

## ON-STREET BIKEWAYS

On-street bikeways bring enormous benefits to both the cycling and noncycling public. Bikeways create opportunities to incorporate exercise into one's daily routine, and bring air, noise, and water quality benefits. They use public dollars efficiently by reducing road maintenance costs and increasing the carrying capacity of the transportation system. Bikeways improve safety for all users; bicyclists feel they have a safe space on the road and tend to be more law-abiding, and motorists are placed at greater ease knowing where bicyclists are apt to be. Bikeways also help motorists to be aware of the presence of bicyclists and their right to be on the road.

Bikeway planning and implementation can be relatively simple and inexpensive, as when a public works agency includes bikeways as part of new roadways or restripes a roadway with bicycle lanes during a routine resurfacing. Bikeways can also be complicated and costly, particularly in built urban environments with space constraints. Moreover, the installation of bikeways may not always be desirable from the public's perspective—for example, if parking has to be removed to install bicycle lanes or if traffic must be diverted to create a bicycle boulevard.

National guidelines for the planning and design of on-street bikeways are provided through the American Association of State Highway Transportation Officials (AASHTO). Standards for signing and striping of on-street bikeways are found in the *Manual on Uniform Traffic Control Devices* (U.S. Department of Transportation/FHWA 2003); and many states and local jurisdictions have their own standards and guidelines. In addition, many localities are developing new innovations in on-street bikeway design, such as shared lane markings (San Francisco; Gainesville, Florida; Denver), bicycle-only traffic signals (Davis, California), colored bicycle lanes at intersections (Portland, Oregon), and innovative bicycle boulevard treatments (Berkeley, California). The Association of Pedestrian and Bicycle Professionals (APBP) provides information on emerging on-street bikeway designs.

Specific issues need to be addressed in the design of on-street bikeways:

- Sight lines and topography
- Lane widths for all travel modes
- Intersection design
- Signing, markings, and striping
- Design of drainage inlet grates
- Pavement conditions
- Specific design for pinch points, driveways, railroad crossings, and other challenging areas
- Integration with off-street shared-use trails/paths

### TYPES OF BIKEWAYS

#### Bicycle Lane

A bicycle lane is that portion of the roadway designated by 6- to 8-inch (15.24- to 20.32-centimeter) striping and bicycle pavement markings for the exclusive or preferential use of bicycles. Bicycle lanes are typically provided on collector and arterial streets. Bicycle lanes can be implemented by:

- narrowing existing travel lanes;
- removing a travel lane;

- removing parking; and
- widening a roadway or paving a shoulder.

Bicycle lanes may be implemented through stand-alone bikeway projects, roadway construction or reconstruction, and routine roadway resurfacing.

Some streets have circumstances that make bicycle lane installation difficult. These circumstances include:

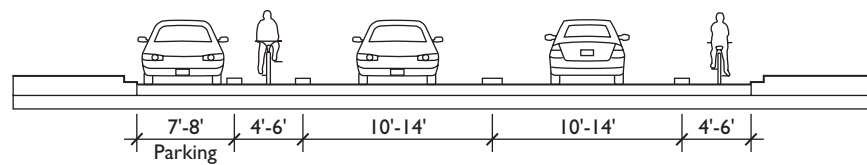
- harm to the natural environment or character of the natural environment due to additional pavement;
- severe topographical constraint;
- economic or aesthetic necessity of retaining parking on one or both sides of the street; and
- unmanageable levels of traffic congestion that

would result from eliminating travel lanes or reducing lane widths.

If bicycle lanes are deemed unfeasible, alternative improvements may be substituted, examples of which are described below. Other potential treatments include providing a bicycle lane in only one direction, such as in the uphill direction on a steep slope; using shared lane markings, as cities like San Francisco are doing; or directing cyclists to a parallel bikeway.

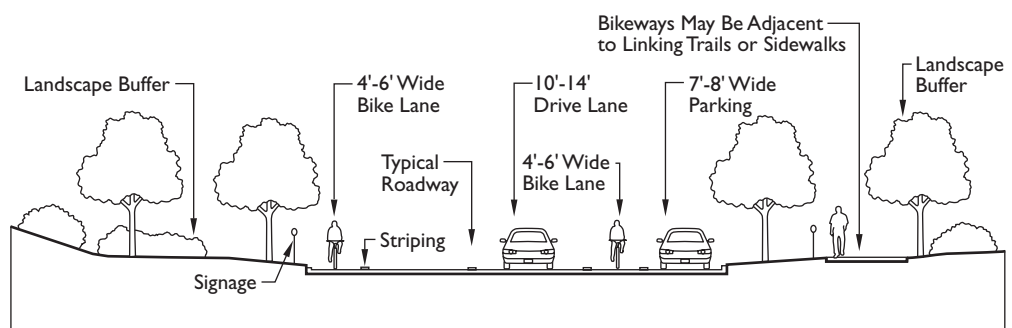
#### Bike Route

A bike route, also called a shoulder bikeway, is a street upon which the paved shoulder, separated by a 4-inch (10.2-centimeter) stripe, is usable by bicycles, although



### BIKEWAY AND TRAVEL LANE DIMENSIONS

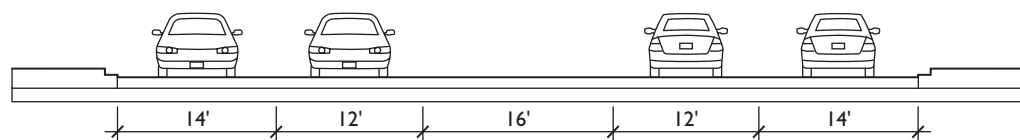
Source: Alta Planning & Design 2004.



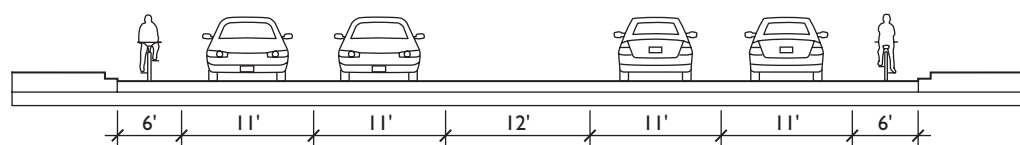
Bike lanes are often found along urban road sections, where maneuvering space is limited and a defined lane is needed for rider safety.

### BIKE LANE

Source: Brauer & Associates, Ltd. 2004.



Before



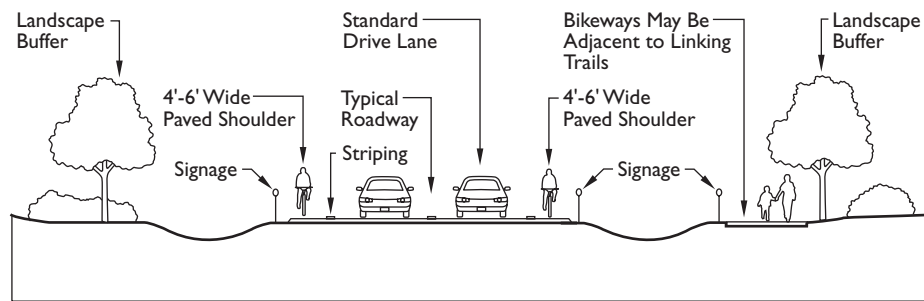
After

### INTEGRATING BICYCLE LANES INTO EXISTING TRAVEL LANES

Source: Oregon Department of Transportation 1995.

Mia Birk, Alta Planning & Design, Portland, Oregon

## 260 On-Street Bikeways



Bike routes, also called shoulder bikeways, are often constructed along rural road sections with no curb and gutter.

### BIKE ROUTE

Source: Brauer & Associates, Ltd. 2004.

auto parking may also be allowed on it. These bikeways are typically provided on rural roadways.

### Signed Shared Roadway

Signed shared roadways are bikeways without separated bicycle lanes. Bicyclists and motorists are expected to share the outside lane. There are three variations: extra-wide curb lane, bicycle boulevard, and signed bike route.

### Extra-Wide Curb Lane

An extra-wide curb lane is a wider-than-normal curb-side travel lane provided to give extra room for bicycle operation where there is insufficient space for a bicycle lane or shoulder bicycle lane. Wide curb lanes have proven to be as safe as bicycle lanes; however, they often do not attract bicycle users, particularly novice or family bicyclists, and thus do little to increase bicycle use in a community.

### Bicycle Boulevard

On a bicycle boulevard, bicycles and motor vehicles share the space, which does not have marked bicycle lanes. The through movement of bicycles is given priority over motor vehicle travel on a local street. Traffic calming devices are used to control traffic speeds and discourage through trips by motor vehicles. Traffic control devices are designed to limit conflicts between automobiles and bicycles, and favor bicycle movement on the boulevard street. Typically, bicycle boulevard treatments are designed for local or collector roadways with relatively low volumes of traffic.

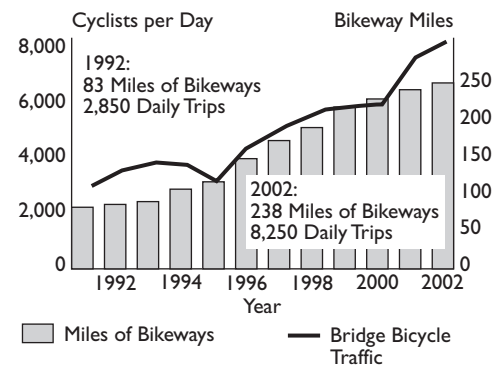
Bicycle boulevard design treatments continue to emerge and are highly complementary to traffic calming programs and projects, safe routes to school projects, and other neighborhood desires. However, the impact on through-traffic movement from traffic calming devices can be a point of controversy.

### Signed Bike Route

A signed bike route is a bikeway upon which guide signing is placed to direct bicyclists to a destination or another bikeway. Signed connections are used on local, low-traffic streets where bicycle lanes or bicycle boulevards are not needed and on and around major recreational cycling destinations. They should not be used as a substitute for appropriate treatments on collectors and arterials but may work well for short connections and in coordination with a comprehensive bikeway network.

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## PART 3 STRUCTURES



### BIKEWAY SELECTION AND NETWORK DEVELOPMENT

Source: City of Portland, Oregon.

### BIKEWAY SELECTION AND NETWORK DEVELOPMENT

The appropriate treatment for on-street bikeways depends on motor vehicle traffic volumes, speeds, street width, topography, presence and use of on-street parking, and type of traffic (e.g., presence of freight traffic.) The selection approach varies considerably from jurisdiction to jurisdiction; for example, communities, such as Corvallis, Oregon, provide on-street marked bicycle lanes on all collector and arterial streets, and a few communities use only wide curb lanes and signage. Guidance on methodologies to select appropriate bikeway types is provided in *Bicycle Facility Selection: A Comparison of Approaches* (King, 2002) available through the National Bicycle and Pedestrian Information Clearinghouse.

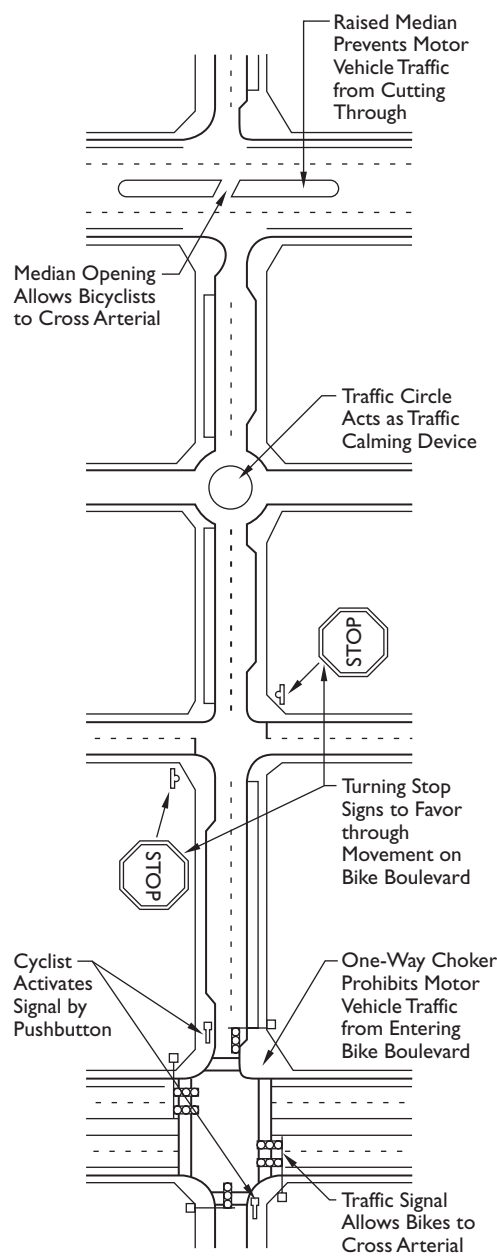
A number of communities (e.g., San Francisco; Cambridge, Massachusetts; Chicago; and Gainesville, Florida) strive to provide a comprehensive bikeway network through a combination of bicycle lanes, neighborhood bicycle boulevards/routes, and off-street shared paths, as developed through a bicycle master planning process. This is clearly the most effective way to increase bicycle use and improve safety. For example, Portland, Oregon, has implemented an extensive network of more than 180 miles (290 kilometers) of on-street bicycle lanes and boulevards. As a result, bicycle use has increased more than 200 percent on its downtown bridges, and bicycle commuting has more than doubled, according to local counts and the 2000 U.S. census. Some of Portland's neighborhoods have bicycle commute mode shares of more than 4 percent. The increase in bicycle usage has been in lockstep with the increase in bikeway facility mileage, while the number of bicycle-motor vehicle crashes has remained flat.

### REFERENCES

- King, Michael. 2002. *Bicycle Facility Selection: A Comparison of Approaches*. Chapel Hill, NC: Pedestrian and Bicycle Information Center, Highway Safety Research Center, University of North Carolina at Chapel Hill.
- U.S. Department of Transportation/FHWA. 2003. *Manual on Uniform Traffic Control Devices (MUTCD)*. Washington, DC: USDOT/FHWA.

### See also:

*Multiuser Trails*  
*Traffic Calming*



### TYPICAL BICYCLE BOULEVARD FEATURES

Source: Oregon Department of Transportation 1995.