

Massachusetts Avenue Corridor Study

Purpose of this Meeting

To inform you about transportation activities in general since last year's town meeting, and to focus specifically on Massachusetts Avenue in East Arlington, to obtain your feedback, and consider next steps.

Transportation Activities Timeline

Spring 2000: \$50,000 voted by Town Meeting for Transportation Assessment Study

Spring 2001: Article "to see if the Town will vote to authorize Town officials to install appropriate lane markings and a parking lane on Massachusetts and Park Avenues, or take any action related thereto," passed by Town Meeting.

May 2001: Transportation Advisory Committee (TAC) formed by the Town. Transportation Assessment Study begins.

Summer/Fall 2001: Three public meetings for the Assessment Study. DPW uses Chapter 90 funds to begin the Corridor study (Mass. Ave. in East Arlington).

Fall 2001: Traffic counts collected for the Corridor study. TAC develops checklist of criteria for transportation decisions.

Winter 2001-2002: Annual Vision 2020 survey distributed with Town Census. It includes several transportation questions.

January 2002: Draft reports delivered for both the Assessment and Corridor studies.

Community Values

Public comments from the transportation assessment study

The top areas of concern were pedestrian safety and cut-through traffic:

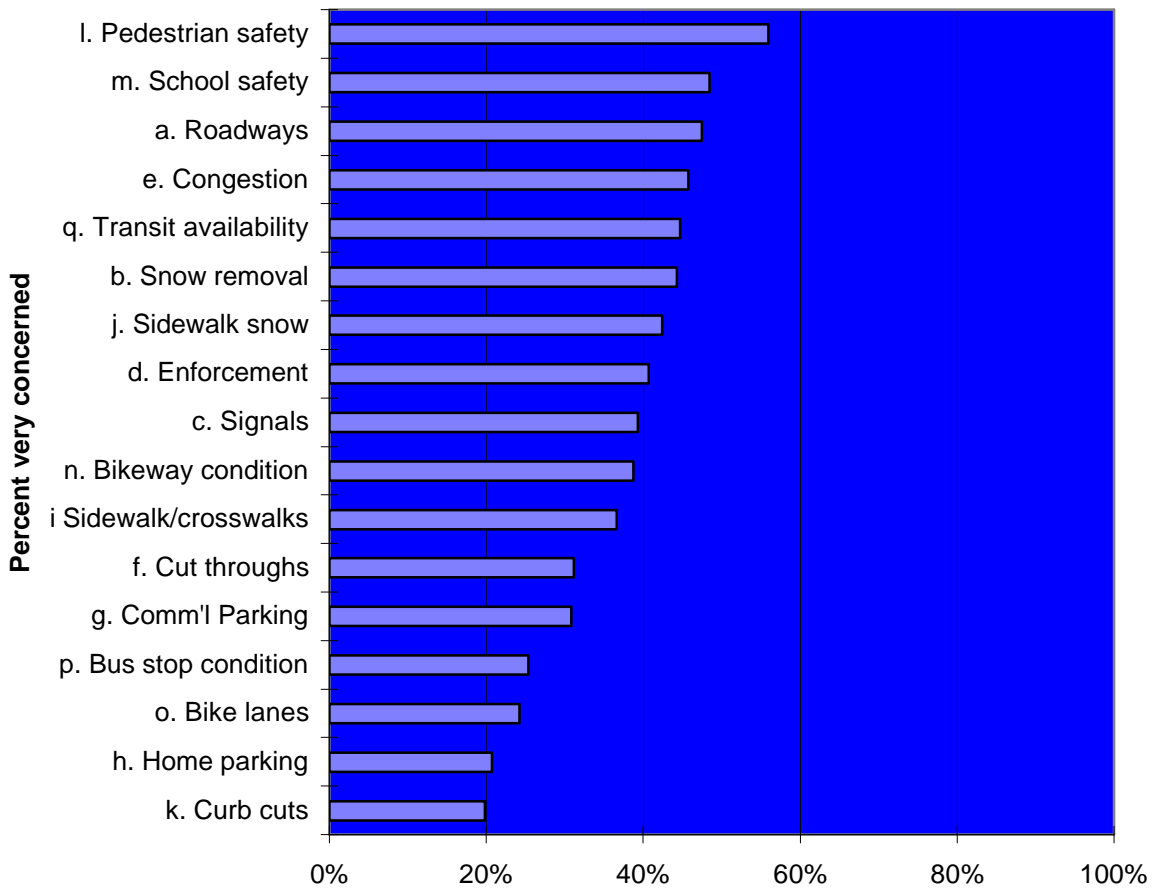
- Many comments were received on pedestrian safety. Residents believe the pedestrian infrastructure in the town needs to be improved. Several comments were received on the light at Mass. Ave and Lake Street.
- Traffic concerns include Pleasant Street, Lake Street and the Route 16/Mass. Ave intersection, among others.

- Although most comments on cut-through traffic concerned the Jason/Highland area, East Arlington streets mentioned included Rawson, Herbert, Mary, Orvis and Brooks.
- Bicycle-related comments included plowing and lighting the bike path, the bike path crossing of Lake Street, and making Mass. Ave. more bike friendly.

Vision 2020 survey

This is an annual survey that is mailed out with the Town census.

Transportation Responses from the Vision 2020 Survey January 2002, first 700 responses



Existing Conditions on Massachusetts Avenue in East Arlington

Louis Berger Group, under the direction of Arlington Department of Public Works, has recently completed a study of various lane configurations for Massachusetts Avenue in East Arlington. They developed the alternatives presented here.

The study area is between Franklin Street (by the fire station) and the Cambridge border (just north of Route 16). In most of East Arlington, Mass. Ave is 66 feet wide. It broadens to approximately 80 feet between Lake Street and Oxford Street. Details on traffic volumes are given in Appendix A.

Traffic Congestion

Level-of-service (LOS) is a concept used by traffic engineers to express the amount of congestion for an approach to an intersection. Letter “grades” are assigned, from A to F, where “A” means very little delay, and “F” means substantial delay. LOS levels A through D are considered acceptable, while E and F are considered unacceptable.

Examples of a good LOS (A or B) include the Mass. Ave / Foster and Mass Ave / Teel / Thorndike intersections. Examples of an acceptable LOS (C or D) include traffic on Mass. Ave going straight through in Arlington Center. Examples of an unacceptable LOS (E or F) include the Lake Street approach to Mass. Ave (during the evening rush hour), the left turn from Mass. Ave. to Lake Street, and Route 60 in Arlington Center (during either the morning or evening rush hour).

One goal for the corridor study is to maintain a LOS of at least D along Mass. Ave.

Safety

Pedestrian safety is a significant concern along this corridor. According to 11 years of Police Department statistics, the corridor sees roughly 4 crashes per year involving pedestrians. Some of these involved pedestrians crossing Mass. Ave; some may have involved pedestrians walking along Mass Ave and crossing a side street. “Hot spots”, with multiple crashes, include the following:

- The two blocks between Marathon Street and Winter Street
- At or near the Orvis / Grafton crosswalk
- At or near the light at Foster / Linwood
- At or near the Wyman Street crosswalk

The corridor also sees roughly 40-50 vehicle crashes each year that are reported to the Police. Particular hot spots include the following locations:

- Lake Street / Mass. (5 - 6 per year, from APD and corridor study)
- Orvis Road / Mass. (4 per year, from APD data)
- Cleveland Street / Mass. (3 – 4 per year, from APD data)

In addition to the 40-50 crashes / year in Arlington, the Route 16 / Mass. Ave. intersection sees approximately 26 crashes per year.

Possible Alternatives

It is important to distinguish between short-term and long-term alternatives. Short-term alternatives are those that can be implemented for the cost of paint; they don't involve curb extensions, medians, or changing the width of the road. Long-term alternatives involve construction and substantial expense.

Alternatives considered included the following:

Alternative	Configuration	Comment
0	33' parking/travel lane(s) in each direction	Current configuration
1	8' parking, 5' bike, 12' travel lane in each direction. 16' two way left turn lane (TWLTL) down the middle. (A variant is to omit the bike lane and have wider parking and travel lanes.)	Some authors call this a "Road Diet"
2	9' parking, 5' bike lane in each direction. 14' westbound travel lane, Two 12' eastbound travel lanes. No TWLTL.	Designed to better handle the high AM peak hour flow eastbound towards Lake Street
3	Like Alternative 1, but with raised median	A long term alternative
4	12' bike/parking lane plus 2 11' travel lanes in each direction.	Requires widening the street to 68'. A long-term alternative.
5	9' parking lane plus two 12' travel lanes in each direction	Makes the de facto 4 lanes official

The only short term alternatives are 0 (no change), 1 , 2 and 5. Option 2 is asymmetric, and may be confusing. Alternatives 3 and 4 require construction, and are thus long-term alternatives. Therefore, further analysis in this briefing will be concerned with alternatives 1 and 5.

Alternative 1 and Alternative 5 compared

	Alternative 1 (1 travel lane in each direction plus left turn lanes)	Alternative 5 (2 travel lanes in each direction)
Pedestrian Safety	Makes it easier for pedestrians to cross. Provides space for the later installation of pedestrian refuge islands, which have been shown to substantially improve pedestrian safety	Will not make it easier or safer for pedestrians to cross (unless additional traffic lights or a median are installed)
Vehicle Safety	Improved. Several other cities have seen substantial crash reductions with the conversion of roads from an Alternative 5 (4 lane) to Alternative 1 (2 lanes plus TWLTL) configuration.	Cannot expect any improvement.
Speeding	Can be expected to reduce speeding	No reduction in speeding can be expected.
Bicycle	Motorists can easily and safely pass cyclists	When parked cars are present, motorist/cyclist passing conflicts will occur.
Traffic congestion	With two exceptions, traffic will still flow at an acceptable level of service. The exceptions are the Lake Street intersection and the eastbound approach to this intersection. Mass. Ave westbound at Lake Street will require at least one through lane plus one left turn lane. Mass. Ave. eastbound at Lake Street will require two through lanes in order to handle AM peak traffic at an acceptable LOS.	No change
Parking	No substantial change	No substantial change

Next steps

- Agree on objectives for improvements to this corridor, by articulating what we value
- Agree on a basic design (number of lanes)
- Do the detailed design (requires funding)
- Implement on a trial basis (with paint)
- Evaluate the results
- Assuming the trial was a success, do a permanent implementation

Success will require both community involvement (perhaps through a small working group of residents to work out the details, with periodic reports to the entire community) and professional design services.

What you can do

- Give us your views on what is important in the Mass. Ave. corridor
- Help us identify candidates for a working group of citizens.
- Support warrant article 66 (Appropriation/Transportation Study), which will provide funds to proceed.

References

Burden, D., and P. Lagerway. *Road Diets: Fixing the Big Roads* (1999)
Download from <http://www.walkable.org/download/download.htm>

Center for Transportation Research and Education, Iowa State University: *Traffic and Safety Informational Series, no. 21*, <http://www.ctre.iastate.edu/pubs/tsinfo>

Huang, Herman, Charles Zegeer and J. Richard Stewart. *Evaluation of Lane Reduction "Road Diet" Measures on Crashes and Injuries*, Presentation at Transportation Research Board 2001 Annual Meeting.

Knapp, Keith. Thomas Welch and John Witmer, *Converting Four-Lane Undivided Roadways to a Three-Lane Cross Section: Factors to Consider*. Center for Transportation Research and Education, Iowa State University, 1999
Download from http://www.ctre.iastate.edu/pubs/conferences/3lane_paper.pdf

Welch, Thomas M. *The Conversion of Four-Lane Undivided Urban Roadways to Three-Lane Facilities*, In Transportation Research Circular E-C019, Urban Street Symposium: Conference Proceedings, December 2000
<http://www4.nas.edu/trb/onlinepubs.nsf/web/circular?OpenDocument>

Zegeer, Charles, J. Richard Stewart, Herman Huang. *Safety Effects of Marked vs Unmarked Crosswalks at Uncontrolled Locations: Executive Summary and Recommended Guidelines* (2000) <http://www.walkinginfo.org/rd/devices.htm>

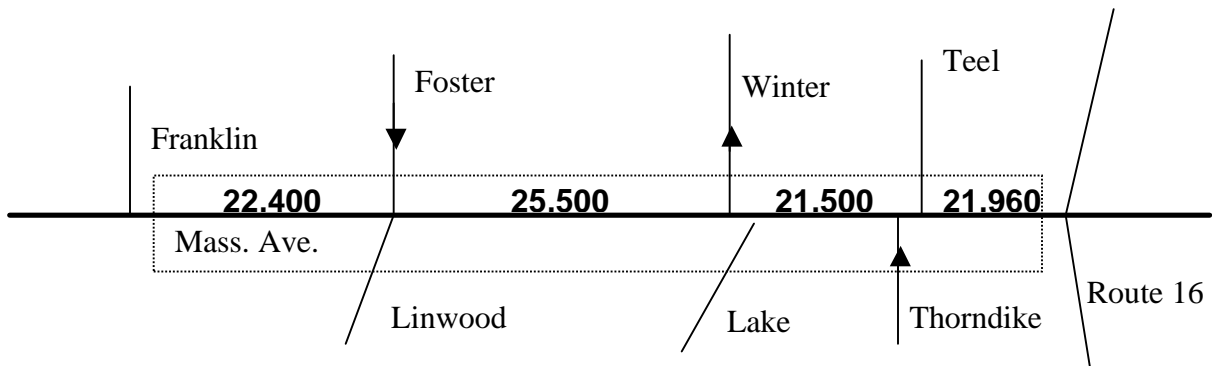
Zegeer, Charles et al, *Pedestrian Facilities Users Guide: Providing Safety and Mobility* Publication FHWA-RD-01-102 (2002)
Download from http://www.walkinginfo.org/insight/features_articles/userguide.htm

Appendix A, Traffic Volumes

These traffic volumes are from measurements made in September, 2001.

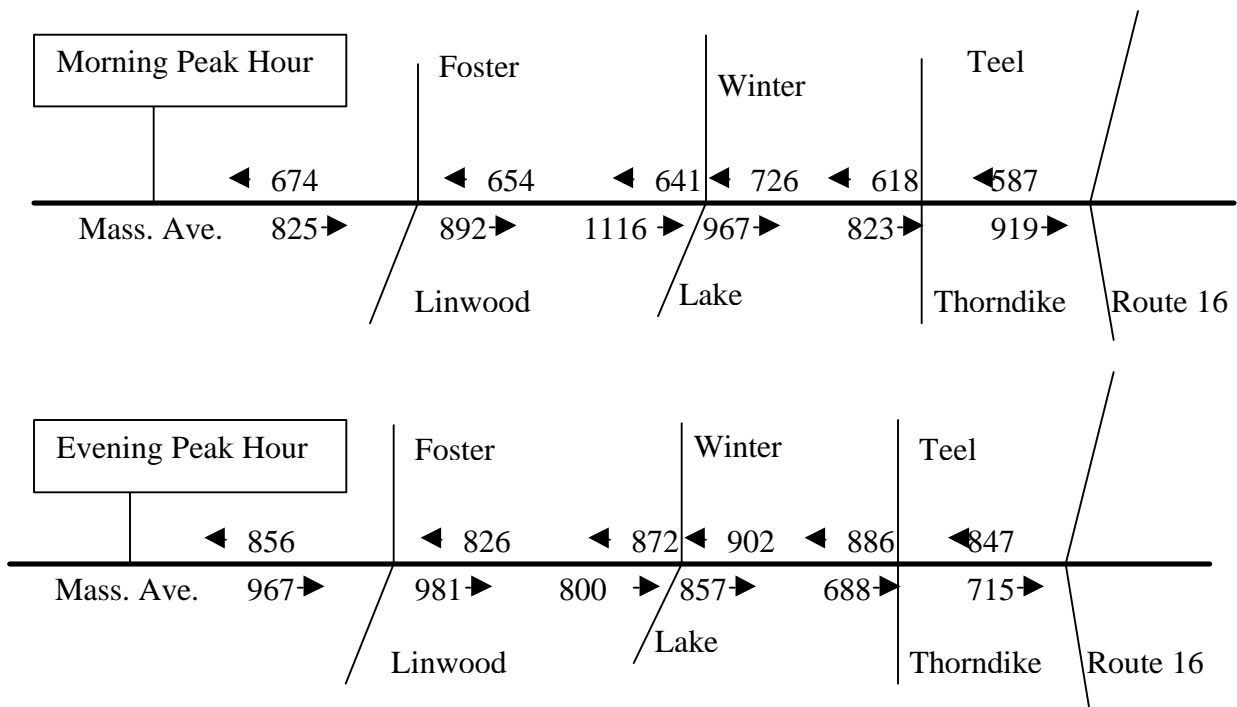
Average Daily Traffic

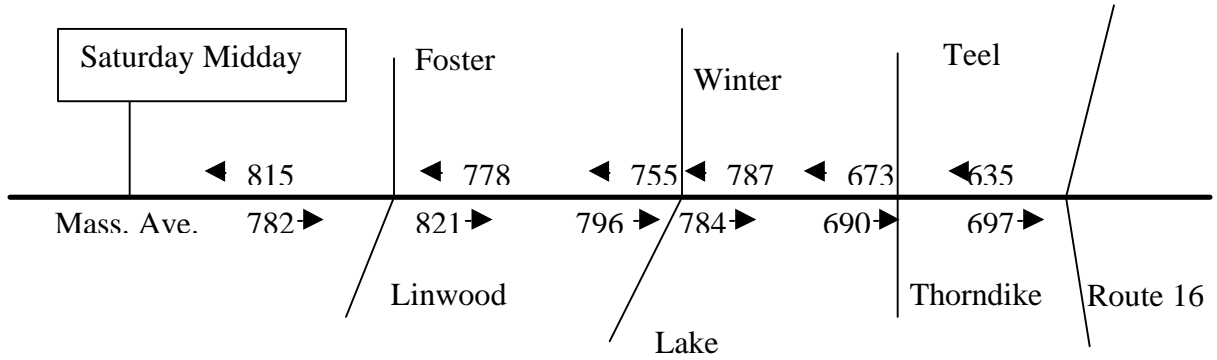
Average Daily Traffic (number of vehicles passing per day in both directions) is shown below.



Peak Hour Traffic

The peak hour volumes are important for estimating the impact of various lane configurations. All figures are vehicles per hour in one direction.





Turning volumes at Lake Street/Mass. Ave.	Vehicles per hour		
	AM Peak	PM Peak	Saturday
From Mass Ave eastbound, right onto Lake	377	119	133
From Mass Ave eastbound, go straight	707	647	621
From Mass Ave eastbound, left onto Winter	32	34	42
From Lake, right onto Mass Ave	280	210	163
From Lake, left then right onto Winter	95	133	67
From Lake, left onto Mass Ave	183	228	165
From Mass Ave westbound, right onto Winter	24	34	55
From Mass Ave westbound, go straight	458	644	590
From Mass Ave westbound, left onto Lake	244	224	142

Appendix B, Transportation Advisory Committee Draft Criteria for Transportation Decisions

Safety: Most important. Includes all forms of crashes. In general, vehicle/pedestrian accidents are more deadly and therefore have the highest priority. Sensitivity is needed to the special needs of children, seniors, and the handicapped.

Further, any proposed changes should not hinder the effective movement of emergency service organizations such as police, fire, and emergency medical.

Mobility: We must enable both people and goods to move around and through the town safely, and with reasonable efficiency. Mobility includes all forms of transportation: vehicles, pedestrians, public transportation, and bicycles.

Equity: All must be treated equally given equal conditions. If we recommend a change that moves traffic from one area to other areas, does the overall net benefit to Arlington justify doing this? If so, are there things that should be done to help the impacted areas?

Further, if we recommend something (such as new stop signs) for one neighborhood, are we prepared to do the same thing for all neighborhoods facing a similar situation? This leads to a related criteria, PRECEDENCE. Is an action consistent with previous actions?

Probability of Success: Changes should have a high probability of success. All solutions will be compromises, but there should be as much information as practical on the net results of a significant change using baseline data.

If the success is in question, recommend an incremental approach that allows an experimental determination of traffic behavior.

Environment : The overall goal is to improve the quality of life in Arlington. Vehicles and parking lots have a large impact, but they are also an important part of American life. Things that improve the effectiveness of lower impact forms of transportation should be encouraged, other issues being equal.

Democracy: Local opinions about a change, including all impacted areas, are to be obtained in an objective way. If this opinion is against the change, the overall impact of the change to Arlington must be very positive to proceed.

Priority: Given the number of transportation issues that Arlington is facing, we will need to be sure that the town is working on the high priority issues. From the criteria above, is this a critical issue for Arlington? Every recommended action has both a direct cost and an opportunity cost; if we ask that substantial Town resources be applied for one transportation problem, it means another Town problem will, necessarily, receive lower priority.