Report of the Transportation Advisory Committee to the Arlington Board of Selectmen

11 July, 2005

Dallin School

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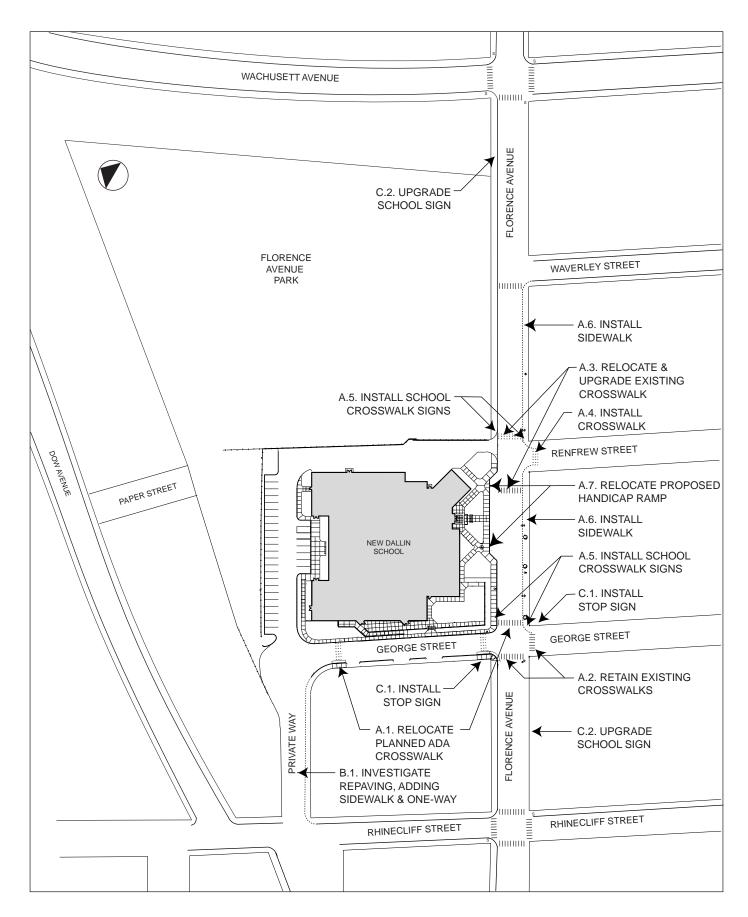


Figure 1 Dallin School Safety Recommendations

Summary of Recommendations

The following recommendations for the Dallin School have been unanimously approved by the Transportation Advisory Committee. This approval follows votes of endorsement of the Dallin working group's efforts by Arlington's Permanent Town Building Committee and School Committee, as well as the Dallin PTO and Safety Committee.

Figure 1 illustrates the recommended items in the immediate neighborhood of the school.

A. Pedestrian Safety and Community Access

- A.1. Relocate the planned ADA compliant crosswalk from the north end of George Street to Florence Avenue at George Street adjacent to the Dallin School. (This crosswalk is planned and budgeted as part of the Dallin rebuild project.)
- A.2. Retain the existing crosswalks on Florence Avenue at the west side of George Street, and on George Street at the south side of Florence Avenue.
- A.3. Relocate and upgrade the crosswalk on Florence Avenue at Renfrew Street from the west side to the east side of the intersection.
- A.4. Install a crosswalk on Renfrew Street at Florence Avenue.
- A.5. Install school crosswalk signs in each direction on the Florence Avenue crosswalks at the east side of George Street and at Renfrew Street.
- A.6. Install sidewalk along the south side of Florence Avenue (the side opposite the school) between George Street and Waverley Street to allow the installation of ADA compliant crosswalks.
- A.7. Work with the Dallin School project architect to relocate the planned handicap ramp in the school drop-off zone on Florence Avenue from the east end to the west end.

B. Roadway Deficiencies

B.1. Investigate improvements to the Private Way section of George Street, including repaving, adding a sidewalk and making this section one-way leading away from the Dallin School.

C. Traffic Management and Vehicle Speed Reduction

- C.1. Install stop signs on George Street at both approaches to Florence Avenue.
- C.2. Upgrade the school signs at both approaches on Florence Avenue.
- C.3. Investigate creating a School Zone with speed limits for the Dallin School.
- C.4. Investigate installing traffic calming device(s) (e.g. raised pavement) along Florence Avenue.

Existing Transportation Conditions and Issues

This section summarizes existing transportation conditions in the immediate vicinity of the Dallin School and identifies existing deficiencies and issues that would impact transportation operations and safety when the new school is completed.

Existing Transportation Conditions

Dallin School is an elementary school serving grades K through 5 along with programs for special needs students. It is noted that a high proportion of Dallin students live south of the school and must cross Florence Avenue traveling to and from school. In addition to typical school activities, Dallin School also serves as the polling location for Precincts 16 and 18. Florence Avenue Park, located adjacent to Dallin School on the north side of Florence Avenue, contains a baseball field, fields for soccer and lacrosse, and two children's playgrounds.

Primary access to the Dallin School is provided from Florence Avenue. Florence Avenue is a two-lane minor collector roadway that is between 32 and 34 feet wide. On-street parking is allowed on both sides of the street, except in front of the school. Along the school frontage, a sidewalk is provided only on the school side (north) of the street. No speed limit is posted on Florence Avenue. Therefore, the enforced speed is 30 mph.

George Street is used as a vehicle drop-off area in the mornings. George Street is a two-lane local street with parking allowed on the west side across form the school. George Street makes a 90-degree bend at the north end where it becomes an unpaved private roadway. The private section of George Street is rutted with large potholes, is wide enough for only one vehicle, and does not have sidewalks. The west end of George Street intersects with Rhinecliff Street.

The Arlington Police Department placed an Automatic Traffic Recorder (ATR) on Florence Avenue near the school between Tuesday April 5 and Monday April 11, 2005. Two way traffic volumes and vehicle speeds were recorded over the survey period with the data collected in hourly increments. It is noted that the traffic data was recorded when the Dallin School was under construction.

Table 1 summarizes the traffic volume results. The table shows that Florence Avenue has an average weekday daily traffic (AWDT) volume of approximately 1,240 vehicles. During the weekday AM peak hour, Florence Avenue experiences approximately 100 vehicles and 183 vehicles in the PM peak hour. During the PM peak hour, more motorists (70%) head eastbound-northbound toward Park Avenue, probably to use the signal provided at Florence Avenue and Park Avenue.

When the school is completed and occupied the traffic volumes on Florence Avenue would be higher than the current condition. With the school in operation it is expected that traffic volumes on Florence Avenue would increase to approximately 1,600 vehicles daily with about 215 vehicles occurring in the morning and afternoon peak hours. In addition, some motorists may have changed their travel patterns to avoid the construction activity around the school. Therefore, when the school is complete non-school weekday traffic volumes could be higher than those measured recently.

Florence Avenue has about 1,200 vehicles on Saturday and approximately 900 vehicles on Sunday. The weekend peak hours occur around Noon with approximately 125 vehicles. The noontime peak hour occurs as a result of sports teams using the Florence Avenue Park.

FLORENCE AVENUE TRAFFIC DATA SUMMARY¹

	Tra Northb	Traffic Volume with School (Estimated) Total				
	Volume	Percent	Southl Volume	Percent	Total Volume	Volume
Average Weekday AM Peak Hour	50	50%	50	50%	100	215
Average Weekday PM Peak Hour	129	70%	54	30%	183	215
Average Weekday Daily	722	58%	517	42%	1,239	1,589
Saturday Midday Peak Hour	55	45%	67	55%	122	N/A
Saturday Daily	611	51%	578	49%	1,189	N/A
Sunday Midday Peak Hour	57	46%	67	54%	124	N/A
Sunday Daily	483	53%	425	47%	908	N/A

Table 1. Florence Avenue Traffic Volumes - April 2005

Speed	Northbound	Southbound		
85 th Percentile	29 mph ¹	30 mph		
% Above 25 mph	33%	34%		
% Above 30 mph	9%	11%		

mph = miles per hour

Table 2. Florence Avenue Weekday Average Vehicle Speeds - April 2005

 Traffic Data collected by Automatic Traffic Recorder (ATR) machines between Tuesday, April 5 and Monday, April 11, 2005 by the Arlington Police Department. The ATR was placed on Florence Avenue between Waverley and Renfrew Streets. It is noted that the Dallin School was closed due to construction at the time of the counts. Therefore, the results report non-school related conditions. However, construction activity may have altered motorist driving patterns and speeds. Table 2 summarizes the traffic speed survey results. The table indicates that the 85th percentile speed on Florence Avenue is 30 MPH. Also of note is that about one-third of all vehicles recorded over the survey period traveled above 25 MPH. The speed data indicates that it may be possible to reduce vehicle speeds in the vicinity of the school and field through physical and signage measures. It is noted that due to construction the effective width of Florence Avenue in front of the school is narrower than under typical conditions. The narrower width tends to slow down travel speeds. It is reasonable to expect that when the school is completed and Florence Avenue is functioning at its normal width, travel speeds may increase.

Transportation Safety and Operational Issues

The Dallin working group identified both existing transportation deficiencies in the immediate Dallin area and issues related to the new school plan designed by DRA, Inc. Deficiencies focus on safety, access, and circulation. The following is a list of the existing transportation deficiencies in the Dallin School area:

- No sidewalks on the south side of Florence Avenue (across from school)
- Improper location of crosswalk(s) on Florence Avenue
- Substandard bituminous sidewalk on the north side (park side) of Florence Avenue between the school and Wachusett Avenue
- Parked vehicles on Florence Avenue restrict drivers sight lines to see students crossing streets
- Inadequate handicap access lack of ramps and sidewalks
- No sidewalk on private way portion of George Street creates conflicts between vehicles and pedestrians
- Substandard roadway on private portion of George Street which will be used as exit for drop-off vehicles in the morning poor conditions and can accommodate only one direction of travel
- No Stop sign control is provided at the intersection of Florence Avenue and George Street
- Vehicle speeds higher than desired on Florence Avenue
- Difficulty for residents to exit driveways on south side of Florence Avenue

The following is a list of issues identified from the new school design plan that would impact transportation in the school area:

- No crosswalks are shown across Florence Avenue, and consequently no handicap ramps are provided
- The handicap drop-off area in front of the school would not allow vehicles to properly maneuver into the bus pull-out area which would conflict with traffic flow on Florence Avenue
- The planned crosswalk on George Street would only provide pedestrian access to George Street to the south, not to the north

Discussion of Recommendations

A. Pedestrian Safety and Community Access

Crosswalks at Florence Avenue and George Street

The main entrance to the Dallin School is to remain on Florence Avenue after the rebuild. As detailed in the previous section, Florence Avenue presents pedestrian safety and community access challenges for the school and the Florence Avenue Park. Because there are no sidewalks opposite the school and park, the plans for the new Dallin School do not include crosswalks on Florence Avenue.

When the original Dallin School was open, the intersections of Florence Avenue with George and Renfrew Streets were outfitted with crosswalks (four at George and one near Renfrew). These crosswalks served to alert motorists to the presence of the school from both approaches on Florence Avenue. Unfortunately, none of the old crosswalks comply with current ADA standards.

The four old crosswalks at the intersection of Florence Avenue and George Street were near the main door of the old school building and were heavily used by Dallin students. A Traffic Supervisor was stationed at this intersection in the morning and afternoon.

Only two ADA compliant crosswalks are included in the Dallin School rebuild project. The cost of any additional crosswalks would be borne by the Town. The proposed new crosswalk on George Street towards the back of the school in the rebuild plans is less critically located than those removed from the plan on Florence Avenue at George and Renfrew Streets. It is therefore desirable to eliminate this crosswalk location in favor of one on Florence Avenue.

Recommendation A.1. Relocate the planned ADA compliant crosswalk from the north end of George Street to Florence Avenue at George Street adjacent to the Dallin School. (This crosswalk is planned and budgeted as part of the Dallin rebuild project.)

Recommendation A.2. Retain the existing crosswalks on Florence Avenue at the west side of George Street, and on George Street at the south side of Florence Avenue.

Crosswalks at Florence Avenue and Renfrew Street

The existing crosswalk on Florence at the west side of Renfrew Street was poorly located with respect to clear access on the opposite side of Florence Avenue. Its current location would also conflict with the drop-off area and walkways for the rebuilt school. This crosswalk should be moved to the north side of Renfrew Street, where it would serve as a convenient access point for both the school and the park.

There is not currently a crosswalk on Renfrew Street at the intersection with Florence Avenue. Since Renfrew terminates in a T intersection at Florence, there is also no Stop sign. Installing a crosswalk on Renfrew at Florence would define the pedestrian way along Florence Avenue across from the school and encourage responsible behavior by motorists approaching this intersection.

George Street does not have sidewalks south of Florence Avenue. Existing crosswalks that do not directly connect to the Dallin School rebuild project are allowed to remain in place regardless of current ADA standards and should be retained or improved.

Recommendation A.3. Relocate and upgrade the crosswalk on Florence Avenue at Renfrew Street from the west side to the east side of the intersection.

Recommendation A.4. Install a crosswalk on Renfrew Street at Florence Avenue.

Crosswalk Signs

In order for crosswalks on Florence Avenue at George and Renfrew Streets to be adequately supported, new roadside signs should be erected beside the crosswalks in each direction. These signs should be yellow-green in color and consist of a school crossing sign (MUTCD S1-1) with diagonal arrow sign (MUTCD W16-7). See Figure 3.

Recommendation A.5. Install signs in each direction on the Florence Avenue crosswalks at the east side of George Street and at Renfrew Street.

Figure 2 Recommended Crosswalk Signs

Sidewalks on Florence Avenue

Current ADA standards require that a crosswalk connect to sidewalks on both sides of the roadway, and that each end of the crosswalk be outfitted with a handicap ramp. In order to install crosswalks on Florence Avenue at the recommended locations at George and Renfrew Streets, sidewalks would need to be installed on the opposite side of the roadway in the two blocks between Renfrew and Waverley Streets.

The Project Architect agrees that the two ADA compliant crosswalks included in the building project would be better placed on Florence Avenue than on George Street, where the plans currently show them. However, he cannot legally place the crosswalks on Florence Avenue unless sidewalks are present on the opposite side of the street. If the Town installs sidewalk in these two blocks, the Architect and Permanent Town Building Committee have stated their willingness to revise the plans to install the crosswalks and ramps on Florence Avenue.

Although not specifically recommended, the TAC considers it desirable to install sidewalk on the entire stretch of Florence Avenue opposite the school between Wachusett Avenue and Rhinecliff Street. Completing these four blocks of sidewalk would provide two safety advantages. It would connect the recommended two blocks of sidewalk to existing sidewalks on Rhinecliff Street and Wachusett Avenue, completing another portion of the pedestrian network in the immediate area of the school and park. It would also allow for the installation of the additional ADA compliant crosswalks on Florence Avenue at the George Street intersection.

The substandard bituminous sidewalk adjacent to the Florence Avenue Park between the school and Wachusett Avenue should also, at some point, be improved. A standard concrete sidewalk would connect the new school sidewalk to Wachusett Avenue in safer and more attractive manner.

Recommendation A.6. Install sidewalk along the south side of Florence Avenue (the side opposite the school) between George Street and Waverley Street to allow the installation of ADA compliant crosswalks.

Drop-Off Area Improvements

In the Dallin School rebuild plans, a handicap ramp is provided in the drop-off area on Florence Avenue.

This ramp is located very close to the rear (or the east end) of the drop-off area and may be poorly placed for a large vehicle, such as a van, to align to the ramp. Moving the ramp to the west end of the drop-off area would reduce this problem. The Project Architect and the Permanent Town Building Committee have expressed willingness to consider relocating this handicap ramp.

Recommendation A.7. Work with the Dallin School project architect to relocate the planned handicap ramp in the school drop-off zone on Florence Avenue from the east end to the west end.

Paper Street Access from Dow Avenue

There is a paper street that connects Dow Avenue to the Dallin School grounds and Florence Avenue Park. Although convenient for Dow Avenue residents, this access is impassable much of the year due to mud and snow. Improving this access could be of benefit, but there is concern that such an improvement might encourage the use of the poorly monitored area behind the school. Before any improvements would be made to the paper street, the Town would also need to undertake a title search and consult the abutters.

B. Roadway Deficiencies

Private Way Improvements

The private way at the north end of George Street connects to Rhinecliff Street. As noted in the previous section, the roadway is narrow and the road surface is in very poor condition. Although students have been discouraged from walking on this roadway by the school administrators, it still offers an attractive cut-through for the neighborhood west of the school.

Paving the roadway and installing a sidewalk would produce a safer pedestrian environment for the students in this area. It would also provide an additional safe drop-off route for parents. However, the roughly 200' section of George Street northeast from Rhinecliff Street is a private way. Therefore, the Town is not at liberty to make any improvements. Even with these improvements, this section of roadway isn't currently of sufficient width for two-way travel. Making this section one-way (leading away from the school) would be an option.

Recommendation B.1. Investigate improvements to the Private Way section of George Street, including repaying, adding a sidewalk and making this section one-way leading away from the Dallin School.

C. Traffic Management and Vehicle Speed Reduction

Stop Signs on George Street at Florence Avenue

George Street and Florence Avenue form a four-way intersection with George Street forming the minor legs. There is currently no traffic control at the intersection. There are clear sight lines at all intersection approaches. Although only one accident was reported between 1995 and 2001 at this intersection, the addition of the parking lot behind the school is expected to increase traffic on George Street. In addition, the *Manual on Uniform Traffic Control Devices* (MUTCD) indicates that STOP control is used to identify right-of-way on intersecting streets where it is unclear.

Recommendation C.1. Install stop signs on George Street at both approaches to Florence Avenue.

School Signs along Florence Avenue

There are currently school signs on Florence Avenue to alert motorists to the presence of the school. The signs are reasonably located in the blocks immediately preceding the school and park in each direction. These signs should be upgraded to be yellow-green in color and consist of a school crossing sign (MUTCD S1-1) with an AHEAD sign (MUTCD W16-9) below.

Recommendation C.2. Upgrade the school signs at both approaches on Florence Avenue.



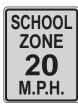
Figure 3 Recommended School Signs

School Zone on Florence Avenue

The creation of a School Zone for the Dallin School could also be considered by the Town. Arlington currently has two School Zones, at the Brackett and the Peirce Schools. A School Zone could either be outfitted with flashing signs, as with the Brackett and Peirce, or with standard signs similar to those shown below. These signs would replace the signs in recommendation C.2. above and would likely encompass a slightly different section of Florence Avenue.

Recommendation C.3. Investigate creating a School Zone with speed limits for the Dallin School.





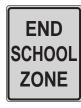


Figure 3 Possible School Zone Signs

Traffic calming devices along Florence Avenue

Traffic calming devices could also be considered to increase pedestrian safety on Florence Avenue in the immediate vicinity of the Dallin School and Florence Avenue Park. These devices could either be vertical (speed humps or raised crosswalks) or horizontal (bulb outs or chicanes). Either type of device would be beneficial for slowing the traffic on Florence Avenue, but would need to be reviewed in the context of other roadways in Arlington.

Recommendation C.4. Investigate installing traffic calming device(s) (e.g. raised pavement) along Florence Avenue.

Neighborhood Feedback on Recommendations

A member of the working group visited the homes in the immediate vicinity of the Dallin School to inform the neighbors about the safety recommendations that were to be discussed at the May 24th Transportation Advisory Committee meeting. The homes informed were:

168 Florence Avenue (renters) and 73 Waverly Street (owners)

172 Florence Avenue

130 Renfrew Street

182 Florence Avenue

186 Florence Avenue

190 Florence Avenue

194 Florence Avenue

11 George Street

36 Rhinecliff Street

78 Dow Avenue

Overall feedback:

- Most residents agree that insatalling a standard sidewalk would improve safety.
- They felt a grass area and curb should be between the sidewalk and street.
- Curbstone on Florence Avenue was brought up by many residents. A tree just came down in front of 168 Florence and most neighbors feel the lack of a curb and the hill causes heavy water flow and erosion. The tree roots are all exposed.
- Residents were in favor of a School Zone or at least signs or raised crosswalks to reduce the traffic speed.
- Some Florence Avenue residents wondered how a sidewalk would fit but were not concerned about losing the trees or bushes if necessary.
- A few residents said the recommendations sound good but do not address the problem which is parking on corners, blocking driveways and rude behavior.
- One private way resident preferred that the private way did not become one-way. Another private way resident liked the one-way idea and said it used to be that way years ago.
- Private way residents liked the idea of paving it if it could be maintained. Yet, they stated young new drivers speed through the private way now and fear that paving it would increase speeds overall.

Some questions were:

- Where are the school entrances?
- Will there still be the one-way drop off on George St.?
- Isn't there supposed to be a drop off loop in front of the school?

APPENDIX

Dallin School

- A. Dallin Area Sidewalk Inventory
- **B.** Dallin Student Location Map
- C. Safe Routes to Schools Report
- **D.** School Sidewalk Comparison



Dallin Area Sidewalk Inventory (dark lines indicate no sidewalk) Produced by Safe Routes to Schools and the Dallin PTO

Dallin Student Location Map (dots indicate where students live)
Produced and maintained by the Dallin PTO

Dallin School District – Recommendations for Traffic Supervisor Intersections

Due to budget cuts, the following two intersections in the Dallin district which previously had Traffic Supervisors (crossing guards) to ensure that students could cross safely, DO NOT HAVE TRAFFIC SUPERVISORS THIS YEAR. Safety conditions at these intersections were evaluated by Dallin Safety Committee members Heather Thomas and Greg Heath, and Safe Routes to Schools representative Don Eunson, spring 2003.

The Dallin Safety Committee recommends that the lost Traffic Supervisor posts be reinstated. If this is not possible due to budget, PLEASE reposition Traffic Supervisor from Rhinecliff / Appleton to Rhinecliff / Dow.

(Note: Numbers of students were counted by Traffic Supervisors early spring 2003. Numbers increase in warmer weather.)

6-way intersection at Wachusett / Appleton / Dow

Traffic Supervisor; Josephine Gianci

Number of students crossing, as counted early spring 2003: 25

Rated as one of the highest-risk Dallin district intersections by Dallin Safety Committee and Safe Routes to Schools staff. Reasons:

- large intersection with unusually long crossing distances
- poor sight lines: Appleton westbound approach is a hill crest. Appleton eastbound on curve and approach sightlines blocked by hedge
- cars frequently run the Appleton westbound stop sign
- cars typically exceed speed limit

Recommendations:

- First, do not remove Traffic Supervisor from this location
- Repaint all crosswalks with more permanent thermoplastic material
- Wachusett northbound: replace STOP sign that has faded and remove branches that block view [photo available]
- Appleton westbound: (a) replace with bigger STOP sign; (b) add SCHOOL CROSSING about 300ft from intersection
- Add pop-up YIELD TO PEDESTRIAN sign in crosswalk
- Appleton eastbound: (a) replace "Danger Slow" sign with STOP sign; (b) add STOP AHEAD sign before intersection; (c) add DANGEROUS INTERSECTION even further before intersection
- Embed street-level reflectors in crosswalks
- Dow westbound: repaint and relocate STOP AHEAD sign for improved visibility [photo available]

Dow & Rhinecliff intersection (with private George Street cut-through)

Current Traffic Supervisor: Toni Boike

Number of students crossing, as counted early spring 2003: approx. 50

Rated high risk because cut-through commuter traffic typically exceeds speed limit and cars often run STOP signs. Wide corner radii allow cars to take corners too fast. Dallin School implemented a student drop-off site at the end of George St. as a drive-through option in spring '03. This has significantly increased traffic coming out of the George Street cut-through.

Recommendations:

- First, do not remove Traffic Supervisor from this location
- Repaint all crosswalks with more permanent thermoplastic material
- Relocate Rhinecliff crosswalk at Dow & George to south side of intersection
- Dow westbound: (a) build out corner (small corner radius) so Dow crossing distance is shorter; (b) move stop sign out to new corner position
- Dow eastbound: (a) build tighter NW corner radius; (b) replace STOP with larger, reflective sign
- Add SCHOOL ZONE signs to both Dow approaches
- Add in-crosswalk YIELD TO PEDESTRIAN signs to both Dow crosswalks
- Rhinecliff: post NO PARKING from Dow corner along 50ft in front of #37 Rhinecliff (parked cars currently block view of Traffic Supervisor)

The following intersection has not lost its Traffic Supervisor this school year. If Traffic Supervisors cannot be reinstated at the above-named intersections as requested, then the Dallin Safety Committee recommends that the Traffic Supervisor presently at Rhinecliff / Appleton be repositioned to cover Rhinecliff / Dow. The committee recommends the following traffic calming measures at Rhinecliff / Appleton to ensure student safety.

Rhinecliff & Appleton T- intersection

Current Traffic Supervisor: Janet Patterson

Number of students crossing, as counted early spring 2003: 33

Rated moderate risk. Winter solar glare makes it difficult for children to see approaching traffic.

Recommendations:

- Repaint existing crosswalk with more permanent thermoplastic material and add parallel crosswalk on other side of Rhinecliff
- Add speed humps (2) on Appleton about 125ft ahead of crosswalks
- Replace Rhinecliff STOP sign that has faded

Don Eunson, October 2003

SAFE ROUTES TO SCHOOLS

A WalkBoston Program

Safe Routes to Schools has received support from: New Balance Corporation | AAA | Robert Wood Johnson Foundation | National Center for Bicycling and Walking |
League of American Bicyclists | City of Boston, Department of Public Health | Centers for Disease Control and Prevention | Massachusetts Highway Department |
National Park Service, Rivers & Trails Program

from: Transportation Assessment Study, Town of Arlington, Massachusetts The Louis Berger Group, Inc., May 2002, Page 26 Table 9: Sidewalk Condition Around School (within 1/4 mi radius)

School	Sidewalk Condition					
	Good	Fair	Poor	No Sidewalk		
Arlington High	63%	6%	2%	30%		
Bishop	32%	16%	12%	40%		
Brackett	49%	5%	0%	46%		
Catholic	63%	9%	2%	27%		
Dallin	67%	0%	0%	33%		
Gibbs	82%	4%	0%	13%		
Hardy	56%	18%	0%	26%		
Ottoson	80%	3%	0%	16%		
Parmenter	56%	20%	6%	18%		
Peirce	57%	6%	2%	35%		
Stratton	35%	7%	0%	59%		
Thompson	68%	9%	5%	18%		

School Sidewalk Comparison