

- **Bicycle Parking**

Place secure inverted-U parking at bus stops to enable people to combine travel modes for greater personal mobility.

- **Bike Racks on Buses**

Resolve fleet maintenance issues to permit the addition of bicycle racks to all buses.

- **Pedestrian Walkways**

Encourage private properties to construct walkways that allow people to conveniently walk from transit stops to adjacent destinations.

STRATEGY #6: Explore Potential Funding Strategies to Supplement Available Enhancement Dollars

The Wichita Area Metropolitan Planning Organization (WAMPO) will provide overall coordination and planning for the Regional Pathways Plan and work with local communities on implementation. This includes assisting with funding to the extent possible. The WAMPO region has depended largely upon the federal Transportation Enhancement program to fund pathway projects in the past. However, many other funding possibilities exist. This section outlines several options available to jurisdictions in the state of Kansas.

6-A. The largest existing funding mechanism will be through local government tax revenues. Local governments which have a funding source will be able to leverage other funding sources such as private, federal and/or state grants. Local agencies which currently do not have a dedicated local revenue stream might consider working towards this type of resource.

6-B. Sometime in the future the WAMPO region may want to consider a regional funding strategy. Many recent voter initiatives around the nation have focused more on land conservation and open space preservation than on funding trail or pathway projects. Almost all of these examples have included opportunities for pathways.

6-C. The State of Kansas has already passed enabling legislation which allows for local governments to fund park, trail and stormwater management project themselves. Park, trail and stormwater projects have been combined into an

overall plan and financed together successfully in other regions. Some types of financing options are as follows:

- **Property Tax**

Property taxes are the primary revenue source for a municipality's general funds. These funds are used to complete public works projects including stormwater management, pathways and green infrastructure projects. However, many other public works projects such roads, lights, and sidewalks are funded with the general fund. Schools are also funded with property taxes. These competing uses must be considered when choosing to use property taxes.

- **Local Sales Tax**

Sales taxes are often viewed as positive local funding sources because consumers from other municipalities can help pay for needed infrastructure. Many communities have implemented sales taxes for a variety of needs and the perception is that the voters would not support additional taxes. Careful consideration of existing uses of sales taxes and potential future uses should be made.

- **General Obligation Bonds**

General obligation bonds are common funding methods used primarily for capital improvement projects and other capital outlays such as land and major equipment acquisition. Issuance of long term debt allows the municipality to finance large expenditures through loans which are repaid from revenues generated over a significant portion of the life of the acquired asset. Debt financing may enhance the equity of cost recovery, because new customers who benefit from the asset also help pay the cost associated with the asset.

- **Kansas Watershed Restoration and Protection Strategy (KS-WRAPS)**

The State Water Plan Fund and Clean Water Act-Section 319 grants provide funding to local sponsors for WRAPS development, assessment, planning and implementation projects to supplement other available funding sources. Projects are funded on a priority basis considering state and local interests and project history.

- **Non-Point Source Pollution Control Programs**

The Conservation Reserve Program (CRP) is a voluntary program that



provides annual rental payments to agricultural producers to safeguard environmentally sensitive lands by planting long-term, resource conserving vegetation to control soil erosion improve water quality and enhance wildlife habitat. Program signups are held periodically. A continuous signup provision of the CRP provides funding for installing vegetative buffers and other practices to protect rivers and streams and other environmentally sensitive areas.

- **Additional Funding Possibilities**

Other strategies used across the U.S. that could be implemented to various extents in the WAMPO region include: developer dedications, developer incentives, land donations, land conservancies, and voluntary contributions. These strategies could be used by communities as they become locally viable options.

6-D. The WAMPO region may also consider supplementing existing funding sources with Public-Private Partnerships. Public-Private Partnerships can also provide seed money to develop pathway systems in local communities. In this scenario, community based foundations or other not-for-profits work with local governments to either build community paths or encourage residents to become more physically active.

Within the State of Kansas, the Sunflower Foundation: Health Care for Kansans (<http://www.sunflowerfoundation.org/flash/index.html>) has provided funding for smaller more health related path projects.

Another source of funding that could be explored is through the John S. and James L. Knight Foundation (<http://www.knightfdn.org/>) which has been instrumental in reshaping many communities. Wichita is eligible for funding from this foundation as one of the 26 original Knight Communities.

Results from the 2006
City of Wichita Citizen Survey
by the National Research Center, Inc.

**PATHWAY
FUNDING**

*“To what degree would
you support or oppose
City funds for
additional bike paths?”*

*-- 72% support
-- 18% oppose”*



Small Details for Implementation within the WAMPO Region

This document is primarily a facilities development plan for where major infrastructure improvements should be made throughout the region, however it also recognizes that there are smaller, low-cost strategies that can and should be undertaken to improve conditions for bicycling and walking. The WAMPO Regional Pathway System Plan follows an established “4-E” approach for non-motorized planning. Such implementation approach includes education (of everyone involved), encouragement (to increase levels of use), enforcement (to protect the rights of all) and engineering (to provide the needed facility improvements).

A variety of 4-E approaches were presented to the public at the second Pathway Users Group Workshop in October 2006. Participants ranked options, and the top 4-E principles have been formulated into recommended strategies to be implemented through a variety of actions that shall be the joint responsibility of both the public and private sectors, as follows:

STRATEGY #1: Educate Both Bicyclists and Motorists on Rules of the Road

1-A. Expand current “Cycle Smart” programs of Safe Kids Wichita Area, working in conjunction with local law enforcement agencies, to bring bicycle rodeo and safety programs to a greater percentage of area youth. Explore opportunities for additional funding of these programs through the Kansas Department of Transportation Safe Routes to Schools program.

• Cycle Smart

The Safe Kids “Cycle Smart” program is designed to increase the number of children who are protected by helmets when engaging in wheel sports by making reduced-price helmets and an educational program available to Kansas children. “Ready to Roll” bike rodeo kits are available for local community events through local Safe Kids coalitions. See: www.kansassafekids.org

• Safe Routes to School (SRTS)

SRTS is a federal reimbursement program that provides funding for infrastructure projects and educational activities that assist Cities, Counties, and School

Districts to enable children to walk or bicycle to school more safely. Funding is provided through KDOT to local public authorities and school districts working cooperatively to address safety and encouragement at the local level. See: www.ksdot.org/burTrafficEng/sztoolbox/

1-B. Promote “BikeEd,” a program of the League of American Bicyclists that emphasizes how to operate a bicycle safely and legally. Encourage local cycling advocacy groups to have members become League Cycling Instructors and offer courses to organizations throughout the WAMPO region.

• BikeEd

The BikeEd program is a curriculum for adults and children and the certified instructors who teach it. BikeEd classes are taught across the United States by certified League Cycling Instructors (LCI). Courses offered include: Road I - gives cyclists the confidence they need to ride safely and legally in traffic or on the trail; Road II - for more advanced students with an understanding of vehicular cycling principles; Commuting - for adult cyclists who wish to explore the possibility of commuting to work or school by bike; Motorist Ed - a classroom session directed towards motorists; Kids I - teaches parents how to teach a child to ride a bike; Kids II - a Road I class for 5th and 6th graders; and new group riding curriculum for ride leaders and participants. See: www.bikeleague.org/programs/education

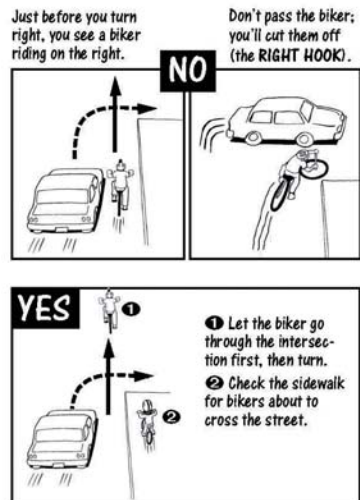
1-C. Target additional bicycle safety education toward motorists. Explore opportunities for the Wichita Metropolitan Planning Organization to coordinate development and dissemination of motorist awareness programs and literature throughout the region.

• Urban Bikers’ Tricks & Tips

The author of the book, “Urban Bikers’ Tricks & Tips: Low-Tech & No-Tech Ways to Find, Ride, & Keep a Bicycle,” is available to develop brochures and safety literature for specific localities. Illustrated in step-by-step fashion, Dave Glowacz has developed “Tips for Motorists: Sharing the Road with Bicycle Riders,” which can be customized to reflect Kansas traffic laws and meet the specific needs of the WAMPO region. Contact: glow@biketraffic.org



Just before a right turn: Avoiding the RIGHT HOOK



TIPS FOR MOTORISTS

Sharing the road with bicycle riders

Example of Driver Education Materials produced by Dave Glowacz, WordSpace Press

• Motorist Ed

Motorist Ed is a 3-hour BikeEd classroom session that can be easily added to a driver's education curriculum, such as diversion training for reckless drivers or a course designed for local bus drivers. Directed towards motorists in general, topics covered include roadway positioning of cyclists, traffic and hand signals, principles of right-of-way, and left and right turn problems.

Contact: www.bikeleague.org

1-D. Improve bicyclist and pedestrian safety in the region by increasing the expenditure level for non-motorized projects. Address the issue of balancing needs with financial ability, as identified in Chapter 3 of the WAMPO 2030 Long-Range Transportation Plan.

1-E. Monitor pedestrian and bicycle crashes by local Police and Sheriff Departments. Develop more detailed reporting formats that can provide guidance for future types of education that will directly correlate to crash types occurring in the region. Likewise, use enhanced reporting formats to determine where, if any, high accident locations exist that require corrective measures to existing infrastructure in addition to educational outreach.

STRATEGY #2: Regularly Maintain Pathway Facilities

2-A. Create a spot improvement program. Establish a regional reporting system whereby individual cyclists or other pathway users can report small improvements needed on either pathways or roadways. Create a standard reporting form and/or on-line resource and assign responsibility to a single entity for collecting all reported problems for the region and disseminating spot improvement requests to each affected jurisdiction.

2-B. Provide regular maintenance on roadways with designated bicycle facilities. Focus sweeping activities and maintenance attention to the right-hand edge of roadways and promptly fix problem areas. Pavement cracks (such as the gap between two slabs of pavement) and projections (including sinking drainage grates or crude patch jobs) pose particular hazards to bicycle travel.

2-C. Provide regular maintenance on off-road pathways so that the facility becomes an asset rather than liability. Focus maintenance on removal of sand, gravel, broken glass, branches and encroaching vegetation. Fix potholes, corrugations, and other rough surfaces. As an interim measure, post warning signs along pathways notifying trail users of an upcoming hazard if the problem cannot be fixed promptly.

2-D. Design facilities to national AASHTO standards that have been established for user safety and to minimize future maintenance needs.

STRATEGY #3: Conduct Special Events to Encourage Increased Levels of Bicycling and Walking

3-A. Participate in national events designed to focus attention on and increase usage of non-motorized transportation modes.

• iWALK: International Walk to School Day

Join kids and families around the globe to walk and bike to school in October. Organizational assistance, event ideas and resources are available.

See: www.walktoschool-usa.org



• **National Bike Month**

Each year, May is National Bike Month, when the League of American Bicyclists promotes Bike-to-Work Week and Bike-to-Work Day. Event organization, promotional materials, radio and video public service announcements, and bike month grants are available to local communities.

See: www.bikeleague.org/programs/bikemonth/

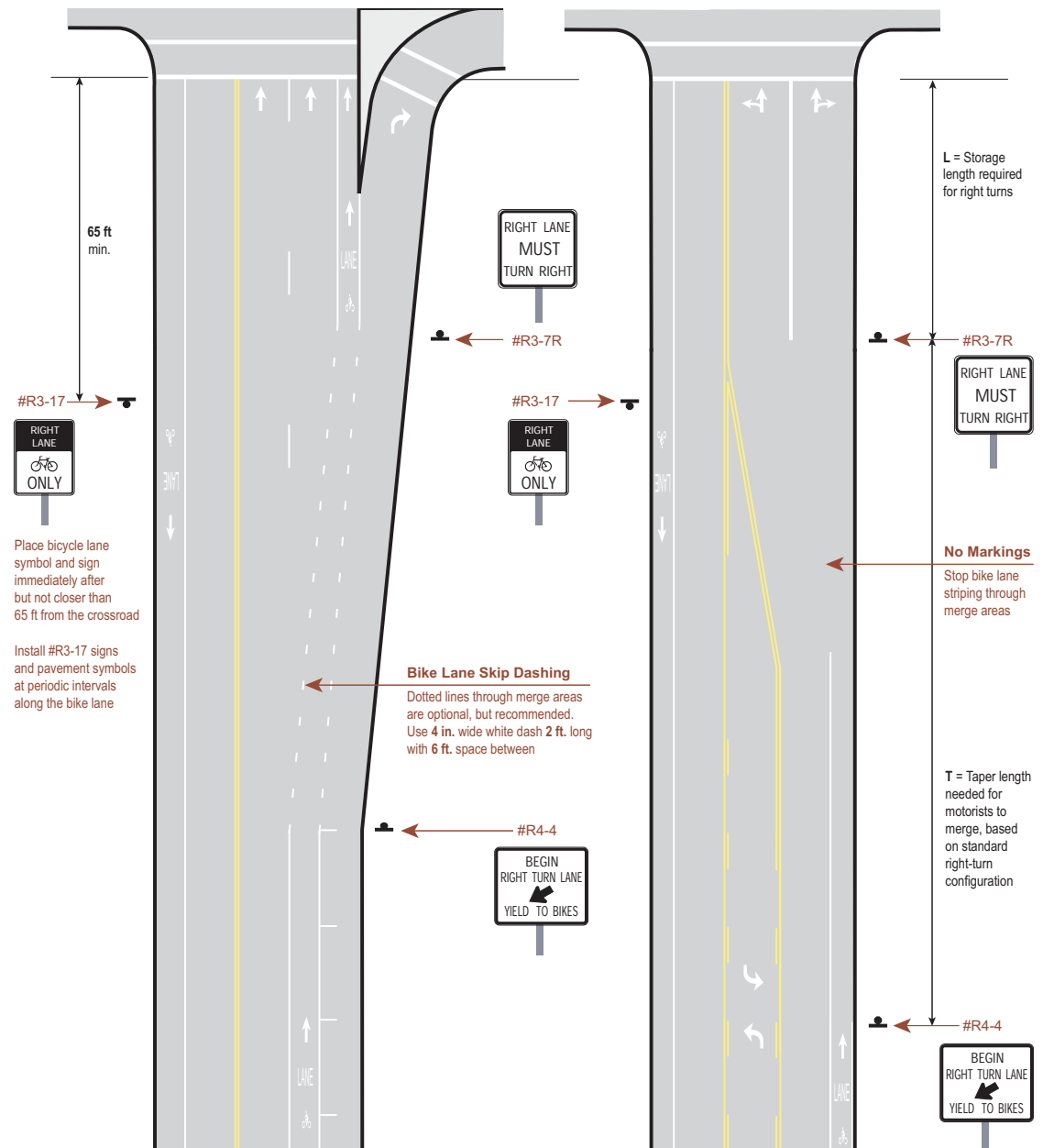
3-B. Support regional efforts to encourage Transportation Demand Management (TDM). Include bicycling, walking and transit encouragement programs as effective means of reducing traffic and travel demand on the transportation network.

STRATEGY #4: Design Intersections to Accommodate Bicycle Travel

4-A. Use signal detection practices such as bicycle sensitive pavement loops or video surveillance that allow bicycles to trip signals. Adjust signal timing to provide an adequate clearance interval for bicyclists who begin crossing at the end of a green light.

4-B. In corridors where bicycle lanes are present and space allows, provide space for the bicycle lane at the stop bar. Always locate through bicycle lanes to the left of right-hand turning lanes as required by AASHTO.

4-C. In corridors where bicycle lanes are present and pavement space at the intersection needs to be allocated to vehicular turning movements, drop the bicycle lane in advance of the intersection and resume lane striping on the far side. Follow AASHTO and MUTCD for guidance.



STRATEGY #5: Print and Distribute a Bicycle Users Map

5-A. Update the last bicycle user map printed in the 1980s. Revise the format used previously that identified circuitous local routes lacking connections to destinations. Instead, the new map should show existing pathway facilities and suitability ratings of collector and arterial roadways for bicycling.

5-B. Encourage local advocacy groups to undertake this project, working in cooperation with the WAMPO Geographic Information Systems (GIS) staff to obtain needed data, as a major fundraising effort for local safety education and encouragement programs. Formulate a business plan for advertising and map sales to generate revenues.

STRATEGY #6: Design Safe, Convenient and Visible Pathway Crossings of Major Roadways

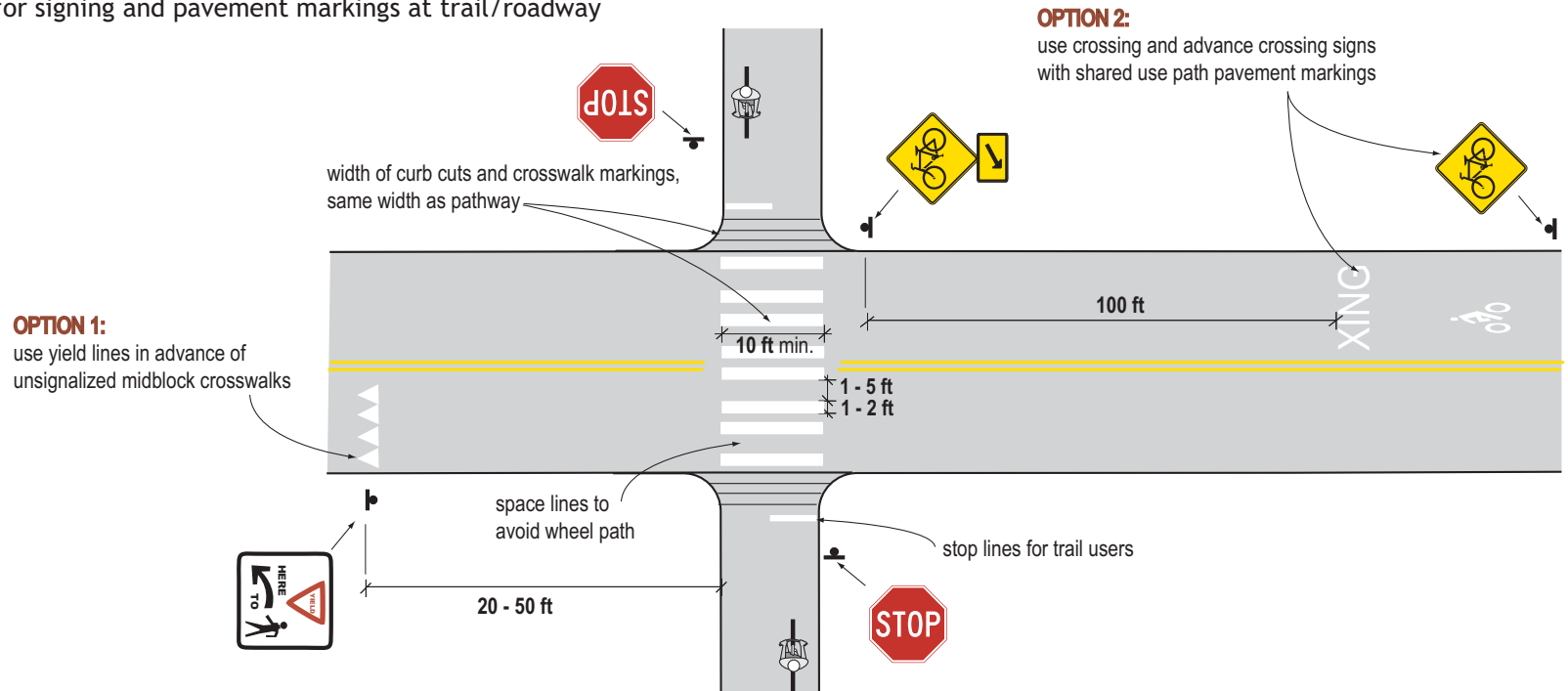
6-A. Follow national standards set forth in the Manual of Uniform Traffic Control Devices (MUTCD) for signing and pavement markings at trail/roadway

intersections. This action item needs to be done by every jurisdiction on every trail crossing, especially existing crossings of the Chisolm Trail and proposed crossings of the Redbud Trail.

- Use highly visible “ladder-style” crosswalks with longitudinal lines for added visibility. Plan for minimal maintenance by slightly adjusting the spacing of pavement markings to avoid the path of vehicular tire wear.
- Use MUTCD warning and regulatory signing on all intersection approaches (trail and roadway). Two options exist per MUTCD Figure 9B-7 or 3B-15. See illustration below left.

6-B. Provide mid-block trail crossings in locations with good visibility and adequate stopping sight distance, typically on roadways where speed limits are less than 45 mph.

- Use highly visible “ladder-style” crosswalks and appropriate signing.
- Consider installing pedestrian actuated signals to stop vehicular traffic for trail user crossings. Light remains green for vehicular traffic at all other times.





Examples of pedestrian refuge islands with pedestrian actuated signals that stop traffic only when a user is present, visible crosswalks, and appropriate signing.

- Where a center turning lane is present on the intersecting roadway, provide a mid-block refuge island to assist non-motorized users in crossing one direction of travel at a time.

6-C. Install orientation signing along trails at roadway crossings so that trail users know intersecting street names.

**STRATEGY #7:
Integrate Bicycling with Transit**

7-A. Provide bicycle parking racks at bus stops along the identified primary corridors that follow street rights-of-way. The preferred rack style shall be one inverted-U parking rack with 30” min. clear spacing provided to allow bicycle loading and locking maneuvers.

7-B. Existing Wichita Transit policy permits bicycles to be taken on board buses. Since allowing bikes on buses may be a liability issue in the event of an accident, preference is to encourage bicycle racks to be mounted on the fronts of buses. Will require exploring future solutions to current bus washing and maintenance concerns with bike racks.

7-C. Encourage Transit-Oriented Development (TOD) along or near transportation corridors and activity centers that are served or anticipated to be served with public transit. Design and develop the lands in proximity to transit facilities to encourage people to use mass transit. Use TOD as a tool to spur neighborhood revitalization in disinvested areas, promote more efficient use of the region’s transportation network, and protect a region’s natural environment by building at more compact development patterns.

7-D. Establish specific TOD overlay districts. Site design criteria to be addressed in the regulations shall include:

- Pedestrian access and circulation from the boarding stop should be the most important consideration in site design.
- Provide grid-like street patterns with a high degree of connectivity that serve all modes of transportation - transit, bicycling, walking and auto.
- Locate buildings next to stations, with commuter parking lots further removed. Require that buildings front the street and have direct access to sidewalks.



- Provide businesses that service commuters - such as drug stores, dry cleaners, banks and grocery stores.
- Provide attractive landscaping, continuous paved sidewalks, street furniture, urban art, screen-off parking, weather protection, safe street crossings, public open spaces and pedestrian plazas.

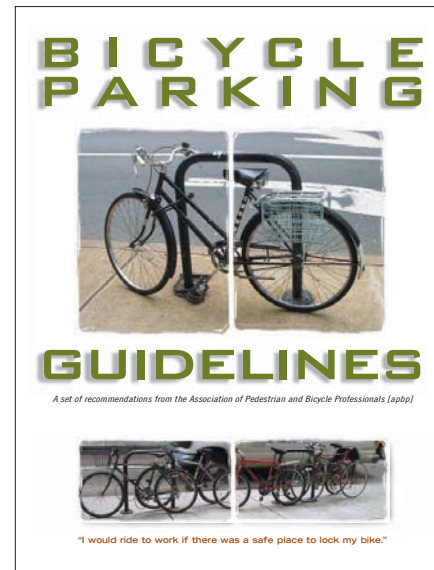
**STRATEGY #8:
Provide Bicycle Parking Facilities**

8-A. All public and private destinations throughout the region shall provide bicycle parking racks per guidelines developed by the Association of Pedestrian and Bicycle Professionals (ABPB).

An eight-page color brochure is available for distribution to area governments, businesses and developers at <http://www.bicyclinginfo.org/pdf/bikepark.pdf>. Key components to address include:

- Parking racks shall be styles that adequately support the bicycle.
- Individual racks shall be sited to permit convenient user access.
- Rack parking areas shall be located adjacent to building entrances.

8-B. Consider providing bicycle lockers or indoor storage in locations where bicycles will be parked overnight or for longer durations.



Recommended bicycle parking guidelines from the Association of Pedestrian and Bicycle Professionals, 2002



Planning Background

Planning for pedestrian needs is very different than planning for bicycle needs, yet the WAMPO Regional Pathways Plan was intended as a planning effort for both modes.

This plan addresses multi-use pathways in detail, as this facility type benefits both cyclists and a variety of pedestrians - walkers, runners, joggers, in-line skaters, people in wheelchairs, people taking the dog for a walk, people taking the baby for a stroll, etc.

However, only a select type of walking occurs on recreational paths, with the majority of daily activity occurring on sidewalks throughout communities in the region. Thus the following supplemental pedestrian planning guidance is provided for the local jurisdictions. It is important to note that pedestrian planning, in general, takes the form of policy guidance. No pedestrian plan map therefore accompanies the suggested implementation strategies.

Types of Walking

The WAMPO Regional Pathways Plan recognizes that people walk for a variety of reasons, including:

- **Utilitarian Walking** - People walk for specific purposes to get to destinations such as work, school or shopping. Almost all auto and transit trips involve utilitarian walking to reach the final trip destination.
- **Rambling** - People ramble as a recreational activity. They walk the dog or push a baby carriage. They jog or speed walk for exercise.

They go for a walk just for the sake of going for a walk.

- **Strolling/Linger** - In certain settings, people stroll and linger. They stand on the sidewalk and talk with others they meet. They sit on a bench and eat ice cream while watching people.
- **Promenade** - People walk to be seen and interact with other members of the community. A good example of this type of walking is high school students who promenade in groups in commercial areas.
- **Special Events** - These include farmer's markets, public concerts, parades, arts festivals and other community events.



Types of Pedestrian Environments

There are different types of pedestrian environments just as there are different reasons people walk. Therefore, walking environments should be thought of as arrayed along a continuum of pedestrian friendliness with four classifications:



Pedestrian Intolerant Environments

These are areas where walking is unsafe and unattractive. Examples include freeway corridors, certain industrial or extraction land uses, landfills, and major streets and roadways lacking continuous sidewalks.

A major characteristic of Pedestrian Intolerant environments is that they lack pedestrians, either due to a lack of pedestrian accommodations and/or dominance by auto traffic and auto-oriented land uses.



Pedestrian Tolerant Environments

These environments provide pedestrian facilities, but at a minimal level of accommodation. These are areas and corridors where walking is technically safe (there are continuous sidewalks and reasonably safe street crossings), but land use patterns generate little walking activity.

Arterial street corridors, remote or rural streets, and certain light industrial or warehousing areas will only attract limited amounts of utilitarian walking, and will not appeal to recreational walkers or strollers.





Pedestrian Supportive Environments

These are well-designed residential and commercial neighborhoods, employment centers, parks and recreational areas. Sidewalks are continuous and buffered from streets, and wide enough for passing and walking side by side. Land uses are dense enough to either attract utilitarian walking trips of reasonably short lengths (half mile or less), or attract recreational walkers and joggers. Buildings, not parking lots, face streets and good street crossings are provided.

A good test to determine a Pedestrian Supportive environment is whether or not a parent is comfortable letting his or her 8-year old child walk ahead of them with minimal supervision.

Pedestrian Places

These limited extent districts have mixed-use land developments, moderate to high densities, good transit service, and extensive pedestrian amenities. Here people will stroll and linger past store fronts and urban landscape features, walking for both utilitarian and recreational purposes.

Pedestrian Places have people of all ages moving about between multiple activities. At least three unique, highly identifiable areas such as outdoor seating, a water feature, public art, or pedestrian-oriented shopping will be located in close proximity to each other.



Street System Components That Impact Walking

Three distinct components of the street system, as depicted at right and summarized below, are crucial elements in the design of pedestrian environments in all place types.

1 The Roadway Corridor

Creating good pedestrian environments requires careful attention to the design of streets, the allocation of space within street rights-of-way, the spacing, length and treatment of street crossings, and allocation of time at signalized intersections. In general, higher adjacent traffic volumes moving at faster speeds on wider roadways create less pedestrian-friendly conditions.

2 The Pedestrian Realm

Also called the roadside zone, this area includes the sidewalk as well as the buffer zones on either side that separate the walkway from motor vehicle traffic and link the walkway to adjacent properties. In general, greater separation from the street is provided where higher vehicular travel speeds are present, and additional walkway width is provided where more pedestrians use the system.

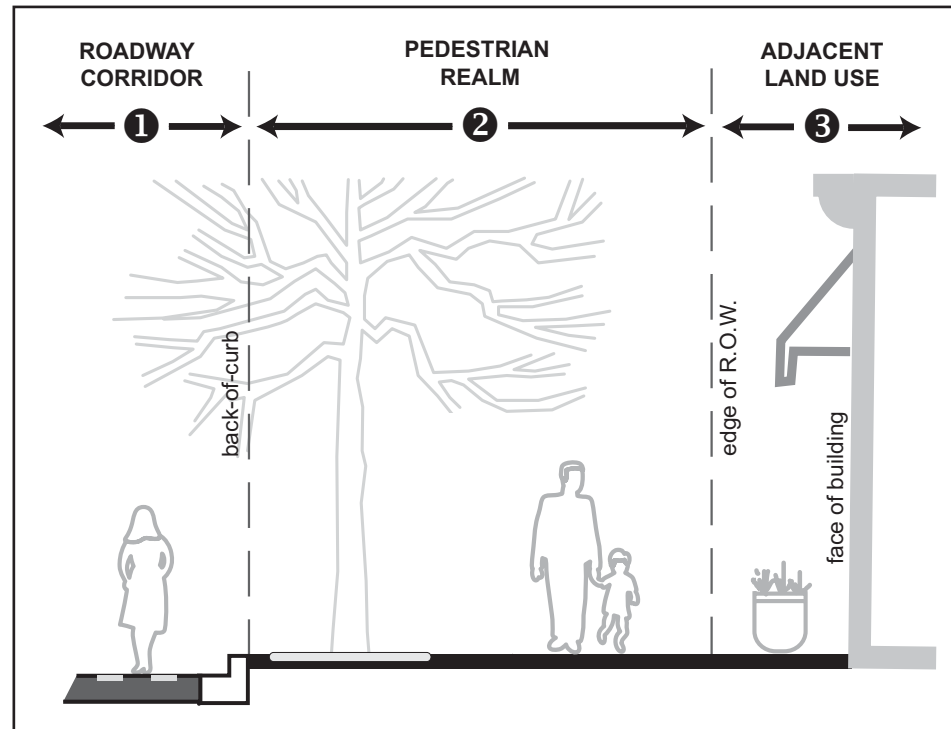
3 Adjacent Land Use

Sidewalks alone do not make a place into a pedestrian destination. To generate pedestrian presence, land uses must be highly mixed and reasonably dense. Some combination of residential, lodging, retail, restaurant, civic and employment uses must be present within a contiguous area. Buildings with numerous doors and windows frame the street, the street grid is fine-grained, and parking is located on-street or internal to the block.

Recommendations from the
WAMPO 2030 Long-Range Transportation Plan
August 25, 2005

SIDEWALKS ON BOTH SIDES OF STREETS

“Many comments were received from the public and transportation stakeholders regarding the need to provide sidewalks on both sides of all streets. Providing sidewalks that complement the public transportation system were believed to be a high priority.”



Supplemental Pedestrian Guidelines for the WAMPO Region

There are numerous ways that communities within the region can create a more pedestrian-friendly environment. Large-scale policy changes should be made to better address pedestrian needs, as well as small-scale spot improvements completed in numerous locations. Key implementation strategies include the following:

STRATEGY #1: Create no new Pedestrian Intolerant Environments

1-A. All streets shall have sidewalks to accommodate basic utilitarian walking needs. Local jurisdictions shall require new developments to provide sidewalks and the Cities shall work to complete missing sidewalk links in previously developed areas.

- **Urban collectors and arterial streets** are the primary location for businesses and other attractions, and shall thus have sidewalks located on both sides of the street. Sidewalks shall be at least 5 feet wide. Since most major streets in the WAMPO region do not have on-street parking, a buffer strip at least 6 feet wide shall be required between the street and sidewalk.
- **Local streets** can receive moderate levels of pedestrian activity and should be encouraged to provide sidewalks on both sides of the street. Sidewalks shall be at least 4 feet wide with a buffer strip separating the street from the walkway. Curb-attached sidewalks should be discouraged, but shall be at least 6 feet wide if permitted.
- **Rural roadways** typically experience low levels of pedestrian activity and need no accommodation. Exceptions include corridors leading to ex-urban school locations where sidewalks, paved roadway shoulders, or multi-paths shall be provided.

1-B. All intersections shall have delineated crosswalks to meet minimum Pedestrian Tolerant design guidelines.

1-C. Legal pedestrian crossings shall be provided at distances no greater than 1,320 feet (1/4 mile) apart.

1-D. All projects shall meet minimum requirements of the Americans with Disabilities Act (ADA).

STRATEGY #2: Strategically work to improve existing Pedestrian Tolerant Environments to Pedestrian Supportive standards.

2-A. Future intersection improvements shall not be made to accommodate vehicular throughput at the expense of pedestrian safety or convenience. All new intersection retrofit projects shall include crossing treatments that follow Pedestrian Supportive guidelines, as outlined in the chart on page 64.

2-B. Throughout the region, the following geographical areas shall be designed to be Pedestrian Supportive:

- ▶ All primary pathway corridors where bicycles will be accommodated on-street, as identified in the WAMPO Regional Pathway System Plan.
- ▶ Designated school walking routes.
- ▶ Bus routes.
- ▶ Throughout future mixed-use and transit oriented developments.
- ▶ Within arterial street corridors near destinations such as parks, trail crossings/pathway system access points and commercial activity centers.

2-C. In Pedestrian Supportive environments, the roadway corridor shall serve multiple modes of transportation, including walking and transit. Maximum distance between pedestrian crossing opportunities shall be 528 feet (1/10 of a mile). Street crossing distances shall be shortened through use of smaller curb radii, curb extensions, medians, refuge islands and/or right-turn slip lanes.

2-D. In Pedestrian Supportive environments, the pedestrian realm shall include 6' to 8' wide sidewalks, with walkways separated from the street by buffers, street tree planters, or furnishing zones at least 5' in width.

2-E. Additional measures such as pedestrian-friendly site development, school site planning and design, neighborhood traffic calming, and traffic management programs shall be considered within identified Pedestrian Supportive areas. Land use guidelines shall include mixed uses, reduced building setbacks, smaller parking areas and improved pedestrian access.



Crossing Treatment Guidelines		
	Pedestrian Tolerant Design	Pedestrian Supportive Design
Marked Crossings	Crossings are typically marked, but legal crossing also exist at unmarked intersections.	Marked crosswalks should be required, particularly in the following locations: <ul style="list-style-type: none"> ➢ at all open legs of signalized intersections with adjoining sidewalks ➢ at all arterial intersections in Downtown and mixed-use centers, or when connecting to significant retail activity ➢ at multi-use trail crossings ➢ along school walking routes ➢ at or near important transit connections ➢ near housing for the elderly
Spacing	Crossings shall be spaced a max. of 1320' apart. (1/4 mile)	Crossings shall be spaced a max. of 528' apart (1/10 mile) and a min. of 330' (traditional city block length)
Crosswalk Pattern	Standard crosswalks (two parallel, horizontal lines)	Highly-visible Ladder Bar or Piano Bar crosswalks (with perpendicular bars spaced so that wheels of motor vehicles pass on either side of the markings to minimize maintenance). Or use colored and textured surfaces to improve aesthetics in mixed-use areas, potentially in conjunction with raised speed table crossing treatments.
Signalization Timing	Use average walking speed of 3.5 - 4.0 feet/second	Use a slower walking speed of 2.5 - 3.0 feet/second to accommodate older pedestrians and people with disabilities
Curb Radius	25' curb radius standard 30' curb radius on major streets with truck/bus traffic	5'-15' max. curb radius Smaller curb radii (up to 5' min.) may be used if on-street parking or bike lanes
Curb Ramps	Diagonal curb ramps may be permitted in the following locations if curb radii are >20' and a landing at the bottom of the ramp is positioned within the crosswalk area for both directions of travel: <ul style="list-style-type: none"> ➢ Where utilities prevent the installation of paired curb ramps ➢ At intersections that are not signalized ➢ In some residential areas where traffic volumes are very low 	Paired curb ramps recommended Diagonal ramps to be avoided whenever curb radii are <20' since moving traffic can encroach upon the landing area
Medians and Refuge Islands	Recommended for use: <ul style="list-style-type: none"> ➢ In intersections when the length of the pedestrian crossing exceeds 60 feet ➢ At intersections with complex vehicle movements or long signal phases ➢ In conjunction with uncontrolled midblock crossings 	<ul style="list-style-type: none"> ➢ Provide a median island when the length of the pedestrian crossing exceeds 48 feet ➢ Consider narrowing traffic lanes (potentially down to 10 feet) to have the added effect of slowing motor vehicle speeds at the crossing location, and shortening pedestrian crossing distances
Slip Lanes	Provide a triangular "pork chop" refuge island within the intersection when: <ul style="list-style-type: none"> ➢ Curb radii >30' are unavoidable ➢ Slip lanes can be designed based upon a compound curve design to discourage high-speed turns, while accommodating large trucks and buses 	No slip lanes allowed or needed
Curb Extensions	Typically not provided	Consider installing on streets with: <ul style="list-style-type: none"> ➢ On-street parking, especially diagonal parking ➢ Limited left-turning traffic by buses and large vehicles ➢ One-way traffic ➢ On minor streets in residential areas
Mid-Block Crossings	Use in high-activity areas only Locations being considered need to be studied carefully	Consider installing unless crossing is: <ul style="list-style-type: none"> ➢ < 300 feet from another crossing point ➢ On streets with speeds > 45 mph

2-F. Safe Routes to Schools shall be created that meet Pedestrian Supportive standards and shall include the following:

- **Roadway Corridors** with speed limits 25mph or less shall be in force when students are arriving at and leaving school. Design features shall be used to manage speeds and provide positive control at crossing locations.
- **School walking routes** should be planned to take advantage of existing traffic controls.
- **Crosswalks** should be marked at signalized and stop-controlled intersections. At non-intersection locations, crosswalk markings legally establish the crosswalk. Transverse crosswalk lines may be used where a Pedestrian Tolerant condition is acceptable. Otherwise, crosswalks should be marked with ladder or piano bar style markings.
- **Traffic controls** for school areas shall be in conformance with Part 7 of the MUTCD.
- **Traffic calming devices** such as raised crossings, refuge islands, bulb-outs, neighborhood traffic circles, landscaping, etc. shall be installed in the vicinity to slow vehicles.
- **Multi-use pathways** that provide for bicycling and walking to school should receive priority for funding, whether part of the regional system or a local community pathways plan.
- **Land Use** design elements at school sites shall give paramount emphasis to the safety of pedestrians near motor vehicle traffic. School bus loading and unloading shall take place on school property, off the surrounding street system. Bus drop-off zones shall be separated from auto drop-off zones to minimize confusion and conflicts. Parking shall be minimized. Buildings shall be accessible to pedestrians from all sides..



STRATEGY #3: Make walking the priority travel mode in select Pedestrian Places within the region.

3-A. Throughout the region, the following select geographical areas shall be designed as Pedestrian Places:

- ▶ Delano, Old Town, and the WaterWalk/Arena neighborhoods within the City of Wichita.
- ▶ Downtown main streets of smaller communities.
- ▶ The central core of future mixed-use developments.

3-B. Incentives shall be provided to guide development patterns to create distinct Pedestrian Places that attract significant numbers of people and provide opportunities for socialization, strolling and lingering.

3-C. Within Downtown Wichita, the future mobility study shall consider pedestrian needs in the retrofit of one-way streets to two-way traffic movements. The study shall not only look at vehicular traffic flows, but also pedestrian crossing treatments, opportunities for on-street parking, sidewalk improvements, enhanced pedestrian connections to public parking and public transit service, and the pedestrian-friendliness of existing land use and proposed developments.

3-D. Pedestrian Places shall not be bisected with high-speed, multiple-lane arterial streets. Street right-of-way allocations shall be balanced and roadway design shall give priority to pedestrians.

- **Roadway Corridors** through Pedestrian Places shall be designed to carry moderate traffic volumes (<15,000 ADT) at slower travel speeds (25-30 mph). On-street parking and/or bicycle lanes shall be provided.
- **Crosswalks** should be of a high-visibility design, with texture, pattern, color and/or traffic calming measures such as raised speed tables or curb extensions. Crossing distances should be kept short by limiting pavement width (4 lanes max.) and using small curb radii (25' max.). Paired curb ramps shall be provided perpendicular to the curb face, aligning directly with the crosswalk.
- **Block sizes** shall be small, with frequent pedestrian crossings (every 330' feet or less) using pedestrian activated traffic signals.
- **Parallel on-street parking** shall be encouraged as a means of traffic

calming and a generator of additional pedestrian traffic. Where diagonal parking is provided, consideration should be given to back-in angle parking to improve safety by having doors and trunks open to sidewalks and drivers pull out head-first into traffic.

3-E. In Pedestrian Places, the pedestrian realm shall be built and maintained to the highest standards:

- **A paved planter/furnishing zone** shall separate walkways from the street and accommodate utilities, parking meters, passenger unloading, streetscape amenities and street trees planted within tree wells.
- **Sidewalks** should be at least 8' wide to accommodate passing and pairs of pedestrians walking side-by-side. In Pedestrian Places, the overall sidewalk width may be 10'-30' wide to provide space for amenities plus an 8'-10' pedestrian clear zone.
- **The frontage zone** in downtowns and mixed-use areas should not include landscape buffers separating pedestrians from stores, but instead sidewalks should extend to building faces. At least 2' of paved "shy distance" shall be provided away from the building walls to accommodate window shopping, sidewalk displays, outdoor dining, etc.
- **Amenities** should include pedestrian furniture groupings, sculpture, drinking fountains, decorative fountains, and wayfinding. Lighting shall include overall street lighting, low-angle pedestrian street lamps, and additional light emitted from stores that line the street.

3-F. In Pedestrian Places, adjacent land uses must be designed around the pedestrian. First-floor retail, a vibrant mix of uses, and at least three distinct, complimentary activities that appeal to a variety of age groups and located within walking distance of each other are critical to create mixed-use settings that serve as Pedestrian Place destinations.

- **Buildings** shall face the street, be placed at minimum setbacks or build-to lines, range from 3-5 stories high, and create a height to width ratio of 1:4 minimum and 1:1 maximum.
- **Architectural Design** shall include porous street frontages with frequent doors and windows, and use of awnings and arcades for shade and shelter. Blank stretches of wall shall not exceed 15 feet.
- **Parking** in surface lots located in front of buildings will destroy Pedestrian Supportive and Pedestrian Place Environments. On-street



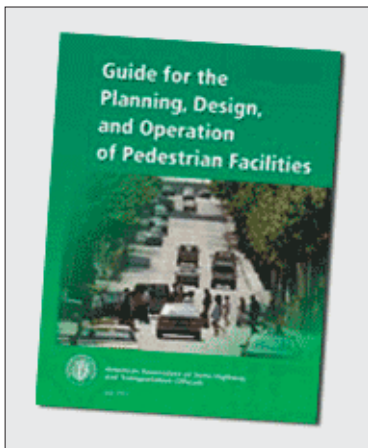
parking shall be provided on all block faces, combined with parking structures or internal block parking distributed throughout the district, to maintain the quality streetscapes necessary to attract high levels of pedestrian usage.

STRATEGY #4: Pay attention to details that impact pedestrians in all public and private projects.

4-A. Individual communities shall include a pedestrian accommodation checklist when reviewing development plans and proposed public infrastructure projects.

4-B. WAMPO shall require enhanced pedestrian safety, accessibility and usability in all projects that seek federal and state funding.

4-C. The July 2004 AASHTO “Guide for the Planning, Design, and Operation of Pedestrian Facilities” shall be used as the region’s pedestrian guidelines.



AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities, 2004

Details of pedestrian accommodation that shall be addressed in all public and private sector projects include:

- **Designing roadways to accommodate pedestrians** - addressing speed management, roadway widths, curbs, sight distances and sight lines, and street lighting
- **Sidewalk design** - including sidewalk and buffer widths, transit connections, driveway access management, grade and cross slope, stairs, sidewalks for highway bridges, underpasses and tunnels, surface treatments, pedestrian facility lighting, obstacles and protruding objects, ambience, shade and other enhancements, and design of off-road and shared-use paths
- **Intersection design** - including curb radii, crossing distance considerations, turning movements, crosswalks, sidewalk and curb treatments, and street and intersection lighting
- **Midblock crossings** - crossing distance considerations, traffic calming at mid-block locations and, mid-block signals
- **Grade-separated crossings** - sidewalk continuity, overpasses vs. underpasses, and lighting
- **Pedestrian signals** - including pedestrian signal phasing, signal timing, warrants, and innovative signal options
- **Pedestrian-related signing** - regulatory signs, warning signs, guide signs, and street name signs
- **Sidewalk maintenance** - including surface repairs, snow removal, vegetation, and drainage improvements
- **Construction work zones** - accommodation of pedestrian traffic during construction phases

Source: Guide for the Planning, Design, and Operation of Pedestrian Facilities
American Association of State Highway and Transportation Officials, July 2004



Consultant Facility Recommendations

This appendix to the WAMPO Regional Pathway System Plan contains the consultant's initial recommendations that were removed from the corridor pages during the final plan revision process. These do not necessarily represent the WAMPO position and do not constitute WAMPO policy. Rather they are based on the professional experience of Charlier Associates, Inc. as national experts specializing in bicycle and pathway planning.

For many of the corridors described on pages 23 to 46, Charlier Associates made specific recommendations for *how* jurisdictions in the region may want to implement continuous bicycle accommodation based upon national state-of-the art in bikeway planning. These are presented following as background information for local jurisdictions as they move forward with implementation decisions.

Several of these initial corridor recommendations included implementation of a concept called a "road diet" as presented on the following pages. Nationwide, engineers are putting select roads on "diets," helping them to lose lanes and width – most often by restriping a four-lane roadway into a three-lane. Studies have shown that these "leaner" streets have become safer, more efficient, multi-modal and more productive. Often, these changed roads set the stage for millions of dollars in new commercial and residential development, spurring neighborhoods to become more robust, vital and economically sound places.

While cities such as Seattle, Portland, East Lansing, Santa Monica and Toronto have added road diets to their toolkits for accommodating bicyclists, this success is not guaranteed in all places. Road

diet implementation must be paired with a public process that allows adjacent property owners and the general public to become involved in the design decision-making process. Many communities have arrived at consensus that road diets work on streets with 15,000-18,000 average daily traffic (ADT) or less. Conversions up to 23,000 ADT appear to represent the upper limit of effectiveness for a three-lane roadway design. These parameters and details from case study research framed the consultant's recommendations regarding road diets.

Other regional corridors prescribed a variety of facility improvement options depending on land use and style of future growth and development that may occur. This approach is called "context sensitive design" and recognizes that one facility type is not the appropriate solution for all environments. Urban areas are different from suburban and rural areas, and may require different approaches to solving similar problems.

However, most of the approaches suggested following will require local governments to expand their "pathways" planning beyond trails and sidepaths to include a variety of on-road bicycle accommodations as options for complete system development.



Road Diets and Safety Impacts

The Highway Safety Information System (HSIS) is a multi-state FHWA safety database that contains crash, roadway inventory and traffic volume data. A recent HSIS study of road diets found that this design treatment offers benefits to both vehicles and pedestrians. This national research was conducted by the University of North Carolina Highway Safety Research Center. See <http://www.tfsrc.gov/safety/hsis/pubs/04082/index.htm> for full details.

In summary, the study found that on a four-lane street, drivers change lanes to pass slower vehicles (such as vehicles stopped in the left lane waiting to make a left turn). In contrast, drivers' speeds on two-lane streets are limited by the speed of the lead vehicle. Thus, road diets may reduce vehicle speeds and vehicle interactions during lane changes, which may reduce the number and severity of vehicle-to-vehicle crashes. Pedestrians may benefit because they have fewer lanes of traffic to cross, and because motor vehicles are likely to be moving more slowly. Space for bicycle lanes may be an added benefit.

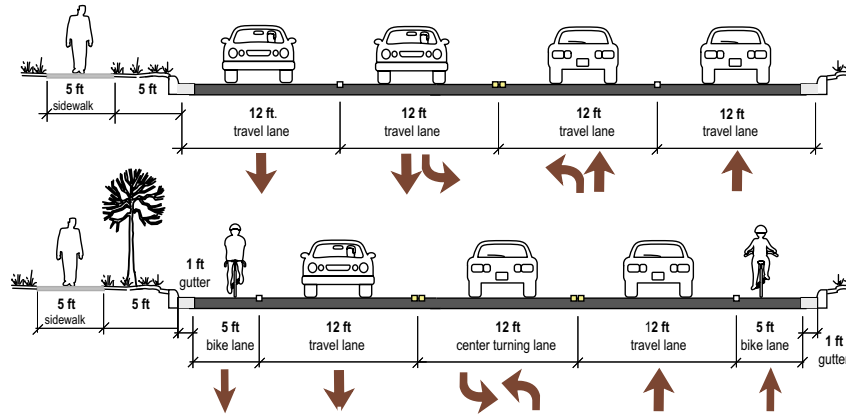
Looking at vehicular crashes during before and after testing of road diet conversions, the HSIS study arrived at the following conclusions:

Crash frequency.... 6% lower on road diets

Crash severity no difference

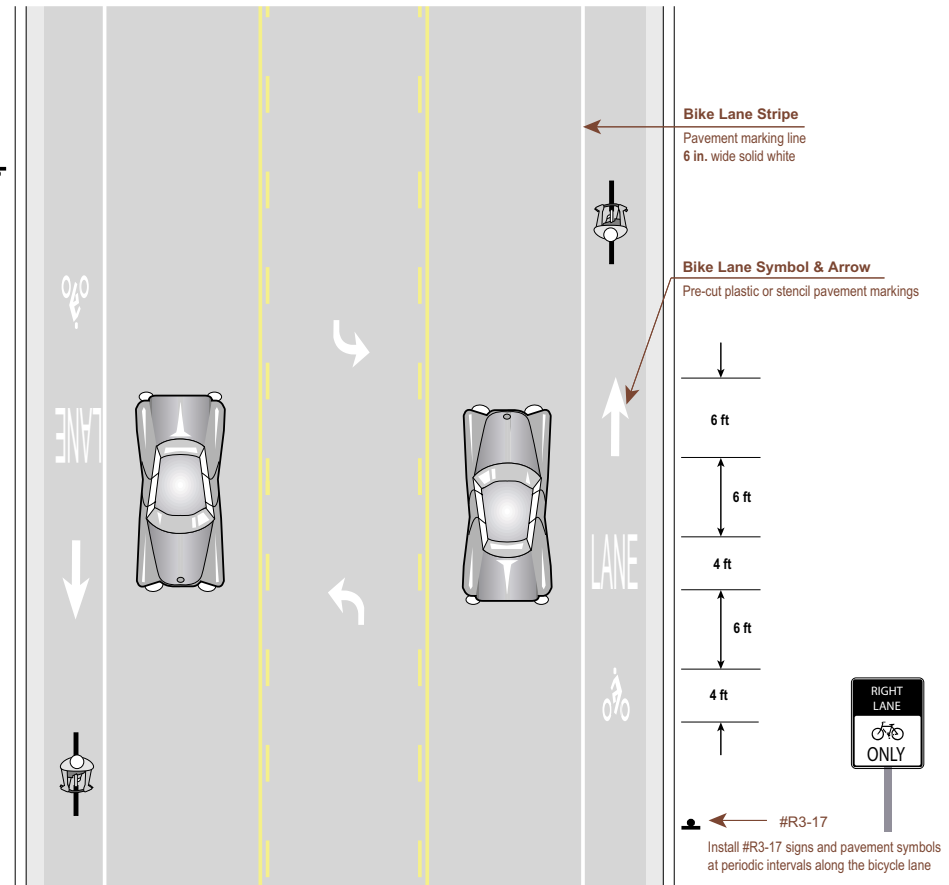
Crash type..... road diets had a higher percentage of angle crashes, and a lower percentage of rear-end crashes

Road Diet with Center Turning Lane

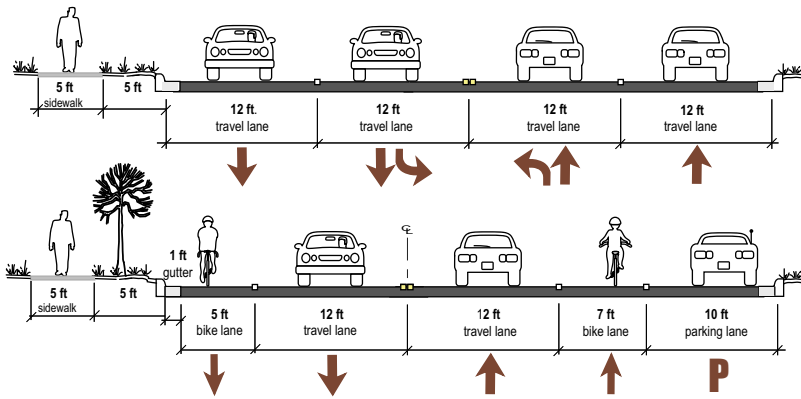


TYPICAL FOUR-LANE MINOR ARTERIAL

ROAD DIET APPLICATION TO RESTRIPE AS MULTI-MODAL CORRIDOR WITH BICYCLE LANES

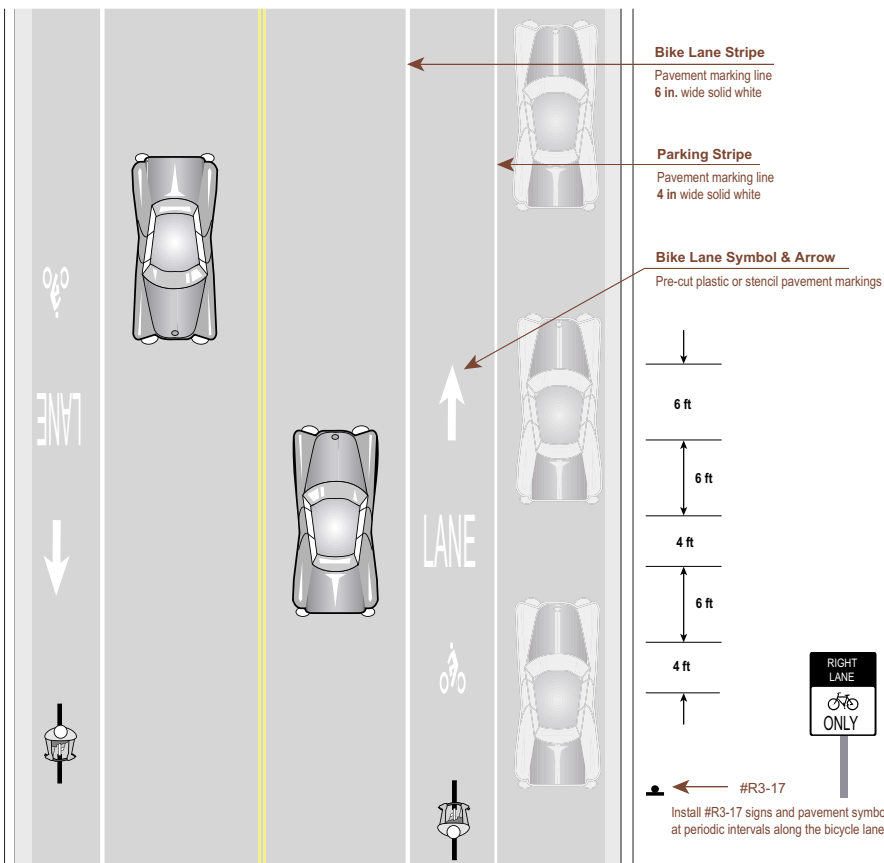


Road Diet with On-Street Parking



TYPICAL FOUR-LANE MINOR ARTERIAL

ROAD DIET APPLICATION TO RESTRIPE WITH BIKE LANES AND ON-STREET PARKING



Road Diets and Traffic Capacity Impacts

At first glance, road diets appear to take away two of four travel lanes, therefore traffic volumes must be reduced by half, right? In reality, capacity constraints occur at intersections. The two center lanes of a four-lane street accommodate turning movements with some through traffic. If a road diet includes a center turn lane, vehicular capacity is therefore more or less unaffected as long as attention is paid to intersection design.

A comprehensive study by Walkable Communities, Inc. of 18 road diet projects shows that average daily traffic (ADT) volumes before and after lane reductions remained nearly identical. Full details can be found at www.walkablecommunities.org.

	ADT Before	ADT After
Lake Wash Blvd, Kirkland, WA	23,000	25,913
Lake Wash Blvd, Kirkland, WA	11,000	12,610
Electric Ave, Lewistown, PA	13,000	14,500
Burcham Rd, East Lansing, MI	11-14,000	11-14,000
Grand River, East Lansing, MI	23,000	23,000
St. George St, Toronto, Canada	15,000	15,000
120th Ave, NE, Bellevue, WA	16,900	16,900
Montana, Bellevue, WA	18,500	18,500
Main Street, Santa Monica, CA	20,000	18,000
Danforth, Toronto, Canada	22,000	22,000
Greenwood Ave, Seattle, WA	11,872	11,247
N 45th St, Seattle, WA	19,421	20,274
8th Ave NW, Seattle, WA	10,549	11,858
MLK Jr. Way, Seattle, WA	12,336	13,161
Dexter Ave, Seattle, WA	13,606	14,949
24th Ave NW, Seattle, WA	9,727	9,754
Madison St, Seattle, WA	16,969	18,075
W. Government Way, Seattle, WA	12,916	14,286



Index of Consultant Corridor Recommendations

Corridor B: 53rd Street North – p. 24

Future Improvements to the rural roadway design that may occur with growth should include paved shoulders or bicycle lanes, or possibly a sidepath depending on adjacent land development patterns. Roadway improvements, beginning near the Wal-Mart Supercenter site at Meridian, should accommodate bicycles.

Bicycle lanes are appropriate where speeds are less than 35mph on streets with urban curb-and-gutter; a road diet may be implemented on four-lane sections with low traffic volumes; or share-the-road signing may be used on paved shoulder segments to caution drivers that there may be bicyclists on the roadway.

Corridor C: 13th Street North – omitted in final plan

Road Diet Treatment

Convert this four-lane road with moderate traffic volumes into a three-lane with center turn lane plus bike lanes, with 35mph posted speed limit. Follow AASHTO and MUTCD bicycle lane guidelines for intersection designs to accommodate additional vehicular turning lanes, as needed.

(Note: Corridor C was presented as an alternative to Corridor D. The consultant considered either, or the development of both routes, as viable options for an east/west connection. The Corridor C routing on 13th Street would appeal more to Group A bicyclists, while the Corridor D routing along the abandoned BNSF corridor would appeal more to Group B/C bicyclists. Corridor C was dropped in favor of Corridor D by the local jurisdictions.)

Corridor E: Maple Street – p. 28

Share-the-Road Signing

- Post signs west of Maize Road (sections with a center median or two-lane rural road section)

On-Street Bicycle Lanes

- Add bike lanes to other sections by narrowing the center turning lane of the five-lane cross-section, or restriping the four-lane

sections into a three-lane with center turn lane plus bike lanes, with 35mph posted speed limit. Follow AASHTO and MUTCD bicycle lane guidelines for intersection designs to accommodate vehicular turning lanes, as needed.

- Incorporate continuous bicycle accommodation from Maple, through the developing Arena Neighborhood, to link with Douglas Street to the east.

Corridor E: Douglas Street – p. 29

Road Diet Treatment

Convert this four-lane road with moderate traffic volumes and frequent drive/street intersections into a three-lane with center turn lane plus bike lanes, with 35mph posted speed limit. Follow AASHTO and MUTCD bicycle lane guidelines for intersection designs to accommodate additional vehicular turning lanes, as needed.

Corridor F: Pawnee Avenue/23rd S – p. 31

Accommodations on Pawnee are intended to connect into Mt. Vernon to create a continuous east/west corridor. To make this connection, the following pieces are needed:

Sidepaths

- Need a connection from the existing Gypsum Creek Bicycle Path running along the west side of Woodlawn under the Kansas Turnpike/I-35 bridge to connect to Pawnee.
- Provide continuous sidepath facilities along Pawnee for the section from Woodlawn to Webb Road.

Shared Roadway

- As an interim measure, Share-the-Road signs may be posted on the two-lane roadway section of Pawnee east of S. Webb Road for connection to Andover.
- As growth and development continue in this part of the county, provisions for paved shoulders, on-street bicycle lanes, or a sidepath should be made.



Corridor K: Main, Broadway or Topeka – p. 37

On-Street Bicycle Lanes

As Wichita undergoes redevelopment of the Arena Neighborhood and the greater Downtown, plans include reverting the existing one-way streets back to two-way traffic.

As part of this effort, we are working with the Arena consultants to determine whether Main, Broadway or Topeka will be the best north/south route on which to stripe designated 5-foot bicycle lanes. Our goal is for a continuous facility that runs beyond the Arena study area north to 13th Street and south to MacArthur. AASHTO and MUTCD guidelines for intersection designs shall be followed to accommodate vehicular turning needs at select locations where needed.

- Topeka is the current preferred alternative.
- From Pawnee south, Broadway is the only option that connects to and crosses the Arkansas River to provide trail system linkage.

Corridor N : Oliver Street – p. 41-42

Road Diet

Convert this four-lane street with moderate traffic volumes and frequent drive/street intersections into a three-lane with center turn lanes plus bike lanes, with 35mph posted speed limit. Apply treatment from K-96 south to the Kansas Turnpike.

Continue accommodation north of K-96 into Bel Aire and Kechi as either bike lanes or paved shoulders. South of the Kansas Turnpike to Spirit Aerosystems may be on-street or a multi-use path.

(Note: Page 42 recommendations now route on Woodlawn, 13th and Edgemoor as an alternative to using the Oliver corridor, with facility type to be determined by the local jurisdiction.)

