

Looking into Vehicle-Bike Separation

Remarks here are directed toward the open letter to Mayor and Pulaski Town Council at <http://www.pedjo.com/Pulaski.html>

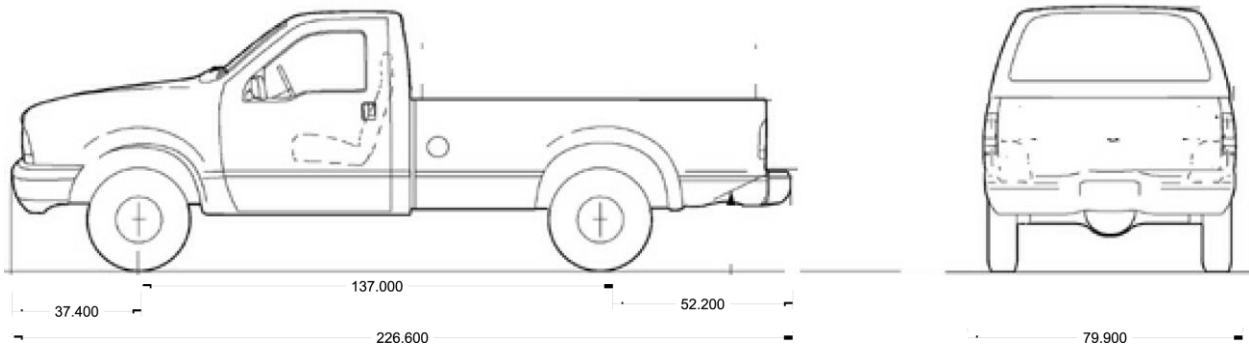
Quick summary: In the shown example, on a four lane road, any vehicle six feet wide or less in the same lane can overtake a bike in a sharrow with 36" or more of clearance and a large Ford F250/350 pickup would need to move 6.9" into the left hand lane to pass a bicycle with 36" of clearance. A compact car can pass in the same lane with a full 45 inches of clearance, 9 inches more than the one yard standard.

The following statement may have brought about confusion: "Even most large pickup trucks are no more than 6.7 ft wide, which can leave 15.6 inches between a truck and sharrow border." [emphasis added]

First, the statement is referring to a Ford F250/350 as a large pickup truck. Second, the true 6.66 ft width of this truck was rounded off to 6.7. As the following table indicates the separation with the precise measurement is 16.1" between truck and sharrow border. In the following table, the separation between truck and bicycle is 13" greater because appropriate bike riding is to the right of the sharrow border.

Bicycle handlebars vary considerably (18" to 24" on bikes that I ride). A 22" wide handlebar is used in this example.

	lane width ft	sharrow width ft	vehicle width ft	remaining vehicle space ft	distance to edge of sharrow ft	distance to edge of sharrow, inches	sharrow width in inches	Bicycle handlebar width in inches	distance to edge of sharrow	separation between bike and vehicle in inches	additional distance required if separated by 36"
Large pickup truck, F250/350	12	4	6.66	8	1.34	16.1	48	22	13	29.1	6.9
Pickup truck, Ford F100	12	4	6.33	8	1.67	20	48	22	13	33	3.0
Compact car	12	4	5.33	8	2.67	32	48	22	13	45	-9.0
OK vehicle size	12	4	6.08	8	1.92	23	48	22	13	36	0.0

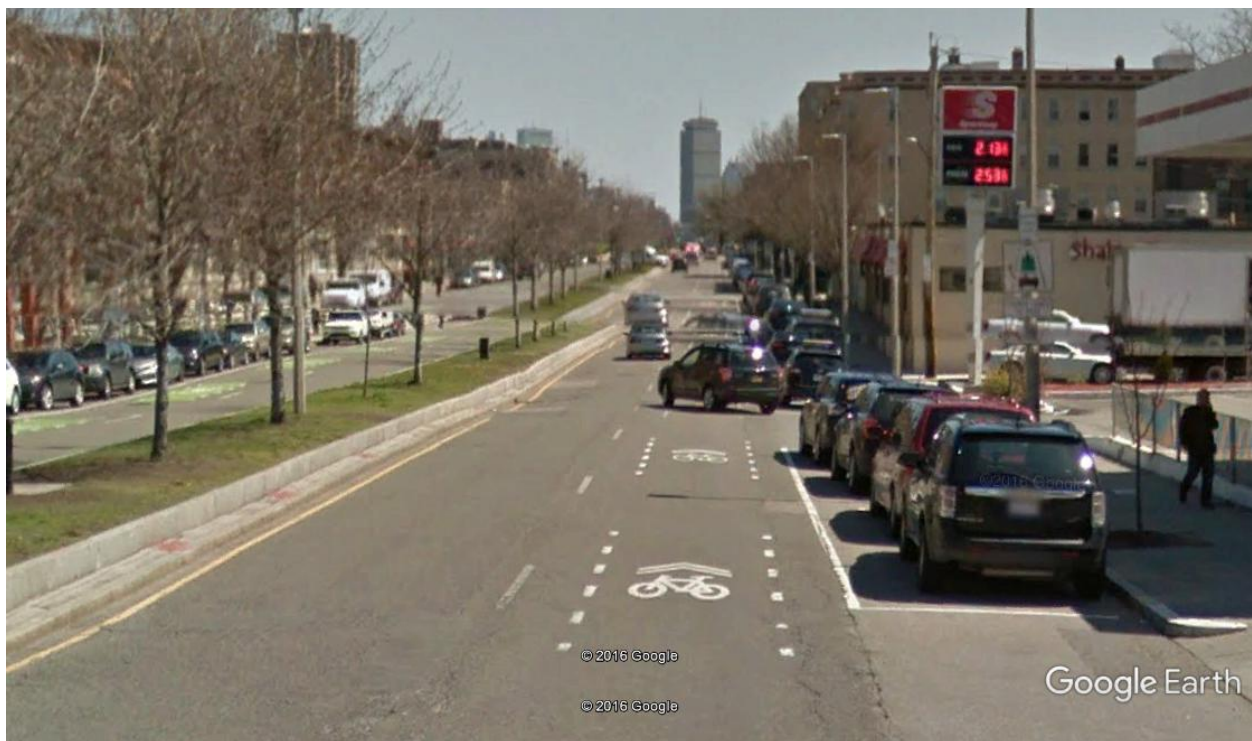


With that handlebar width, the separation between the large pickup and the bike would be 29.1". If the truck wished to maintain a 36" separation, it would need to move 6.9" into the left hand lane. My

compact car could pass in the same lane and maintain 36" clearance with 9" of space to spare. Any vehicle 6.08 ft wide could similarly pass in the same lane while maintaining 36" of clearance.

Few bicycles travel this loop now, so such decisions are relatively infrequent. Regardless, in all cases it is incumbent on the car driver to maintain adequate space between vehicle and bike. Given that Virginia Law allows drivers to cross double yellow lines to pass a bicycle if the move can be made safely, it is also seems to follow that when it is unsafe for a vehicle to overtake a bike in the same lane on a 4 lane road, moving into another lane is required.

If a "Harvard Plan" sharrow with advisory markings were applied **exactly** as it was on Brighton Avenue in the Allston section of Boston, there would be no lane sharing. The only option for the driver is to move into the left lane to pass as is implicit in this Google Earth photo.



By contrast, having the sharrow to the right side of the lane in Pulaski is intended to provide a solution that car drivers will be comfortable with and that simultaneously provides a solution that serves cyclists well. As a car driver I am more comfortable with a right hand sharrow, rather than an in-your-face sharrow that demands a full lane for bikes. When we compare other bicycling infrastructure alternatives to sharrows with advisory markings, it seems appropriate to ask: Which of them can produce best results for Pulaski on these four criteria, 1) instant implementation, 2) low cost, 3) right-hand sharrow placement with achievable community support, and 4) superior outcome?

Going to first principles: If cars now reliably practiced a 36" separation, neither sharrows nor bicycle lanes would be necessary for the cyclists protection. It is primarily because they don't maintain this separation that we have sharrows and bike lanes in the first place. If it does become apparent that a

sharrow with advisory markings requires additional space in the same lane, lanes can be apportioned differently by simply painting the separation line between the two vehicle lanes further to the left (e.g., 6.9" to the left).

We currently have mainly 12 ft lanes. Lanes between 11 and 12 ft are ample, and there are numerous ways the 24 ft for two lanes can be divided up to satisfy a variety of objectives. If the right hand lane edge marking was moved 6.9" to the left, then even a large pickup could pass in the same lane with 36" clearance. The National Association of City Transportation Officials' [report](#) points out: "Lane widths of 10 feet are appropriate in urban areas and have a positive impact on a street's safety [without impacting traffic operations](#). For designated truck or transit routes, one travel lane of 11 feet may be used in each direction. In select cases, narrower travel lanes (9–9.5 feet) can be effective as through lanes in conjunction with a turn lane."

The objective when riding a sharrow is to approximately hit the center of the chevron (as in the Blacksburg sharrow symbol here).



The advisory markings in the "Harvard Plan," are just that "advisory." They are intended to give drivers advanced warning of where bicycles are advised to travel and by that means to forewarn drivers to prepare to safely pass bicycles and in no case to enter into the section of a sharrow that a bicycle occupies (i.e., don't run over the cyclist). To do so would be a clear violation of existing state law to maintain a safe passing space between cycle and car. When we differentiate between common bicycle accidents and those that are indeed fatal, data now indicates 40% of bicycle fatalities result from being hit from behind. Advisory markings are intended to reduce this danger.



[§ 46.2-839.](#) "Any driver of any vehicle overtaking a bicycle... proceeding in the same direction shall pass at a reasonable speed at least three feet to the left of the overtaken bicycle... and shall not again proceed to the right side of the highway until safely clear of such overtaken bicycle..."

Process

It seems that establishing a procedure in advance would be helpful to avoid people stepping on someone else's toes and so folks work together rather than in opposition.

As to the sharrow loop discussed in the letter, if it is to be seriously considered by Council. It seems all of us together (interested people, Town administration, and Town Council Members) need to give it thorough study. At present it is only in rough form, unsuitable for making decisions. We need to draw on a wide variety of viewpoints, and we need to know more. There is also a need to make thorough drawings indicating what's to be done where, otherwise we risk drowning in speculative chatter. It would seem appropriate to keep working groups open, so that interested parties can not only participate, but are explicitly and publicly invited and urged to participate.

Public Hearings on the Pulaski Bike Loop can be held when all of us are well informed. NO NEED to hurry the process. Better to get it right.

Once the kinks are ironed out, then a formal proposal can be made to Town Council.