

Safe Passing; Operating Abreast

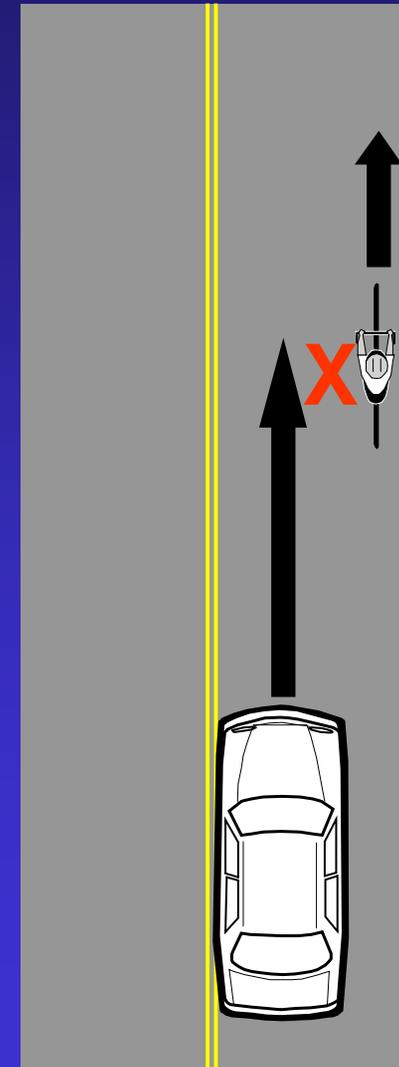


Safe Passing Principles and Law



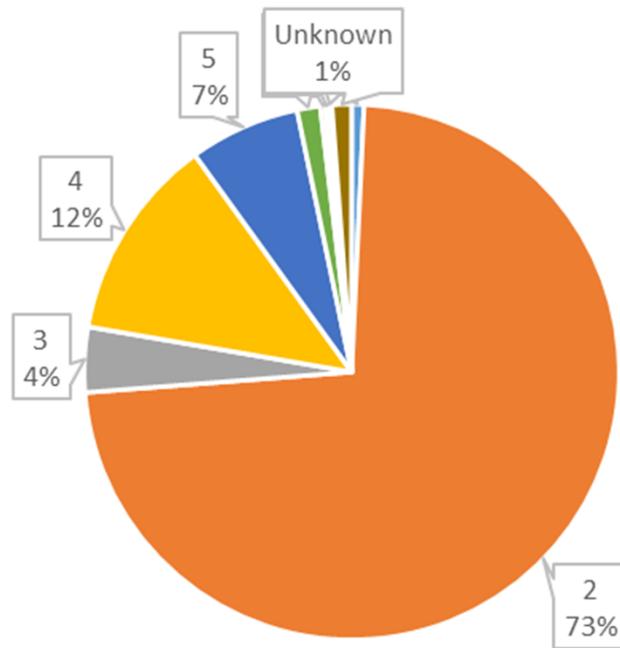
Motorist Overtaking Collisions

- 8% of urban car-bike crashes
- 29% of rural car-bike crashes
- 45% are in darkness
- Most daylight collisions are overtaking too closely
- Most involve a bicyclist on the right edge of a narrow lane

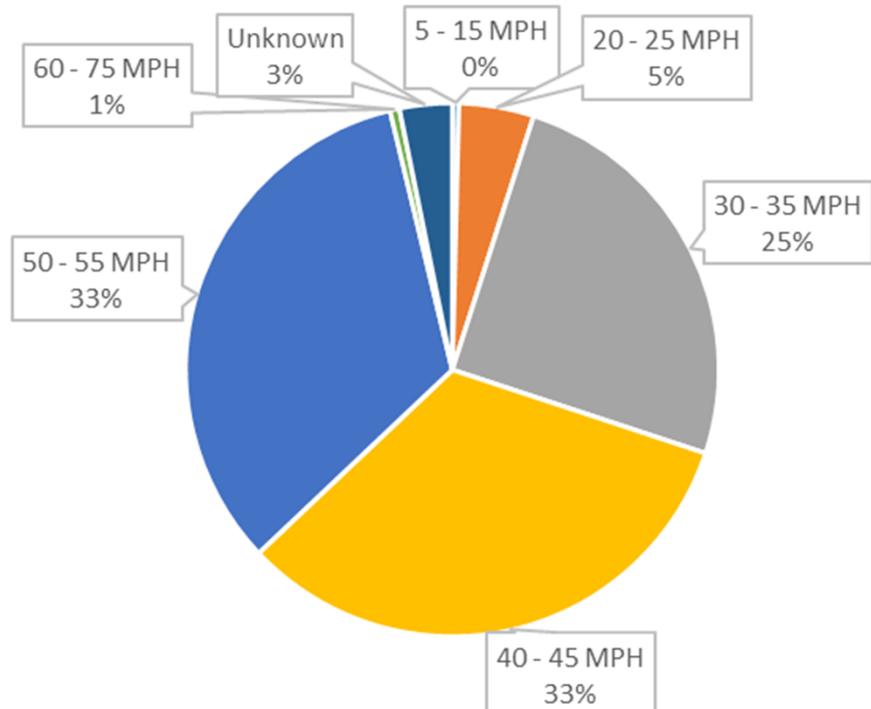


Bicycle Overtaking Crashes: Road Types

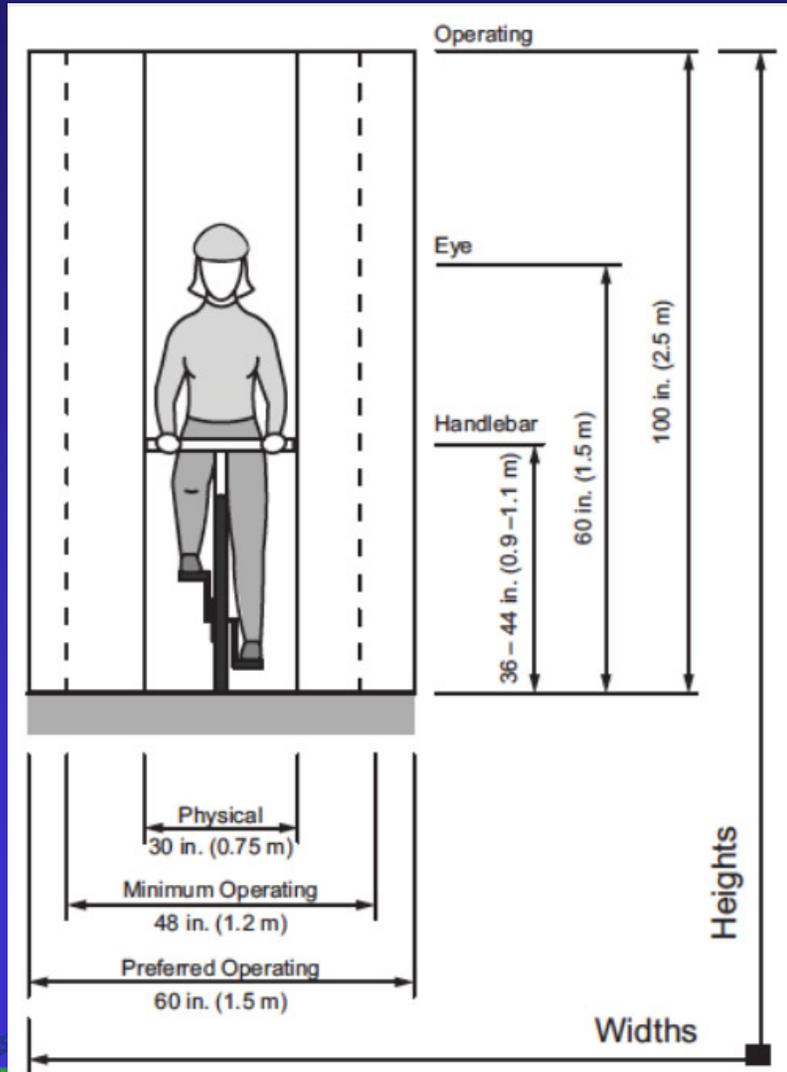
Number of Lanes



Speed Limit



Operating Space



Bicycle operating space according to AASHTO Bike Guide

Using scanning drill to measure swerving



Figure 3-1. Bicyclist Operating Space



Minimum Passing Distances

Minimum Passing Distance	State
Function of Speed (5' at 50 mph)	New Hampshire
4 Feet	Pennsylvania
3 Feet	Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Kansas, Louisiana, Maine, Maryland, Minnesota, Mississippi, Nebraska, Nevada, Oklahoma, South Dakota, Tennessee, Utah, Wisconsin, Wyoming
2 Feet	North Carolina, Virginia
"Safe Distance"	Alabama, Alaska, Hawaii, Idaho, Indiana, Iowa, Massachusetts, Michigan, Missouri, New Jersey, New Mexico, New York, North Dakota, Ohio, Oregon, Rhode Island, South Carolina, Texas, Vermont, Washington, West Virginia
"Reasonably Clear"	Kentucky
"Safely without endangering"	Montana

10 Foot Lanes



To Scale:
Bicyclist and Ford F-150



Wide Lanes

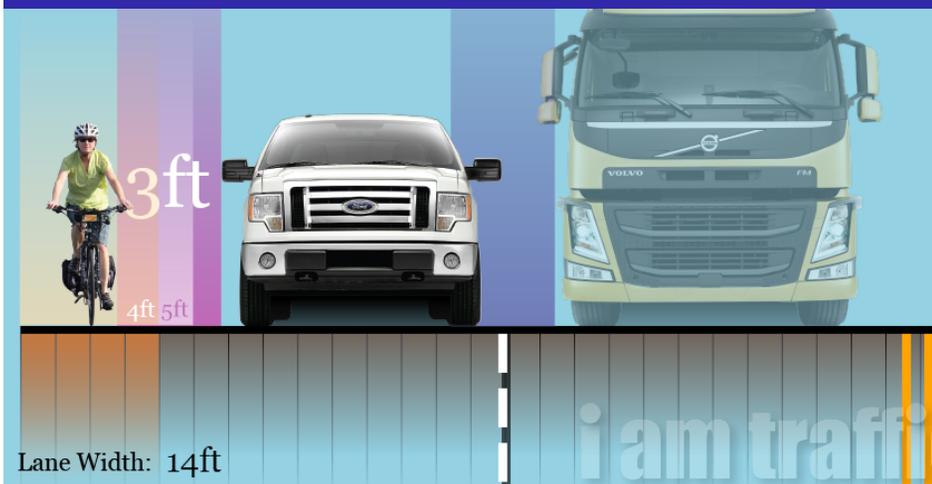
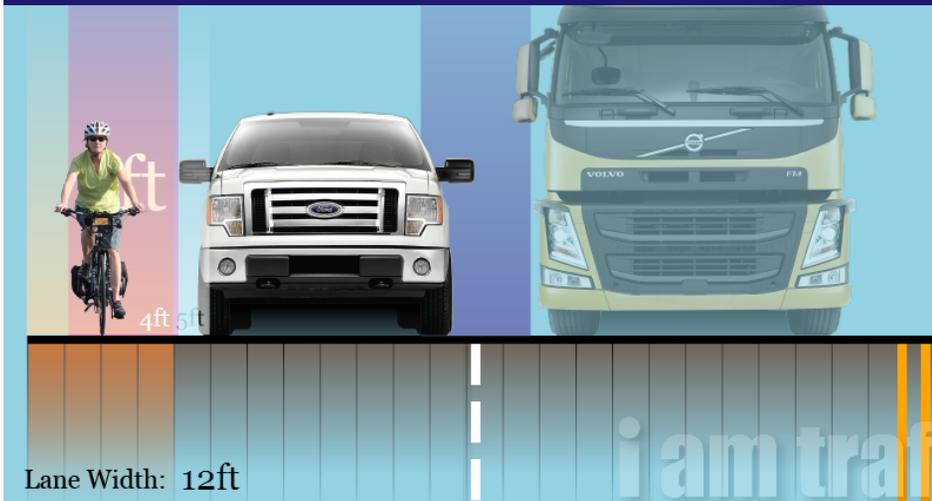


14 Feet



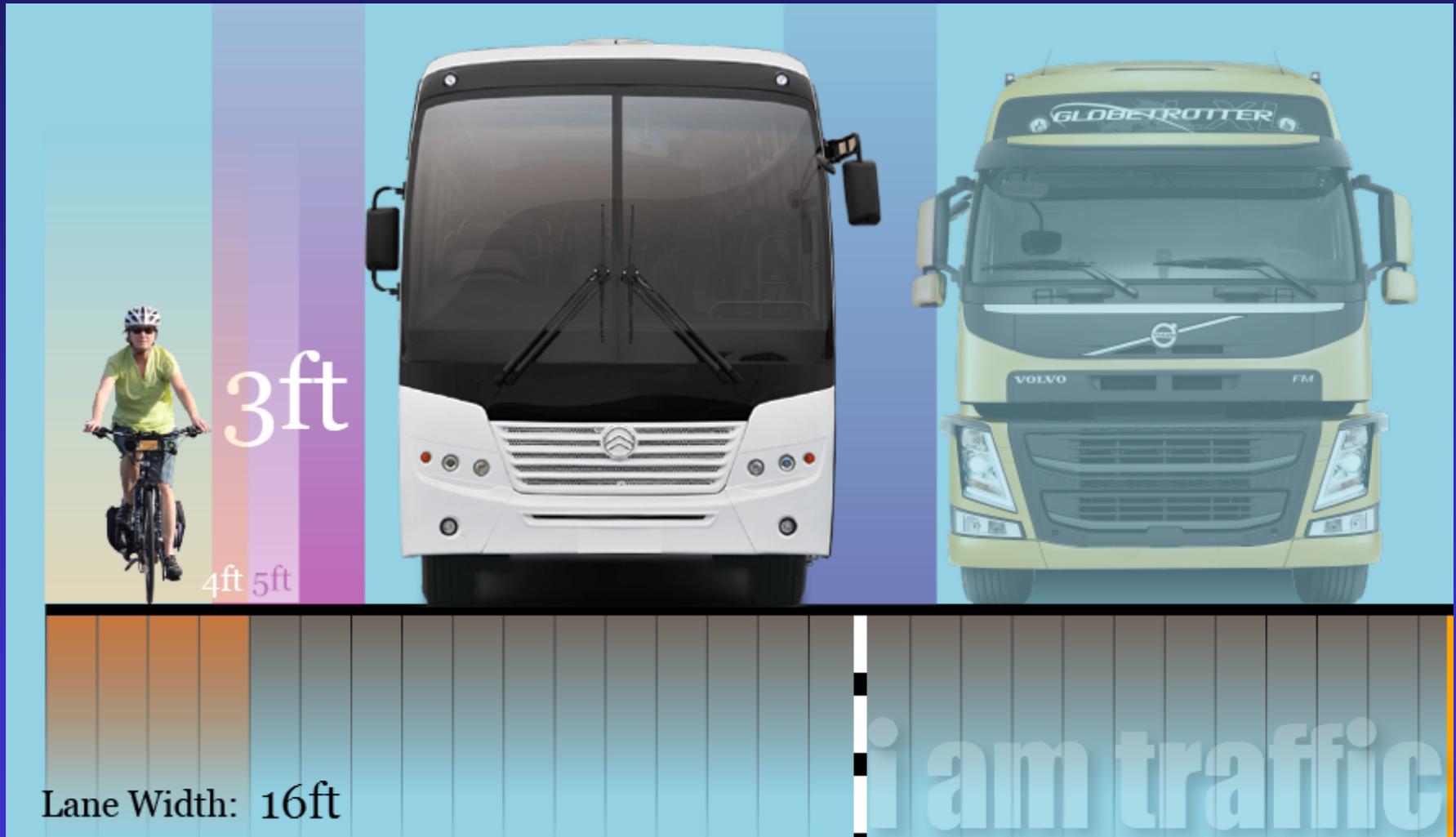
16+ Feet

Lane and Vehicle Widths



<http://iamtraffic.org/resources/interactive-graphics/>

16 Feet = Rec. Minimum for Trucks



<http://iamtraffic.org/resources/interactive-graphics/>

Passing Modes

Next Lane Pass

- Requires yielding to adjacent traffic

Same Lane Pass

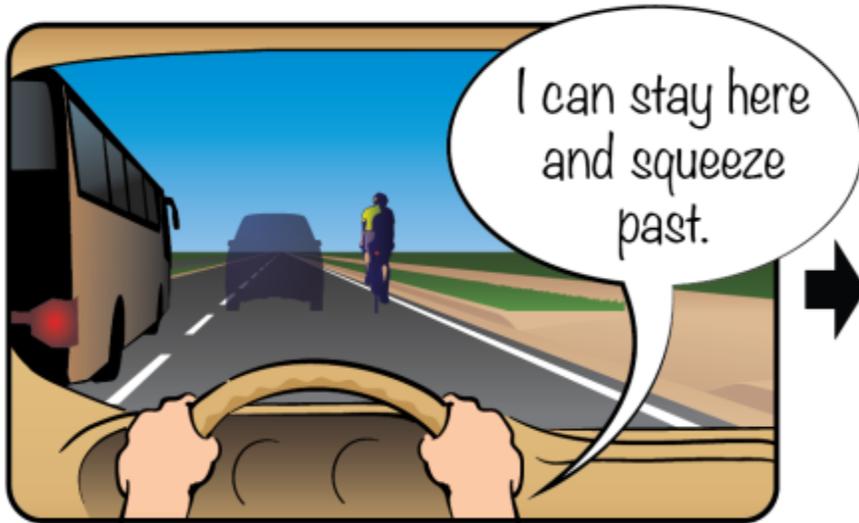
- Does not involve yielding to adjacent traffic



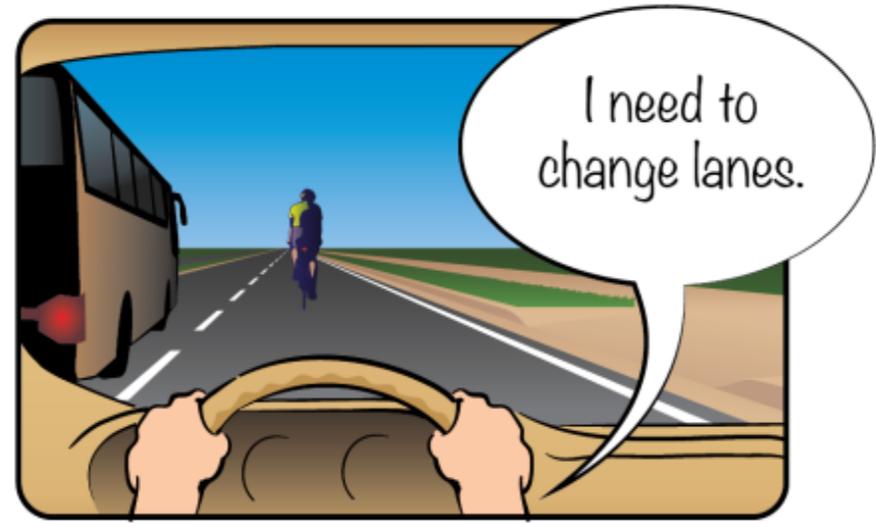
How to encourage drivers to cross the lane line (safely)?

- (a) Driver education and enforcement
- (b) Bicyclist lane position

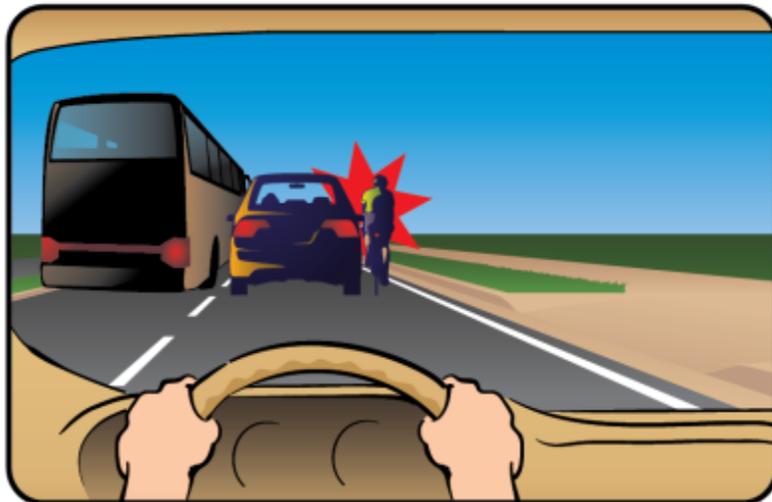




How wide he thinks his car is



Where Savvy Cyclists ride to discourage that mistake.



How wide it really is



Most lanes are too narrow for a car to pass a bicyclist safely within the lane.

Savvy Cyclists make that clear by leaving less space to their left. This is defensive driving. And it is legal in all 50 states.

Regardless of where a bicyclist is, please don't risk a mistake.

Change lanes to pass.

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Lane Control = Defensive Cycling

- Riding near center of narrow lane greatly reduces unsafe passing, sideswipes



Two Lane Roads

- Two lane rural roads typically have narrow lanes
- Drivers must yield to oncoming traffic
- What about solid centerlines?



No Passing Zone Exceptions

- Colorado, Maine, Mississippi, Montana, Ohio, Pennsylvania, Utah and Wisconsin allow passing bicyclists in a no passing zone when safe.
- Example: Pennsylvania

§ 3307. No-passing zones. (b.1) Overtaking pedalcycles.— It is permissible to pass a pedalcycle, if done in accordance with sections 3303(a)(3) (relating to overtaking vehicle on the left) and 3305 (relating to limitations on overtaking on the left).



NC § 20-150. Limitations on privilege of overtaking and passing.

(a) The driver of a vehicle shall not drive to the left side of the center of a highway, in overtaking and passing another vehicle proceeding in the same direction, unless such left side is clearly visible and is free of oncoming traffic for a sufficient distance ahead to permit such overtaking and passing to be made in safety.



NC § 20-150 continued

(b) The driver of a vehicle shall not overtake and pass another vehicle proceeding in the same direction upon the crest of a grade or upon a curve in the highway where the driver's view along the highway is obstructed within a distance of 500 feet.

(c) The driver of a vehicle shall not overtake and pass any other vehicle proceeding in the same direction at any railway grade crossing nor at any intersection of highway unless permitted so to do by a traffic or police officer.



NC § 20-150 continued

(d) The driver of a vehicle shall not drive to the left side of the centerline of a highway upon the crest of a grade or upon a curve in the highway where such centerline has been placed upon such highway by the Department of Transportation, and is visible.

(e) The driver of a vehicle shall not overtake and pass another on any portion of the highway which is marked by signs, markers or markings placed by the Department of Transportation stating or clearly indicating that passing should not be attempted.



Confusion in California

- Governor vetoed centerline exception
- Enacted 3' law without it
- CHP enforcement problems



Ken Adams

Here is my interaction with the maniac CHP cop that almost ran me and numerous other cyclists over today on GMR/GRR.

BikeWalk NC Recommendations

- Provide exception to § 20-150 (e) for passing bicyclists when safe
- Develop comprehensive education and enforcement campaign to promote safer passing
- Do not attempt 3' passing legislation or other new motoring restrictions with current political climate/legislature

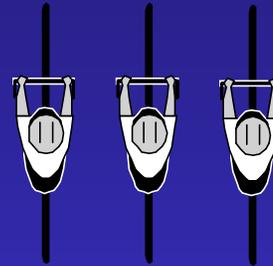


Operating Abreast



Definition of Operating Abreast

- Operating abreast: Sustained side-by-side travel at equal speed.



- Operating abreast does not include:
 - Passing/being passed by another operator
 - Using a different destination lane
 - Following at a different lateral position



Applicable Statutes

- *§ 20-146. (b) Upon all highways any vehicle proceeding at less than the legal maximum speed limit **shall be driven in the right-hand lane then available for thru traffic**, or as close as practicable to the right-hand curb or edge of the highway, except when overtaking and passing another vehicle proceeding in the same direction or when preparing for a left turn.*



Applicable Statutes

- § 20-146. (d) *Whenever any street has been divided into two or more clearly marked lanes for traffic,[]*
- (1) *A vehicle shall be driven **as nearly as practicable entirely within a single lane and shall not be moved from such lane until the driver has first ascertained that such movement can be made with safety.***

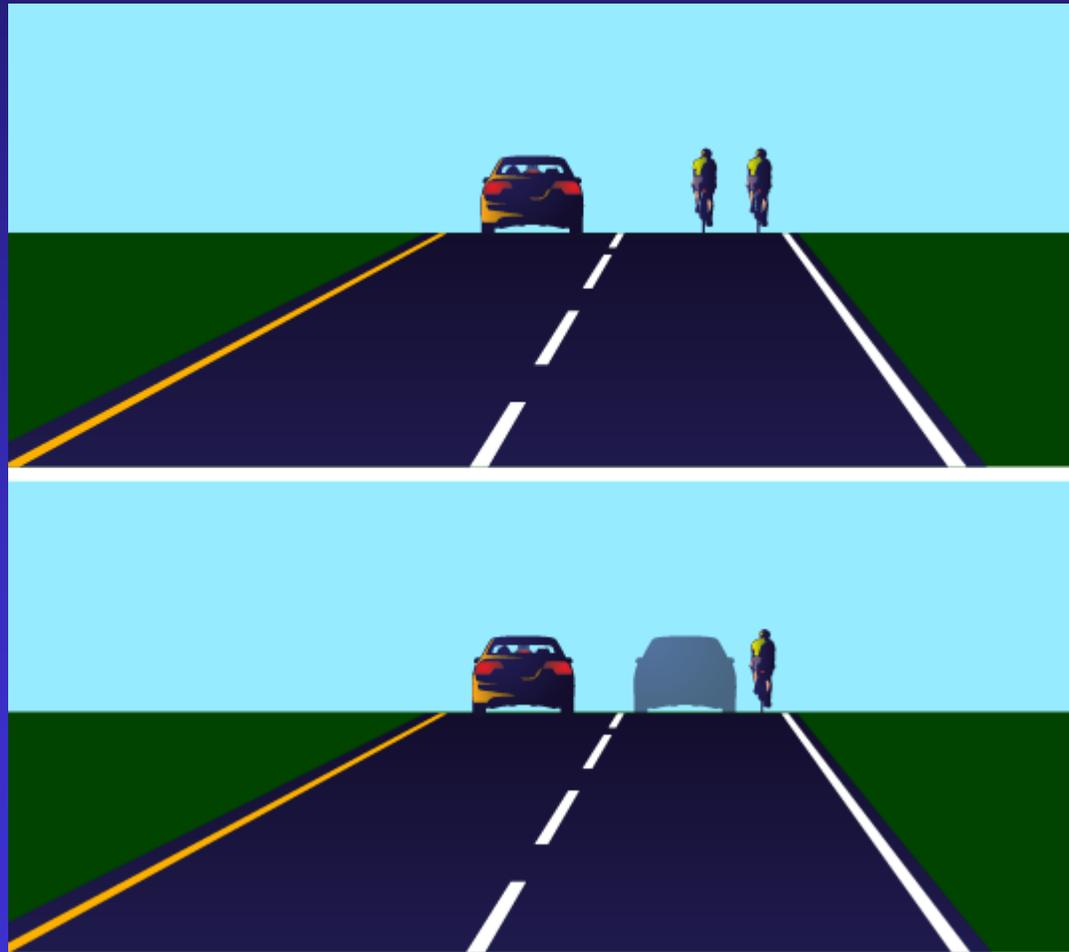


Why Cyclists Operate Abreast

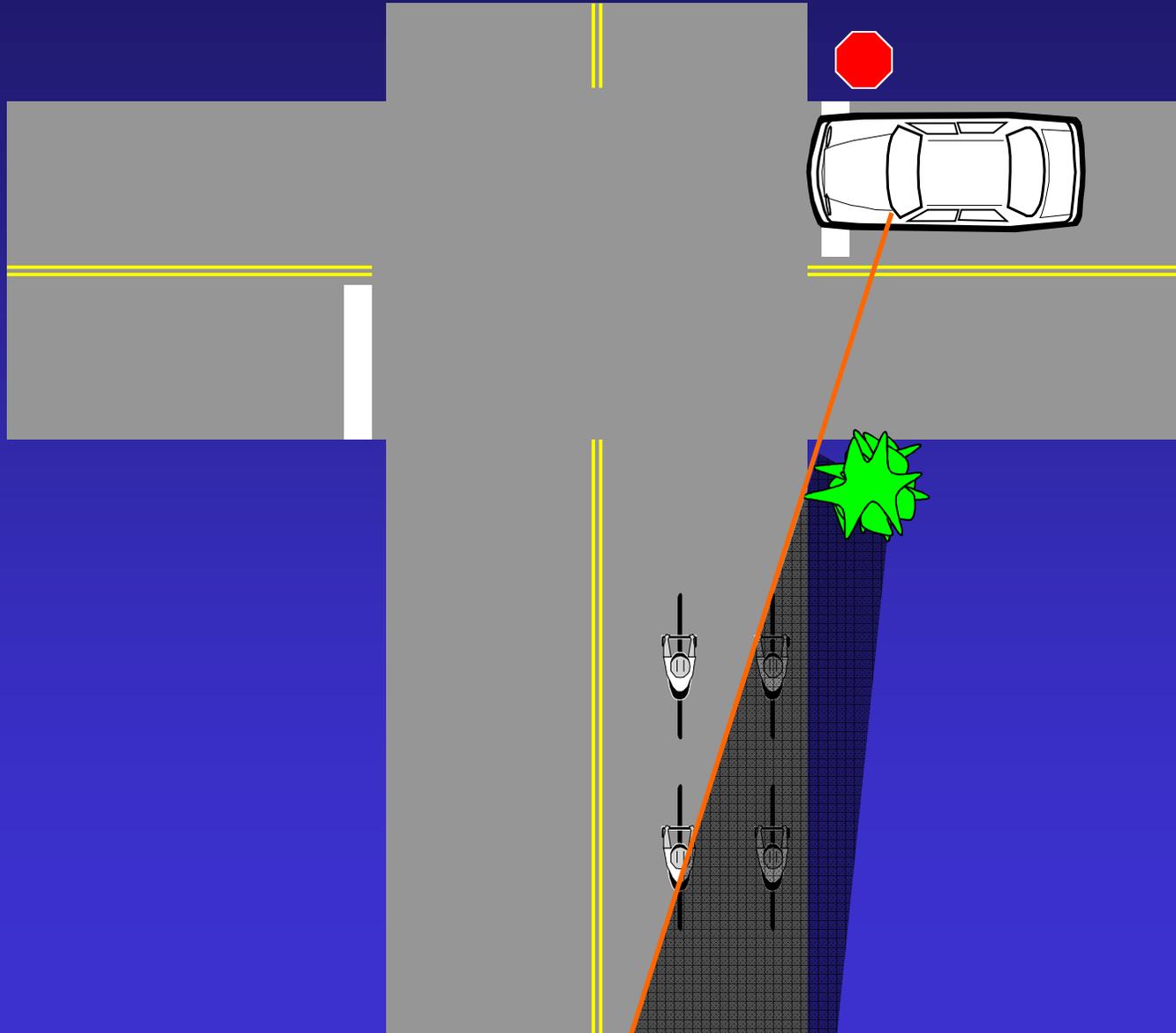
1. Deter Unsafe Same-Lane Passing
2. Improve Conspicuity from Front/Behind
3. Shorten Length of Group
4. Communicate



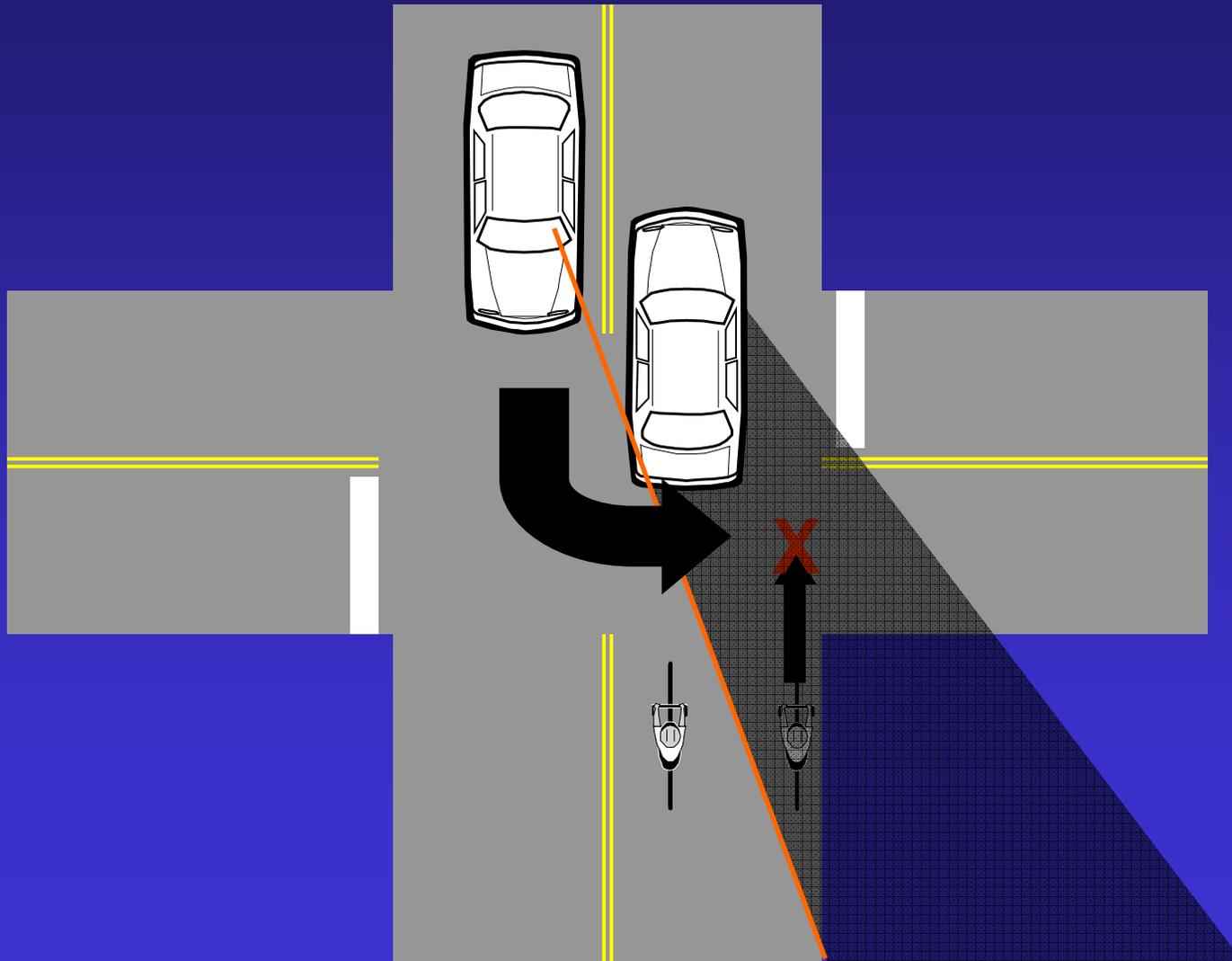
1. Deter Unsafe Close Passing



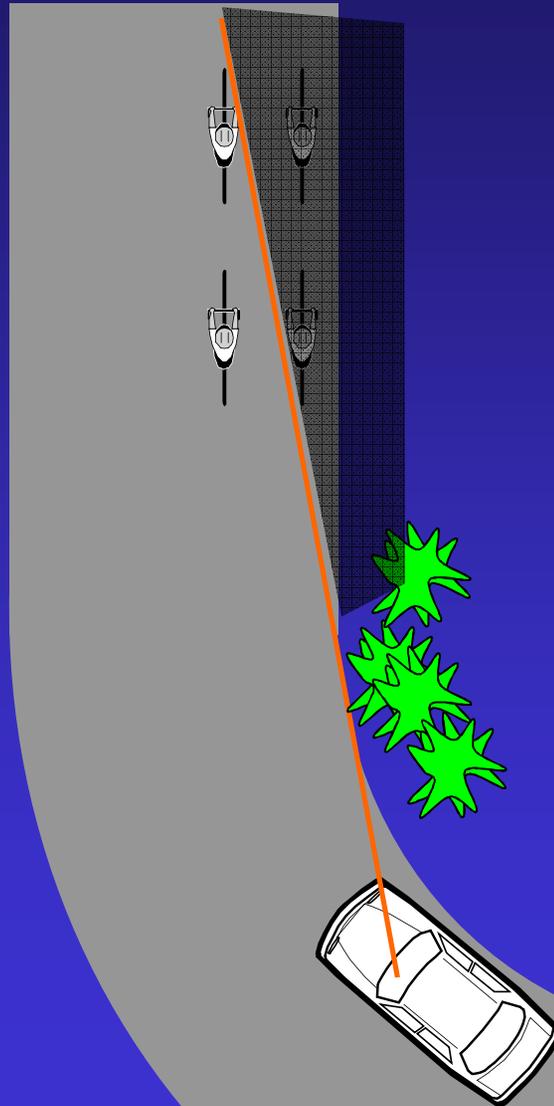
2. Improve Conspicuity



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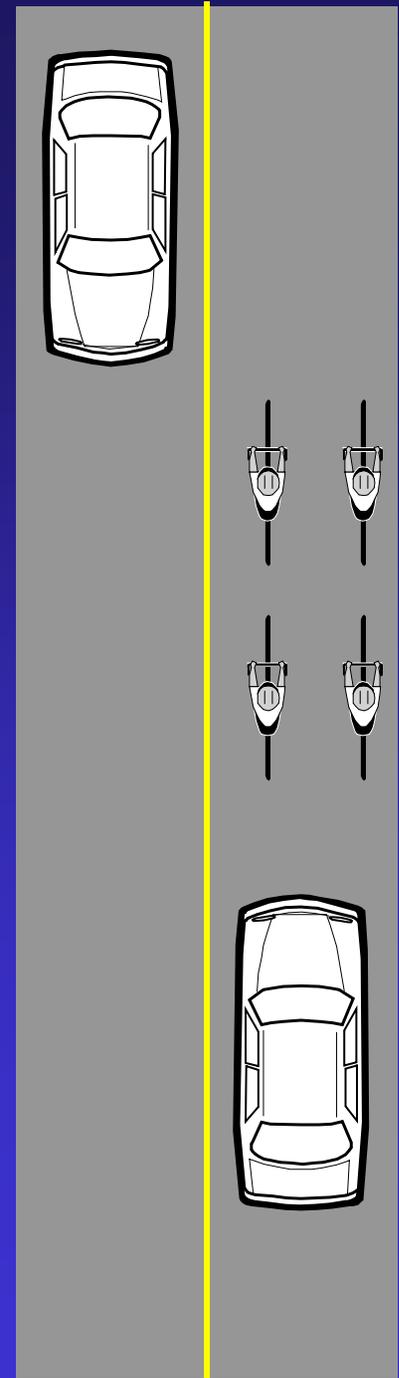
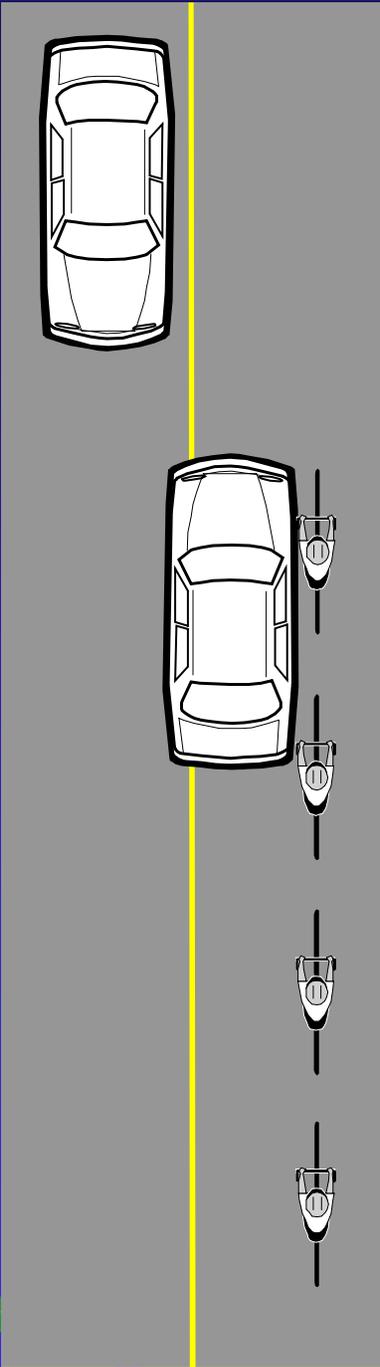


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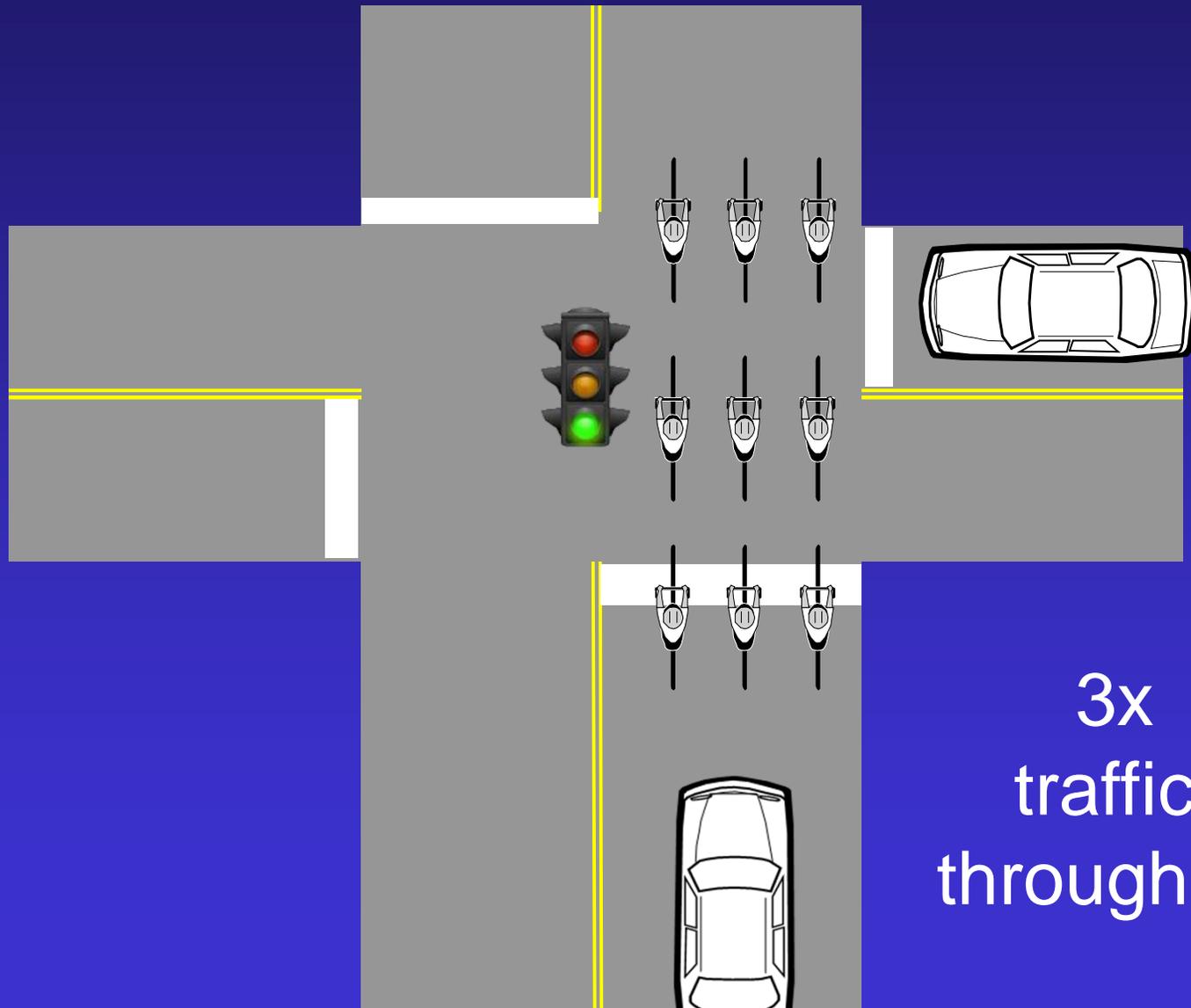


3. Shorten Length of Group

- Reduces passing time and distance
- Reduces risk of motorists swerving into group before clear



3. Shorten Length of Group



4. Communicate



4. Communicate



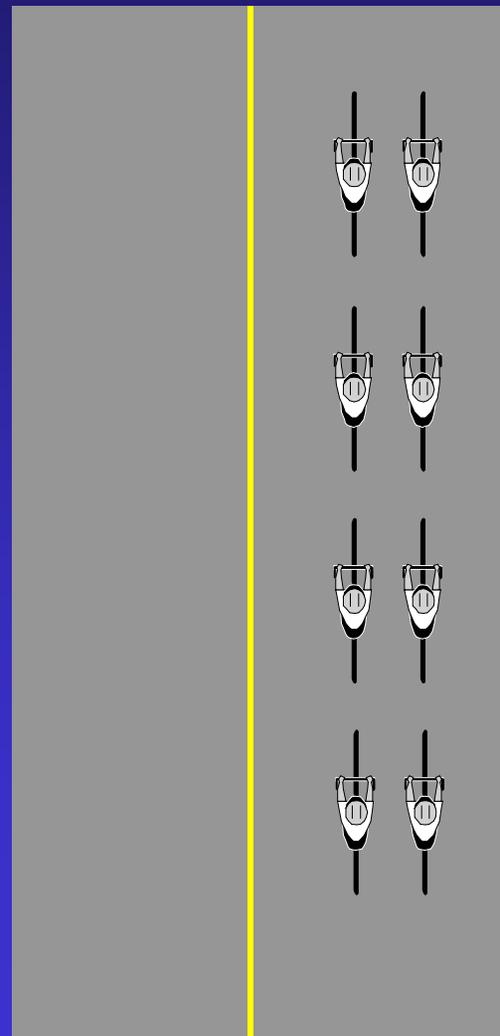
How Safe Is Cycling Abreast?

- Look at crash data
- What crash data?



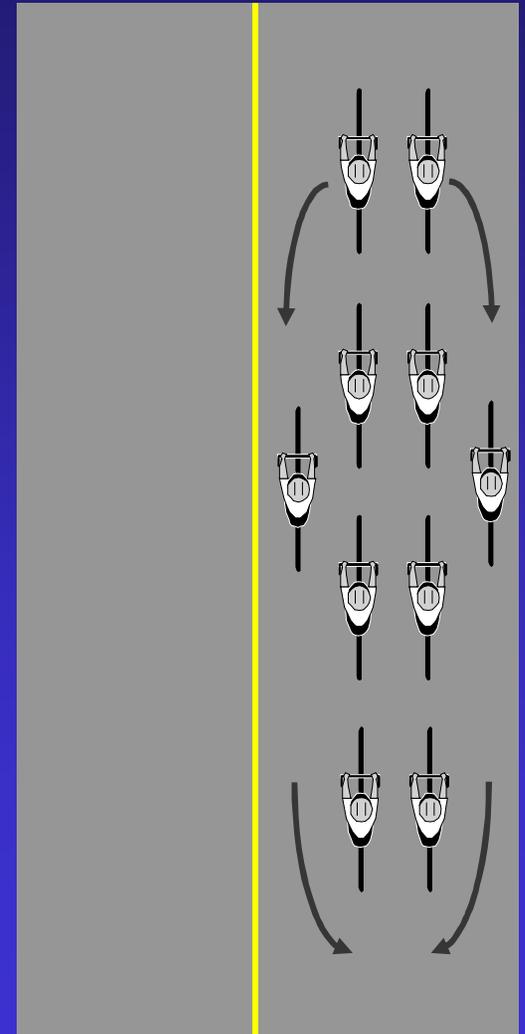
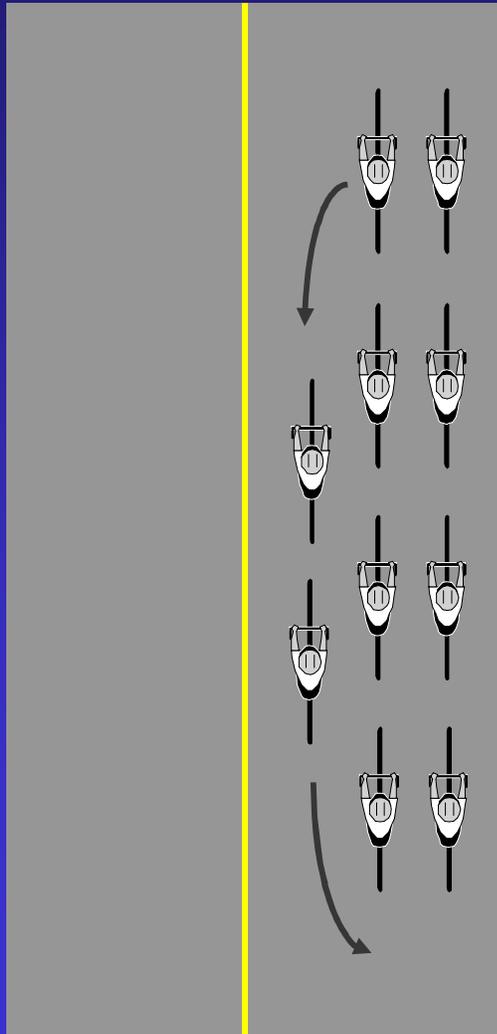
Pacelines

- Up to 40% energy savings
- Leaders get tired
- Must rotate regularly



Double File Paceline Rotation

- Group stays within single lane
- Lead cyclists look back before rotating



Lateral Spacing

- Recreational cyclists often give one another extra space when not rotating or starting



Lateral Spacing

- Performance-oriented cyclists operate close together
- Skill, consent, cooperation



Elbow/Shoulder Collisions

- Skilled bicyclists push each other away without falling

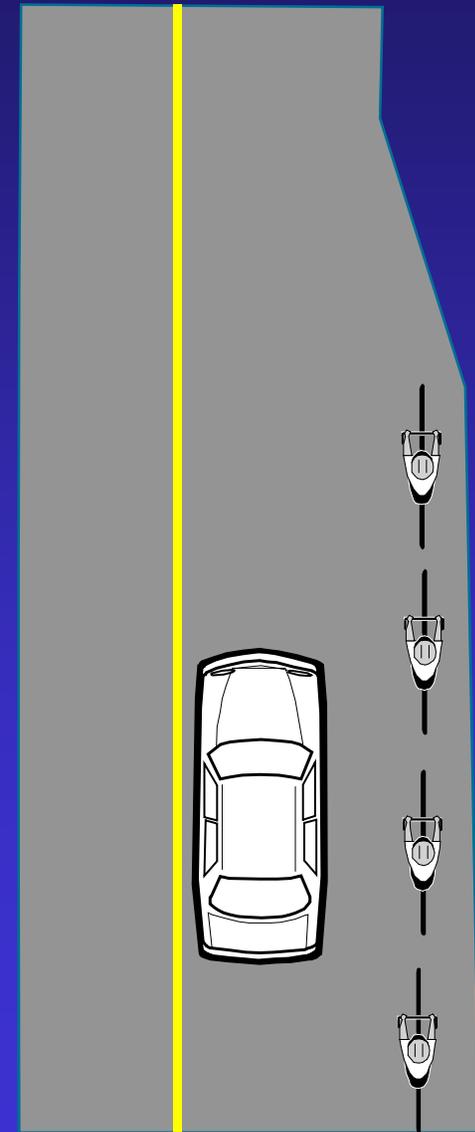


Singling Up

- Groups often go single file as courtesy where pavement is wide

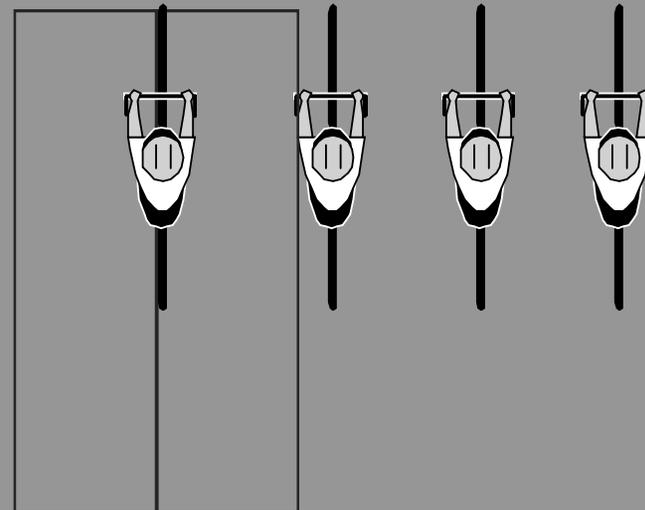
<http://iamtraffic.org/education/courteous-cyclist/>

- Changing positions takes communication, time, distance
- Narrowing of pavement width poses a danger



“No More Than N” Laws

- Who is the N+1 bicyclist?



Hazardous “Abreast” Behaviors

- Already prohibited under existing laws:
 - Moving laterally without looking/yielding: violates § 20-146(d)(1))
 - Riding on lane line: violates § 20-146(d)(1)
 - Using left lane without passing: violates § 20-146(b)
 - Riding left of center: violates § 20-146(a)



BikeWalk NC Recommendations

- “>N abreast” prohibition not recommended
- Do not create new restrictions on where bicyclists can operate
- Do not make bicyclists legally liable for the actions of others
- Support public education of best practices for group riding (double file, predictable movements, within single lane, etc.)

