

Uniform Vehicle Code and State Statutes Governing Bicycling, 2010

Analysis of Definitions and Statutes

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The legal framework in which the users of bicycles and motorized vehicles operate varies widely from state to state. For laws governing vehicles on roads, the National Committee on Uniform Traffic Laws and Ordinances has created the Uniform Vehicle Code (UVC). The UVC was developed as a framework that each state can adopt fully or in part or ignore completely as best serves the state. Most states have adopted the majority of the UVC without alteration, but standards applied by various states to the operation of bicycles tend to deviate from the UVC. Twelve areas of the UVC and how the 50 states have each chosen to treat these areas through their state codes were examined. As the rules of the road are made nearly uniform, especially regarding the operation of and interaction with bicycles, the goals of promoting safety and uniformity are advanced. This consistency also mitigates the potential for confusion, as the expectancy for operators of vehicles and bicycles will likely not be violated. This research showed that not every state had placed the same priority on the safety of all road users. This analysis showed that although much progress was being made to alleviate inadequacies, there was still much work to be done. Without a national focus on the uniformity of traffic laws related to bicycling, the continued patchwork covering the nation would remain and leave serious holes that would ultimately make the roads less safe for everyone.

The legal framework in which bicyclists and drivers operate varies widely from state to state. For many areas of the law, committees have formed over time to develop model codes to enable more uniform codifications via statutes and thereby provide for a greater understanding and easier application of these laws. This is also true for laws governing vehicles on roadways and is known as the Uniform Vehicle Code (UVC).

In 1924, the groundwork for the first UVC was laid. Then Commerce Secretary Herbert Hoover called a national traffic safety conference, which was attended by representatives from every state (1). This conference resulted in a stressing of the importance of “appropriate and uniform traffic and motor vehicle laws” and laid out a list of future work (including the creation of a standing committee to develop a model code). The initial draft of the UVC was prepared in 1925 and 1926 by a committee on uniformity of laws and regulations, which was a direct result of that 1924 conference. Finally, in

March of 1926, the draft UVC was presented to the Second National Conference on Street and Highway Safety, where, after some revisions, it was approved and recommended for adoption by the states (2). Since 1926, the UVC has seen many updates and revisions. Since 1948, this responsibility has been in the hands of the National Committee on Uniform Traffic Laws and Ordinances.

The UVC was developed to serve as a framework that each state could adopt fully or in part or ignore completely as it best feels serves the state. Most states have chosen to adopt the majority of the UVC without alteration, but the standards applied by various states to the operation of a bicycle tend to deviate from the UVC. To determine the interplay between various statutory decisions and resulting implications on roadway safety and traffic operations, this study examined selected definitions and statutes from each of the states and the UVC and, through qualitative statistical analyses, evaluated how each state has codified each. Because many states have at least based their vehicle code on the UVC, there are many similarities—although the differences are also important for evaluation. Many states do not have every statute suggested by the UVC. Without knowing which laws are on the books and which ones are not, a thorough comparison of the safety impacts cannot be performed.

This research was conducted as part of a comprehensive analysis of interactions between bicycles and motorized vehicles on rural roads, and it focuses specifically on two areas: statutes affecting drivers when passing on the left (both inside and outside of designated no-passing zones) and statutes that specifically apply to bicycles. The District of Columbia has been omitted from this synthesis, specifically because there are no areas within the city that are rural.

The definitions and statutes reviewed in this paper are listed and discussed in the analysis section, which follows the literature review.

LITERATURE REVIEW

Occasionally a review of bicycle laws in the United States is conducted and published by either a federal or state agency. The first such synthesis identified by this research was *Bicycling Laws in the United States* from the Traffic Laws Commentary series, published by the National Highway Traffic Safety Administration (NHTSA) (3). This publication reviewed the status of various laws (through the end of 1973) that were applicable to the operation of bicycles and made direct comparisons between the states on individual issues.

The next time that laws applicable to bicycling were synthesized was in 1979, when the U.S. Department of Transportation and National Committee on Uniform Traffic Laws and Ordinances issued *Traffic Laws Annotated* (4). This publication included only statutes in place as of January 1, 1979, so a 1979 supplement published. Additional

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supplements for 1981 and 1983 were also published. As noted in the preface to *Traffic Laws Annotated*,

this book contains five chapters from the *Uniform Vehicle Code* (1968, Supp. II 1976) and compares state traffic laws with significant portions of those chapters, particularly the one on “Rules of the Road.” Of these chapters, only Chapters 1 (Words and Phrases Defined) and 11 (Rules of the Road) are directly relevant to this research. The other chapters discuss crashes and crash reporting, the powers afforded to state and local governments, and post-conviction remedies. (4)

The definition of “bicycle,” from Chapter 1, has changed over time. “Bicycle” was originally added to the definitions section of the UVC in 1944 and was defined as follows: “Every device propelled by human power upon which any person may ride, having two tandem wheels either of which is more than 20 inches in diameter.”

In 1968, the wheel diameter was reduced from 20 in. to 14 in., but the 1944 definition was otherwise retained. In 1975 and continued in the 2000 version, the definition of bicycle within the code was revised to the following: “Every vehicle propelled solely by human power on which any person may ride, having two tandem wheels, except scooters and similar devices.”

The definition of “roadway,” from Chapter 1, has also changed over time. “Roadway” was originally defined in the UVC in 1930 as follows: “That portion of a street or highway between the regularly established curb lines or that part improved and intended to be used for vehicular travel.” After several revisions, the definition was amended again in 1975 (and continued in the 2000 version) to read

that portion of a highway improved, designed or ordinarily used for vehicular travel, exclusive of the *sidewalk*, berm or shoulder *even though such sidewalk, berm or shoulder is used by persons riding bicycles or other human powered vehicles*. In the event a highway includes two or more separate roadways the term “roadway” as used herein shall refer to any such roadway separately but not to all such roadways collectively. [emphasis in source material to indicate changes from earlier version] (5)

Chapter 11 of the UVC covers all “rules of the road,” but this research focuses specifically on two areas—rules affecting drivers when passing on the left (both inside and outside of designated no-passing zones) and rules that specifically apply to bicycles. A few items related to bicycle operation discussed in this paper (turn and stop signals, head and tail lights) are found in Chapter 12 of the UVC (5).

The next major discussion of laws related to bicycling came in 1986 with the publication of *Bicycle Law and Practice* by Hill and Kearny (6). This book relied heavily on the synthesis performed in *Traffic Laws Annotated* and chapter-by-chapter evaluates case law (from the mid-1960s through 1985) from across the country across a wide variety of topics, ranging from accident investigation and reconstruction, to product liability, insurance and liability, and bicycle traffic law and bicycle–motor vehicle interactions of various types.

In 1993, as part of the *National Bicycling and Walking Study* (Case Study No. 13), the FHWA completed a synthesis of existing bicyclist- and pedestrian-related laws and enforcement programs (7). This report looked at far more than just state statutes, going down to the local level to examine both municipal ordinances and methods used to enforce these rules. The National Bicycling and Walking Study was intended to encourage more people to get out of their cars and start being more active—so the focus of this synthesis on the reduction of injuries and fatalities to both bicyclists and pedestrians through enforcement methods is admirable. The

focus of this report also tends to be directed to urban areas, where there are significantly higher numbers of pedestrians and bicyclists—which results in a higher overall total of injuries and fatalities (for 2008, NHTSA reported that 69% of bicyclist fatalities occurred in urban areas).

The second chapter looked at model bicycle laws and ordinances, starting with applicable definitions from the UVC (1987 revision). The definition of “bicycle” remained the same as the 1975 version provided earlier, and the definition of “roadway” was not included. This chapter attempted to take the best ideas from around the country and suggest how the UVC could be overhauled to make roads safer for bicyclists.

The Virginia Transportation Research Council sponsored a 1998 research project to compare selected regulations in Virginia to the UVC and other states (8). This report provided a state-by-state comparison of 10 different legal issues, several of which overlap with this current research effort. Overlapping areas are as follows:

- Riding two abreast,
- Lane positioning,
- Signaling of turns, and
- Motor vehicle use of bicycle lanes.

The author sought to compare the Code of Virginia with the UVC and other state statutes, not to argue that any one option is better, worse, or wrong, and stated that “what works for one state may be unsuitable for another.”

NHTSA produced a resource guide on laws related to pedestrian and bicycle safety on CD-ROM in 2002 (9). This digital resource is a compendium of laws provided in tabular form with each relevant section of the UVC listed by section number, as well as how each state treats that section (exact, equivalent, variation, local only, or not located), with links to the text of each state statute. This treatment also allows for development of statistics related to state conformity to the UVC.

The most recent source discussing various state laws and the UVC is the 2007 book *Bicycling and the Law* (10). The author intended this work to provide a general education to bicyclists regarding their rights and responsibilities as they take to the roadways. The book also intends to serve as a preliminary resource for consultation regarding legal questions regarding bicycling.

Some of the works mentioned in this review were included for their contribution to the historical record of the UVC and various state efforts. Others provide more focus on state-of-the-practice and the current treatment of different elements of the UVC by the 50 states.

ANALYSIS

The following discussion looks in depth at 12 different areas of the UVC and how the 50 states have each chosen to treat these areas through their state codes, if at all. All state statutes were current as of March 1, 2011. The areas under review are as follows:

1. Definition of bicycle;
2. Definition of roadway;
3. Overtaking of a bicycle (statute);
4. Safe passing distance;
5. Passing to the left, general (statutes);
6. Motorized vehicles operating in bicycle lanes (statute);
7. Traffic law applicability to bicycles (statute);

8. Bicycle use on sidewalks and paths (statute);
9. Bicycle road positioning (statute);
10. Riding two abreast (statute);
11. Signaling stops and turns (statute); and
12. Bicycle illumination (statute).

Definition of Bicycle

UVC §1-109 Bicycle

Every vehicle propelled solely by human power upon which any person may ride, having two tandem wheels and except scooters and similar devices.

Although no state has adopted this definition exactly, six have a near-equivalent version (Idaho, Missouri, New Mexico, Rhode Island, Utah, and Wyoming). Another 39 states have adopted definitions that vary widely from the UVC. Some of these variations are arranged around themes, such as incorporating a minimum wheel diameter (per the UVC definition until 1975), with diameters ranging from 13 in. (Georgia) to 20 in. (North Dakota, Pennsylvania, Tennessee, and West Virginia). Some states require this diameter for only one wheel, whereas others, such as Colorado, Michigan, and Oregon, require this measurement for all wheels. The intent of the wheel diameter requirement is to exclude bicycles operated by children younger than age 16 and tricycles operated by children usually younger than age 6, from the definition. Some states have chosen to explicitly exclude children from their definition, such as South Carolina, where the statute reads, "A bicycle is a device propelled solely by pedals . . . and having two or more wheels, except children's tricycles." Virginia takes a different approach and includes children's bicycles but excludes "toy vehicle[s] intended for use by young children."

There are also variations related to wheel number and positioning. Many definitions include two tandem wheels, and others permit vehicles with two or three wheels to be considered a bicycle. California considers any human-powered vehicle with one or more wheels to be considered a bicycle (thereby including unicycles), and Indiana considers any vehicle that is pedal driven "irrespective of the number of wheels in contact with the ground" to be a bicycle (IC 9-13-2-14). Some states (Florida, Iowa, and Oklahoma) include motorized bicycles in their definition, as long as the maximum speed does not exceed 20 mph, but every other state that defines bicycle requires that they operate "exclusively" or "solely" under human power. Five states (Arkansas, Connecticut, Kentucky, Mississippi, and South Dakota) do not have a definition of bicycle within their statutes.

Definition of Roadway

UVC §1-186 Roadway

That portion of a highway improved, designed or ordinarily used for vehicular travel, exclusive of the sidewalk, berm or shoulder even though such sidewalk, berm or shoulder is used by persons riding bicycles or other human powered vehicles. In the event a highway includes two or more separate roadways the term "roadway" as used herein shall refer to any such roadway separately but not to all such roadways collectively.

Every state except for Connecticut and Maine includes a definition of roadway in its statutes. Although no state uses the UVC definition exactly, two states (New Hampshire and Utah) use nearly identical

wording, with only very minor changes. The remaining 46 states use different variations of the UVC wording.

These variations include wordings that omit mentioning the sidewalk, berm, or shoulder areas; exclude bicycle path areas; include the shoulder or sidewalk area in the roadway width; exclude the right-of-way area; or omit the "persons riding bicycles or other human powered vehicles." Montana has chosen to consider separated roadways as a single roadway.

Overtaking a Bicycle (Statute)

Although several states have a statute dealing specifically with how the driver of a motor vehicle can properly pass a bicyclist operating on a roadway, the UVC does not currently have an equivalent section. The 1998 Virginia Transportation Research Council report indicated that only a handful of states had such legislation and singled out Minnesota and Wisconsin as positive examples for instituting the 3-ft rule (8). The 3-ft rule is a requirement that drivers maintain a minimum distance of 3 ft between their vehicle and any bicyclist they are passing. The reasoning offered is that "these explicit provisions are apparently an attempt to discourage motorists from trying to 'squeeze past' bicyclists without crossing the centerline, or from drawing so close to a bicyclist that it causes a dangerous situation." In the past 12 years, that handful of states has grown to 25. In 1973, Wisconsin was the first state to adopt the 3-ft rule, and it was not until 1995 that another state (Minnesota) adopted this rule. Although some states have chosen to maintain safe distance as their standard, 16 states have followed Wisconsin's lead and specified a fixed value to define "safe distance."

Safe Passing Distance

Safe passing distance is contained in UVC §11-303, but is stated only as "[t]he driver of a vehicle overtaking another vehicle proceeding in the same direction shall pass at a safe distance to the left of the vehicle being overtaken. . . ." Twenty-five states have adopted the UVC §11-303 standard and consider a bicycle to be a vehicle, thereby applying the safe distance standard. Sixteen states have gone further and set a numeric distance of either 2 or 3 ft, rather than relying on the more vague term "safe distance." Figure 1 shows the 25 states that have adopted a specific statute (as discussed in the previous section) and the required clearance distance contained therein.

Passing to the Left, General (Statutes)

UVC §§11-303, 11-305, 11-306

UVC §11-303: Overtaking a vehicle on the left

The following rules shall govern the overtaking and passing of vehicles proceeding in the same direction, subject to those limitations, exceptions and special rules hereinafter stated:

- (a) The driver of a vehicle overtaking another vehicle proceeding in the same direction shall pass at a safe distance to the left of the vehicle being overtaken and shall not again drive to the right side of the roadway until safely clear of the overtaken vehicle.
- (b) Except when overtaking and passing on the right is permitted, the driver of an overtaken vehicle shall give way to the right in favor of the overtaking vehicle on audible signal and shall not increase the speed of the vehicle until completely passed by the overtaking vehicle.

mentioned previously, amount to the changing of certain words or word orders. Other modifications within this section include using different distance values rather than the 100-ft number provided by the UVC. This ranges from 100 ft (as prescribed) up to 500 ft (Alaska, North Carolina, New Jersey).

Motorized Vehicles Operating in Bicycle Lanes (Statute)

While UVC §11-1103 “Driving upon sidewalk” is closely related to this issue, there is no actual equivalent in the UVC. The issue of vehicles using a paved bicycle lane for driving, turning, parking, or stopping creates a distinct hazard to bicyclists sharing the roadway. In the course of this research, only nine states were found to have specific statutes prohibiting such actions, with exceptions related to turning into private driveways, alleys, and other, similar crossing movements. These states—Arizona, California, Hawaii, Maryland, Missouri, Oregon, Rhode Island, South Carolina, and Wisconsin—have put an additional focus on the problems faced by bicyclists who, by other statutes, are required to operate in bicycle lanes (where and when provided) but may face significant risks to avoid vehicles obstructing these lanes. The text of the Wisconsin statute [§346.94(12): Driving on a Bicycle Lane or Bicycle Way] is provided as an example:

No operator of a motor vehicle may drive upon a bicycle lane or bicycle way except to enter a driveway, to merge into a bicycle lane before turning at an intersection, 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 and electric personal assistive mobility devices within the bicycle lane or bicycle way.

Traffic Law Applicability to Bicycles (Statute)

UVC §11-1202: Traffic laws apply to people on bicycles and other human powered vehicles.

Every person propelling a vehicle by human power or riding a bicycle shall have all of the rights and all of the duties applicable to the driver of any other vehicle under chapters 10 and 11, except as to special regulations in this article and except as to those provisions which by their nature can have no application.

Through the course of this research, 48 of 50 states have adopted UVC §11-1202 in some form, with only Kentucky and South Dakota not having a similar statute. All but three of these states (Idaho, Montana, and New Hampshire) have made various modifications to UVC §11-1202, with the mentioned states having adopted it nearly intact. Modifications include changes as simple as rearranging terms, numbering items rather than including them in the original paragraph, and including an exception for law enforcement officers’ performing their duties while operating a bicycle. The Mississippi statute includes people riding animals or driving animal-drawn vehicles, and the Michigan, Rhode Island, and Virginia statutes include electric personal assistive mobility devices, mopeds, and other low-speed vehicles. The Connecticut statute not only provides the rights and responsibilities of vehicles to bicycles operating on roadways but also provides the rights and responsibilities of pedestrians to bicycles operating on sidewalks, rather than providing a separate statute to that effect, as the UVC does with §11-1209.

Bicycle Use on Sidewalks and Paths (Statute)

UVC §11-1103: Driving upon sidewalk

No person shall drive any vehicle upon a sidewalk or sidewalk area except upon a permanent or duly authorized temporary driveway. *This section shall not apply to any vehicle moved exclusively by human power nor to any motorized wheelchair.* [emphasis added]

Although bicycles are considered vehicles for most purposes, the UVC was written to specifically exclude bicycles from the “driving upon sidewalks” statute. Therefore, the UVC includes the following section specific to bicycle operation:

UVC §11-1209: Bicycles and human powered vehicles on sidewalks

- (a) A person propelling a bicycle upon and along a sidewalk, or across a roadway upon and along a crosswalk, shall yield the right of way to any pedestrian and shall give audible signal before overtaking and passing such pedestrian.
- (b) A person shall not ride a bicycle upon and along a sidewalk, or across a roadway upon and along a crosswalk, where such use of bicycles is prohibited by official traffic-control devices.
- (c) A person propelling a vehicle by human power upon and along a sidewalk, or across a roadway upon and along a crosswalk, shall have all the rights and duties applicable to a pedestrian under the same circumstances.

Through the course of this research, 27 of 50 states have adopted UVC §11-1209 in some form, with two having adopted it exactly, and the remainder making either minor or major modifications. Unlike the list created on the 2002 NHTSA CD-ROM, this research also incorporates states that have a statute requiring bicyclists to operate on a separate bike path or bikeway when one is provided because these paths are also commonly used by pedestrians and would likely have the same interaction issues (9). This section excludes statutes governing bicycle positioning while on the roadway, because that is covered under UVC §11-1205 and is discussed later in this paper.

Most states that have adopted this statute have also reserved the ability for local government entities to determine areas where bicycles are prohibited from operating on the sidewalk, commonly in downtown areas or other business districts. Georgia has included in its statute the ability for separated bike paths to be exempted from the statute requiring mandatory use by cyclists if it is “demonstrat[ed] that the path has become inadequate due to capacity, maintenance, or other causes.” Hawaii has used its statute primarily to require bicyclists to travel no faster than 10 mph while on the sidewalk, and they only may use the sidewalk outside of business districts. In Maryland, there is a general prohibition on bicycle use on sidewalks, and they are only allowed when permitted by local ordinance. Overall, 17 of the 27 states with statutes governing bicycle use on sidewalks or separated paths follow the UVC requirement that bicyclists give an “audible warning” or “audible signal” before “overtaking and passing a pedestrian.”

Bicycle Road Positioning (Statute)

UVC §11-1205: Position on roadway

- (a) Any person operating a bicycle or a moped upon a roadway at less than the normal speed of traffic at the time and place and under the conditions then existing shall ride as close as practicable to the right-hand curb or edge of the roadway except under any of the following situations:
 1. When overtaking and passing another bicycle or vehicle proceeding in the same direction.

2. When preparing for a left turn at an intersection or into a private road or driveway.
 3. When reasonably necessary to avoid conditions including, but not limited to, fixed or moving objects, parked or moving vehicles, bicycles, pedestrians, animals, surface hazards, or substandard width lanes that make it unsafe to continue along the right-hand curb or edge. For purpose of this section, a “substandard width lane” is a lane that is too narrow for a bicycle and a vehicle to travel safely side by side within the lane.
 4. When riding in the right-turn-only lane.
- (b) Any person operating a bicycle or a moped upon a one-way highway with two or more marked traffic lanes may ride as near the left-hand curb or edge of such roadway as practicable.

Forty-three states have some version of Part *a* of this statute, whereas only 18 states have the equivalent to Part *b*. A more generalized statute (UVC §11-301) requires all vehicles to operate to the right-hand side of the roadway, so it may be likely the seven states without an equivalent to Part *a* may feel that to be sufficient (the seven states are Arkansas, Indiana, Iowa, Kentucky, Massachusetts, Mississippi, and North Carolina). A wide variety of modifications have been made to the UVC version of Part *a* of this statute, but the common theme of bicycles needing to be as far right as is practicable is nearly universal. Georgia has expanded the UVC statute by adding the term “hazards to safe cycling,” which “includes, but is not limited to: surface debris, rough pavement, drain grates which are parallel to the side of the roadway, parked or stopped vehicles, potentially opening car doors, or any other objects which threaten the safety of a person operating a bicycle.”

Of the 18 states with an equivalent to Part *b*, nearly all have adopted the general requirements that the roadway must be one way and must have at least two lanes for traffic (the 18 states are California, Colorado, Delaware, Florida, Hawaii, Idaho, Illinois, Kansas, Michigan, Montana, Nebraska, Oklahoma, Oregon, Pennsylvania, Texas, Virginia, Washington, and Wisconsin). Delaware requires that the posted speed limit on such a road be 30 mph or less and Nebraska requires that the posted speed limit be 35 mph or less. Fourteen of the 18 states have excluded mopeds (or motorized pedal cycles) from their version of this statute, with only Illinois, Kansas, Oklahoma, and Virginia retaining it.

Riding Two Abreast (Statute)

UVC §11-1206: Riding two abreast

Persons riding bicycles upon a roadway shall not ride more than two abreast except on paths or parts of roadways set aside for the exclusive use of bicycles. Persons riding two abreast shall not impede the normal and reasonable movement of traffic and, on a laned roadway, shall ride within a single lane.

Forty-four of the 50 states have adopted some version of this statute. The six states for which this research was unable locate a relevant statute are Arkansas, California, Iowa, Maine, North Carolina, and South Dakota. Of the 44 states with versions of this statute, 23 states permit riding two abreast only when it does not “impede the normal and reasonable movement of traffic.” Florida is one of those 23 but has added to its statute the following clause: “when traveling at less than the normal speed of traffic at the time and place and under the conditions then exist and shall ride within a single lane.” This appears to permit bicycles to continue operating two abreast as long as they are keeping up with traffic. By contrast, the Hawaii statute, which does not permit two abreast riding, specifically states that “[p]ersons riding bicycles on a roadway shall ride in single file.”

Montana permits riding two abreast only so long as “they do not impede the normal and reasonable movement of traffic more than they would otherwise impede traffic by riding single file.” New York requires bicyclists (along with those skating or gliding on inline skates) to operate “single file when being overtaken by a vehicle.” Similarly, Virginia requires bicyclists operating two abreast to “move into a single file formation as quickly as practicable when being overtaken from the rear by a faster moving vehicle.”

The remaining 21 states permit riding no more than two abreast on roadways, and generally also permit riding more than two abreast on “paths or parts of roadways set aside for the exclusive use of bicycles.”

Signaling Stops and Turns (Statute)

Before January 2000, this was UVC §11-1209 and read as follows:

UVC §11-1209: Turn and stop signals

- (a) Except as provided in this section, a person riding a bicycle shall comply with § 11-604.
- (b) A signal of intention to turn right or left when required shall be given continuously during not less than the last 100 feet traveled by the bicycle before turning, and shall be given while the bicycle is stopped waiting to turn. A signal by hand and arm need not be given continuously if the hand is needed in the control or operation of the bicycle.

No information could be located regarding the reason for the deletion of this section, but a review of UVC Chapter 11 appears to indicate that it was redundant, and §11-604 was sufficient. Also important to this section is how these signals are to be given, which appears in UVC §11-606:

UVC §11-606: Method of giving hand-and-arm signals

All hand-and-arm signals shall be given from the left side of the vehicle in the following manner and such signals 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.

Notwithstanding the foregoing provisions, a person operating a bicycle may give a right turn signal by extending the right hand and arm horizontally and to the right side of the bicycle.

Although every state has an equivalent version of §11-606 in its statutes, very few had an equivalent version to the old §11-1209. Only 15 states (Delaware, Idaho, Illinois, Massachusetts, Minnesota, Missouri, Nevada, New Hampshire, New York, Oregon, Rhode Island, South Carolina, South Dakota, Utah, and Washington) have a version. This research also found that 10 states (Arizona, Maine, Maryland, Michigan, Montana, Nebraska, Ohio, Pennsylvania, Texas, and Virginia) specifically included bicycles alongside vehicles in their statutory version of §11-606. The UVC, as provided previously, permits bicyclists to indicate right turns using their right arm held horizontally, in a mirror image of the normal left turn signal. Only 13 states (Arizona, Maine, Maryland, Montana, Nebraska, New Hampshire, New York, Ohio, Pennsylvania, South Carolina, Texas, Virginia, and Washington) permit this method for signaling a right turn.

Bicycle Illumination (Statute)

UVC §12-702: Headlight and taillight required at night

Every bicycle in use at the times described in §12-201 [one-half hour after sunset and one-half hour before sunrise] shall be equipped with a

TABLE 1 Summary of Laws Adopted by States

State	Definition of "Bicycle"	Definition of "Roadway"	Overtaking a Bicycle Statute	Riding Two Abreast Statute	Front Illumination Distance (ft)	Rear Reflector Use?	Rear Reflector Distance (ft)	Rear Light Use?	Rear Illumination Distance (ft)	Carrying Items: Required Hands
Alabama	Y	Y	N	Y	500	Required	100–600	With reflector	500	1
Alaska	Y	N	N	Y	500	N	—	Required	500	1
Arizona	Y	Y	Y	Y	500	Required	50–300	With reflector	500	1
Arkansas	N	N	Y	N	500	Or light	100–350	Or reflector	500	—
California	Y	N	Y	N	300	Required	500	N	—	1
Colorado	Y	N	Y	Y	500	Required	600	N	—	1
Connecticut	N	N	Y	Y	500	Required	600	N	—	2
Delaware	Y	N	N	Y	500	Required	600	N	—	2
Florida	Y	Y	Y	Y	500	Required	600	Required	600	1
Georgia	Y	Y	N	Y	300	Required	300	With reflector	300	1
Hawaii	Y	N	N	Y	500	Required	600	N	—	2
Idaho	Y	Y	N	Y	500	Required	—	Required	500	1
Illinois	Y	Y	Y	Y	500	Required	100–600	With reflector	500	2
Indiana	Y	Y	N	Y	500	Or light	500	Or reflector	500	2
Iowa	Y	N	N	N	300	Or light	300	Or reflector	300	—
Kansas	Y	Y	N	Y	500	Required	100–600	With reflector	500	1
Kentucky	N	N	N	Y	500	Required	100	Required	500	1
Louisiana	Y	Y	Y	Y	500	Required	100–600	With reflector	500	1
Maine	Y	Y	Y	N	200	Or light	200	Or reflector	200	—
Maryland	Y	Y	Y	Y	500	Or light	100–600	Or reflector	500	2
Massachusetts	Y	N	Y	Y	500	Or light	600	Or reflector	600	1
Michigan	Y	Y	N	Y	500	Required	100–600	With reflector	500	2
Minnesota	Y	Y	Y	Y	500	Required	100–600	With reflector	—	1
Mississippi	N	Y	Y	Y	500	Or light	500	Or reflector	500	—
Missouri	Y	Y	Y	Y	500	Or light	600	Or reflector	600	—

Montana	N	Y	Y	Y	500	Required	—	With reflector	500	1
Nebraska	Y	Y	N	Y	500	Required	100–600	With reflector	500	1
Nevada	Y	Y	Y	Y	500	Required	50–300	N	—	1
New Hampshire	Y	Y	Y	Y	300	Required	300	With reflector	300	1
New Jersey	Y	Y	N	Y	500	With light	50–300	Required	500	—
New Mexico	Y	Y	N	Y	500	Required	50–300	With reflector	500	1
New York	Y	Y	Y	Y	500	N	—	Required	300	1
North Carolina	Y	Y	N	N	300	N	—	Required	200	—
North Dakota	Y	Y	N	Y	500	Required	—	With reflector	500	1
Ohio	Y	Y	N	Y	500	Required	100–600	Required	500	1
Oklahoma	Y	Y	Y	Y	1,000	N	—	Required	1,000	1
Oregon	Y	Y	Y	N	500	Or light	600	Or reflector	600	1
Pennsylvania	Y	Y	N	Y	500	Required	500	With reflector	500	1
Rhode Island	Y	Y	N	Y	500	Required	600	With reflector	500	2
South Carolina	Y	Y	Y	Y	500	Required	50–300	With reflector	500	1
South Dakota	N	N	N	N	300	N	—	Required	200	—
Tennessee	Y	Y	Y	Y	500	Or light	500	Or reflector	500	1
Texas	Y	Y	N	Y	500	Required	50–300	Required	500	1
Utah	Y	Y	Y	Y	500	Or light	500	Or reflector	500	2
Vermont	Y	Y	N	Y	500	Required	300	With reflector	—	1
Virginia	Y	Y	Y	Y	500	Required	600	Required	500	1
Washington	Y	Y	N	Y	500	Required	600	With reflector	500	1
West Virginia	Y	Y	N	Y	500	Required	50–300	With reflector	500	1
Wisconsin	Y	Y	Y	Y	500	Required	50–500	With reflector	500	1
Wyoming	Y	Y	N	Y	500	Required	600	With reflector	500	2

NOTE: Y = yes; N = no; — = state does not have a statute.

lamp on the front emitting a white light visible from a distance of at least 500 feet to the front, and a taillight on the rear emitting a red light visible from a distance of at least 1000 feet to the rear.

In addition, the UVC contains provisions for the visibility of reflectors on both the side and rear of bicycles. Because every state has a rear reflector requirement included in its statute, UVC §12-703 is provided as follows:

UVC §12-703: Rear reflector required at all times

Every bicycle shall be equipped with a red reflector of a type approved by the department which shall be visible for 600 feet to the rear when directly in front of lawful lower beams of headlights on a motor vehicle.

Every state has a statute requiring some form of illumination with a white (or unspecified) light facing forward and a red reflector or a red light facing rearward. A review of equivalent state statutes identified a range of minimum values for the forward-facing white light. The most common value is 500 ft, per the UVC standard. These minimum values include 200 ft (Maine), 300 ft (6 states), 500 ft (42 states), and 1,000 ft (Oklahoma, but only for roads with a posted speed limit of 25 mph or higher).

Although every state requires a forward-facing light, not every state requires a rearward-facing red light or a rearward-facing red reflector. In both instances, 44 states have statutes requiring or permitting the use of a red rear light or red rear reflector, with sufficient overlap that all 50 states require the use of one or the other. Thirty-three states require the use of a rear reflector, and 12 states require the use of a rear light. Eleven states (California, Indiana, Iowa, Maine, Maryland, Massachusetts, Mississippi, Missouri, Oregon, Tennessee, and Utah) require that every bicyclist use either a rear light or rear reflector. Twenty-one states permit the use of a rear light only in combination with a rear reflector. A review of the state statutes found only Oklahoma matches the UVC visibility distance of 1,000 ft for a rear light. Thirty states require the rear light be visible at a distance of 500 ft, four states require visibility at 600 ft, four require visibility at 300 ft, and two states (Maine and North Carolina) require visibility at 200 ft. The visibility range for reflectors is specified differently by many states. Rather than requiring an upper limit like the UVC does, 18 states specify a range within which the reflector must be visible. These values vary from a low of 50 to 300 ft to a high of 100 to 600 ft. Twenty-four states have a specific value: 100 ft (Kentucky), 200 ft (Maine), 300 ft (four states), 500 ft (six states), and UVC-specified 600 ft (12 states).

CONCLUSIONS AND SUMMARY

Although statutes vary by degree from state to state, most have chosen to incorporate the suggested language provided by the National Committee on Uniform Traffic Laws and Ordinances through the UVC. This research has reviewed the interplay between various statutory decisions and looked at selected definitions and statutes from each of the states and the UVC. Through each element of the analysis section, this research evaluated how the states have codified each. There is a definite trend across the country toward adopting the model code of the UVC, which leads to more consistent statutes across all 50 states. This attempt at consistency is very important.

With the rules of the road nearly uniform, especially regarding the operation of and interaction with bicycles, the goals of promoting safety and uniformity is advanced. This consistency also mitigates the potential for confusion, as expectancy for operators of vehicles and bicycles will likely not be violated. This research shows that not every state has placed the same priority on the safety of all their road users. Although all states are concerned with driver and vehicle safety (as evidenced by their statutes), the bicycle is still relegated to second-class status through the lack of consistent laws and protections from other road users. This analysis has shown that although much progress is being made to alleviate these inadequacies, there is still much work to be done, especially with issues such as adoption of the 3-ft rule, which, although embraced by more states each year, has also faced legislative setbacks and vetoes in other states. Without a national focus on the uniformity of traffic laws related to bicycling, the continued patchwork covering the nation will remain, leaving serious holes that ultimately make the roads less safe for everyone.

Finally, Table 1 summarizes the UVC sections previously presented in the analysis section and how each state has elected to codify it.

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