

Massachusetts Avenue Corridor

East Arlington

Meeting handout for 12/4/2002

Objectives:

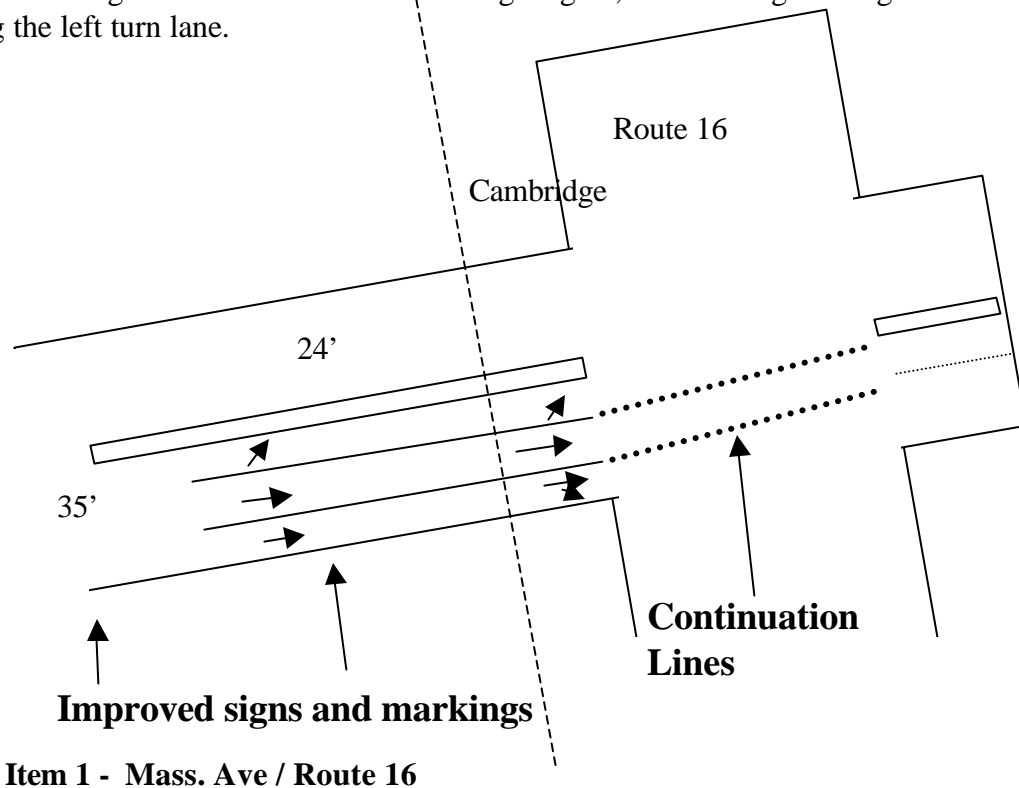
1. Improve safety for all users: motorists, pedestrians and cyclists
2. Reduce through traffic on neighborhood streets
3. Maintain mobility for all users along Mass Ave at an acceptable level-of-service, while not attracting new auto traffic.
4. Improve the environment for transit users by coordinating bus stops with crosswalks
5. Encourage a more orderly traffic flow
6. Enhance the streetscape of the area
7. Increase business patronage
8. Develop both a short term solution and long term plan

Possible Actions:

Below are some possible actions that have been suggested at some point in the process. Some can be done in the short term, and others are more appropriate for long-term implementation.

1. Improvements to Mass. Ave. / Route 16 intersection

- Continuation lines through the intersection to clearly delineate the eastbound left turn and thru lanes
- Enhanced markings on the Arlington (eastbound) approach
- Enhanced signage, including possibly an overhead sign
- Left turn signal that occurs after the through signal, to discourage through traffic from using the left turn lane.

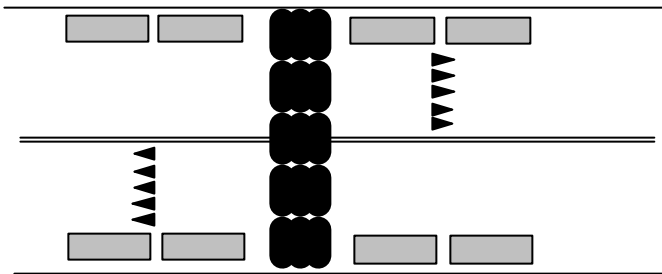


2. Maintain pedestrian warning signs at all unsignalized crosswalks

- Makes crosswalks more visible
- Requires maintenance, and may need to be removed in snowy conditions.

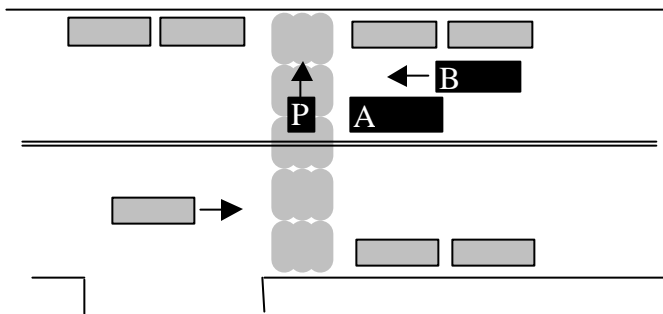
3. Advance yield lines at crosswalks

- Makes crosswalks more visible
- By encouraging motorists to stop well before the crosswalk, may reduce the likelihood of multiple-threat crashes (see diagram below)
- But, this is still a fairly experimental application. Although yield lines are in the current version of the Manual on Uniform Traffic Control Devices (MUTCD), their application to uncontrolled crosswalks is explicitly mentioned only in the proposed revision to MUTCD.



Item 2 - Advance Yield Lines

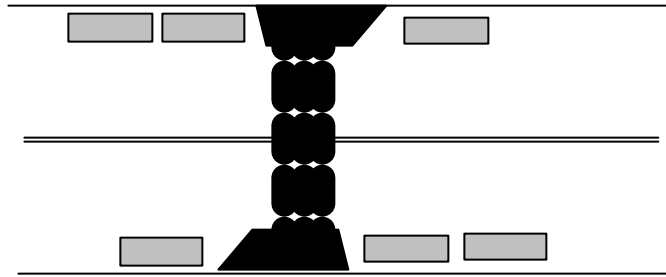
EXAMPLE OF A MULTIPLE THREAT CRASH



Motorist A has stopped for pedestrian P. Neither P nor motorist B can see each other because A is in the way (especially likely if A is a truck). Motorist B incorrectly assumes that A has stopped to make a left turn. Since he does not see any pedestrian in the crosswalk, he proceeds and hits P. If A had stopped further back from the crosswalk, it is much more likely that P and B would have seen each other in time to avoid a collision.

4. Enhance crosswalks via curb extensions (longer term)

- Shortens pedestrian crossing distances and improves pedestrian/motorist visibility
- Allows more space on the side of the road for landscaping, bicycle parking, etc.
- Slight reduction in on-street parking
- Will require detailed design and funding
- May complicate snow removal

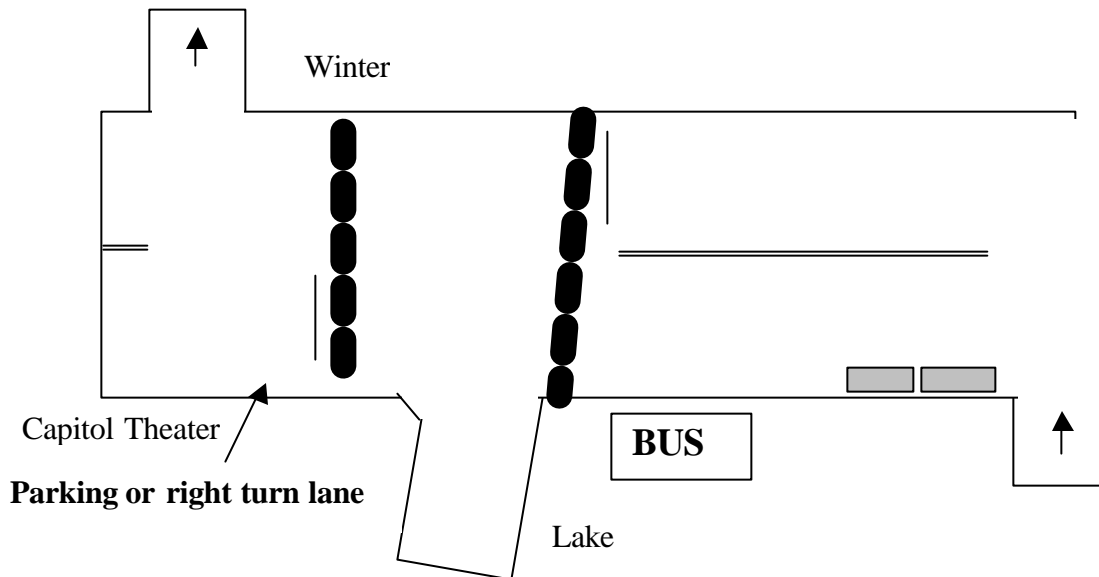


Item 4 - Curb Extensions

5. Move Lake Street inbound bus stop to far side of intersection.

The stop for buses going to Cambridge is currently located on the near side (before) the Lake/Mass. intersection, across from Winter Street. The proposal is to move it to the far side, as is shown in the diagram below.

- Reduce conflicts between buses and right turning vehicles
- Discussion with MBTA indicates they are aware of the conflicts with right turning vehicles and wouldn't mind seeing the stop moved. Desired bus stop length is 80', with a bare minimum of 70'. This is equivalent to about 4 parking spaces.
- If the space by the Capitol Theater is used for parking, it will reduce the capacity for right turns from Mass to Lake (when no bus is present, this becomes an unofficial right turn lane)
- If the space by the Capitol Theater is used as a right turn lane, this will result in a net loss of approximately 4 parking spaces.



Item 5 - Inbound (eastbound) Bus Stop at Lake Street

6. New crosswalk near the bus stop at Trowbridge / Milton Street

This is near Milton and Trowbridge streets, approximately midway between the existing crosswalks at Marathon and Varnum. Businesses in the area include Leader Bank, Herb's Locksmith, Blue Moon and Arlington Restaurant & Diner.

- Is 240' from the nearest existing crosswalk (not too close)
- Will better serve the existing bus stops at Milton and Windsor
- Pedestrian crossing volumes at this location (over 20 / hour) may be high enough to warrant an additional crosswalk.
- May cost one or more parking spaces

Appendix A shows the location of the proposed crosswalk in relation to existing crosswalks

CONSIDERATIONS IN PLACING NEW MARKED CROSSWALKS:

- Is it a school crossing that is sometimes controlled by a traffic supervisor?
- Are traffic volumes high enough to require a crosswalk in order to ensure pedestrian mobility? (On lightly traveled streets, marked crosswalks are generally not needed because pedestrians only have a short wait for a gap in traffic)
- Are pedestrian volumes high enough so that the crosswalk will be used? (for example, a criterion might be 20 pedestrians / peak hour)
- Is the proposed crosswalk close to an existing signalized intersection? New unsignalized crosswalks should not be placed extremely close to an existing signal, because it is safer for pedestrians to cross at the signal with the light.
- Is the proposed crosswalk extremely close to an existing crosswalk? (For example, Portland Oregon uses 150' as a cutoff)
- Note that on a heavily traveled multi-lane street, simply adding an uncontrolled crosswalk cannot be expected to improve pedestrian safety. Additional measures (such as refuge islands, signals) are often needed.

7. Crosswalk improvements in the Bates Road / Harlow Street / Foster Street area

- Add a crosswalk near Harlow Street, to serve the bus stop at that location. This will remove an extremely large (1000 feet) gap between existing crosswalks.
- Remove the crosswalk at Tufts Street (located less than 200 feet from the signal at Foster/ Linwood)
- Add a pedestrian push button and walk signal on the east side of the Foster / Linwood intersection (a crosswalk already exists)

Appendix A shows the location of the proposed crosswalk in relation to existing crosswalks.

8. **One through lane in each direction between (longer term)**
- **Marathon Street and the approach to Route 16, and**
 - **Franklin Street and Orvis Road**

This is a street configuration similar to Alternative 1 presented by Louis Berger. It includes on-street parking, a single travel lane in each direction, and refuge islands or left turn lanes in the middle. It may or may not include a bike lane.

- Based on other cities experience with similar conversions, will most likely improve motorist safety
- With slower speeds and space for refuge islands, it will improve pedestrian safety
- With either a wide (15') travel lane or a bike lane, will make the street more attractive for cycling.
- Will require detailed design

Analysis of 9/2000 traffic counts indicates that traffic will flow at an acceptable level-of service under a one through lane design, with the following possible exceptions:

- At least one through and one left turn lane will be required at Lake Street westbound
- Two through lanes will be needed at Lake Street eastbound
- During the morning peak hour, two through lanes may be needed eastbound between Linwood and Lake Streets

The table below shows how the above concerns might be addressed.

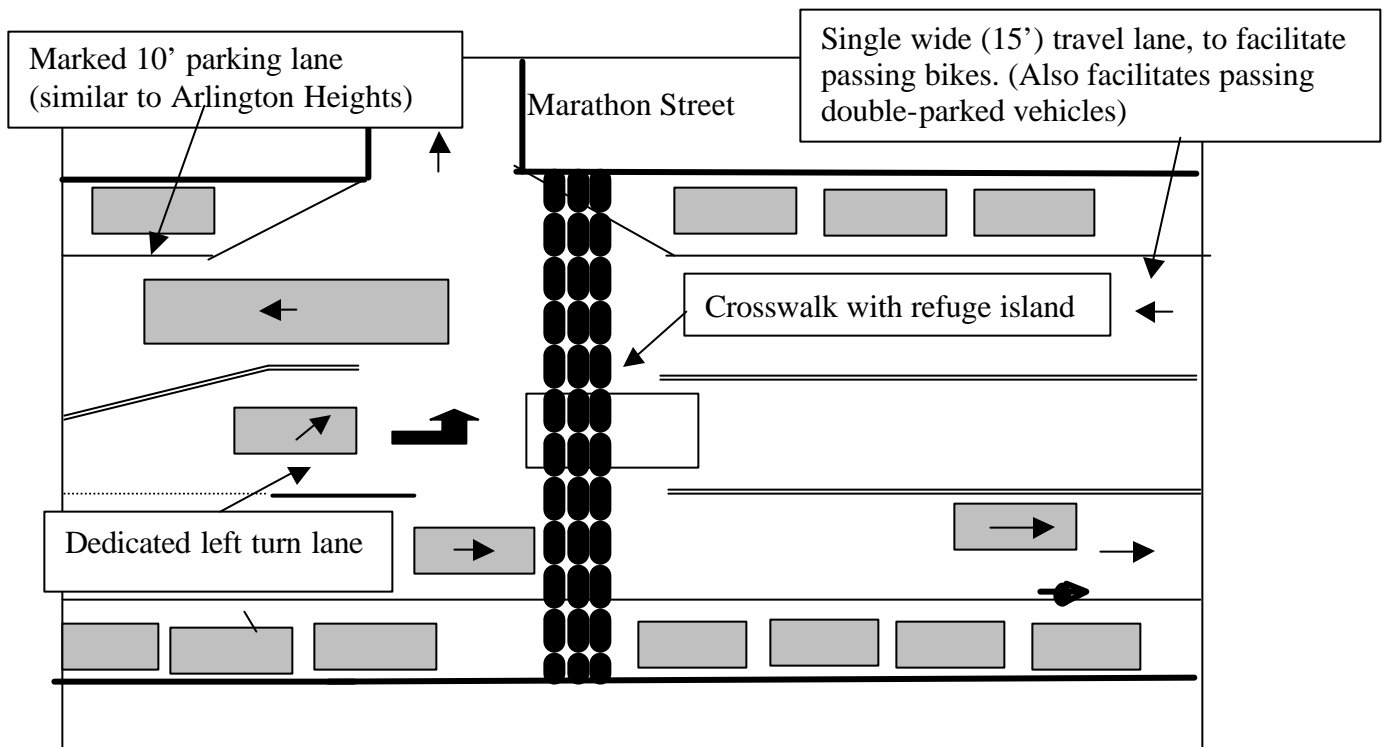
Segment	Street Width	Eastbound (towards Cambridge)	Westbound (towards Arlington Ctr)
Franklin Street (near Arlington Center) to Foster / Linwood traffic signal	66'	One travel lane plus dedicated left turn lanes	One travel lane plus dedicated left turn lanes, transitioning to two through lanes at the Franklin Street signal
Foster / Linwood to Orvis Road	66'	One travel lane plus dedicated left turn lanes. If necessary, add second travel lane during the AM peak hour by restricting parking.	One travel lane plus dedicated left turn lanes
Orvis Road to Lake Street	~ 80'	Two travel lanes, with wide right lane	One travel lane plus dedicated left turn lane
Lake Street to Marathon Street	80' – 66'	Transition to one travel lane plus dedicated left turn lane at Marathon Street	One through lane plus left turn lane (primarily for Lake Street)
Marathon Street to near Boulevard Road	66'	One travel lane plus dedicated left turn lanes	One travel lane plus dedicated left turn lanes
Boulevard Road to Route 16	~66'	Left turn lane plus two through lanes	One travel lane plus dedicated left turn lanes

NOTE: All following recommendations assume a one-lane configuration as described in 8.

9. Enhance crosswalks via refuge islands

- Enhances pedestrian mobility, by enabling pedestrians to deal with only one direction of traffic at a time
- Shortens pedestrian exposure
- Improves pedestrian safety
- Given the 66' width of the street, requires either the elimination of some on-street parking, or one travel lane in each direction.
- Needs to be carefully designed to permit emergency vehicle access
- May complicate snow removal
- Will require detailed design and funding

The sketch below shows how a refuge island might work in conjunction with the one through lane design (Marathon Street crosswalk).



10. Bike lanes. (This is a dedicated lane for cyclist use.)

- Indicates to all users that cyclists are expected on the road
- If well designed, indicates where cyclists can most safely ride
- Unless extremely narrow motor vehicle travel lanes are used, or unless parking is eliminated, is infeasible with 4 motor vehicle travel lanes (except near Lake Street, where Mass. Ave. is wider than 66 feet)
- May lead to conflicts on right turns and with double parked vehicles
- May not be favored by the experienced cyclists who tend to use Mass. Ave.

Some preliminary results from the Arlington Bicycle Advisory Committee Town Day 2002 survey may be relevant here. There were 127 responses:

Comfort level with bike riding on Arlington public ways

Raw numbers (not percentages)	Comfortable	Somewhat Comfortable	Not Comfortable
Minuteman Bikeway	108	14	0
Mass. Ave.	23	53	46
Side streets	53	63	4

Ways to encourage more bike riding

Suggestion	Number of respondents
More bike paths	80
Bike lanes	79
Bike racks/parking	58
Route signs	46
Bike education	30

11. Bicycle route markings in conjunction with a wide curb lane.

- Indicates to all users that cyclists are expected on the road
- If well designed, indicates where cyclists can most safely ride

Proposal	Worth pursuing? (circle one)	Comments
1. Marking and signage improvements at Mass Ave/ Route 16	Yes No Maybe	
2. Maintain pedestrian warning signs at all unsignalized crosswalks	Yes No Maybe	
3. Advance yield lines at crosswalks	Yes No Maybe	
4. Curb extensions at crosswalks	Yes No Maybe	
5. Move Lake Street inbound bus stop to far side of intersection	Yes No Maybe	
6. New crosswalk near Trowbridge/Milton	Yes No Maybe	
7. Crosswalk changes between Harlow and Foster	Yes No Maybe	
8. Proceed to detailed design of one through lane in each direction, with dedicated left turn lanes	Yes No Maybe	
9. Pedestrian refuge islands (note 1)	Yes No Maybe	
10. Bike lanes (note 1)	Yes No Maybe	
11. Bicycle route markings in conjunction with a wide curb lane	Yes No Maybe	

Note 1) May not be feasible without implementing one-through lane in each direction (item 8)

Optional: Your Name: _____

Postal Address: _____

E-mail Address / phone: _____

Other ideas? Please write them below. Thank you!

Appendix A Massachusetts Avenue Corridor, East Arlington

Existing and Proposed Crosswalk Locations

