



**Draft for Bicycle and Pedestrian Advisory
Commission Review on November 15, 2012**

Council Meeting: December 4, 2012

**SUBJECT: Discussion and Possible Action Regarding Comprehensive
School Traffic Study - STUDY ISSUE**

BACKGROUND

The City Council approved a 2012 study issue to prepare a Comprehensive School Traffic Study (Attachment A – Study Issue DPW 09-01). This study per Council's revised direction as part of the 2012 budget issues process, focuses on evaluation of school traffic in Sunnyvale from an operational perspective and identifies potential traffic control improvements. The study identifies whether a set of actions exists beyond current traffic controls to improve school zone traffic flow and enhance pedestrian safety. The study maps school routes for Sunnyvale public elementary and middle schools per the California Manual of Uniform Traffic Control Devices (CA-MUTCD) methodology, and evaluates all school route intersections. Data inputs include existing intersection traffic control and approach signing and markings, traffic volume, collision information, speed limits, and roadway classification. Intersection improvement options are then developed using criteria based on guidance and requirements developed from a number of sources, including the (CA-MUTCD), the National Center for Safe Routes to Schools, and examples from other municipalities. The study presents recommendations for nine different types of traffic control modifications to improve pedestrian and bicycling conditions for school age travelers at all City public elementary and middle schools. Over 200 locations are recommended for further detailed evaluation (Attachment B).

This study is separate from a joint Council of Santa Clara Health Department/City of Sunnyvale project to evaluate travel behavior and interface with school administrations and parent groups to develop Transportation Demand Management (TDM) programs for City schools. This multi-year effort has a goal to establish school TDM programs in 80% of Sunnyvale schools.

EXISTING POLICY

Land Use and Transportation Chapter, LT-5.4g Conduct periodic analyses of roadway facilities and collision data in order to assure traffic safety.

Land Use and Transportation Chapter, LT-5.4b Install permanent and painted pavement markings.

Land Use and Transportation Chapter, LT-5.3d Make appropriate hardware and software improvements to traffic signals.

DISCUSSION

The comprehensive school traffic study issue considers new or enhanced traffic controls and pedestrian or bike features on school routes (Attachment C). The methodology is based on school route maps that illustrate existing controls and features and applying in a Geographic Information Systems-based query format a comprehensive set of data on traffic volume, safety, and controls on a school-specific basis. Criteria have been established to determine locations for subsequent detailed engineering evaluation for the installation of new or enhanced traffic devices (controls, warning signs, lighted crosswalks, paddle signs, enhanced striping, etc.). These maps will be used to guide future detailed study and implementation of controls, and also for scoping of possible future Safe Routes to School or other grant applications to implement traffic improvements.

The study considers nine different types of school area traffic control improvements. These are listed below and some examples are illustrated in Attachment D:

1. Rectangular rapid flashing beacons
2. In pavement lighted crosswalks
3. Raised crosswalks/traffic calming
4. Marked/improved crosswalks at uncontrolled intersections
5. High visibility crosswalks at Yield controlled intersections
6. Stop control and improved crosswalks at marked crosswalks
7. Marked crosswalks at Stop controlled intersections
8. Improved traffic signals
9. Fifteen mile per hour school zones

The criteria developed for determining traffic control improvement recommendations contains some flexibility in making recommendations for crosswalk and traffic signal improvements. Depending upon the conditions cited for making a recommendation, the study makes a range of conservative to liberal options for the recommendations on the marking of crosswalks and improvement of existing traffic signals. For example, when considering whether to mark crosswalks at stop controlled intersections along school routes, the study identifies five different criteria for installation. These range from proximity (mark crosswalks at all stop controlled intersections within ½ mile of a school), to traffic volume (mark if volume is over 2,000 vehicles/day, VPD), to collision history and street classification, to marking of only three and four-way controlled intersections with a higher traffic volume (2,000 VPD). The result are options for marking high visibility crosswalks at a range of locations from two intersections to 257 intersections. Staff intends to apply the study results by conducting more detailed investigations beginning with the more

conservative criteria results and moving to the more liberal. Location-specific investigations and judgments will need to be made to balance the in-the-field conditions with the resources available to install and maintain traffic controls.

The Comprehensive School Traffic Study provides a focused framework for moving forward on making school area traffic control improvements. It is anticipated that location specific investigations will advance over the next year utilizing funds approved by the City Council and contracting for professional services to conduct location-specific studies. Installation of improvements will primarily occur with grant funds that are pursued and secured based on completion of location-specific studies and development of competitive projects. Some items will be “just do it” items within the existing resources of the City and justified by the Comprehensive School Traffic Study, such as limited signing and striping improvements like crosswalks, yield bars, and warning signs. Existing operating budgets likely cannot cover the cost of widespread signing and striping improvements in the near term, however. Items such as higher cost lighted systems and traffic signal systems will require grant resources.

15 Mile Per Hour School Zones

At its February 28, 2012 meeting, the City Council considered the blanket establishment of 15 mile per hour school zones at qualifying locations per State law and acted not to enact the zones Citywide. This action still remains in the toolbox of school traffic controls, however. State law was modified in 2008 to allow local jurisdictions the authority to establish 15 mile per hour speed zones near schools. This is a certain exception in the California Vehicle Code (CVC) to the required method for establishing speed limits. Local authorities may adopt 15 mile per hour school area speed zones adjacent to schools in residential areas and on streets where the posted speed limit is 30 miles per hour or less. Reduced speeds can lower the severity of collisions. An ordinance or resolution must be approved in support of creation of the 15 mile per hour zones

Staff has developed a criterion as part of the Comprehensive School Traffic Study to allow consideration of 15 mile per hour zones on those qualifying street segments that have documented higher traffic speeds. The criterion proposed is for those school area streets that have an 85 percentile speed greater than 25 miles per hour during school commute times, establishment of a 15 mile per hour zone would be recommended. Staff would utilize this criterion by conducting speed surveys to determine which school area streets are experiencing high traffic speeds, and may warrant corrective action. Any change in speed limits would still require Council action by resolution.

Bicycle and Pedestrian Advisory Commission Recommendation

The Sunnyvale Bicycle and Pedestrian Advisory Commission considered this item at its November 15, 2012 meeting and...

FISCAL IMPACT

Additional detailed study of locations will be done utilizing funding approved for preparation and implementation of the Comprehensive School Traffic Study. Implementation of traffic control modifications will be done within the confines of the Public Works operating budget, augmented by grant funding as it is secured for future school traffic safety projects.

PUBLIC CONTACT

Public contact was made by posting the Council agenda on the City's official-notice bulletin board outside City Hall, at the Sunnyvale Senior Center, Community Center and Department of Public Safety; and by making the agenda and report available at the Sunnyvale Public Library, the Office of the City Clerk and on the City's Web site.

The Bicycle and Pedestrian Advisory Commission held a public hearing on a draft Report to Council at its November 15, 2012 meeting (Attachment E – Draft meeting minutes).

ALTERNATIVES

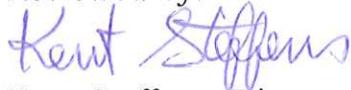
1. Accept the Comprehensive School Traffic Study and direct staff to implement the study results.
2. Do not accept the Comprehensive School Traffic Study and direct staff to conduct additional analysis.
3. Do not accept the Comprehensive School Traffic Study and take no further action.

RECOMMENDATION

Staff recommends Alternative Nos. 1: Accept the Comprehensive School Traffic Study and direct staff to implement the study results

The Comprehensive School Traffic Study provides a useful tool for planning and implementing school area traffic control improvements, and positioning the City for future grant funding opportunities for school traffic safety projects.

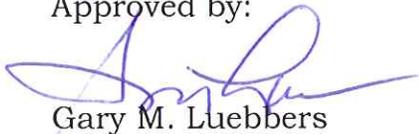
Reviewed by:



Kent Steffens, Director, Public Works

Prepared by: Jack Witthaus, Transportation and Traffic Manager

Approved by:



Gary M. Luebbers
City Manager

Attachments

- A. Study Issue DPW 09-01 Comprehensive School Traffic Study
- B. Summary of Study Recommendations
- C. Comprehensive School Traffic Study
- D. School Traffic Control Devices
- E. Draft Bicycle and Pedestrian Advisory Commission Meeting Minutes of November 15, 2012

2012 Council Study Issue

DPW 09-01 Comprehensive School Traffic Study (Combined SI's School TDM Opportunities & School Zone Traffic Controls and Enforcement)

Lead Department Public Works

History 1 year ago Deferred 2 years ago Above the line

1. What are the key elements of the issue? What precipitated it?

This issue would comprehensively investigate and evaluate school traffic in Sunnyvale from both an operational and programmatic perspective. Three primary areas will be assessed: Transportation Demand Management (TDM), traffic controls, and traffic enforcement. Travel patterns and vehicle and pedestrian conditions at schools, including mode choice, alternative transportation resources, pedestrian patterns, location of pedestrian facilities (especially crosswalks), driving behaviors (especially speeding, right of way compliance and illegal turns), and speed controls will be assessed. For TDM, the study would look at appropriate levels of resources for the City to invest in encouraging effective TDM for schools within the City. The study would look at interfaces between school district and City operations, and opportunities for the City to invoke regulations or encourage TDM to school commuters. The outcome of the TDM evaluation would be recommendations for policy, actions, and resources for a transportation demand management program targeted at City schools. For traffic controls and enforcement, the study would identify whether a set of actions exists beyond current traffic controls and enforcement resources to improve school zone traffic flow and enhance pedestrian safety. This study would include a review of the applicability of CVC 22358.4 provisions regarding lowering of speed limits in school areas. The purpose of the study is to consider concerns that school area loading and unloading is chaotic in many areas and that a high proportion of parents drive their children to school. TDM, additional controls and/or enforcement may improve efficiency and safety.

As per Council action at the January 29, 2010 Study Issues Workshop, this study is the result of merging DPW 09-01, School Transportation Demand Management Opportunities, and DPW 10-08 School Zone Traffic Controls and Enforcement.

2. How does this relate to the General Plan or existing City Policy?

Land Use and Transportation Element Goal C3, Attain a transportation system that is effective, safe, pleasant and convenient.

3. Origin of Issue

Council Member(s) Hamilton, Howe
Board or Commission

4. Staff effort required to conduct study Major**Briefly explain the level of staff effort required**

This study would involve a citywide, school by school analysis of three significant topic areas - programmatic traffic demand actions, engineering/traffic control actions, and enforcement actions. Considerable field investigations, design efforts, and study of operating protocols would be involved. Significant coordination with school districts, individual schools, PTA's and other

stakeholders would be necessary. Such a comprehensive effort would require staffing augmentation by consultants and involvement of staff from several disciplines.

5. Multiple Year Project? Yes Planned Completion Year 2013

6. Expected participation involved in the study issue process?

Does Council need to approve a work plan? No

Does this issue require review by a Board/Commission? Yes

If so, which? Bicycle and Pedestrian Advisory
Commission

Is a Council Study Session anticipated? No

7. Briefly explain if a budget modification will be required to study this issue

Amount of budget modification required 500000

Explanation

A total of 28 schools would be targeted by the study. Staff estimates 200 consultant hours per school would be required for data collection, meetings with stakeholders, and development of school-specific action plans. A budget modification of approximately \$500,000 would be required. There would be staff time implications to the Department of Public Works and the Department of Public Safety.

8. Briefly explain potential costs of implementing study results, note estimated capital and operating costs, as well as estimated revenue/savings, include dollar amounts

Are there costs of implementation? Yes

Explanation

Should a TDM program be adopted, this could involve capital improvements to direct traffic or improve alternative transportation routes to schools. An ongoing program involving elements such as ridematching, walking school buses, or bike safety courses would require resources to manage the program, provide educational and promotional materials, etc. This study could also result in recommendations for new traffic controls at schools Citywide. This could represent a capital investment of considerable scope. The study could also result in recommendations for additional traffic enforcement or crossing guard resources, which can have a significant operating cost.

9. Staff Recommendation

Staff Recommendation Drop

If 'Support', 'Drop' or 'Defer', explain

Staff believes this issue is largely operational, and that a significant portion of the responsibility for school traffic should fall on school districts rather than the City. The City does, however, currently direct available resources to address school traffic issues as they arise. Also, the City, in partnership with the County Public Health Department, recently submitted a successful grant application for a comprehensive school traffic demand management program that will address many of the issues raised in the proposed study issue. This program will use a collaborative process to reach a minimum of 80% of Sunnyvale schools to design and implement transportation demand management programs and identify other measures that can be implemented within existing resource constraints. City staff from the Department of Public

Works and the Department of Public Safety are participating in the project, including site specific workshops with school staff and parents to design and implement transportation measures.

Reviewed by

Kent Steffens

Department Director

10-3-11

Date

Approved by

Stephane

City Manager

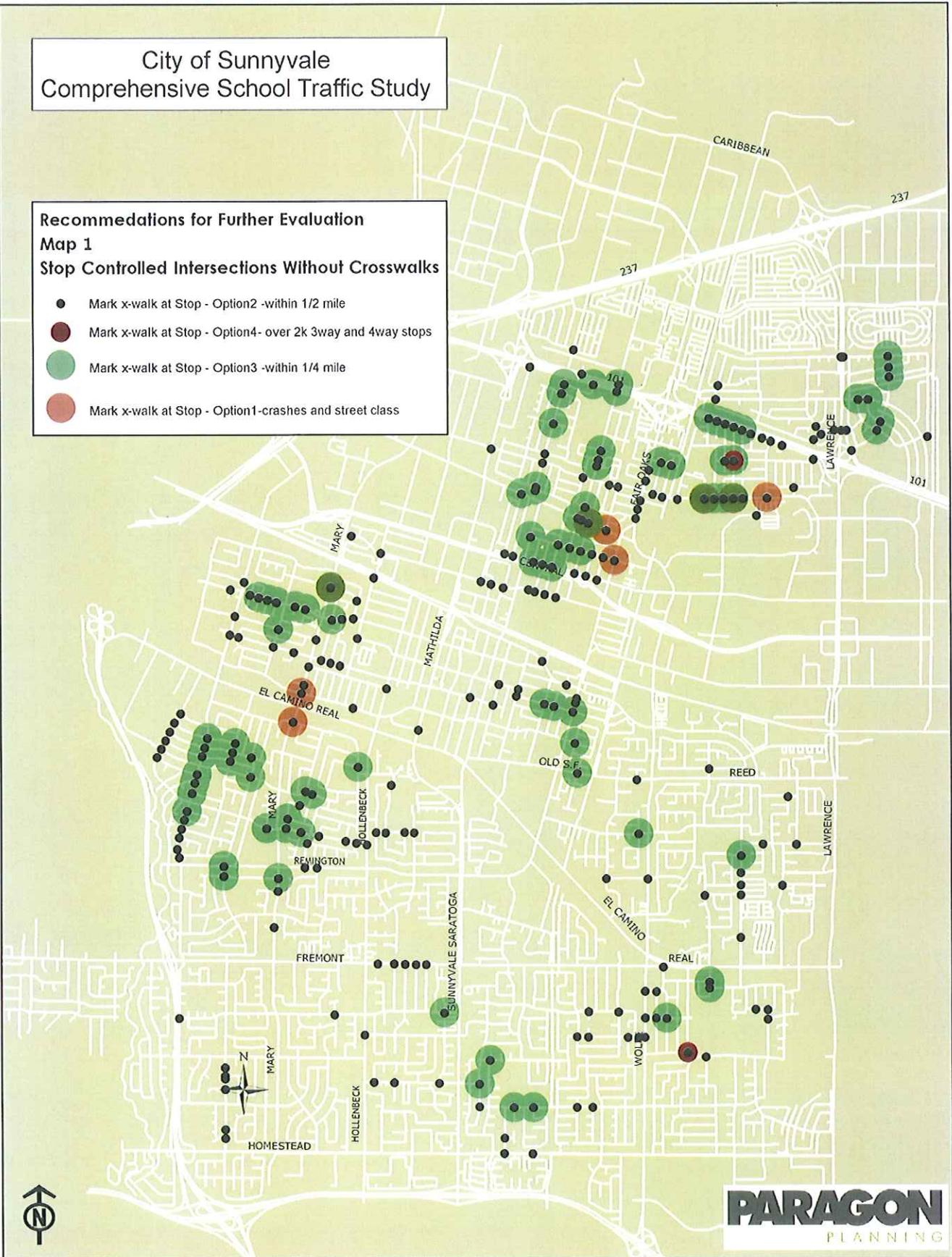
10-4-11

Date

City of Sunnyvale
Comprehensive School Traffic Study

Recommendations for Further Evaluation
Map 1
Stop Controlled Intersections Without Crosswalks

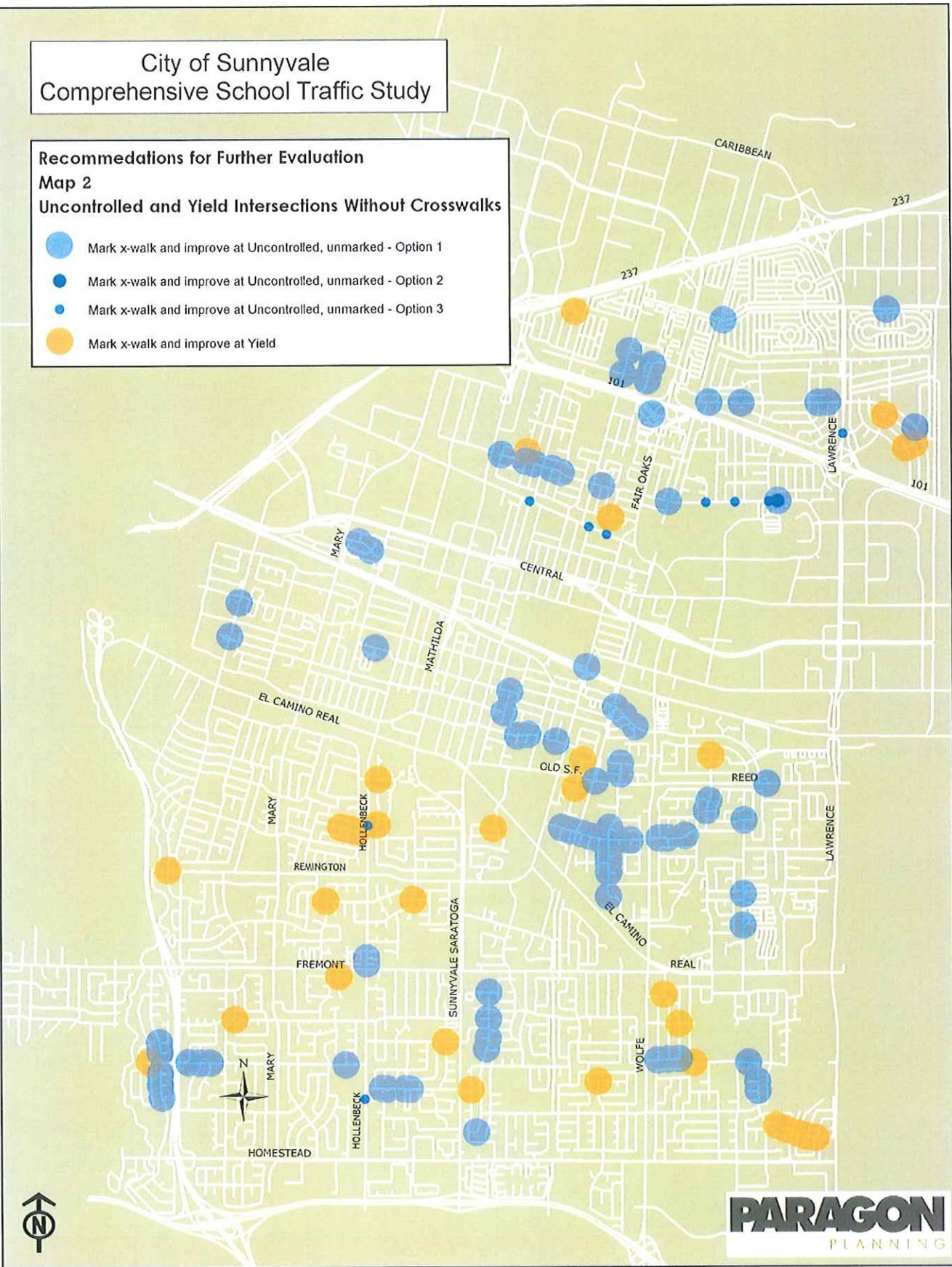
- Mark x-walk at Stop - Option2 -within 1/2 mile
- Mark x-walk at Stop - Option4- over 2k 3way and 4way stops
- Mark x-walk at Stop - Option3 -within 1/4 mile
- Mark x-walk at Stop - Option1-crashes and street class



City of Sunnyvale Comprehensive School Traffic Study

Recommendations for Further Evaluation Map 2 Uncontrolled and Yield Intersections Without Crosswalks

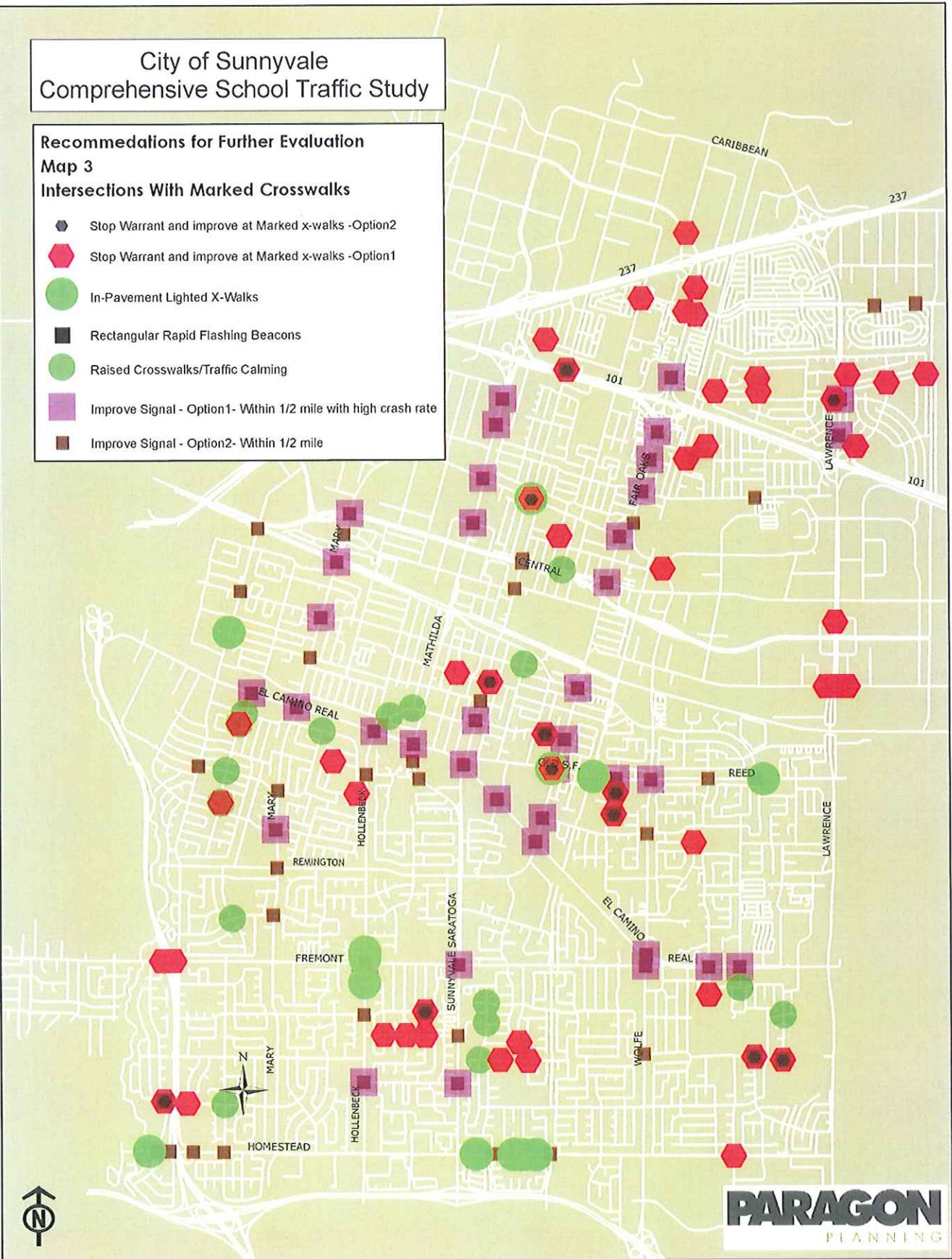
- Mark x-walk and improve at Uncontrolled, unmarked - Option 1
- Mark x-walk and improve at Uncontrolled, unmarked - Option 2
- Mark x-walk and improve at Uncontrolled, unmarked - Option 3
- Mark x-walk and improve at Yield



City of Sunnyvale Comprehensive School Traffic Study

Recommendations for Further Evaluation Map 3 Intersections With Marked Crosswalks

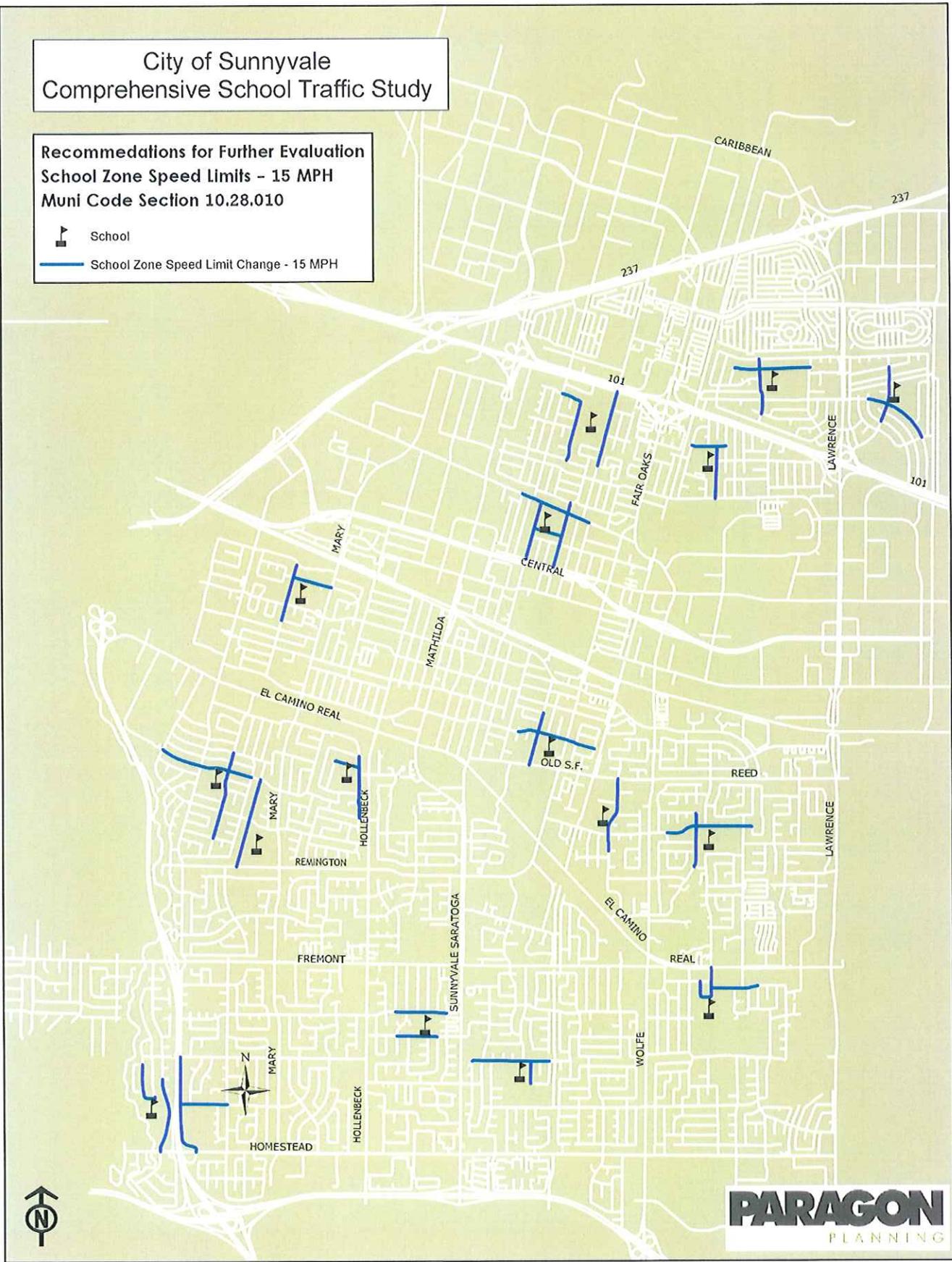
-  Stop Warrant and improve at Marked x-walks -Option2
-  Stop Warrant and improve at Marked x-walks -Option1
-  In-Pavement Lighted X-Walks
-  Rectangular Rapid Flashing Beacons
-  Raised Crosswalks/Traffic Calming
-  Improve Signal - Option1- Within 1/2 mile with high crash rate
-  Improve Signal - Option2- Within 1/2 mile



City of Sunnyvale Comprehensive School Traffic Study

Recommendations for Further Evaluation
School Zone Speed Limits - 15 MPH
Muni Code Section 10.28.010

-  School
-  School Zone Speed Limit Change - 15 MPH



City of Sunnyvale Comprehensive School Traffic Study



November 2012

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SECTION 1 INTRODUCTION

The goal of the Sunnyvale Comprehensive School Traffic Study is to proactively and uniformly identify intersections for improvement and/or further study along routes used by children to walk and bike to school.

The study aggregated existing transportation data for all intersections along school routes within the City of Sunnyvale. The data included intersection traffic control, traffic volume, collision information, speed limit, roadway

classification, and existing signs and markings.

Intersection treatment options and criteria for implementation were then compiled to serve as a tool box for implementation of enhanced traffic control along routes used by children to walk to school. This was developed using the guidance and requirements from the Manual on Uniform Traffic Control Devices (MUTCD), current research from the National Center for Safe Routes to School, the 2007 Sunnyvale

Pedestrian Safety and Opportunities Study, examples from other municipalities, along with a number of other sources. This is detailed in Section 2 of the report.

The implementation criteria in conjunction with the transportation data were used to uniformly identify locations for further analysis. This is detailed in Section 3 of the report. The tables in Section 3 describe the existing traffic control and markings, the enhanced treatment options for consideration, and the criteria used to identify possible candidate intersections. In some cases multiple criteria were applied, varying from broad to restrictive. This is the case when "Options" are specified. The tables are also meant to accompany both the city wide and the school specific maps.

Future work will include a more detailed evaluation of each intersection and will identify locations where pedestrian counts, turning movement counts, speed surveys, and gap analysis should be collected.

SECTION 2

IMPROVEMENT OPTIONS AND CRITERIA

There are many different ways that an intersection can be modified to improve the safety, comfort, and convenience for children and families walking to school. This section describes a number of these intersection treatments that may be relevant for school routes in Sunnyvale. For each treatment there is a description, recommended implementation criteria for Sunnyvale, MUTCD Guidance, and a description of other precedence or details to consider.

Engineering criteria for devices on school routes allows for a lot of discretion. This toolbox of treatments and information associated with each treatment is aimed at standardizing Sunnyvale's application of improvements comprehensively, rather than on a reactionary basis. This section of the plan relates to the City of Sunnyvale General Plan Policy Policy LT -5.11 - The City should consider enhancing standards for pedestrian facilities.