Chapter 5

Bicycle Operation and Safety Considerations and Current Educational, Encouragement, and Enforcement Programs and Activities

Safety education, training, and promotional programs to increase bicycle use are important components of state and local bicycle and pedestrian programs. The goals of increasing bicycle use while reducing bicycle crashes will not be achieved through facility improvements alone. There are a host of institutional, cultural, and other factors that influence people's choice of transportation mode. Educational and promotional efforts help give people the confidence, information, and motivation to bicycle. The success of safety education is enhanced by an adequate enforcement program.

This chapter reviews state bicycle laws, bicycle crash data and studies, and current safety education and training programs and issues, promotional activities and policies, and enforcement activities.

A. Wisconsin Laws Governing Bicyclists

Chapter 346 of the Wisconsin Statutes contains the traffic laws or "rules of the road" affecting the operation of motor vehicles and bicycles and pedestrians. Bicycles are included within the definition of "vehicle," and bicyclists are granted all of the rights and responsibilities afforded motor vehicle operators, with a few exceptions. For example, bicycles are prohibited on expressways and freeways where signs have been posted prohibiting such use.

The following are the more important state laws relating to the operation of bicycles on the street system:

Lane Positioning, Use of Shoulders, Turning

- Bicyclists must ride as near as practicable to the right edge of the roadway. Situations when this is not practicable include when preparing to make a left-hand turn or passing another vehicle, and when necessary to avoid unsafe conditions (e.g., to avoid objects or when the road is too narrow to be safely shared by a bicycle and motor vehicle).

- Bicycles may be ridden on the shoulder of a highway unless prohibited by the authorities responsible for maintaining the roadway.

- Bicycles and motorists must be in the proper lane position prior to turning or making other movements.

- Bicyclists are required to use the same hand signals as motorists when turning. However, bicyclists are not required to signal continuously before turning if both hands are needed on the handle bars to control the bicycle.

- Bicyclists as well as motorists are required to yield the right-of-way to pedestrians at an uncontrolled intersection or when in a marked or unmarked crosswalk. Motorists shall yield to bicyclists riding in a crosswalk in a manner consistent with the safe use of the crosswalk by pedestrians.

Passing Clearances

- Motor vehicles must allow at least three feet of clearance when passing a bicycle on the roadway and maintain the clearance until safely past.

- Bicyclists must also allow at least three feet of clearance when passing a standing or moving motor vehicle.

Riding Two Abreast

- Bicyclists may ride two abreast if such operation does not impede the normal movement of traffic. If riding on a two-lane road, the bicyclists both have to use a single lane.

Use of Sidewalks

- Bicyclists may ride on sidewalks, where permitted by local governments, but must yield the right-of-way to pedestrians and give an audible warning when passing pedestrians traveling in the same direction.

- At intersections and other sidewalk crossings (alleys, driveways), a bicyclist on the sidewalk has the same rights and duties as a pedestrian.

Use of Off-Street Paths

- Off-street paths are generally two-way, multi-use facilities open to bicyclists, pedestrians, in-line skaters, wheelchairs, and other non-motorized users. While there are no set laws or rules regarding right-of-way, it is generally accepted that applicable "rules of the road" apply and that faster traffic on a path yields to slower traffic.

- Intersections of bicycle paths and streets are generally treated the same as the intersection of two streets, however bicyclists should still use caution when crossing a street.

Bicycling at Night

- Bicycling at night requires at least a white front light visible to others 500 feet away and a red rear reflector or light visible to others 50-500 feet away.

Regulatory Authority of Local Governments

State Statutes allow local governments to designate bicycle ways, including bicycle paths, bicycle lanes, and bicycle routes. Local governments may also prohibit bicycle use on roads under their jurisdiction, provided a public hearing is held and an ordinance is adopted.

Cities, villages, and towns are authorized to require bicycles to be registered and to charge a registration fee. Counties may require registration if it is not required by a city, village, or town. The City of Madison and Village of McFarland have registration programs. Registration is required of all bicycles used on city/village streets. City of Madison registration costs $8.00 and is good for a four-year period. McFarland's registration cost $1.00 and does not expire. The University of Wisconsin requires bicycles on campus to be registered with the City of Madison. Fees from UW registrations go towards bicycle safety and enforcement on the UW campus.

B. Bicycle Crashes

Potential bicyclists often cite the fear of being hit by a motor vehicle as a principal reason for not riding more often. Often, these fears are based on misconceptions. This section reviews data and studies on bicycle crashes. This information can help the public better understand bicycle crashes, including the situations that are most likely to produce a crash. This information can then be used in educational programs to reduce those behaviors by bicyclists and motorists that pose the greatest potential danger.

A major limiting factor in analyzing bicycle crash data is the lack of data on "exposure." There is very little information known about the everyday trips people make by bicycle—including trip purpose, length, and frequency—particularly on a local level. This makes it impossible to calculate crash rates. In addition, many bicycle crashes go unreported because they do not result in personal injury and/or do not involve a crash with a moving motor vehicle. It is important to keep this in mind in reviewing the bicycle crash data presented.

Trends and Characteristics of Bicycle Crashes and Bicyclists Involved in Them

<u>City of Madison</u>

The City of Madison's Traffic Engineering Division maintains traffic crash files, by location, for all reported crashes in the city, including those involving bicyclists. The data comes from State MV 4000 reports, which are filed by the Madison Police Department and compiled in annual published Crash Reports. The police file reports only on crashes involving an injury or $1,000 or more in property damage.

The numbers of reported bicycle crashes, injuries, and fatalities have decreased from the early 1980s. There were almost 350 reported bicycle crashes in the city in 1983 compared to less than 150 in 1998. The city averaged more than one bicyclist fatality per year in the 1980s. From 1990 through 1998, there were only two bicyclist fatalities.

Part of the decrease in the total number of crashes is attributable to changes in reporting requirements. The threshold for reporting crashes was increased from $200-$500 to $1,000 in property damage, and the Madison Police Department stopped reporting crashes not involving a motor vehicle. Nonetheless, the annual number of bicycle crashes has still shown a positive downward trend.

Ninety-three percent (93%) of the reported 136 bicycle crashes in the city in 1998 resulted in an injury, 7% resulted in property damage only, and one or 0.7% resulted in a fatality.

The City of Madison Transportation Department conducted a study[5] analyzing bicycle crashes using 1987-1990 data on reportable bicyclist-motorist crashes and other reported crashes not involving motor vehicles. The study found that 62% of the crashes involved bicyclists aged 20-44, reflecting the high level of adult bicycle usage in Madison. Bicyclists aged 10 to 24 were over-represented in terms of the number of reported crashes they were involved in compared to their percentage of the population, according to the 1990 Census. Table 5 shows the age distribution of the bicyclists involved in crashes compared to the overall population.

Table 5
Age Distribution of Bicyclists Involved in Crashes
Madison, Wisconsin, 1987-1990

Age Range	Number of Crashes	% of Crashes	% of 1990 Population
0 to 9	41	4.2	11.6
10 to 14	81	8.2	4.5
15 to 19	162	16.4	8.5
20 to 24	327	33.2	16.0
25 to 44	282	28.6	35.8
45 to 64	34	3.5	14.3
65 & Over	5	0.5	9.3
Unknown	53	5.4	0.0
Total	985	100.0	100.0

Source: Arthur Ross, *Bicyclist Crash Analysis in a City of Adult Bicyclists* (1991)

Two-thirds of the adult bicyclist-motorist crashes analyzed in the City of Madison study occurred on the street, while 30% were on a sidewalk or in a crosswalk. Only 1.6% were on a bike path, and another 1.6% were entering the street from a driveway. In 72% of the crashes in a sidewalk or crosswalk, the bicyclist was traveling against traffic compared to less than 5% for those crashes on the street.

Of the crashes on the street, 72% of the adult bicyclists were on a street without bike lanes. Over half of the crashes occurring on a street with a bike lane occurred on University Ave., a major one-way arterial street with a ten-block long contra-flow bike lane. The average daily motor vehicle traffic volume on this portion of University Ave. is around 30,000, and the average daily bicycle traffic volume is around 7,000 in good weather when UW is in session. According to recent annual city crash reports, of the bicycle-motor vehicle crashes that occur on streets, over 2/3s occur on arterial streets, around 20% on collector streets, and 10% on local streets.

Remainder of Dane County and State

Table 6 shows the number of bicycle-motor vehicle crashes on public roadways reported in Dane County by municipality during the five-year period from 1994 to 1998.

Table 6
Bicycle-Motor Vehicle Crashes[1] in Dane County
by Municipality: 1994-1998

Municipality	1994	1995	1996	1997	1998	Total
C. Fitchburg	3	2	1	0	2	8
C. Madison	146	144	113	104	131	638
C. Middleton	6	4	2	2	8	22
C. Monona	1	5	5	2	4	17
C. Stoughton	7	6	4	8	8	33
C. Sun Prairie	5	8	8	8	10	39
C. Verona	1	0	0	3	3	7
V. Belleville	0	0	0	1	0	1
V. Black Earth	0	0	1	0	0	1
V. Cottage Grove	0	0	0	0	1	1
V. Cross Plains	1	0	0	0	1	2
V. Dane	0	1	0	0	0	1
V. Deerfield	0	0	1	0	0	1
V. DeForest	4	1	0	0	1	6
V. Maple Bluff	0	1	2	0	0	3
V. Marshall	1	0	0	1	0	2
V. McFarland	0	2	1	0	0	3
V. Mount Horeb	1	0	1	0	1	3
V. Oregon	2	1	1	0	1	5
V. Shorewood Hills	1	2	1	1	0	5
V. Waunakee	1	2	2	3	2	10
T. Albion	0	1	1	0	0	2
T. Blooming Grove	0	2	0	1	0	3
T. Burke	0	0	1	0	1	2
T. Cottage Grove	0	0	1	2	0	3
T. Cross Plains	0	0	1	0	0	1
T. Dunn	0	1	2	2	0	5
T. Madison	5	2	2	1	0	10
T. Mazomanie	0	0	1	0	0	1
T. Medina	0	0	0	0	0	0
T. Montrose	0	0	1	0	0	1
T. Roxbury	0	0	0	0	1	1
T. Sun Prairie	0	1	0	1	0	2
T. Verona	1	0	0	0	0	1
T. Vienna	0	0	0	0	0	0
T. Westport	0	1	0	0	0	1
T. Windsor	0	1	0	0	0	1
T. York	0	0	1	0	0	1
Total	186	188	154	140	175	843

[1]Numbers represent bicycle/motor vehicle crashes on public roadways.

Source: WisDOT Traffic Accident Database

[5] Arthur Ross, *Bicyclist Crash Analysis in a City of Adult Bicyclists* (1991).

All except for a small number each year occur in the county's incorporated cities and villages where most of the population lives and most bicycling occurs.

WisDOT staff compiled statewide data on bicycle crashes for the years 1989-1998 as part of development of the *Wisconsin Bicycle Transportation Plan 2020*. As with the City of Madison data, there has been a downward trend in reported bicycle crash injuries and fatalities since the mid-1980s. Most bicyclists (94%) involved in crashes with motor vehicles were injured, but only 15% received serious injuries and only 0.7% were killed. These figures are very similar to the ones in national studies. The vast majority (83%) of all bicycle crashes occurred in incorporated areas with a population of 5,000 or more. However, only 43% of the fatal crashes occurred on urban roadways, reflecting the lower speed limits on these roads. The severe and fatal injury rate of bicyclists involved in crashes with a motorist increases dramatically at higher speeds. See Table 7.

Table 7
Bicyclist Injury Rates[1] by Speed of Motor Vehicle
Wisconsin, 1989-1998

Posted Speed (mph)	Fatal Injury Rate	Severe Injury Rate	Total Injury Rate
25-30	3.3	141	937
35-45	11.3	187	925
55	60.8	352	884

[1]Injury rate is the number of injured bicyclists per 1,000 bicyclists in crashes at that speed limit.

Source: Wisconsin Dept. of Transportation

The majority of bicyclists involved in reported crashes statewide were children with 59% under age 16. Motorists aged 15-24 were involved in the largest proportion (22%) of crashes with bicycles. Not surprisingly, most crashes occurred during the warmer months. Over one-half occurred during the three summer months. Late afternoon-to-early evening (3-7 p.m.) was the most common time period for bicycle crashes with nearly one-half occurring during these hours.

Bicycle Crash Types and Contributing Factors

Various studies have shown that only a small minority of crashes—generally less than 20 percent—are the result of bicycle-motor vehicle collisions. By far the most common accident type, accounting for around one-half of accidents, is falls resulting from defective road surface conditions, an object getting caught in moving parts, bicyclist error, or other causes. However, many bicycle crashes resulting in severe injuries and almost all fatal crashes involve motor vehicles. Hence, the reason for the focus on bicycle-motor vehicle crashes.

The above-mentioned Ross study focused on bicyclist-motorist crashes involving adults in the City of Madison. The national crash type studies that had been conducted up until that time, including the most prominent one, the 1977 Cross-Fisher study[6], had analyzed mainly child crashes. The purpose of the Madison study, which was funded by a grant from WisDOT's Bureau of Transportation Safety, was to get information on typical patterns for crashes involving adult bicyclists. This information could then be used to improve bicyclist safety and encourage more bicycle use.

The National Highway Safety Administration has developed crash typing codes, based on the Cross-Fisher study.[7] A modified version of these crash typing codes was used for the Madison study. The crash types do not necessarily indicate who was at fault, but rather the sequence of actions leading to the crash. Each crash type has precipitating actions, predisposing factors, and characteristic populations and/or locations that can be targeted for interventions. The term "crash" is used instead of "accident," because the latter term implies an unavoidable event. Most crashes are preventable if drivers and bicyclists were more attentive and courteous and obeyed traffic laws.

In the Madison study, the most common crash type was the motorist left-turn, bicyclist approaching from the opposite direction, which accounted for 23% of the bicyclist-motorist crashes. Over 1/3 of these involved a bicyclist traveling in the University Ave. contra-flow lane. Motorist left-turns, bicyclist traveling in the same direction as motorist, accounted for another 3% of crashes, with 61% of these occurring on Johnson St., a one-way arterial street with a bike lane on the left side of the road.

[6] Kenneth Cross and Gary Fisher. *A Study of Bicycle/Motor Vehicle Accidents: Identification of Problem Types and Countermeasure Approaches*, U.S. Dept. of Transportation (1977).

[7] See Federal Highway Administration, *Bicycle Crash Types: A 1990's Informational Guide* (April 1997), Publication No. FHWA-RD-96-104.

The second most common crash type involved a motorist driving out from a stop sign, accounting for 16% of the crashes. In 90% of these crashes, the motorist stopped first, but then failed to yield to the bicyclist. Motorist drive-out from a traffic signal accounted for 3.9% of the crashes—in 2/3s of cases, a right-turn on red. In almost every one of these cases, the bicyclist was in the crosswalk and traveling against the flow of traffic. A bicyclist riding out from a stop sign accounted for 3% of all crashes, while another 4.8% involved a bicyclist ride-out at traffic signal.

Around 10% of crashes occurred when a motorist was exiting a driveway. Most of the time, the motorist was facing forward and the bicyclist was traveling on the sidewalk. Motorists turning or merging to the right accounted for 7.1% of all crashes, while all of the bicyclist turn/merge categories accounted for 6.3%. A motorist overtaking a bicyclist accounted for just 4.1% of the crashes.

Table 8 shows the breakdown of crashes by general crash type for the City of Madison study.

Table 8
Bicyclist-Motorist Crashes by Crash Type
Madison, Wisconsin, 1987-1990

Crash Type	Percentage			
	Bicyclist	Motorist	Unknown	Total
Turn/Merge	6.4	34.0		40.4
Stop Sign Driveout	3.0	16.0	0.3	19.3
Midblock Driveout	2.6	9.9		12.5
Overtaking	6.3	4.1		10.4
Traffic Signal Driveout	5.3	3.9	0.9	10.1
Driveout, Uncontrolled	2.2	0.9	0.5	3.6
Misc. Turns	0.2	0.3	1.0	1.5
Misc. Other	0.9	0.9	0.4	2.2
Total	26.9	70.0	3.1	100.0

Source: Arthur Ross, *Bicyclist Crash Analysis in a City of Adult Bicyclists* (1991).

The 1977 Cross-Fisher study was updated in 1996 by Hunter, Pein, Stutts and Cox based on crash data from 1991 and 1992.[8] The Hunter/Pein/Stutts/Cox study included more young adult bicyclists aged 25-44 (23%) than the Cross-Fisher study (10%). The results of the Hunter et. al. study generally concur with the City of Madison study in terms of the most common crash types. The following six groups of crashes accounted for 81% of all crashes in the study:

- Motorist failed to yield (22%)
  (includes Drive through, Drive out at intersection, Drive out at mid-block, and Right on red)
- Motorist turned/merged into path of bicyclist (12%)
  (includes Motorist left turn facing bicyclist, Motorist left turn in front of bicyclist, Motorist right turn, and Drive out from on-street parking)
- Motorist overtaking bicyclist (9%)
- Bicyclist failed to yield at intersection (intersection ride-out) (17%)
- Bicyclist failed to yield at mid-block (mid-block ride-out) (12%)
- Bicyclist turned/merged into path of motorist (9%)
  (includes Bicyclist left turn facing traffic, Bicyclist left turn in front of traffic, Bicyclist right turn while riding facing traffic, Ride out from sidewalk)

Based on the national studies, the most common crashes involving child bicyclists are:

- Bicyclist mid-block ride-out
- Bicyclist ride-out at uncontrolled intersection
- Bicyclist makes unexpected turn or swerves into traffic.

In these crashes, the child bicyclist makes the primary error and the motorist has insufficient time to adjust and avoid a collision.

The Hunter et. al. study identified numerous factors in four categories (bicyclist, bicycle, driver, roadway/environment) contributing to the occurrence of the bicycle-motor vehicle crashes, based on the information provided on the crash report forms. Up to three factors were identified in each of the four categories. The most frequently coded driver contributing factors were failure to yield (24%) and failure to see bicyclist (claim by driver or police conclusion) (12%). Other factors included failure to look both ways (4%); improper turn (3%); speeding (2%); improper passing (2%); inattention (2%); right on red (2%); safe movement violation (2%); and stop sign/traffic signal violation (2%). The most frequently cited bicyclist factors were failure to yield (21%) and riding against traffic (15%). Others included stop sign violation (8%); safe movement violation (6%); lack of conspicuity (5%); came off sidewalk at intersection (5%) or driveway (4%); and improper turn/no hand signal (5%).

[8]W.H. Hunter, W.E. Pein, J.C. Stutts and C.L. Cox, *Pedestrian and Bicycle Crash Types of the Early 1990's* (1996).

Summary

Turning, merging, and crossing movements at intersections, driveways, and other junctions account for 3/4s or more of all bicyclist-motorist crashes. The motorist overtaking bicyclist—the most feared accident type—accounts for a very small percentage (e.g., 4% in the Madison study) of crashes in urban areas, but a much larger percentage in rural areas (e.g., 30% in the Cross-Fisher study).

Riding on sidewalks is not as safe as people generally perceive it to be, and may even have a higher rate of crashes per bicycle-mile than roadway bicycling. For example, a recent study of crashes in Palo Alto, California found the risk of a crash with a motor vehicle 1.8 times greater for bicyclists riding on the sidewalk versus on a roadway.[8] Bicyclists traveling on a sidewalk against the flow of traffic are at greatly increased risk for crashes with a motor vehicle. The Palo Alto study found the risk 3.6 times greater (6.6 times for those 17 and younger) than riding with traffic. The City of Madison study found that 30% of all crashes occurred on sidewalks or within crosswalks with almost 3/4s of those crashes occurring while the bicyclist was riding against the flow of traffic in the adjacent street.

Speed plays a major factor in the seriousness of crashes. While the majority of bicyclist-motorist crashes occur in urban areas, a much smaller percentage of the severe injuries and fatalities occur there due to the generally lower speeds on urban streets. While a small percentage of crashes statewide occurred on state and county highways, half of the bicyclist fatalities occurred on them. National studies, including the Hunter/Pein/Stutts/Cox study, indicate that additional riding space (i.e., paved shoulders, wider travel lanes) has a positive effect on bicycle safety.

The studies on bicyclist-motorist crash types show that bicyclist training in how to properly ride in traffic and motorist education and training in operating with and being more attentive to bicyclists are most important to efforts at improving bicyclist safety. Failure to yield is a common error for both bicyclists and motorists. Failure to see the bicyclist is a common motorist error. Analyses of national studies conclude that the high rate of crashes among teenage and young adult bicyclists is not the result of recklessness, but rather ignorance. Most bicyclist-caused crashes are the result of easily identifiable and avoidable habits that contradict the "rules of the road."

Aside from education and training programs, the next most important safety countermeasures are reducing road-surface defects and making intersection improvements. The vast majority of bicyclist crashes do not involve a motor vehicle, and of those, road-surface defects are the most common cause. Because most bicycle-motorist crashes occur at intersections, driveways, and other junctions, improvements at these locations on higher volume roads (installing signals, providing protected left-turns, improving sight lines, etc.) is another important safety measure.

C. Bicycle Safety Education and Training

Existing Bicycle Safety and Training Programs and Resources

Youth Bicyclist Programs

The Wisconsin Department of Transportation's Bureau of Transportation Safety (WisDOT BOTS) offers a variety of bicycle safety education courses. Many of them are directed at youth bicyclists or teachers or instructors who teach bicycling to children.

"Basics of Bicycling" is a seven lesson bike safety curriculum, with video and on-bike lessons, designed primarily for 4th graders. WisDOT sponsors instructor trainings for teachers and parks and recreations staff to teach the course. "Teaching Safe Bicycling" is a one-day training course designed for people who teach bicycling to children. Topics include child traffic skills, common crash types, and crash avoidance skills. In addition, three different "Effective Cycling – Kids" courses are offered for parents who are helping their young children (grades K-3) with early cycling education, for 4th-5th graders, and for middle school students. The courses address bike handling and fit, how to ride safely, basic traffic laws, bike maintenance, riding in challenging roadway situations, and other topics. The Effective Cycling – Kids courses are organized by the Bicycle Federation of Wisconsin (BFW).

WisDOT BOTS also prepares and distributes bicycle safety brochures and other materials and conducts other educational activities. Some of the resources, such as the "Basics of Bicycling" curriculum, are available free for school districts. The "Basics of Bicycling" curriculum was

[8] Alan Wachtel and Diana Lewiston, "Risk Factors for Bicycle-Motor Vehicle Collisions at Intersections," *ITE Journal*, pp. 29-35 (Sept. 1994).

developed by the Bicycle Federation of America and is designed to be incorporated into the regular school curriculum in seven 40-minute class periods. It is aimed at 4th graders. WisDOT BOTS also administers grants of up to $1,000 for bicycle safety programs to communities with unusually high bicycle-crash and severe injury rates. (See Appendix C for more information and the contact person)

The City of Madison Traffic Engineering Division employs a full-time Pedestrian/Bicycle Safety Educator, who works with elementary schools primarily in the Madison Metropolitan School District and with youth and neighborhood organizations. The position is funded with STP-Urban funding. The safety educator's activities are focused on skills development through implementation of a modified "Basics of Bicycling" curriculum and summer bicycle rides. The coordinator also assists with the Wheels for Winners earn-a-bike program.

Several area organizations and health agencies provide bicycle safety programs. One of the most notable in the Madison area is the Dean Medical Center's "Crash Helmet" program. The program includes television spots, printed material, and presentations, using a comical character to educate preschool and elementary school children on the importance of wearing a bike helmet. Discount coupons are also offered towards the purchase of approved helmets.

The National Highway Traffic Safety Administration (NHTSA) provides many bike safety resources on the Web at www.nhtsa.dot.gov/people/injury/pedbimot/. Other resources are available from the SAFE KIDS Coalition of Wisconsin (Contact Jim Savage, (715) 344-7101) and the Wisconsin Information Network for Safety ((800) 261-WINS), which provides safety fact sheets from *Safe Ride* News. Various agencies and organizations can be contacted through the Bike Hub website at www.cdc.gov/ncipc/bike.

The American Automobile Association (AAA) develops materials concerning bicycle safety and provides them to police departments, schools, and others interested on request. The materials address subjects such as conducting "bicycle rodeos," purchasing bicycles for children, and safe bicycling tips for children and adults. Materials can be ordered through the AAA Wisconsin Chapter in Madison.

Adult Bicyclist and Planner/Engineer Programs

The Bicycle Federation of Wisconsin (BFW), a statewide education organization, offers several "Effective Cycling" courses for riders of different skills and age levels as well as a course for instructors. A special course is offered for planners and engineers, which includes bicycle facilities design as well. The "Effective Cycling" course program was developed by the League of American Bicyclists and has been improved over the years. The program is designed to help bicyclists assert themselves in traffic through the development of safe, responsible bicycling skills. It is based on bicycling principles and techniques advanced in John Forester's book *Effective Cycling*. The cost of courses to train and certify instructors has been partially underwritten by WisDOT TDM grants. Several other bicycle organizations provide various types of bicycle safety training and information as well.

The WisDOT BOTS conducts and supports bicycle safety programs and activities for adults as well as children. In addition to the "Teaching Safe Bicycling"course, which is intended for police officers, teachers, and other interested individuals, WisDOT also offers a "Road Hazard Identification Project" course. This is an engineering course, which provides a system for identifying and facilitating the repair of road hazards, which can be dangerous for bicyclists. The Department also publishes a number of safety-related publications that are available to communities and interested groups.

The City of Madison Pedestrian/Bicycle Coordinator provides information and assistance to other staff, organizations, and agencies in support of their programs. This includes assisting UW with bicycle-related student orientation activities and working with WisDOT BOTS to assist with the agency's "train-the-trainer" courses.

The University of Wisconsin Transportation Services Department has employed part-time Bicycle-Pedestrian Coordinators in the past—often graduate students—to provide bicycle safety education and encouragement. In 1999, UW Transportation Services hired a full-time Bicycle-Pedestrian Coordinator. Among the responsibilities of the coordinator is the development of education programs.

The coordinator is in the process of designing a comprehensive bicycle safety program for students and faculty/staff to be implemented in the 2001-2002 academic year. The UW Health Services Department also provides some bicycle safety education, including providing information and discounts on bicycle helmets.

Motorists

The WisDOT BOTS has developed and distributes some safety education materials aimed at motorists, such as the "Share the Road" brochure. Bicycle safety is addressed to a limited extent in driver education materials. However, there are no other existing programs or activities, such as public relations campaigns, that are aimed at motorists.

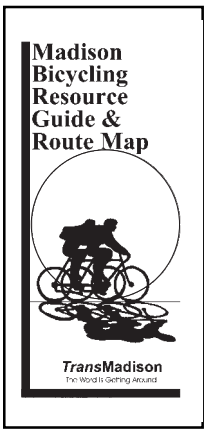
D. Encouragement Activities and Policies

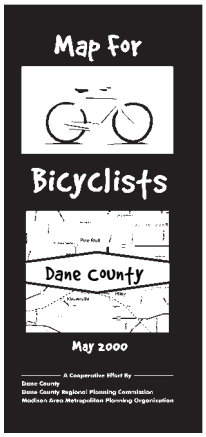
Information and Maps

The City of Madison Pedestrian/Bicycle Coordinator provides ongoing assistance and information to individuals, organizations, businesses, and agencies. This includes providing seminars on promoting bicycling to interested businesses, giving presentations, and facilitating communication between bicyclists and agency staff.

The City of Madison Traffic Engineering Division published the Madison Bicycling Resource Guide & Route Map in 1997. The map shows the Madison area bicycle route system, general compatibility of roadways for bicycling, and off-street paths. In addition to the facilities map, it also includes illustrated bicycling safety tips, helpful information for parents on safe bicycling for children, bicycle commuting and bicycle maintenance tips, and information on area bicycling organizations and contacts.

The Dane County Regional Planning Commission (DCRPC) has in the past published a Dane County Map for Bicyclists with information on roadway suitability for bicyclists. The map also showed state bicycle trails, parks, and other destinations. An updated, color version of the county map with additional information on bicycle facilities and recommended routes into and out of the Madison area was published in May 2000. Preparation and printing of the new map was a joint effort of the Madison Area MPO, Dane County, and DCRPC.





WisDOT published the Wisconsin State Bicycle Map as part of development of the State Bicycle Plan. The set of four maps for different parts of the state is published and distributed through the Bicycle Federation of Wisconsin (BFW). The maps contain information on bicycling conditions for state and county roads, Rustic Roads, bicycle trails, and provides contacts for local bicycle route information.

Other primarily recreation-oriented maps are also available from the Wisconsin Department of Tourism, bicycling organizations and individuals. Among these are the map of central Dane County area recreational routes published by the Bombay Bicycle Club.

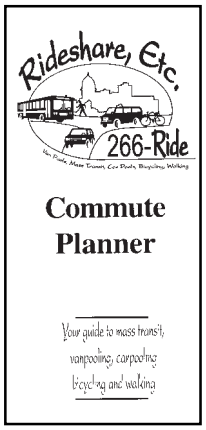
The *Wisconsin State Journal* publishes a regular column on bicycling issues called "In Gear." Through a WisDOT TDM Program Grant, the BFW has developed a statewide bicycle newspaper column. The column started in March 1999 and will continue for two years. Articles focus on technical information, motivational stories, and bicycle commuting.

Programs and Projects

The BFW implemented the Madison Bicycle Commute Project in 1998 with primary funding from a WisDOT Transportation Demand Management (TDM) Program Grant. BFW worked with several Madison area employers to assess employee commute habits, provide workshops on bicycle commuting, identify routes to work, and support employees with bicycle facilities and incentives. The major product of the project was the creation of a handbook entitled *Parking for Free: A Bicycle Commute Program Guide for*

Madison Area Employers. The handbook provides useful materials and information for employers on setting up a bicycle commute program, including ideas for incentives and promotional activities. It also includes a stand-alone section with information for commuter bicyclists on bike maintenance, equipment and dress, parking, safety tips, and additional resources.

The Rideshare Etc. program promotes transportation alternatives to single-occupant motor vehicle commuting through employer-sponsored programs, special events, name-matching services, and other information and publicity activities. While the focus of the program is on transit and ridesharing, bicycling information is also provided as part of the program.



Madison has two free bicycle programs sponsored by Budget Bicycle Center. The Red Bike program provides between 50-125 bicycles for use by anyone to ride to their destination, where the color-coded bike is then left for another person to use. The Yellow Bike program is a longer-term loan option. A bike, helmet and lock are provided with a $75 deposit. The deposit is refunded upon return of the bicycle. Around 200 bicycles are currently available. The number of bicycles in the program is expected to double in the near future.

Wheels for Winners is an "earn-a-bike" program for youth run primarily by volunteers, who prepare donated bicycles for delivery to children. Children participate in neighborhood center-coordinated community service projects and safety training in order to receive the bicycles. Recent projects have also included safety training activities and providing a mechanic to assist neighborhood centers in maintaining bikes that children have received in the past.

Events

The BFW organizes Bike-to-Work Week (BTWW) in Madison with various promotions and public events, including a commuter race with bicyclists, bus riders, and car drivers. The week culminates with a party on Friday with food, entertainment, prizes, and free tune-ups for registered bicyclists. The Madison Ped/Bike Coordinator assists BTWW volunteers in working with employment site coordinators.

The Wisconsin Governor's Advisory Bicycle Coordinating Council, made up of state legislators, state agency staff persons, and citizens, holds a statewide bicycle conference every two years. The purpose of the council is to encourage bicycling and improve bicycling safety through coordination of state agencies, legislators, bicycle organizations, bike manufacturers and retailers, and citizens. The council also makes recommendations to the Governor on bicycling-related issues.

E. Enforcement

Neither the City of Madison Police Department nor the UW Police & Security has a special program to enforce traffic laws and city ordinances pertaining to bicyclists. Both utilize some officers on bicycles in congested areas during the warmer months, as do some other communities, such as Fitchburg, as part of community policing efforts. However, the officers spend little, if any, time enforcing bicycle laws.

The City of Madison began using uniformed police officers for bicycle patrol in the downtown area in 1974. The officers carried out routine patrol, but their responsibilities also included education and enforcement regarding bicycle laws. In 1978, the city initiated a Pedestrian/Bicycle Monitor Program, with a Section 402 grant from the WisDOT. The uniformed, civilian monitors worked out of the Police Department, but had enforcement powers that were limited to issuing citations for violation of bicycle and pedestrian laws. The monitors carried out various educational and public relations activities as well as enforcing pedestrian and bicycle laws. The program was continued until 1992 when it was ended due to budget constraints.

The City of Madison has several traffic enforcement programs aimed at motorists. The Neighborhood Speed Watch Program is run by the Traffic Engineering Division and is designed to educate drivers about speeding. Staff assists residents, who set up and monitor speed display boards. In some cases, police officers near the monitoring site will issue tickets to speeding motorists.

The City of Madison Police Department has a new Traffic Enforcement & Safety Team (T.E.S.T.) with officers who work strictly on traffic enforcement and patrol citywide in targeted areas. There are a number of other city programs aimed at reducing traffic crashes, including Speed Waves, Walk Our Children to School Day, and a new Safe Communities Project, funded through a WisDOT grant.

The WisDOT Bureau of Transportation Safety (BOTS) has developed a course on enforcement for law enforcement traffic personnel entitled "Enforcement for Bicycle Safety." The course provides basic bicycle safety education, with an emphasis on laws and improving bicyclist crash avoidance through enhanced bicycle and motorist enforcement. Other enforcement courses are also available. The "Police Cyclist" trains officers who are using police bikes for patrol duties. It was developed by the International Police Mountain Bike Association. A similar course, the "Police Cyclist Instructor," has been developed by the Law Enforcement Bicycle Association. A local contact is Kurt Feavel with the UW-Madison Police Dept.

The Bicycle Federation of Wisconsin (BFW) is currently conducting an "Enforcement for Bicycle Safety" Campaign. The campaign goals are to: (1) Educate police about bicycling and encourage them to take action that only they can take; and (2) Educate bicyclists about their rights and responsibilities under the law. It includes activities such as encouraging the Wisconsin Department of Justice to include more bicycle training for police officers at the recruit school and field training levels.