



Transportation Advisory Committee, Arlington Planning Department,
730 Mass Ave, Arlington MA, c/o Laura Wiener

To: Board of Selectmen, Arlington, MA

From: Transportation Advisory Committee (TAC)

Subject: Performance of No Left Turns to Mass Ave at Water Street and Spengler Way

Reference: TAC Report to Board: 24 January 2011

Date: 15 October 2012

In the summer of 2011, a trial of left turn restrictions was initiated at the Mass Ave, Water Street and Spengler Way intersection to improve pedestrian safety. The trial made left turns illegal from Water Street and Spengler Way onto Mass Ave.

The attached report evaluates the impact of this trial. Driver compliance was monitored during several periods in the spring of 2012: weekdays at commuter hours, afternoons, early evening and Saturday at noon. About 1,000 vehicle turns were observed. The data show that 96% of the motorists entering Mass Ave from Water Street observed the no left turn restriction, and that 94% observed the no left turn restriction at Spengler Way.

Since October of 2011, crashes at this intersection have been minor and without injury, and no pedestrians have been struck. But it is too early to draw final conclusions: crash results should be reviewed after there is at least two years or more of data.

Traffic flow on surrounding streets was measured prior to the trial and then after the turn restrictions were put in place. The restrictions do not appear to have caused a significant impact on the local neighborhood roads.

As a result of this analysis, the TAC recommends the following:

1. Maintain the No Left Turn restriction from Water Street to Mass Avenue and from Spengler Way to Mass Avenue.
2. Evaluate the crash data in two years. If there are continuing major pedestrian safety issues, consider more extensive means of control as outlined in the TAC report of 24 January 2011.

Respectfully submitted,

Edward Starr – Working Group Lead

Jeff Maxtutis and Howard Muise – TAC Co-Chairs

Transportation Advisory Committee Members:

Elisabeth Carr-Jones, Wayne Chouinard, Jean Clark, Paul Kent, Jeff Maxtutis, Howard Muise,
Officer Corey Rateau, Scott Smith, Edward Starr, Richard Turcotte, and Laura Wiener

Web site; www.arlingtonma.gov/tac

Report of Evaluation of Safety Improvements at Mass Avenue and Water Street and Spengler Way

15 October 2012

1. Introduction

In the summer of 2011, trial traffic flow restrictions were made to improve the safety of those using this intersection. Further modifications were made during the fall of 2011 to improve the visibility of the signage to motorists. A TAC report to the Board of Selectmen dated 24 January 2011 and a memo dated 9 January 2012 describe the modifications. The primary restrictions were No Left Turns from Water Street and Spengler Way onto Mass Avenue.

The purpose of this report is to evaluate the effects of the recommendations. This has been done by 1) observing motorist compliance with the no left turns, and 2) measuring the changes in neighborhood traffic patterns, and 3) examining crash data since the changes. Each is addressed separately below.

2. Compliance with No Left Turns from Water Street and Spengler Way

Compliance was observed on weekdays in March and April of 2012 between 7:45 and 8:30 AM (on two occasions), between 2 and 3PM, between 6 and 7PM, and between 3 and 4PM, and on a Saturday between 12 and 1PM. A total of 988 exiting turns were observed from both streets. The traffic volume on Water Street was significantly higher, 772 vs 216 For Spengler Way.

No left turn compliance from Water Street was 96% overall, indicating 4% made an illegal left turns onto Mass Ave. This is a significant reduction from the 30% of vehicles turning left before the trial restrictions. Compliance varied with time of day as shown in Table 1; the lowest was 89% between 6 and 7PM on a weekday, and the highest compliance was during the morning commuter hour (98%).

No left turn compliance from Spengler Way was 94% overall, indicating 6% made an illegal left turn onto Mass Ave. This is again a significant change compared to the 35% of vehicles turning left before the restrictions. Compliance varied with time of day as shown in Table 1: lowest was 85% between 3 and 4PM on a weekday, and the highest was 100% during the morning commuter hour.

We judge that the driver compliance rate is adequate to effectively evaluate the impact of the trial.

Transportation Advisory Committee Members:

Elisabeth Carr-Jones, Wayne Chouinard, Jean Clark, Paul Kent, Jeff Maxtutis, Howard Muise, Officer Corey Rateau, Scott Smith, Edward Starr, Richard Turcotte, and Laura Wiener

Web site; www.arlingtonma.gov/tac

TABLE 1: Compliance Measurements									
at Intersections - Water, Spengler and Mass Ave									
Date/ Conditions	Time	Exit Water St			Exit Spengler			U Turns	Mass Sig Backup to Crosswalk
		Rt Turn	Left Turn	Straight	Right Turn	Left Turn	Straight		
3/23/12	2PM	24	1	0	12	0	0	2	0
Friday	2:15	22	1	0	8	0	0	1	2
Sunny/cool	2:30	25	1	0	14	1	0	1	0
	2:45	25	1	1	8	0	0	0	0
	SUM	96	4	1	42	1	0	4	2
		Compliance	96%		Compliance	98%			
4/21/12	11:55	39	3	0	16	1	0	2	0
Saturday	12:15	41	1	0	10	0	0	2	0
sunny	12:30	35	1	0	11	3	0	0	0
	12:45	28	1	1	11	0	0	4	0
	SUM	143	6	1	48	4	0	8	0
		Compliance	96%		Compliance	92%			
4/24/12	7:45AM	49	2	0	5	0	0	0	2
Tuesday	8:00	55	0	0	5	0	0	0	4
sunny 45 deg	8:15	29	0	0	7	0	0	0	4
	8:30	33	1	0	6	0	0	1	1
	SUM	166	3	0	23	0	0	1	11
		Compliance	98%		Compliance	100%			
	6:03 PM	17	0	1	11	0	0	0	8
	6:18	19	1	0	9	0	0	1	8
	6:33	9	2	0	10	2	0	1	0
	6:48	10	3	0	10	1	0	1	2
	SUM	55	6	1	40	3	0	3	18
		Compliance	89%		Compliance	93%			
4/26/12	7:45AM	53	1	0	2	1	0	0	1
Thursday	8:00	65	1	0	4	0	0	1	2
sunny/cool	8:15	31	1	0	2	0	0	0	1
	8:30	28	2	0	5	1	0	1	0
	SUM	177	5	0	13	2	0	2	4
		Compliance	97%		Compliance	85%			
	3:13 PM	24	2	0	9	0	0	1	0
	3:28	22	0	1	3	0	0	3	0
	3:43	28	1	1	14	2	0	1	0
	3:58	28	0	1	12	0	0	1	0
	SUM	102	3	3	38	2	0	6	0
		Compliance	97%		Compliance	95%			
	Total	739	27	6	204	12	0		
		COMPL	96%		COMPL	94%			

Transportation Advisory Committee Members:
 Elisabeth Carr-Jones, Wayne Chouinard, Jean Clark, Paul Kent, Jeff Maxtutis, Howard Muise,
 Officer Corey Rateau, Scott Smith, Edward Starr, Richard Turcotte, and Laura Wiener
 Web site; www.arlingtonma.gov/tac

3. Crash Analysis

Crash data have been reviewed by the Arlington Police Department from 10/1/11 to 9/16/12. A total of five crashes have occurred with no injuries. No pedestrians have been struck in the crosswalk. Three of the crashes were vehicles struck from the rear on Mass Ave.

Four of the crashes occurred between 10/31/11 and 11/29/11. Since 11/30/11 to 9/16/12 there has been only one minor crash where a report was not filed.

It is too early to draw conclusions from the crash statistics. Data needs to be collected and reviewed when there is at least two years of data and three is better. At this point we have about a year.

4. Traffic Flow Changes

Alternate routes for the traffic that would have used the left turns onto Mass Ave from Water Street and Spengler Way were identified. Traffic volume measurements were made on these routes before the trial during the spring of 2011 by the Arlington Police Department for periods exceeding 48 hrs during weekdays. These individual measurements were repeated in the spring of 2012 after the traffic restrictions were in place for many months. The individual measurements were then compared to establish the changes in traffic flow. A summary of this data is contained in Table 2. Note that on local streets with a few thousand vehicles/day, there can be substantial random variation (up to 20%) in traffic counts from one day to the next.

The initial volume measured in the spring of 2011 at #18 Court Street (across from the Post Office) was 1265 vehicles per day (VPD) compared to 1263 VPD in the spring of 2012. This indicates the Court Street traffic was stable and unaffected.

The measurements at #5 Water Street (near Mass Ave) southbound decreased by 12%, while the northbound traffic turning onto Water Street from Mass Ave increased by 15%. Total traffic at this site decreased by 8%.

Measurements at #18 Water Street (by the bike path) showed southbound traffic decreased by 16%. Northbound traffic increased by 26%, and total traffic increased from 2611 to 2712 VPD at this site, a minor change of less than 4%.

Measurements at #24 Russell Street showed eastbound traffic increased by 75%, but westbound traffic decreased by 28% (possibly due to a drop in cut-through commuter traffic). Total traffic at this site increased from 1583 to 1801 VPD, up 14% or 218 vehicles per day.

Transportation Advisory Committee Members:

Elisabeth Carr-Jones, Wayne Chouinard, Jean Clark, Paul Kent, Jeff Maxtutis, Howard Muise, Officer Corey Rateau, Scott Smith, Edward Starr, Richard Turcotte, and Laura Wiener

Web site; www.arlingtonma.gov/tac

Winslow Street eastbound measurements increased by 18% and westbound had no change. Total traffic increased from 851 to 900 VPD, or 6%.

Measurements were also taken at #32 Gray Street, close to Pleasant Street. Here the westbound traffic increased by 13% and the eastbound traffic increased by 10%. Total traffic increased by 12%, from 3560 to 3976 VHD.¹

In summary, the re-location of traffic appears to be minor compared to the safety gains at the Mass/Water/Spengler intersection.

Table 2: Comparison of Before/After Measurements After installing No Left Turn at Water/ and Spengler Way/Mass

All data are weekday average volume								
Street	Location	Direction	VPD before	VPD after	VPD diff.	% delta	Summary	Comments
Court	#18	NB	1265	1263	-2	0%	No Change	Court Street Traffic Stable
Water	#5	SB	1954	1718	-236	-12%	Decrease	Fewer drivers turning from Court onto Water SB
Water	#5	NB	705	809	104	15%	Increase	More drivers turning right onto Water from Mass NB
Water	#5	Total	1659	1527	-132	-8%	Small Decrease	Minor net decrease, direction changes
Water	#18	NB	1232	1551	319	26%	Increase	More going N from Court
Water	#18	SB	1379	1161	-218	-16%	Decrease	Less coming S
Water	#18	Total	2611	2712	101	4%	Small Increase	Minor net increase, direction changes
Russell	#24	EB	642	1124	482	75%	Increase	Drivers NB at #18 Water take Russell Street EB
Russell	#24	WB	941	677	-264	-28%	Decrease	Number of drivers going WB decreases significantly
Russell	#24	Both	1583	1801	218	14%	Increase	Small increase, but direction changes
Winslow	#15	EB	284	335	51	18%	Increase	Part of the #18 Water NB take Winslow
Winslow	#15	WB	567	565	-2	0%	No Change	Stable
Winslow	#15	Both	851	900	49	6%	Increase	Minor increase
Gray	#32	WB	1859	2094	235	13%	Increase	Little caused by No Left Turn at Water
Gray	#32	EB	1709	1882	173	10%	Increase	EB has also increased roughly same amount
Gray	#32	Both	3560	3976	416	12%	Increase	General increase on Gray Street

VPD = measured vehicles per day
 SB = southbound
 NB = northbound
 EB = eastbound
 WB = westbound

¹ It appears that the base level on Gray Street has increased around 10% over the year, and a small part of the westbound traffic may be attributed to the No Left Turn from Water Street.

Transportation Advisory Committee Members:

Elisabeth Carr-Jones, Wayne Chouinard, Jean Clark, Paul Kent, Jeff Maxtutis, Howard Muise, Officer Corey Rateau, Scott Smith, Edward Starr, Richard Turcotte, and Laura Wiener

Web site; www.arlingtonma.gov/tac

5. Summary and Recommendations

The large majority of drivers are observing the posted signs and not making left turns onto Mass Ave from Water Street and Spengler Way. The compliance is adequate to assess the impact of the change, but could be improved, especially from Spengler Way.

Recent crashes have been minor and no pedestrians have been struck, but there is insufficient data to draw firm conclusions.

The re-distribution of traffic because of the change has not created a significant negative impact on the local neighborhood roads.

As a result of this analysis, the TAC recommends the following:

1. Maintain the No Left Turn restrictions from Water Street to Mass Avenue and from Spengler Way to Mass Avenue.
2. Evaluate the crash data in two years. If major pedestrian safety issues are observed, consider more extensive means of control as outlined in the TAC report of 24 January 2011.

Transportation Advisory Committee Members:

Elisabeth Carr-Jones, Wayne Chouinard, Jean Clark, Paul Kent, Jeff Maxtutis, Howard Muise,
Officer Corey Rateau, Scott Smith, Edward Starr, Richard Turcotte, and Laura Wiener

Web site; www.arlingtonma.gov/tac