

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.

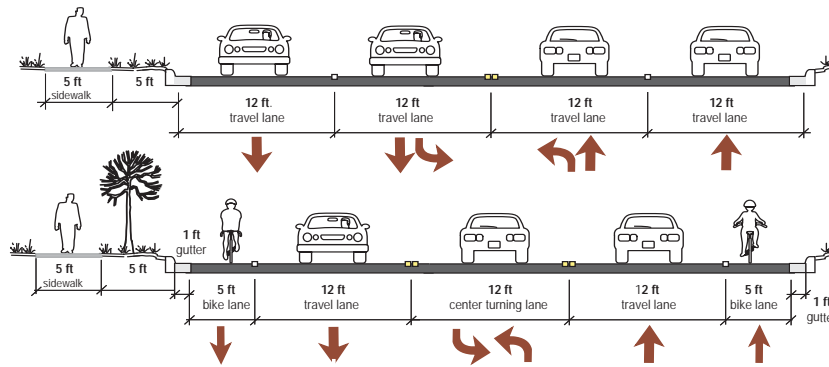
Looking at vehicular crashes during before and after testing of road diet conversions, the HSIS study arrived at the following conclusions:

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

Crash severity no difference

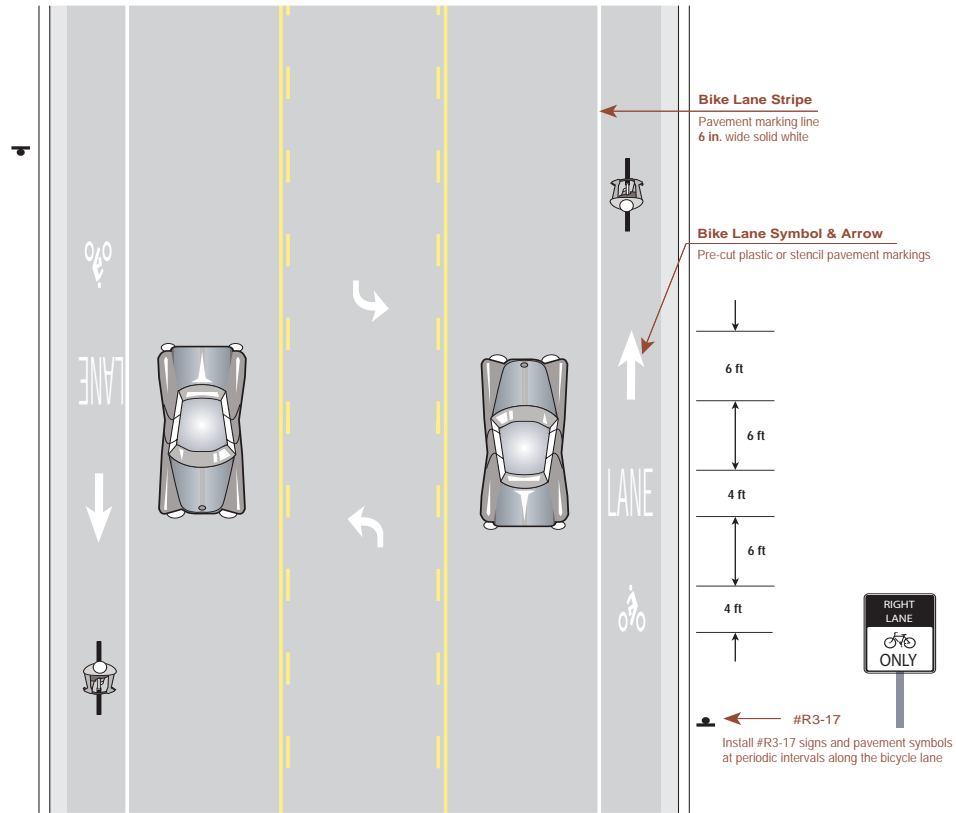
Crash type..... road diets had a higher percentage of angle crashes, and a lower percentage of rear-end crashes

Road Diet with Center Turning Lane

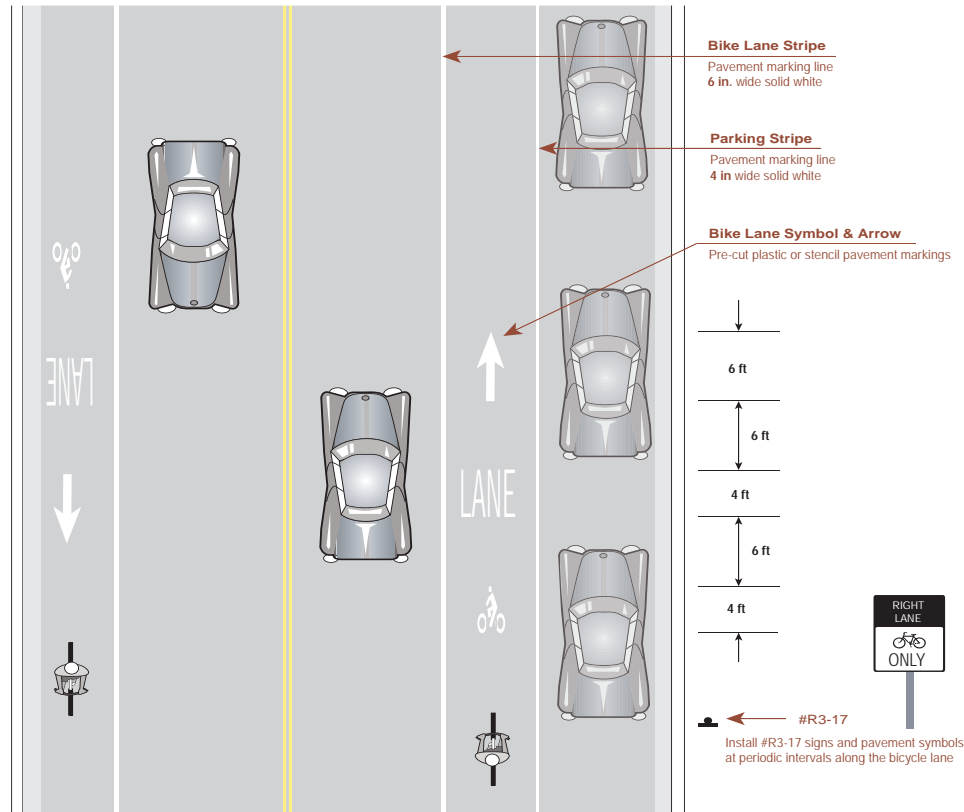
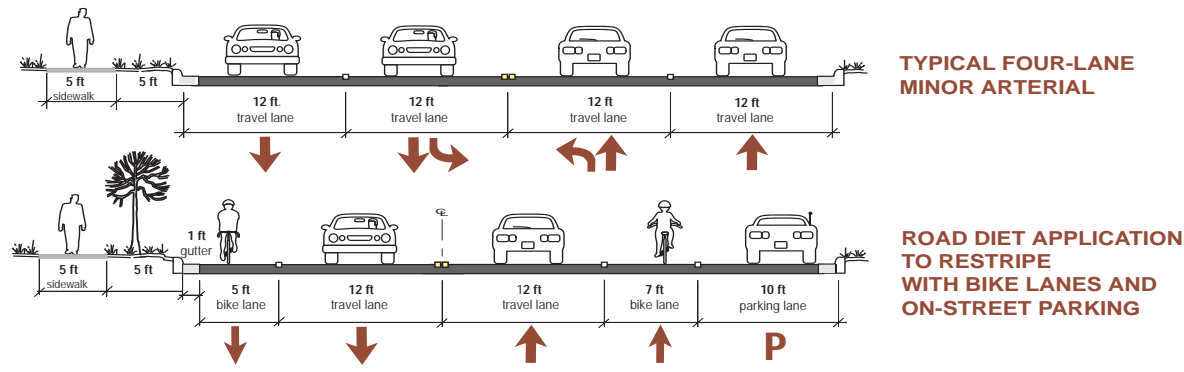


TYPICAL FOUR-LANE MINOR ARTERIAL

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



Road Diet with On-Street Parking



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.)

