DRAFT 2/2/2014: major to-do's are add relevant crash stats; and finish Crash Investigation section.

This structure and figures are copied from http://floridabicycle.org/publications/ LEO guide with their permission.

This document contains exactly 12 pages... or rather it's supposed to; It is originally produced in OpenOffice 4.0. When opening with Microsoft Word sometimes the formatting shifts slightly

When printed it is designed to be printed in “brochure” mode on 3 pieces of 8.5x11” paper (each sheet of paper gets two pages of this document on both sides of the paper)

# ARIZONA BICYCLE LAW ENFORCEMENT GUIDE

A review of
Arizona’s bicycle traffic laws
to help with warnings,
citations and crash reports

References are to the 2013 Arizona Revised Statutes

Inside of front cover.

# Table of Contents

# The challenge of bicycle traffic enforcement

Operating in traffic is a cooperative activity, governed by rules. Traffic rules incorporate practices found, through experience, to facilitate safe and efficient travel. Since not everyone has enough experience to appreciate the rationale of the rules, seasoned and informed enforcement is necessary to help instill safe habits. Officers exercise discretion in enforcement actions; an effective officer is prepared to explain the principles involved when a cyclist or motorist uses poor judgment.

**Key traffic principles for cyclists include:**

• *Cyclists on roadways fare best when they act and are treated as drivers of vehicles.*

Riding as a driver makes a cyclist visible and predictable Nationally, only about 30 percent of bicycle injuries treated in emergency rooms involve collisions with motor vehicles and fewer than one in 700 bicycle injuries is fatal. Crashes in traffic are caused by avoidable errors In 70 percent of police-reported bicycle-motor vehicle crashes, the cyclists involved had violated traffic rules; in about 45 percent, motorists had violated the rules

• *A cyclist is safer riding with traffic than facing it.*

A cyclist who rides facing oncoming traffic increases his risk of being hit by a motorist by two to four times Drivers entering and exiting the roadway at side streets and driveways do not expect bicycle traffic to approach from this direction.

• *Lamps must be used on a bicycle after sunset to alert other drivers.*

Cyclists riding during daylight make themselves most visible to other drivers by riding where other traffic is expected. At night, however, a rear reflector is required so overtaking drivers can see the cyclist, and frontward illumination is needed to alert drivers not approaching from the rear Nighttime collisions are much more likely to result in death. Most collisions occur during daylight where there is the most cycling; however almost half of cyclist fatalities occur during non-daylight hours. (Moderately priced bicycle lamps that run many hours on small rechargeable batteries are now available)

• *A cyclist traveling more slowly than other traffic should ride to the right, except to pass, to make a left turn, when necessary to avoid hazards, or when a lane is too narrow to share.*

A cyclist should ride to the right to make it easier for faster vehicles to pass, but should follow a predictable line. Swerving left to avoid a parked car, broken pavement edge, a drain cover, pooled water, gutter debris, etc, may surprise an overtaking motorist. A cyclist who stays far right is less visible to drivers emerging from driveways and side streets and to oncoming drivers making left turns A cyclist may leave the right-most side of the roadway when (1) moving as fast as other traffic, (2) passing another vehicle, (3) making a left turn, (4) avoiding roadside hazards, (5) where a lane is too narrow for a bicycle and another vehicle to travel safely side by side (Moving left in such a lane helps cue an overtaking driver who might otherwise misjudge passing space)

# WHAT TO ENFORCE

Note: this document is not intended as a cyclist's handbook For this purpose, readers are referred to *Arizona Bicycling Street Smarts*, published by ADOT and available at azbikeped.org.

Need to insert factoids here; one possibility is something extracted from ADOT BSAP, another idea is something from cross and fisher, or maybe whatever the MassBike LEO materials used.

~~In a regional study*, the following violations were identified as actual or likely contributing factors in bicycle-motor vehicle crashes~~

~~Cyclist –~~
~~Cycling at night without lights 22-27%~~
~~Riding against traffic on roadway 10%~~
~~Failure to yield at stop or yield sign 7-11%~~
~~Failure to yield, entering roadway midblock 8%~~
~~Failure to yield, signalized intersection 7-8%~~

~~Motorist –~~

~~Failure to yield, entering roadway from driveway 20%~~
~~Failure to yield at stop or yield sign 8%~~
~~Failure to pass cyclist at safe distance 7%~~
~~Failure to yield, signalized intersection 3%~~
~~Improper right turn in front of cyclist 2%~~

~~*Orlando Area Bicyclist Crash Study: A Study of BicyclistMotorist Crashes in the Orlando Urban Area in 2003 and 2004, MetroPlan Orlando, 2007 (http://wwwmetroplanorlandocom/ files/view/bicyclist-crash-studypdf)~~

# Title 28 Transportation Synopsis

For purposes of reducing high-crash-risk behaviors, the most important sections below are indicated with asterisks (*) Citations are to the Arizona Revised Statutes, Title 28: Transportation, and are current as of 2013.

## Legal status of cyclist

A bicycle is generally defined as a device propelled by human power with two or three wheels, any one of which is greater than 16 inches, and is specifically *excluded* from the definition of vehicle [§28-101(6) and (58)]. However, persons riding a bicycle on a roadway or adjoining shoulder are subject to all the rights and responsibilities of a driver of a vehicle [§28-812], in addition to laws that pertain specifically to cyclists. Laws pertaining specifically to driving a *motor* vehicle do not apply to cyclists; e.g. cyclists are not required to have a driver license [§28-3151].

Power is granted to local authorities to further regulate the operation of bicycles, and to require registration, if desired [§28-627]. Any local operational regulations must not conflict with the uniform application of traffic law throughout the state [§28-626].

Note that sidewalks are not part of the roadway or shoulder [§28-601(22)]. There are no specific provisions in A.R.S. for cyclists riding on sidewalks; nor for riding along a crosswalk, or crossing the driveway area along a sidewalk. See the section “Laws for sidewalk riders” below for more details.

## Laws for all drivers (motorists & cyclists)

Impartial enforcement of traffic law on all roadway users improves the climate for bicycling enforcement.

### *DRIVING ON RIGHT SIDE OF ROADWAY

[§28-721A] Upon all two-way roadways of sufficient width, a vehicle must be driven on the right half of the roadway. Exceptions include (1) when overtaking, (2) road construction, (3) marked lanes allowing, or (4) one-way streets.
A cyclist driving against the direction of traffic on the roadway should be warned or cited. This is a major contributing factor in bicycle-motor vehicle crashes; motorists entering and leaving the roadway at

intersections and driveways do not expect traffic to approach from the wrong direction.

## *OBEDIENCE TO TRAFFIC CONTROL DEVICES

[§28-644] A driver must obey all applicable traffic control devices (signs, markings, and traffic signals)

## *STOP OR YIELD SIGNS

[§28-855 and Intersection Entrance §28-773] In the U.S., the STOP sign has been the sign most commonly used to control priority at intersections and public driveways; YIELD signs may also be used for this purpose.
A driver who approaches a STOP or YIELD sign must, before proceeding into the intersection, (1) stop at a marked stop line, if present, and otherwise before the crosswalk (at a STOP sign) (2) yield to a pedestrian crossing in the crosswalk (whether marked or unmarked) and (3) yield to drivers in the crossing road. The legal difference is that, at a YIELD sign, the driver is required to slow to a speed reasonable for the existing conditions but need stop only if necessary to yield or otherwise necessary for safety.
Proper yielding prevents crashes; stopping and proceeding without yielding does not. A study by the Insurance Institute for Highway Safety found that 70 percent of crashes that occurred at one and two-way stop signs involved stop sign violations, but in two thirds of these cases, the driver did stop; the crash occurred when the driver then proceeded without yielding.
Sight distances at some intersections where stop signs have been installed are sufficient that a driver who slows on such an approach can complete a scan (left and right) for potentially conflicting traffic and still have time to yield, if necessary. Nevertheless, the law requires a driver to stop at a stop sign, even when it can be seen without making a full stop that no potentially conflicting traffic is approaching. Enforcement should prioritize motorists and cyclists who fail to prepare to yield at stop or yield intersections.
Enforcement of the "full stop" requirement at a stop sign should be applied evenhandedly to motorists and cyclists, or it will not be perceived as impartial.

## TRAFFIC CONTROL SIGNALS

[§28-645] Drivers must comply with indications of traffic signals; Red, Yellow, Green.
An electrical circuit with loops embedded in the pavement is commonly used to detect vehicles waiting for a green light at a signalized intersection. These loops are essentially metal detectors. Many bicyclists are unaware of this system or do not understand how it works. The most sensitive position for a two-wheeled vehicle is (usually) directly over a pavement cut, but if the detector's sensitivity is set too low, a bicycle or motorcycle may not be detected; the signal will stay red until a car stops over the loop. An unresponsive loop should be reported to the local traffic engineering office.
A driver at an inoperative traffic signal must, after making a complete stop, proceed with caution when safe to do so.

## *YIELDING ON ENTRY TO ROADWAY

[§28-856] The driver of a vehicle emerging from an alley, driveway or building must stop immediately before driving onto a sidewalk or onto the sidewalk area; Yield the right-of-way to any pedestrian as necessary to avoid collision; and on entering the roadway, yield the right-of-way to all closely approaching vehicles on the roadway.
Failure to observe this rule is a typical factor in crashes involving sidewalk cyclists.

## *OVERTAKING AND PASSING A VEHICLE

[§28-723 , §28-725 and §28-735] The driver of a vehicle overtaking another vehicle proceeding in the same direction shall pass to the left of the vehicle at a safe distance and shall not again drive to the right side of the roadway until safely clear of the overtaken vehicle. Additionally, if the driver of a vehicle is overtaking a bicycle, a safe distance of not less than 3 feet between the vehicle and the bicycle is required.
To pass a cyclist with safe clearance, it may be necessary for a motorist to enter (at least partially) the next lane, when and where it is safe to do so. If it is not safe, or if passing is otherwise prohibited, the driver

wishing to pass must wait until it is safe and passing is allowed.
About 1 percent of bicycle-motor vehicle crashes involve motorists who misjudge the width or length necessary to pass a cyclist. Close passing causes some cyclists to "hug the curb," or ride on the sidewalk, where crash risk actually increases. (see diagrams on page ? For proper lane-sharing)

### *METHOD OF TURNING RIGHT

[§28-751(1)] Right turns. Both the approach for a right turn and a right turn shall be made as close as practicable to the right-hand curb or edge of the roadway. For this reason, an *automobile* driver preparing to turn right should—after yielding to any bicycle driver present—enter or closely approach a bicycle lane, if one is present. This reduces conflicts with following drivers, makes the driver's intention more clear than signaling alone, and prevents an overtaking cyclist from trying to pass on the right and possibly colliding. A motorist who makes a sharp right turn immediately after passing a cyclist has turned incorrectly.

### APPROPRIATE DRIVING SPEED

[§28-701] A person shall not drive a vehicle on a highway at a speed greater than is reasonable and prudent under the circumstances, conditions and actual and potential hazards then existing. A person shall control the speed of a vehicle as necessary to avoid colliding with any object, person, vehicle or other conveyance on, entering or adjacent to the highway in compliance with legal requirements and the duty of all persons to exercise reasonable care for the protection of others.
Note that the section prohibiting driving slower than is reasonable and prudent applies only to drivers of *motor* vehicles, and therefore does not apply to bicyclists [§28-701E].

### IMPEDING TRAFFIC

[§28-704C] If driving a vehicle at a speed less than the normal flow of traffic on a two-lane highway where passing is unsafe, and if five or more vehicles are formed in a line behind the vehicle, the person shall turn the vehicle off the roadway at the nearest place designated ... or wherever sufficient area for a safe turnout exists.
This applies to both drivers of vehicles and bicycle drivers on two-lane roads (one lane in each direction) only. The more general prohibition on impeding traffic [§28-704A] applies on all roads but specifically only to drivers of *motor* vehicles and therefore does not apply to bicyclists (but see “Position on the roadway” below)

## Laws for bicycle drivers

### *LIGHTING AND OTHER EQUIPMENT

[§28-817] A bicycle that is used at nighttime shall have a lamp on the front that emits a white light visible from a distance of at least 500 feet to the front and a red reflector on the rear that is visible from all distances from 50 to 300 feet to the rear when illuminated by head lamps of a motor vehicle.
A red tail light is allowed to be used in addition to the rear reflector.
**The risk of fatal injury increases at night. The use of lights/reflectors helps make cyclists visible to other drivers.**

A bicycle shall be equipped with a brake that enables the operator to make the braked wheels skid on dry, level, clean pavement

Whistles and sirens are not permitted.

### BICYCLE HELMET

Bicycle helmets, properly fitted and secured, have been found effective at reducing the incidence and severity of head, brain and upper facial injury including both crashes with motor vehicles and simple falls. (Head injuries account for about one third of the hospital emergency room visits of injured cyclists.)

There is no state law in Arizona for cyclists to use a helmet, however several local jurisdictions have age-based requirements.

## *POSITION ON ROADWAY

[§28-815A] A cyclist on a roadway who is traveling less than the "normal speed of traffic" must ride as close as practicable to the right hand curb or edge of the roadway, except in the following situations:

- when overtaking and passing another bicycle or vehicle proceeding in the same direction.;
- when preparing for a left turn (see "Method of turning at intersections" above);
- when reasonably necessary to avoid conditions, including fixed or moving objects, parked or moving vehicles, bicycles, pedestrians, animals or surface hazards;
- when the lane is too narrow for a bicycle and a vehicle to travel safely side by side.

A cyclist going straight through an intersection should not ride in a lane marked exclusively for right turns, i.e., one marked or signed with the word "ONLY" (see "Obedience to traffic control devices" above).

Some roads have a bicycle lane, which is a lane marked with a stripe, signs and symbols for the preferential use of bicycles on a roadway (motorists may enter or cross a bicycle lane to turn into or off a roadway at intersections and driveways).

Roads with curbs: Cyclists need to keep clear of the gutter area; pavement joints, drain grates or debris can cause steering difficulties, damage, and falling hazards. A cyclist riding past parked cars generally needs to maintain clearance of at least 4 feet to avoid risk of collision with an opening driver-side door. Doors on some vehicles swing open more than 3 ft.

Roads with shoulders: where no bicycle lane is marked, a white edge line is typically marked to indicate the edge of the roadway; any pavement to the right of the edge line is shoulder pavement, not a bicycle lane unless it is marked with the bicycle lane symbol. Since the definition of "roadway" excludes shoulders, cyclists are not required to ride on paved shoulders, although they may prefer to do so.

Wide Curb Lane: as the minimum clearance for passing a bicyclist is 3 feet (see “Overtaking and passing” above) and the total widths of larger motor vehicles (with extending mirrors) and of trailers commonly exceed 8 feet, an outside traffic lane less than 14 feet wide is not wide enough to accommodate a cyclist and passing motor traffic within the lane. The AASHTO (American Association of State Highway Traffic Officials) specifies a *minimum* of 14' of *usable* lane width to accommodate side-by-side sharing; the usable width does not include and gutter pan. (see “When is a Lane Sharable?” below).

## RIDING TWO ABREAST

[§28-815B] Persons riding bicycles on a roadway shall not ride more than two abreast except on paths or parts of roadways set aside for the exclusive use of bicycles.
Note that a cyclist, or cyclists riding two abreast, traveling less than the normal speed of traffic must still ride as far right as practicable, as detailed above see "Position on roadway", unless one of the exceptions is met. In a lane "too narrow for a (one) bicycle and another vehicle to travel safely side by side", cyclists can use any portion of the lane.

## USING HAND SIGNALS

[§28-754 and §28-756]
All drivers of vehicles are required to signal their movements when other traffic affected, here is the method of giving hand signals for bicycle drivers:
Left turn: Left hand and arm extended horizontally.
Right turn: Left hand and arm extended upward / or Right hand and arm extended horizontally.
Stop or decrease speed: Left hand and arm extended downward.

### WHEN OVERTAKING ON THE RIGHT IS PERMITTED

[§28-724] Overtaking on the right is permitted upon a street or highway with unobstructed pavement not occupied by parked vehicles, of sufficient width for two or more lines of moving traffic in each direction; and only under conditions permitting such movement in safety.
A cyclist traveling in a bicycle lane, or in a lane wide enough for motor vehicles and bicycles to share (see "Roadway position" above) may pass motor vehicles on the right, but must take care to avoid turning vehicles. Passing is allowed in these cases since there is sufficient width for two lines of moving traffic (one of which is bicycle traffic).

### MISCELLANEOUS

Cyclists may not cling to vehicles [§28-814]; all riders must have a permanently attached seat [§28-813]; the driver must not carry articles that would prevent holding the handlebar with at least one hand [§28-816]

# Laws for sidewalk riders

As mentioned above in “Legal Status of Bicyclists”; sidewalks are not part of the roadway or shoulder [§28-601(22)]. There are no specific provisions in A.R.S. for cyclists riding on sidewalks; nor for riding along a crosswalk, or crossing the driveway area along a sidewalk. It is therefore not illegal (but may be regulated by local authorities). Laws applicable to drivers of vehicles thus cannot be applied to sidewalk cyclists. The Arizona Supreme Court has found that laws applying to sidewalk cyclists are similar to those for pedestrians (see *Maxwell v. Gossett*, 126 Ariz. 98; 612 P. 2d 1061), and specifically rejected the claim that a cyclist riding in crosswalk was subject to the duties of a driver of a vehicle.

Laws that apply specifically to cyclists, however, do apply on sidewalks, unless the particular law states where the law applies. So, for example, the nighttime lighting requirement applies to cyclists on the sidewalk; but the requirement to ride as far right as practicable on the roadway does not.

Most cities further regulate the operation of bicycles on sidewalks within their jurisdiction. Common regulations are a requirement that sidewalk cyclists, where permitted, must yield to any pedestrian. Many cities allow sidewalk cycling unless prohibited by sign (e.g. Phoenix); others prohibit it unless allowed by sign (e.g. Tucson). In one city, Tempe, the allowable direction is specified; sidewalk cyclists must proceed in the direction of adjacent traffic flow.

# Bicycle crash investigation

Collisions between bicycles and motor vehicles are reported on the standard Arizona Crash Report (ACR), see *Arizona's Crash Report Forms Instruction Manual* published by ADOT. An officer is required to submit an ACR for any motor vehicle crash resulting in anyone's injury, death or property damage above $1,000 [§28-667].
Careful reporting of bicycle crashes can help traffic safety specialists choose effective countermeasures Some bicycling-related factors are not adequately addressed in the standard crash form. Noting these in the narrative will help provide information to assess what factors did (or did not) contribute to the crash, and assure fair treatment of all parties Some injuries to bicyclists do not involve motor vehicles but can be serious. Officers present should record the following information when relevant:

General
Position of sun, time of day, glare factor

Surface hazards: surface debris, standing water, potholes, pipe lids, railroad tracks, pavement subsidence or cracks, etc  that might have caused the cyclist to swerve
View obstructions: trees, bushes, parked cars, utility poles, etc that might have interfered with the cyclist's and motorist's views of each other
Site location: was the cyclist in a bike lane? On some curbed roadways, a shoulder strip is separated by an edge line but is not signed or marked as a bike lane  Legally, a bike lane is present only where a strip is designated with bicyclist symbol markings.

The cyclist
Lamps and reflectors: If crash occurred after sunset and bicycle headlamp and/or tail lamp were in use, enter the “Lighting” code in the “Safety Equipment” fields of the “Non-Motorist” section (note details in narrative) If lamps were damaged in crash, are the batteries charged? The “Reflective Clothing” code can be used for worn reflective items (ankle straps, backpack, etc)
Helmet: Note use in the "Safety Equipment" fields.
Injured cyclist should save all clothing and equipment damaged in the crash, refrain from repairing or cleaning such items and have injuries properly examined and documented

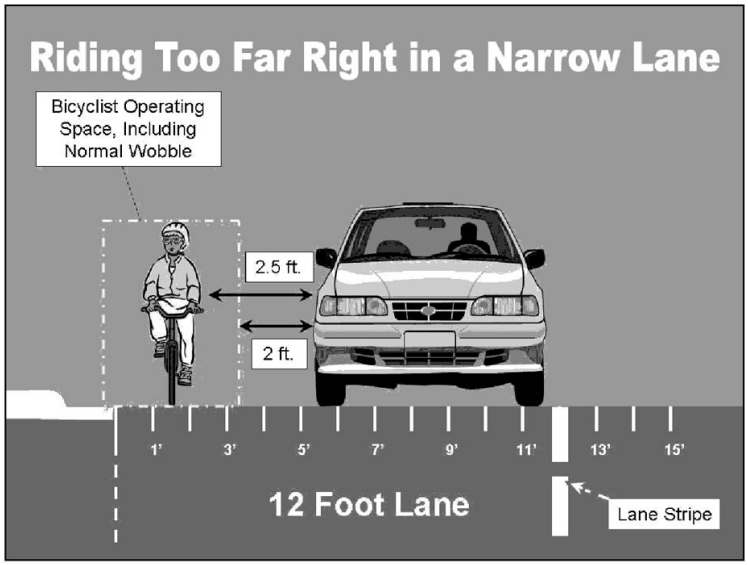
The motorist
Did the motorist fail to scan for a cyclist approaching from the right on a sidewalk?
If a motorist alleges he didn't see a cyclist in daylight where views were unrestricted, the possibility of drug or alcohol use, distractions or fatigue should be considered.

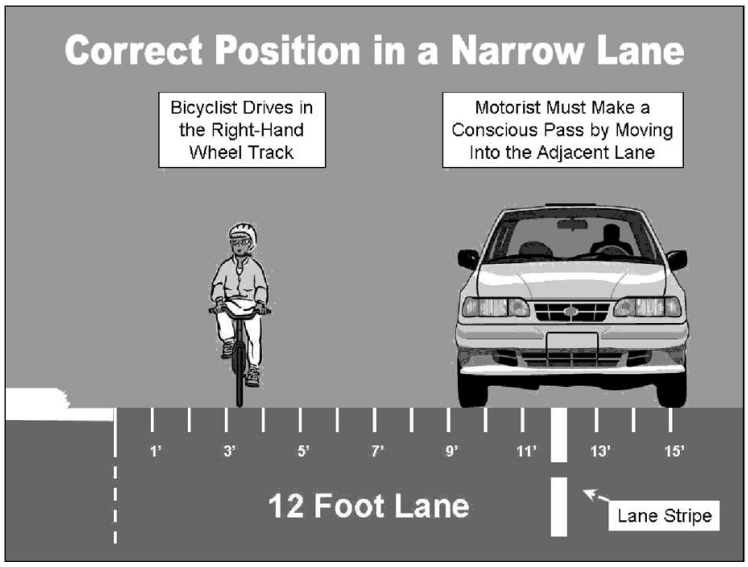
Fatalities and incapacitating injuries
Do not move the bicycle until its location and position has been photographed or otherwise accurately recorded.
The bicycle should be thoroughly inspected by the investigator
The bicycle should be held as evidence and only released when the case is closed.

# When is a lane shareable?

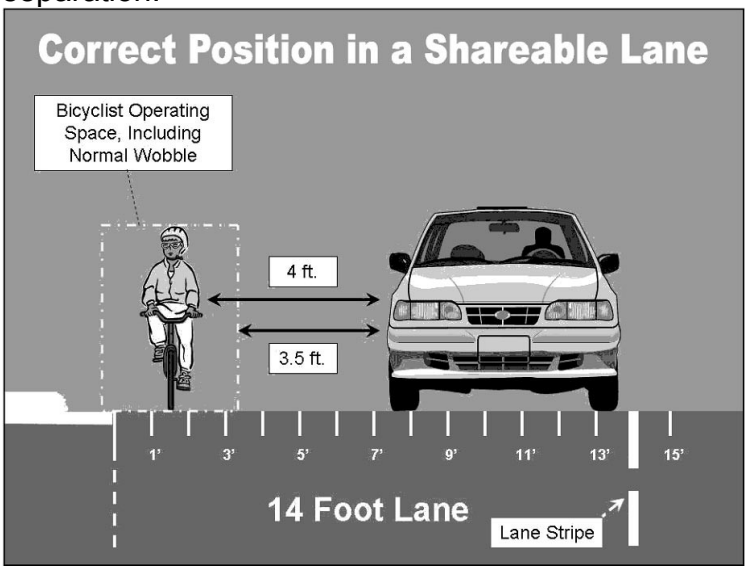
Arizona's 3 feet minimum separation rule (see page ??) poses questions for both cyclists and drivers of motor vehicles. Although the law allows cyclists to leave the right-hand side of the lane if the lane is too narrow (see page ??), nothing in the statutes defines how wide such a lane should be.

National organization's (e.g. AASHTO, the American Association of State Highway Traffic Officials) recommendation is that lanes less than 14 feet are not suitable for side-by-side sharing. Lanes of at least 14' gives cyclists a maneuverable width and still allows the minimum passing separation for most motor vehicles. Riding too far right in a narrow lane encourages motorists to squeeze by at an unsafe distance. In a lane too narrow for motorists to pass safely, moving left




into the right-hand vehicle track will cause motorists to move into the adjacent lane to maintain the required separation.



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