

**APPENDIX E**

**CTPS Technical Memorandum:  
Proposed Improvements for Saltonstall School Crossings**

**MEMORANDUM**

**TO: Study Advisory Committee** **July 8, 2005**  
**Transportation Improvement Study**  
**for Routes 1A, 114, and 107 and Other Major Roadways in Downtown Salem**

**FROM: Chen-Yuan Wang, Project Manager**  
**Efi Pagitsas, Manager of Traffic Analysis and Design**

**RE: Proposed Improvements for Saltonstall School Crossings**

The Saltonstall School, a K-5 preliminary school with an enrollment of nearly 400, is located on Lafayette Street. The school principal and area residents expressed concerns about students' safety when crossing Lafayette Street (see attached letters). This memorandum summarizes our observations of the existing conditions and presents our recommendations for improving safety.

**Existing Conditions**

CTPS conducted a field reconnaissance on March 18, 2005, from 7:30 AM to 8:00 AM. The weather was clear and cold. During the reconnaissance, staff observed traffic conditions and pedestrian activity on Lafayette Street. They also took note of the roadway conditions, pavement markings, and signs in the school vicinity. The observations are summarized below (see Figure 1 for locations of some of the observations):

- The school has two main entrances, one on Lafayette Street and one on Salem Street. The Lafayette Street entrance is closed in the morning. The overwhelming majority of the students are dropped off on Salem Street. All students are assembled in front of the Salem Street entrance before entering the school.
- There are two crosswalks on Lafayette Street near the school property: a midblock crosswalk facing the school entrance and a crosswalk at the intersection of Hancock Street.
- Flashing school speed limit (20 MPH) signs are installed on Lafayette Street both north and south of the school property. The flashing sign on the south side was not functioning during the observation period.
- A school crossing guard arrived at the midblock crosswalk at 7:30 AM. The guard carried a hand-held stop sign but was not uniformed. Also, the guard stayed in her car except when students arrived at the crosswalk.
- In the half-hour period, the guard escorted about 20 students and parents in four separate groups crossing Lafayette Street. During this period, a parent with a student crossed Lafayette Street using the crosswalk at the intersection of Hancock Street, without assistance from the guard.
- Traffic on Lafayette Street was heavy. However, the school crossings did not cause substantial backups.
- Traffic speed approaching the school area was estimated at about 35 to 40 MPH.

- On-street parking is allowed on both sides of Lafayette Street. Cars were parked at the island that separates a pull-out area in front of the school entrance from the northbound traffic. The pull-out is used by school buses/vans to pick up students after school. Also, cars were parked very close to the pull-out exit and on the southbound side close to the main crosswalk. These cars could potentially obstruct the view of motorists on Lafayette Street.

On June 22, 2005, CTPS conducted an additional field reconnaissance from 2:30 PM to 3:30 PM to observe afternoon school crossings and traffic conditions. The observations are summarized below (see Table 1 for traffic and pedestrian counts on Lafayette Street in the school area):

- The flashing school speed limit (20 MPH) sign on the north had begun flashing previous to the arrival of staff for the start of observations at 2:30 PM. The flashing sign on the south side was not functioning during the observation period.
- No school crossing guard was present during the observation period. According to two parents who took students home, the school crossing guard had been absent for two weeks.
- School ended at 3:00 PM. In the half-hour period from 3:00 PM to 3:30 PM, 18 pedestrians (6 adults and 12 children) from the school crossed Lafayette Street using the midblock crosswalk. During the same period, 14 pedestrians crossed Lafayette Street using the Hancock Street crosswalk. Among them, only 1 parent and 1 child were from the Saltonstall School; the others were people living in the neighborhood and middle school students dropped by school buses at the intersection.
- Traffic on Lafayette Street was heavy. During the one-hour period, CTPS counted 875 northbound vehicles and 758 southbound vehicles passing the midblock crosswalk.
- Traffic speed approaching the school zone was estimated at about 35 to 40 MPH. During the one-hour period, some vehicles were observed to travel at a speed higher than 20 MPH in the school zone.

**Table 1 Traffic and Pedestrian Counts on Lafayette Street**

Count Interval	Number of Pedestrians		Number of Vehicles	
	Midblock Crosswalk in Front of School	Crosswalk at Hancock Street	Northbound	Southbound
2:30-2:45	0	5	205	162
2:45-3:00	8	4	196	196
3:00-3:15	15	3	207	210
3:15-3:30	3	11	267	190
1-Hour Total	26	23	875	758

### Signing for School Area Traffic Control

To ensure student safety, school crossings are usually accompanied by a series of control devices to warn and slow the traffic approaching the designated school zone. The purpose is to slow traffic in the vicinity of school property, not just at the crossing location. Figure 2 shows a typical signing arrangement for school area traffic control. As shown, school advance warning signs<sup>1</sup> (showing school ahead), school crosswalk warning assembly<sup>2</sup> (showing a designated school crosswalk), and

<sup>1</sup> Section 7B.08, *Manual on Uniform Traffic Control Devices*, Millennium Edition.

<sup>2</sup> Section 7B.09, *Manual on Uniform Traffic Control Devices*, Millennium Edition.

“End School Zone” signs<sup>3</sup> (indicating permission to resume the normal speed limit on the street) should be installed in addition to school speed limit signs. At the Saltonstall School, only the school speed limit signs are installed, and the one on the south side facing the northbound traffic is located too close to the school property. The present signs are insufficient to warn and slow the approaching traffic.

### **Proposed Improvements**

The school’s arrangement of drop-offs and pick-ups on Salem Street is appropriate, as it promotes student safety, reduces traffic conflicts, and minimizes traffic delay on Lafayette Street. The number of students observed crossing Lafayette Street is relatively low. At this time, CTPS does not recommend the installation of a traffic signal at the midblock school crossing. Usually other remedial measures, such as school advance warning signs and crossing guards, should be considered before the installation of a traffic signal.<sup>4</sup> The recommended improvements are listed below, and the locations of some of them are illustrated in Figure 3.

- A school crossing guard should be present, uniformed, and visible at the midblock crosswalk during student arrival and departure time. If funding is available, an additional crossing guard can be considered at the Hancock Street crosswalk.
- Repair the flashing school speed limit sign on the south side of the school property and plan to relocate this sign to at least 150 feet south of the existing location.
- Remove or relocate the “Doctors Office Patient Parking” sign that is currently located under the flashing school speed limit sign on the north side of the school property. The school speed limit sign is an important message to motorists. The parking sign mounted right under the speed sign can be distracting to motorists, and it undermines respect for school zone signs.
- Install school advance warning signs (S1-1) in advance of the school speed limit signs in both directions.
- Install end school zone signs (S5-2) on the opposite side of Lafayette Street where the school advance warning signs are located.
- Install school crosswalk warning assembly (S1-1 with diagonal arrow) on both sides of the two crosswalks in the school zone.
- Prohibit parking at or near the midblock crosswalk, including the separator island at the pull-out area in front of the school.

CYW&EP/cyw

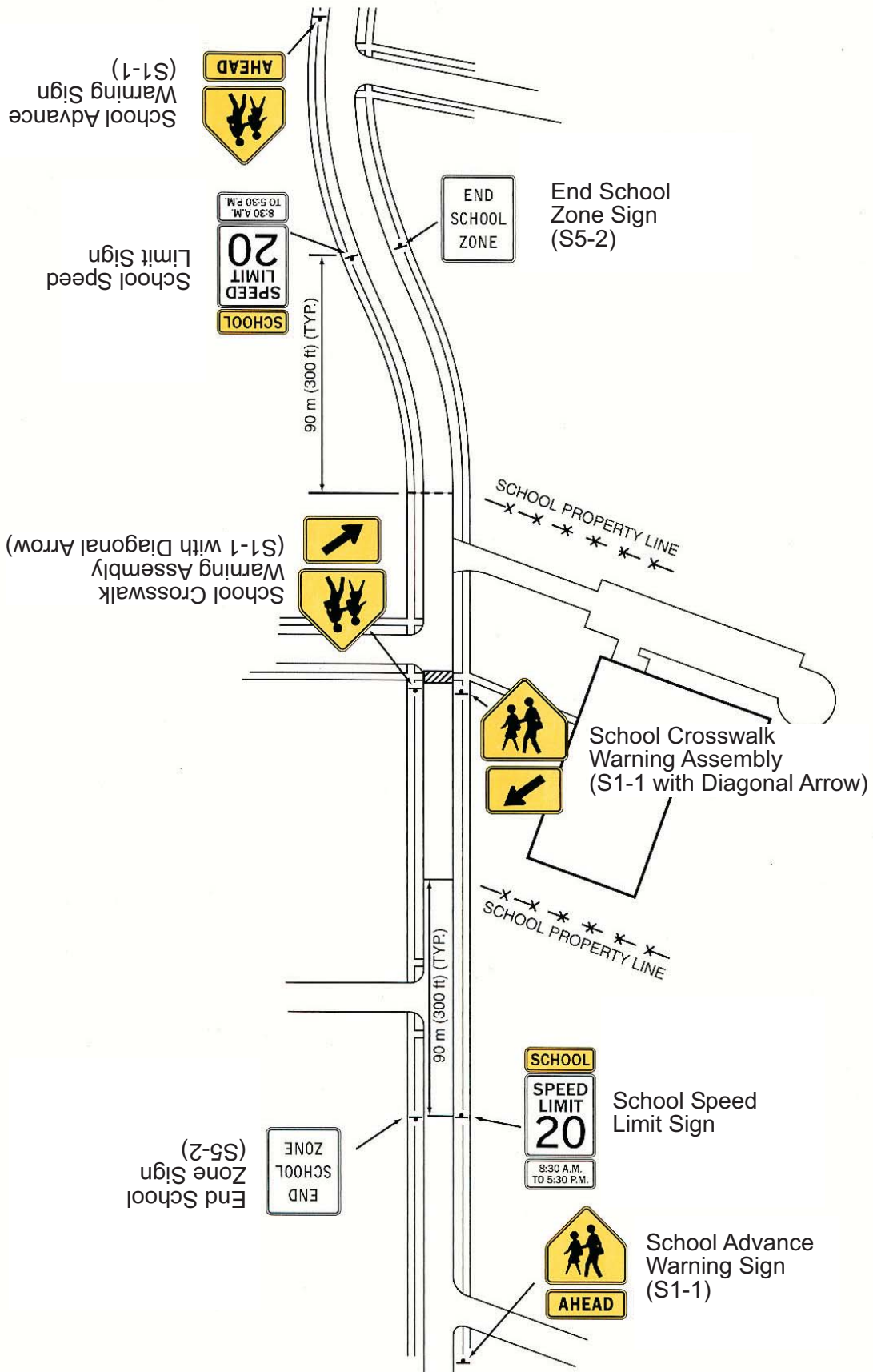
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<sup>3</sup> Section 7B.13, *Manual on Uniform Traffic Control Devices*, Millennium Edition.

<sup>4</sup> Section 4C.06, *Manual on Uniform Traffic Control Devices*, Millennium Edition.



Figure 1 Existing Conditions



**Figure 2 Typical Signing for School Area Traffic Control**

(Source of Figure: Section 7B.09, *Manual on Uniform Traffic Control Devices*, Millennium Edition)



**Figure 3 Proposed Improvements**