



To: Board of Selectmen, Attn. Marie Krepelka

E-mail: mkrepelka@town.arlington.ma.us

From: Chad Gibson representing East Arlington Livable Streets Coalition (EALS), Arlington Bicycle Advisory Committee (ABAC), Massachusetts Bicycle Coalition (MassBike),

E-mail: ealscoalition@gmail.org

Re: Bicycle Accommodation Recommendations for Mass Ave Project

Date: 20 May 2009

CC: Brain Sullivan-Town Manager, Mass Ave Review Committee, Joey Glushko-Planning Department, ABAC, EALS, MassBike

Recent public statements made by Selectman Annie LaCourt inquired about the ideal treatment for cyclists along the revitalized Mass Ave corridor through East Arlington. The purpose of this memo is to reinforce the need to have bicycle accommodations incorporated into the Mass Ave Corridor Project and advise to Board of the Selectmen on the advantages and disadvantages of different options. This memo is a collaborative effort of the EALS Coalition, the Arlington Bicycle Advisory Committee and MassBike, who believe that bicycle accessibility to the Town's "main street" should be an important component of this project for a variety of reasons. In our densely populated town, bicycle transportation is an environmentally friendly and healthy way to cut down on traffic congestion and preserve the limited resources of on-street parking for customers who cannot ride or walk to local businesses. The three groups signed on to this memo believe strongly that 5' bike lanes are the most appropriate bike facility for Mass Ave.

State law makes the accommodation of bicyclists and pedestrians clear. Mass General Law Chapter 90E Section 2A states: *The commissioner shall make all reasonable provisions for the accommodation of bicycle and pedestrian traffic in the planning, design, and construction, reconstruction or maintenance of any project undertaken by the department.* Some have argued that the existence of the Minuteman Trail provides this accommodation. While the town has seen enormous benefits due to the success of the Minuteman Trail, this does not exonerate the town from providing on-road bicycling accommodations as clearly stated in the Mass Highway Design Guide (MHDG) Chapter 5.3.2.4: *The presence of a shared use path near a roadway does not eliminate the need to accommodate bicyclists within a roadway.*

The MHDG Chapter 5 deals specifically with multi-modal accommodation of pedestrians, bicyclists, and motorists. Five distinct cases are laid out that show differing levels of accommodation depending on population density, pedestrian and bicycling use, width of right of way, and motorist speeds. Case 1, the most similar case to Mass Ave, should be considered the baseline for this project is shown in Figure 1.

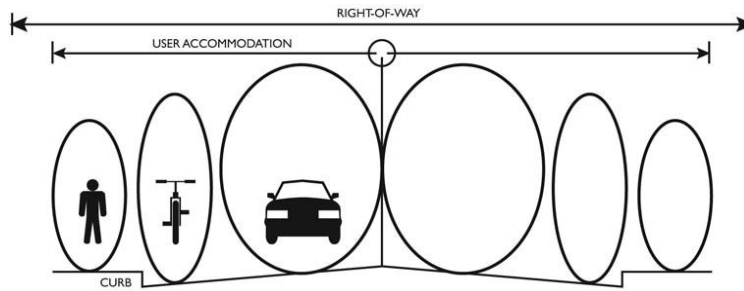


Figure 1: Case 1: Separate Accommodations for All Users

The MHDG states: *Case 1 provides the maximum separate accommodation for all modes of travel. This is often the preferred option in terms of providing safe, convenient, and comfortable travel for all users. It is usually found in areas of moderate to high density with curbed roadways. This case might be considered in a wide variety of conditions including: areas with moderate to high pedestrian and bicycle volumes; areas with moderate to high motor vehicle speeds and traffic volumes; and areas without substantial environmental or right-of-way constraints.*

Our collective recommendation to achieve this “separate accommodation” is to provide striped bike lanes from end to end along the Mass Ave corridor. Again, from Chapter 5 of the MHDG:

Bicycle lanes should be incorporated into a roadway when it is desirable to delineate available road space for preferential use by bicyclists and motorists, and to provide for more predictable movements by each. Bicycle lane markings can increase a bicyclist's confidence in motorists not straying into their path of travel. Likewise, passing motorists are less likely to swerve to the left out of their lane to avoid bicyclists on their right. Bicycle lanes are generally considered the preferred treatment for bicycle accommodation. Five foot bicycle lanes are preferred for most conditions, especially when the lane is adjacent to curbside parking, vertical curb, or guardrail.

It was shown in a 2003 study on Hampshire St in Cambridge that when, before the installation of bike lanes, motorists were asked, “What made you aware of cyclists?” 80% responded “nothing”. After the installation of bike lanes, the answers to the same question were “the bike lane” (40%) and “I see them” (40%), which was not mentioned in the pre-installation study. In the pre-installation survey, 60% of cyclists suggested a bike lane for improvement. When asked which they preferred: no line, simple lane line, lane with bike symbol, or full bike lane, 82% responded, “full bike lane”. The study also showed that the presence of the striped bike lane encouraged cyclists to ride approximately 3” further from parked cars, a small but not insignificant measurement considering the extreme danger created when drivers open their car doors without looking for cyclists as they are required to do by state law.

Additionally, other studies have shown that the presence of bike lanes reduces the number of wrong-way cyclists and sidewalk riding. Cities and towns that have pursued a strategy of developing a network of bike lanes and paths have, in nearly all instances, seen an increase in bike ridership AND a decrease in the crash rate. In Portland Oregon, for instance, the number of bike commuters has tripled in 15 years while the number of accidents has remained steady, a 67% reduction in the accident rate.

While we strongly recommend bike lanes along Mass Ave, we also included a brief analysis of other potential accommodations and their pros and cons. These include: separated bike lanes

(often known as cycle tracks), wide outside lanes with shared lane markings (often known as Sharrows) and a fog line/shoulder stripe.

Separated Bike Lanes (Cycle Tracks):

Cycle tracks are defined as having bike lanes placed between the sidewalk and on-street parking. A picture of a cycle track can be seen in Figure 2 below.



Figure 2: Typical Cycle Track

The benefits of cycle tracks are that, except at intersections and driveways, they completely separate the bicyclist from motor vehicle traffic. Cycle tracks also encourage new cyclists that might be unwilling to use bike lanes set next to moving traffic. Another often cited benefit of cycle tracks is that it negates the chance of “dooring”, a driver opening a parked car door into a bike lane. Cycle tracks have been used in very few cities in the US and in general are not the first choice for on-road bicycling accommodation. Disadvantages of cycle tracks along Mass Ave include:

- likely increased size of right of way
- an unfamiliar application for cyclist
- difficulty of snow removal with double curb
- ADA compliance issues
- Poor cyclist-motorist visibility, and unexpected conflicts at side streets and driveways

Given this last issue and the large number of driveways and cross streets on Mass Ave, many experienced cyclists would view cycle tracks as an unsafe and inappropriate bicycle accommodation. Furthermore, the MHDG states: *Bicycle lanes within roadways should not be placed between a parking lane and the curb. This situation creates poor visibility at intersections and driveways and it is difficult to prevent drivers from parking in the bicycle lane.* **In summary we believe this is not the correct bike accommodation for Mass Ave.**

Wide Outside Lane with Shared Lane Markings (Sharrows):

Sharrows are typically used when right of way dimensions are not wide enough to allow full bike lanes. Sharrows give a visible sign that the lane is used by both cyclists and motorist alike. Lanes with sharrows per MHDG Chp 5.3.2.3 should be constructed at a minimum of 14 ft wide to facilitate cars passing bicyclists without changing lanes. This does not provide the same dedicated space for cyclists and will encourage many to ride closer to parked cars, in the door zone. The design guide also states: *Before deciding to provide shared lanes as bicycle accommodation, the designer should be certain that the traffic volumes and motor vehicle speeds will be low enough so that all types of bicyclists can comfortably use the roadway.* A picture of a wide outside lane with Sharrows is shown in Figure 3 below.



Figure 3: Application of Sharrows

Although a wide outside lane with sharrows is better than nothing, we do not feel that this is the best solution for the Mass Ave project due to the exceptionally wide roadway width that can accommodate bike lanes and the discrepancy of traffic speeds between motorists and cyclists (30 mph vs 15 mph).

Fog Line/Shoulder Striping:

Like wide outside lanes and sharrows, striping fog lines to create shoulders for use by cyclists and parked cars is typically used in roadways where the curb-to-curb width precludes standard-width bike lanes. This is the case on Mass Ave in N. Cambridge, where the raised median in the center of the street makes it impossible to accommodate two traffic lanes, parking and a bike lane. For a constrained situation like this, the fog line provides a small amount of space for cyclists and helps to channel vehicles into a narrower travel lane, reducing speeds to some degree. A typical fog line/shoulder stripe is shown in Figure 4 below.



Figure 4: Fog Line Marking

We do not recommend fog lines on a street with parallel parking when safer options are possible because they frequently direct the cyclist squarely into the door zone. Often these lines are no more than 2 feet from the side of parked cars, squeezing cyclists between travel lanes and parked cars. Fog lines and shoulder stripes are an effective treatment where there is little on-street parking and there is not sufficient width for bike lanes.

We hope for your continued support of equal accommodation and safety for all transportation users in Arlington and we stand ready to advise the town on any other bicycle related questions you may have.

Signed,

Chad Gibson
35 Varnum St.

Co-Signed,

East Arlington Livable Streets Coalition (EALS)
Arlington Bicycle Advisory Committee (ABAC)
Massachusetts Bicycle Coalition (MassBike)

