
Appendix A

Maintenance & Operations

A.1 General

The development of bicycle facilities has become more popular during the past decade among communities nationwide. Path systems have sprung up in the smallest towns and the biggest cities. On-road bicycle lanes have become a standard feature in some places. And such basic bicycling improvements as bicycle-sensitive traffic signals, bicycle-safe drainage grates, wide outside travel lanes, or well-marked shoulder areas, have become almost common.

As the popularity of such facilities has grown, the need for proper maintenance and operations has become obvious. An agency that builds a path, for instance, must know in advance who will take care of it and where the money will come from. To this end, it is vital to consider the costs of such on-going duties in proposals for new and enhanced facilities.

Historically, many paths and lanes have been built or marked only to fall into disrepair and, eventually, abandonment. These early lessons were expensive and unfortunate. These days, however, the necessary costs are being built into project and program budgets. Agencies have long since learned that there is no such thing as a self-maintaining bicycle facility.

Still, proper design and construction practices can reduce maintenance needs substantially. For instance, proper soil treatment beneath a new path can reduce the intrusion of vegetation and, as a result, may prolong pavement life. Similarly, paving 15 feet or so into unpaved driveways can keep most of the debris off a street's bicycle lanes. And using hydraulically-efficient bicycle-safe drainage grates can protect bicyclists while enhancing the removal of storm water runoff.

In addition, some facility maintenance tasks can be handled by small changes in existing practices. For example, street sweeping patterns may be adjusted slightly to take care of bicycle lanes. And some traffic signal crews carry a bicycle wheel in the truck to test new and modified signal systems for bicycle-sensitivity. Such changes do not require large investments – just thoughtful adjustments to existing practices.

Another important feature of a bicycle-friendly maintenance program should be the involvement of users in a positive way. Bicyclists should be encouraged to report maintenance problems on paths and roadways. A

central contact person with authority to authorize maintenance work should be designated to receive such reports. Developing a feedback mechanism (e.g., a “spot improvement” postcard program) can help identify problems and improve relations with the bicycling public. Some agency staff have noted that their spot improvement programs were the most popular things they did.

A.2 Planning and Budgeting

As an agency gains experience with bicycle facility maintenance and operations, they will learn to estimate future costs for their expanding system. Per mile costs for path sweeping or vegetation removal can be determined if accurate records are kept. Trash removal and emptying of containers can be predicted based on experience with nearby parks or other similar facilities. While seasons may change the level of attention required, there will be an increasing level of predictability as time goes by.

In addition, costs of such things as bicycle lane striping, marking, and signing can be estimated based on existing costs for similar items. Loop detectors buried in bicycle lanes to actuate traffic signals are similar to those buried in regular travel lanes and the costs are similar. Bicycle-safe drainage grates are sold by the same manufacturers as other styles and their costs are readily available.

One aspect that must be carefully considered involves maintenance practices that cannot be handled by existing methods. For instance, a city’s snow plows may be too large to use on a shared-use path. And some standard maintenance vehicles may not be able to reach certain areas of a network. For these reasons, it may be necessary to purchase special equipment or modify existing vehicles to handle the need. These costs should be planned for and maintenance and operations crews should be involved early in the process to anticipate problems before they arise.

The growth of bicycle facility mileage should be carefully watched to assure that funding for maintenance and operation keep up. While the special maintenance needs of on-road facilities are a relatively small part of the overall road maintenance budget, this is not the case with bicycle paths.

A.3 On-road facilities

On roadways with bicycle lanes, shoulders, or wide outside lanes, debris may accumulate near the right edge, where most bicyclists ride. Therefore, regular sweeping is necessary and the paths that operators take may need to be adjusted to take care of those areas. The sweeping schedule can vary, depending on local conditions, and should be based on observation of needs.

Pavement quality is also important for bicyclists. Potholes should be patched to a high standard, as should utility excavation work. In addition, pavement edges should be uniform and joint lines should be checked for hazards. Bicycle-oriented signs, striping, and marking should be routinely inspected and kept in good condition..

Routine roadway maintenance can help improve bicycle travel throughout a community. Several bicycle facilities described in this guide can be implemented during routine maintenance activities. When lane markings are restriped, consideration should be given to adjusting lane widths to provide bicycle lanes or wide curb lanes. Addition of edge lines can help delineate a shoulder. When shoulders are resurfaced, a smooth surface suitable for bicycle riding should be considered.

During the winter, bicycle lanes, shoulders, and the outer edges of curb lanes should be cleared of snow, like other parts of the road. Snow should not be left in these areas and should be removed as quickly as possible.

A.4 Shared-use paths

Shared-use paths may not be visible from nearby roadways and agency personnel may not know if a problem has arisen. As a result, it is important to routinely inspect paths for maintenance problems like overhanging vegetation, debris on the surface, sight obstructions near curves, etc. Use patterns should also be observed for indications that problems may be arising. Bicyclists may cut particular curves or may avoid certain areas. Such behavior may be the result of a maintenance problem or a design flaw that could be rectified.

Pavement markings tend to last longer on paths than on roadways, depending on plowing activity in the winter and other factors. As a result, stripes may not need to be re-done each year. Signage, however, may be popular targets for vandalism or theft. Particularly important hazard markers or regulatory signs should be inspected regularly to ensure they are still in place.

Lighting, particularly at key intersections or hazardous locations, should be checked regularly. Lights should be maintained to ensure reliable operation and should be kept clean and replaced as required to ensure proper luminescence.

Sight distances at key junctures – intersections with roadways, on the insides of curves – should not be impaired by encroaching trees, shrubs and tall grass. Maintaining adequate clear zones on each side of a path can preserve the facility's effective width and reduce the potential for

head-on collisions. Tree branches should be trimmed to allow room for seasonal growth without encroaching onto the trail. Seeded and sodded areas near paths should be mowed regularly.

Patching and grading of paths should be much less demanding than similar roadway operations. Hand operated equipment may be adequate but it is important that finished patches be flush with the surface and use materials that will not grip in-line or roller skates, especially for longitudinal fractures. The patch's surface should have similar skid resistance characteristics to the adjoining path's surface.

The presence of ruts in the pavement may indicate an improperly designed or built path, or that heavy vehicles are using it. Ruts should be removed to give a satisfactory result and avoid recurrence. Re-paving may be necessary to solve major problems. Pavement edges should be maintained to preserve the full paved width; shoulders should not be allowed to wash away, exposing the edges to potential damage or possibly causing users to crash.

Paths built across irregular or hilly land may encounter drainage problems. Heavy storms may wash out portions of path or leave a thick layer of debris on the surface. Sunken areas may indicate problems beneath the pavement and should be repaired with care. Providing culverts or small bridges may help avoid problems in the future. Drainage ways should be inspected for blockages or other problems.

Drainage grates are not generally found on path surfaces and should generally be offset from the surface. However, grates should be bicycle-safe even if they are several feet away from the pavement edge. Bicyclists may leave the pavement for a variety of reasons and should not have to worry about a dangerous grate.

Generally, shared-use paths do not collect debris to the extent that roadways do. However, certain locations (e.g., near unpaved roadway crossings) may be problem sites and may need occasional attention. In addition, debris at certain critical locations should be monitored. For example, gravel should not be allowed to accumulate on curves or at intersections. At those locations, preventative measures should be taken to keep debris off the path all together.

Winter use varies according to local conditions. In some communities (e.g., Eau Claire, Madison), paths are plowed regularly and are used frequently by bicyclists and pedestrians. Heavily-used paths that serve key destinations should be considered first for plowing. Even paths that serve only occasional use should be considered for snow removal if the path is the only means of making a key connection (e.g., crossing a bridge).

Lower priority may be given to isolated paths that serve recreational users who must travel long distances to use them. In these cases, managers may allow want to allow use by cross country skiers or snowmobile operators as long as all applicable laws are followed.

To ensure that winter use is properly accommodated, agencies must clearly understand who will maintain what path. For paths along state highways, a municipality will have the responsibility for maintenance. Winter use and snow removal frequency will be determined by the municipality after considering the following factors:

- *Expected use by bicyclists and pedestrians;*
- *Parallel options for bicyclists and pedestrians if the path is not passable; and*
- *State statute 81.15 regarding the liability for accumulation of snow.*

A maintenance plan is crucial to success. And pavement structure must be designed for snow plow vehicle loading.

Trash receptacles should be located where they will be needed and where they can be easily emptied. Typical locations for trash barrels include rest areas and parks, scenic overlooks, and trail heads. Paths should be kept free of litter and debris.

Generally, path-sides should be given a thorough “Spring cleanup” and should be checked as needed. Fallen branches or other debris should be removed as soon as possible after the problem has been reported. User groups may wish to help out on a regular basis and their efforts should be encouraged.

Fencing: Fencing along paths should be maintained in the same manner as highway fencing.

Structures like bridges and underpasses should be inspected regularly for vandalism, graffiti, structural decay, and missing elements (e.g., lights, railings, signs). Those in isolated locations may be the targets of more abuse than facilities in more popular spots. For these reasons, solving such problems in advance is the best approach. Surfaces should repel paint, lighting should be hard to damage, and other parts and pieces should not be easy to remove.

If a path has steps or ramps, these should be maintained at a level that will safely accommodate users. Wheelchair ramps should be kept in good condition and graded areas should receive adequate attention.

Some shared-use paths may need occasional (or frequent) enforcement attention. For example, unauthorized vehicles may be using the path to get to a recreational location. Or certain areas may be isolated and potential sites for crimes of violence. The experience with paths is generally positive, with few crimes beyond what is normally found in the area. However, it may be good for the local police bicycle patrol to use the paths regularly to establish their presence.

APPENDIX B

Traffic conditions & bridge accommodations

Bicyclists' needs should be considered on a routine basis for all roadways and structures (except those on highways where bicyclists are prohibited). However, prioritizing candidate structures as part of developing a schedule for improvements should be based on traffic conditions; land use and the transportation system; and geometrics.

B.1 Traffic conditions

Bicycle traffic volume (potential or actual): A structure on a popular bicycling route is a better candidate than one on a road with little or no potential for bicycle use. At the same time, current bicycle volumes may be misleading indicators of desired use. Bicyclists may avoid using a narrow high-speed, high-volume structure out of fear.

Bicycle crash experience: Relatively few of those serious bicycle crashes that result in an emergency room visit are reported to the police. As a result, a structure with a history of reported bicycle crashes is likely to be the site of many unreported crashes as well and should receive close scrutiny.

Motor vehicle traffic volume: A high-volume structure is more likely to need bicycle accommodations than a low-volume one, due to the increased likelihood of passing conflicts, not to mention the stress of bicycling on a busy structure.

Percent of truck and/or RV traffic: A structure with a high percentage of truck and/or RV traffic is more likely to need bicycle accommodations than one with little or no such traffic. Wind-blast effects of large vehicles can cause bicyclists to lose control.

Traffic speed: High traffic speeds (i.e., over 45mph) are associated with a significant percentage of bicycling fatalities and structures on such routes need close attention.

B.2 Land use and the transportation system

Proximity to bicycle traffic generators: A structure that serves many nearby residents and connects to popular recreation or commercial areas is likely to attract more bicycle use than one far from any community.

Alternate routes: If there are no suitable alternate routes, the importance of a particular structure will be greater than if there are numerous options.

Connecting roadways: A structure that connects only segments of free-way or expressway is less likely to be in demand than one that connects surface streets, like collectors or arterials.

Bicycle accommodations: A structure that connects existing or planned bicycle facilities (e.g., bicycle lanes or routes) is a good candidate for bicycle-related improvements.

B.3 Geometrics:

Length: The longer a particular structure is, the less use it will get from casual short-distance bicyclists and the more use it will get from tourists and other long-distance cyclists.

Elevation: Bridges that arch high for the passage of ships or tunnels that drop steeply under a river are less attractive for most bicyclists than are flatter structures. However, on steep structures, the presence of slow-moving bicyclists on the ascent and fast moving bicyclists on the descent must be considered.

Width: Because passing opportunities are more limited on two-lane structures than on multi-lane structures, they are more likely locations for bicycle/motor vehicle conflicts.

Appendix C

Wisconsin Statutes on Bicycle Equipment and Use

The statutes shown in this material have been generated from the original data base of the 1989-90 Wisconsin Statutes, but may not be an exact duplication. Please refer to the 1989-90 Wisconsin Statutes for the official text.

85.07 Highway safety coordination.

(4) BICYCLE RULES. The department shall publish literature setting forth the state rules governing bicycles and their operation and shall distribute and make such literature available without charge to local enforcement agencies, safety organizations, and schools and to any other person upon request.

340.01 Words and phrases defined. In s.23.33 and chs.340 to 349 and 351, the following words and phrases have the designated meanings unless a different meaning is expressly provided or the context clearly indicates a different meaning:

(5) "Bicycle" means every device propelled by the feet acting upon pedals and having wheels any 2 of which are not less than 14 inches in diameter.

(5e) "Bicycle lane" means that portion of a roadway set aside by the governing body of any city, town, village or county for the exclusive use of bicycles or other modes of travel where permitted under s.349.23 (2) (a) and so designated by appropriate signs and markings.

(5m) "Bike route" means any bicycle lane, bicycle way or highway which has been duly designated by the governing body of any city, town, village or county and which is identified by appropriate signs and markings.

(5s) "Bicycle way" means any path or sidewalk or portion thereof designated for the use of bicycles by the governing body of any city, town, village or county.

(74) "Vehicle" means every device in, upon or by which any person or property is or may be transported or drawn upon a highway, except railroad trains. A snowmobile shall not be considered a vehicle except for purposes made specifically applicable by statute.

346.02 Applicability of chapter.

(4) APPLICABILITY TO PERSONS RIDING BICYCLES AND MOTOR BICYCLES.

(a) Subject to the special provisions applicable to bicycles, every person riding a bicycle upon a roadway is granted all the rights and is subject to all the duties which this chapter grants or applies to the operator of a vehicle, except those provisions which by their express terms apply only to motor vehicles or which by their very nature would have no application to bicycles. For purposes of this chapter, provisions which apply to bicycles also apply to motor bicycles, except as otherwise expressly provided.

(b) Provisions which apply to the operation of bicycles in crosswalks under ss. 346.23, 346.24, 346.37 (1) (a) 2, (c) 2 and (d) 2 and 346.38 do not apply to motor bicycles.

346.075 Overtaking and passing bicycles and motor buses.

(1) The operator of a motor vehicle overtaking a bicycle proceeding in the same direction shall exercise due care, leaving a safe distance, but in no case less than 3 feet clearance when passing the bicycle and shall maintain clearance until safely past the overtaken bicycle.

346.16 Use of controlled-access highways, expressways and freeways.

(1) No person shall drive a vehicle onto or from a controlled-access highway, expressway or freeway except through an opening provided for that purpose.

(2) (a) Except as provided in par. (b), no pedestrian or person riding a bicycle or other non-motorized vehicle and no person operating a moped or motor bicycle may go upon any expressway or freeway when official signs have been erected prohibiting such person from using the expressway or freeway.

(b) A pedestrian or other person under par. (a) may go upon a portion of a hiking trail, cross-country ski trail, bridle trail or bicycle trail incorporated into the highway right-of-way and crossing the highway if the portion of the trail is constructed under s. 84.06 (l 1).

346.17 Penalty for violating sections 346.04 to 346.16.

(2) Any person violating ss. 346.05, 346.07 (2) or (3), 346.08 to 346.11, 346.13 (2) or 346.14 to 346.16 may be required to forfeit not less than \$30 nor more than \$300.

(4) Any person violating s. 346.075 may be required to forfeit not less than \$25 nor more than \$200 for the first offense and not less than \$50 nor more than \$500 for the 2nd or subsequent violation within 4 years.

346.23 Crossing controlled Intersection or crosswalk.

(1) At an intersection or crosswalk where traffic is controlled by traffic control signals or by a traffic officer, the operator of a vehicle shall yield the right-of-way to a pedestrian, or to a person who is riding a bicycle in a manner which is consistent with the safe use of the crosswalk by pedestrians, who has started to cross the highway on a green or "Walk" signal and in all other cases pedestrians and bicyclists shall yield the right-of-way to vehicles lawfully proceeding directly ahead on a green signal. No operator of a vehicle proceeding ahead on a green signal may begin a turn at a controlled intersection or crosswalk when a pedestrian or bicyclist crossing in the crosswalk on a green or "Walk" signal would be endangered or interfered with in any way. The rules stated in this subsection are modified at intersections or crosswalks on divided highways or highways provided with safety zones in the manner and to the extent stated in sub. (2).

(2) At intersections or crosswalks on divided highways or highways provided with safety zones where traffic is controlled by traffic control signals or by a traffic officer, the operator of a vehicle shall yield the right-of-way to a pedestrian or bicyclist who has started to cross the roadway either from the near curb or shoulder or from the center dividing strip or a safety zone with the green or "Walk" signal in the pedestrian's or bicyclist's favor.

346.24 Crossing at uncontrolled Intersection or crosswalk.

(1) At an intersection or crosswalk where traffic is not controlled by traffic control signals or by a traffic officer, the operator of a vehicle shall yield the right-of-way to a pedestrian, or to a person riding a bicycle in a manner which is consistent with the safe use of the crosswalk by pedestrians, who is crossing the highway within a marked or unmarked crosswalk.

(2) No pedestrian or bicyclist shall suddenly leave a curb or other place of safety and walk, run or ride into the path of a vehicle which is so close that it is difficult for the operator of the vehicle to yield.

(3) Whenever any vehicle is stopped at an intersection or crosswalk to permit a pedestrian or bicyclist to cross the roadway, the operator of any other vehicle approaching from the rear shall not overtake and pass the stopped vehicle.

346.25 Crossing at place other than crosswalk. Every pedestrian or bicyclist crossing a roadway at any point other than within a marked or unmarked crosswalk shall yield the right-of-way to all vehicles upon the roadway.

346.30 Penalty for violating sections 346.23 to 346.29.

(1) 2. Any operator of a bicycle violating s. 346.23, 346.24 or 346.25 may be required to forfeit not more than \$20.

346.34 Turning movements and required signals on turning and stopping.

(1) TURNING.

(a) No person may:

1. *Turn a vehicle at an intersection unless the vehicle is in proper position upon the roadway as required in s.*

346.31.

2. *Turn a vehicle to enter a private road or driveway unless the vehicle is in proper position on the roadway as required in s. 346.32.*

3. *Turn a vehicle from a direct course or move right or left upon a roadway unless and until such movement can be made with reasonable safety.*

(b) In the event any other traffic may be affected by such movement, no person may so turn any vehicle without giving an appropriate signal in the manner provided in s. 346.35. When given by the operator of a vehicle other than a bicycle, such signal shall be given continuously during not less than the last 100 feet traveled by the vehicle before turning. The operator of a bicycle shall give such signal continuously during not less than the last 50 feet traveled before turning.

(2) STOPPING. No person may stop or suddenly decrease the speed of a vehicle without first giving an appropriate signal in the manner provided in s. 346.35 to the operator of any vehicle immediately to the rear when there is opportunity to give such signal. This subsection does not apply to the operator of a bicycle approaching an official stop sign or traffic control signal.

346.35 Method of giving signals on turning and stopping. Whenever a stop or turn signal is required by s. 346.34, such signal may in any event be given by a signal lamp or lamps of a type meeting the specifications set forth in s. 347.15. Except as provided in s. 347.15 (3m), such signals also may be given by the hand and arm in lieu of or in addition to signals by signal lamp. When given by hand and arm, such signals shall be given from the left side of the vehicle in the following manner and shall indicate as follows:

- (1) Left turn-Hand and arm extended horizontally.
- (2) Right turn-Hand and arm extended upward.
- (3) Stop or decrease speed-Hand and arm extended downward.

346.36 Penalty for violating sections 346.31 to 346.35.

- (2) Any operator of a bicycle violating ss. 346.31 to 346.35 may be required to forfeit not more than \$20.

346.37 Traffic-control signal legend.

(1) Whenever traffic is controlled by traffic control signals exhibiting different colored lights successively, or with arrows, the following colors shall be used and shall indicate and apply to operators of vehicles and pedestrians as follows:

(a) Green.

1. *Vehicular traffic facing a green signal may proceed straight through or turn right or left unless a sign at such place prohibits either such turn, but vehicular traffic shall yield the right of way to other vehicles and to pedestrians lawfully within the intersection or an adjacent crosswalk at the time such signal is exhibited.*
2. *Pedestrians, and persons who are riding bicycles in a manner which is consistent with the safe use of the crosswalk by pedestrians, facing the signal may proceed across the roadway within any marked or unmarked crosswalk.*

(b) Yellow. When shown with or following the green, traffic facing a yellow signal shall stop before entering the intersection unless so close to it that a stop may not be made in safety.

(c) Red.

1. *Vehicular traffic facing a red signal shall stop before entering the crosswalk on the near side of an intersection, or if none, then before entering the intersection or at such other point as may be indicated by a clearly visible sign or marking and shall remain standing until green or other signal permitting movement is shown.*
2. *No pedestrian or bicyclist facing such signal shall enter the roadway unless he or she can do so safely and without interfering with any vehicular traffic.*
3. *Vehicular traffic facing a red signal at an intersection may, after stopping as required under subd. 1, cautiously enter the intersection to make a right turn into the nearest lawfully available lane for traffic moving to the right or to turn left from a one-way highway into the nearest lawfully available lane of a one-way highway on which vehicular traffic travels to the left. No turn may be made on a red signal if lanes of moving traffic are crossed or if a sign at the intersection prohibits a turn. In making a turn on a red signal vehicular traffic shall yield the right-of-way to pedestrians and bicyclists lawfully within a crosswalk and to other traffic lawfully using the intersection.*

(d) Green arrow.

1. *Vehicular traffic facing a green arrow signal may enter the intersection only to make the movement indicated by the arrow but shall yield the right-of-way to pedestrians and bicyclists lawfully within a crosswalk and to other traffic lawfully using the intersection. When the green arrow signal indicates a right or left turn traffic shall cautiously enter the intersection.*
2. *No pedestrian or bicyclist facing such signal shall enter the roadway unless he or she can do so safely and without interfering with any vehicular traffic.*

(2) In the event an official traffic signal is erected and maintained at a place other than an intersection, the provisions of this section are applicable except as to those provisions which by their nature can have no application. Any stop required shall be made at a sign or marking on the pavement indicating where the stop shall be made, but in the absence of any such sign or marking the stop shall be made at the signal.

346.38 Pedestrian control signals. Whenever special pedestrian control signals exhibiting the words "Walk" or "Don't Walk" are in place, such signals indicate as follows:

- (1) WALK. A pedestrian, or a person riding a bicycle in a manner which is consistent with the safe use of the crossing by pedestrians, facing a "Walk" signal may proceed across the roadway or other vehicular crossing in the direction of the signal and the operators of all vehicles shall yield the right-of-way to the pedestrian or bicyclist.
- (2) DON'T WALK. No pedestrian or bicyclist may start to cross the roadway or other vehicular crossing in the direction of a "Don't Walk" signal, but any pedestrian or bicyclist who has partially completed crossing on the "Walk" signal may proceed to a sidewalk or safety zone while a "Don't Walk" signal is showing.

346.43 Penalty for violating sections 346.37 to 346.42.

- (1)
 - (b) *2. Any operator of a bicycle violating s. 346.37, 346.38 or 346.39 (duty to obey traffic lights) may be required to forfeit not more than \$20.*

346.47 When vehicles using alley or non-highway access to stop.

(1) The operator of a vehicle emerging from an alley or about to cross or enter a highway from any point of access other than another highway shall stop such vehicle immediately prior to moving on to the sidewalk or on to the sidewalk area extending across the path of such vehicle and shall yield the right-of-way to any pedestrian or bicyclist and upon crossing or entering the roadway shall yield the right-of-way to all vehicles approaching on such roadway.

346.49 Penalty for violating ss. 346." to 346.485.

- (1)
 - (b) Any operator of a bicycle violating s. 346.46 (duty to obey stop signs) may be required to forfeit not more than \$20.
- (2)
 - (b) Any operator of a bicycle violating s. 346.44 (duty to stop at signals indicating approach of train) may be required to forfeit not more than \$20.

346.59 Minimum speed regulation.

(2) The operator of a vehicle moving at a speed so slow as to impede the normal and reasonable movement of traffic shall, if practicable, yield the roadway to an overtaking vehicle whenever the operator of the overtaking vehicle gives audible warning with a warning device and shall move at a reasonably increased speed or yield the roadway to overtaking vehicles when directed to do so by a traffic officer.

346.60 Penalty for violating sections 346.57 to 346.595

- (5)
 - (a) Any operator of a bicycle who violates s. 346.57 (speed limits) may be required to forfeit not more than \$20.
 - (b) Any operator of a bicycle who violates s. 346.59 may be required to forfeit not more than \$10.

346.77 Responsibility of parent or guardian for violation of bicycle and play vehicle regulations. No parent or guardian of any child shall authorize or knowingly permit such child to violate any of the provisions of ss. 346.78 to 346.804 and 347.489.

346.78 Play vehicles not to be used on roadway. No person riding upon any play vehicle may attach the same or himself or herself to any vehicle upon a roadway or go upon any roadway except while crossing a roadway at a crosswalk.

346.79 Special rules applicable to bicycles. Whenever a bicycle is operated upon a highway, bicycle lane or bicycle way the following rules apply:

- (1) A person propelling a bicycle shall not ride other than upon or astride a permanent and regular seat attached thereto.
- (2)
 - (a) Except as provided in par. (b) no bicycle may be used to carry or transport more persons at one time than the number for which it is designed.
 - (b) In addition to the operator, a bicycle otherwise designed to carry only the operator may be used to carry or transport a child seated in an auxiliary child's seat or trailer designed for attachment to a bicycle if the seat or trailer is securely attached to the bicycle according to the directions of the manufacturer of the seat or trailer.
- (3) No person operating a bicycle shall carry any package, bundle or article which prevents the operator from keeping at least one hand upon the handle bars.
- (4) No person riding a bicycle shall attach himself or his bicycle to any vehicle upon a roadway.
- (5) No person may ride a moped or motor bicycle with the power unit in operation upon a bicycle way.

346.80 Riding bicycle on roadway.

- (1) Unless preparing to make a left turn, every person operating a bicycle upon a roadway carrying 2-way traffic shall ride as near as practicable to the right edge of the unobstructed traveled roadway, including operators who are riding 2 abreast where permitted under sub. (2). On one-way roadways, the operator of the bicycle shall ride as near as practicable to the right edge or left edge of the unobstructed traveled roadway, including operators who are riding 2 abreast where permitted under sub. (2). Every person operating a bicycle upon a roadway shall exercise due care when passing a standing vehicle or one proceeding in the same direction, allowing a minimum of 3 feet between the bicycle and the vehicle.
- (2) Persons riding bicycles upon a roadway shall ride single file on all roadways which have center lines or lane lines indicated by painting or other markings and in all unincorporated areas. On roadways not divided by painted or other marked center lines or lane lines, bicycle operators may ride 2 abreast in incorporated areas.
- (4) No person may operate a bicycle or moped upon a roadway where a sign is erected indicating that bicycle or moped riding is prohibited.
- (5) Except as provided in ss. 346.23, 346.24, 346.37 and 346.38, every rider of a bicycle shall, upon entering on a highway, yield the right-of-way to motor vehicles.

346.802 Riding bicycle on bicycle lane.

- (1)
 - (a) Unless 2-way traffic is authorized under par. (b), every person operating a bicycle upon a bicycle lane shall ride in the same direction in which vehicular traffic on the lane of the roadway nearest the bicycle lane is traveling.
 - (b) The governing body of any city, town, village or county may authorize 2-way traffic on any portion of a roadway which it has set aside as a bicycle lane. Appropriate traffic signs shall be installed on all bicycle lanes open to 2-way traffic.
- (2)
 - (a) Unless otherwise provided under par. (b), a person operating a bicycle may enter or leave a bicycle lane only at intersections or at driveways adjoining the bicycle lane.
 - (b) A person may leave a bicycle lane at any point by dismounting from the bicycle and walking it out of the lane. A person may enter a bicycle lane at any point by walking his bicycle into the lane and then mounting it.
- (3) Every person operating a bicycle upon a bicycle lane shall exercise due care and give an audible signal when passing a bicycle rider proceeding in the same direction.
- (4) Every operator of a bicycle entering a bicycle lane shall yield the right-of-way to all bicycles in the bicycle lane. Upon leaving a bicycle lane, the operator of a bicycle shall yield the right-of-way to all vehicles and pedestrians.

346.803 Riding bicycle on bicycle way.

- (1) Every person operating a bicycle upon a bicycle way shall:
 - (a) Exercise due care and give an audible signal when passing a bicycle rider or a pedestrian proceeding in the same direction.
 - (b) Obey each traffic signal or sign facing a roadway which runs parallel and adjacent to a bicycle way.
- (2) Every person operating a bicycle upon a bicycle way open to 2-way traffic shall ride on the right side of the bicycle way.
- (3) Every operator of a bicycle entering a bicycle way shall yield the right-of-way to all bicycles and pedestrians in the bicycle way.

346.804 Riding bicycle on sidewalk. When local authorities under s. 346.94 (1) permit bicycles on the sidewalk, every person operating a bicycle upon a sidewalk shall yield the right-of-way to any pedestrian and shall exercise due care and give an audible signal when passing a bicycle rider or pedestrian proceeding in the same direction.

346.82 Penalty for violating sections 346.77 to 346.804.

- (1) Any person violating ss. 346.77, 346.79 (1) to (3) or 346.80 to 346.804 may be required to forfeit not more than \$20.
- (2) Any person violating s. 346.78 or 346.79 (4) may be required to forfeit not less than \$10 nor more than \$20 for the first offense and not less than \$25 nor more than \$50 for the 2nd or subsequent conviction within a year.

346.94 Miscellaneous prohibited acts.

- (1) **DRIVING ON SIDEWALK.** The operator of a vehicle shall not drive upon any sidewalk area except at a permanent or temporarily established driveway unless permitted to do so by the local authorities.

(11) TOWING SLEDS, ETC. No person shall operate any vehicle or combination of vehicles upon a highway when such vehicle or combination of vehicles is towing any toboggan, sled, skis, bicycle, skates or toy vehicle bearing any person.

(12) DRIVING ON BICYCLE LANE OR BICYCLE WAY. No operator of a motor vehicle may drive upon a bicycle lane or bicycle way except to enter a driveway or to enter or leave a parking space located adjacent to the bicycle lane or bicycle way. Persons operating a motor vehicle upon a bicycle lane or bicycle way shall yield the right-of-way to all bicycles within the bicycle lane or bicycle way.

346.95 Penalty for violating sections 346.87 to 346.94.

(1) Any person violating s. 346.87, 346.88, 346.89 (2), 346.90 to 346.92 or 346.94 (1), (9), (10), (11), (12) or (15) may be required to forfeit not less than \$20 nor more than \$40 for the first offense and not less than \$50 nor more than \$100 for the 2nd or subsequent conviction within a year.

347.489 Lamps and other equipment on bicycles and motor bicycles.

(1) No person may operate a bicycle or motor bicycle upon a highway, bicycle lane or bicycle way during hours of darkness unless the bicycle or motor bicycle is equipped with or the operator is wearing a lamp emitting a white light visible from a distance of at least 500 feet to the front of the bicycle or motor bicycle. A bicycle or motor bicycle shall also be equipped with a red reflector that has a diameter of at least 2 inches of surface area on the rear so mounted and maintained as to be visible from all distances from 50 to 500 feet to the rear when directly in front of lawful upper beams of headlamps on a motor vehicle. A lamp emitting a red light visible from a distance of 500 feet to the rear may be used in addition to but not in lieu of the red reflector.

(2) No person may operate a bicycle or motor bicycle upon a highway, bicycle lane or bicycle way unless it is equipped with a brake in good working condition, adequate to control the movement of and to stop the bicycle or motor bicycle whenever necessary.

(3) No bicycle or motor bicycle may be equipped with nor may any person riding upon a bicycle or motor bicycle use any siren or compression whistle.

347.50 Penalties.

(5) Any person violating s. 347.489 may be required to forfeit not more than \$20.

349.105 Authority to prohibit certain traffic on expressways and freeways. The authority in charge of maintenance of an expressway or freeway may, by order, ordinance or resolution, prohibit the use of such expressway or freeway by pedestrians, persons riding bicycles or other non-motorized traffic or by persons operating mopeds or motor bicycles. The state or local authority adopting any such prohibitory regulation shall erect and maintain official signs giving notice thereof on the expressway or freeway to which such prohibition applies.

349.18 Additional traffic-control authority of counties and municipalities.

(2)

(a) Except as provided in par. (b), any city, town or village may by ordinance regulate the operation of bicycles and motor bicycles and require registration of any bicycle or motor bicycle owned by a resident of the city, town or village, including the payment of a registration fee.

(b) A city, town or village may not prohibit the use of a bicycle equipped as provided in s. 346.79 (2) (b) to carry or transport a child in addition to the operator of the bicycle.

(3) Any county, by ordinance, may require the registration of any bicycle or motor bicycle owned by a resident of the county if the bicycle or motor bicycle is not subject to registration under sub. (2). Such ordinance does not apply to any bicycle or motor bicycle subject to registration under sub. (2), even if the effective date of the ordinance under sub. (2) is later than the effective date of the county ordinance. A county may charge a fee for the registration.

349.23 Authority to designate bicycle lanes and bicycle ways.

(1) The governing body of any city, town, village or county may by ordinance:

(a) Designate any roadway or portion thereof under its jurisdiction as a bicycle lane.

(b) Designate any sidewalk or portion thereof in its jurisdiction as a bicycle way.

(2) A governing body designating a sidewalk or portion thereof as a bicycle way or a highway or portion thereof as a bicycle lane under this section may:

(a) Designate the type and character of vehicles or other modes of travel which may be operated on a bicycle lane or bicycle way, provided that the operation of such vehicle or other mode of travel is not inconsistent with the safe use

and enjoyment, of the bicycle lane or bicycle way by bicycle traffic.

(b) Establish priority of right-of-way on the bicycle lane or bicycle way and otherwise regulate the use of the bicycle lane or bicycle way as it deems necessary. The designating governing body may, after public hearing, prohibit through traffic on any highway or portion thereof designated as a bicycle lane, except that through traffic may not be prohibited on any state highway. The designating governing body shall erect and maintain official signs giving notice of the regulations and priorities established under this paragraph, and shall mark all bicycle lanes and bicycle ways with appropriate signs.

(c) Paint lines or construct curbs or establish other physical separations to exclude the use of the bicycle lane or bicycle way by vehicles other than those specifically permitted to operate thereon.

(3) The governing body of any city, town, village or county may by ordinance prohibit the use of bicycles and motor bicycles on a roadway over which they have jurisdiction, after holding a public hearing on the proposal.

Appendix D

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Index

Aggregate structural section, path	4-31	Railroad crossing angles and gaps	2-23
Arterial streets	2-4	Railroad crossing smoothness	2-26
Asphalt structural section, path	4-30	Railroad, crossings, path	2-26
Basic Roadway Improvements	2-1	Railroad crossings, roadway	2-23
Bicycle and bicyclist characteristics	1-2	Regulatory controls, path	4-38
Bicycle detection, signals	2-27	Residential streets	2-1
Bicycle lanes	3-1	Retrofitting wide outside lanes, roadway	2-15
Bicycle lane designation	3-14	Roadway types	2-1
Bicycle lane intersection design	3-18	Rumble strips, roadway	2-22
Bicycle lane location	3-3	Rural highways	2-5
Bicycle lane surface quality	3-8	Rural crossings, path	4-50
Bicycle lane width	3-9	Rural vs. urban/suburban locations, path	4-50
Bicycle Route Designation	2-45	Shared Use, path	4-83
Bridges, roadway	2-32	Shared-use paths	4-1
Bridges and overpasses, path	4-72	Shared-use paths and roadways	4-3
Collector streets	2-2	Shared-use paths in roadway medians	4-7
Concrete structural section, path	4-31	Shared-use path users, purposes, and locations	4-1
Corner sight lines	2-12	Shoulder pavement design and loading, roadway	2-21
Cross-country skiers, path	4-92	Shoulder width, roadway	2-18
Crossing design, path	4-55	Shoulders and clearances, path	4-9
Crossing locations, path	4-47	Sidewalk bikeways	4-6
Crossings - important features, path	4-67	Sight distance, path	4-19
Design options	1-5	Signal loop markings	2-29
Design Speed, path	4-11	Signal timing	2-30
Designing paths vs. roads	4-2	Signalized crossings, path	4-61
Drainage, path	4-34	Signalized parallel crossings, path	4-65
Drainage grates and utility covers, roadway	2-9	Signed parallel crossings, path	4-66
Foundation preparation, path	4-29	Signed crossings with traffic calming, path	4-59
Grade separations, path	4-69	Signing and marking, path	4-38
Grades, path	4-17	Sign placement, path	4-45
Grades, roadway	2-20	Sign sizes, path	4-46
Gate or utility cover elevation	2-11	Signs - using restraint, path	4-46
Gate or utility cover location	2-10	Simple signed crossing, path	4-56
Gate temporary measures	2-11	Snowmobiles, path	4-92
Gate type	2-9	Structures, path	4-71
Guardrails and slopes, shoulders	2-20	Structures, combined road/path	4-79
Horizontal alignment & superelevation, path	4-13	Structures, combined - separation	4-81
Horses, path	4-91	Structures, roadway	2-31
Informational signs, markings, path	4-42	Surface smoothness and maintenance, path	4-33
Interchanges, bike lane	3-24	Traffic calming, roadway	2-39
Interchanges, roadway	2-36	Traffic calming measures for slowing traffic, roadway	2-42
Intersections with right-turn lanes, bike lane	3-21	Traffic diversion approaches, roadway	2-40
Joints between travel lanes and shoulders	2-21	Traffic conditions & bridges, roadway	B-1
Left-turn, bicycle lane	3-23	Traffic signals	2-27
Lighting, path	4-35	Transitions between grades and level ground, path	4-18
Low-volume rural roads, shoulders	2-17	Underpasses and tunnels, path	4-75
Maintenance & Operations	A-1	Unpaved driveways, roadway	2-21
Motorbikes and motorcycles, path	4-86	Urban/suburban crossings, path	4-53
Motor vehicles, path	4-87	Vegetation Control, path	4-28
One-way vs. two-way bicycle lanes	3-2	Warning devices, path	4-41
Parallel crossings, path	4-63	Wide outside lanes	2-13
Path intersection: yes or no?	4-48	Wisconsin Statutes	C-1
Path-Roadway Crossings	4-47	Work zone controls, path	4-44
Paths in roadway medians	4-7	Width, path	4-7
Paths next to roadways, problems	4-3		
Paved shoulders, roadway	2-17		
Pavement quality, roadway	2-7		
Pavement loads, path	4-27		
Pavement structure, path	4-25		
Pedestrians and Bicyclists, path	4-83		
Programmed visibility heads, signals	2-30		

WISCONSIN BICYCLE FACILITY DESIGN HANDBOOK

Wisconsin Department of Transportation

2004