



TRANSPORTATION ADVISORY COMMITTEE

7 Twin Circle Drive, Arlington, MA 02474

To: Arlington Redevelopment Board, Arlington, Mass

From: Transportation Advisory Committee (TAC)

Subject: Transportation Issues re CVS Development

Date: 26 February 2009

The Arlington Transportation Advisory Committee (TAC) has been requested by the Redevelopment Board (ARB) to make final recommendations on the proposed CVS store project on Massachusetts Avenue. This letter summarizes the outstanding issues relating to transportation operations and safety, and TAC recommendations. These issues and recommendations were discussed and agreed to by the TAC at their monthly meeting on February 11, 2009.

1. **Site Access.** The single project site access is shown on current site plans (dated February 23, 2009) to be located approximately 66 feet (curb-to-curb) east of Carey Drive on the north side of Massachusetts Avenue. The single site driveway is preferable to multiple driveways as it reduces the number of conflicting turning movements. While guidelines for the separation of driveway spacing vary, a standard of at least 100 feet between driveways and roadways curb to curb is recommended by industry practice. In addition, counts conducted by TAC in the AM peak period on February 25 indicate that there are a great many turning movements into Carey Drive (over 80) and significant pedestrian traffic (over 100) across the potential CVS driveway. Separation of these conflicts is necessary to reduce the potential for crashes and injuries.

The proposed CVS driveway and pedestrian crosswalk located between the driveway and Carey Drive will: 1) not meet the spacing standard, and 2) create unacceptable motorist and pedestrian conflicts and safety issues. Therefore, it is strongly recommended that the CVS site driveway be relocated to provide appropriate and safe spacing between the driveway and Carey Drive. It is also recommended that the driveway location be reviewed by the TAC before the Special Permit is granted.

Transportation Advisory Committee Members:

Elisabeth Carr-Jones, Jean Clark, Lt. Robert Lake, Susan Doctrow, Jeff Maxtutis, Howard Muise,
Michael Rademacher, Scott Smith, Edward Starr, and Laura Wiener

Web site; www.tac.arlington.ma.us/

2. The existing pedestrian crosswalk across Massachusetts Avenue at Bartlett Street is a long uninterrupted, unsignalized crossing that has experienced vehicle-pedestrian crashes in the past. It is a primary access to the grocery store and a bus stop. The additional traffic to and from CVS is likely to increase the probability of more pedestrian crashes. To improve the safety of this crosswalk, by reducing the crossing distance, the following measure is recommended: 1) construct a new curb extension (bump-outs) at each end of the existing crosswalk to reduce the pedestrian crossing distance and improve the visibility of pedestrians by motorists. It is recommended that the curb extension design be reviewed and approved by the TAC and DPW prior to installation.
3. The proposed crosswalk on Massachusetts Avenue between Carey Drive and the eventual CVS site driveway should have curb extensions (bump-outs) to decrease the crossing distance for students walking to/from the High School. It is recommended that the location and design of the crosswalk and curb extensions be reviewed and approved by the TAC and DPW prior to installation.
4. The intersection of Massachusetts Avenue/Jason Street/Mill Street has historically experienced the 3rd highest number of crashes in town and experiences operational deficiencies (long delays and queuing) that will continue in the future. Approximately 50% of the CVS-generated traffic will travel through this intersection, exacerbating delay and queuing.

Safety and operations at this intersection could be improved by implementing modest measures. These measures include: 1) Designate an exclusive left-turn lane on the southbound Mill Street approach along with left-turn signal beacon; 2) Move, modify, or reduce the existing median on the northbound Jason Street approach to allow for two northbound approach lanes (shared left-thru lane and exclusive right-turn lane); 3) revise signal timing and phasing as appropriate to accommodate items #1 and #2. It is recommended that project proponent make a contribution to the town of \$50,000 towards accomplishing these critical improvements.

These recommendations are made following discussion and review by members of the TAC. We urge the ARB to include them as a part of the Special Permit for this development.

Sincerely,

Jeff Maxtutis – Vice Chair
Ed Starr – Chair – Transportation Advisory Committee

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To: Arlington Redevelopment Board, Arlington, Mass

From: Transportation Advisory Committee (TAC)

Subject: Transportation Issues re CVS Development

Date: 23 March 2009

Introduction

The Arlington Transportation Advisory Committee (TAC) has been requested by the Redevelopment Board (ARB) to provide additional review and recommendations concerning transportation issues for the proposed CVS store project on Massachusetts Avenue. The ARB has raised operational safety concerns over the location of the proposed CVS driveway, given the existing traffic and pedestrian conditions along this section of Massachusetts Avenue.

The TAC supports the proposed CVS development, but wants to make sure that safety and circulation within the site are balanced with the needs of the community and safe access/egress for patrons to/from the site. We believe that the CVS site driveway as currently proposed on the property next to the High School entrance (Carey Drive) will be a detriment to both.

This letter summarizes the following items as requested by the ARB relating to the CVS development:

- Adequacy of trip generation estimates, particularly the AM peak hour
- Accident history for this section of Massachusetts Avenue
- Separation of CVS driveway from Carey Drive, and internal operations

Trip Generation Estimates

GEOD had estimated that the proposed CVS (12,900 square feet) would generate 34 vehicle trips in the commuter AM peak hour based on the Institute of Engineers (ITE), *Trip Generation Manual*, 7th Edition. The AM peak hour trip rates (adjacent street traffic) used for Land Use Code 881, Pharmacy/Drugstore with Drive-Through Window, were based by ITE on a small sample size, only 3 surveys, producing a trip rate of 2.66 trips/1,000 square feet (KSF). The three survey data points are widely divergent with no fitted curve equation given. For comparison, the trip rate for the PM peak hour for adjacent street traffic is based on 19 survey data points. It is also noted that the trip rate for the AM peak hour of Generator (11AM-12-Noon) is 7.87 trips/KSF, which equates to 102 CVS trips. We therefore have little confidence that the AM peak hour trip estimate used for analysis is valid.

On February 25, 2009, TAC counted vehicle trips in and out of the Walgreens store in East Arlington on Massachusetts Avenue between 7:45 and 8:30 AM. The counts indicated that

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approximately 120 vehicle trips occurred during the AM peak hour of the adjacent street. This figure is 3.5 times greater than the 34 trips estimated for the CVS AM peak hour.

We wish to also note that this trip generation is used to calculate the impact of traffic in the vicinity of the project, and a low peak AM number would estimate a low traffic throughout the area.

The PM peak hour trips estimated for the CVS (111) appear reasonable.

For the reasons outlined above, we feel that the 34 vehicle trips estimated for the proposed CVS for the AM peak hour are low, perhaps dramatically. A trip generation of three or four times greater in the AM peak hour could significantly worsen the operating conditions at the driveway as well as throughout the study area. Operations and safety of general traffic, CVS patrons, and pedestrians would be impacted.

See summary for specific recommendations.

Accident History

Crash data from the Arlington Police Department is given as attachment 1. This data represents the crashes occurring for a period starting from 1/1/2004 to mid-March 2009, approximately 5.2 years, and gives crashes reported along Mass Avenue between the intersection of Churchill Avenue and Bartlett Avenue. The APD database is formed with two methods of identification – at intersections and along a roadway. The area under study consists of two blocks, a distance of about 500 feet. The data shows there were 19 crashes at the intersections and 19 crashes along the roadway. The serial numbers of the crashes have been checked to ensure that there are no duplicate records. The results show that there was an average of 3.6 crashes per year at the intersections and roadway segment, or a total of 7.2 crashes per year.

Using the Mass Highway standard formula for roadway crashes, 3.6 crashes per year yields 4.9 crashes per million vehicle miles. The average for District 4 is approximately 0.7 crashes per million vehicle miles at unsignalized intersection. Clearly, the level of reported crashes and resultant crash rate in this short segment of Massachusetts Avenue indicates that there are serious safety issues involving conflicting vehicle movements.

Separation of CVS Driveway and Internal Operations

Because of the above two factors and the TAC's observations of the site area, we are very concerned about the separation of the access driveway and Carey Drive. The ARB has suggested an alternate whereby the drive would be on the building side of the parking lot, which would provide much better separation (about 130 feet curb to curb). CVS has objected to this on these grounds: handicap spots would block entrance when pulling out, and access of large trucks delivering goods to the store.

There are many elements of driveway spacing that must be considered including land use, traffic speed, sight distance, volume, turning radius, intersection angle, access/egress, and pedestrian volumes. Because Carey Drive serves only entering traffic, there is no exiting traffic at this

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location, which helps to simplify operations with a new CVS driveway. However, vehicle queuing and congestion is experienced on Mass Avenue at this location as a result of 1) the high volume of traffic entering Carey Drive (left and right turns from Mass Avenue); 2) the high volume of pedestrians conflicting with entering traffic; and 3) the pedestrian actuated mid-block signal located west of Carey Drive. Because of these issues, we feel it is important to maximize the separation between Carey Drive and the new CVS driveway. There is no one set of industry standards regarding driveway spacing. However, research indicates that minimum driveway spacing of approximately 100 feet is desirable for a roadway such as Mass Avenue¹.

Based on these considerations we would like to propose a compromise that is not ideal for either party, but is more evenly balanced: to place the drive in the middle of the parking frontage along Massachusetts Avenue. This would help improve the above CVS issues and provide 90 feet curb to curb separation between Carey Drive and the CVS driveway. Again, not ideal for either, but workable.

Recommendations

In addition to previously agreed traffic measures, to include a new crosswalk between Carey Drive and the driveway with bump outs (both sides), and bump outs at the crosswalk on Mass Avenue at Bartlett Avenue (both sides), we recommend the following based upon the above analyses:

1. The currently proposed driveway be relocated to provide 90 feet of curb to curb separation with Carey Drive.
2. CVS not open for business until 8:30AM during weekdays.
3. The traffic conditions be monitored by the Town after the CVS has been in operation for 6 months for crashes and traffic conditions. If conditions are worsened, use funds as noted in #4 below to provide mitigation. Evaluation of conditions will be based on traffic volume counts, observations, and accident history. A worsened condition would be defined as 1) more than twice the estimated 34 vehicle trips in the AM peak hour as identified by the applicant; and/or 2) an increase in accidents.
4. The proponent escrow \$50,000 towards off-site mitigations that may include alterations to Mass Avenue in the vicinity of the driveway or other impacted areas such as Jason/Mass, at the Town's sole discretion.
5. That CVS provide a pedestrian corridor on site within the parking area for safe access to the walkway along the store to the entrance.

Sincerely,

Jeff Maxtutis, AICP – Vice Chair
Ed Starr – Chair, Transportation Advisory Committee

¹ City of Tallahassee, Florida and OKI Regional Government, Cincinnati, Ohio, 125 feet driveway spacing centerline to centerline for 30 MPH posted speed on arterial street.

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Memo:
To: Arlington Redevelopment Board
From: Transportation Advisory Committee
Subject: Responses to GEOD letter of 3/26/09
Date: 30 March 2009

The original GEOD statement from the letter of 26 March is in italics. TAC response is in regular font.

1. Crash Data/Accident History

"A complete and full analysis of the accident history obtained by the Arlington Police Department has been performed and is contained in our January 19, 2009 Traffic Report. The crash rate methodology utilized in the Report is the methodology developed and utilized by the professional traffic engineering community throughout the Commonwealth. The method used by the TAC is unclear and the result is undoubtedly incorrect. Regardless of how TAC attempts to manipulate the data, the fact remains that Mass. Ave. corridor within our study area is not a traffic hazard and the crash rate is well below the Mass Highway district area which includes all of Arlington.

"BSC agrees with our analysis and states as such in their comments' final sentence, "The calculated crash rate per Mass Highway standards were found to be below the statewide and the district's average"."

The crash data analyzed in the 19 January 09 GEOD report includes only crashes with injury or serious property damage. These crashes total 9 over 3 years, or 3 per year for the combined intersections of Carey Drive/Mass Ave and Newman Way/Mass Ave. However, that analysis excludes serious crashes on the roadway that are not at an identified intersection. It also excludes minor crashes, and any minor crash has the potential of being a crash with injury. Using all crashes gives a better indication of the traffic complexity of the area being examined.

The TAC's analysis included all reported crashes between the Churchill/Mass and Bartlett /Mass intersections, including crashes not at an intersection, over a five year period. As indicated in our memo of 23 March, total crashes average 7.3 per year along a 500 ft length of roadway, or more than one every two months, 3.6 at intersections and 3.6 along the roadway. Using only the 3.6 roadway crashes and the MHD formula for roadways, this results in a crash rate of 4.9 crashes per million vehicle miles. This number is high because of the number of crashes in the short roadway distance (0.1 mile). It excludes crashes at intersections.

The Mass Highways roadway formula is:

Crash rate

= (crashes per year)(1 million miles)/(ADT)(365 days)(Road Length in miles)

= (3.6)(1 million miles) / (20000 veh/day)(365 days)(0.1 mile)

= 4.9 crashes per million vehicle miles.

Clearly, this short stretch of roadway is a cause for concern with 38 crashes in 5 years, 19 at intersections and 19 along the roadway.

2. Trip Generation Data

“The trip generation data being questioned is the AM peak hour which has been calculated utilizing the ITE Manual, to be 34 trips. TAC points out that the ITE sample size is small. This is because the retail projects, such as a CVS, do not generate appreciable origin-destination trips in the morning commuting hours. We typically don’t analyze AM peak hours for retail for just this reason. TAC states that “approximately 120 vehicle trips occurred....”. We have not seen the actual counts, so we cannot confirm their accuracy.”

There are many considerations regarding trip analysis that TAC has not considered in their memorandum. We direct the ARB to BSC memorandum which ably enumerates differences between the two stores. A further enumeration, including BSC’s high points, are as follows:

- A. TAC does not seem to be cognizant of, or consider, pass by trips. Industry standards state that 25%-50% of retail trips are from vehicles already on the road. This would mean that actual trips generated by the Walgreens is far less than stated.*

We have focused on driveway activity, and contrasting the Walgreens data with the 34 indicated in the proponent’s peak AM analysis. The driveway activity would not be impacted by pass-by trips. If the driveway activity were a factor of 3 higher than 34 it would indicate an increased trip generation. If 30% of that increased generation were pass-bys, the project roadway traffic would still increase a factor of two.

- B. Walgreens has rented a number of their parking spaces to their abutters. We don’t know how many, but if TAC is making a comparison they should know this because it will affect their count.*

During TAC data collection, two cars came into the lot and parked, and the driver walked out to the street. No driver walked into the lot and then drove off. The hourly number for Walgreens should then be reduced from 120 to 118 per hour.

- C. The CVS site was recently a car dealership, and as such generated trips which, for the sake of analysis, should be subtracted from the CVS trips.

The prior turning movements into the dealership undoubtedly help contribute to the crash data describe above, and it would be interesting to compare trips if we had made those measurements. The trip rate for a car dealership is less than a retail establishment.

- D. The count should be adjusted based on the size of the stores.

Reasonable. Walgreens is 15,187 sf and CVS proposes 12,500 sf or so. This is a ratio of .83. The 118 times .83 = 98/hr. Still about a factor of 3 increase in use of the driveway in the peak AM hour.

- E. A Bank of America ATM is on site.

Suspect a small impact, since it is a mostly a convenience for customers who would use it while shopping. It is not the only ATM in Arlington.

"The effect of these issues on the un-validated TAC count is not known; however it's clear that we are not comparing apples to apples."

Disagree, as discussed above.

TAC states that the AM peak hour of 34 is perhaps 3 to 4 times lower than what could be realized. If that were the case, (and we know it's not for the reasons stated above) then in fact we would have the PM peak hour condition, which all seem to agree is reasonable at 111 trips. The AM peak and PM peak hour volume of traffic on Mass Ave., is very close. Therefore we conclude that if the AM peak hour generated trips more approximates the PM peak hour, than the mitigation condition, if it is in fact based upon trips, will already be met.

The AM peak traffic situation is very different than PM peak because of the heavy volume of turning movements into Carey Drive and the focused pedestrian volume. The TAC's concern in the AM is the High School related activity.

We are concerned about the PM levels in the area such as Jason/Mill/Mass as indicated in our memo of 26 February 2009 (Item 4). As you know, we believe mitigation is required there.

“TAC and BSC seem to indicate that the mitigation is based on the number of trips generated by the CVS. This approach would disregard the existing volume of traffic and the existing operating condition of the study area. The analysis provided and confirmed by BSC illustrates that CVS actually has very little impact on the study area network.”

How is this so? If the trip generation is significantly higher, the impact will be significantly higher.

“Response to TAC Recommendations:

- 1) The separation between the site drive and Carey Drive has been agreed too.*

Thank you. We understand the bump outs at the new crosswalk and Bartlett have also be agreed to. The drawing included in your letter shows a bump out on Bartlett on the north side only. It should be on both sides.

- 2) GEOD has analytically proven that CVS does not create an appreciable impact in the AM peak hour, or at any other time, therefore we do not see the need for an opening time restriction.*

Do not agree. A review 6 months after store opening can establish whether or not this is needed.

- 3) There are too many factors involved in “worsening conditions” such as new development up or down stream of our project, or the closing of side streets off Mass Ave, that could result in worsening conditions. What if more than twice the AM trips are generated, and the traffic condition operates well? Is more mitigation still required? What if accidents occur at the site drive location mandated by TAC and the ARB? Will the Town of Arlington pay for site and driveway relocation? The causal effect of occurrences is not always readily identified and therefore I would not agree to this recommendation.*

What if the traffic conditions are terrible and there is a large impact? Does CVS just walk away and say – “your problem”.

The prime item to be measured is the number of uses of the CVS driveway, which is not impacted by other off-site conditions. You claim your analysis is correct. If you believe so, then you should be willing to have measurements made to show its correctness.

Unfortunately, all mitigations will probably be off site and done in the Town. CVS should share significantly in the cost. If mitigation is not needed near the site, the funds should be used to help with the cost of mitigation at Jason/Mill/Mass, which will be impacted by CVS.

- 4) CVS has agreed to \$5,000. The arbitrariness of \$50,000 should really be questioned by all regarding TAC's sincerity in this process.

Again, what if the traffic conditions are terrible and there is a large impact? Does CVS just walk away and say – “your problem”. CVS should share significantly in the cost, and these mitigations will be expensive.

Mitigations near the site, if needed, could potentially include work to modify Carey Drive and/or add turning lanes. If mitigation is not needed near the site, the funds should be used to help with the cost of mitigation at Jason/Mill/Mass, which will be impacted by CVS as described in our 26 February memo.

This recommendation is sincere and not arbitrary.

- 5) *A pedestrian corridor has been provided in close proximity to the store entrance for the purpose of designating a clear path for consumers to access their vehicles and vice versa.”*

There is a pedestrian corridor along the side of the building, but no defined way of reaching that corridor across incoming/outgoing traffic. Even a painted path would be helpful.

A Few Outstanding Issues:

1. The bump out on the south side of the crosswalk at Bartlett and Mass Ave needs to be included in the drawings.
2. The Town will measure driveway use 6 months after the opening of the CVS to compare with the analyzed data. The Town will also collect total crash data between the intersections of Churchill Ave/Mass Ave and Bartlett/Mass Ave for a year after CVS has been open for 6 months. Based upon this data, the Town will decide on what, if any, mitigations are needed on roadways near the site.
3. It is requested that CVS put into escrow a sum of \$50,000 to be used for mitigations related to this project. These funds would first be used for mitigations around the site if needed; if not, as a contribution toward work at Jason/Mass/Mill.