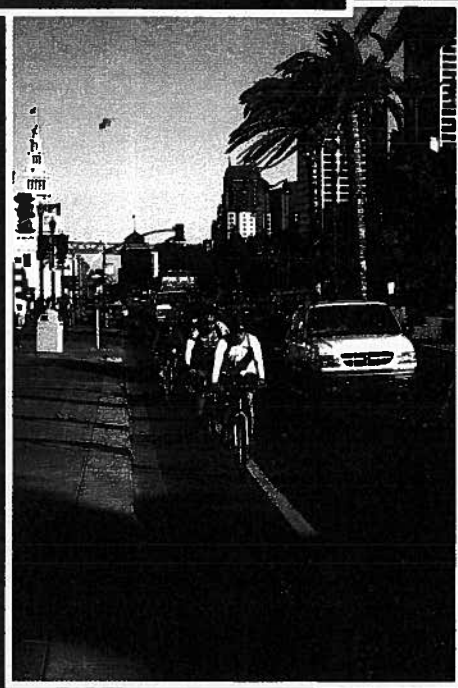
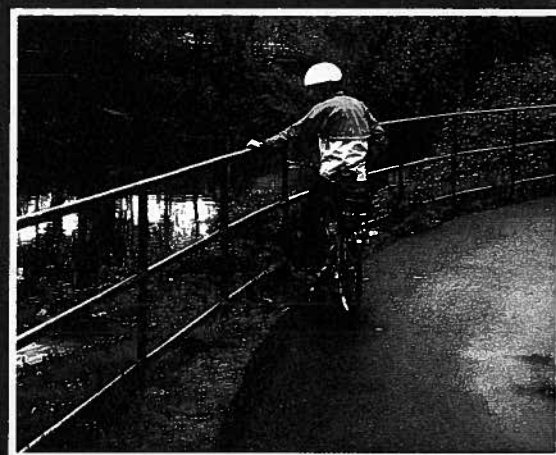


BIK-99-000029 Guide for the
Development of Bicycle
Facilities



guide for the development of bicycle facilities



american association
of state highway and
transportation officials

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Shared Use Paths

Shared use paths are facilities on exclusive right-of-way and with minimal cross flow by motor vehicles. Shared use paths are sometimes referred to as trails; however, in many states the term *trail* means an unimproved recreational facility. Care should be taken in using these terms interchangeably. Where shared use paths are called trails, they should meet all design criteria for shared use paths to be designated as bicycle facilities. Users are non-motorized and may include but are not limited to: bicyclists, in-line skaters, roller skaters, wheelchair users (both non-motorized and motorized) and pedestrians, including walkers, runners, people with baby strollers, people walking dogs, etc. These facilities are most commonly designed for two-way travel, and the guidance herein assumes a two-way facility is planned unless otherwise stated.

Shared use paths can serve a variety of purposes. They can provide users with a shortcut through a residential neighborhood (e.g., a connection between two cul-de-sac streets). Located in a park, they can provide an enjoyable recreational opportunity. Shared use paths can be located along rivers, ocean fronts, canals, abandoned or active railroad and utility rights-of-way, limited access freeways, within college campuses or within and between parks. Shared use paths can also provide bicycle access to areas that are otherwise served only by limited access highways closed to bicycles. Appropriate locations can be identified during the planning process. Examples of shared use paths are shown in Figures 15 and 16.

Shared use paths should be thought of as a complementary system of off-road transportation routes for bicyclists and others that serves as a necessary extension to the roadway network. Shared use paths should not be used to preclude on-road bicycle facilities, but rather to supplement a system of on-road bike lanes, wide outside lanes, paved shoulders and bike routes. There are some similarities between the design criteria for shared use paths and highways (e.g., horizontal alignment, sight distance requirements, signing and markings). On the other hand, some criteria (e.g., horizontal and vertical clearance requirements, grades and pavement structure) are dictated by operating characteristics of bicycles that are substantially different from those of motor vehicles. The designer should always be aware of the similarities and differences between bicycles and motor vehicles and of how these similarities and differences influence the design of shared use paths. The remainder of this section provides guidance on each of the factors that should be considered in designing safe and functional shared use paths.

Separation Between Shared Use Paths and Roadways

When two-way shared use paths are located immediately adjacent to a roadway, some operational problems are likely to occur. In some cases, paths along highways for short sections are permissible, given an appropriate level of separation between facilities, as in Figure 16. Some

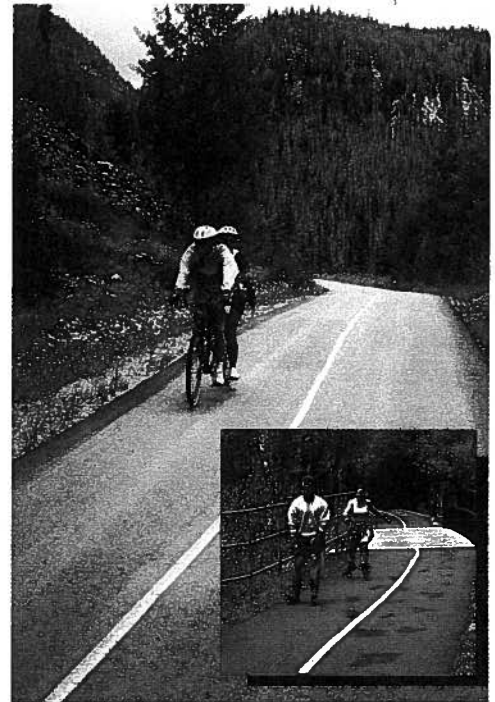


Figure 15. Example of a Shared Use Path



Figure 16. Example of a Shared Use Path



problems with paths located immediately adjacent to roadways are as follows:

1. Unless separated, they require one direction of bicycle traffic to ride against motor vehicle traffic, contrary to normal rules of the road.
2. When the path ends, bicyclists going against traffic will tend to continue to travel on the wrong side of the street. Likewise, bicyclists approaching a shared use path often travel on the wrong side of the street in getting to the path. Wrong-way travel by bicyclists is a major cause of bicycle/automobile crashes and should be discouraged at every opportunity.
3. At intersections, motorists entering or crossing the roadway often will not notice bicyclists approaching from their right, as they are not expecting contra-flow vehicles. Motorists turning to exit the roadway may likewise fail to notice the bicyclist. Even bicyclists coming from the left often go unnoticed, especially when sight distances are limited.
4. Signs posted for roadway users are backwards for contra-flow bike traffic; therefore these cyclists are unable to read the information without stopping and turning around.
5. When the available right-of-way is too narrow to accommodate all highway and shared use path features, it may be prudent to consider a reduction of the existing or proposed widths of the various highway (and bikeway) cross-sectional elements (i.e., lane and shoulder widths, etc.). However, any reduction to less than AASHTO *Green Book*¹ (or other applicable) design criteria must be supported by a documented engineering analysis.
6. Many bicyclists will use the roadway instead of the shared use path because they have found the roadway to be more convenient, better maintained, or safer. Bicyclists using the roadway may be harassed by some motorists who feel that in all cases bicyclists should be on the adjacent path.
7. Although the shared use path should be given the same priority through intersections as the parallel highway, motorists falsely expect bicyclists to stop or yield at all cross-streets and driveways. Efforts to require or encourage bicyclists to yield or stop at each cross-street and driveway are inappropriate and frequently ignored by bicyclists.
8. Stopped cross-street motor vehicle traffic or vehicles exiting side streets or driveways may block the path crossing.
9. Because of the proximity of motor vehicle traffic to opposing bicycle traffic, barriers are often necessary to keep motor vehicles out of shared use paths and bicyclists out of traffic lanes. These barriers can represent an obstruction to bicyclists and motorists,



can complicate maintenance of the facility, and can cause other problems as well.

For the above reasons, other types of bikeways are likely to be better suited to accommodate bicycle traffic along highway corridors, depending upon traffic conditions. Shared use paths should not be considered a substitute for street improvements even when the path is located adjacent to the highway, because many bicyclists will find it less convenient to ride on these paths compared with the streets, particularly for utility trips.

When two-way shared use paths are located adjacent to a roadway, wide separation between a shared use path and the adjacent highway is desirable to demonstrate to both the bicyclist and the motorist that the path functions as an independent facility for bicyclists and others. When this is not possible and the distance between the edge of the shoulder and the shared use path is less than 1.5 m (5 feet), a suitable physical barrier is recommended. Such barriers serve both to prevent path users from making unwanted movements between the path and the highway shoulder and to reinforce the concept that the path is an independent facility. Where used, the barrier should be a minimum of 1.1 m (42 inches) high, to prevent bicyclists from toppling over it. A barrier between a shared use path and adjacent highway should not impair sight distance at intersections, and should be designed to not be a hazard to errant motorists.

Width and Clearance

The paved width and the operating width required for a shared use path are primary design considerations. Figure 17 depicts a shared use path on a separated right of way. Under most conditions, a recommended paved width for a two-directional shared use path is 3.0 m (10 feet). In

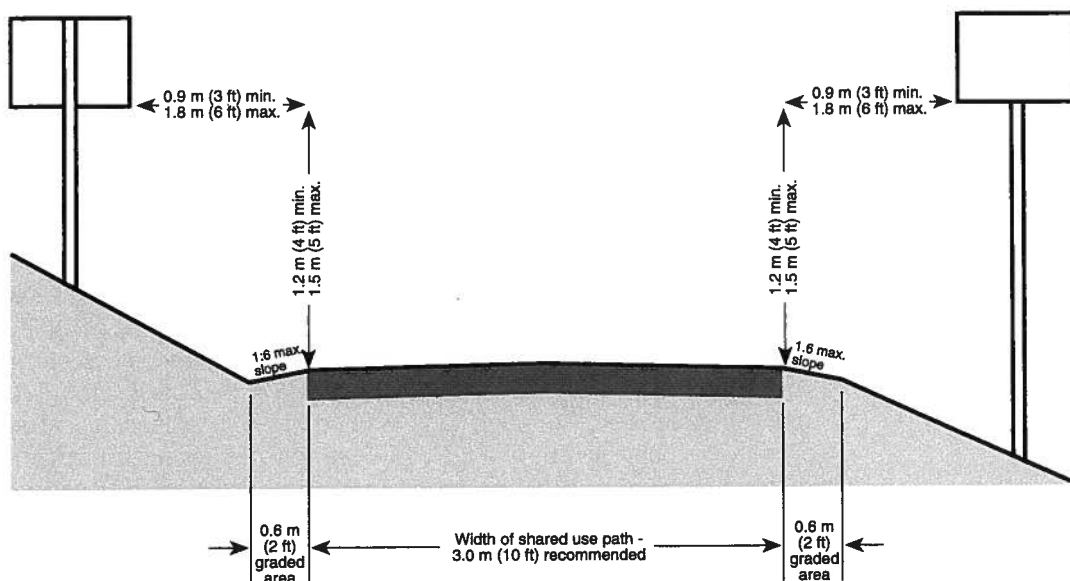


Figure 17. Cross Section of Two-Way Shared Use Path on Separated Right-of-Way



Undesirability of Sidewalks as Shared Use Paths

Utilizing or providing a sidewalk as a shared use path is unsatisfactory for a variety of reasons. Sidewalks are typically designed for pedestrian speeds and maneuverability and are not safe for higher speed bicycle use. Conflicts are common between pedestrians traveling at low speeds (exiting stores, parked cars, etc.) and bicyclists, as are conflicts with fixed objects (e.g., parking meters, utility poles, sign posts, bus benches, trees, fire hydrants, mail boxes, etc.) Walkers, joggers, skateboarders and roller skaters can, and often do, change their speed and direction almost instantaneously, leaving bicyclists insufficient reaction time to avoid collisions.

Similarly, pedestrians often have difficulty predicting the direction an oncoming bicyclist will take. At intersections, motorists are often not looking for bicyclists (who are traveling at higher speeds than pedestrians) entering the crosswalk area, particularly when motorists are making a turn. Sight distance is often impaired by buildings, walls, property fences and shrubs along sidewalks, especially at driveways. In addition, bicyclists and pedestrians often prefer to ride or walk side-by-side when traveling in pairs. Sidewalks are typically too narrow to enable this to occur without serious conflicts between users.

It is especially inappropriate to sign a sidewalk as a shared use path or designated bike route if to do so would prohibit bicyclists from using an alternate facility that might better serve their needs.

It is important to recognize that the development of extremely wide sidewalks does not necessarily add to the safety of sidewalk bicycle travel. Wide sidewalks might encourage higher speed bicycle use and can increase potential for conflicts with motor vehicles at intersections, as well as with pedestrians and fixed objects. For guidance on when and how to designate sidewalks as signed bikeways, see page 20.

Shared Use with Motorbikes, Horses and Snowmobiles

Even where lawful, it is undesirable to mix mopeds or motorbikes with bicycles and pedestrians on the same facility. In general, mopeds should not be allowed on shared use paths because of conflicts with the slower moving bicyclists and other users. Mopeds also diminish the quiet, relaxing experience most users desire on shared use paths. In some cases where an alternate route for mopeds does not exist, additional width, signing and striping should be used to minimize conflicts. Increased patrolling by law enforcement personnel is also recommended to enforce speed limits and other rules of the road.

It is usually not desirable to mix horse riding and bicycle traffic on the same shared use path. Bicyclists are often not aware of the need for slower speeds and additional operating space near horses. Horses can be startled easily and may be unpredictable if they perceive approaching bicyclists as a danger. In addition, pavement requirements for bicycle

