Golf Club Drive to Meadowlands Drive
- Meadowlands Drive to 51st Ave
- I-49 to Golf Club Drive

The second guiding principle of the plan states "Envision the 'Heart' of the Neighborhood along Rupple Road." This section recommends highly prioritizing walkability throughout this intersection and connecting to nearby residential neighborhoods.

The third guiding principle "Support active and alternative transportation options" highlights opportunities and constraints for walking and biking. These include the following:

- Difficulty traversing the I-49 intersection
- Sidewalks along Wedington Drive have a narrow 3-4 foot greenspace separating it from high-speed traffic
- Inconvenient pedestrian crossing locations leading to people running across the street in locations not designated for crossing
- Some bicycle infrastructure has been installed (Salem Road, Rupple Road) but Wedington Drive itself lacks bike lanes
- Current street network in the area is fragmented:
    - Opportunity exists to extend dead-end streets such as Steamboat Drive
    - Opportunity exists to develop an interconnected local street network in the area of larger un-developed parcels as recommended by this plan
    - Opportunity exists to incorporate trails recommended from the proposed Alternative Transportation and Trails Plan
    - Opportunities exist to improve connectivity as supported by current Access and Street Connectivity ordinance which mandates driveway curb-cut separation distance requirements and requires an interconnected public street network prohibiting cul-de-sac streets.

The fourth guiding principle, 'Designate a greenway connecting Hamestring and Owl Creek watersheds,' outlines general recommendations including the following:

- Acquire identified greenspace utilizing the Parkland Dedication Ordinance and Alternative Transportation and Trails Master Plan
- Amend the Alternative Transportation Plan to recognize this north-south greenway connection and ensure this corridor is prioritized in any future development plans for these properties

- Create a "Conservation" development ordinance that would allow for sustainable land use development for lands in the EGN that protect environmental features such as viewsheds, natural wildlife habitats, environmentally sensitive areas or farmlands in perpetuity.

In addition to these general recommendations, specific projects were recommended in moving forward in the short and long term. Recommendations include:

Short-term

- Wedington Speed Study
- New I-49 Interchange
- Propose zoning changes for the core of the neighborhood at the intersection of Wedington Drive and Rupple Road
- Amend the Fayetteville Alternative Trails and Transportation Plan and the Enduring Green Network to recognize the illustrated trail crossing of Wedington Drive
- Prioritize parkland dedication acreages and funds that are collected in these quadrants to acquire the parklands illustrated in the Wedington Corridor Plan
- Develop a conservation development design process for neighborhoods in environmentally sensitive or rural areas
- Develop an access management plan for Wedington Drive

Long-term

- Redevelop and rename Wedington Drive as Wedington Parkway

East Gate Plaza Redevelopment (ongoing)

This ongoing planning process and development is located on the east side of Fayetteville on the southeast corner of the East Hunstville Road and Happy Hollow Road intersections. This site was acquired from Tyson Mexican Original and includes 5.8 acres of land to hold, develop or sell. All three current site plan options include a connection to the future White River Trail to the south. While part of the project includes the widening of the Huntsville Road and Happy Hollow intersection, all three site plan options indicate the inclusion of sidewalks along the perimeter.

Transit System Shelter Project (ongoing)

Ozark Regional Transit is currently in the process of installing seven shelters and seven benches in Fayetteville as well as dedicating funds for sidewalk improvements in the areas around the shelters. The focus of this project also includes connections with the city trail network and coordination with the Transportation Department to install or improve sidewalks.

1.3 Bentonville

The City of Bentonville has taken significant steps toward improving bicycle and pedestrian accommodation. The following plans relate to improvements for walking and bicycling:

- Trails and Pathways Map
- Bicycle and Pedestrian Master Plan (2012)
- Bike Friendly Community Feedback Report (2012)
- Downtown Master Plan (2004)
- General Plan (2007)
- North Walton Boulevard Corridor Enhancement Plan (2013)

The Bicycle and Pedestrian Master Plan and Bicycle Friendly Community Feedback Report serve as the blueprint for Bentonville's continuing improvements in bicycle and pedestrian infrastructure and programming. The Downtown Master Plan, General Plan, and North Walton Boulevard Corridor Enhancement Plan have also incorporated bicycle and pedestrian infrastructure elements. These together serve as Bentonville's foundation for becoming a safe and comfortable place for walking and bicycling.

Trails and Pathways Map

The Bentonville Trails and Pathways Map shows 22 existing trails totaling 40 miles. They are a mixture of local and regional multi-use paths, native surface trails, and sidewalks. Together, these provide links to various schools, parks, commercial and residential areas throughout Bentonville.

Bicycle and Pedestrian Master Plan (2012)

Bentonville's 2012 Bicycle and Pedestrian Plan includes existing bicycle and pedestrian facilities, recommended facilities, design standards, and an action plan to guide implementation. The specified purpose of the plan is to:

- Identify trail routes
- Establish design standards
- Prioritize trail development
- Create a plan for budgeting, operations, and maintenance
- Identify and address safety issues

Building on the 22 miles of multi-use paths, 16 miles of native surface trails, and 20 miles of an on-road bicycle network in existence in 2012 (not including developing regional trail systems including the

Razorback Regional Greenway and Regional Heritage Trail), this plan recommends 30 miles of trails (19 segments) and another six miles of on-road bicycle routes (nine segments).

A prioritization process was conducted based on safety, completion of primary trail corridors, gap connections, ROW, coordination with other projects, connections to existing trail facilities, destinations, and connectivity to the Razorback Regional Greenway. The proposed trail projects were ranked from highest priority to least as follows (some projects received the same score):

1. 8th street
2. Water Tower Rd
3. Downtown rail extension
3. NW D pedestrian connector
3. Community Center East
3. McCollumn Rd
4. Bella Vista North
5. Community Center West
5. Phillips Park Trail System
5. Crystal Bridges Trail – West Extension
5. Little Sugar Creek
6. N Walton Trail
6. 12th Street West
6. S Bentonville gravel running path
6. Lincoln Connector
7. Hwy 72 West
7. Mckissick Creek
8. Trib 2
8. Hatchery Trail

Bentonville Bike Friendly Community Feedback Report (2012)

In 2012, the League of American Bicyclists designated Bentonville as a Bicycle Friendly Community (BFC) at the Bronze level, citing Bentonville's sustained commitment to cycling, but with room to grow. Notable steps that are being made in the right direction in Bentonville:

- Engineering:
    - Staff receive regular training in bicycle and pedestrian planning and engineering

    - Public buses are equipped with bike racks
    - There is an extensive network of off-street facilities that can be used by cyclists
    - Most bike facilities in the community meet or exceed AASHTO, MUTCD and NACTO standards
    - The community uses area wide traffic calming to make roads safer for all road users
    - Way-finding signage with distance and/or time information is used to aid cyclists in navigating the community
    - Bike facilities are maintained regularly to ensure usability and safety
    - Cyclists are accommodated at signalized intersections, including innovative solutions such as bike boxes
- Education:
    - Most elementary, middle and high schools have Safe Routes to School programs.
    - Children and youth have the opportunity to learn cycling skills outside of school.
    - Bentonville has recently educated motorists and bicyclists on sharing the road safely.
    - Traffic Skills 101, Cycling Skills and Bike Maintenance classes are offered regularly in the community.
    - Cycling classes and workshops are conducted by a League Certified Instructor.
- Encouragement:
    - Bentonville celebrates Bike Month, Bike to Work Day and Bike to School Day with a variety of events and programs that target different skill levels.
    - Several programs and events that encourage cycling are offered throughout the year. The events are actively supported by the local government.
    - There are several bicycle clubs that cater towards a variety of cycling sports and skill levels.
    - Community has a BMX track, a cyclocross course, a mountain bike park, a pump track and themed loop routes around the community to encourage recreational cycling.
    - Visitors and residents can rent bicycles in the community.
    - Bike maps and route finding services are available to residents and visitors.
    - WalMart, the largest employer in the community, maintains a bike share program with bike stations at each of its dispersed campuses around the city to encourage cycling for its employees and contractors and to reduce auto traffic to further encourage more cycling.
    - Bike Bentonville is supported by local foundations and by WalMart.
- Enforcement:
    - A police officer is an active member of the bicycle advisory committee and the community has an identified law-enforcement point person to interact with cyclists.
    - Officers have received specific training on the relationship between bicycling and law enforcement.
    - There is a program that provides free helmets to cyclists.
    - Most arterials have street lighting.
    - The community has several local ordinances that protect cyclists.

    - The PD has a bike patrol that is certified by IMBA. An IMBA certified trainer will continue to train new hires as needed.
- Evaluation & Planning:
    - Bentonville has a bicycle master plan.
    - There is a dedicated funding source available for bike plan implementation.
    - Annual targets for the realization of the plan are met.
    - Community has low number of cyclist/motor vehicle crashes.

Key measures Bentonville should take to improve cycling

- Make cycling an integral part of local transportation planning efforts
- Adopt a Complete Streets or Bicycle Accommodation policy and offer implementation guidance
- Ensure that the standards for bike parking conform to APBP guidelines
- Increase the amount of high quality bicycle parking at popular destinations such as major transit stops, schools, universities, recreational and entertainment facilities, retail stores, office buildings, and churches throughout the community.
- Residents of multi-family dwellings and public housing should have access to high quality bike parking as well.
- Regulations that require bike parking, e.g. for new developments, can secure private funding.
    - See bicycle parking ordinances of Madison, Wisconsin and Santa Cruz, California.
- Adopt the bike master plan.
    - Ensure that there will be dedicated funding for the implementation of the plan.
- Continue to expand the bike network and to increase network connectivity through the use of different types of bike lanes, cycle tracks, and shared lane arrows.
- Consider a raised crossing, a grade separated crossing or a high-visibility treatment where a shared use path crosses a medium or high traffic road.
    - J Street is in particular need of a safe crossing.
- Encourage local public agencies, businesses and organizations to promote cycling to the workplace and to seek recognition through the free Bicycle Friendly Business program.
    - Your community's government should be the model employer for the rest of the community.

The BFC Feedback Report also includes a "Menu of additional recommendations to further promote bicycling". These are centered around the 5 E's and broken down into short term and long term recommendations. These will be key components for Bentonville's next steps as a growing bicycle friendly community.

Downtown Master Plan (2004)

The 2004 Bentonville Downtown Master Plan combined various concepts, ideas, and recommendations with new data, analysis, research, and public involvement to create a formalized plan with strategies for implementation. The vision articulated in the plan centers around Downtown

Bentonville becoming the heart of the community characterized by pedestrian and auto activity, sidewalks, shops, offices, restaurants, and a diversity of people, culture, and activities.

The plan stresses the importance of pedestrian accommodation in several ways. Pedestrian considerations are highlighted as key components of intersection and downtown roadway corridor improvements, human scale design of the downtown area, way-finding, sidewalk additions and improvements, and trails. Specific recommendations include the following:

- Improve SW 8th Street – includes sidewalks and pedestrian amenities
- Create a sidewalk edge – includes creating a wall of buildings and landscaping to form specific space designed for pedestrians
- Provide site amenities – includes pedestrian open spaces such as covered walkways, courtyards; bike racks at the confluence of trails are recommended as well
- Install way-finding and signage – includes directional signage to downtown and parking
- Build trails – includes a recommendation of trails in the downtown area for incorporation into the city's Master Trails Plan. These include:
    - Downtown trail - connecting the Wal-Mart General Office, crossing SW A Street and eventually connecting with Compton Gardens; this trail will have spurs connecting to the library, chamber of commerce, and downtown parks
    - North Bentonville Trail –connection from Compton Gardens to the North Bentonville Trail heading north along NE A St; additional links would include connecting to the Bella Vista Trail as well as to the east and Northwest Arkansas Community College
- Improve and Add Sidewalks –conducting an inventory of sidewalks and pedestrian crossings in the downtown area; improvements are recommended to be incorporated into the Capital Improvement Program

General Plan (2007)

The Transportation Element of Bentonville's 2007 General Plan outlines a strategy for strengthening local transportation – including multimodal transportation as a key concept. Bicyclists and pedestrians are specifically identified as non-automotive components of the transportation network. Specific references to bicycle and pedestrians include:

- Policy T-3: The City shall encourage construction of the Master Trail Plan as new developments occur in the city. Both pedestrian and bicycle facilities shall be planned.
- Policy T-8: The City shall continue to encourage connectivity and limit the number of dead-end streets and cul-de-sacs.
- Policy T-10: The City should encourage pedestrians and bicyclists by providing good connections from residential developments to schools, shopping centers and business districts.
- Policy T-13: The City should encourage streetscapes to safely accommodate vehicular and pedestrian traffic while enhancing the appearance through trees, landscaping, street furniture and street lighting.
- Policy T-14: The City should encourage and assist in promotion of annual Bike to Work Day and Walk to School Day.

Regarding demand for transit services as part of the growth scenarios analysis, the following is highlighted in developing an effective system that includes pedestrian accessibility:

- Pedestrian Accessibility: The more comfortable an environment is for pedestrians, the more likely it is that potential passengers will choose to walk to a bus stop and use transit.

Regarding infill development and strengthening Bentonville's overall multi-modal transportation network:

> Policy CD-6: The City should encourage residential and non-residential designs that facilitate walking, bicycling, and transit use, rather than increasing reliance on automobiles.

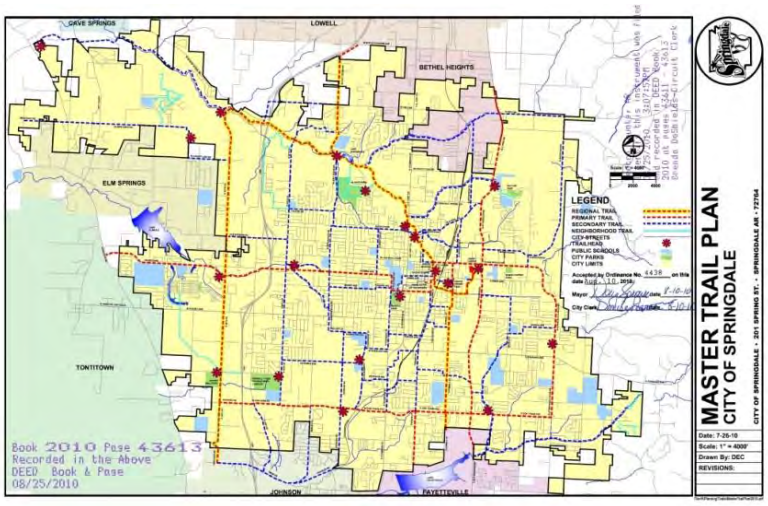
North Walton Boulevard Corridor Enhancement Plan (2013)

The purpose of the North Walton Boulevard Corridor Enhancement Plan was to study, analyze, and make recommendations for improved access management, complimentary land uses, pleasing aesthetics, and economic development strategies to create a sustainable commercial corridor that is economically vibrant. North Walton Boulevard is currently characterized by aging structures and vacant storefronts, and an auto-oriented commercial environment. This plan seeks to address these issues. The study area is 1.37 miles of the North Walton Boulevard corridor between Ridgefield and West Central Avenue. Significant challenges for pedestrians were highlighted. Key findings included improving pedestrian access with wider sidewalks and access to trails. Specific implementation strategies were outlined with respect to non-motorized transportation including:

- Remove crumbling sidewalks that are currently placed at the back of curb and replace with a minimum of 6' wide sidewalks with a green space between the back of curb on both sides of N. Walton Blvd.
- Install crosswalks at areas with a concentration of commercial activity: Tiger Blvd., area of Walmart Transportation and Logistics Offices, and W. Central Ave.
- Build or replace sidewalks with ¼-mile of the corridor into the adjacent residential neighborhoods.
- Construct a bicycle/pedestrian connection to the North Bentonville Trail at the Bark Park
- Install wayfinding and bicycle route signage to identify Tiger Blvd. and W. Central Ave. as a primary connection route to the Razorback Regional Greenway.
- Improve cross-access between adjacent sites. Work with existing developments to identify opportunities and require cross-access on new development.
- Identify opportunities to consolidate and reduce curb cuts. Best opportunities will be with redevelopment or new development.
- Install reciprocal wayfinding signage between the Downtown Square to N. Walton Blvd.
- Create a concentration of commercial activity at Tiger Blvd./N.W. 12th Street: improve intersection with better pedestrian crossings.
- Create a concentration of commercial activity around the Walmart Transportation and Logistics Offices: emphasize pedestrian crossing.
- Adopt design standards that are scaled to pedestrians and create a lively public realm.

1.4 Springdale

Master Trail Plan Map (2010)



Springdale's 2010 Master Trail Plan Map displays a network of proposed trails and trailheads linking parks, schools, and residential areas. Proposed trails include the following categories:

- Regional Trail
- Primary Trail
- Secondary Trail
- Neighborhood Trail

Downtown Master Plan (2013)

Central to Springdale's Downtown Revitalization Master Plan recommended concept is 'daylighting' portions of Spring Creek that run through downtown Springdale. This idea is paired with the development of the Razorback Regional Greenway that will link through downtown Springdale. Spring Creek is currently capped from Meadow Avenue northward to Johnson Avenue. Street improvements and changes to traffic, building improvements, and town square construction are other aspects of this plan. The plan recommends the following bicycle and pedestrian enhancements:

- Wayfinding at pedestrian and automobile scale for the downtown area
- Streetscape designed for all users, including bicyclists, automobiles and pedestrians including:
    - Wide sidewalks
    - Lighting and furnishings
    - Parking between the sidewalk and lanes of travel
    - Curb extensions
    - Landscaping
    - High visibility crosswalks
    - Bicycle parking
- Developing a comprehensive bicycle and pedestrian plan for the downtown area

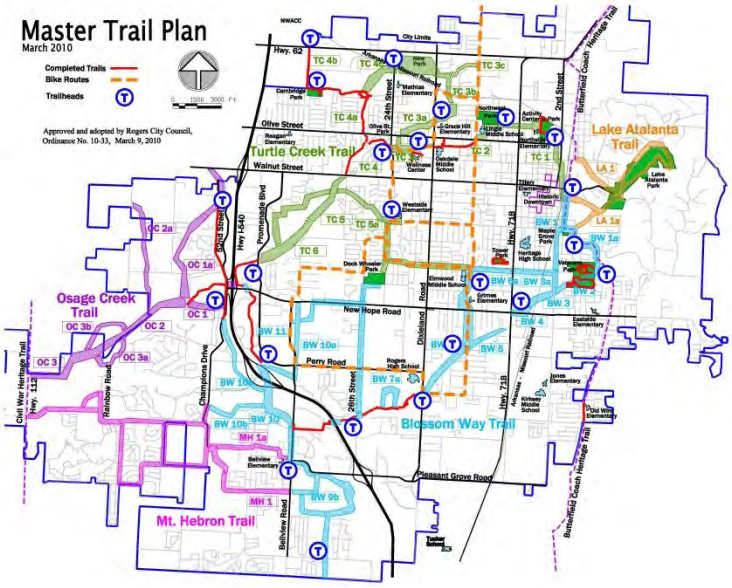
1.5 Rogers

Master Trail Plan (2010)

The Rogers Master Trail Plan is broken into several sections of trail development recommendations throughout the city limits. These trail sections include:

- Turtle Creek
- Osage Creek
- Mt. Hebron
- Blossom Way
- Lake Atalanta

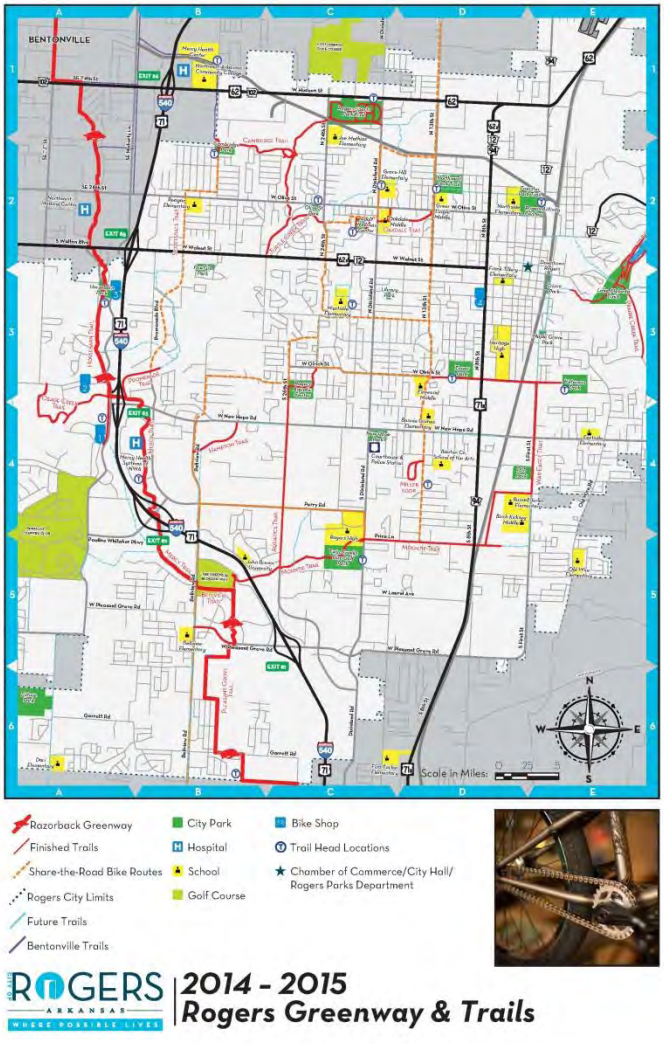
In addition to these trail sections, bike routes are identified through the center of the city.



Greenway and Trails Map (2014-2015)

Building upon the Master Trail Plan, the Greenway and Trails Map provides an update to the existing trail network. This includes the developing Razorback Regional Greenway and additions to the Turtle Creek Trails and Blossom Way Trails. Future Monte Ne Trails are added to the map in addition to several other future segments throughout all sections of the City. This map also identifies four bike shops in Rogers along with other local supporting information. The four bike shops are as follows:

- Lewis & Clark Outfitters
- Boston Mountain Cycles
- The Highroller Cyclery
- Ozark Bike Shop

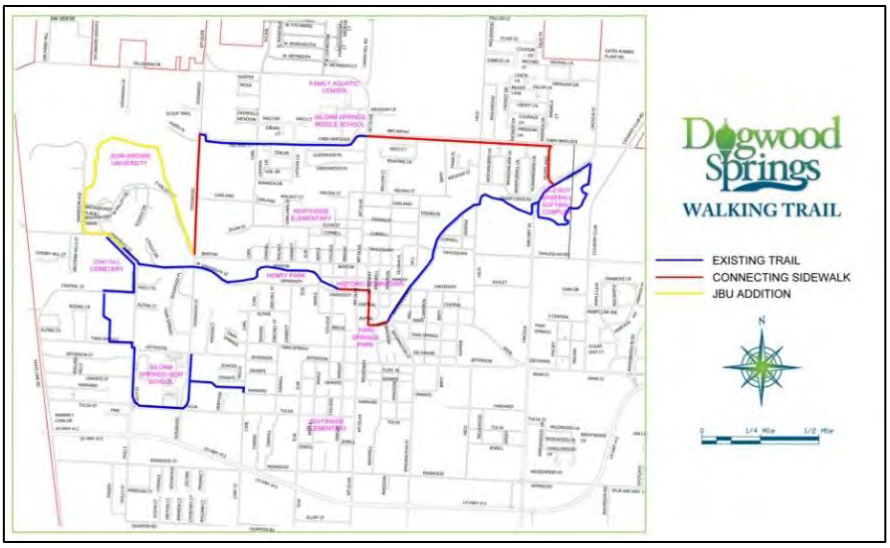


1.6 Siloam Springs

Dogwood Springs Walking Trail Map (2010)

The Siloam Springs – Dogwood Springs Walking Trail Map shows the following components of their existing trail network:

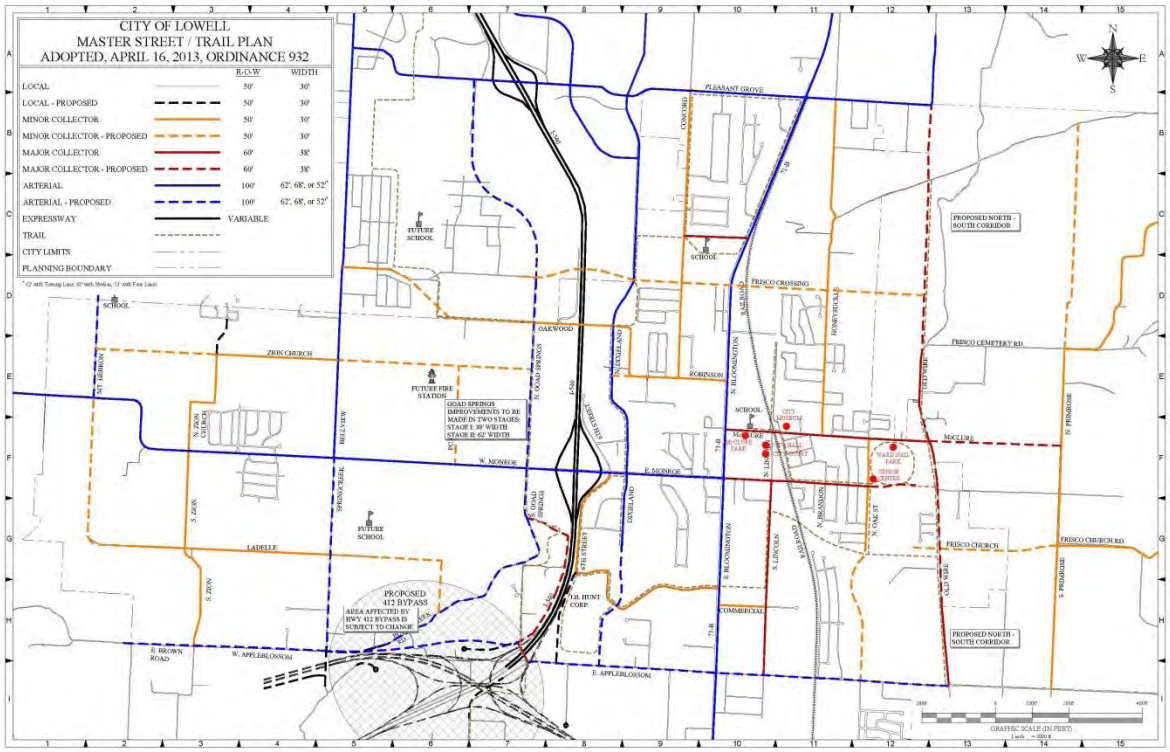
- Exiting Trail
- Connecting Sidewalk
- John Brown University Addition



1.7 Lowell

Master Street/Trail Plan (2013)

In addition to the proposed street component, this plan delineates proposed trails throughout Lowell. Proposed trails loop through the City connecting J.B. Hunt headquarters, Ward Nail Park, the city center, the Heritage Trail, residential areas, and two schools (Tucker School and Lowell Elementary).



1.8 Farmington

Master Trails Plan

The Farmington Master Trails Plan Map includes two proposed trails through Farmington. Proposed trail 1 provides links along Farmington Town Branch, local schools, commercial centers, and residential areas. Proposed trail 2 provides north/south links through Farmington residential areas and the local schools.

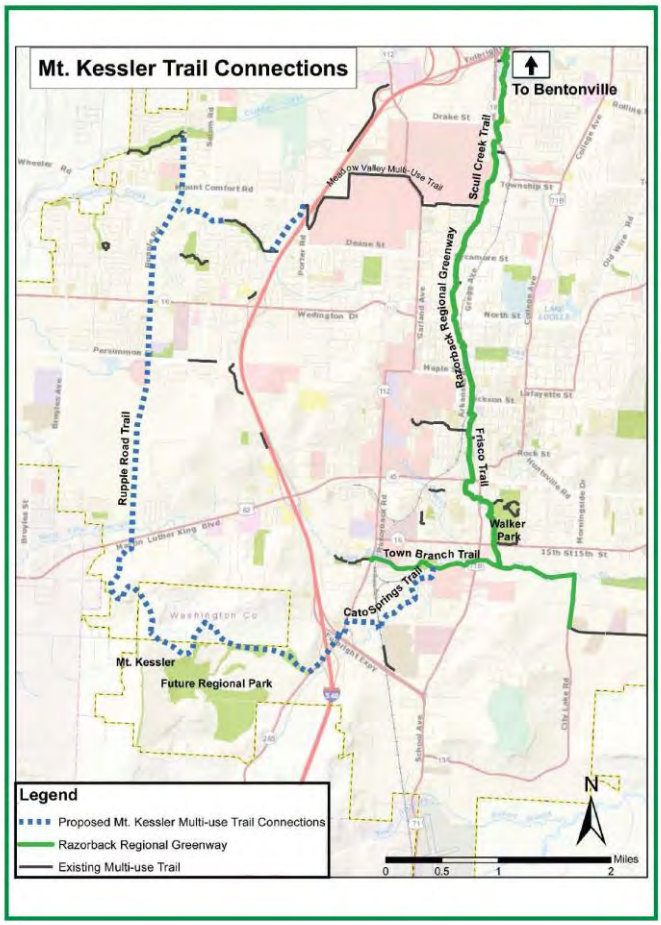
1.9 Mt Kessler

Mt Kessler Reserve Plan 2013 (Draft)

The Mt Kessler Reserve Plan advocates for the purchase of the 387 acre Mt Kessler property for public use as a park. The City of Fayetteville owns another 200 acres (designated as a future park) adjacent to the east. Chambers Bank has allowed the Ozark Off-Road Cyclists (OORC) to build and maintain 8.5 miles of trails on the property, which have been widely used by hikers, mountain bikers and trail runners. The property was acquired by the City of Fayetteville in the winter of 2014 with plans to combine the two large properties into one regional park.

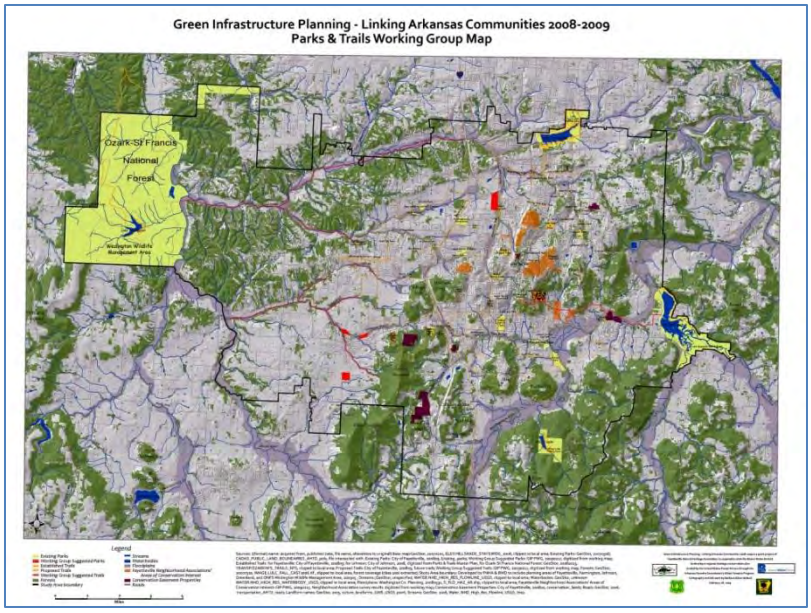
Programming plans for the proposed Mt Kessler Reserve have been grouped under the following categories:

- Outdoor Classroom
- Outdoor Recreation
- Watershed Protection
- Protection of Natural Resources



1.10 Fayetteville Natural Heritage Association

Green Infrastructure Planning: Linking Arkansas Communities (2010)



The Fayetteville Natural Heritage Association's (FNHA) Green Infrastructure Plan study area includes rural and urban areas of northern Washington County (Farmington, Greenland, Fayetteville and Johnson as well as the area west to the USFS Wedington Wildlife Management Unit). This plan covers the network of green spaces that conserves natural ecosystem values and functions that provide benefits to the community. Areas of highest resource value and conservation priority are identified and detailed in the report as follows:

- Water resources
- Habitats – forest, stream corridor, prairie
- Working landscapes
- Recreational use and access – trails, parks
- Cultural sites – springs, churches, cemeteries, heritage trails

In conjunction with local and regional trail planning efforts, the plan recommends extending proposed linkages. Proposed trails include:

- Connectivity to Lake Sequoyah Park - allow pedestrian and bicycle traffic to flow east/west between Mission Blvd and Wyman Rd following the contours: Mission Blvd to Fletcher Ave; to Rogers Dr; to Southern Heights Pl; skirting the south side of Mt. Sequoyah Woods to Happy Hollow Rd; crossing Hwy 265 and connecting to Wyman Rd; connecting Wyman Rd to the Lake Sequoyah Park.
- Connectivity to Ozark National Forest (Lake Wedington area) using flood plains
- Extend Clabber Creek Trail west along Hamstring Creek to Clear Creek to Ozark National Forest
- Extend the north end of Skull Creek Trail west along Clear Creek to Ozark National Forest
- Extend Owl Creek School / Boys and Girls Club area west along Owl Creek to Goose Creek to the Illinois River
- Connect Farmington by tying into Goose Creek west to the Illinois River
- Connect Kessler Mountain to Farmington Branch
- Connectivity along utility easements – allow pedestrian and bicycle traffic to flow east-west from Hwy 265 up and over Mt. Sequoyah following major power lines (Not shown on map).

1.11 Conclusion

These documents represent a variety of projects and planning efforts in NWA that support bicycle and pedestrian improvements and which form a strong foundation for continued planning and implementation efforts. Significant progress has been made in both Bentonville and Fayetteville resulting in their recognition as Bicycle Friendly Communities at the bronze level. NWARPC has initiated key steps toward increasing regional walking and biking connectivity through regional trail planning and in the development of the NWA Regional Bicycle and Pedestrian Master Plan. Several other communities in the region have some level of bicycle and pedestrian infrastructure and plans in place, while many others do not. The NWA Regional Bicycle and Pedestrian Master Plan will build on the existing community efforts identified in this memo, while establishing a foundation of key projects and programs for those communities that are not as far along.

2 STAKEHOLDER INTERVIEWS

Local and public involvement is an essential part of the planning process. Several community stakeholder groups related to bicycle and pedestrian planning, programs and infrastructure development were interviewed as part of this plan. The notes that follow cover key points from each discussion. While the interviews were structured with flexibility to allow for dialogue on a variety of topics most relevant to each group, the following list of questions was distributed to each group beforehand as a guide.

- *What has your role/involvement been with NWA bicycle/pedestrian planning to date?*
- *What are your goals for the NWA bike/pedestrian plan?*
- *Where in the NWA region should bicycle/pedestrian facilities be improved?*
- *What are the most pressing needs/optimal strategies for improving conditions for and increasing walking/biking?*
- *Are there any of the following associated with your organization that the Planning Team should be aware of?*
    - *Planned and/or funded bicycle/pedestrian related projects in NWA*
    - *Planned and/or funded bicycle/pedestrian amenities (such as benches, signage, bike parking, etc.)*
    - *Relevant projects in the NWA region (such as parks, open space, or bicycle/pedestrian facilities)*
    - *Programs, events, or activities related to biking, walking, and/or greenways in NWA.*
    - *Donors or other funding partnerships*
- *How are current bicycle/pedestrian facilities in NWA impacting local economic development from your perspective? Are there current trail events that are particularly important? (any quantifiable or qualitative data or anecdotes available to support? e.g., increased sales, number of visitors, etc.)*
- *Have any concerns been specifically voiced from local residents in your area regarding trail development? Please detail any of these or other general concerns that have been raised, and how they have or have not been addressed.*
- *What can be done on a local and regional level that will increase agency and stakeholder participation and public support?*

Interviews were conducted with:

- Bike Bentonville
- Mt Kessler Greenways
- Ozark Off-Road Cyclists
- Endeavor Foundation
- University of Arkansas Facilities Management Planning Group
- Phat Tire and Friends at Slaughter Pen Trails (FAST)

- Fayetteville Natural Heritage Association
- Bicycle Coalition of the Ozarks

The stakeholder interviews pointed to several general themes:

- In both Bentonville and Fayetteville, local advocacy groups are engaging the community most notably in school related programs that seek to expand opportunities for walking and biking. This includes after school mountain biking clubs and bicycle maintenance as part of the Physical Education curriculum.
- The organizations interviewed are spearheading events and programming that are creating opportunities for both children and adults to walk and bike for both recreation and utilitarian purposes. This includes bicycle trains to school, races and events such as the Slaughter Pen Jam, and regularly scheduled weekly bicycle rides. These organizations are generally limited to the Bentonville and Fayetteville areas, and there is some coordination taking place across them.
- Due to limited resources, there are limited efforts in advocacy and organizational support for walking and biking in the rural areas of NWA, but the efforts put forth by the organizations below are foundations from which to build.

2.1 Bike Bentonville

September 24, 2013, 1pm-2pm

Alta Planning + Design, Bentonville, AR office

210 Walton Blvd, Suite 26

Bentonville, AR 72712

Attendees: Alan Ley – Bike Bentonville; Misty Murphy – NWA Council Bike/Ped Coordinator; Steve Bzomowski – Alta Planning + Design

Bike Bentonville is an advocacy group, located in Bentonville, whose work is centered on providing leadership and technical resources for community-driven health and fitness activities. Their stated goal is to "enhance our local quality of life by creating a bicycle and multisport friendly community, guided and built by those in it." Focus areas include, education, events and programming at the local, regional, and national levels and creating partnerships at each of these levels in furthering these goals. Among many of their initiatives, they play a key role in local school programs in Bentonville.

Key points from discussion

- Wal-Mart bike share program
    - Bike Bentonville helped launch this program
    - Originally intended to be office to office
    - Wal-Mart employees are using bikes to go home, lunch, exercise, etc.
    - 90 bikes available throughout campus

    - Assessment – program has room for improvement – a successful program would have a large impact on Bentonville
- New high school to be constructed in Centerton – ground breaking will take place in 2014
    - This is an opportunity to incorporate bicycle and pedestrian pathways around the school in Centerton and between Bentonville and Centerton
- Schools in Bentonville
    - Improved bicycle and pedestrian connections to schools in general are needed – especially sidewalks
- Bentonville to XNA (airport)
    - Improved connectivity for bicyclists and pedestrians is generally needed
    - Southwest Bentonville Community Center will be located in this area and should include bicycle and pedestrian connections
- Phat Tire bicycle shop
    - Key component of building enthusiasm for local bicyclists and the local bicycle economy in general
    - Involved in programming including school programs and events
- Downtown Bentonville Incorporated (DBI) - this organization is dedicated to planning evens and programs in downtown Bentonville
    - Becoming more involved in bicycle and pedestrian related events – (i.e., Bike to Ewe Bet Farm on September 8, 2013)
- Lake Bella Vista - After improvements to this area including trail improvements and to the dam, this area has the potential to be a hub for bicyclists and pedestrians
    - Northern reach of Razorback Regional Greenway
    - Blowing Springs trails
    - Nearby school
    - Bella Vista residential areas
    - Destination in general
- Preserve historical locations and connect – implement the Heritage Trail
- Environmental education
    - Trails bring people closer to the natural environment – outdoor classroom concepts can be utilized, expanding learning opportunities

2.2 Mt Kessler Greenways

September 26, 2013, 2pm

Location: Mt Kessler

Attendees: Frank Sharp – Mt Kessler Greenways; Steve Bzomowski – Alta Planning + Design

"Mount Kessler Greenways is an advocacy group seeking to:

- Help maintain the natural character of the mountains, its woods, trails, wildlife and other natural features
- Protect the value of the property owned by the neighbors on the mountains
- Participate in municipal and county planning to see that development on the mountains is compatible with existing uses
- Work to obtain funding to enable purchase or placement of easements on ecologically important pieces of property as they become necessary and available
- Maintain trail corridors for hikers and mountain bikers that are also wide enough for wildlife habitation and migration "

http://www.mtkesslergreenways.com/index.html

Key points from discussion

- Mt Kessler consists of 387 acres now owned by Chambers Bank
    - It is adjacent to a future 200 acre City of Fayetteville Regional Park that will break ground in 2014-2015
    - Mt Kessler Greenways is advocating for the purchase of the 387 acres from Chambers Bank to become an addition to the 200 acre Fayetteville Regional Park
- Mt Kessler is characterized as a small mountain, with unique natural features and largely undisturbed – very scenic and in close proximity to Fayetteville
- The Mount Kessler Reserve Plan
    - Advocates for programming in 4 general areas:
        - Outdoor Classroom, Outdoor Recreation, Watershed Protection, Protection of Natural Resources
    - Connection/Trail opportunities recommended in the plan
        - Proposed Fayetteville connections
            - Cato Springs Trail (Fayetteville) – will connect Mt Kessler to Town Branch Trail in Fayetteville
            - Rupple Road Trail (Fayetteville) - will connect Mt Kessler
    - Powerline from Mt Kessler to Farmington could be possibility

        - Also, follow Farmington Branch from Farmington to power lines just north of Mt. Kessler, connection opportunities here as well
- The Ozark Off-Road Cyclists built and maintain 8.5 acres of trails on the mountain
- Mt Kessler Trail Run (10k & 20k)
    - First inaugural run took place November 2, 2012
- Frank Sharp, adjacent landowner has kept a trail log showing detailed user information since February 2013 see following page:

Mt Kessler Users: Type and Origin – February 2013 – September 2013												
Total	From Fay	%	From UA	%	Hikers	%	Mt Bikers	%	Runners	%	Others	%
1396	350	25%	464	33%	924	66%	283	20%	138	10%	58	4%

2.3 Ozark Off-Road Cyclists (OORC)/International Mountain Bicycling Association (IMBA)

September 27, 2013, 10am

OORC/IMBA office

Bentonville, AR 72712

Attendees: Steve Schneider – OORC/IMBA; Misty Murphy – NWA Council; Steve Bzomowski – Alta Planning + Design

"The Ozark Off-Road Cyclists (OORC) is a nonprofit organization based in the Ozark Mountains of Arkansas dedicated to mountain biking.

Members of the OORC have been riding, building and maintaining mountain bike trails for as long as there has been mountain biking in Arkansas. We have been instrumental in creating and maintaining the trails at Devils Den State Park, Hobbs State Park, Lake Fayetteville City Park, Lake Leatherwood City Park, Lake Sequoyah, Lake Wilson, Lake Wedington National Forest area, the Buffalo Headwaters, and at many other lesser known places around NWA. The OORC has been an IMBA member since our inception, and we continually advocate for more and better trails in the region."
http://www.ozarkoffroadcyclists.com/about-oorc

Key points from discussion

- OORC is a local chapter of IMBA - To become a chapter of IMBA, need to have local bike club organization in support: keys to chapter affiliation
    - OORC and Friends at Slaughter Pen Trails are important reasons why IMBA chapter here in NWA
    - Destination requirements/ trails in place
    - Trail building and maintenance
    - Organizing volunteers - need local help and ownership in maintaining and expanding the trail system
- The most effective groups are communities starting with local friends/volunteer groups to maintain trail networks
- Programming and events
    - After school bike program
        - Aiming to organize high school mountain bike race teams
    - Community movies about mountain biking to inspire – idea
    - They have applied to host the IMBA World Summit – denied for 2014 but are being considered for 2016

- OORC/IMBA/BikeBentonville/Bicycle Coalition of the Ozarks and NWA Council partnering in various ways for efficient support, planning and development of trail networks and programming
- Possibility to connect to Shiloh Walk in downtown Springdale – tie trails into downtown area
- Great potential in Rogers and Springdale for these types of trails
- OORC is in the process of collecting trail GPS data
- Mountain bike sales are rising fast compared to other types of outdoor activities
- Mountain bike trails are multi-use – hikers, trail runners, outdoor enthusiasts, etc.

Mountain Bike Trail Locations in NWA

- Slaughter Pen
- Blowing Springs
- Park Springs
- Lake Lincoln
- Lake Fayetteville
- Hobbs State Park
- Ozark National Forest – Lake Wedington
- Mt Kessler
- Lake Sequoyah
- Devil's Den State Park
- Dennis Moore

2.4 Endeavor Foundation

October 1, 2013, 3pm

Endeavor Foundation Office

800 Founders Park Dr, Springdale, AR 72762

Attendees: Jill Kaplan – Endeavor Foundation; Justin Fletcher – Endeavor Foundation; Steve Bzomowski - Alta Planning + Design

The Endeavor Foundation is a community foundation that facilitates grants focusing on active living and healthy food in strengthening the quality of life in NWA. They manage over 100 separate funds totaling over $150 million in assets and have made over 3,000 grants totaling $63 million since 1999. Over 96% of grant dollars have been awarded in NWA. As part of the January 2013 NWA Summit, President and CEO of Endeavor Foundation, Anita Schism summed it up by saying, "We see a region where bicycling and walking rival driving, and a place where it is easy to eat well and be physically active because our community supports a healthy lifestyle."

Key points from discussion

- In 2013 - $1.6 million in proposals – awarded $400,000
- Their regional focus consists of Benton, Washington, Madison, and Carroll Counties
- Their endowment and funds include:
    - Energize NWA – to support initiatives to helping Northwest Arkansans lead healthier, happier, and longer lives
        - Active living/physical activity
        - Healthy food
    - HealthyCoping – to strengthen mental health care in NWA
    - FairCare Fund – to create a health care strategy that's smarter, cheaper and fairer to address:
        - 1 in 5 people in NWA don't have health care
    - Community Endeavors – to address future NWA needs that can't be anticipated now – it is a permanent, unrestricted grant-making fund
    - Oxygen Fund – to support the Endeavor Foundation's operating costs
    - Care Foundation – supports critical health, wellness and quality-of-life efforts that impact individuals and families across NWA.
- Endeavor initiated and hosted the NWA Summit – January 2013 – announced $400,000 available in grants for 2013
- Endeavor seeks to support and enhance awareness, branding, and information related to bicycling and walking
- Endeavor encourages:
    - Collaboration and partnerships
    - Efforts related to equity issues related to immigrant populations and low income groups

2.5 University of Arkansas Facilities Management Planning Group

October 2, 2013, 10am

University of Arkansas, FAMA, Room 103

Fayetteville, AR

Attendees: Kevin Santos – University of Arkansas; Jill Anthes – University of Arkansas; Todd Fergason – University of Arkansas; Misty Murphy – NWA Council; Steve Bzomowski – Alta Planning + Design

The "FM Planning Group directs a broad range of planning issues, including land use and master planning, campus development standards, landscape design, transportation planning, resource

allocation oversight, and facilities assessments. This group is the source for strategic and physical planning at the University of Arkansas, and ensures that all projects support the academic goals of the University and promote the highest physical potential of the Fayetteville campus." http://planning.uark.edu/

Broad idea of how current planning has evolved and is evolving on campus

- Physical Master Plan began development around 1998
    - Very extensive, was/is a good policy document
        - Now getting into fine grained planning including for bicyclists and pedestrians
- 1925 – Master Plan – set up quads, pedestrian oriented, traditional
- 1960 – planning, non-bike/ped, auto-oriented
- Comprehensive Transportation Plan – 2004
    - Parking, traffic count – update to plan
    - Many issues with parking, non-motorized transportation accommodations needed
        - Need improved signage and wayfinding needed

Key connections

- Pedestrian/bicyclist only streets – one lane of the west end of Dickson St from Harmony Ave to Garland Ave is closed to automobiles from 7 a.m. until 6 p.m. Monday through Friday to provide safety for bicyclists and pedestrians – part of Mcilroy Avenue near Dickson St is also closed permanently
- Fayetteville Junction – key location with which to connect
- Razorback Rd – key artery connecting to campus
    - On-street connection – sharrows – may not have width for additional bicycle facilities
    - Connects intramural area
    - Tie together art design component
    - 10 ft sidewalk
- Garland Avenue – connects to the Union in the heart of campus and allows buses only, serving as the main transportation hub
- Connectivity to apartment complexes - private shuttles in some newer apartment complexes take students to and from campus area
    - This is an opportunity to tie into walking and biking systems
- Key trail connection – Oak Ridge Trail through campus; this would entail knocking down two old dorms
- Key improvements currently in process

    - Town Branch
    - Art Studios in south Fayetteville will connect to trail after trail underpass of MLK Blvd is competed
        - Old rail line to connect to Tsa la gi Trail – Trail of Tears
        - Will continue and connect with Cato Springs
- East/west connection needed – both through Fayetteville and campus – topography is a limiting factor
- Intersection improvements needed - several intersections adjacent to campus need improved facilities for bicyclists and pedestrians
    - Maple St and Gregg Ave should be highlighted
- Access to parking garages – near north section of main campus are key places needing connectivity

Other key Issues

- Buses have bicycle racks
- Bicycle parking – considering providing large bicycle parking areas with extensive bike racks
- Bicycle registration - students register their bicycle on campus at no cost
- Co-mingling bicyclists and pedestrians on campus – one current challenge is how to co-mingle bicyclists and pedestrians on very wide, crowded pathways through campus
- Landscape Master Plan – this can complement bicycle and pedestrian planning as well
- University of Arkansas is a state institution and not subject to local ordinances
- Ideas
    - Student health center
    - Zip car
    - Razor bikes – bike share – people ride downhill but how to return bicycles uphill?
    - Green space – turn greenspace areas on campus back into oak-hickory forest – complement trail development in these areas

2.6 Phat Tire and FAST

October 4, 2013, 12:30 pm

Phat Tire Bike Shop

Bentonville, AR

Attendees: Scott Schroen – Phat Tire; Tim Robinson – Phat Tire; Gary Vernon – FAST; Alan Ley – Bike Bentonville; Misty Murphy – NWA Council; Steve Bzomowski – Alta Planning + Design

Phat Tire is a bicycle shop in NWA with locations in Bentonville and Fayetteville. Their services include repair and maintenance, sales, local ride information, and advocacy with much community involvement in events and programming. They are a hub for bicycle activity in Bentonville and Fayetteville.

Friends at Slaughter Pen Trails (FAST) is "a dedicated group of volunteers working together to develop and maintain the Bentonville, Arkansas off-road trail system at Slaughter Pen mountain bike park and Blowing Springs." www.fasttrails.org/

Key ideas for bicycle and pedestrian connectivity from discussion

- Need a link across US 71 from the west side of the highway to Bella Vista Lake on the east
- Blowing Springs road to Bentonville Country Club
    - Need feeder trail
- Metfield Park to Blowing Springs
    - Tie those neighborhoods together and into trail system
        - Tie together schools too such as Cooper School
    - Informal trail makes link to Blowing Springs trails along Manchester Dr
    - Dam improvement taking place
- Trail opportunities exist in extending the Razorback Regional Greenway north from Lake Bella Vista to the Missouri border
    - POA land is a key opportunity in making this connection as well as connections throughout Bella Vista
- Bella Vista Trail Master Plan in development
    - Potential trail opportunities along POA land throughout Bella Vista – principally in the valleys
- Park Springs Park – park with mountain bike trails next to Sugar Creek and Thomas Jefferson Elementary School, community asset - connect
- Memorial Park – playground/skate park/mountain bike park at Memorial Park in Bentonville
- Connect to employment centers

    - Wal-Mart bike share is a key component with potential for expansion
- Connect to hospitals, hotels, and business along Walton Blvd
- The City of Bentonville is working on SE Bentonville Plan – opportunity to continue developing bicycle and pedestrian connections throughout
- New children's museum (Amazeum) near Crystal Bridges – Trail connection opportunities – http://www.fayettevilleflyer.com/2013/06/14/plans-unveiled-for-amazeum-childrens-museum-in-bentonville/

Programming

- FAST – involved with Boys and Girls Club programs
- FAST – "Epic Ride" – mountain bike ride to Missouri border and back (typically twice per year) – single track, creek beds, deer trail, etc.
- Lincoln Junior High – mountain bike trails at Park Springs park behind the school
    - Teacher leads mountain biking club utilizing the trails; Phat Tire helps support
- 550 bikes in Bentonville PE
- Phat Tire helps support high school mechanics program
    - Class to repair bikes
- Thursday 9:30 October 24, 2013 – NW Tourism Association – take a kid mountain biking day at Hobbs State Park

2.7 Fayetteville Natural Heritage Association (FNHA)

October 28, 2013, 10am

Location: Fayetteville Library, Fayetteville AR

Attendees: Bob Caulk - FNHA; Steve Bzomowski – Alta Planning + Design

Formed in 2003, "FNHA's mission is to identify and protect Fayetteville's most important natural areas and on our community's mature tree canopy. We are not against development. However, we think it is vitally important to preserve the most important natural spaces in our area for the enjoyment of current and future generations." http://www.fayettevillenatural.org/

FNHA Goals

- Conservation: Make exemplary natural areas accessible to all
- Natural Area Stewardship: Improve what we have
- Planning & Analysis: Influence public policy
- Education & Outreach: Engage the community and young people

Key ideas for bicycle and pedestrian connectivity from discussion

- Butterfield Stagecoach route to Fort Smith
    - Key regional trail and component to regional green infrastructure – follow Lee's Creek
- Ford's Baptist Church Greenland – unique, historical church where 71 crosses the White River – destination
- Farmington to Prairie Grove – Rt 170 – this corridor could serve as a key bicycle and pedestrian link
- www.nwarkaudubon.org – provides a list of places to bird in NWA
    - These are also key green infrastructural locations, serving essential ecological functions, and destinations in which a regional trail network could connect
- Sewer line easement runs from West Fork to Fayetteville – could serve as key piece to trail opportunities through here
- Lands along Goose Creek could be amenable to trail development
- Mt. Kessler could serve as a major trail hub – connecting Fayetteville, Greenland, the new regional park/south Fayetteville, Farmington, Ozark National Forest lands, Miller Mountain, etc.
- East/west corridor through Fayetteville
    - Woodland School; city park; Veterans Administration Hospital; several stop lights; cross US-71; Sycamore St just south of Ozark Natural Foods; Sublet Creek; under US 71; connect with Skull Creek next to Meeks Lumber; connect into Brooks-Hummel; switchback uphill; Old Wire Rd; Gulley Park; Mission Dr area; Mt Sequoyah; Assembly Dr (flatter); easement opportunities
- Lake Fayetteville as a hub – prairie restoration, mountain biking, heritage trail, botanical gardens and trail head

Other Key Points

- Infrastructure determines development pattern – urban trail system would be key infrastructural component
- Most rivers in FNHA's Green Infrastructure Plan study area (Fayetteville, Greenland, Johnson, Farmington and west of Fayetteville to Ozark National Forest area) are in poor health due to high levels of phosphorus from pasture run-off
- Trail development along riparian corridors can be key a way in which biodiversity is preserved

2.8 Bicycle Coalition of the Ozarks (BCO)

November 6, 2013, 11:30am

Location: Fayetteville, AR

Attendees: Paxton Roberts – BCO Director; BCO Board of Directors – Laura Kelly, Quin Thompson, Alison Jumper; Steve Bzomowski – Alta Planning + Design

"The BCO is a 501(c)3 non-profit working to create a more bicycle-friendly community through Education & Infrastructure. A more bicycle-friendly community is a happier, safer, healthier, more people-friendly community." BCO's advocacy efforts include policy, education, and infrastructure on all levels but principally focused on the local level in Fayetteville.

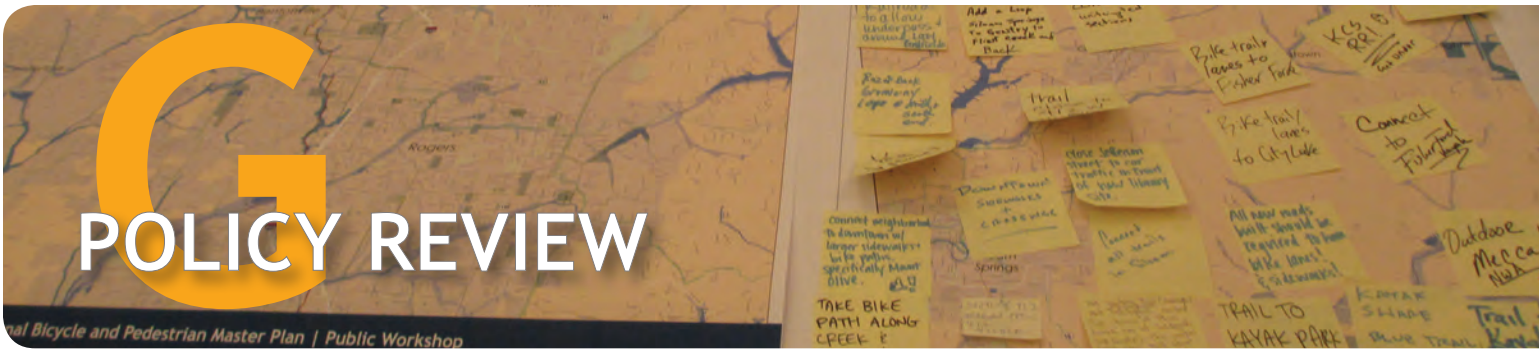
Key points from discussion

- Enforcement
    - Local police department involvement – enforcement of bicycle and pedestrian related laws, potentially teaming with BCO regarding strategy; the police force plays an important leadership role in the community and can play an equally important role in making it safer for bicyclists, walkers, and motorists alike
    - More detailed notes regarding bicycle and pedestrian crashes in reports would be very helpful in devising strategies to limit such problems
- Coordination
    - Efficient coordination between departments and decision makers plays an important role – where to house planning and implementation efforts
    - How to delegate bicycle and pedestrian responsibilities between Planning/Transportation Departments, Parks and Recreation Departments, etc.
    - Including a citizen bicycle/pedestrian advocate on advisory committees such as the Streets Committee in Fayetteville can be a key tool in effective decision making and implementation
    - A bicycle and pedestrian coordinator would be key in working out efficiencies
- Infrastructure and Design
    - There are a variety of bicycle and pedestrian treatment types – must be tailored to the context
        - Each community can benefit by having these resources on hand and continually updated as they evolve
            - Networking across the communities of NWA can help this process
            - Misty Murphy, the new NWA bicycle and pedestrian coordinator can play a key role in overseeing and facilitating

            - Bike Bentonville and BCO have shared ideas on school programs and ideas – can do the same across community infrastructure, design, and programming
    - Incorporating Complete Streets best practices into Fayetteville's street improvement system should be a high priority
        - This should be a high priority for each community
        - More on-street infrastructure is needed in Fayetteville
        - Maple Street was recently improved without accommodating bicycle infrastructure
    - The U of A/City of Fayetteville interface is a high traffic area for bicyclists and pedestrians – limited bicycle infrastructure present – intersection improvements needed as well
- Current BCO education programming efforts – education is a critical focus of the BCO team
    - 3rd -5th grade, 2 week program
        - Bicycle preparation and how to ride
        - BCO gives helmets to 3rd graders – they replace in 4th and 5th grades
        - BCO helped the local schools acquire 40 bicycles
            - Plan to have bicycles in every school similar to Bentonville's program
    - Three bike train groups are consistently making the commute to school in Fayetteville

Other Key Points from Discussion

- There is a need for each school to adopt Safe Routes to School plans
- Both motorist and bicyclist education is needed
- Public service announcements, commercials could be an effective part of media campaign to reach the larger public
- Events – BCO event initiatives have included:
    - Bike rodeos
    - Bicycle Fayetteville Days festival
- BCO is continuously working on securing resources for the expansion of programming, education, infrastructural improvements, policy initiatives, and general advocacy
- Networking with Bike Bentonville, OORC, and other groups has been important and will continue to be, especially at the regional level
- Plethora of data needs and potential opportunities, but limited time and resources to collect



G POLICY REVIEW

Appendix Contents:

Technical Memo: Code Review, Ordinance Development, Existing Legislation, and Policy

TECHNICAL MEMO: CODE REVIEW, ORDINANCE DEVELOPMENT, EXISTING LEGISLATION, AND POLICY

The purpose of this review is to review ordinances, policies and standards that impact bicycle and pedestrian environments in NWA at the local, regional, state and national levels, and develop recommendations that will foster bicycle and pedestrian improvements across the region.

[Blank page for double-sided printing]

MEMORANDUM

To: John McLarty, Northwest Arkansas Regional Planning Commission

From: Dennis Blind, Matt Berkow, and Stephen Bzomowski, Alta Planning + Design

Date: February 3, 2014

Re: Tasks 1.3 & 1.4 – Code Review, Ordinance Development, Existing Legislation, and Policy

The purpose of this review is to review ordinances, policies and standards that impact bicycle and pedestrian environments in NWA at the local, regional, state and national levels, and develop recommendations that will foster bicycle and pedestrian improvements across the region.

NWA RPC Northwest Arkansas Regional Planning Commission

alta PLANNING + DESIGN

TABLE OF CONTENTS

1 Introduction 3
2 Review Existing Legislation, Policy and Documentation 3
2.1 Local Ordinances, Plans, Policies and Practices 3
2.2 Regional Plans, Policies and Practices 9
2.3 State of Arkansas Policies and Laws 11
2.4 Federal Policy 14
3 Municipal Code Review, Model Ordinance Development and Policy 16
3.1 Municipal Codes and Development Standards 16
3.2 Model Policy and Code Language 20
3.3 Performance Measures for Bicycle and Pedestrian Planning 23
4 Summary and Recommendations 24
6 Appendix A – Sample Complete Streets Policy 27
7 Appendix B – Sample Bike Parking Ordinance (Fayetteville) 32
8 Appendix C – Municipal Code Summary Table 35

LIST OF TABLES

Table 1 – Review of Municipal Code Related to Trails, Walking and Bicycling (Summary) 17
Table 2 – Model Bike Parking Ordinance 21
Table 3 – Recommended local policy and planning actions 26
Table 4 - Review of Municipal Code Related to Trails, Walking and Bicycling (Detailed) 35

1 INTRODUCTION

Planning documents, policies and regulations addressing the needs for bicycle and pedestrian infrastructure and programs can be found in local, state and federal jurisdictional settings. A common thread running through these policies is the need to provide for continuing bicycle, trail and pedestrian planning efforts as a component within the overall transportation planning process executed at all levels.

2 REVIEW EXISTING LEGISLATION, POLICY AND DOCUMENTATION

2.1 Local Ordinances, Plans, Policies and Practices

Alta reviewed the development ordinances, plans, policies and practices of five NWA communities to identify general issues impacting the bicycle and pedestrian environments. The five communities reviewed were: Fayetteville; Bentonville; Springdale; Rogers; and Siloam Springs.

Ordinances are regulations governing new development and redevelopment. **Plans** often articulate a community's bold, multi-year vision, and lay out steps through goals, objectives and strategies. While they are not generally regulatory, they can effectively guide city leaders and staff toward the vision. **Policies** are a stronger statement of intent and while not regulatory in the legal sense, they can sustain a community vision through changes in political leadership and organizational changes. **Practices** might be the most important element of change, as they encompass what city staff actually work on every day. Without programs, staff and funding dedicated to a practice area, plans and policies can be crippled or made ineffective.

Following is a city-by-city review of supporting governance documents and practices affecting the bicycle and pedestrian environment.

Fayetteville

City Plan 2030 (2011)

Fayetteville's comprehensive plan sets forth several major goals; among them are these four that pertain to bicycling and walking:

- Goal 2: We will discourage suburban sprawl
- Goal 3: We will make traditional town form the standard
- Goal 4: We will grow a livable transportation network
- Goal 5. We will assemble an enduring green network

These goals are further stated in this quote from Mayor Jordan:

"City Plan 2030 takes our community planning to the next level by continuing to develop form-based zoning districts, taking concrete action steps to assemble an enduring green network and implementing context-sensitive street cross-sections that accommodate cars, pedestrians, cyclists and mass transit."

A key section of City Plan is the Master Transportation Plan, which declares.

"The Master Transportation Plan prescribes and plans for the development of a multi-modal transportation system in the form of streets, sidewalks, bike lanes, trails and transit. A multimodal transportation system is vital to growing a livable transportation network. Consistent planning ensures that streets will efficiently circulate traffic within the community and connect Fayetteville to the rest of the region. Special emphasis should be placed on multi-modal transportation infrastructure design, access management and traffic speed and volume considerations when planning streets."

Fayetteville Alternative Transportation and Trails Master Plan (FATT) (updated 2009)

The Fayetteville Alternative Transportation and Trails Master Plan (FATT Plan) guides the development of trails in the City's expanding trail network. The Master Trail Plan Map illustrates future trail alignments and trail corridors for the purpose of acquiring easements and right-of-way. As development occurs adjacent to future trail alignments, careful attention will be paid to acquiring easements and providing site design input during the development review process. The trail cross-sections that follow the Master Street Plan cross sections will be utilized for the construction of City trails. Trail surface materials may vary according to site considerations such as proximity to floodplains or floodways. The FATT plan proposes 128 miles of future trails and 163 miles of on-street linkages, which includes sidewalks, signed bike routes, bike shared lane markings (sharrows) and striped bike lanes.

Practices

Fayetteville has shown its commitment to multi-modal transportation by dedicating a staff member solely to the implementation of the FATT and managing issues relating to bicycling, walking and trails. An interview with staff revealed specific areas of interest to this study, including:

- Acknowledgement that the bicycling infrastructure has vastly improved.
- Interest in the "next steps" to encourage more cycling.
- A need for guidance on how to identify the most effective type of bicycle facility for individual street conditions (i.e., cycle track, striped bike lane, sidepath or sharrow).
- A belief that in general Fayetteville citizens are hesitant to use bike lanes or sharrows and prefer to be separated from car traffic.
- The potential for Pedestrian Hybrid Beacons and other innovative crossing treatments to improve walking conditions.
- Satisfaction with the Arkansas Highway and Transportation Department's policy of striping bike lanes and its approval of more advanced bike treatments within the agency's ROW.

Bentonville

General Plan (2007)

Bentonville's General Plan sets forth many policies throughout several disciplines that contribute to improvement of the bicycling and walking environment. No fewer than a dozen policies of the general plan support private and public investments in trails and infrastructure that promote a transportation network that connects a variety of land uses with a high quality pedestrian environment. Following is a sampling of the most relevant economic development, community development and transportation policies:

Policy CD-6: The City should encourage residential and non-residential designs that facilitate walking, bicycling, and transit use, rather than increasing reliance on automobiles.

Policy PF-38: The City shall ensure that neighborhood and community parks have safe linkages to surrounding neighborhoods for pedestrians and bicyclists.

Policy T-3: The City shall encourage construction of the Master Trail Plan as new developments occur in the city. Both pedestrian and bicycle facilities shall be planned.

Policy T-10: The City should encourage pedestrians and bicyclists by providing good connections from residential developments to schools, shopping centers and business districts.

In addition to the guidance set forth in the General Plan, Bentonville utilizes several additional documents including the Master Street Plan, Downtown Master Plan, Regional Heritage Trail Plan and the Razorback Regional Greenway Trail Plan.

Bentonville Bicycle and Pedestrian Master Plan (2012)

Bentonville passed a new bicycle and pedestrian master plan in 2012. It is a comprehensive plan that includes trails, sidewalks and on-street bicycle facilities as well as an ambitious set of goals toward education, public relations and promotions. The plan includes a detailed 10-year work and spending plan that is based on a robust project prioritization strategy.

Practices

Bentonville is committed to improving its bicycle and pedestrian network. While no single person is "in charge" of implementing the plan, duties are shared among members of an Active Transportation Committee, consisting of staff from Transportation, Planning, Engineering, Parks and other departments. This appears to be an effective working group committed to the mission. A plan as robust as Bentonville's might benefit from the assignment of one key staff member to oversee the effort.

Springdale

Springdale does not have a traditional comprehensive plan per se. It has a Land Use plan that guides development and zoning, and a growth plan map. The city's planning staff are engaged in several

projects to implement mixed-use and form-based codes to promote compact development throughout the city.

Springdale Master Trails Plan (2010)

This document is a robust plan with several miles of existing and proposed routes; it is currently receiving an update.

Downtown Springdale (currently being developed)

A new master plan is currently in process to 'daylight' the creek through a new mixed use town center.

Rogers

Rogers Vision 2025: The Strategic Plan for Rogers and Lowell (2008)

The Rogers-Lowell Chamber of Commerce created Rogers Vision 2025. It includes the following strategies for improving Rogers' trail systems and multimodal transportation:

- Complete the original recreational trail master plan which creates a 50-mile loop around the city.
- Ensure connectivity with the trail systems of neighboring communities.
- Expand the master trail plan to add trail segments and connections as needed by growth in the community.
- Encourage bicycle riding in the community as alternative transportation and recreation.
- Support funding for construction of bike and hiking trails along street rights-of-way and in greenways.
- Construct improved streets and sidewalks to new schools as those facilities are constructed.

Rogers Greenways & Trails System Master Plan (2005)

The mission of the Rogers Greenways and Trails Committee is to procure, connect, and develop a unified greenways and trails system, which promotes conservation, restoration, recreation and community interaction. The system is planned to loop nearly 60 miles throughout the city, linking schools, parks, commercial centers and neighborhoods to each other and to the larger NWA region with connections to the trail systems of surrounding cities, the Razorback Regional Greenway, and the Heritage Trail System. The system currently includes eight trail sections.

Siloam Springs

Forward Siloam Springs (2008)

A relatively small city at just over 15,000 population, Siloam Springs has developed a comprehensive plan heavy with the latest ideas in urban design and transportation. In two elements of the plan, Transportation and Circulation, a detailed set of goals and objectives guide the City toward improving the bicycle and pedestrian environment.

Transportation Element

In this section Forward Siloam Springs stresses the importance of addressing street interconnectivity in sound urban design, which can result in shortening many key trips for motorists and a more suitable network for bicyclists and pedestrians. Following are some of the goals and objectives that are identified to improve the bicycling and walking environment.

Goal #2--Improve street interconnectivity

Objective A—Merge the master street planning process with urban design to ensure the interconnectivity of streets and neighborhoods.

Objective B—Require that all residential and commercial development provide street stub outs so that future subdivisions may connect.

Objective C—Discourage an excessive use of cul-de-sac streets.

Goal #4--Enhance the pedestrian level scale

Objective A—Implement a form-based code that uses transportation infrastructure as an active driver to mandate appropriate scale and design of all structures within a neighborhood.

Objective E—Develop a pedestrian circulation master plan that will allow for adequate sidewalks in residential and commercial areas in order to provide a comprehensive pedestrian network.

Objective F—Develop a master schedule to replace and add new sidewalks.

Circulation Element

The plan's Circulation Element further reinforces the need to plan and design for a multimodal transportation system with the following goals and objectives that specifically address bicycle and pedestrian circulation throughout the community.

Goal #2—Include alternative modes of transportation in planning for future mobility

Objective A—Consider expanding the scope and create a transportation master plan that would include the Master Street Plan and the development of alternative modes.

Objective B—Create capital improvement planning that would include investment in alternative modes development at the time of major street improvement allocations.

Objective C—Ensure that alternative modes are considered at the design phase of all street improvement and development projects. Alternative modes include:

- Bicycle paths.
- Sidewalks.
- Pedestrian overpasses.
- Multi-use trail right-of-way dedications and their integration into the street network.

Objective D—Invest in an education campaign to inform the public of alternative modes and provide incentives for them to engage in these modes.

Practices

Siloam Springs has a senior planner who manages many different areas including urban design, trails, pedestrian improvements, and general planning. The City is in the process of creating a Downtown Master Plan, and expanding the Dogwood Trail system which circulates to key destinations in the central city and connects through John Brown University. Sidewalk linkages are included in the trail plan. The City does not currently stripe bicycle lanes but intends to in the future.

Summary

Any well planned community will provide opportunities for its citizens to utilize a full range of alternative modes of transportation. Land use decisions will often have an impact on these modal choices. Care must be taken when planning for developing areas to provide opportunities for residents to walk or cycle, not only for recreational purposes, but for short-range trip making and daily mobility. General observations from the review of these communities include the following:

- There is a range of planning types, staff resources and strategies in these communities.
- Each community has its own unique way of creating a vision. There is no 'one size fits all' approach throughout the region.
- Local plans are not fully consistent with a regional framework plan, so there is a need for a regional plan that connects communities together.
- The differences between trails, pedestrian facilities and on-street bikeways need to be clearly articulated at the local and regional levels.
- Each community has expressed support for active mobility in its current plans, so the opportunity exists to build from this base with more detailed plans, policies and programs based on national best practices.

2.2 Regional Plans, Policies and Practices

2035 NWA Regional Transportation Plan

The NWA Regional Planning Commission (NWARPC) addresses bicycle and pedestrian transportation in Chapter V of the 2035 regional plan. On pages 1 through 7 of Chapter V addressing roadway design, cross section drawings include sidewalks but not bicycle facilities. Page 8 addresses the Arkansas Highway and Transportation Department's policy on bicycle lanes and sidewalks. Access management is discussed on pages 9 through 13, after which bicycle and pedestrian facilities are again addressed on page 14.

The 2035 Plan supports the development of bicycle and pedestrian networks, stating the benefits of non-motorized modes for health, reducing the obesity epidemic, environmental concerns, and economic development. In addition, Chapter V cites public support for improved bicycling and walking conditions gathered from community input sessions and surveys during the 2035 planning process. Following is from page 15 of Chapter V:

"Bicycling and walking are important elements of an integrated, intermodal transportation system. Constructing sidewalks, installing bicycle parking at transit, teaching children to ride and walk safely, installing curb cuts and ramps for wheelchairs, striping bike lanes and building trails, all contribute to our national transportation goals of safety, mobility, economic growth and trade, and to the enhancement of communities and the natural environment, and national security."

NWA Active Transportation Network Plan

As part of the NWA Active Transportation Network Plan (ACT Plan), NWARPC initiated a committee with open participation from cities, counties and local organizations and citizens who were interested in promoting on and off road trails in NWA. During the first months of 2010, NWARPC developed a draft map of the regional off-road and with-road trails that was based on the master street plans developed by each city participating in the group discussions and on public input.

The plan states that as cities adopt and expand their own master trail plans that link to the region-wide Trail Plan, those plans will be recognized as part of the regional plan. This regional system is designed to link the emerging master trail plans of the region's cities. By linking the cities' plans and including strategic spurs, the Regional Plan provides links to recreational site, parks, historic sites, museums, schools, work centers and retail shopping.

In addition, the Active Transportation Committee identified the main types of trails and routes represented on the regional map and compiled a definition list for each type of trail. These include:

- Off-road trail
- With-road linkage
- Signed shared roadway
- Bike lane

The Trail Design Resource Notebook published in 2010 is also referenced as guidelines for best solutions on a regional, local, city by city basis. These guidelines detail the following:

- Trails and trail-related facilities
- Bicycle facilities and related streetscape improvements
- Pedestrian facilities and related streetscape improvements

The Razorback Regional Greenway

The Regional Transportation Plan details planning and development for the Razorback Regional Greenway, designed as a 36-mile multi-use trail from Lake Bella Vista through Fayetteville. At the time of this writing, the Razorback Regional Greenway is slated for completion in spring/summer of 2014. It is detailed separately in this plan.

The Heritage Trail Plan

The Heritage Trail Plan identifies historical corridors including the Trail of Tears, Butterfield Stagecoach route, and Civil War troop movements. These corridors form a regional network linking communities and destinations of NWA. This plan recommends systematically incorporating bicycle and pedestrian facilities along these corridors in future transportation improvements. The Heritage Trail Plan is detailed separately in the Plan Review and Stakeholder Interviews memorandum.

City Trail Project Highlights

The 2035 plan (p. 22 - 24) summarizes multi-use trail developments in several NWA cities from 2006-2011, including:

- Bentonville: 14.51 miles completed
- Rogers: 10.87 miles completed
- Fayetteville: 14.64 miles completed

As of this writing, Siloam Springs and Springdale have added to their trail systems as well, but the exact mileage is not known.

2.3 State of Arkansas Policies and Laws

The Arkansas State Highway and Transportation Department (AHTD) has jurisdiction over two key areas of multimodal transportation, 1) legislating and enforcing vehicle codes, and 2) determining design and bicycle/pedestrian accommodation on its jurisdiction roadways, including those that serve as local transportation.

Motor Vehicle and Traffic Laws

Bicycles

The two laws pertaining to bicycles are significant in how AHTD regards bicycles as legitimate roadway users:

27-49-111. Use of bicycles or animals.

Every person riding a bicycle or an animal, or driving any animal drawing a vehicle upon a high- way, shall have all the rights and all of the duties applicable to the driver of a vehicle, except those provisions of this act which by their nature can have no applicability.

27-51-311. Overtaking a bicycle.

(a) The driver of a motor vehicle overtaking a bicycle proceeding in the same direction on a road- way shall exercise due care and pass to the left at a safe distance of not less than three feet (3') and shall not again drive to the right side of the roadway until safely clear of the overtaken bicycle.

(b) (1) A person who violates this section shall be subject to a fine not to exceed one hundred dollars ($100).

> (2) A person who violates this section with the violation resulting in a collision causing death or serious physical injury to the person operating the overtaken bicycle shall be subject to a fine not to exceed one thousand dollars ($1,000) in addition to any other penalties prescribed by law.

Many states (including neighbor Texas) have tried and failed to implement a 3-foot passing law. That Arkansas was able to do this may indicate strong support for bicycling both as a transportation mode and recreation activity for both residents and visitors to the state.

Pedestrian

27-51-1201. Privileges and restrictions generally.

Pedestrians shall be subject to traffic control signals at intersections as declared in this act, but at all other places pedestrians shall be accorded the privileges and shall be subject to restrictions stated in this subchapter.

51-1202. Pedestrians' right-of-way in crosswalks.

(a) Where traffic control signals are not in place or in operation, the driver of a vehicle shall yield the right-of-way, slowing down or stopping if need be to yield, to a pedestrian crossing the roadway within any marked crosswalk or within any unmarked crosswalk at an intersection, except as otherwise provided in this subchapter.

(b) Whenever any vehicle is stopped at a marked crosswalk or at any unmarked crosswalk at an intersection to permit a pedestrian to cross the roadway, the driver of any other vehicle approaching from the rear shall not overtake and pass the stopped vehicle.

27-51-1203. Use of crosswalks.

Pedestrians shall move, whenever practicable, upon the right half of crosswalks.

27-51-1204. Pedestrians crossing at other than crosswalks.

(a) Every pedestrian crossing a roadway at any point other than within a marked crosswalk or within an unmarked crosswalk at an intersection shall yield the right-of-way to all vehicles upon the roadway.

(b) Any pedestrian crossing a roadway at a point where a pedestrian tunnel or overhead pedestrian crossing has been provided shall yield the right-of-way to all vehicles upon the roadway.

(c) Between adjacent intersections at which traffic control signals are in operation, pedestrians shall not cross at any place except in a marked crosswalk.

(d) Notwithstanding the provisions of this section, every driver of a vehicle shall exercise due care to avoid colliding with any pedestrian upon any roadway and shall give warning by sounding the horn when necessary and shall exercise proper precaution upon observing any child or any confused or incapacitated person upon a roadway.

AHTD Policy Regarding Bicycle Lanes and Sidewalks

The Arkansas State Highway and Transportation Department manages the state highway system throughout the state and within local jurisdictions. Its bicycle program supports local jurisdiction's efforts by installing and funding construction of bicycle lanes on state highways if the local jurisdiction has an approved bicycle plan. On new state roadway construction, the department installs 8 foot shoulders that bicyclists and pedestrians may use[1].

The League of American Bicyclists has rated Arkansas #37 out of 50 states for bikeability. This rating is based on a multi-faceted Bicycle Friendly State℠ questionnaire that is answered by each state's Bicycle Coordinator utilizing the following categories: Legislation & Enforcement, Policies & Programs, Infrastructure & Funding, Education & Encouragement, and Evaluation & Planning.

Following are the AHTD's policies for accommodating bicyclists and pedestrians.

a. Bicycle Facility Accommodation Policy

1. Accommodation of bicycles will be given due consideration when a proposed highway project is on a route that has been designated as a bicycle route by a locally adopted bicycle plan or master street plan and the Department concurs that the route should be a designated bicycle route. Coordination with local jurisdictions may be necessary to determine the recommended accommodations.

[1] Source: http://www.bikeleague.org/content/ranking

2. Bicycle accommodations on routes that have not been designated as bicycle routes by a locally adopted bicycle plan or a master street plan will be considered if the local jurisdiction will provide the required additional funds.

3. When bicycle accommodations are to be made on routes with an open shoulder section, the paved shoulder will be used to accommodate bicycles. Shoulder widths shall conform to the widths recommended in the American Association of State Highway and Transportation Officials (AASHTO) Green Book.

4. When bicycle accommodations are to be made on routes with a curb and gutter section, the bicycle lane will be in accordance with recommendations in the AASHTO Guide for the Development of Bicycle Facilities. Generally, a bicycle lane width of 4 feet (measured from the lane edge to the edge of the gutter) will be considered.

5. If local or regional design standards specify bicycle facility widths greater than the standards noted above, the additional right-of-way and construction costs associated with the greater width shall be funded by the local jurisdiction that adopted the higher design standards.

6. Shared use paths (joint pedestrian/bicycle facilities separated from the roadway) are used primarily for recreational purposes, and as such will not normally be considered for bicycle accommodation on the Federal highway system. Exceptions will be considered when the local jurisdiction specifically requests the shared use path. In such cases, the minimum shared use path width shall be 10 feet and the local jurisdiction shall bear any additional right-of-way and construction costs required for the shared use path and shall assume all future maintenance of the facility.

b. Sidewalk Policy

1. When curb and gutter sections are proposed along a highway with existing sidewalks, the sidewalks will be replaced in accordance with this policy.

2. When curb and gutter sections are proposed along a highway with no existing sidewalks, sidewalks will be constructed on both sides of the roadway in developed areas. In undeveloped areas, sidewalks will be considered on one side of the roadway unless evidence of pedestrian traffic warrants sidewalks on both sides of the roadway.

3. All sidewalk construction will conform to the latest edition of the Americans with Disabilities Act Accessibility Guidelines (ADAAG).

4. The minimum sidewalk width will be 5 feet, and the minimum offset from the back of the curb to the sidewalk edge will be 3 feet. No obstructions (mailboxes, signs, etc.) will be allowed in the sidewalk. The minimum vertical clearance to the bottom of any obstruction overhanging the sidewalk will be 80 inches.

If local or regional design standards specify pedestrian facility widths greater than the standards shown above, the additional right-of-way and construction costs associated with the greater width will normally be funded by the local jurisdiction that adopted the higher design standards.

Statewide Bicycle and Pedestrian Plan

AHTD is currently working on a new bicycle and pedestrian plan.

2.4 Federal Policy

A statement of support for the need to provide for an integrated bicycle and pedestrian plan was signed in March 2010 by US Department of Transportation Secretary LaHood. This policy statement promoted the development of transportation plans that provided fully integrated and active transportation systems. These systems should include a robust component allowing for the involved jurisdictions to benefit from the results of a bicycle-pedestrian plan. These provide for the ancillary benefits of general improvement in health, livability, and opportunities to reduce vehicle emissions and consumption[2]. Continuing this statement, Sec. LaHood recommended that these plans extend beyond the minimum requirements and be reflected by states, local governments, professional associations, community organizations, public transportation agencies, and other government agencies in policy statements to confirm their commitment to accommodating bicyclists and pedestrians as an integral element of the transportation system[3].

This statement put forth guidance to all DOTs to "proactively provide convenient, safe, and context-sensitive facilities that foster increased use by bicyclists and pedestrians of all ages and abilities, and utilize universal design characteristics when appropriate."[4] This reflected previous legislative actions requiring incorporation of these facilities into existing transportation plans.

With federal and state support, jurisdictions have fostered greater planning efforts to accommodate the increasing desire by communities for more accessible and appropriate facilities as part of the overall transportation network. Federal policies have been founded on numerous statutes. Metropolitan Planning Organizations have followed the guidance presented in 23 CFR 450.200, 23 CFR 450.300, 23 U.S.C. 134(h), and 135(d)) to meet the requirements for adequate facility planning. Also detailed in the same notation by the Federal Highway Administration[5], specific portions state:

- The scope of the metropolitan planning process "will address the following factors...(2) Increase the safety for motorized and non-motorized users; (3) Increase the security of the transportation system for motorized and non-motorized users; (4) Protect and enhance the environment, promote energy conservation, improve the quality of life..." 23 CFR 450.306(a). See 23 CFR 450.206 for similar State requirements.

---

[2] USDOT, United States Department of Transportation Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations, http://www.fhwa.dot.gov/environment/bikeped/policy_accom.htm, March 2010

[3] IBID, USDOT, March 2010

[4] IBID, USDOT, March 2010

[5] IBID, USDOT, March 2010

- Metropolitan transportation plans "...shall, at a minimum, include...existing and proposed transportation facilities (including major roadways, transit, multimodal and intermodal facilities, pedestrian walkways and bicycle facilities, and intermodal connectors that should function as an integrated metropolitan transportation system..." 23 CFR 450.322(f). See 23 CFR 450.216(g) for similar State requirements.
- The plans and transportation improvement programs (TIPs) of all metropolitan areas "shall provide for the development and integrated management and operation of transportation systems and facilities (including accessible pedestrian walkways and bicycle transportation facilities)." 23 U.S.C. 134(c) (2) and 49 U.S.C. 5303(c) (2). 23 CFR 450.324(c) states that the TIP "shall include ...trails projects, pedestrian walkways; and bicycle facilities..."
- 23 CFR 450.316(a) states that "The MPOs shall develop and use a documented participation plan that defines a process for providing...representatives of users of pedestrian walkways and bicycle transportation facilities, and representatives of the disabled, and other interested parties with reasonable opportunities to be involved in the metropolitan planning process." 23 CFR 450.210(a) contains similar language for States. See also 23 U.S.C. 134(i)(5), 135(f)(3), 49 U.S.C. 5303(i)(5), and 5304(f)(3) for additional information about participation by interested parties.

Other specific language exists as well, expounding on pedestrian facilities[6]:

- "In any case where a highway bridge deck being replaced or rehabilitated with Federal financial participation is located on a highway on which bicycles are permitted to operate at each end of such bridge, and the Secretary determines that the safe accommodation of bicycles can be provided at reasonable cost as part of such replacement or rehabilitation, then such bridge shall be so replaced or rehabilitated as to provide such safe accommodations." 23 U.S.C. 217(e). Although this statutory requirement only mentions bicycles, DOT encourages States and local governments to apply this same policy to pedestrian facilities as well.
- Public rights-of-way and facilities are required to be accessible to persons with disabilities through the following statutes: Section 504 of the Rehabilitation Act of 1973 (Section 504) (29 U.S.C. §794) and Title II of the Americans with Disabilities Act of 1990 (ADA) (42 U.S.C. §§ 12131-12164).

The Federal Highway Administration's Office of Human and Natural Environment actively promotes bicycle and pedestrian planning efforts. Within each state Department of Transportation, a State Coordinator has been designated to facilitate the planning and implementation efforts. The FHWA Bike and Pedestrian office provides these coordinators with guidance and education on evolving programs and requirements, as well as information related to avenues for funding mechanisms. This guidance is additionally provided to all agencies and bodies with responsibilities for the maintenance and expansion of Bike-Pedestrian plans.

[6] IBID, USDOT, March 2010

3 MUNICIPAL CODE REVIEW, MODEL ORDINANCE DEVELOPMENT AND POLICY

Many of the plans and policies reviewed in the previous section provide a vision and framework for improving conditions for walking and bicycling. This section reviews ordinances that regulate and govern new development, redevelopment and corridor improvement projects.

- The first part of this section provides a review of development standards that impact walking and bicycling for five NWA Communities: Fayetteville, Bentonville, Springdale, Rogers, and Siloam Springs.
- This second part of this section provides model policy language for complete streets and bicycle parking that can be incorporated into the regional plan to serve as a template for potential adoption by local communities.

3.1 Municipal Codes and Development Standards

Zoning codes and development and roadway standards provide direction for private and public development that determine how well the built form supports walking and bicycling. This direction is tangibly demonstrated by the provision and quality of sidewalks, bicycle facilities, setbacks, block lengths, parking, streetscape, connectivity and other elements. For the purpose of this analysis, five categories that affect walking and bicycling were assessed:

- Street elements and configuration
- Pedestrian/Bicycle– Friendly Building and Site Design Standards
- Pedestrian Facility Design
- Bicycle Facility Design
- Facility Maintenance
- Supporting policies and manuals

Table 1 provides a summary of how the five cities addresses each of 29 elements within each of these categories. The documents reviewed for this section include street codes, development ordinances, comprehensive plans, master transportation plans, Master Street Plans and others. These elements were compiled from current best practices around the U.S. in regions that are similar to NWA. Communities with codified direction that covers these elements in a way that make active transportation safer and more convenient can be expected to become more bikeable and walkable over time.

The cities reviewed have varied levels of guidance to guide the provision and quality of the identified elements. NWARPC should serve as a resource to communities throughout the region that would like to develop more supportive code language. Table 1 can serve as a reference point and is a resource that NWARPC and other communities can use to identify relevant ordinances and standards that are already in place in the region, or where more guidance is needed.

A more detailed version of this table, including sources, is provided in Table 4 found in Appendix C.

Table 1 – Review of Municipal Code Related to Trails, Walking and Bicycling (Summary)

Topic	Jurisdiction					Comments/Recommendations
	City of Fayette-ville	City of Benton-ville	City of Spring-dale	City of Rogers	City of Siloam Springs	
Key: p No policy covering this topic or no guidance found; t Policy partially covers this topic; x Policy exists for this topic						
1. DEFINITIONS						
1.1. Does "Street" definition include pedestrian and cyclist reference?	x	p	t	t	p	Definition of a street should include consideration for pedestrian and bicycle traffic and safety.
1.2. Definition of Sidewalk	x	x	p	p	p	Example: "Sidewalks have a hard, smooth surface (e.g., concrete), with separation from the roadway typically consisting of a curb and/or planter strip."
1.3. Definition of Bicycle	x	x	x	x	x	Bicycles should be defined as a type of vehicle requiring its own specialized facilities and regulations for safe operation, including the right to operate on any street.
1.4. Definition of Traffic	t	p	p	p	p	The traditional definition of traffic included motor vehicles only. All modes of travel are "traffic"; terminology and policy language should reflect the Uniform Vehicle Code.
2. STREET ELEMENTS AND CONFIGURATION						
2.1. Pedestrian facilities (sidewalks, crosswalks, etc.) required during new or redevelopment	x	x	x	x	x	Pedestrian travel is accommodated and enhanced by walkways, traffic signals, crosswalks, curb ramps, and amenities such as lighting, landscaping, and places to rest (e.g. benches). Pedestrians and bicyclists should generally be accommodated on separate facilities (e.g., a sidewalk and a bike lane) rather than a "multi-use sidewalk."
2.2.Bicycle facilities (bike lanes, shoulders, parking, etc.) required during new or redevelopment	x	t	t	p	p	Generally, as traffic volumes exceed 3,000 vehicles per day and traffic speeds exceed 25mph, facilities to separate bicycle and motor vehicle traffic are recommended. Multi-lane roads are typically more dangerous for all users because of the increased traffic volume, the potential for higher speeds, and the additional number of conflict locations due to turning vehicles.
2.3. Sidewalks or bike facilities required by roadway type	x	t	t	t	p	A better standard would be one that requires or provides sidewalks on both sides of all collector and arterial streets and on at least one side of local streets where warranted by density and/or system connectivity.
2.4. New sidewalks, bike facilities, greenways, etc. connect to existing facilities	t	p	t	p	p	Connectivity is critical, especially since bicyclists and pedestrians operate under human-power, and circuitous routes can discourage bicycling and walking.
2.5. Block size	t	x	t	p	p	Development density should determine the length of a block, with shorter blocks being more appropriate in areas of higher density. Maximum block length in any situation should not exceed 800-1000 feet.
2.6. Dead-end streets or cul-de-sacs	x	t	p	p	x	Dead end streets or Cul-de-sacs, while good at limiting vehicular traffic in an area are a severe hindrance to connectivity for pedestrian and bicycle users. Consider requiring other traffic calming measures that allow for connectivity
3. PEDESTRIAN/BICYCLE-FRIENDLY BUILDING AND SITE DESIGN STANDARDS						
3.1. Off-street automobile parking is behind or to side of building	p	t	p	p	p	Having building entrances (rather than parking lots) closer to the sidewalk creates a human-scaled street that's more pleasurable for walking. For example: consider the differences in the walking environment of a downtown versus that of a strip shopping area.
3.3. Bicycle parking requirements	x	t	p	p	p	Bicycles should receive equal consideration when calculating parking needs with specific calculations provided for

Topic	Jurisdiction					Comments/Recommendations
	City of Fayette-ville	City of Benton-ville	City of Spring-dale	City of Rogers	City of Siloam Springs	
Key: p No policy covering this topic or no guidance found; t Policy partially covers this topic; x Policy exists for this topic						
						determining the amount of bicycle parking provided by district type.
3.5. Form-based or design based codes	x	t	x	p	t	Integrating form-based codes into the building code and zoning ordinance allows a city to define the type of development they would like to see in their community.
3.6. Pedestrian entrances required on street frontage (regardless of parking location)	x	x	p	p	p	Buildings should have direct access to the street and sidewalk to promote pedestrian connectivity.
3.7. Set-back or build-to requirements	t	t	t	t	t	Large setback minimums reduce the walkability of neighborhoods and commercial areas. Consider reducing minimums for residential areas to 10-15 ft. and allowing 0 ft. setbacks for commercial development.
3.8. Mixed-use buildings or blocks	x	x	p	t	t	Mixed use should be encouraged in most zoning districts. This increases the number of destinations that can be reached by walking or biking.
3.9. Site amenities for cyclists and others (showers, changing areas, etc.)	p	p	p	p	p	This can be an effective method of promoting cycling in a community, especially in areas with hot climates.
3.10. Limits on curb cuts	x	p	t	x	p	High numbers of driveways or conflict points are unsafe and hostile to bicyclists and pedestrians. One guideline is 200 ft minimum between cuts, regardless of relationship of parcels.
4.PEDESTRIAN FACILITY DESIGN						
4.1. ADA Standards	x	x	x	x	x	A good guideline is a report developed by the Public Rights of Way Access Committee called Accessible Public Rights of Way: Planning and Designing for Alterations. Available through The Access Board,. http://www.access-board.gov/
4.2. Minimum sidewalk width by context	x	x	x	x	x	5' sidewalks along local streets and 6' sidewalks along collectors and arterials are preferred widths and should be required along both sides of the roadway. In areas of higher density and mixed-use development, the minimum required width for sidewalks should be .6' In areas such as downtown with buildings at the back of the sidewalk and ground level retail, sidewalks should be as wide as 10-18 feet wide.
4.3. Street Trees	x	x	x	p	t	In addition to their aesthetic value, street trees can slow traffic and improve safety for pedestrians. In hot climates such as AR and the South, shade is a crucial element in encouraging walking.
4.4. Mid-block crossings	x	x	p	p	p	One goal is to reduce the maximum allowed block-size and provide pedestrian crossing provisions at street intersections, reducing the need for mid-block crossings. When retrofitting, however, apply best practices in innovative mid-block crossing treatments.
5. BICYCLE FACILITY DESIGN						
5.1. Types of facilities specified or allowed	x	x	p	p	p	Need to define bicycle facilities and require certain facility types based on street size, speed, and traffic volume.
5.2. Minimum shoulder width	x	p	p	p	p	Roadway shoulders often serve as pedestrian routes in rural areas. On roadways with <3000 ADT roadway shoulders may be adequate for pedestrian travel. Also used as "shoulder bikeways", these facilities should be wide enough to

Topic	Jurisdiction					Comments/Recommendations
	City of Fayette-ville	City of Benton-ville	City of Spring-dale	City of Rogers	City of Siloam Springs	
Key: p No policy covering this topic or no guidance found; t Policy partially covers this topic; x Policy exists for this topic						
						accommodate both pedestrians and bicyclists.
5.3. Bicycle accommodations at intersections	t	t	p	p	p	Defining how cyclists should move through busy intersections is an important safety consideration. Good intersection design guidelines can be found in the NACTO Urban Bikeway Design Guide.
5.4. Mandatory sidepath laws	t	x	x	x	x	Cyclists should be allowed to use the roadway if desired.
5.5. Bicycles allowed on sidewalks	t	p	t	t	t	While it is optimum to provide bicycle facilities on roadways, when this is impossible, sidewalks can serve as key connectors for short distances. Education and enforcement strategies should be employed to assure safety of pedestrian and bicyclists in instances where bicycle routes make use of a sidewalk.
6. FACILITY MAINTENANCE						
6.1. Sidewalk maintenance policy	x	x	x	x	x	Sidewalk surfaces that have settled or heaved over time can be a significant barrier for pedestrians. Regular maintenance procedures can help ensure that differences in level between adjacent units do not exceed the limits of usability.
6.2. Vegetation management (trimming, pruning, mowing, etc.)	x	p	x	p	p	Overgrown landscaping, trees branches that protrude into sidewalk or bike lane area can be hazardous or block access. It is unreasonable to expect the city to monitor private property; it is most expedient for property owners to manage vegetation growth.
7. SUPPORTING POLICIES AND MANUALS						
7.1. Complete Streets Policy	x	p	p	p	t	The National Complete Streets Coalition provides great guidelines for designing streets that cater to all users. A complete streets policy allows cities to work towards creating a street network that encourages pedestrian and bicycle travel.
7.2. Design manual for bicycle and/or pedestrian facilities	x	x	p	t	p	This is an important step in creating a more pedestrian and bicycle friendly community. A design manual will give guidelines for bicycle and pedestrian consideration in new development.
7.3. Connectivity requirements for cyclists and pedestrians	p	t	p	p	p	Benefits of connectivity include: decreased traffic on arterial streets, continuous and more direct walking and biking routes, greater emergency vehicle access, improved utility connections, easier maintenance, and more efficient trash and recycling pick up.
7.4. Bicycle and/or pedestrian master plans	x	x	p	p	t	A bike and pedestrian plan will create a roadmap for moving towards a more bike and pedestrian friendly community.
7.5. Consideration of pedestrian or bicyclist concerns in site planning	t	t	t	p	t	Requiring pedestrian and bicycle concerns in site planning is an important step towards achieving a more bike and pedestrian friendly community.
7.8. Traffic Calming programs, policies and/or manuals	p	x	p	p	p	The National Complete Streets Coalitions provides excellent guidance for traffic calming strategies.
7.9. Sidewalk retrofit/infill program or policy	x	x	p	p	x	City staff periodically inventory the street network to identify sidewalk gaps, and develop strategies, project prioritization criteria and funding for completing these gaps.
7.10. Trail and/or Greenway Plan	x	x	x	x	x	Trails and greenways are integral component of biking and walking networks and add greatly to community livability and health.

3.2 Model Policy and Code Language

Across the country, communities large and small have implemented plans, policies, codes and practices in their efforts to integrate bicycling and walking into the transportation system. Many cities such as Madison, WI, Portland, OR, Austin, TX and San Francisco, CA began this work decades ago, while others have begun this work more recently. Complete streets, bike parking and greenway policies or ordinances will enable NWA communities to maximize bicycle/pedestrian improvements in conjunction with new development, redevelopment, and corridor improvement projects. This section includes sample language for consideration in developing these policies. Additional policy recommendations are provided at the end of this memorandum.

Complete Streets Resolution and Sample Policy

Complete streets are roadways that are designed with consideration for all users of the road whether they are pedestrians, bicyclists, drivers, or users of public transportation. Complete streets policies direct transportation planners and engineers to consistently design with all users in mind (drivers, transit riders, pedestrians, and bicyclists, as well as for older people, children, and people with disabilities).

Many jurisdictions around the country have adopted Complete Streets policies, and national model policies can be used as a starting point. The policy of the City of Indianapolis, IN - recently ranked the top Complete Streets policy by the National Complete Streets Coalition in its report titled 'The Best Complete Streets Policies of 2012'[7] - is provided in Appendix A and can serve as a model for development of a policy for NWA.

Currently, Fayetteville has a complete streets policy within its Transportation Master Plan. NWARPC and member jurisdictions should adopt a Complete Streets policy that can be used as a model for jurisdictions throughout the region, and should work with towns and cities to craft and adopt their own ordinances. This will provide engineers and planners guidance that ensures roadways are accessible and safe for all users.

More information: http://www.completestreets.org/

Bike Parking Ordinance

As more bikeways are constructed and bicycle usage grows, the need for bike parking will climb. Long-term bicycle parking at transit stations and work sites, as well as short-term parking at shopping centers and similar sites, can support bicycling. Bicyclists have a significant need for secure long-term parking because bicycles parked for longer periods are more exposed to weather and theft.

The City of Fayetteville has bike parking standards in its Code of Ordinances. Bike parking requirements apply to all new construction or expansions requiring five (5) or more off-street automobile parking spaces. The standards determine the number of bicycle racks required based on the number of automobile parking spaces in the development. These standards are described in

[7] http://www.smartgrowthamerica.org/documents/cs-2012-policy-analysis.pdf

Appendix B. Importantly, off-street Parking Reductions are also available for the provision of bike racks as follows.

Existing bike parking ordinances can be enhanced by considering land use as well. A more detailed sample bike parking ordinance below provides basic guidelines on ideal locations for parking at several key activity centers as well as an optimum number of parking spaces.

The region has the option of adopting the Fayetteville parking standards as regional standards that can be adopted by other cities in the region. Alternatively, the region could consider a more detailed table such as the one provided below.

Detailed bike parking design guidance will be provided in the Design Guidelines developed as part of this plan.

Table 2 – Model Bike Parking Ordinance

Use Category	Specific Use	Required Long-term Parking Spaces	Required Short-term Parking Spaces
Residential	Boarding houses	2, or 1 per ten sleeping rooms	None
	Hotels, models	2, or 1 per 50 employees	None
Commercial/ Industrial	Retail sales, service operations *	2, or 1 per 50,000 square feet of gross floor area	2, or 1 per 25,000 square feet of gross floor area
	Office buildings **	2, or 1 per 50,000 square feet of gross floor area	2, or 1 per 50,000 square feet of gross floor area
	Museums, libraries	2, or 1 per 50 employees	4, or 1 per 25,000 square feet of gross floor area
	Movie theaters	2, or 1 per 50 employees	4, or 1 per 50 seats
	Restaurants, ice cream shops, coffee shops	2, or 1 per 50 employees	4, or 1 per 50 seats
	Recreation centers	2, or 1 per 50 employees	4, or 1 per 25,000 square feet of gross floor area
	Major event entertainment (e.g., stadiums, arenas)	2, or 1 per 50 employees	8, or 1 per 500 seats
	Manufacturing	2, or 1 per 50 employees	None
	Warehousing	2, or 1 per 50 employees	None
Institutional	Medical centers	2, or 1 per 50 employees	2, or 1 per 25,000 square feet of gross floor area
	Transit park and ride lots	1 per 50 daily boardings	None

* Retail businesses below 3,000 square feet of gross floor area are exempt from bicycle parking requirements

** Office buildings below 10,000 square feet of gross floor area are exempt from bicycle parking requirements

Greenways Land Acquisition Procedures and Policies

A consistent approach to the acquisition of public land and easements is important for the creation and preservation of greenway corridors and connectors identified in this plan. NWARPC and local communities should be prepared to sustain a long-range land acquisition program until vision of the Regional Bicycle and Pedestrian Master Plan has been achieved.

In its efforts to acquire land and easements for greenways, NWARPC and local communities must deal with land availability, high land costs, and competitive bidding with private developers. The ability of

NWARPC and local communities to compete for land depends on their ability to raise or maintain the cash reserves necessary to purchase key parcels of land as they come on the real estate market.

While outright purchase is the only practical method for the acquisition of some lands, other portions of the proposed trail system can be realized through easements or gifts. It is fortunate that the very types of lands that are important for greenways and trail development are often considered marginal or unusable for private development..

NWA and local communities should ensure that planned greenways are referenced as part of the land development process so that the right-of-way for planned greenways can be maintained through purchase or easements.

Recommended considerations for future land acquisition are listed from highest priority to lowest priority:

- Critical tracts in danger of immediate development.
- Land needed to construct trails currently in the planning process.
- Opportunities to take advantage of low prices or willing sellers.
- Land that is developable but not in immediate danger.
- Land in no foreseeable danger of development, but needed for the greenway system.

Land Use Planning

Land use and transportation are closely related, inasmuch as the size and distribution of different land uses affect the street infrastructure, and subsequently how easy it is to make trips on foot or by bicycle. The following features should be considered during land development:

- Road network connectivity – Street connectivity impacts how directly a person can travel between two points using existing streets and paths. High levels of connectivity can typically be found in environments with grid street networks characterized by relatively straight streets, four-way intersections, and a higher number of blocks or intersections per unit of area, allowing for greater route choice and shorter trip distances between destinations.
- Land use mix - Land use mix refers to the number of different types of land uses (such as residential, commercial, institutional, or retail) within a given area. Mixing land uses increases the diversity of destinations in a given area, thereby potentially reducing the distance required to travel to a variety of destinations. By shortening trip distances, the mixing of land uses can increase the ability for people to make trips by walking and bicycling.
- Population Density - Density is a measure of urban form that indicates how compactly a particular environment is built. Higher densities typically increase the number of potential destinations located within a geographic area, thereby increasing proximity between destinations, reducing travel distances and increasing the likelihood of walking or bicycling.

While land use planning and transportation planning decisions are often made separately, the importance of each on achieving outcomes related to active transportation, economic development and other factors has led many areas to increase efforts to coordinate land use and transportation

planning. Although land use decisions are made locally, since these decisions can impact both local and regional transportation, the NWA region should take steps to provide model land use planning practices for use by cities in the region.

3.3 Performance Measures for Bicycle and Pedestrian Planning

Cities in the NWA region have worked to envision more connected and safer multimodal networks by creating master plans for bicycling, walking and trails. These plans articulate various goals and strategies that include implementation of specific facilities, establishment of programs, and other supportive activities. Performance measures help track progress to achieving established goals. The cities of Fayetteville, Bentonville and Siloam Springs have ambitious goals in their bicycle, pedestrian, and trails plans, but have not established specific measures.

The Northwest Arkansas Regional Bicycle and Pedestrian Master Plan should include measureable performance measures that can be tracked over time. The following are examples of bicycle and pedestrian performance measures utilized by other U.S. cities:

- Increase the bicycling or walking mode share by X% by the year XXXX
- Reduce bicycling crashes X% by the year XXXX
- Install XX miles of bicycle lanes or cycle tracks in the year XXXX
- Construct XX feet of new sidewalk, and X# of ADA curb ramps
- Distribute XX copies of bicycle route map each year
- Train XXX number of 5th graders in bicycle safety education each year

A good example of bicycle and pedestrian performance measures are also found in Sec. 431-806 of the model complete streets ordinance in Appendix A.

4 SUMMARY AND RECOMMENDATIONS

The conditions for bicycling and walking that exist in any community are a result of plans, policies, regulations and practices conducted at four levels of government: local, state, regional, and federal. Each of these entities plays a key role in the development of the urban environment and of the transportation network. Without bicycle, trail and pedestrian friendly policies at each level, local communities may be limited in their control or influence over transportation facilities. For example, a town or city may have a bicycle plan, programs and funding to install bicycle lanes on a roadway, but if it is a state jurisdiction route, design standards for highways may not allow certain types of facility design. On a higher level, if an MPO or regional transportation agency does not invest funding or planning in regional networks, connectivity between communities will suffer not only in the present but more importantly in the future as neighboring cities "sprawl" towards each other. In addition, thoroughfare plans that do not include trails, bicycle accommodations and pedestrian facilities in future growth may result in perpetuating automobile reliance throughout the system.

While bicycling and walking conditions in the NWA region will benefit from existing policies, a stronger commitment and more comprehensive effort will be needed at all levels of government to truly optimize the potential of bicycling and walking to improve transportation, health, sustainability and quality of life. Following is a summary of each level of government and key recommendations.

Federal – The USDOT's Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations[8] assures that bicycling and walking must be considered in federally-funded roadway projects. This is an effective "gateway" standard that trickles down to the state level and directs the Arkansas State Highway and Transportation Department and local agencies toward better integration of bicycling and walking into the roadway system.

Recommendations:

- Consider involving the local FHWA office in either a formal or informal audit to determine if AHTD and the local agencies are following either the letter or spirit of the policy. This could be conducted as part of the AHTD's statewide bicycle and pedestrian plan currently underway, or as an NWARPC initiative concurrently with this project.

State – AHTD policies described in Section 2.3 show a strong commitment to bicycling and walking. The agency will fund sidewalks and bike lanes on state roadways if the local jurisdiction has completed a formal planning process, and in some cases will allow innovative design or a higher level facility on its roadways. In addition, the state's 3-foot passing law is a positive step toward a more comfortable and safe bicycling environment. AHTD is currently conducting a bicycle and pedestrian planning process and has an excellent opportunity to consider new policies and practices that will accelerate development of bicycle and pedestrian facilities throughout the state.

[8] http://www.fhwa.dot.gov/environment/bicycle_pedestrian/overview/policy_accom.cfm

Recommendations:

- Consider innovative designs in bicycle and pedestrian facilities on state jurisdiction roads that serve as local roads.
- Develop a Main Streets guide for state highways that serve small town centers
- Consider involving local jurisdictions in project development and designs of highway projects to ensure interchanges and capacity expansions do not create barriers or pinch points in local bicycle/pedestrian networks.
- Consider forming a bicycle and pedestrian advisory committee composed of citizens, businesses and local agency staff that to provide input into policy and project development practices.

Regional – The Northwest Arkansas Regional Bicycle and Pedestrian Master Plan is an example of the region's commitment to making bicycling and walking viable modes of transportation. It is a great opportunity to incorporated ideas from MPOs in parts of the southeast U.S. as well as the rest of the country that have achieved high levels of bicycling and walking.

Recommendations:

- Consider committing a certain level of funding each year that goes beyond basic levels determined by MAP-21. For example, for the past 15 years, the Capital Area Metropolitan Planning Organization (CAMPO) in Austin, Texas has committed 15% of surface transportation funds to bicycle and pedestrian projects throughout the region. This has been a key element in the region's high bike and pedestrian mode split, extensive trail networks, high rankings on "healthy cities" lists and other livability benchmarks.
- Maintain the regional Active Transportation Committee. This planning committee, made of agency staff, business leaders, appointed citizens and community leaders will be essential to the successful implementation of the plan.
- Include bicycle and pedestrian facilities in thoroughfare plan roadway descriptions, showing bike and pedestrian facilities in cross-section drawings (developed as part of the current plan) that can also be used in local Master Street Plans.
- Develop measureable performance measures for walking and bicycling that can be tracked over time.
- Consider committing funds and staff time to bicycle/pedestrian data collection and research.
- Evaluate current state and regional transportation planning policy to ensure land use is considered in concert with transportation. Provide enhanced, ongoing staff support to surrounding communities to coordinate land use and transportation planning.

Local – The five NWA cities examined for this report are all making significant advances in addressing multimodal transportation and creating more livable communities. The following recommendations summarize key elements into the most critical actions for each municipality, using each city's current level of bicycling and walking initiatives as a starting point.

Table 3 – Recommended local policy and planning actions

	Fayette-ville	Benton-ville	Spring-dale	Rogers	Siloam Springs
Consider updating the Master Street Plan to reflect best practices in bicycle facility design, considering innovative designs such as cycle tracks and buffered bike lanes.	X				
Consider repealing the mandatory sidepath law.	X				
Consider designating one staff member as key point person on bicycle/pedestrian/trails master plan implementation.		X			
Consider planning, designing and implementing on-street bicycle facilities in addition to trails and sidepaths.		X	X	X	X
Consider adopting a Complete Streets policy.		X	X	X	
Consider establishing a bicycle parking code.		X	X	X	X
Consider developing a comprehensive plan with a multi-modal transportation element featuring bicycle and pedestrian improvements.			X		
Create program and dedicate funding to in-fill sidewalk projects.			X	X	

In addition to the above, the following recommendations apply to all local communities in the region:

- Update Master Street Plans to reflect individual community plans developed for this plan.
- Ensure that planned greenways are referenced as part of the land development process so that the right-of-way for planned greenways can be preserved through purchase or dedicated easements.

6 APPENDIX A – SAMPLE COMPLETE STREETS POLICY

CITY COUNTY COUNCIL PROPOSAL NO. 208, 2012

CITY OF INDIANAPOLIS-MARION COUNTY, INDIANA

INTRODUCED: 06/04/2012

REFERRED TO: Public Works Committee

SPONSOR: Councillors Lewis and Barth

DIGEST: amends the Code to add new Secs. 431-801 through 431-807 regarding complete streets

SOURCE:
Initiated by: Councillor Lewis
Drafted by: Fred Biesecker, General Counsel

LEGAL REQUIREMENTS FOR ADOPTION: PROPOSED EFFECTIVE DATE:
Subject to approval or veto by Mayor Adoption and approvals

GENERAL COUNSEL APPROVAL: _____ Date: May 31, 2012

CITY-COUNTY GENERAL ORDINANCE NO. , 2012

A GENERAL ORDINANCE amending the Revised Code of the Consolidated City and County by adding new Secs. 431-801 et. seq., regarding complete streets.

WHEREAS, Indianapolis strives to be a “liveable community” and a well-balanced and connected transportation system that allows for safe walking and biking and efficient, robust public transit is a vital component of a “livable community;” and

WHEREAS, Complete Streets are a sound financial investment in our community that provides long-term savings, in that a transportation budget can incorporate Complete Streets projects without requiring additional funding; and

WHEREAS, CEOs for Cities released a report called “Walking the Walk” which measured the dollars-and-cents value that homes in walkable areas — all other things being equal — command over homes with “average walkability,” and found that in 13 of the 15 housing markets they studied, increased neighborhood walkability was positively correlated with highly significant price increases; and

WHEREAS, creating Complete Streets also reduces infrastructure costs by requiring far less pavement per user compared to increasing road capacity for vehicles alone; this saves money at the onset of the project and reduces maintenance costs over the long-term; and

WHEREAS, the U.S. Census Bureau projects that by 2025, the portion of Marion County residents over 65 will increase from 11% to 16%, totaling nearly 150,000 people, and they need the public right-of-way to better serve them by safe places to walk, bicycle, or board the bus, and by designing the streets to better accommodate older drivers; and

WHEREAS, more than one third of Americans do not drive due to age, disability, or poverty and need transportation alternatives; and

WHEREAS, in Marion County, 40% of our children are overweight or at-risk for becoming overweight and nearly two thirds of adults are overweight or obese, and incomplete streets mean many people lack opportunities to be active as part of daily life; and

WHEREAS, the Metropolitan Development Commission adopted Multimodal Design Guidelines which address inclusion of biking and walking infrastructure on city roads, and Indianapolis was recently

awarded a bronze designation as a “Bicycle Friendly Community” by the League of American Bicyclists; now, therefore:

BE IT ORDAINED BY THE CITY-COUNTY COUNCIL OF THE
CITY OF INDIANAPOLIS AND OF MARION COUNTY, INDIANA:

SECTION 1. Chapter 431, Article VIII, of the Revised Code of the Consolidated City and County is hereby amended by adding new Sec. 431-801 et. seq., to read as follows:

Sec. 431-801. Definition of Complete Streets.

“Complete Streets” means streets that are designed and operated to enable safe access for all users, in that pedestrians, bicyclists, motorists and public transportation users of all ages and abilities are able to safely move along and across a street.

Sec. 431-802. Complete Streets Policy.

The City shall develop a safe, reliable, efficient, integrated and connected multimodal transportation system that will promote access, mobility and health for all users, and will ensure that the safety and convenience of all users of the transportation system are accommodated, including pedestrians, bicyclists, users of mass transit, people of all ages and abilities, motorists, emergency responders, freight providers and adjacent land users.

Sec. 431-803. Scope of Complete Streets Applicability.

(a) All city-owned transportation facilities in the public right of way including, but not limited to, streets, bridges and all other connecting pathways shall be designed, constructed, operated, and maintained so that users of all ages and abilities can travel safely and independently.

(b) Privately constructed streets and parking lots shall adhere to this policy.

(c) The City shall foster partnerships with the State of Indiana, neighboring communities and counties, and business and school districts to develop facilities and accommodations that further the City's complete streets policy and continue such infrastructure beyond the City's borders.

(d) The City shall approach every transportation improvement and project phase as an opportunity to create safer, more accessible streets for all users. These phases include, but are not limited to: planning, programming, design, right-of-way acquisition, construction, construction engineering, reconstruction, operation and maintenance. Other changes to transportation facilities on streets and rights-of-way, including capital improvements, re-channelization projects and major maintenance, must also be included.

Sec. 431-804. Exceptions

Any exception to this policy, including for private projects, must be approved by the Director of Public Works and be documented with supporting data that indicates the basis for the decision. Such documentation shall be publicly available.

Exceptions may be considered for approval when:

(a) An affected roadway prohibits, by law, use by specified users (such as an interstate freeways or pedestrian malls), in which case a greater effort shall be made to accommodate those specified users elsewhere, including on roadways that cross or otherwise intersect with the affected roadway;

(b) The activities are ordinary maintenance activities designed to keep assets in serviceable condition (e.g. mowing, cleaning, sweeping, spot repair, and surface treatments such as chip seal or interim measures;

(c) The Director of Public Works issues a documented exception concluding that the application of Complete Streets principles is unnecessary, unduly cost prohibitive, or inappropriate because it would be contrary to public safety; or

(d) Other available means or factors indicate an absence of need, including future need.

The Director of Public Works shall submit quarterly reports to the Board of Public Works summarizing all exceptions granted in the preceding quarter. These reports shall be submitted at the first Board of Public Works meeting after the end of the quarter, and shall be posted on-line.

Sec. 431-805. Design Standards.

The City shall follow accepted or adopted design standards and use the best and latest design standards available.

In recognition of context sensitivity, public input and the needs of many users, a flexible, innovative and balanced approach that follows other appropriate design standards may be considered, provided that a comparable level of safety for all users is present.

Sec. 431-806. Performance Measures.

The City shall measure the success of this Complete Streets policy using, but not limited to, the following performance measures:

- Total miles of bike lanes
- Linear feet of new pedestrian accommodation
- Number of new curb ramps installed along city streets
- Crosswalk and intersection improvements
- Percentage of transit stops accessible via sidewalks and curb ramps (beginning in June 2014)
- Rate of crashes, injuries, and fatalities by mode
- Rate of children walking or bicycling to school (beginning in June 2014)

Unless otherwise noted above, within six months of ordinance adoption, the City shall create individual numeric benchmarks for each of the performance measures included, as a means of tracking and measuring the annual performance of the ordinance. Quarterly reports shall be posted on-line for each of the above measures

Sec. 431-807. Implementation and Reporting.

The City of Indianapolis shall view Complete Streets as integral to everyday transportation decision-making practices and processes. To this end:

(a) The Department of Public Works, the Department of Metropolitan Development, the Office of Sustainability and other relevant departments, agencies, or committees will incorporate Complete Streets principles into all existing plans, manuals, checklists, decision-trees, rules, regulations, and programs as appropriate (including, but not limited to, ReZone Indy, ReBuild Indy, the Comprehensive Plan, Transportation Capital Program, the Pedestrian and Bicycle Master Plans, Transit Plan and other appropriate plans);

(b) The Department of Public Works, the Department of Metropolitan Development, the Office of Sustainability and other relevant departments, agencies, or committees will review current design standards, including subdivision regulations which apply to new roadway construction, to ensure that they reflect the best available design standards and guidelines, and effectively implement Complete Streets, where feasible;

(c) When available, the City shall encourage staff professional development and training on non-motorized transportation issues through attending conferences, classes, seminars, and workshops;

(d) City staff shall identify all current and potential future sources of funding for street improvements and recommend improvements to the project selection criteria to support Complete Streets projects;

(e) The City shall promote inter-departmental project coordination among city departments with an interest in the activities that occur within the public right-of-way in order to better use fiscal resources;

(f) An annual report will be made to the City-County Council showing progress made in implementing this policy. The Department of Public Works, the Department of Metropolitan Development, the Office of Sustainability and other relevant departments, agencies, or committees shall report on the annual increase or decrease for each performance measure contained in this ordinance compared to the previous year(s); and

(g) Every Complete Streets project shall include an educational component to ensure that all users of the transportation system understand and can safely utilize Complete Streets project elements.

SECTION 2. This ordinance shall be in full force and effect upon adoption and compliance with IC 36-3-4-14.

The foregoing was passed by the City-County Council this _____ day of _____, 2012, at _____ p.m.

ATTEST:

_____
Maggie A. Lewis
President, City-County Council

_____
NaTrina DeBow
Clerk, City-County Council

Presented by me to the Mayor this _____ day of _____, 2012, at 10:00 a.m.

_____
NaTrina DeBow
Clerk, City-County Council

Approved and signed by me this _____ day of _____, 2012.

_____
Gregory A. Ballard, Mayor

7 APPENDIX B – SAMPLE BIKE PARKING ORDINANCE (FAYETTEVILLE)

The City of Fayetteville has bike parking requirements in its Code of Ordinances (172.10 Bicycle Parking Rack Requirements). Below is a summary of the primary elements of the bike parking requirements. The complete ordinance, including additional guidance on bike parking design and placement, is included on the following pages.

(A) Applicability. All new construction or expansions requiring five (5) or more off-street automobile parking spaces shall provide bicycle parking as required by this chapter. Any property owner required to have bicycle parking may elect to establish a shared bicycle parking facility with any other property owner within the same block to meet the combined requirements.

(C) Number of Bicycle Racks Required. The minimum number of bicycle parking racks required is determined by the number of parking spaces required for the type of land use. Alternative rack designs may be approved by the Planning Division so long as they have the bicycle capacity storage equivalent to total number of standard bicycle racks required. The following standards shall determine the number of bicycle racks required based on the number of automobile parking spaces in the development:

(1) Non-residential Development. Non-residential development shall provide one (1) bicycle parking rack per twenty (20) automobile parking spaces. At a minimum the development shall provide one (1) bike rack.

(2) Residential Development - Residential development shall provide (1) bicycle rack per thirty (30) dwelling units. At a minimum the development shall provide one (1) bike rack.

Off-street Parking Reductions:

Bike Racks. Up to 10% of required automobile parking may be substituted with bicycle parking at a rate of one additional bicycle rack for one automobile space. This reduction shall be allowed in addition to other variances, reductions and shared parking agreements.

172.10 Bicycle Parking Rack Requirements

(A) *Applicability.* All new construction or expansions requiring five (5) or more off-street automobile parking spaces shall provide bicycle parking as required by this chapter. Any property owner required to have bicycle parking may elect to establish a shared bicycle parking facility with any other property owner within the same block to meet the combined requirements.

(B) *Definition.* A bicycle rack is a fixture designed to park bicycles that can be secured with a standard u-shaped bicycle lock. Each bicycle parking rack holds two bicycles.

(C) *Number of Bicycle Racks Required*. The minimum number of bicycle parking racks required is determined by the number of parking spaces required for the type of land use. Alternative rack designs may be approved by the Planning Division so long as they have the bicycle capacity storage equivalent to total number of standard bicycle racks required. The following standards shall determine the number of bicycle racks required based on the number of automobile parking spaces in the development:

(1) *Non-residential Development.* Non-residential development shall provide one (1) bicycle parking rack per twenty (20) automobile parking spaces. At a minimum the development shall provide one (1) bike rack.

(2) *Residential Development.* Residential development shall provide (1) bicycle rack per thirty (30) dwelling units. At a minimum the development shall provide one (1) bike rack.

(D) *Bicycle Rack Site Design.* Careful consideration should be given to the layout and location of bicycle racks. For optimal functionality the following standards shall apply in determining the layout and position of bicycle racks:

(1) *Spacing between bicycle racks*. Each bicycle parking space shall have 36" of clear space, paved or unpaved, beside the rack allowing each rack to support two bicycles. The 36" dimension may overlap another bicycle parking space such that racks positioned in a parallel row may be 36" on center. The minimum length dimension required is 8' free and clear (See: Figure 1).

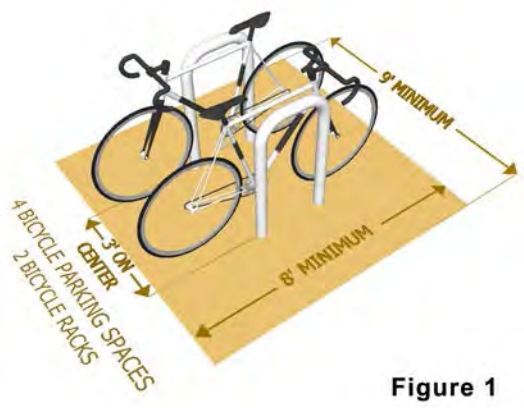


Figure 1

(2) *Location of Bicycle Parking Racks.* Bicycle racks should be located in areas where they are useful to the bicyclist while not impeding access. The following standards shall apply when determining the location of bicycle racks:

(a) Bicycle parking racks should be located within 50 feet of a public entry. In locations that have multiple entrances, such as shopping areas, bicycle parking racks should be distributed near all major points of public entry.

(b) Bicycle parking facilities should have adequate lighting for the operation of combination and key locks at night and to minimize theft.

(c) Bicycle parking racks should be positioned so that no pedestrian traffic is impeded.

(d) Bicycle parking racks should not be located within bus stops, loading zones, or other curb space where on-street parking is permitted unless approved by the City Engineer.

(e) Bicycle parking racks shall have a six foot (6') minimum clearance from the edge of fire hydrants.

(f) Bicycle parking racks should have a 4' 0" clearance from existing street furniture, including mailboxes and light poles.

(g) Bicycle parking rack location shall not interfere with ADA standards.

(E) *Bicycle Rack Specifications.* The Planning Division has pre-approved the standard inverted u-shaped bicycle rack (see figure 1). Applicants may also request an alternative design with Planning Division approval (see examples in figure 2). All bicycle racks shall be designed so that they support a bicycle at two points on the bicycle frame and such that the bicycle may be securely locked with a u-shaped bicycle lock (See figure 3).

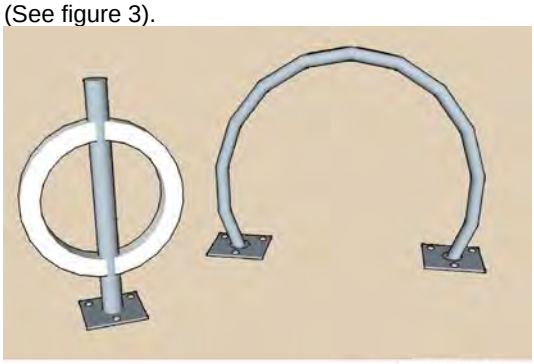


Figure 2

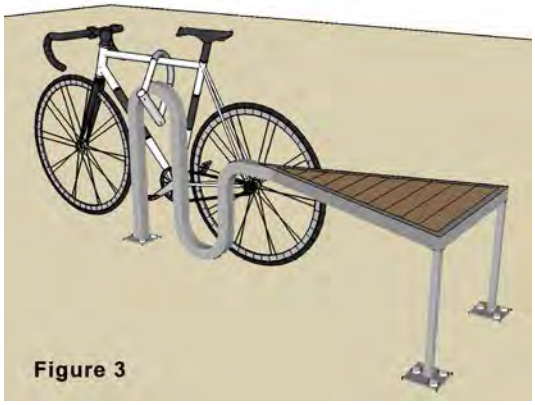


Figure 3

(F) *Materials*. Racks are to be constructed of 1½ inch, Schedule 40 steel pipe (1.90" x 0.145" wall).

(G) *Finishes.* Unless the pipe material is stainless steel, the pipe shall have PVC coating, powdercoat finish or hot-dipped galvanized finish applied after the flange has been welded in place (Surface Mount Method) or the anchoring cross bar/supports have been fitted (Embedment Method).

(H) *Anchoring*. Bicycle racks shall be anchored with one of the following methods:

(1) *Embedded in concrete.* The rack legs shall extend a minimum of 9" into a concrete footing with an anchoring crossbar mounted 3 inches above the base.

(2) *Surface flange mount.* A pre-drilled, steel flange, minimum 8 inch square, shall be welded to the bottom of each leg before final finish is applied. The flange shall have a minimum of three bolt holes. Each bolt hole shall accept a ½ inch diameter steel bolt.

(3) *Alternative anchoring methods*. Alternative methods of anchoring bicycle racks may be permitted with approval of the City Engineer.

(Ord. No. 4293, 2-20-01; Ord. 5297, 12-15-09; Ord. 5482, 2-7-12; Ord. 5603, 8-6-13)

172.11 Driveway And Parking Standards For Four (4) Or Less Parking Spaces

(A) *Purpose.* The purpose of this ordinance section is to promote the public health, safety and general welfare, to prevent the adverse impacts associated with excess parking and over-occupancy of homes in single family districts, and to ensure that compatibility of land uses within single family districts remain intact.

(B) *Applicability.* The following requirements shall apply to properties within single family districts that require four (4) or less parking spaces and properties within all zoning districts that are utilized for a single family detached home requiring four (4) or less parking spaces. The regulations herein do not apply to motor vehicles located completely within or underneath garages or carports, nor to properties zoned Residential Agricultural.

(C) *Maximum Number of Parking Spaces Permitted.* Unless otherwise permitted herein, a maximum of four (4) motor vehicles may be parked outdoors on a property containing a single family home(s) at any time, including driveways and other designated off-street parking areas. Parking for all other permitted uses shall conform to the Parking Ratio Table contained within this chapter.

(D) *Use of Front Yard Area for a Driveway and Off-street Parking.* Motor vehicles shall be parked in a driveway or off-street parking area that is clearly defined by pavement, a change in materials, edging, or other means. Driveways and off-street parking areas shall be limited to a maximum of 40% of the front yard area and shall meet the maintenance requirements as identified by this chapter.

(E) *Parking of non-motorized vehicles in Front Yard Area.* If parked within the front yard area of a property (including driveways), non-motorized recreational vehicles, trailers, and boats shall be counted toward the maximum total of four (4) motor vehicles permitted on the property.

(F) *Off-street Parking on City Street Right-of-Way.* The off-street parking of any motor vehicle, non-

8 APPENDIX C – MUNICIPAL CODE SUMMARY TABLE

Table 4 - Review of Municipal Code Related to Trails, Walking and Bicycling (Detailed)

Topic	Jurisdiction					Comments/Recommendations
	City of Fayetteville	City of Bentonville	City of Springdale	City of Rogers	City of Siloam Springs	
1. DEFINITIONS						
1.1. Does "Street" definition include pedestrian and cyclist reference?	Not specifically, but following addresses access: "Safe and adequate vehicular, bicycle, and pedestrian access shall be provided to all parcels." UDC 166.8	No, only refers to street in terms of vehicular traffic (Subdivision Code 200-9), or as "public thoroughfare" (Zoning Code, 201)	References vehicular and pedestrian travel, but does not specify bicycles. CO 114-1 refers to state laws Title 27.	References vehicular and pedestrian travel but does not specify bicycles. CO-14-676	None found.	Definition of a street should include consideration for pedestrian and bicycle traffic and safety.
1.2. Definition of Sidewalk	That portion of a street between the curb lines, or the lateral lines of a roadway, and the adjacent property lines intended for the use of pedestrians. CO 70.	Sidewalk (Outdoor Vendors): All that area legally open to the public used as a pedestrian public way between the curb line and the legal property line of the abutting property. (ZC, 201)	None found.	None found.	None found.	Example: "Sidewalks have a hard, smooth surface (e.g., concrete), with separation from the roadway typically consisting of a curb and/or planter strip."
1.3. Definition of Bicycle	Bicyclists granted rights and subject to all the duties applicable to drivers of vehicles. Special regulations apply. See 5.4 below.	Every person riding a bicycle...shall have all the rights and all of the duties applicable to the driver of a vehicle. Title 27, AR Motor Vehicle Law	Every person riding a bicycle...shall have all the rights and all of the duties applicable to the driver of a vehicle. Title 27, AR Motor Vehicle Law	Included in classification of "human-powered conveyance"...designed to be ridden for recreational purposes. Bicycles are only HPC allowed on city streets. Children under 8 may not ride on streets CO 52-31.	Adopts state vehicle law. CO 94-1. Every person riding a bicycle...shall have all the rights and all of the duties applicable to the driver of a vehicle. Title 27, AR Motor Vehicle Law	Bicycles should be defined as a type of vehicle requiring its own specialized facilities and regulations for safe operation, including the right to operate on any street.
1.4. Definition of Traffic	Pedestrians, ridden or herded animals, vehicles and other conveyances, either single or together, while using any street or highway for purposes of travel. CO 70	None found.	None found.	None found.	None found.	The traditional definition of traffic included motor vehicles only. All modes of travel are "traffic"; terminology and policy language should reflect the Uniform Vehicle Code.
2. STREET ELEMENTS AND CONFIGURATION						
2.1. Pedestrian facilities (sidewalks, crosswalks, etc.) required during new or redevelopment	Sidewalks required both sides of street, 5' minimum. Accessible crosswalks required on federally funded roadways. UDC 171.12	Sidewalks required both sides of street, 5' residential or local; 6' collector or arterial. MSP.	Sidewalks required for both sides of the street, 5' min. "Multi-use sidewalks" of 8' required on north and west sides of major collector and above (<11,000 ADT and 45 mph) MSP p.2. NOTE: CO states city "may require", not "shall require".	Sidewalks required both sides of street in subdivisions, 5' residential or local street; 6' collector or arterial. Required on both or one as is applicable in large-scale developments. CO 14-482	Sidewalks required for both sides of street, 5' minimum. Staff interview.	Pedestrian travel is accommodated and enhanced by walkways, traffic signals, crosswalks, curb ramps, and amenities such as lighting, landscaping, and places to rest (e.g. benches). Pedestrians and bicyclists should generally be accommodated on separate facilities (e.g., a sidewalk and a bike lane) rather than a "multi-use sidewalk."
2.2.Bicycle facilities (bike lanes, shoulders, parking, etc.) required during new or redevelopment	MSP: collector - shared lane or bike lane; minor arterial <12,200 VPD 5'bike lanes (to FOC); principal arterial <17,600 VPD 5' bike lane or shared lane.	None in SC, ZC, or Street Specs; 8 specific roadways are to have bike lane or trail per the MTP and MSP.	See above "Multi-use sidewalks".	No.	No.	Generally, as traffic volumes exceed 3,000 vehicles per day and traffic speeds exceed 25mph, facilities to separate bicycle and motor vehicle traffic are recommended. Multi-lane roads are typically more dangerous for all users because of the increased traffic volume, the potential for higher speeds, and the additional number of conflict locations due to turning vehicles.
2.3. Sidewalks or bike facilities required by	See 2.2 above.	Sidewalks, see 2.1. No requirements for bikes.	See 2.1 above. No requirements for bikes.	See 2.1 above	No.	A better standard would be one that requires or provides sidewalks on both sides of all collector

Topic	Jurisdiction					Comments/Recommendations
	City of Fayetteville	City of Bentonville	City of Springdale	City of Rogers	City of Siloam Springs	
roadway type						and arterial streets and on at least one side of local streets where warranted by density and/or system connectivity.
2.4. New sidewalks, bike facilities, greenways, etc. connect to existing facilities	Roadway facilities must connect; sidewalks and bike facilities not specifically mentioned.	No guidance found.	Roadway facilities must connect; sidewalks and bike facilities not specifically mentioned. CO-112-7.	No guidance found.	No guidance found.	Connectivity is critical, especially since bicyclists and pedestrians operate under human-power, and circuitous routes can discourage bicycling and walking.
2.5. Block size	Residential - 600' min.; Local - 800'min; Collector - 1,320' min.; principal and minor arterial - 2,640 min. UDC 166.08.	Blocks of less than four hundred (400) feet in length or more than one thousand five hundred (1,500) feet in length shall be prohibited. Blocks of over one thousand (1,000) feet in length may require a public crosswalk. SC 1100.3.E	Blocks shall be at least 400 feet long, but no longer than 1,400 feet. CO-112-7	No guidance found.	No guidance found.	Development density should determine the length of a block, with shorter blocks being more appropriate in areas of higher density. Maximum block length in any situation should not exceed 800-1000 feet.
2.6. Dead-end streets or cul-de-sacs	Dead-end streets discouraged. UDC 166.08	May not exceed 600 feet in length. No guidance found on discouraging dead-end streets.	No guidance found.	No guidance found.	Comprehensive Plan discourages dead-ends and cul-de-sacs. Sec B Urban Design Element	Dead end streets or Cul-de-sacs, while good at limiting vehicular traffic in an area are a severe hindrance to connectivity for pedestrian and bicycle users. Consider requiring other traffic calming measures that allow for connectivity
3. PEDESTRIAN/BICYCLE-FRIENDLY BUILDING AND SITE DESIGN STANDARDS						
3.1. Off-street automobile parking is behind or to side of building	No guidance found.	Moderate or high density residential: surface parking shall be located at the side or the rear of the building to ensure that entering and exiting vehicles do not interrupt pedestrian movement at the front of the building. ZC 501.6	No guidance found.	No guidance found.	No guidance found.	Having building entrances (rather than parking lots) closer to the sidewalk creates a human-scaled street that's more pleasurable for walking. For example: consider the differences in the walking environment of a downtown versus that of a strip shopping area.
3.3. Bicycle parking requirements	UDC 172.10 Applies to all new construction or expansions requiring five (5) or more off-street automobile parking spaces. (1) Non-residential Development. Non-residential development shall provide one (1) bicycle parking rack per twenty (20) automobile parking spaces. At a minimum the development shall provide one (1) bike rack. (2) Residential Development - Residential development shall provide (1) bicycle rack per thirty (30) dwelling units. At a minimum the development shall provide one (1) bike rack. Off-street Parking Reductions (UDC 172.05 C3c: Up to 10% of required automobile parking may be substituted with bicycle parking at a rate of one additional bicycle rack for	Detailed bicycle parking guidelines are included in the Bentonville Bicycle and Pedestrian Master Plan, but bicycle parking is not a requirement in zoning code.	None.	None.	None.	Bicycles should receive equal consideration when calculating parking needs with specific calculations provided for determining the amount of bicycle parking provided by district type.

Topic	Jurisdiction					Comments/Recommendations
	City of Fayetteville	City of Bentonville	City of Springdale	City of Rogers	City of Siloam Springs	
	one automobile space.					
3.5. Form-based or design based codes	Urban Residential and Nonresidential Design Standards require variations in form, color, texture, wall plane depth, etc. UDC 166.23	No guidance found, see 3.8 below.	Yes, included in new development within overlay district near ballpark. Staff interview.	None.	Comprehensive Plan recommends creation of Form-based codes for future development. Development Standards element p70.	Integrating form-based codes into the building code and zoning ordinance allows a city to define the type of development they would like to see in their community.
3.6. Pedestrian entrances required on street frontage (regardless of parking location)	Yes. UDC 166.23	Clearly defined pedestrian walkways shall be provided from public sidewalks to primary building entrances. Design so that pedestrians do not have to cross parking aisles or landscape islands to reach building. SC 1100.13	No guidance found.	No guidance found.	No guidance found.	Buildings should have direct access to the street and sidewalk to promote pedestrian connectivity.
3.7. Set-back or build-to requirements	Residential SF-4 and above 15' minimum. UDC 161.07. RT-12 and above is 10' - 25'. Commercial is 15' - 25'. If parking in front of building 50' allowed. 161.20	20 ft minimum for residential; 20 ft minimum for commercial without parking frontage, 50ft with parking frontage. (ZC 401.7). 0 - 10ft in R-C2 and R-C3, non-residential, downtown core and downtown edge.	30 fit minimum for residential; 50'for commercial if parking allowed between frontage and street; 5' minimum from property line for downtown district. No minimum in PUDs. CO 130-6.5. ZO.	20 ft minimum for residential; 25 ft general commercial; 0 for central business district. CO 14	Residential - 25 ft to 35 ft; Historical overlay - 20 ft; Historic downtown - 0; Commercial - 0 to 40. CO 102.	Large setback minimums reduce the walkability of neighborhoods and commercial areas. Consider reducing minimums for residential areas to 10-15 ft. and allowing 0 ft. setbacks for commercial development.
3.8. Mixed-use buildings or blocks	Mixed uses with residential permitted and encouraged in ND, R-O, S-1, CS, C-3, urban thoroughfares, Downtown, and Main Street. UDC 161	In Downtown Core and Edge; expand pedestrian oriented character town square; uses that promote retail and entertainment venues with upper story residential uses permitted. Mixed use is commercial and retail on the first floor and office and residential on the upper floors. Buildings are spaced closely or attached. ZC 401.8	No guidance found.	Mixed use with residential allowed only in RO, residential office zone. CO 14.	Height limits throughout zones of 35 - 45 ft. CO 102. Promoting mixed-use in historic overlay district. Staff interview.	Mixed use should be encouraged in most zoning districts. This increases the number of destinations that can be reached by walking or biking.
3.9. Site amenities for cyclists and others (showers, changing areas, etc.)	None.	None.	None.	None.	None.	This can be an effective method of promoting cycling in a community, especially in areas with hot climates.
3.10. Limits on curb cuts	Arterial - 1 every 500 ft; Collector - 1 every 100 ft.; Local and residential - 1 every 50 ft. One maximum allowed for 500 ft. UDC 166.08.	No guidance found.	Minimum distance between dries on adjoining properties - 50ft.; between drives on single tract - 150 ft.	Only one curb cut allowed <600 ft. in one parcel. With contiguous parcels, min. distance between cuts is 100 ft for 30 mph design speed. CO 14-260	No guidance found.	High numbers of driveways or conflict points are unsafe and hostile to bicyclists and pedestrians. One guideline is 200 ft minimum between cuts, regardless of relationship of parcels.
4.PEDESTRIAN FACILITY DESIGN						
4.1. ADA Standards	Accessible crosswalks shall be provided on collector and arterial streets financed by federal funds. UDC 171.04	Sidewalks must meet ADA. Street Specifications 900-3.	Sidewalks must meet ADA. CO 110-31.	Sidewalks must meet ADA.	Sidewalks must meet ADA.	A good guideline is a report developed by the Public Rights of Way Access Committee called Accessible Public Rights of Way: Planning and Designing for Alterations. Available through The Access Board,. http://www.access-board.gov/

Topic	Jurisdiction					Comments/Recommendations
	City of Fayetteville	City of Bentonville	City of Springdale	City of Rogers	City of Siloam Springs	
4.2. Minimum sidewalk width by context	5′ minimum. UDC 171.13 defers to Master Street Plan (MSP)	5′ residential and local; 6′ collector and arterial; 5′ minimum setback from curb for all types. MSP. Good.	5′ minimum collector and below. Major collector and above 8′ min. "multi-use sidewalk" on north and west sides of street. MSP p2	5′ width w/5′setback residential and local; 6′ width w/6′setback collector and arterial. Good. CO 14-482	5′ minimum on new streets.	5′ sidewalks along local streets and 6′ sidewalks along collectors and arterials are preferred widths and should be required along both sides of the roadway. In areas of higher density and mixed-use development, the minimum required width for sidewalks should be .6′ In areas such as downtown with buildings at the back of the sidewalk and ground level retail, sidewalks should be as wide as 10-18 feet wide.
4.3. Street Trees	Trees required every 30 ft along front property line. UDC 177.04	Required in Downtown Core and Edge; every 30′ on primary streets, every 25′ on secondary streets. SC 1400.6	Required on local streets. MSP	No guidance found.	Landscape Element of Comprehensive Plan states "Tree City USA" as goal and recommends adoption of tree ordinance. p62	In addition to their aesthetic value, street trees can slow traffic and improve safety for pedestrians. In hot climates such as AR and the South, shade is a crucial element in encouraging walking.
4.4. Mid-block crossings	Allowed on long block faces, only in marked crosswalks.	Allowed on block faces >1000 ft. SC 1100.3	No guidance found.	No guidance found.	No guidance found.	One goal is to reduce the maximum allowed block-size and provide pedestrian crossing provisions at street intersections, reducing the need for mid-block crossings. When retrofitting, however, apply best practices in innovative mid-block crossing treatments.
5. BICYCLE FACILITY DESIGN						
5.1. Types of facilities specified or allowed	Collector <4000 - 6000 ADT: 14′ shared outside lane and bike lane; no bike facility on Collector w/parking. Arterial w/12,200 ADT requires 5′ bike lane. Arterial w/parking, 11′ shared lane. MSP.	Bike lane recommendations in Bicycle & Pedestrian Master Plan, for roads w >3,000 ADT and >35 mph. Sharrows recommended on lesser roads, or where ROW is constrained. However, no bike lanes are currently being installed due to funding constraints.	None specified.	None specified.	None specified.	Need to define bicycle facilities and require certain facility types based on street size, speed, and traffic volume.
5.2. Minimum shoulder width	4′. MSP	None specified.	None specified.	None specified.	None specified.	Roadway shoulders often serve as pedestrian routes in rural areas. On roadways with <3000 ADT roadway shoulders may be adequate for pedestrian travel. Also used as "shoulder bikeways", these facilities should be wide enough to accommodate both pedestrians and bicyclists.
5.3. Bicycle accommodations at intersections	Some guidance provided in Alternative Transportation and Trails Plan, per MUTCD.	Some guidance provided in Bicycle and Pedestrian Master Plan 2012, per MUTCD.	No guidance found.	No guidance found.	No guidance found.	Defining how cyclists should move through busy intersections is an important safety consideration. Good intersection design guidelines can be found in the NACTO Urban Bikeway Design Guide.

Topic	Jurisdiction					Comments/Recommendations
	City of Fayetteville	City of Bentonville	City of Springdale	City of Rogers	City of Siloam Springs	
5.4. Mandatory sidepath laws	Yes. Traffic code 73.04 "Whenever a usable path for bicycles has been provided adjacent to a roadway, bicycle riders shall use such path and shall not use the roadway."	None.	None	None	None	Cyclists should be allowed to use the roadway if desired.
5.5. Bicycles allowed on sidewalks	Yes, along collector or minor/major arterial when so designated and marked as a bicycle route. Traffic Code 73.05	No. City Code 9.12.01	Vehicles prohibited on sidewalks. CO 114.5. No language found defining bicycle as vehicle.	No guidance found.	No guidance found.	While it is optimum to provide bicycle facilities on roadways, when this is impossible, sidewalks can serve as key connectors for short distances. Education and enforcement strategies should be employed to assure safety of pedestrian and bicyclists in instances where bicycle routes make use of a sidewalk.
6. FACILITY MAINTENANCE						
6.1. Sidewalk maintenance policy	Existing city sidewalks shall be repaired and replaced by the city, as needed. UDC 171.07	Responsibility of adjacent property owner.	No guidance found for public sidewalks.	Responsibility of adjacent property owner.	Responsibility of city. Staff interview.	Sidewalk surfaces that have settled or heaved over time can be a significant barrier for pedestrians. Regular maintenance procedures can help ensure that differences in level between adjacent units do not exceed the limits of usability.
6.2. Vegetation management (trimming, pruning, mowing, etc.)	Property owner must keep sidewalks free from obstructions, including vegetation. CO 98.02	No guidance found.	Property owner must trim trees, vegetation in order to prevent encroachment of sidewalk. CO 114-4	No guidance found.	No guidance found.	Overgrown landscaping, trees branches that protrude into sidewalk or bike lane area can be hazardous or block access. It is unreasonable to expect the city to monitor private property; it is most expedient for property owners to manage vegetation growth.
7. SUPPORTING POLICIES AND MANUALS						
7.1. Complete Streets Policy	Master Transportation Plan: "....prescribes and plans for the development of a multi-modal transportation system in the form of streets, sidewalks, bike lanes, trails and transit." MSP supports with design requirements.	None.	None.	None.	Comprehensive Plan encourages multi-modal transportation.	The National Complete Streets Coalition provides great guidelines for designing streets that cater to all users. A complete streets policy allows cities to work towards creating a street network that encourages pedestrian and bicycle travel.
7.2. Design manual for bicycle and/or pedestrian facilities	Master Street Plan provides cross-sections that include bike facilities and sidewalks on some roads. Alternative Transportation and Trail Plan provides guidelines for trail construction, on-street bike facilities and sidewalks.	Sidewalk design included in Street Specs. Bicycle & Pedestrian Plan includes design guidelines for wide lanes, sharrows, bike lanes, bicycle treatments in intersections, pedestrian connectors, trail crossings and other trail elements.	None.	Sidewalk, crosswalks and ADA ramp standard details provided in CO 14	None.	This is an important step in creating a more pedestrian and bicycle friendly community. A design manual will give guidelines for bicycle and pedestrian consideration in new development.
7.3. Connectivity requirements for cyclists and pedestrians	No guidance found.	Has guidelines but no requirements for Smart Growth and Traditional Neighborhood principles.	"Proposed streets shall be coordinated with the street system in the surrounding area and provide for the continuation of principal streets." (LDR, p. 8-2)	No guidance found.	No guidance found.	Benefits of connectivity include: decreased traffic on arterial streets, continuous and more direct walking and biking routes, greater emergency vehicle access, improved utility connections, easier maintenance, and more efficient trash and recycling pick up.

Topic	Jurisdiction					Comments/Recommendations
	City of Fayetteville	City of Bentonville	City of Springdale	City of Rogers	City of Siloam Springs	
7.4. Bicycle and/or pedestrian master plans	Fayetteville Alternative Transportation and Trails Plan (FATT) includes on-street bike facilities and trails.	Bentonville Bicycle and Pedestrian Plan 2012	None cited.	None cited.	No bike/ped master plan per se, but Dogwood Trail network includes multi-use segments and sidewalks; expansion plans currently under review.	A bike and pedestrian plan will create a roadmap for moving towards a more bike and pedestrian friendly community.
7.5. Consideration of pedestrian or bicyclist concerns in site planning	In PZD, street must be sensitive to such considerations as safety, convenience, separation of vehicular and pedestrian traffic. Other developments: Pedestrian-vehicular conflict points should be controlled through signalized intersections and proven traffic calming design principles.	Sidewalks required both sides of street. See 2.1. No discussion of bikes in SC, ZC, or SS.	Pedestrian-vehicular conflict points shall be minimized. Adequate vehicular and pedestrian access shall be provided to all parcels. CO 112-7.	No guidance found.	Yes, some. Staff interview.	Requiring pedestrian and bicycle concerns in site planning is an important step towards achieving a more bike and pedestrian friendly community.
7.8. Traffic Calming programs, policies and/or manuals	None.	Traffic Calming Guidebook, 01/13/2009.	None.	None.	None.	The National Complete Streets Coalitions provides excellent guidance for traffic calming strategies.
7.9. Sidewalk retrofit/infill program or policy	Ongoing.	Ongoing.	None at this time.	None at this time.	Ongoing, as funds allow; mostly by citizen request but expected to expand program.	City staff periodically inventory the street network to identify sidewalk gaps, and develop strategies, project prioritization criteria and funding for completing these gaps.
7.10. Trail and/or Greenway Plan	Fayetteville Alternative Transportation and Trails Plan (FATT) includes on-street bike facilities and trails.	Included in Bicycle and Pedestrian Master Plan. 2012.	Master Trail Plan 2010	Rogers Greenways and Trails System.	Dogwood Trail plan undergoing expansion.	Trails and greenways are integral component of biking and walking networks and add greatly to community livability and health.
7.11. Other	Master Transportation Plan: "....prescribes and plans for the development of a multi-modal transportation system in the form of streets, sidewalks, bike lanes, trails and transit.	"Smart Growth" and "Traditional Neighborhood" designs encouraged, but definitions do not include standard specifications	PUD (Planned Unit Developments) language in ZO encourages: "Provide a comprehensive, multi-modal circulation system separated from vehicular roadways which links residential, non-residential and open space areas. CO 130 Art. 6		Downtown Master Plan RFP currently out for bid. Comprehensive Plan provides extensive goals and objectives toward multi-modal connectivity	
8. ITEMS REVIEWED						
8.1. Names of Resources	City Code; Master Transportation Plan; Master Street Plan; Fayetteville Alternative Transportation and Trails Plan;	Subdivision Code; Zoning Code; Street Specifications; Master Street Plan; Traffic Calming Guidebook;	Code of Ordinances; Master Street Plan; Master Trail Plan	Code of Ordinances	Code of Ordinances; 2030 Comprehensive Plan	

H FUNDING RESOURCES

Appendix Contents:

Technical Memo: Potential Funding Sources and Opportunities for Pedestrian, Bicycle & Trail Projects

TECHNICAL MEMO: POTENTIAL FUNDING SOURCES AND OPPORTUNITIES FOR PEDESTRIAN, BICYCLE & TRAIL PROJECTS

Funding for pedestrian and bicycle projects may come from a variety of sources including matching grants, sales tax or other taxes, bond measures, or public/private partnerships. This memo identifies federal, state, and non-profit foundation sources of funding for planning, design, implementation and maintenance of bicycle and pedestrian projects in Arkansas. The descriptions are intended to provide an overview of available options and do not represent a comprehensive list. It should be noted that this section reflects the funding available at the time of writing. The funding amounts, fund cycles, and even the programs themselves are susceptible to change without notice. The memo concludes with recommended next steps.

MEMORANDUM

To: John McLarty, Northwest Arkansas Regional Planning Commission

From: Dennis Blind, Matt Berkow, and Stephen Bzomowski, Alta Planning + Design

Date: September 8, 2014

Re: Potential Funding Sources and Opportunities for Pedestrian, Bicycle & Trail Projects (Task 8.2)

Funding for pedestrian and bicycle projects may come from a variety of sources including matching grants, sales tax or other taxes, bond measures, or public/private partnerships. This memo identifies federal, state, and non-profit foundation sources of funding for planning, design, implementation and maintenance of bicycle and pedestrian projects in Arkansas. The descriptions are intended to provide an overview of available options and do not represent a comprehensive list. It should be noted that this section reflects the funding available at the time of writing. The funding amounts, fund cycles, and even the programs themselves are susceptible to change without notice. The memo concludes with recommended next steps.

1 FEDERAL FUNDING SOURCES

Federal transportation funding is typically directed through state agencies to local governments either in the form of grants or direct appropriations, independent from state budgets. Federal funding typically requires a local match of 20 percent, although there are sometimes exceptions, such as the 2009 American Recovery and Reinvestment Act stimulus funds, which did not require a match.

The Arkansas Highway and Transportation Department (AHTD) and metropolitan planning organizations (MPOs), including the Northwest Arkansas Regional Planning Commission (NWARPC), administer most federal monies. Federal funding is intended for capital improvements and safety and education programs, and projects must relate to the surface transportation system. Most, but not all, of these programs are oriented toward transportation versus recreation.

The following is a list of Federal funding sources that could be used to support construction of many pedestrian and bicycle improvements. Most of these are competitive, and involve the completion of extensive applications with clear documentation of the project need, costs, and benefits. However, it should be noted that, in addition to stand alone projects, the Federal Highway Administration (FHWA) encourages the construction of pedestrian and bicycle facilities as an incidental element of larger ongoing projects, consistent with its 2010 policy statement on bicycle and pedestrian accommodation.[1] Examples include providing paved shoulders on new and reconstructed roads, or building sidewalks, on-street bikeways, trails and marked crosswalks as part of new highways.

[1] http://www.fhwa.dot.gov/environment/bicycle_pedestrian/overview/policy_accom.cfm

Federal Aid Highway Program

The largest source of federal funding for bicycle and pedestrian projects is the United States Department of Transportation's (US DOT) Federal-Aid Highway Program, which Congress has reauthorized roughly every six years since the passage of the Federal-Aid Road Act of 1916. The latest act, Moving Ahead for Progress in the Twenty-First Century (MAP-21) was enacted in July 2012 as Public Law 112-141. The Act replaces the Safe, Accountable, Flexible, Efficient Transportation Equity Act – a Legacy for Users (SAFETEA-LU), which was valid from August 2005 - June 2012.

MAP-21 authorizes funding for federal surface transportation programs including highways and transit until September 2014. There are a number of programs identified within MAP-21 that are applicable to bicycle and pedestrian projects. These programs are discussed below.

More information: http://www.fhwa.dot.gov/map21/summaryinfo.cfm

Transportation Alternatives (TAP)

Transportation Alternatives (TAP) is a new funding source under MAP-21 that consolidates three former SAFETEA-LU programs: Transportation Enhancements (TE), Safe Routes to School (SRTS), and the Recreational Trails Program (RTP). These funds may be used for a variety of pedestrian, bicycle, and streetscape projects including sidewalks, bikeways, multi-use paths, school safety, and rail-trails. TAP funds may also be used for selected education and encouragement programming such as Safe Routes to School.

Transportation Alternatives as defined by Section 1103 (a)(29). This category includes the construction, planning, and design of a range of bicycle and pedestrian infrastructure including "on-road and off-road trail facilities for pedestrians, bicyclists, and other non-motorized 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." Infrastructure projects and systems that provide "Safe Routes for Non-Drivers" is a new eligible activity. For the complete list of eligible activities, visit:

http://www.fhwa.dot.gov/environment/transportation_enhancements/legislation/map21.cfm

Unless the Governor of a given state chooses to opt out of Recreational Trails Program funds, $85 million in dedicated funds for recreational trails continues to be provided nationally as a subset of TAP. Governor Mike Bebee chose to opt in, which means that Arkansas receives $1.493.969 in RTP funds per year through FY2014.

The types of projects that are eligible for TAP funding include:

- Recreational Trails. TAP funds may be used to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, and other non-motorized and motorized uses. These funds are available for both paved and unpaved trails, but may not be used to improve roads for general passenger vehicle use or to provide shoulders or sidewalks along roads.

  Recreational Trails Program funds may be used for:

- Maintenance and restoration of existing trails
- Purchase and lease of trail construction and maintenance equipment
- Construction of new trails, including unpaved trails
- Acquisition or easements of property for trails
- State administrative costs related to this program (limited to seven percent of a State's funds)
- Operation of educational programs to promote safety and environmental protection related to trails (limited to five percent of a State's funds)

- Safe Routes to School. Safe Routes to School activities are eligible for the Transportation Alternatives Program. Both infrastructure and non-infrastructure projects are eligible, and the program elements described in SAFETEA-LU are still in effect. The purpose of the Safe Routes to Schools eligibility is to promote safe, healthy alternatives to riding the bus or being driven to school. All projects must be within two miles of primary or middle schools (K-8).

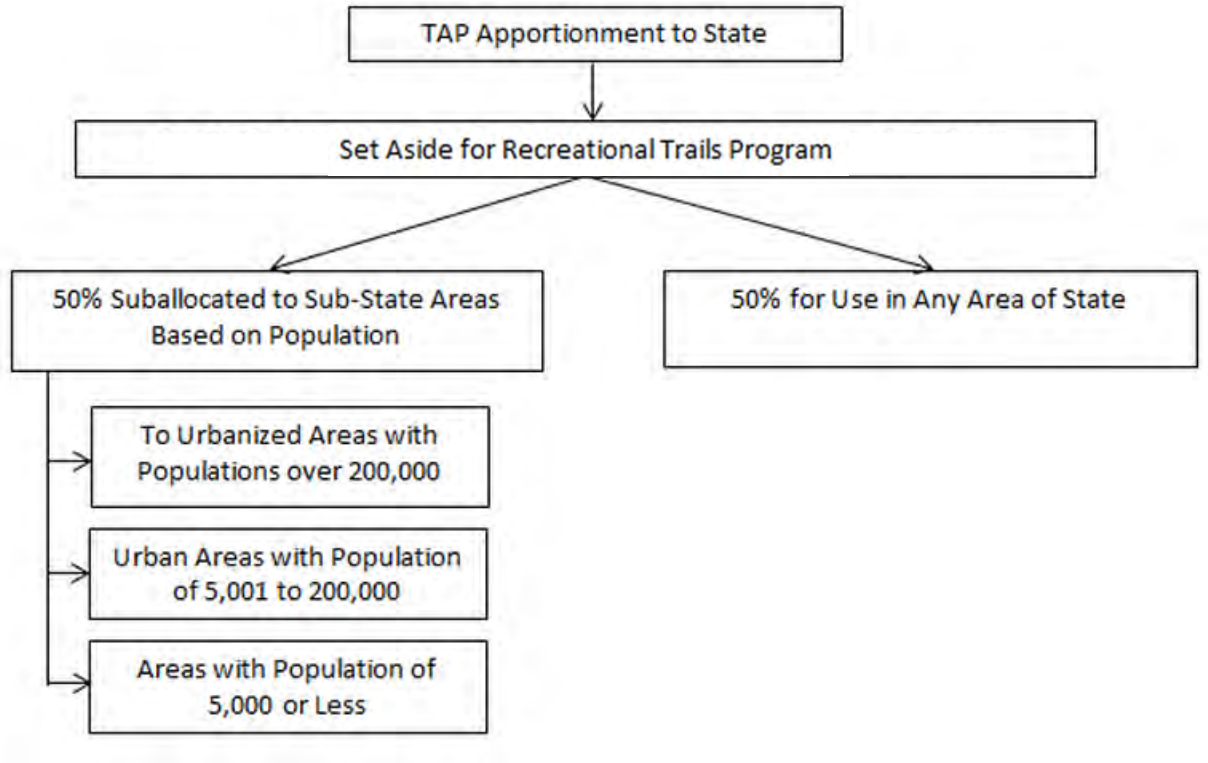
  Eligible projects may include:

  - *Engineering improvements*. These physical improvements are designed to reduce potential bicycle and pedestrian conflicts with motor vehicles. Eligible improvements include sidewalk improvements, traffic calming/speed reduction, pedestrian and bicycle crossing improvements, on-street bicycle facilities, off-street bicycle and pedestrian facilities, and secure bicycle parking facilities.
  - *Education and Encouragement Efforts*. These programs are designed to teach children safe bicycling and walking skills while educating them about the health benefits and environmental impacts. Projects and programs may include creation, distribution and implementation of educational materials; safety based field trips; interactive bicycle/pedestrian safety video games; and promotional events and activities (e.g., assemblies, bicycle rodeos, walking school buses).
  - *Enforcement Efforts*. These programs aim to ensure that traffic laws near schools are obeyed. Law enforcement activities apply to cyclists, pedestrians and motor vehicles alike. Projects may include development of a crossing guard program, enforcement equipment, photo enforcement, and pedestrian targeted enforcement operations.

- Planning, designing, or constructing roadways within the right-of-way of former Interstate routes or divided highways.

Average annual funds available through TAP over the life of MAP-21 equal $814 million nationally, which is based on a two percent set-aside of total MAP-21 authorizations. Projected apportionments for Arkansas total $10,984,845 for FY 2014. However, because MAP-21 allows state DOTs to transfer up to fifty percent of a given highway program's funds to other highway programs, the final amount of TAP funding available in Arkansas may be more or less than the projected apportionments developed by FHWA.As of June 2014, AHTD does not plan to shift TAP funding to other highway programs, nor does it plan to supplement TAP with monies from other highway funding programs.

The diagram below, based on information from FHWA's Final TAP Guidance document, provides an overview of how TAP funds flow from the federal government to states and local communities.



Eligible project sponsors in NWA, such as local governments, transit agencies, and school districts, may apply for TAP funds through competitive grant processes managed by AHTD and/or NWARPC. As the grantees of funds, neither AHTD nor NWARPC may apply for TAP funds directly. MAP-21 requires four separate grant processes to be administered for the disbursement of these funds, which are outlined below:

1) Any Area Funds. All eligible project sponsors in NWA may compete for the "any area" funds, which will be disbursed by AHTD through a competitive grant process. As of June 2014, AHTD has not awarded any of these funds. AHTD expects to release a call for applications by the January of 2015.

2) Urban Areas of 200,000+. Project sponsors located in Fayetteville, Springdale, or Rogers are eligible to compete for funds through NWARPC's Transportation Alternatives Program. 2013 funds have been awarded. Applications for 2014 funds are likely to become available in the summer of 2014. For more information, visit: http://nwarpc.org/transportation/stp-a-and-tap/

3) Urban Areas between 5,001 and 200,000. Project sponsors located in urbanized areas with a population between 5,001 and 200,000, are eligible to compete for Small Urban Area TAP funds administered by AHTD. As of June 2014, AHTD has not awarded any of these funds. AHTD expects to release a call for applications by the January of 2015.

4) Nonurban Areas. Project sponsors located in non-urban areas (population of 5,000 or less) are eligible to compete for Nonurban Area TAP funds administered by AHTD. As of June 2014, AHTD has not awarded any of these funds. AHTD expects to release a call for applications by the January of 2015.

For more information see FHWAs Final Guidance on the Transportation Alternatives Program: http://www.fhwa.dot.gov/map21/guidance/guidetap.cfm.

Surface Transportation Program (STP)

The Surface Transportation Program (STP) provides states with flexible funds which may be used for a variety of highway, road, bridge, and transit projects. Bicycle and pedestrian improvements are eligible, including on-street bicycle facilities, off-street trails, sidewalks, crosswalks, bicycle and pedestrian signals, parking, and other ancillary facilities. Modification of sidewalks to comply with the requirements of the Americans with Disabilities Act (ADA) is also an eligible activity. Unlike most highway projects, STP-funded bicycle and pedestrian facilities may be located on local and collector roads that are not part of the Federal-aid Highway System. Fifty percent of each state's STP funds are sub-allocated geographically by population; the remaining fifty percent may be spent in any area of the state.

Highway Safety Improvement Program (HSIP)

MAP-21 doubled the amount of funding available through the Highway Safety Improvement Program (HSIP) relative to SAFETEA-LU. HSIP provides $2.4 billion nationally for projects and programs that help communities achieve significant reductions in traffic fatalities and serious injuries on all public roads, bikeways, and walkways. MAP-21 requires each state to formulate a state safety plan, produced in consultation with non-motorized transportation representatives, in order to receive HSIP funds. Eligible projects will be evaluated on anticipated cost-effectiveness of reducing serious injuries and fatalities.

MAP-21 preserves the Railway-Highway Crossings Program within HSIP but discontinues the High-Risk Rural roads set-aside unless safety statistics demonstrate that fatalities are increasing on these roads. Bicycle and pedestrian safety improvements, enforcement activities, traffic calming projects, and crossing treatments for non-motorized users in school zones are eligible for these funds. AHTD estimates that it will receive an average of $3.5 million annually for this program through the lifetime of MAP-21.

New Freedom Initiative

MAP-21 continues a formula grant program that provides capital and operating costs to provide transportation services and facility improvements that exceed those required by the Americans with Disabilities Act. Examples of pedestrian/accessibility projects funded in other communities through the New Freedom Initiative include installing Accessible Pedestrian Signals (APS), enhancing transit stops to improve accessibility, and establishing a mobility coordinator position.

More information: http://www.hhs.gov/newfreedom/

Pilot Transit-Oriented Development Planning

MAP-21 establishes a new pilot program to promote planning for Transit-Oriented Development. At the time of writing the details of this program are not fully clear, although the bill text states that the Secretary

of Transportation may make grants available for the planning of projects that seek to "facilitate multimodal connectivity and accessibility," and "increase access to transit hubs for pedestrian and bicycle traffic."

Benton and Washington Counties and the communities of NW Arkansas should track federal communications and be prepared to respond proactively to announcements of grant availability.

Partnership for Sustainable Communities

Founded in 2009, the Partnership for Sustainable Communities is a joint project of the EPA, U.S. Department of Housing and Urban Development (HUD), and USDOT. The partnership aims to "improve access to affordable housing, more transportation options, and lower transportation costs while protecting the environment in communities nationwide." The Partnership is based on five Livability Principles, one of which explicitly addresses the need for bicycle and pedestrian infrastructure:

> Provide more transportation choices: Develop safe, reliable, and economical transportation choices to decrease household transportation costs, reduce our nation's dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health.

The Partnership is not a formal agency with a regular annual grant program. Benton and Washington Counties and the communities of NW Arkansas should track Partnership communications and be prepared to respond proactively to announcements of new grant programs. Initiatives that speak to multiple livability goals are more likely to score well than initiatives that are narrowly limited in scope to bicycle and pedestrian efforts.

More information: http://www.sustainablecommunities.gov/grants.html

Community Development Block Grants

The Community Development Block Grants (CDBG) program provides money for streetscape revitalization, which may be largely comprised of pedestrian improvements. Federal CDBG grantees may use the funds for real property, public facility improvements, and planning. Pedestrian and Bicycle Master Plan projects that enhance accessibility are a good fit for this funding source. CDBG funds could also be used to write an ADA Transition Plan for the city or support design and construction of projects.

More information: www.hud.gov/cdbg

Community Transformation Grants

Community Transformation Grants administered through the Center for Disease Control support community-level efforts to reduce chronic diseases such as heart disease, cancer, stroke, and diabetes. Active transportation infrastructure projects and programs that promote healthy lifestyles are a good fit for this program, particularly if the benefits of such improvements accrue to population groups experiencing the greatest burden of chronic disease.

More info: http://www.cdc.gov/communitytransformation/

Land and Water Conservation Fund

The Land and Water Conservation Fund (LWCF) provides grants for planning and acquiring outdoor recreation areas and facilities, including trails. Funds can be used for right-of-way acquisition and construction. The program is administered by the Wisconsin Department of Natural Resources as a grant program. Any Pedestrian and Bicycle Master Plan projects located in future parks could benefit from planning and land acquisition funding through the LWCF. Trail corridor acquisition can be funded with LWCF grants as well.

More info: http://dnr.wi.gov/Aid/LWCF.html and http://www.nps.gov/lwcf/

Rivers, Trails, and Conservation Assistance Program

The Rivers, Trails, and Conservation Assistance Program (RTCA) is a National Parks Service (NPS) program providing technical assistance via direct NPS staff involvement to establish and restore greenways, rivers, trails, watersheds and open space. The RTCA program provides only for planning assistance—there are no implementation monies available. Projects are prioritized for assistance based on criteria including conserving significant community resources, fostering cooperation between agencies, serving a large number of users, encouraging public involvement in planning and implementation, and focusing on lasting accomplishments. This program may benefit trail development throughout the region indirectly through technical assistance, particularly for community organizations, but should not be considered a future capital funding source.

More info: http://www.nps.gov/pwro/rtca/who-we-are.htm

Federal Lands Access Program (FLAP)

The Federal Lands Access Program (Access Program) was established in 23 U.S.C. 204 to improve transportation facilities that provide access to, are adjacent to, or are located within Federal lands. The Access Program supplements State and local resources for public roads, transit systems, and bicycle and pedestrian facilities, with an emphasis on high-use recreation sites and economic generators.

The Access Program is funded by contract authority from the Highway Trust Fund. Funds are subject to the overall Federal-aid obligation limitation. Funds will be allocated among the States using a new statutory formula based on road mileage, number of bridges, land area, and visitation.

More info: http://flh.fhwa.dot.gov/programs/flap/

Additional Federal Funding

The landscape of federal funding opportunities for bicycle and pedestrian programs and projects is always changing. A number of Federal agencies, including the Bureau of Land Management, the Department of Health and Human Services, the Department of Energy, and the Environmental Protection Agency have offered grant programs amenable to bicycle and pedestrian planning and implementation, and may do so again in the future. For up-to-date information about grant programs through all federal agencies, see http://www.grants.gov/.

2 STATE FUNDING

There are a variety of state funding sources that can be used to fund active transportation projects. State gasoline taxes and Arkansas Natural and Cultural Resources Council Grant and Trust Funds have been used in the past. Advocacy for use of other state funds is encouraged.

State Gasoline Tax

AHTD has historically used state gas tax funds as the required match to secure federal Transportation Enhancements (now Transportation Alternatives) funding. Communities in NWA should consider requesting AHTD for assistance with matching funds from state gas tax revenue where appropriate.

Arkansas Natural and Cultural Resources Council Grant and Trust Funds

Arkansas Natural and Cultural Resources Council grant funds can be used to develop bicycle and pedestrian facilities for outdoor recreation purposes. These funds are available through a grant program administered by the Arkansas Department of Parks and Tourism. These funds must be matched at the rate of 50% state to 50% applicant.

Vehicle Registration Fees

Vehicle registration fees in Arkansas are used to fund transportation infrastructure improvements on state owned roads. Unlike in some states, such as Nevada, Arkansas does not currently allocate a set percentage of vehicle registration fees to complete streets projects. However, there is no prohibition that these funds not be used on bicycle or pedestrian projects.

State General Fund

Many states, including Arizona, Maryland, Connecticut, and Massachusetts, have passed statutes authorizing the establishment of funds to be used specifically for bicycle and/or pedestrian infrastructure projects. Arkansas does not currently have such a dedicated fund, but the state general fund is nevertheless a flexible funding source that could potentially be tapped to cover investments that benefit Arkansas in a strategic way. Examples include major regional trails, streetscaping investments that may increase tourism-related revenue, and investments that help create active communities, since healthier residents are likely to reduce state healthcare costs.

State Sales Tax

Arkansas sales tax for items other than groceries, gasoline, and medicine increased by a half cent in 2013. All funds raised from the temporary, voter-approved increase will go toward transportation needs in the state as follows: 70% of funds to the highway department, 15% to cities, and 15% to counties. Cities may spend these funds at their discretion, on any transportation project. Some cities in the state are establishing a policy that of the 15%, a given percentage will be spent on trails. Additionally, routine maintenance and new

construction projects that result from this new revenue source should be monitored to ensure bicycle and pedestrian accommodation on appropriate routes.

Conservation Sales Tax

A conservation sales tax that went into effect July 1, 1997 designates 1/8th of 1 percent of the state's general sales tax for Arkansas Game and Fish Commission (45 percent), Arkansas State Parks (45 percent), Arkansas Heritage Commission (9 percent) and Keep Arkansas Beautiful Commission (1 percent). Revenue from this tax has been used to implement a wide range of projects, including nature centers, fisheries, purchase of land for public use, enforcement efforts, creation of habitat for threatened and endangered species, conservation education, as well as barrier-free and multi-use trails.

Severance Fees

Arkansas charges a natural gas severance tax that is designed to help cover the costs associated with natural resource extraction. The fees help the state maintain roads in rural areas, where the heavy trucks used by natural gas extraction companies is responsible for the majority of damage to the roadways. 5% of fees collected go to the state general fund, and the remaining 95% is deposited as special revenues and distributed according to Arkansas Highway Distribution Law. While there are no known applications of these fees being used to fund bicycle or pedestrian facilities, they are a potential funding source particularly in parts of Washington County, where there are active Fayetteville Shale wells.

3 LOCAL FUNDING

Many communities use locally generated funds to support active transportation. NWA communities should consider tapping into existing revenue streams and proposing new fees. For example, Fayetteville's Scull Creek Trail was partially funded through sales taxes.

Development Impact Fees

In 2003, the State of Arkansas adopted an Impact Fee Enabling Act (Arkansas Code, § 14-56-103). This law empowers municipalities to collect one-time fees from developers to help cover the cost of growth-related public infrastructure needs, including roads and sidewalks. Local governments in NWA that do not currently have a development impact fees in place to support active transportation should consider instituting such a fee or negotiating public improvements as part of the land development process.

Sales Taxes

Local sales tax increases to fund active transportation improvements have a history of success in NWA. In 2006, Fayetteville's residents approved a 1% sales tax increase that was used, in part, to construct the Scull Creek Trail. The ballot measure specifically related to trails (a sewer plant and roadway improvements were also parts of the proposed increase) passed by the widest margin, and provided $2.1 million in dedicated trail construction funding.

Property Taxes

Property taxes are one of the most common local sources of bicycle and pedestrian infrastructure since they are typically the largest source of local revenue.

Transportation User Fee

Many municipalities, such as Austin, Texas; Bozeman, Montana; Corvallis, Oregon; and Port Orange, Florida have instated per-household and/or per-business transportation user fees in an effort to make up for declining gas tax revenues. Fees are typically assigned proportionally based on estimated trip generation, vehicle miles traveled, or may also be collected at a flat rate. Transportation user fees are collected via local utility bills, and provide stable funding for ongoing operations and maintenance of the transportation system.

Parking Revenues

In select areas, such as downtown business districts, on-street parking can be a reliable revenue source for local governments. The City of Pasadena, California has had success utilizing on-street parking revenue to improve the walkability of Old Pasadena.

Business Improvement District Funds

Business improvement districts are a type of public-private partnership that leverage public and private funds to increase the attractiveness of defined geographic areas to existing and potential customers. These entities often see value in making streetscape improvements that make walking and biking to the area safer and more comfortable. In Atlanta, the Midtown Community Improvement District is funding bikeway improvements after a survey revealed that over three quarters of commercial property owners in the district indicated a desire for the area to become more bikeable.

Bond Measures

Denver, Chicago, Nashville, and San Francisco have all recently used money from local bond measures to fund bikeway projects. They can be an effective tool to get quick results when a particular project is needed in the short term.

4 PRIVATE FOUNDATIONS

Private foundations are an increasingly important source of funds for bicycle and pedestrian planning and implementation. The Walton Family Foundation has been the most important supporter of funding for greenway, trail, bicycle and pedestrian programs and projects in NW Arkansas. The Foundation has also worked with other partners, including the Endeavor Foundation to support Safe Routes to School and Energize NW Arkansas, that promote safe outdoor activities and transportation for children.

For more information on private foundations, including an extensive list of national foundations visit: http://www.foundationcenter.org/

5 RECOMMENDED NEXT STEPS

In order to realize construction of the greatest portion of the bicycle and pedestrian network, the following actions are recommended:

- Subscribe to federal communications and be prepared to respond proactively to announcements of grant availability.
- Identify local funding sources for capital and non-infrastructure bicycle, pedestrian and Safe Routes to School projects.
- Compare identified catalyst projects with funding sources in Table 1 (below) to find potential complementary matches.
- Develop relationships with local partners such as health advocacy agencies to identify mutually supportive projects and develop grant proposals.
- Work with partners such as health advocacy or safety agencies to identify and apply for support from nontraditional funding sources for capital and non-infrastructure projects.
- Dedicate a funding source for active transportation projects in annual operations and capital improvement program budgets (e.g., a dedicated portion of general fund dollars).
- Coordinate capital improvement program project development and review so programmed roadway and maintenance projects include incidental pedestrian and bicycle facilities.

Table 1 – Summary of Federal Funding Sources

		Planning, Design and/or Construction			
	Funding Program	**On-street Pedestrian Facilities**	**On-street Bicycle Facilities**	**Off-Street Multi-Use Paths**	**Non-Infrastructure Programs**
Federal Sources / MAP-21	Transportation Alternatives (TAP)	✓	✓	✓	✓
	Recreational Trails Program (RTP)			✓	
	Safe Routes to School (SRTS)	✓	✓	✓	✓
	Surface Transportation Program (STP)	✓	✓	✓	
	Highway Safety Improvement Program (HSIP)	✓	✓	✓	✓
	Congestion Mitigation/Air Quality (CMAQ)*	✓	✓	✓	✓
	New Freedom Initiative	✓		✓	✓
	Pilot Transit-Oriented Development (TOD)	✓	✓	✓	
	Partnership for Sustainable Communities	✓	✓	✓	
	Community Development Block Grants (CDBG)	✓			✓
	Community Transformation Grants (CTG)	✓	✓	✓	✓
	Land and Water Conservation Fund (LWCF)			✓	✓
	Rivers, Trails, and Conservation Assistance (RTCA)			✓	
	Federal Lands Access Program (FLAP)	✓	✓	✓	

* Because the NWA region is not an air quality non-attainment area, it is not eligible for CMAQ funding. For this reason, CMAQ funding is not described as an available funding source in the memo.

5.1 List of Acronyms

ADA – Americans with Disabilities Act

AHTD – Arkansas State Highway and Transportation Department

BPFP – Bicycle and Pedestrian Funding Program

CDBG – Community Development Block Grant

CMAQ – Congestion Mitigation/Air Quality Program

EPA – Environmental Protection Agency

FHWA – Federal Highway Administration

HSIP – Highway Safety Improvement Program

HUD – US Department of Housing and Urban Development

ISTEA – Intermodal Surface Transportation Efficiency Act

LWCF – Land and Water Conservation Fund

MAP-21 – Moving Ahead for Progress in the Twenty-First Century

MPO – Metropolitan Planning Organization

NPS – National Parks Service

NWARPC – Northwest Arkansas Regional Planning Commission

RTA – Recreational Trails Aid

RTCA – Rivers, Trails, and Conservation Assistance Program

RTP – Recreational Trails Program

SAFETEA-LU – Safe, Accountable, Flexible, Efficient Transportation Equity Act – a Legacy for Users

SRTS – Safer Routes to School

STP – Surface Transportation Program

STP-D – Surface Transportation Program-Discretionary

TAP – Transportation Alternatives (funding category under MAP-21)

TE – Transportation Enhancements (funding category under SAFETEA-LU)

USDOT – United States Department of Transportation

I COMMUNITY SELF-EVALUATION SUMMARY

Chapter Contents:

Overview

Table I-1: Summary of Community Responses to Community Self-assessment Audit

OVERVIEW

At the onset of this planning process, communities were asked to complete an audit of existing local / regional programs covering engineering, education, encouragement, enforcement and evaluation. The questions in the audit were based on the list of elements included in the national Walk/Bike Friendly community awards applications. Table I.1 on the following pages provides a summary of the community responses to each question, including the percentage of communities that answered 'yes' or 'no' to each as well as a brief summary of existing practices.

TABLE I.1 – SUMMARY OF COMMUNITIY RESPONSES TO COMMUNITY SELF-ASSESSMENT AUDIT

Question	Yes	No	Description of Current Practices
Engineering			
1.1 Does your community have a complete streets policy or other policy that requires the accommodation of pedestrians and cyclists in all new road construction and reconstruction projects?	2 (9%)	20 (91%)	• Fayetteville has a complete streets policy, housed in the Transportation Master Plan. • Bentonville, Gentry, Gravette, and Siloam Springs have sidewalk requirements for new development in subdivisions but no policies that address bicycling infrastructure.
1.2 Does your community have guidelines for pedestrian and bicycle facility design or provide regular training to engineers and planners regarding pedestrian and bicycle facility design?	3 (14%)	19 (86%)	• Bentonville's Master Bicycle and Pedestrian Master Plan contains facility design guidelines. • Rogers has implemented trail design standards. • In Fayetteville, pedestrian and bicycle facility design is established by ordinance in the Fayetteville Unified Development Code. The City Trails Coordinator provides regular training.
1.3 Does your community have a comprehensive, connected and well-maintained bicycling network?	4 (18%)	18 (82%)	• Fayetteville has 22 miles of 10 or 12 foot wide hard surface trails, 22 miles of on-street bikeways and 17 miles of natural surface trails. • Bentonville's bicycle network consists of trails and on-road bicycle routes labeled with signs and shared lane markings. • Springdale and Siloam Springs are both planning to make significant investments in bicycle infrastructure in the near term.
1.4 Do you have a connected network of sidewalks, trails, and/or paths in the city?	5 (23%)	17 (77%)	• Bentonville, Fayetteville, Pea Ridge, Rogers, and Siloam Springs have a connected network of sidewalks, trails, and/or paths. • Several cities qualified their responses with statements such as "We are working on this", "Yes but it is not as complete as we would like it to be", and "Yes but not comprehensive across the entire city."
1.5 Does your community have a sidewalk condition and curb ramp inventory process?	2 (9%)	20 (91%)	• Fayetteville maintains a GIS database that includes sidewalk condition and year constructed. • Bentonville and Centerton do not have inventory processes, but do have the current and proposed sidewalk network mapped in their Geographic Information Systems.
1.6 Is bike parking readily available throughout the community?	3 (14%)	19 (86%)	• In Bentonville, bike parking is available downtown, in all public parks and at all public schools. There is a need to expand into private commercial developments. • In Fayetteville, all new developments are required to install bike parking and the City has installed bike racks throughout downtown and along the trails.

Question	Yes	No	Description of Current Practices
1.7 Are all bridges accessible to pedestrians and bicyclists?	7 (33%)	14 (67%)	• Several who answered "yes" also noted that adequate facilities were not present or that narrow bridges created safety and comfort issues. • Several communities noted that all new bridges will include bicycle and pedestrian accommodation (consistent with Federal guidelines).
1.8 Are crosswalks provided at all street intersections and at areas with high demand for pedestrian traffic?	6 (29%)	15 (71%)	• Bentonville, Decatur, Greenland, Gravette, Siloam Springs, and West Fork provide crosswalks at all intersections and high demand pedestrian crossing areas. • In Springdale, crosswalks are required as development occurs and as street improvement projects are undertaken. • In Fayetteville, crosswalks are provided at all signalized intersections with high pedestrian demand. • In West Fork and Elkins, crosswalks are provided near schools.
1.9 Are accommodations for persons with disabilities, such as curb ramps or audible signals, provided in your community?	12 (57%)	9 (43%)	• Only Fayetteville specifically mentioned using audible signals. • Representatives from Bethel Heights, Gentry, Rogers, and Springdale specified that they accommodate persons with disabilities through curb ramps. • Bethel Heights, Bentonville, Centerton, Decatur, Elkins, Fayetteville, Gentry, Lincoln, Prairie Grove, Rogers, Springdale, and Siloam Springs provide accommodations of some kind.
1.10 Does the City employ traffic calming measures to slow motor vehicle traffic on city streets (such as road diets, ≤20 mph speed limits, speed tables, etc.)?	6 (32%)	13 (68%)	• Bentonville possesses a traffic calming manual. Traffic calming requests are reviewed by the Traffic Safety and Signage Committee. • Fayetteville, Prairie Grove, and West Fork use speed tables in select locations. • Siloam Springs removed speed tables near the hospital. • Fayetteville has had success with, and plans to increase the use of, road narrowing. • Springdale will implement its first road diets in conjunction with construction of the Razorback Regional Greenway.
EDUCATION & ENCOURAGEMENT			
2.1 Has your community implemented Safe Routes to School (STRS) programs in any of the local schools within the last 18 months? Does it include both bicycle and pedestrian education?	5 (24%)	16 (76%)	• Bentonville Public Schools and Fayetteville-area schools have implemented Safe Routes to School programs. • The City of Springdale has implemented SRTS infrastructure improvements but has not offered educational programming to date. • The City of Prairie Grove will implement an SRTS program in 2014. • The City of Decatur recently received a SRTS planning grant. • The City of Centerton and the City of Gravette have applied

Question	Yes	No	Description of Current Practices
			for STRS grants; neither have been awarded funds. • Centerton offers bicycle safety trainings for kids, but they are not federally funded through SRTS.
2.2 Are there bicycling education courses available for adults in the community?	2 (10%)	19 (90%)	• Adult bicycling education courses are available in Bentonville. • LCI certification courses have been offered in Fayetteville periodically. • Adult bicycling courses have been offered in Centerton in the past, but not in the past 5-7 years.
2.3 Does your community educate motorists, pedestrians and cyclists on their rights and responsibilities as road users (e.g., as part of drivers education curriculum, test manual, or bus driver training)	2 (10%)	18 (90%)	• Bentonville periodically includes articles on this topic in the City newsletter that is distributed to all utility customers. • The State of Arkansas driver's education manual includes questions that deal with walking and bicycling as well as driving.
2.4 Does your community have an up-to-date bicycle map?	3 (14%)	18 (86%)	• Bentonville, Fayetteville, and Rogers currently have up-to-date bicycle maps.
2.5 Does the community celebrate bicycling during national Bike month with community rides, Bike to Work Day or media outreach?	2 (10%)	19 (90%)	• Bentonville and Fayetteville participate in Bike month. • In Fayetteville, the mayor reads a proclamation followed by a community bike ride. The Bicycle Coalition of the Ozarks hosts a Commuter Challenge.
2.6 Is there an active bicycle or pedestrian advocacy group in the community?	4 (19%)	17 (81%)	• There are active bicycle or pedestrian advocacy groups in Bella Vista, Bentonville (Bike Bentonville), Fayetteville (Bicycle Coalition of the Ozarks), and Siloam Springs.
2.7 Has your community implemented any education and training programs related to pedestrian education, safety, or design for city staff?	1 (5%)	20 (95%)	• Fayetteville has implemented pedestrian safety trainings for city staff: Crosswalk Safety Awareness Day
2.8 Does your community promote the health and environmental benefits of walking?	8 (38%)	13 (62%)	• Responses mentioned the promotion of water quality benefits, the existence of trails in parks, and wellness events.

Question	Yes	No	Description of Current Practices
2.9 Does your community offer walking route maps, guides, or tours for residents and visitors?	4 (19%)	17 (81%)	• Bentonville, Fayetteville, Gravette, and Siloam Springs offer walking route maps, guides, or tours for residents and visitors. Fayetteville's Trail Guide is available at hotels and the visitor's bureau.
2.10 Does your community host any events that promote walking (such as car-free streets)?	5 (24%)	16 (76%)	• Bentonville coordinates walking and running events on car-free streets. • Siloam Springs hosts the "Bridges to Wellness" event. • The Chamber of Commerce in Gravette hosts an annual 5K. • Multiple 5K events and walks are held on Fayetteville's trails.
ENFORCEMENT			
3.1 Does your community have Traffic Safety officers that are trained in traffic law as it applies to pedestrians and bicyclists?	13 (62%)	8 (38%)	• Bella Vista, Bentonville, Cave Springs, Centerton, Decatur, Elkins, Fayetteville, Gravette, Greenland, Lincoln, Prairie Grove, Rogers, and Siloam Springs have Traffic Safety Officers that are trained in traffic law as it applies to pedestrians and bicyclists.
3.2 Does your community have law enforcement or other public safety officers on bikes?	6 (29%)	15 (71%)	• Bentonville, Fayetteville, Prairie Grove, Rogers, Siloam Springs, and Springdale have law enforcement/public safety officers that patrol on bikes. • In Rogers, School Resource Officers act as bike patrol officers on a full time basis in the summer months. • Siloam Springs' bicycle patrol program is also limited to the summer months. • Prairie Grove primarily deploys police officers on bike at special events. • Centerton ended this practice in 2006.
3.3 Do local ordinances treat bicyclists equitably?	7 (41%)	10 (59%)	• Bicycling is not mentioned specifically in city ordinances in Elm Springs, Gentry, or Greenland. • Several communities responded that their ordinances conform to state law/statues. • In Cave Springs, riding a bicycle in a swim suit violates a city ordinance.
3.4 Does your community use targeted enforcement programs to promote pedestrian safety in crosswalks (such as a "crosswalk sting", media campaign regarding pedestrian-related laws, progressive ticketing, etc.)	1 (5%)	19 (95%)	• The City of Fayetteville conducts crosswalk enforcements at North Street and the Scull Creek Trail.

Question	Yes	No	Description of Current Practices
3.5 Does your community have a systematic strategy for selecting locations and countermeasures for traffic and pedestrian safety?	2 (10%)	19 (90%)	• Gravette and Rogers have systematic strategies for selecting safety countermeasures locations. • In Rogers, the ten intersections with the most collisions are monitored on a monthly and annual basis. Enforcement efforts are then focused on these intersections.
3.6 Do police work regularly with traffic engineers and planners to review sites in need of safety?	5 (24%)	16 (76%)	• Police Officers regularly work with traffic engineers and planners to review sites in need of safety in Bentonville, Decatur, Rogers, Springdale, and Siloam Springs. • In Bentonville, this practice is formalized through the Traffic Safety and Signage committee. • Police are involved with site review in Bella Vista only when development calls for changes to a roadway and/or intersection improvements.
EVALUATION & PLANNING			
4.1 Is there a Bicycle Advisory Committee or Pedestrian Advisory Committee that meets regularly?	2 (10%)	19 (90%)	• In Bentonville City staff from Parks, Planning, Streets, Transportation, and Engineering meet monthly as the Trails and Active Transportation Committee. • Fayetteville also has an Active Transportation Advisory Committee.
4.2 Is there a specific plan or program to reduce cyclist/motor vehicle crashes?	0 (0%)	21 (100%)	• None of the communities in NWA have a specific program or plan to reduce cyclist/motor vehicle crashes.
4.3 Does your community have an ongoing pedestrian/bicycle counting and/or survey program that allows for long-term benchmark analysis of walking and bicycling mode share?	3 (14%)	18 (86%)	• Bentonville, Fayetteville, and Rogers have ongoing pedestrian/bicycle counting and/or survey programs. • Bentonville and Rogers use automated tube-style counters to monitor bicycle use of trails.
4.4 Does your community collect data related to pedestrian/bicycle-vehicle crashes, traffic volumes and motor vehicle speeds on existing or future corridor improvement projects?	6 (29%)	15 (71%)	• Bella Vista, Bentonville, Centerton, Fayetteville, Rogers, and Siloam Springs collect data relevant to bicycle and pedestrian planning. • The Rogers, Fayetteville, and Siloam Springs Police Department keep records of reported crashes. • Fayetteville and Siloam springs track motor vehicle volumes and speeds.
4.5 Does your community have a pedestrian master plan or pedestrian safety action plan?	3 (14%)	18 (86%)	• Bentonville's Bicycle and Pedestrian Master Plan was adopted in 2012. • Rogers has a Master Trails Plan, but it does not have a specific safety component to it. • Siloam Springs indicated it has such a plan.

Question	Yes	No	Description of Current Practices
4.6 Does your community have a bicycle master plan?	3 (14%)	18 (86%)	• Bentonville's Bicycle and Pedestrian Master Plan was adopted in 2012. • Rogers has a Master Trails Plan. • The Fayetteville Alternative Transportation and Trails (FATT) Master Plan contains the vision for bicycling in the city.
4.7 Has your community adopted an ADA Transition Plan for the public right of way?	1 (5%)	18 (95%)	• Centerton is the only community within the NWA Regional Planning Commission's jurisdiction that has an adopted ADA Transition Plan.
4.8 Does your community have a policy requiring sidewalks on both sides of arterial streets?	7 (33%)	14 (67%)	• Bethel Heights, Bentonville, Centerton, Fayetteville, Prairie Grove, Rogers, and Springdale require sidewalks on both sides of arterial streets.
4.9 Has your community established a connectivity policy, pedestrian-friendly block length standards and connectivity standards for new developments, or convenient pedestrian access requirements?	5 (24%)	16 (76%)	• Of respondents that answered "yes," most called out the requirement that new development or new roads include sidewalks but did not mention block length or connectivity standards.
4.10 Does your community have a trails plan?	9 (43%)	12 (57%)	• Bella Vista, Centerton, Fayetteville, Gravette, Greenland, Lowell, Rogers, and Springdale have trails plans, although the plans in Bella Vista and Centerton have not been formally adopted. • Bentonville's Bicycle and Pedestrian Master Plan and Fayetteville's Alterative Transportation and Trails Master Plan encompass trail planning.
4.11 Do you have a Pedestrian Coordinator or staff person responsible for pedestrian-related issues?	1 (5%)	18 (95%)	• Fayetteville has a staff person responsible for pedestrian-related issues.
4.12 Does your community have a bicycle program manager?	1 (5%)	19 (95%)	• Bike Bentonville supports a bicycle program manager in Bentonville.
4.13 Is your community served by public transportation?	4 (19%)	17 (81%)	• Ozark Regional Transit serves Bentonville, Fayetteville, Rogers, and Springdale.

[Blank page for double-sided printing]

J COMPLETE PROJECT LIST

Appendix Contents:

Overview

Shared Use Facility Tables

Bicycle Facility Tables

Pedestrian Facility Tables

OVERVIEW

The tables found in this appendix list each segment of the regional network by facility type, including:

Shared Use Facility Tables

These tables display the recommended regional network of shared use facilities. This includes shared use paved trails, sidepaths, and natural surface trails. Previous extensive trail planning recorded separately (in GIS) by Bentonville and Fayetteville are incorporated into the regional network, found below. Data (non-GIS) from other communities with previous trail planning efforts, has been incorporated into the network as well.

Bicycle Facility Tables

The following tables display the recommended regional network of bicycle facilities. This includes separated bikeways, shared roadways, and paved shoulders (shoulder improvements).

Pedestrian Facility Tables

The pedestrian facility table at the end of Appendix J shows several recommended sidewalks that are part of the regional network. Most NWA cities have a strong sidewalk network in place, especially near their respective downtown areas. Most communities are building sidewalks as development occurs. Applying best practices for sidewalk design and maintenance will be an important next step in supplying pedestrian facilities that will attract an active community.

SHARED USE PAVED TRAIL TABLES

Table J.1 Shared Use Paved Trails

Location	Name	Distance (miles)	From	To
Bella Vista	North golf course/Razorback	1.52	Dogwood Drive	Missouri
Bella Vista	Golf course/Razorback	1.05	Chelsea Road	Lancashire Road
Bella Vista	Razorback option	1.49	Riordan Road	Chelsea Road
Bella Vista	Golf Course/Razorback	0.28	Neighborhood link	Golf course/Razorback link
Bella Vista	Trail link	0.47	Nature Trail Lane	Lancashire Boulevard
Bella Vista	Soccer fields alternative	0.4	Lake Bella Vista	Sidepath
Benton County	Osage Creek	2.45	AR 112	Bentonville proposed trail
Benton County	Flint Creek - Gentry to Siloam Springs	3.87	AR 59	Siloam Springs Lake
Benton County	Spring Creek	0.73	Razorback Greenway	40th Street
Benton County	Spring Creek	1.89	Cave Springs	Wagon Wheel Road
Benton County	Spring Creek	1.89	Cave Springs	Springdale
Benton County	Little Sugar Creek West	4.78	AR 72	Lake Bella Vista
Benton County	McKisic Creek	2.10	Peach Orchard Road	Razorback Greenway
Bentonville/Rogers	Water Tower Road	0.49	Turtle Creek Trails	NWACC Trail
Cave Springs	Watershed Sanctuary link	1.44	Downtown Cave Springs	Rainbow Road
Cave Springs	Spring Creek	1.58	Osage Creek	Wheeler Road
Cave Springs	Watershed Sanctuary link	0.22	Osage Creek	Watershed Sanctuary/CS downtown
Cave Springs & Rogers	Osage Creek	6.19	Razorback Greenway	Cave Springs
Cave Springs & Rogers	Osage Creek	1.37	Razorback Greenway	Cave Springs
Centerton	McKisic Creek East	1.32	AR 72	Downtown Centerton
Centerton	Little Osage Creek	1.44	Centerton Boulevard	Bentonville greenways
Decatur	Park toward school link	0.22	Austin Avenue	Mt Olive Road
Elkins	Central trail	1.72	Elkins High School	Grocery Store and commercial area
Elm Springs	Brush Creek	1.91	Elm Springs downtown	Lake Road
Elm Springs	Lake Elmdale	0.57	Lake Road	Brush Creek
Farmington	Under AR 62 greenway	0.93	Rainsong Street	Farmington Branch
Farmington and Fayetteville	Farmington Branch Greenway	2.10	Tributary in Farmington	Old Farmington Road
Fayetteville	Oakridge Trail extension	0.43	Stadium Drive	Cleveland Street
Gravette	Rail with trail	0.78	Downtown Gravette	Gravette ballfields and trail
Greenland	West Fork greenway link	0.75	US 71	West Fork of the White River
Greenland	Greenland greenway	0.49	US 71	Letitia Avenues
Greenland	Regional Park - Greenland connector	0.74	Wilson Street	Wood Creek Lane
Johnson	Clear Creek	1.39	Razorback Greenway	Main Drive
Lincoln	North St link (old rail bed)	0.17	North Street	Bean Street
Little Flock & Pea Ridge	Little Sugar Creek East	7.74	AR 72	Pea Ridge Military Park
Lowell	Lincoln Street & Old Wire Road connection	0.94	Lincoln Street	Old Wire Road
Lowell	US 71B to Dixieland Street	0.63	US 71B	Dixieland Street
Lowell	JB Hunt to Razorback Greenway	0.35	JB Hunt HQ	Razorback Greenway
Lowell	JB Hunt to Lincoln Street alternative	0.77	JB Hunt Drive	Lincoln Street
Rogers	Lake Atalanta & AR 12 link	0.56	AR 12	Lake Atalanta
Rogers	Northwest Park Trail	0.27	13th Street	Will Rogers Drive

Table J.1 Shared Use Paved Trails (Continued)

Location	Name	Distance (miles)	From	To
Rogers	Hampton Trail link	0.31	Bellview Street	Hampton Place
Rogers	Razorback Greenway to Champions Drive	0.70	Razorback Greenway	Champions Drive
Rogers	Turtle Creek and Oakdale Trail links	0.42	Oakdale Trail	Turtle Creek Trails
Rogers	Westside Elementary School link	0.25	Oak Street	Savannah Drive
Rogers	Oakdale Trail connection	0.62	13th Street	Olive Street
Rogers	Grace Hill Elementary School link	0.48	Dixieland Road	Turtle Creek Trails
Rogers	Grace Hill Elementary School link	0.39	Sports Park	Easy Street
Rogers	Veterans Park link	0.16	1st Street	Veterans Park
Rogers	Promenade Trail links	0.28	Promenade Hills trail	43rd Street sidepath
Rogers	Grace Hill Elementary School link	0.09	Dixieland Road	Turtle Creek Trails
Rogers	Trail link by Community Support Center	0.10	Crescent Drive	Existing trail
Rogers	Trail link by Community Support Center	0.14	Olive St	Existing trail
Rogers	Rogers loop north phase 1	1.60	Promenade Trail	Turtle Creek trails
Siloam Springs	Dogwood Springs Trail to high school	0.92	Dogwood Springs Trail	SS High School
Siloam Springs	Rail with trail	0.52	Kenwood Street	Lake Francis Drive
Siloam Springs	Hospital pathway	0.69	Tahlequah Street	Progress Avenue
Springdale	West Springdale link	1.89	West Emma Avenue	Har-Ber Avenue
Springdale	JB Hunt Park connector	0.79	Razorback Greenway	J.B. Hunt Park
Springdale	JB Hunt Park connector	0.08	Silent Grove Road	J.B. Hunt Park
Springdale	Rail with trail	0.07	Razorback Greenway	Maple Avenue
Springdale	West Springdale link	0.34	Har-Ber Avenue	Future 56th Street
Springdale link	Springdale - Elm Springs link	0.51	Lake Elmdale	Har-Ber Avenue
Tontitown	North/South link	0.95	Sbannotto Avenue	Har-Ber Avenue
Tontitown	Alternative route	0.22	Barrington Road	Sbanotto Avenue
West Fork & Washington County	WF of White River	2.53	Greenland	West Fork
West Fork & Washington County	WF of White River	0.94	Greenland	West Fork
West Fork & Washington County	WF of White River	0.37	Greenland	West Fork
West Fork & Washington County	WF of White River	0.19	Greenland	West Fork
	Total	**76**		

Table J.2 Sidepaths

Location	Name	Distance (miles)	From	To
Bella Vista	McNelly Road	4.44	Razorback Greenway	Looney Road
Bella Vista	Dartmoor Road - Cooper Elementary	0.67	Lake Bella Vista	Mercy Way
Bella Vista	Golf Course	0.8	Trail link split	Shopping Center
Bella Vista	Chelsea Road	1.34	Trail link	Golf Course link
Bella Vista	Dogwood Drive	0.7	Lancashire Boulevard	Trail link
Bella Vista	Lancashire Boulevard	2.52	Highland Road/Rogers Road	Tanyard Creek Trails
Bella Vista	AR 279	2.71	AR 72	Rogers Road
Bella Vista	Scotsdale Drive	1.02	Trail link	Trail link

Table J.2 Sidepaths (Continued)

Location	Name	Distance (miles)	From	To
Bella Vista	Glasgow Road	1.24	Trail link	Trail link
Bella Vista	Lancashire Boulevard	0.27	Trail link	Through Bella Vista Town Center
Bella Vista	Nature Trail Lane	0.15	Tanyard Creek Trails	Lancashire Boulevard
Benton County	AR 72	0.19	Sugar Creek	Old Wire Road
Benton County	AR 72	0.97	Bentonville City Limits	Sugar Creek
Benton County	Airport Road	3.33	AR 12	AR 264
Benton County	AR 62	3.53	Pea Ridge Military Park	Devil's Eyebrow
Bentonville	Battlefield Road	0.75	AR 72	Little Flock
Bentonville	Elm Tree Road	0.88	AR 72	AR 102
Bentonville	Peach Orchard Road	1.07	McKisic Creek	McKisic Creek
Bentonville	AR 72	1.28	Existing sidepath	City limits
Bentonville	Walton Boulevard	1.41	I Street	Tiger Boulevard
Bentonville	AR 102 - SW 14th Street	1.70	Centerton border	I Street
Bentonville	Rainbow Road	2.04	Walton Boulevard	Osage Creek
Bentonville	AR 72	2.65	Walton Boulevard	McKisic Creek
Bethel Heights & Springdale	Old Wire Road	2.47	Springdale	Apple Blossom Avenue
Cave Springs	Wallis Road	0.18	Rainbow Road	Sands Road
Cave Springs	AR 112	0.26	Healing Springs Road	AR 264
Cave Springs	Rainbow Road	0.75	Wallis Road	Shores Avenue
Cave Springs & Rogers	Shores Avenue, Rainbow Road	1.23	Potential Watershed Sanctuary Trail	Janie Darr Elementary School
Centerton	Seba Road and Town Vu Road	0.22	Gamble Road	Main Street
Centerton	Seba Road and Town Vu Road	0.29	Gamble Road	Main Street
Centerton	S. Fish Hatchery Road	0.37	Fish Hatchery Road	Osage Creek trib
Centerton	Fish Hatchery Road	1.01	Main Street	Vaughn Road
Centerton	Seba Road	1.02	Keller Road	Gamble Road
Centerton	AR 72	2.00	McKisic Creek	City limits
Centerton	Main Street	2.26	AR 72	Fish Hatchery Road
Centerton	Allen Road	0.74	McKisic Creek	Town Vu Road
Centerton	AR 102	3.32	Monroe Street	Bentonville border
Decatur	Main Street	0.40	AR 59	Austin Avenue
Decatur	Mt Olive Road sidepath	0.44	Park	Mt Olive Road
Decatur	AR 59 sidepath	0.79	Sidepath	Crystal Lake area
Elkins	School and park connector	0.58	Elkins High School	City Park
Elkins	AR 16	0.72	Harris Drive	Harp's Grocery
Elm Springs	Lake Road	0.32	Potential trail link	Potential trail link
Farmington	AR 62	0.20	Saratoga Way	Yukon Way
Farmington	AR 62 to Folsom Elementary School sidepath	0.25	Double Springs Road	Folsom Elementary School
Farmington	AR 62 link	0.40	Hunter Street	Old Farmington Road
Farmington	Town center sidepath links	0.73	Double Springs Road	Double Springs Road (north)
Farmington	Wolfdale Road and S Hunter St	1.03	Mt Kessler possible link	Rainsong Street
Farmington	Double Springs Road	1.10	AR 62	Farmington Branch
Gentry	Railroad Avenue	0.51	Main Street	McKee Drive
Gentry	AR 59	1.52	Flint Creek greenway	S Collins Avenue

Table J.2 Sidepaths (Continued)

Location	Name	Distance (miles)	From	To
Gravette	2nd Avenue	0.15	Atlanta Street	Charlotte Street
Gravette	Main Street	1.31	Downtown	High School & AR 72
Greenland	Letitia Avenue	0.17	Wilson Street	Creek
Greenland	Cato Springs Road	2.57	Regional Park entrance	Wilson Street
Johnson	Wilkerson Road	0.30	Railroad tracks	Wilkerson Road
Johnson	Wilkerson Road	0.37	Main Drive	Razorback Greenway
Johnson	Johnson Road	1.04	Don Tyson Parkway	Railroad tracks
Johnson	56th Street & Johnson Mill Boulevard	1.97	Clear Creek trail	Arvest Ballpark
Lincoln	To Moore's Creek	0.25	School greenway	Moore's Creek
Lincoln	School link	0.35	School Street	North Street
Lincoln	Main Avenue, Adams Street, Mitchell Avenue	0.59	AR 62	South Street
Lincoln	Main Avenue	0.63	Downtown Square	School campus
Lincoln	School link	0.68	School Street	North Street
Lincoln	AR 62	0.90	Lincoln Avenue	High School
Little Flock	N Dixieland Road	0.64	Villages of Cross Creek	Hudson Street
Lowell	JB Hunt Corporate Drive	0.29	Walking trail	Greenway opportunity
Lowell	Old Wire Road	0.49	Greenway opportunity	Frisco Cemetery Road
Lowell	Old Wire Road	0.58	Greenway opportunity	Frisco Cemetery Road
Lowell	Old Wire Road	0.69	Greenway opportunity	Apple Blossom Road
Lowell	Dixieland Street & Oakwood Avenue	0.79	Razorback Greenway	Greenway opportunity
Lowell	McClure Street and Bloomington Street	1.30	Old Wire Road	US 71B
Lowell	Proposed road	1.31	Frisco Cemetery Road	1st Street
Pea Ridge	Schools entrance	0.03	AR 72	Schools
Pea Ridge	Lee Town Road	0.50	Weston Street	Davis Street
Pea Ridge	Curtis Avenue	0.81	Lee Town Road	Pickens Road
Pea Ridge	Pickens Road	1.55	McNelly Road	Downtown Pea Ridge
Pea Ridge	East Pickens Road	4.68	Old downtown Pea Ridge	Pea Ridge Military Park
Pea Ridge to Rogers	AR 94	6.28	Pea Ridge commercial area	Little Flock and Rogers
Prairie Grove	Mock Street	0.11	Park Street	Collins Drive
Prairie Grove	Jenkins Road	0.32	Ed Staggs Drive	Collins Drive
Prairie Grove	Vine Grove Road school link	0.54	Bush Street	Jenkins Road
Prairie Grove	Mock Street	0.56	Park Street	Collins Drive
Prairie Grove	Bush Street	1.18	Mock Street	Budd Kidd Creek
Rogers	Oak Stree	0.08	24th Street	24th Street
Rogers	Beverly Lane	0.11	Turtle Creek trail extension	Greenway toward Dixieland Road
Rogers	Locust Street	0.12	2nd Street	Greenway trail opportunity
Rogers	Poplar Street	0.14	Arkansas Street	Lake Atalanta trails
Rogers	Arkansas Street	0.15	Oak Street	Cherry Street
Rogers	Locust Street	0.15	2nd Street	Greenway trail opportunity
Rogers	Oak Street	0.15	24th Street	Westside Elementary
Rogers	Olive Street	0.15	Park/school	3rd Street
Rogers	Several streets	0.16	Arkansas Street	Monte Ne Road

Table J.2 Sidepaths (Continued)

Location	Name	Distance (miles)	From	To
Rogers	Olive Street	0.23	Greenway	Northside Elementary school link
Rogers	Arkansas Street	0.35	Locust Street	Cherry Street
Rogers	1st Street link	0.37	2nd St	Chestnut Street
Rogers	Bellview Street	0.42	Pinnacle Hills Mall	Osage Road
Rogers	Arkansas Street	0.43	Oak Street	Cherry Street
Rogers	1st Street	0.46	Olrich Street	Oak Street
Rogers	Cross Creek Boulevard	0.48	Mt Hebron Street	Cross Creek Boulevard trail
Rogers	Pleasant Ridge Drive	0.54	Monte Ne Road	Lake Atalanta trail link
Rogers	Several streets	0.57	Arkansas Street	Monte Ne Road
Rogers	Price Lane and 1st Street	0.63	Price Lane Trail link	1st Street trail link
Rogers	S 43rd Street	0.69	Pinnacle Hills trail	Mockingbird Lane neighborhood
Rogers	Monte Ne Rd	0.73	Gum St	New Hope Rd
Rogers	Garrett Road	0.79	Cross Creek Boulevard trail	Razorback Greenway
Rogers	1st Street	0.98	1st Street	Price Lane
Rogers	2nd Street	1.19	Locust Street	Hudson Road
Rogers	Easy St, 8th Street, Crescent Drive	1.21	Easy Street trail link	Crescent Dr end
Rogers	Wallis Road and Champions Drive	1.46	Rainbow Road	Pauline Whitaker Parkway
Rogers	Rainbow Road	2.11	Osage Creek	Wallis Road
Rogers	Bellview Street	2.62	Cross Creek Boulevard neighborhood	Pinnacle Hills
Siloam Springs	Dogwood Street	0.06	University Street	Dogwood Springs Trail to JBU
Siloam Springs	Kenwood Street	0.13	Washington Street	Rail with trail opportunity
Siloam Springs	Mt Olive Street	0.38	Helena Street	Siloam Sprigns Aquatic Center
Siloam Springs	University Street	0.45	Dogwood Springs Trail/ JBU	Dogwood Springs Trail to downtown
Siloam Springs	East Tahlequah Street	0.56	Siloam Springs Regional Hospital	AR 59
Siloam Springs	S Lincoln Street & Lake Francis Drive	0.69	Rail with trail opportunity	trail connection near substation
Siloam Springs	Lincoln Street	0.99	Main Street	Lake Francis Drive
Siloam Springs	Hico Street	2.18	City Lake	Dogwood Springs Trail
Siloam Springs	Kenwood Street	0.37	Railroad Tracks	Waukesha Road
Springdale	Old Wire Road	0.18	AR 265	Old Wire Road
Springdale	Pleasant Street & Maple Avenue	0.49	West Emma Avenue	US 71B
Springdale	Gutensohn & Silent Grove Road	0.82	Spring Creek	Cimmaron Road
Springdale	US 412	1.01	40th Street	Tontitown city limits
Springdale	AR 265	1.27	Botanical Gardens entrance	US 412
Springdale	Johnson Road	1.52	Don Tyson Parkway	Sunset Avenue
Springdale	Watkins Avenue and 40th Street	1.55	Arvest Ballpark/56th Street	Don Tyson Parkway
Springdale	Watkins Avenue and 56th Street	1.60	Brush Creek	Watkins Avenue/Arvest Ballpark
Springdale	Har-Ber Avenue	1.78	AR 112	Brush Creek
Springdale	AR 265	2.70	AR 265	US 412
Springdale	Don Tyson Parkway	2.78	Don Tyson Recreation Complex	Razorback Greenway

Table J.2 Sidepaths (Continued)

Springdale	N 56th Street	2.92	Spring Creek	Brush Creek
Tontitown	Barrington Road and Liberty Avenue	0.30	Sbanotto Park	Belmont Way
Tontitown	US 412	2.49	Springdale city limits	Mantegani Road
Washington County/ Goshen	AR 45	7.24	Fayetteville	Goshen
West Fork	White Street	0.11	Maple Avenue	McKnight Avenue
West Fork	McKnight Avenue	0.12	Main Street	Phillips Street
West Fork	McKnight Avenue	0.92	Main Street	Graystone Street
	Total	**148**		

Table J.3 Natural Surface Trails

Location	Name	Distance (miles)	From	To
Bella Vista	East Bella Vista lake link	2.42	Blowing Springs	Lancashire Boulevard
Bella Vista	East Lake Anne	1.48	Trail link	Trail link
Bella Vista	Grosvenor Road and Creek	1.01	Lake Ann	Trail link
Bella Vista	Trail link	0.24	Grosvenor Road trails	East BV trail link
Benton County	Decatur to Gravette	5.42	Decatur	Gravette
Benton County	Little Osage Creek	2.41	Mill Dam Road	Osage Creek
Benton County	Osage Creek	14.91	Cave Springs	Ozark Natinoal Forest
Benton County	Anderson Spring & Lick Branch	12.64	Little Osage Creek	Osage Creek
Benton County	To XNA	0.06	Rakes Road	Regional Avenue
Benton County	Illinois River link	0.40	Old Hwy 86	Illinois River
Benton County	Devil's Eyebrow connection	2.12	AR 62	Devil's Eyebrow
Benton County	Illinois River	8.16	Ozark National Forest	Kayak Park
Benton County	Illinois River	4.62	Kayak Park	Oklahoma
Cane Hill	Cane Hill	0.58	Cane Hill Road	AR 45
Decatur, Washington County, Gentry	AR 59 & railroad	4.74	Decatur	Gentry
Elkins	AR 16	0.85	Lake Sequoyah Trail	AR 74
Elkins and Fayetteville	Lake Sequoyah connection	5.09	Elkins	east Fayetteville
Elkins and Fayetteville	Lake Sequoyah connection	0.57	AR 16	Lake Sequoyah trail
Farmington	Farmington Branch link	0.77	Farmington Branch	Double Springs Rd
Fayetteville	Mt Kessler link Wolfdale Road	0.26	Mt Kessler	Wolfdale Rd
Fayetteville & Washington County	Clear Creek	6.91	Illinois River	west Fayetteville
Gentry	Main Street	1.24	Pioneer Lane	Eagle Watch Nature Trail
Lake Wedington	Lake Wedington link	2.62	Illinois River	Lake Wedington
Lincoln	Moore's Creek	4.39	North Street	Lincoln Lake
Lincoln & Washington County	North Street & AR 62	1.45	Bob Kidd Creek area	Moore's Creek
Lincoln & Washington County	Jackson Highway	2.99	Holt Road	Lincoln Lake
NWA	Beaver Lake	58.85	Goshen	Devil's Eyebrow
NWA	Beaver Lake	20.93	Goshen	Devil's Eyebrow
Siloam Springs	City Lake	0.60	City Lake	City Lake
Siloam Springs	Utility line link	0.52	AR 59	Waukasha Road
Siloam Springs	Waukasha Road & Fisher Ford Road	2.87	Utility line	Kayak Park

Table J.3 Natural Surface Trails (Continued)

Location	Name	Distance (miles)	From	To
Siloam Springs	Kayak Park	0.48	Fisher Ford Road	Illinois River
Siloam Springs	King Road	1.18	AR 59	Kayak Park
Siloam Springs	Siloam Springs Airport	1.29	East Tahlequah	Shinn Springs Road
Tontitown & Washington County	Clear Creek	8.07	Johnson	Hamestring Creek
Washington	Lincoln Lake	2.32	Moore's Creek	Lincoln Lake north side
Washington	Moore's Creek & Muddy Fork	8.84	Lincoln Lake	Illinois River
Washington	Bob Kidd Creek	3.72	Stonewall Road	AR 62
Washington	Illinois River	5.57	Prairie Grove Battlefield	Goose Creek
Washington	Goose Creek & Farmington Branch connection	3.93	Farmington	Illinois River
Washington	Richland Creek	7.31	Goshen	Lake Sequoyah
Washington	Illinois River	2.81	Goose Creek	Muddy Fork
Washington County	Lincoln to Prairie Grove link	0.21	AR 62	Bob Kidd Creek
Washington County	White River	11.14	Elkins	Madison County
Washington County	Lee Creek valley	9.42	Friendship Church Road	Devil's Den State Park
Washington County	Brush Creek	6.08	Elm Springs	Osage Creek
Washington County	Illinois River	9.47	Clear Creek	Ozark Natinoal Forest
Washington County	Ozark National Forest	6.76	Lake Wedington	Illinois River
Washington County	Lincoln to Cane Hill	2.89	South Park	Cane Hill historical path
Washington County	Illinois River	1.71	Lake Wedington Link	AR 16
Washington County	Illinois River	0.73	Lake Wedington Link	AR 16
Wasington County	Lee Creek valley	2.92	Devil's Den State Park	Crawford County
West Fork	Riverwood Avenue link	0.40	West Fork of the White River	Riverwood Avenue
	Total	**269**		

Table J.4 Fayetteville Shared Use Paved Trails and Sidepaths

Name	Distance (miles)
Canterbury Loop	0.35
Cato Springs Trail	1.61
Clabber Creek Trail	4.56
Crossover Road	2.4
Davis Park Trail	0.56
Futrall Trail	2.74
Hamestring Creek Trail	1.82
I-49-Gregg Connection	0.25
Kestrel Trail	4.5
Meadow Valley Trail	0.24
Mission Boulevard	2.77
MLK	1.38
Mt.Sequoyah Trail	0.6

Name	Distance (miles)
Niokaska Creek Trail	2.08
Oak Ridge Trail	0.37
Old Wire Road	1.27
Owl Creek Trail	0.77
Pump Station Spur	0.23
Regional Park Link	1.69
Rupple Road Link	0.34
Shiloh Trail	4.7
St. Paul Trail	0.31
Town Branch Trail	2.1
Town Creek Corridor	0.48
Tsa-La-Gi Trail	0.95
Wedington Bridge over I-49	0.33
White River West Trail	12.7
Total	**52**

Table J.5 Bentonville Shared Use Paved Trails and Sidepaths

Name	Distance (miles)
8th Street Side Path	0.76
Community Center East-Shared Use	1.94
Hatchery Trail-Shared Use	1.46
Hwy 72 West-Shared Path	0.36
McKissic Creek-Shared Use- 4 Mi	1.46
North Walton Trail	1.07
Rail Corridor	0.79
Trib 2-Shared Use	4.15
Total	**12**

BICYCLE FACILITY TABLES

Table J.7 Separated Bikeways

Location	Name	Distance (miles)	From	To
Cave Springs	AR 112	0.10	Healing Springs Road	Midway Avenue
Decatur	Main Street	0.24	Main Street bridge	Railroad depot museum
Decatur	Roller Avenue	0.25	Falling Springs Avenue	East Roller Avenue
Farmington	Rainsong Street	0.26	S Hunter St	Tributary trail
Fayetteville	Maple Street	0.60	Razorback Greenway	Stadium Drive
Fayetteville	Mission Blvd	0.52	Lafeyette St	E Jackson St
Gentry	Railroad Avenue	0.13	Main Street	Arkansas Street
Gentry	Main Street	0.48	Byers Avenue	Gentry Boulevard
Gravette	2nd Avenue	0.12	Akron Street	Atlanta Street
Gravette	Main Street	0.14	1st Avenue	3rd Avenue
Lincoln	Downtown square	0.31	Bean Street	Park Street
Prairie Grove	Mock Street	0.34	Park Street	Thurman Street
Prairie Grove	Main Street	0.21	Mock Street	Pittman Street
Rogers	Dixieland Road	1.09	Hudson Road	Oakdale Trail
Rogers	Osage Road	0.32	Bellview Street	Seminole Road
Rogers	Wallis Road	0.49	Wallis Road	Liberty Bell Road
Rogers	24th Street	0.66	Aquatic Park	Oak Street
Rogers	13th Street	4.04	Hudson Road	Price Lane
Rogers	24th Street	0.98	Turtle Creek trails	23rd Street
Siloam Springs	Broadway Street & Main Street	0.27	Washington Street	University Street
Siloam Springs	University Street	0.13	Broadway Street	Dogwood Springs Trail
Siloam Springs	Washington Street	0.70	Main Street	Kenwood Street
Siloam Springs	Dogwood Trail link	0.05	Main Street	Dogwood Springs Trail
Springdale	Emma Avenue	0.30	US 71B	Blair Street
Springdale	Maple Avenue	0.48	Rail with trail opportunity	US 71B
Springdale	Mill Street & Old Wire Road	1.40	Razorback Greenway	Old Wire Road
Springdale	East Emma Avenue	0.67	Railroad tracks	AR 265
Springdale	Cimmeron; Thomas; Campbell; Crestwood	2.39	Sunset Ave	JB Hunt Park
	Total	**17**		

Table J.8 Fayetteville Separated Bikeways

Name	Distance (miles)
Fayetteville Total	**34**

Table J.9 Shared Roadways

Location	Name	Distance (miles)	From	To
Benton County	Gravette to Decatur	5.45	Limekiln Road	North Main Street
Benton County	Gravette to Bella Vista	6.47	Glasgow Road	Bella Vista
Benton County	Gravette to Centerton	2.18	AR 72	Seba Road
Benton County	AR 12 link Springtown	3.81	Gentry	Springtown
Benton County	Mill Dam Road	3.09	Little Osage Creek	AR 12
Benton County	Robbins Road	3.03	AR 12	Kelly Road
Benton County	West of Cave Springs	2.52	AR 112	Mill Dam Road
Benton County	XNA link	1.64	Regional Avenue	Mill Dam Road
Benton County	Old Highway 68	9.04	AR 412	Liberty Avenue
Benton County	Cross Hollow Road and Stoney Point Road	1.57	Old Wire Road	Beaver Lake trail opportunity
Benton County	Zion Street	3.68	Spring Creek	Bellview Street
Benton County	Sugar Creek Road	8.87	Sugar Creek	Pea Ridge Military Park entrance
Benton County	Airport Loop Road	1.65	AR 94	Dirt road portion
Benton County	Pleasant Hill Road	0.48	Old Wire Road	Airport Loop Road
Benton County	Shinn Springs Road	1.04	Airport	Dirt road portion
Benton County	Shinn Springs Road	1.59	Paved road portion	Fairmont Road
Benton County	Fairmount Road	0.39	Shinn Springs Road	Illinois River
Benton County	Peach Orchard Road	0.95	McKisic Creek	3rd Street
Benton County	Gravette to Bella Vista	0.85	Glasgow Road	Bella Vista
Benton County	Gravette to Centerton	1.83	AR 72	Seba Road
Benton County	Gravette to Centerton	1.80	AR 72	Seba Road
Benton County	Gravette to Centerton	1.37	AR 72	Seba Road
Benton County	Gravette to Centerton	1.83	AR 72	Seba Road
Benton County & Pea Ridge	Ryan Road	1.51	Lee Town Road	Sugar Creek Road
Cave Springs	Sands Road	1.51	AR 112	Wallis Road
Cave Springs to Elm Springs	Kelly Road	2.33	AR 112	Water Avenue
Centerton	Spring Street	0.08	Walking Path	Main Street
Decatur	Austin Avenue	0.23	Park trail opportunity	North Main Street
Elm Springs to Tontitown	Ardemagni Road	1.22	Scott Street	Liberty Avenue
Elm Springs to Tontitown	Scott Street	0.36	AR 112	Dirt portion
Elm Springs to Tontitown	Scott Street	0.22	Ardemagni Road	Paved portion
Fayetteville	Rock Street	0.49	US 71B	Rock Street end/trail opportunity
Gentry	Dawn Hill Road	2.26	AR 59	AR 12
Gravette	Several	1.43	Downtown area	Hospital area
Greenland	Campbell Loop Road	2.81	Wilson Street	Campbell Road paved portion
Greenland	Schaeffer Road	3.38	Schaeffer Road Paved portion	Wilson Lake
Greenland	Wilson Street	1.03	Cato Springs Road	Letitia Avenue
Lincoln	Bean Street	0.36	AR 62 west	AR 62 east
Lincoln	Bean Street	0.14	AR 62 west	AR 62 east

Table J.9 Shared Roadways (Continued)

Location	Name	Distance (miles)	From	To
Lincoln	Bean Street	0.35	AR 62 west	AR 62 east
Little Flock	Rocky Ridge Trail	2.61	Little Flock Drive	AR 72
Prairie Grove	Battlefield link	0.60	AR 62	Prairie Grove Battlefield
Rogers	N 13th Street	0.23	Hudson Drive	Narrowed section
Rogers	Cambridge Park link	0.63	Cambridge Park	40th Street
Rogers	Cypress Street	1.87	Arkansas Street	Westside Elementary School
Rogers	Seminole Road	0.77	Osage Road	26th Street
Rogers	Will Rogers Drive	0.41	Greer Lingle Middle School	Soccer fields and activity center
Siloam Springs	Broadway Street	0.12	University Street	Benton Street
Springdale	West Emma Avenue	1.02	Pleasant Street	Gutensohn Road
Springdale	Emma Avenue	0.29	Blair Street	Hewitt Street
Tontitown	Bariola/Sbanotto	0.99	US 412	Ademagni Road & Belmont Way
Tontitown	Cross Tontitown link	2.58	Bariola Street	Brush Creek Road
Tontitown	Bariola/Sbanotto	0.44	US 412	Ademagni Road & Belmont Way
Tontitown & Washington County	To Lake Wedington	8.11	Barrington Road	Lake Wedington area
Washington	Several rural roads	12.63	Lincoln Lake	Farmington
Washington	Viney Grove Road	9.17	AR 16	Prairie Grove
Washington	Illinois Chapel Road	5.48	Prairie Grove	AR 265
Washington	Wood Creek Lane	0.15	Cato Springs Road	Greenway opportunity
Washington County	Lincoln to Prairie Grove	8.06	Bush Street	School Street
Washington County	Hummingbird Road	6.51	Goshen	Elkins
Washington County	McKnight Avenue	2.66	West Fork	US 71
Washington County	Winn Creek Road	5.37	McKnight Avenue	AR 74
Washington County	AR 170	3.40	West Fork	Friendship Church Road
Washington County	Friendship Church Road	0.98	AR 170	Lee Creek Valley
Washington County	Water Avenue	0.37	AR 112	Robbins Road
Washington County	Brush Creek Road	4.68	Water Avenue	Liberty Avenue
Washington County	Jackson Highway	6.99	AR 16	Lincoln Lake
Washington County	Wedington Blacktop Road	7.11	AR 16	Stonewall Road
Washington Coutny	Whitehouse Road	15.43	Elkins	US 71
West Fork	Campbell Road	2.78	West Fork	Campbell Road dirt portion
West Fork	Maple Avenue	0.31	Main Street	West Fork of White River
	Total	**197**		

Table J.10 Fayetteville Shared Roadways

Name	Distance (miles)
Fayetteville Total	**15**

Table J.11 Shoulder Improvements

Location	Name	Distance (miles)	From	To
Bella Vista	Grosvenor Road	1.91	AR 94	Bethnal Road
Benton County	Dawn Hill Road	4.19	AR 59	Siloam Springs Lake
Benton County	AR 102	9.04	Centerton Boulevard	Crystal Lake entrance
Benton County	AR 72	9.64	Gravette	Maysville
Benton County	AR 43	19.35	Maysville	Siloam Springs
Benton County	AR 112	3.51	Cave Springs	Elm Springs
Benton County	AR 264 to Beaver Lake	6.30	Old Wire Road	Beaver Lake
Benton County	McNelly Road	1.46	Pickens Road	Bella Vista
Benton County	AR 94	5.26	Monte Ne Road	Beaver Lake
Benton County	AR 12	10.34	Rogers	Hobbs State Park
Benton County	Price Coffee Road & Ford Springs Road	4.01	Lake Bella Vista	AR 72
Benton County	AR 94	2.56	McNelly Road	Grosvenor Road
Bentonville to Cave Springs	AR 112	4.92	I Street sidepath	Cave Springs
Cave Springs	Wagon Wheel Road	0.94	AR 112	Fields Lane
Cave Springs to Gentry	AR 264 & AR 12	13.13	AR 112	Dawn Hill East Road
Centerton	Vaughn Road; AR 279; AR 12	3.76	Firsh Hatchery Road	Aubrey Long Road
Elkins	1st Avenue	0.52	Stokenbury Road	AR 16
Farmington	AR 170	3.92	AR 62	AR 62
Farmington	AR 170	1.31	AR 62	AR 62
Gravette	AR 72	0.72	AR 279	Buttermilk Springs Road
LIttle Flock	Little Flock Drive	2.67	Sunshine School	AR 94
Little Flock	N 13th Street	1.26	Little Flock Drive	Near Hudson Road
Little Flock	N Dixieland Road	0.81	Little Flock Drive	Villages of Cross Creek
Little Flock	Little Flock Drive	0.73	east Bentonville	Hurt Lane
Lowell	Bellview Street	0.48	Garrett Road	Zion Church Road
Pea Ridge	AR 265	3.33	Pickens Road	Missouri border
Tontitown	Barrington Road	4.58	US 412	Clear Creek
Tontitown	Steele Road	3.13	Barrington Rd	56th Street
Washington	Double Springs Road	0.41	Farmington Branch	Wedington Drive
Washington County	Hogeye Road	6.14	Prairie Grove	AR 265
Washington County	Black Oak Road	10.14	White River	Fayetteville
Washington County	AR 74	4.86	Elkins	Madison County
Washington County	AR 45	3.49	Goshen	Existing paved shoulder
Washington County	AR 112	3.05	US 412	Clear Creek
Washington County	AR 112	0.68	near Clear Creek	near Fayetteville city limits
Washington County & Benton County	Rural Bicycle Loop - AR 16	17.59	Fayetteville	Siloam Springs
	Total	**170**		

PEDESTRIAN FACILITY TABLES

Table J.12 Sidewalks

Location	Name	Distance (miles)	From	To
Elm Springs	Downtown area	0.62	AR 112	Jayroe Avenue
Greenland	Wilson Street	1.03	Cato Springs Road	Letitia Avenue
Johnson	Main Drive	0.27	Wilkerson Road	US 71B
Lincoln	Mitchell Avenue	0.21	AR 62	Adams Street
Lincoln	AR 62	0.91	Harp's Grocery	Lincoln Avenue
Lincoln	W Bean Street	0.25	AR 62	West Street
Lincoln	E Bean Street	0.38	Downtown Square	Mead Avenue
Lincoln	Meade Avenue	0.15	AR 62	Bean Street
Prairie Grove	Pittman Street	0.44	Buchanan Street	Center Street
Prairie Grove	Park Street link	0.19	Pittman Street	Summit Street
Prairie Grove	Stills Road	0.66	AR 62	AR 62
Prairie Grove	Parks Street	0.85	Summit Street	Villines Road
Rogers	N 13th Street	0.22	Kelley Drive	Hudson Road
Rogers	24th Street	0.63	23rd Street	Rogers Aquatics Center
Springdale	W. Emma Avenue	0.65	Gutensohn Road	West End Street
West Fork	US 71	0.51	Main Street	Standley Avenue
West Fork	Riverside Park link	0.19	Doke Avenue	Riverside Park
	Total	**8**		

Northwest Arkansas Regional Bicycle and Pedestrian Master Plan | 2014

Prepared for the Northwest Arkansas Regional Planning Commission
Prepared by Alta Planning + Design