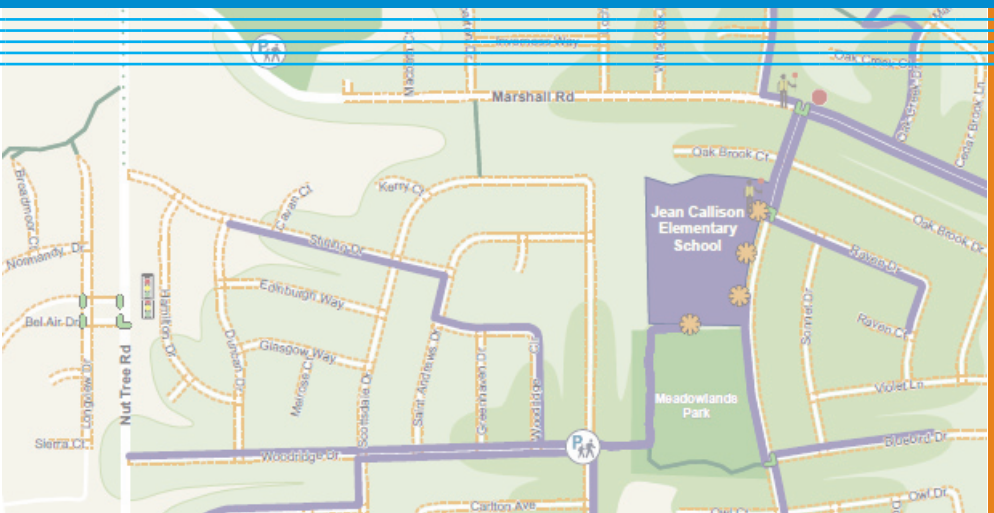
Solano Transportation Authority

safe routes to school

Plan Update

STA Safe Routes to School Program



September 2013

STA Solano Transportation Authority ...working for you!

alta PLANNING + DESIGN

with assistance from
Brian Fulfrost & Associates | Finger Design

Acknowledgements

This Plan would not be possible without the commitment, creativity, and hard work of numerous individuals and stakeholders throughout Solano County. Those who most regularly contributed to the Plan are listed below, with the exception of the many Safe Routes to School Community Task Force members who are listed under each local planning chapter in Part Two of this report. An additional thank you goes out to all the school principals, parents, students, and other community members whose contributions to this Plan have been immensely valuable.

Solano Transportation Authority

Danelle Carey, Safe Routes to School Assistant Program Manager

Judy Leaks, Safe Routes to School Program Manager

Sam Shelton, Project Manager (former staff)

Daryl Halls, Executive Director

Safe Routes to School Countywide Advisory Committee

Mike Segala, AC Chair, Bicycle Advisory Committee

Jeff Knowles, AC Vice-Chair, City of Vacaville

Jim Antone, Yolo-Solano Air Quality Management District

Robin Cox, Solano Public Health

Mike Hudson, Pedestrian Advisory Committee

Mel Jordan, Vallejo City Unified School District

Tim Mattos, Suisun City Police Department

Scott Przekurat, Benicia Police Department

Jay Speck, Solano County Office of Education

Garland Wong, City of Fairfield

Alta Planning + Design

Brett Hondorp, Principal-in-Charge

Casey Hildreth, Project Manager

Christopher Kidd, Project Planner

This page intentionally left blank.

Table of Contents

PART ONE *Countywide Planning*

Executive Summary xi

1 Introduction 1-1

1.1 Why a Safe Routes to School Plan? 1-1

1.2 The "E's" of Safe Routes to School 1-2

1.3 How We Created the Plan 1-3

1.4 Report Contents 1-4

2 Program Overview 2-1

2.1 Capital Program Components 2-1

2.2 Non-Infrastructure Program Components 2-3

2.3 Planning & Oversight 2-7

2.4 School Travel Information 2-12

3 Recommended Planning Framework 3-1

3.1 Plan Goals 3-1

3.2 2008 Plan Assessment 3-1

3.3 2013 Plan Goals, Policies, Objectives, Benchmarks 3-3

3.4 SR2S Non-Infrastructure Programs 3-7

4 SR2S Engineering Program 4-1

4.1 Complete Streets 4-1

4.2 Suggested Routes to School Mapping Project 4-1

4.3 Relevant Planning Documents 4-3

4.4 Bicycle & Pedestrian Collisions 4-5

4.5 2011/2012 Walk Audits 4-6

4.6 Project Prioritization 4-7

4.7 Capital Project Summary 4-8

4.8 Guidelines for Future Projects 4-9

5 Funding Sources 5-1

5.1 Federal Funding Sources 5-1
5.2 State Funding Sources 5-2
5.3 Regional Funding Sources 5-5

PART TWO *Local Planning*

6 Benicia 6-1
6.1 SR2S Community Task Force 6-1
6.2 Walkshed and Collision Maps 6-1
6.3 2008 STA SR2S Plan 6-5
6.4 Carried-Over Recommendations 6-6
6.5 2013 Plan Walk Audit Recommendations 6-6
6.6 Additional New Projects 6-7
6.7 Benicia Middle School Travel Plan 6-13
6.8 Matthew Turner Elementary School Travel Plan 6-21
6.9 Robert Semple Elementary School Travel Plan 6-33
7 Dixon 7-1
7.1 SR2S Community Task Force 7-1
7.2 Walkshed and Collision Maps 7-1
7.3 2008 STA SR2S Plan 7-5
7.4 Carried-Over Recommendations 7-5
7.5 2013 Plan Walk Audit Recommendations 7-6
7.6 C.A. Jacobs Intermediate School Travel Plan 7-11
7.7 Tremont Elementary School Travel Plan 7-23
8 Fairfield 8-1
8.1 SR2S Community Task Force 8-1
8.2 Walkshed and Collision Maps 8-1
8.3 2008 STA SR2S Plan 8-9
8.4 Carried-Over Recommendations 8-10
8.5 2013 Plan Walk Audit Recommendations 8-10
8.6 Additional Priority Projects 8-11

8.7 Center Elementary School Travel Plan 8-15
8.8 Rolling Hills Elementary School Travel Plan 8-23
8.9 Tolenas Elementary School Travel Plan 8-31
9 Rio Vista 9-1
9.1 SR2S Community Task Force 9-1
9.2 Walkshed and Collision Maps 9-1
9.3 2008 STA SR2S Plan 9-5
9.4 Carried-Over Recommendations 9-5
9.5 2013 Plan Walk Audit Recommendations 9-6
9.6 Additional Projects 9-6
9.7 DH White Elementary School Travel Plan 9-11
10 Suisun City 10-1
10.1 SR2S Community Task Force 10-1
10.2 Walkshed and Collision Maps 10-1
10.3 2008 STA SR2S Plan 10-5
10.4 Carried-Over Recommendations 10-5
10.5 2012 Walk Audit Recommendations 10-5
10.6 Citywide Recommendations 10-6
10.7 Crescent Elementary School Travel Plan 10-9
10.8 Crystal Middle School Travel Plan 10-19
11 Travis Unified School District 11-1
11.1 2008 STA SR2S Plan 11-5
11.2 2013 Plan Walk Audit Recommendations 11-5
11.3 Additional Priority Projects 11-6
12 Vacaville 12-1
12.1 SR2S Community Task Force 12-1
12.2 Walkshed and Collision Maps 12-1
12.3 2008 STA SR2S Plan 12-5
12.4 Carried-Over Recommendations 12-5
12.5 2013 Plan Walk Audit Recommendations 12-6
12.6 Additional Priority Projects 12-6

12.7 Browns Valley Elementary School Travel Plan 12-13
12.8 Callison Elementary School Travel Plan 12-23
12.9 Vacaville High School Travel Plan 12-35
13 Vallejo 13-1
13.1 SR2S Community Task Force 13-1
13.2 Walkshed and Collision Maps 13-1
13.3 2008 STA SR2S Plan 13-7
13.4 Carried-Over Recommendations 13-7
13.5 2012 Walk Audit Recommendations 13-7
13.6 Additional Priority Projects 13-8
13.7 Johnston Cooper Elementary School Travel Plan 13-13
13.8 Joseph Wardlaw Elementary School Travel Plan 13-23

PART THREE *Appendices*

A Appendix A – Citywide Suitability Maps A-1
B 2011-2012 Parent Survey Data Reports B-1
C Geographic Information Systems (GIS) Mapping Documentation C-1
D Website Blogging Content (Communications Toolkit) D-1
E Walk Audit Summary Memorandum E-1

List of Figures

Figure 2-1: SR2S Operating Budget by Grant Source 2-5
Figure 2-2: Mode Split for Solano County Students, 2008-2011 2-13
Figure 2-3: Change in Walk/Bike Hand Tally Mode Share – Individual Schools 2-14
Figure 2-4: Mode Split for Students, spring 2012, parent survey 2-15
Figure 2-5: Approximate Distance from Home to School (for each child) 2-16
Figure 2-6: Percent Mode Split by Distance from School 2-16
Figure 2-7: Parent concerns that limit walking/biking 2-17
Figure 2-8: Factors that may influence parents to drive their children to school less often 2-18
Figure 6-1: Benicia schools, parks, and walksheds 6-3
Figure 6-2: Benicia Bicyclist & Pedestrian Collisions, 2005-2010 6-4
Figure 6-3: Benicia Middle School Existing Conditions 6-15
Figure 6-4: Benicia Middle Recommended Improvements 6-16
Figure 6-5: Matthew Turner Elementary Existing Conditions 6-25
Figure 6-6: Matthew Turner Elementary Recommended Improvements 6-26
Figure 6-7: Robert Semple Elementary Existing Conditions 6-35
Figure 6-8: Robert Semple Elementary Recommended Improvements 6-36
Figure 7-2: Dixon Bicyclist & Pedestrian Collisions, 2005-2010 7-4
Figure 7-3: C.A. Jacobs Intermediate Existing Conditions 7-15
Figure 7-4: C.A. Jacobs Intermediate Recommended Improvements 7-16
Figure 7-5: Tremont Elementary Existing Conditions 7-27
Figure 7-6: Tremont Elementary Recommendations 7-28
Figure 8-1: Cordelia/Green Valley schools, parks, and walksheds 8-3
Figure 8-2: Central/West Fairfield schools, parks, and walksheds 8-4
Figure 8-3: Centra/East Fairfield schools, parks & walksheds 8-5
Figure 8-4. East Fairfield/Travis Air Force Base schools, parks, and walksheds 8-6
Figure 8-5: Fairfield Bicyclist & Pedestrian Collisions, 2005-2010 (Source: CHP-SWITRS database) 8-7
Figure 8-6: Center Elementary Existing Conditions 8-17
Figure 8-7: Center Elementary Recommended Improvements 8-18
Figure 8-8: Rolling Hills Elementary Existing Conditions 8-25
Figure 8-9: Rolling Hills Elementary Recommended Improvements 8-26
Figure 8-10: Tolenas Elementary Existing Conditions 8-33
Figure 8-11: Tolenas Elementary Recommended Improvements 8-34
Figure 9-1: Rio Vista schools, parks, and walksheds 9-3
Figure 9-2: Rio Vista Bicyclist & Pedestrian Collisions, 2005-2010 9-4
Figure 9-3: DH White Elementary Existing Conditions 9-15
Figure 9-4: DH White Elementary Recommended Improvements 9-16
Figure 11-1: Suisun City Schools, Parks & Walksheds 10-3
Figure 11-2: Suisun City Bicycle & Pedestrian Collisions, 2005-2010 10-4
Figure 10-3: Crescent Elementary Existing Conditions 10-12
Figure 10-4: Crescent Elementary Recommended Improvements 10-13

Figure 10-5: Crystal Middle Existing Conditions 10-21
Figure 10-6: Crystal Middle Recommended Improvements 10-22
Figure 12-1: Travis Air Force Base schools, parks & walksheds 11-3
Figure 12-2: Travis Air Force Base Bicyclist & Pedestrian Collisions, 2005-2010 11-4
Figure 12-1: North Vacaville schools, parks & walksheds 12-2
Figure 12-2: South Vacaville schools, parks & walksheds 12-3
Figure 12-3: Vacaville Bicyclist & Pedestrian Collisions, 2005-2010 12-4
Figure 12-4: Browns Valley Elementary Existing Conditions 12-15
Figure 12-5: Browns Valley Recommended Improvements 12-16
Figure 12-6: Callison Elementary Existing Conditions 12-27
Figure 12-7: Callison Elementary Recommended Improvements 12-28
Figure 12-8: Vacaville High Existing Conditions 12-37
Figure 12-9: Vacaville High Recommended Improvements 12-38
Figure 13-1: North Vallejo schools, parks & walksheds 13-3
Figure 13-2: South Vallejo schools, parks & walksheds 13-4
Figure 13-3: Vallejo Bicyclist & Pedestrian Collisions, 2005-2010 13-5
Figure 13-4: Johnston Cooper Elementary Existing Conditions 13-15
Figure 13-5: Johnston Cooper Elementary Recommended Improvements 13-16
Figure 13-6: Joseph Wardlaw Elementary Existing Conditions 13-25
Figure 13-7: Joseph Wardlaw Elementary Recommended Improvements 13-26

List of Tables

Table 2-1: Solano County SR2S Infrastructure Grants 2-1
Table 2-2: Solano County SR2S Participation by School 2-9
Table 3-1: Review of 2008 Plan Objectives 3-2
Table 3-2: Countywide SR2S Non-Infrastucture Program Estimated Costs (Annual) 3-7
Table 4-1: Summary of STA Walk Audits Completed in 2011/2012 4-6
Table 4-2: Countywide Safe Routes to School Capital Projects – Funding Totals 4-8
Table 6-1: Benicia Task Force Membership 6-1
Table 6-2: Benicia Priority Engineering Projects 6-9
Table 6-3: Benicia Middle School Recommended Improvements 6-19
Table 6-4: Matthew Turner Elementary Recommended Improvements 6-31
Table 6-5: Robert Semple Elementary Recommended Improvements 6-42
Table 7-1: Dixon Task Force Membership 7-1
Table 7-2: Dixon Priority Engineering Projects 7-9
Table 7-3: CA Jacobs Intermediate Recommended Improvements 7-21
Table 7-4: Tremont Elementary Recommended Improvements 7-33
Table 8-1: Fairfield Community Task Force Membership 8-1
Table 8-2: Fairfield Priority Engineering Projects 8-13
Table 8-3: Center Elementary Recommended Improvements 8-22
Table 8-4: Rolling Hills Elementary Recommended Improvements 8-30
Table 8-5: Tolenas Elementary Recommended Improvements 8-39
Table 9-1: Rio Vista Task Force Membership 9-1
Table 9-2: Rio Vista Priority Engineering Projects 9-7
Table 9-3: DH White Elementary Recommended Improvements 9-23
Table 10-1: Suisun City Task Force Membership 10-1
Table 10-2: Suisun City Priority Projects 10-7
Table 10-3: Crescent Elementary Recommended Improvements 10-17
Table 10-4: Crystal Middle Recommended Improvements 10-28
Table 12-1: Vacaville Task Force Membership 12-1
Table 12-2: Vacaville Priority Engineering Projects 12-8
Table 12-3: Browns Valley Elementary Recommended Improvements 12-21
Table 12-4: Callison Elementary Recommended Improvements 12-33
Table 12-5: Vacaville High School Recommended Improvements 12-42
Table 13-1: Vallejo Task Force Membership 13-1
Table 13-2: Vallejo Unified Priority Engineering Projects 13-9
Table 13-3: Johnston Cooper Elementary Recommended Improvements 13-21
Table 13-4: Joseph Wardlaw Elementary Recommended Improvements 13-31

This page intentionally left blank.

PART ONE

Countywide Planning

Executive Summary

The Solano County Safe Routes to School (SR2S) program is a multifaceted effort to increase the number of students who walk, bike, rideshare, or take transit to and from school. The benefits from increased use of these travel modes are myriad: it can improve air quality, reduce congestion around schools, reduce health risks associated with childhood obesity, improve safety around schools, teach students safety skills, improve students' focus in the classroom, and foster a closer sense of community among participants. Since 2007, the Solano County SR2S program has focused on educating students at special events, enforcing traffic laws in school zones, installing safety improvements, and encouraging families to sidestep traffic in favor of "walking & rolling" to school.

STA completed and adopted a SR2S Plan in 2008. This document is an update to that plan and refocuses the goals of the program while providing new and expanded material for prioritizing future program investments. This plan was formed over multiple rounds of input with stakeholders at the countywide and individual jurisdiction/school district levels.

The 2013 Plan Update includes evaluation of progress on the goals and objectives of the STA 2008 SR2S plan, school site walk audit evaluations for seventeen schools around the county, an introduction to new program materials (including new suggested route to school maps and route planning tools), and data results collected from both student and parent travel surveys.

The Plan seeks to create a balanced approach to Safe Routes to School, using all five "E's" of a Safe Routes to School program: Engineering, Enforcement, Encouragement, Education, and Evaluation. This plan also introduces a sixth "E" – Engagement – to further the goals of the program and impact on student families in Solano County. These six "E's" will inform the goals, strategies, and tactics of the STA SR2S program in future years to achieve desired changed in the travel habits of students, parents, and other travelers within school zones.

Using the 2013 STA SR2S Plan

The 2013 Solano County Safe Routes to School (SR2S) Plan Update ('the Plan') functions as a tool for decision makers involved in the Safe Routes to School program. The Plan is both an update of the 2008 STA SR2S Plan and a stand-alone document for guiding the program into the future.

The Plan provides an introduction to the Safe Routes to School Program and a review of accomplishments in previous years as measured against the 2008 STA SR2S Plan goals and objectives. The Plan then provides new goals for the STA SR2S program, informed by previous years' experiences and by the desire to expand the scope and effectiveness of the current program.

Within this document are both a countywide framework for the Safe Routes to School Program and local planning chapters for each municipality. The local planning chapters can be taken as stand-alone documents for use by city and school district staff.

The Plan also provides an engineering program chapter that highlights priority capital improvements recommended within the Plan, and documents the data collection, ranking, and plan review process. A funding chapter is also provided that lists the national, state, and regional sources of funding that can support the STA SR2S program activities.

Program Accomplishments

Administered by the Solano Transportation Authority (STA) – and in partnership with Solano County Public Health, air quality management districts, police departments, city governments, school districts, and dedicated parent volunteers – the program has successfully leveraged over $2 million to date to build a broad portfolio of activities aimed at improving school travel. These include:

- **Traffic Safety Assemblies & Bicycle Rodeos**. Class assemblies and skills training have reached over 50,000 kids since 2010 with training to ride and walk safely, with confidence, and for fun. Over 700 helmets have been properly fitted and distributed at these events.
- **Walk & Roll Encouragement Events**. Schools and neighbors celebrate International Walk and Bike to School days in the fall and spring, and are supported to hold similar events and contests throughout the year.
- **Safe Routes to School Capital Improvements**. After more than a dozen walk audits[1] were held at schools in 2007, local jurisdictions received funding to install 40 speed feedback radar signs and a number of major roadway safety projects. These upgrades ranged from sidewalk widening and new crosswalks at school entrances, to a new Class I shared use trail overcoming a major barrier, to substantial reconfigurations of intersections and corridors that improve pedestrian safety and support more walking and biking.

Program Expansion

Aided by recommendations from the 2008 STA SR2S Plan and years of experience working directly with schools, agency staff, parents and other stakeholders, the SR2S program is also expanding or preparing to expand several successful pilot efforts:

- **Traffic Safety Enforcement Partnership**. This pilot program involving the Fairfield and Suisun City Police Departments supports dedicated funding for officers to enforce traffic laws during bell times, and to develop (and administer) crossing guard training materials for use throughout the county. Funding for this program continues into 2013, and is under consideration for expansion to other jurisdictions.
- **Suggested Routes to School Mapping**. In 2009, a pilot methodology was developed and tested at 15 schools for identifying and mapping the "safest and most direct" walking/biking routes to school using Geographic Information Systems (GIS) software. Additional data collection and mapping for the remaining 67 eligible schools was completed in 2012, and has resulted in a variety of route planning and encouragement tools that will be utilized to promote the program over the next several years.
- **Walking School Bus Program**. Solano County Public Health initiated a pilot Walking School Bus program early in 2011 at four elementary schools. STA and Solano County Public Health subsequently were awarded a $500,000 federal grant to expand the program to all elementary schools by 2016. Lessons learned from the pilot effort, which helped organize a number of local "buses" through sustained outreach, will be included in an upcoming training manual that will help prepare new walking school bus coordinators and parent champions.

[1] See Appendix E for a more detailed description of walk audits.

These new and ongoing efforts constitute an exciting work program for the next several years, and are specifically designed to address barriers to walking and biking most often cited by parents. These concerns include "stranger danger," or the fear of kidnapping, and unsafe traffic conditions due to poor infrastructure and driver behavior. Despite these concerns, nearly 3 in 10 students travel to school on foot, bicycle, or another active transportation mode in 2012. A more detailed analysis of historic student hand tally data and results from a new parent survey (conducted between Fall 2011 and Fall 2012) are included in **Section 2.4** and **Appendix B**.

Moving Forward

The 2013 STA SR2S Plan Update identifies a number of opportunity areas to improve and expand the Safe Routes program, and lays out a revised planning framework to guide implementation. This framework includes the following four goals:

1. **Improve the health of Solano County children by focusing attention on and increasing active travel to school**
2. **Facilitate school travel routes are accommodating, safe, convenient, and 'complete' for all modes**
3. **Support sustainable communities by reducing school-related traffic congestion, air pollution, and vehicle miles traveled (VMT)**
4. **Develop and sustain a SR2S program for the long-term**

Accompanying each of these goals are targeted objectives, priority programs, and suggested benchmarks to guide program refinement and evaluation. Priority program recommendations include the following:

- **Emphasis on 'Engagement' as an additional "E" and focus area**. Recent website and social media upgrades support greater engagement opportunities for parents, opportunities for program feedback, and promotion of new materials. Together with other strategies to cultivate school and parent champions, these tools will be critical to the expansion of the walking school buses and sustainability of the program over time.
- **Development of a Local Infrastructure Program**. While successful in leveraging outside funding for programmatic activities, there is broad consensus among SR2S stakeholders that more efforts are needed to improve the physical environment around schools. The program is poised to take advantage of its recently expanded local travel plans and extensive school route data inventory to advance priority projects.
- **Continued Refinement & Expansion of Skills Training and Curricula**. Further development and maturation of the SR2S program should focus on expansion to middle and high schools as a natural progression of Safe Routes training/education from early childhood to adolescence. To the maximum extent possible, basic skills training should be integrated into routine school curriculum and new programs should be developed that encourage repeat visits to interested schools as well as a focus on parent and family-oriented education.

This framework both reflects and expands current program emphases while encouraging greater alignment with regional funding priorities and sources. Recommendations are based on analysis of parent surveys and priority school travel activities, experience from other Bay Area programs, and discussions with STA and Solano County Public Health staff, as well as the countywide Safe Routes to School Advisory Committee.

This page intentionally left blank.

Promotion of a "Walk & Roll" event at Orchard Elementarv

1 Introduction

1.1 Why a Safe Routes to School Plan?

Safe Routes to School (SR2S) refers to a variety of multi-disciplinary programs aimed at promoting walking and bicycling to school. Students are encouraged to walk or bike more often through improving traffic safety around schools, through physical improvements to the built environment, through educating students and parents about safe habits and the benefits of walking and biking, through encouragement programs such as contests or programmed incentives, and through working with local police departments to enforce safe behavior around school grounds. Safe Routes to School programs typically involve partnerships among municipalities, school districts, community and parent volunteers, and law enforcement agencies.

A successfully implemented Safe Routes to School program can serve as the nexus of improvements to: traffic & congestion, air quality, reduced childhood obesity rates, improved learning environments, and improved safety around schools. Consider the following:

- The number of students walking and biking to school has significantly dropped within the space of one generation, from nearly half of all students in 1969 to fewer than 15% in 2009. While families living further away from schools due to urban development patterns play a role in this change, there has also been a large shift in behavior of those who can walk to school. In 1969, 88% of students living within a mile of school walked or biked; today, in 2009, only 38% of students living within a mile of school walk or bike[2].
- All those students who used to walk to school are mostly being driven to school by their parents. Congestion around schools in the morning can account for up to 25% of all traffic volume during morning rush hour. The more parents drive to school, the more traffic there is around school, the more parent concern there is over traffic and pedestrian safety. Promoting walking and biking to school breaks this self-perpetuating cycle, reducing the number of parents driving to school, which reduces congestion and traffic, which lowers safety concerns about students walking and biking around school grounds.
- While the number of students walking and biking to school has dropped sharply since 1969, the rate of childhood obesity has spiked fourfold over the same period. Solano County is especially hard-hit: 23% of children 5-19 are overweight; nearly a third of all 5th, 7th, and 9th graders are overweight[3], and; nearly 78% of students in Solano County get less than the minimum

[2] http://guide.saferoutesinfo.org/introduction/the_decline_of_walking_and_bicycling.cfm
[3] http://www.co.solano.ca.us/bosagenda/MG47003/AS47010/AS47012/AI48681/DO48709/DO_48709.pdf

recommended amount of exercise. Walking or biking to school provides daily opportunities for students to get the exercise they need.

- Vehicle emissions are a significant contributor to childhood asthma rates. In Solano County, 14% of county residents are reported to suffer from asthma symptoms – the highest rate in the state[4]. By encouraging walking and biking to school, and reducing the number of vehicles around school grounds, Safe Routes to School can improve air quality for students near schools.
- Walking and biking to school in the mornings can also provide an educational boost. Students who exercise on their way to school in the morning arrive more awake, alert, and ready to learn.

1.2 The "E's" of Safe Routes to School

Comprehensive Safe Routes to School programs include a wide range of elements and strategies. The varying program elements are typically organized into the five "E's" of a Safe Routes to School Plan: Engineering, Education, Encouragement, Enforcement, and Evaluation. For the 2013 Solano Transportation Authority's Safe Routes to School Plan Update (STA SR2S Plan Update, or 'the Plan'), a sixth "E" of Engagement has also been includes to emphasize the importance of communication with school parents and student-focused themes relevant for all grade levels to further the goals of the program. Each of these "E's" is described in further detail below.

Engineering

Engineering is the most concrete of all the E's. It consists of identifying and implementing safety improvements and addressing egress/ingress issues in the built environment around school grounds. This can include things as simple as new signage, curb striping, crosswalks, or bike lanes. It can also include more expensive and ambitious treatments such as curb extensions, new traffic signals, and multi-use pathways. Each treatment is meant to improve the safety of pedestrians, bicyclists, and drivers near school grounds and improve connectivity with adjacent neighborhoods. Engineering may also include providing expert input on issues such as school siting and enhancing neighborhood connectivity with new development.

Education

Education programs teach students about how to walk and bike safely in their communities, about the benefits of walking and biking to school, and educate drivers how to interact safely with student bicyclists and pedestrians. Educational programming requires cooperation between principals, schools districts, teaching staff, PTA/PTO groups, and parents. Educational programs often coincide with Encouragement programs.

Encouragement

Encouragement activities are typically geared towards students and parents who live close enough to walk or bike to school, but don't, as well as to families that otherwise find ways to reduce chauffeured car trips to school. These take the form of special events such as Walk to School Day, clubs, or contests which help develop a culture of walking and biking to and from school, and can cultivate healthy habits for life.

[4] http://www.co.solano.ca.us/depts/ph/hpe/programs/asthma_education.asp

Encouragement initiatives also include more broad-based work with all of the Safe Routes to School partners to incorporate SR2S in plans, policies, and initiatives.

Enforcement

These are strategies to reinforce safe behavior from pedestrians, bicyclists, drivers, students, and parents around school grounds. While some enforcement strategies rely upon law enforcement, there are other strategies utilized by schools to improve safety without the use of a police officer.

Evaluation

Evaluation of Safe Routes to School programs is important to understanding what works and what doesn't for each community. Evaluation tools typically take the form of in-class hand tallies and parent surveys.

Engagement (New)

Engagement strategies are highlighted to help open up lines of communication and involvement among all stakeholders for the benefit of an improved Safe Routes to School program. Key stakeholders to engage include parents, as well as older students for programmatic efforts that attempt to reach middle and high school students.

1.3 How We Created the Plan

The 2013 STA Safe Routes to School Plan Update process included multiple rounds of stakeholder input from each of Solano County's seven cities and eight individual school districts. The update involved a number of inter-related tasks that mutually informed the progression and development of recommendations contained within this document.

SR2S Countywide Advisory Committee and Local Community Task Forces

The Consultant team worked with STA staff to engage and solicit input from the Countywide SR2S Advisory Committee and local community SR2S task forces for all jurisdictions in Solano County, as well as the Travis Unified School District. Advisory Committee membership includes representatives from STA, Solano County Public Health, the County Office of Education, Yolo-Solano Air District, and staff from local school districts, police departments, and public works agencies along with an elected representative from the Countywide Bicycle Advisory Committee and Pedestrian Advisory Committee (BAC/PAC). Community Task Forces met three times to provide feedback on draft suggested route maps and local walk audits, and provide leadership for successfully marketing the new suggested route maps.

Suggested Routes to School Mapping Project

Staff from Alta Planning + Design, in collaboration with Brian Fulfrost & Associates, developed maps for suggested walking and biking routes to school for every participating school in the county's seven school districts. These maps utilized process for determining the most preferable walking route to school based on a wide variety of safety factors. Staff also developed an online tool for parents to view the suggested route maps and provide direct feedback on possible improvements. This tool will allow the suggested route maps to achieve maximum utility by harnessing the local knowledge of concerned residents and stay perpetually updated if and when street conditions change.

Walk Audits

In collaboration with the STA Steering Committee and the Community Task Forces, seventeen schools throughout Solano County were selected for walk audits. Walk audits consisted of staff, task force members, and concerned parents observing conditions and activity around school grounds during pick-up periods in the afternoon. Participants met afterward to brainstorm transportation-based solutions. Walk audits also provided a deeper level of insight and information for the mapping element of the program, allowing staff to experience first-hand the conditions for pedestrians and bicyclists around school grounds.

Results from these new walk audits, and carried over recommendations from the 2008 SR2S Plan, form the basis of the new Local Plans provided in **Chapters 6-13**.

Student Travel Tallies and Parent Survey

The Solano County Safe Routes to School program surveyed students and parents in each school district to determine the baseline mode split and to identify key opportunities to promote walking, bicycling, carpooling, and transit use at each of the seventeen schools. Student hand tallies were conducted in classes, where teachers asked students to raise their hands if they used a particular mode to get to or from school. An online parent survey was made available in multiple languages and promoted for over a year, with additional opportunities for hard copy surveys to be sent home with students.

Priority Projects & Programs

The report's programmatic and engineering recommendations are based on input gathered in meetings with the steering committee and community task forces, at school walk audits, as well as information from the student hand tallies, parent surveys, and enrollment maps. This report identifies a series of programmatic recommendations based on the "5 E's" of the Safe Routes to School system (and on a sixth "E" Engagement), as well as a list of prioritized engineering projects for schools where walk audits were conducted.

1.4 Report Contents

The Solano County Safe Routes to School Plan Update revisits the priorities of the previous 2008 STA SR2S Plan and recommends an augmented and expanded approach to developing the County's SR2S programmatic elements and infrastructural improvements. This report provides recommendations that are both countywide and for the eight cities/school districts [Benicia Unified, Dixon Unified, Fairfield-Suisun Unified School District (FSUSD), River Delta Unified (Rio Vista), Travis Unified, Vacaville Unified, and Vallejo City Unified] in Solano County.

Chapter 2 – Program Overview

Included in this chapter is a summary of the Safe Routes to School program core activities, organization, participation by individual schools, and an assessment of existing school travel information (2008-2011 student hand tally and 2011-2012 parent survey data).

Chapter 3 – Recommended Planning Framework

This Chapter reviews and revises the goals, objectives, and programmatic recommendations from the 2008 STA SR2S plan Also provided in this chapter are existing/recommended SR2S projects and programs throughout the County and their cost estimates.

Chapter 4 – SR2S Engineering Supplement

This Chapter documents the key elements that informed the 2013 Plan Update and Suggested Routes to School Mapping Project. These include a review of existing county and local plans, bicycle/pedestrian crashes, pedestrian school route suitability analysis, school walk audits performed, and capital project prioritization methodology. The chapter also includes examples of best practices for SR2S infrastructure projects and recommended priority projects in the 2013 STA SR2S Plan Update.

Chapter 5 – Funding Sources

This Chapter provides an overview of federal, state, regional, and local funding sources for various elements of the STA SR2S program.

Chapters 6-13 – Local Planning

These chapters, one for each jurisdiction as well as Travis Unified School District, provide localized review and recommendations of Safe Routes to School activities. These chapters also include school travel plans for the seventeen schools where walk audits were held, as well as prioritized projects for each school visited.

Appendices

Appendix A – School Route Pedestrian Suitability Maps by Jurisdiction

Appendix B – Parent Survey Data Reports

Appendix C – Geographic Information Systems (GIS) Route Mapping Documentation

Appendix D – Safe Routes to School Website Blogging Content

Appendix E – Walk Audit Overview Memorandum

This page intentionally left blank.

2 Program Overview

The Solano Transportation Authority (STA) Safe Routes to School program traces its roots to the Solano County Travel Safety Plan, originally developed in 1998 to identify safety deficiencies and funding opportunities. In 2005, a Safe Routes to School program was recommended as Phase II of the Solano County Travel Safety Plan Update to address a rising youth obesity issues across the county. STA subsequently secured funding to develop a Safe Routes to School (SR2S) strategic plan.

The program began in 2007 with the establishment of countywide and local task forces and the participation by over a dozen schools in the 2008 SR2S Plan development process. Solano Public Health came on as a partner organization in the 2008/2009 school year. By the 2009/2010 school year, the program's core activities were reaching 8,700 students at 16 schools. Since fall 2010, the STA Safe Routes to School program has expanded programming, planning, and technical assistance to reach over 40 schools throughout the County, with direct involvement from over 40,000 students.

Below is a summary of ongoing programs and special grants, program planning and oversight, individual school participation, and school travel survey information.

2.1 Capital Program Components

The majority of Safe Routes to school activity in Solano County over the last decade has come in the form of infrastructure improvements and capital projects. STA has implemented their own capital programs, assisted cities in the implementation of school-oriented capital programs, and facilitated the combination of funding streams for implementing SR2S projects.

Pre-2008 SR2S Plan

Prior to the 2008 STA SR2S Plan, Solano County had won six infrastructure grants through the California Safe Routes to School funding cycles. These grants focused primarily on sidewalk construction, improvements to existing crossings, and radar speed feedback signage. The grants awarded are shown below in Table 2-1.

Table 2-1: Solano County SR2S Infrastructure Grants

Funding Cycle	Agency	School Name	Description
2001/2002	Vacaville	Eugene Padan Elementary	Construct curb, gutter, sidewalk
2001/2002	Benicia	Robert Semple Elementary	Construct sidewalk and curb ramp; install crosswalk, pavement markings and traffic signs
2001/2002	Solano County	Benjamin Franklin Middle School	Construct curb, gutter, sidewalks, and curb ramps
2002/2003	Solano County	Benjamin Franklin Middle School	Construct curb, gutter, sidewalks, and curb ramps
2002/2003	Vacaville	15 Elementary schools, 3 Middle schools, 3 High schools, 1 Charter school	Install active school zone radar signs and other school crossing signs
2004/2005	Fairfield	E Ruth Sheldon Elementary and T.C. McDaniels School	Construct sidewalk improvements, curb cuts, and crossing improvements

Post-2008 SR2S Plan

The 2008 STA SR2S Plan, which was informed by more than a dozen walk audits, provided STA with a roadmap for future infrastructure improvements at schools around the county. Following the plan's adoption, STA leveraged air quality management district (AQMD) funding to provide 40 radar speed feedback signs for schools around the county. STA also provided support on a number of infrastructure projects and upgrades around the county.

Below is a brief summary of some of the most impactful projects implemented between 2008 and 2012. Detailed descriptions of all recently completed SR2S infrastructure projects are contained within each individual city's local planning chapter.

Benicia – Benicia High

The City of Benicia repaved and reconfigured Military West where it runs alongside the high school. The street had a "road diet" implemented, going from four lanes of traffic to two with a center left-turn lane and the addition of bike lanes. The City also installed curb extensions at key intersections, closed sidewalk gaps, improved left-turn pockets, installed street furniture and upgraded bus stops adjacent to the school.

Dixon – Anderson Elementary

The City of Dixon constructed a sidewalk extension along the front of Linford Anderson Elementary on the northern side of the intersection of East C Street and North 4th Street. The curb extension included ADA accessible curb ramps and a nearby curb was striped white for loading.

Fairfield – Vanden High

Engineering plans for the construction of Vanden High School were endorsed by the 2008 STA SR2S Plan. These improvements included a traffic median at the intersection of Peabody Road at Markeley Lane, a traffic signal at Peabody Road at Dobe Lane, radar speed feedback signage, and improvements to the student parking lot.

Suisun City – Dan O. Root II Elementary

Suisun City striped new crosswalks at two intersections nearby the school and a STOP sign was installed at the exit from the school parking lot.

Vacaville – Will C. Wood High

The City of Vacaville made improvements along the northern side of Marshall Road, coinciding with a reconfiguration of the school parking lot. This included widening the sidewalk from the parking lot eastward to Peabody Road, the construction of a pedestrian island at the intersection of Marshall Road at Peabody Road, bike lanes striped on Marshall Road, and ADA-compliant access to the adjacent football field.

Vallejo – Stefan Manor Elementary

The City of Vallejo constructed a sidewalk extension on Cedar Street beside the school's entrance, relocated a bus loading zone, and striped the curb around the school entrance for loading. The City also installed a speed feedback sign on Georgia Street nearby a crosswalk.

2.2 Non-Infrastructure Program Components

There are four primary SR2S non-infrastructure program activities administered by Solano County Public Health with oversight and support from two STA Safe Routes to School coordinators: traffic assemblies, bicycle rodeos, Walk & Roll events, and a pilot Walking School Bus program. All schools within Solano County's seven school districts are eligible to participate in these programs on a first-come, first-served basis.

Traffic Safety Assemblies

Traffic Safety Assemblies are specially scheduled in-school events that educate students about how to walk and ride to school safely. Meant to effectively reach large numbers of students throughout the County, assemblies often include interactive segments to keep young children engaged and can be customized to target specific grade levels. Presentations last approximately 45-60 minutes and stress the health benefits of active transportation in addition to the focus on travel safety risks and good habits.

Bicycle Rodeos

Bicycle Rodeos are fun, outdoor training courses that teach kids bike riding and safety skills, including proper helmet fitting, hand signals, bicycle safety checks, and understanding basic rules of the road. They provide active learning opportunities outside the classroom, and with real-world equipment. (STA owns 20 bicycles that are transported in a trailer branded with the SR2S logo.) At most rodeos, free bicycle helmets are offered to students who need them; in 2010/2011, over 700 helmets were distributed by Solano County Public Health.

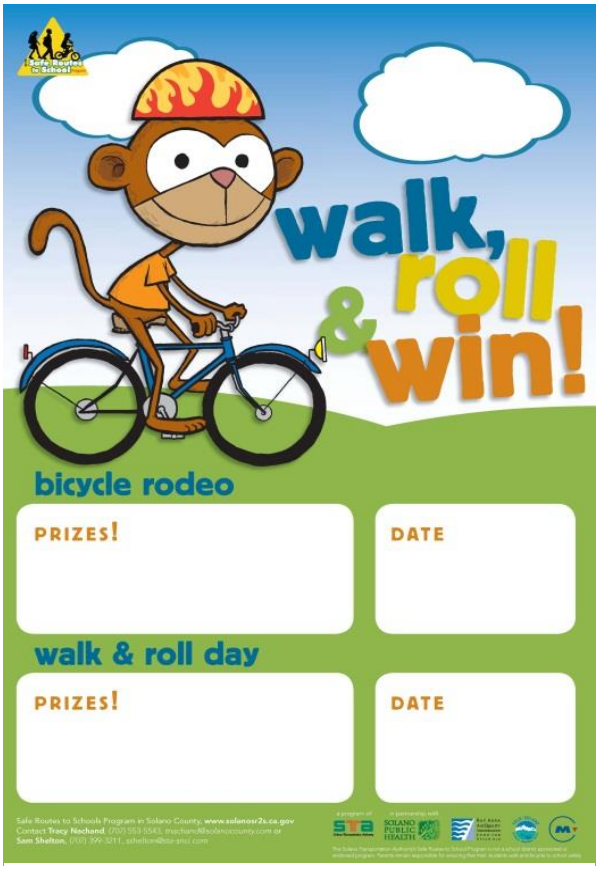
STA bike rodeos are scheduled for individual schools, normally after school in the parking lot or nearby playfield, and typically last between 1-2 hours. A handful of parent volunteers are needed to run a successful bicycle rodeo.

A student having fun at a Solano Safe Routes to School bicycle rodeo, event, in Vallejo.

Image: Robinson Kuntz/Daily Republic

Walk & Roll Encouragement Events

While assemblies and bicycle rodeos focus on direct education of students, STA "Walk & Roll" encouragement events work to spark broader engagement of school communities by emphasizing the fun of walking and biking with family, friends, and neighbors. The two most popular events are Walk to School Day in October, and Bike to School Day/Week in May – both annual dates that are organized and supported by the National Center for Safe Routes to School. In 2011, more than 2,000 students from ten schools participated in October's International Walk to School Week, while elected officials from four cities and over 3,000 students from 14 schools participated in the 2012 Walk to School Day.



The Solano SR2S program provides logistical and material support to schools - including posters, prizes, and fliers – that want to participate in annual or one-time encouragement events

Pilot walking school bus efforts at several schools, including B. Gale Wilson, will help inform a major rollout of walking school buses over the coming years at dozens of elementary schools in Solano County

In addition to these annual events, the STA program works with individual schools to implement one-time contests and ongoing incentives to walk and bike throughout the school year. Key to this effort is the recruitment of volunteers and collaboration with school Parent Teacher Associations (PTA's), school site councils, and other "champions" committed to fostering

Pilot Walking School Bus

Solano Public Health staff assisted STA to launch a pilot walking school bus (WSB) program in the 2011/2012 school year at Edwin Markham Elementary school in Vacaville. The program was expanded in the 2011/12 and 2012/13 school years with three more pilots at Anna Kyle Elementary, B. Gale Wilson Elementary and E Ruth Sheldon Elementary in Fairfield.

A walking school bus is an organized group of students walking together to school, with adult supervision, usually from a school parent. The walking "buses" start and stop at specific places along a designated route, and encourage safety in numbers rather than children and families walking alone. Such a program directly addresses parent safety and convenience concerns that lead many to routinely drive despite close proximity to school. Walking school buses are also not just available to those who live within walking distance of school. Parents can also drive part way to school and have their child(ren) join the WSB at a "park and walk" location along the route.

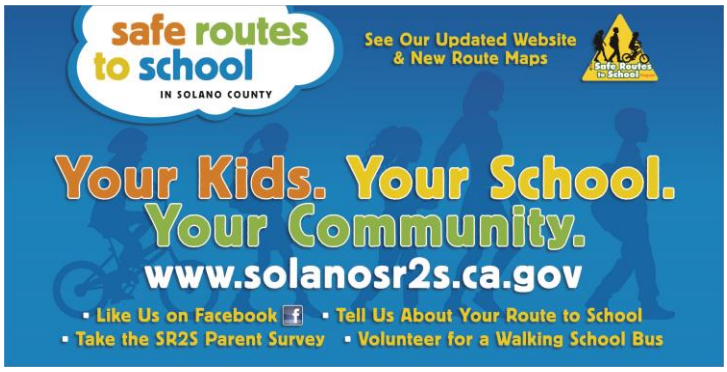
Walking School Bus Program

In the fall of 2011, STA secured $500,000 in federal grant funding to grow the existing pilot walking school bus program to a countywide walking school bus program at 56 elementary schools over three years. The walking school bus program will focus on education, training, and support for staff and parent volunteers, and will be led by new walking school bus coordinators hired by STA. 'Lessons learned' from the pilot Walking School Bus effort will also be applied to this program. They include the understanding that WSB's work best when supported by parents and school-based parent

groups, thus work is underway to encourage the PTA/PTOs at individual schools to adopt a WSB subcommittee for encouraging and formalizing participation among existing and future parents.

Website & Outreach

STA has established a Solano County SR2S website (www.solanosr2s.ca.gov) to help distribute program information to parents and other interested community members. The website also provides a portal to local and regional SR2S resources and in 2012 was revised to incorporate social media (Facebook), blogging, and interactive comment tools as part of the SR2S Plan Update process. As described in Chapter 4, aggressive promotion and development of online resources is recommended to help directly engage and inform parents as well as older students and local media.



In 2012, STA developed program banners in both English and Spanish to provide a visible presence on school property and to promote the new program website and integrated social media

Other methods to promote the program have included the STA SR2S "At a Glance" brochure, which provides a summary of program offerings and contact information and is distributed among school/ city administrators to encourage participation.

Technical Assistance & Grant Funding

Partnerships are critical to a successful Safe Routes program, but require significant staff time to establish buy-in, prepare agreements, and coordinate implementation. As the County's Congestion Management Agency (CMA), STA has been the leader in forming partnerships and grant packages to provide local jurisdictions with direct financial support and technical guidance to advance school travel priorities and leverage outside funding opportunities. The latter is a particularly important function of the Safe Routes program, since cities may not have the staff to prepare detailed grant applications and can wind up competing against one another if not strategically coordinated. The most recent effort in Dixon to help secure funding for the West B Street railway underpass, which is both a school travel and non-motorized countywide priority, is one such example of STA assistance.

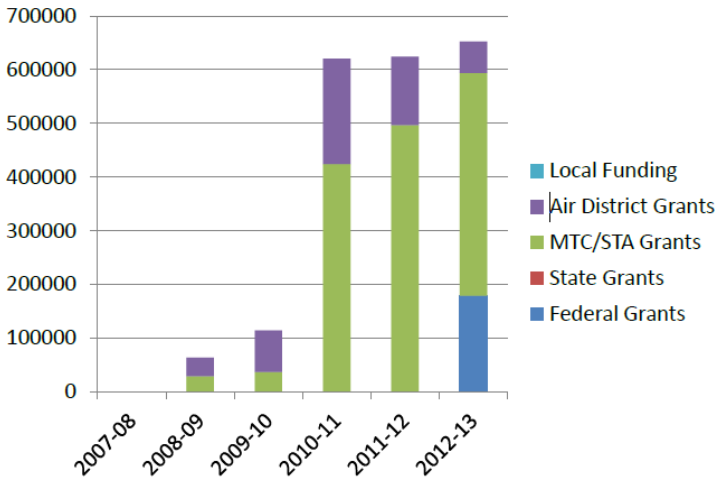


Figure 2-1: SR2S Operating Budget by Grant Source

Below are short descriptions of major SR2S grants, awarded to and/or by STA, that support and expand the core Safe Routes to School programming.

Speed Feedback Signs and Trailers

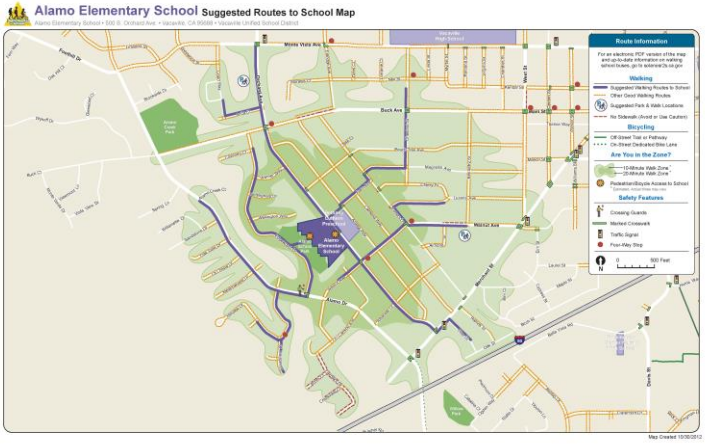
As one of the first major steps to implement recommendations from the 2008 SR2S Plan, STA directed over $400,000 in Bay Area Air Quality Management District (BAAQMD) and Yolo-Solano Air Quality Management District (YSAQMD) funding for the installation of 30 speed feedback radar signs throughout six cities. Additional speed feedback trailers are available for cities on a rotating basis to help target enforcement "hot spots" and promote awareness of speeding in school areas.

Fairfield-Suisun City Police Enforcement Grant

In the fall of 2011, the police departments for the cities of Fairfield and Suisun City won a joint application for an STA SR2S grant emphasizing education and enforcement around schools. Under the terms of the $100,000 grant, the City of Fairfield dedicated a full-time officer to monitor and facilitate safe travel around school campuses, and the City of Suisun City will continue funding a School Safety Traffic Officer (SSTO). As a direct outcome of the increased police enforcement, 47 citations and 63 warnings were issued to traffic violators in school zones, while countless others improved their driving habits and were exposed to the Safe Routes program.

In addition to police enforcement, the grant helped enhance staffing for traffic safety assemblies and develop a new crossing guard training manual/DVD that will be distributed to schools throughout Solano County and supported by in-person workshops.

Suggested Walking and Biking Routes to School Maps



In 2012, STA developed suggested routes to school maps for 85 schools throughout the county, both in print brochure and online map formats.

Suggested routes to school maps that highlight safe walking and biking pathways are an important component of any Safe Routes to School program. They help orient and support student families new to a school or neighborhood by supplying information about sidewalks, trails, crossing guard locations and other roadway features that affect travel mode choice and route selection. Good maps also encourage parents and students to walk and bike by providing safety tips, travel time information, reminders of the health and environmental benefits of active transportation, and links or references to other Safe Routes to School resources. Often distributed to students at the beginning of the school year, suggested route maps can be the first exposure parents and students have to the Safe Routes to School program.

In 2009, STA funded a pilot project to develop suggested routes to school maps using Geographic Information Systems (GIS) software for over a dozen schools in the county. Data on roadway safety features was collected and assessed to identify and promote the safest and most direct routes to school. By standardizing route identification through a data-driven process, the goal of the pilot was to develop a tool for expanding route maps to all schools within the program and facilitating routine map updates as conditions change over time.

The year following the pilot project, STA was awarded a SR2S "Creative Grant" by the Metropolitan Transportation Commission (MTC) to revise the mapping methodology and develop/promote maps for all 85 or so participating schools in the county. Along with hard copy map brochures and a GIS mapping manual for future revisions, the grant has helped develop a Google Maps-based web tool and training series that will be integrated with and support the Walking School Bus program (discussed below). The mapping project was also the primary impetus for updating STA's Safe Routes to School Plan and program website, and has resulted in a comprehensive database of sidewalk and roadway conditions within at least 0.6 miles – or about a 20-minute walk – around every school.

Both the creative mapping grant and an overall increase in direct SR2S support (as documented in **Figure 2-1**: SR2S Operating Budget by Grant Source) are part of MTC's Climate Action Initiative, which aims to reduce greenhouse gas emissions and vehicle miles travelled through a variety of strategic programs. More details on the suggested route to school map development process are provided in **Section 4.2**. Citywide maps documenting priority school routes and pedestrian suitability assessments are provided in **Appendix A**. Suggested route map brochures are available for distribution to every school and printing from the program website.

2.3 Planning & Oversight

STA and the cities of Solano County have made a large amount of progress on the recommendations and projects contained in the 2008 STA SR2S Plan. Since 2008, STA has secured over $2.6 million in funding for priority programs and projects, and has overseen implementation of Safe Routes projects at seven schools around Solano County. In all, 22 schools identified in the 2008 STA SR2S Plan have implemented at least one of the recommended infrastructure projects. Details of implemented projects are presented in Part Two of this report at the beginning of each local planning chapter (**Chapters 6-13**).

STA has committed to sustaining the Safe Routes to School program by funding a full-time Safe Routes to School coordinator, with additional staff and coordination support from the Solano Napa Commuter Information (SNCI) program.

Countywide SR2S Advisory Committee

In order to guide development of the 2008 SR2S Plan, STA established the framework and recruited individuals for a Countywide Steering Committee. Composition of the committee membership consists of the following:

- Two (2) Public Works Directors
- Two (2) Police Chiefs
- Two (2) School District Superintendents or Representatives
- Two (2) Bicycle & Pedestrian Advocates
- One (1) Air Quality District Representative

- One (1) County Public Health Department Representative

This committee, currently referred to as the countywide SR2S Advisory Committee, has continued to meet on a quarterly basis to review and recommend projects and priorities to STA staff and the STA Board for approval. Three presentations to this body, and a fourth meeting with a mapping sub-committee, were conducted as part of the 2012 Plan Update and Mapping Project development process.

Local Community Task Forces

Each of the seven jurisdictions has established a Safe Routes to School Task Force to oversee prioritization and implementation of SR2S activities at the local level. In some cases, these task forces are extensions of existing committees or groups that focus on school-related transportation issues. In other cases, they were re-instituted as part of the 2013 Plan development process. The chapters for each city/school district in **Part Two** of this report include a list of task force membership.

Local task forces convened three formal meetings during the Plan development process in 2011/2012: once to select priority schools and issues, a second to review initial improvement concepts, and a third to confirm and prioritize projects and develop a plan for local approval by city councils and school districts. Most task force members also attended and helped conduct walk audits at each identified school.

Individual School Participation

Table 2-2 illustrates the levels of participation from every school eligible to participate in Solano County. The programs included in the summary are: in-class hand tallies, Traffic Safety Assemblies, Bike Rodeos, and Walk & Roll to School Days. STA also loans out radar speed trailers to schools when requested. STA has also launched a walking school bus pilot program prior to obligation of grant funding. Lastly, schools that have participated in a walk audit in either the 2008 or 2013 Plan development process have been identified.

Table 2-2: Solano County SR2S Participation by School

Schools	Walking and Biking Mode Share (%)							Safety Assemblies 2010-2012 (#)	Bicycle Rodeo Attendance 2010-2012	Walk & Roll to School Participation 2010-2012	Walking School Bus interest identified?	Walk Audit Performed? (2008 or 2012)
	Oct '07	May '08	May '09	Oct '10	May '11	Oct '11	May '12#					
Benicia Unified												
Benicia High												Y
Benicia Middle		17	15	19	19							Y
Mary Farmar Elem.								2	147*	135*	Yes	Y
Matthew Turner Elem.					10	13	12	1	52	260	Yes	Y
Joe Henderson Elem.				13	18	19	16	1	142*	527	Yes	Y
Robert Semple Elem.								1	55*	250	Yes	Y
St Dominic's Catholic School								1				Y
Dixon Unified												
Anderson Elem.	27		22	27				1	116	469	Yes	Y
CA Jacobs Intermediate												Y
Dixon High												
Gretchen Higgins Elem.			20				20					
Maine Prairie High							29					
Tremont Elem.												Y
Fairfield/Suisun City Unified (Fairfield)												
Anna Kyle Elem.	60	60	28	53	48		53				Yes	Y
Armijo High	18	22										
B. Gale Wilson									131		Yes	Y
Cordelia Hills Elem.			29	21	16		27	1*	65*	185*		
David Weir Elem.								2	45*	358*		
E. Ruth Sheldon Elem.	39		37		35	37		1	25*	125*	Yes	
Fairfield High		21										
Fairview Elem.							30					
Garcia Learning Center School												
Gordon Elem.				38	35		46	1	*	*	Yes	
Grange Middle				37	36	48	41					
Green Valley												

Schools	Walking and Biking Mode Share (%)							Safety Assemblies 2010-2012 (#)	Bicycle Rodeo Attendance 2010-2012	Walk & Roll to School Participation 2010-2012	Walking School Bus interest identified?	Walk Audit Performed? (2008 or 2012)
	Oct '07	May '08	May '09	Oct '10	May '11	Oct '11	May '12#					
Middle												
K.I. Jones Elem.											Yes	
Laurel Creek Elem.	17	18										
Mundy Elem.												
Oakbrook Elem.								1		*		
Rolling Hills Elem					10			1		*	Yes	Y
Rodriguez High		6										
Sam Yeto Continuation High												
Suisun Valley Elem.												
Tolenas Elem												Y
Fairfield/Suisun City Unified (Suisun City)												
Crescent Elem.		7		7	5	8	6	1*	67*	64*		Y
Crystal Middle		26	19	19	33	25	24				Yes	Y
Dan O. Root Elem.	31	35	34	21	18	24		1*	22*	248*		
Suisun Elem.		34				34			122	78		Y
River Delta Unified (Rio Vista)												
D.H. White Elem.		10			12	11		1				Y
Rio Vista High												
River Delta High/Elem												
Riverview Middle School					26	30						Y
Travis Unified												
Center Elem.					3		1				Yes	Y
Golden West Middle												
Scandia Elem.			34				44					
Travis Elem.			5	2		26	6					
Vanden High		10										
Cambridge Elem.	28	32	36	35	29	36	38	1	209	732		
Foxboro Elem.	27	30	35	31	27	32	28			300		
Vacaville Unified												
Alamo Elem.	17			22			24	1				
Browns Valley				18	13	19		1	*	250	Yes	Y

Schools	Walking and Biking Mode Share (%)											
	Oct '07	May '08	May '09	Oct '10	May '11	Oct '11	May '12#	Safety Assemblies 2010-2012 (#)	Bicycle Rodeo Attendance 2010-2012	Walk & Roll to School Participation 2010-2012	Walking School Bus interest identified?	Walk Audit Performed? (2008 or 2012)
Elem.												
Buckingham High			6	3	5	5						
Callison Elem.				40	35		29	1	102	428	Yes	Y
Cooper Elem.		26	24	24	22		22	1		291		
Country High												
Fairmont Elem.			25	28	22	37		1	85	306		
Hemlock Elem.	19		20		17			1		276		
Jepson Middle		26	14	21	20	25						
Edwin Markham Elem.			28		33		31	2	193*	544	Yes	
Orchard Elem.				17	11	18	16	1		*	Yes	
Padan Elem.			26		28	33		1	67	205		
Sierra Vista Elem. (closed)				31				1				
Vaca Pena Middle												
Vacaville High												Y
Will C. Wood High			23									
Vallejo City Unified												
Beverly Hills Elem.			17	25		29	26					
Cave Elem. (now Language Academy)			15				0	1				
Cooper Elem.								1		*	Yes	Y
Dan Mini Elem.	31		24	34		32		1	245	442	Yes	
Federal Terrace Elem.								1	2*			
Franklin Middle		24			24			1	76	467*		
Glen Cove Elem.							9	1		38		
Highland Elem.							14					
Hogan Middle												
Jesse Bethel High												
Lincoln Elem.												
Loma Vista Elem.			18	20		22		1				
Mare Island Elem.												
Patterson Elem.												
Pennycook Elem.				20		21			*	*	Yes	

Schools	Walking and Biking Mode Share (%)											
	Oct '07	May '08	May '09	Oct '10	May '11	Oct '11	May '12#	Safety Assemblies 2010-2012 (#)	Bicycle Rodeo Attendance 2010-2012	Walk & Roll to School Participation 2010-2012	Walking School Bus interest identified?	Walk Audit Performed? (2008 or 2012)
Peoples High												
Solano Middle												
Steffan Manor Elem.				25				1				
Vallejo Charter												
Vallejo High												
Wardlaw Elem.			7									Y
Widenmann Elem.				25			26					

(*) Additional participation may have taken place, but information is not available

(#) Spring 2012 hand tallies included three schools (Cave Language Academy, Travis Education Center, and Sullivan Middle School) that are either closed or not traditionally part of the SR2S program

2.4 School Travel Information

Since the development of the first Solano County Safe Routes to School Plan, schools throughout the county have been recording the travel habits of students. Each school year, teachers at participating schools conduct a "hand tally" during multiple days in October and/or May, asking students to raise hands according to how they got to and from school that day. Responses are averaged to form a snapshot of the typical mode share for that school. Starting in 2011, the program also began conducting a parent survey to corroborate student travel activities and obtain feedback on specific program elements and related questions from parents.

Student hand tally data aggregated at the program-level is summarized below in **Figure 2-2**, as are results from the first parent survey. Hand tally results for individual schools is provided in **Table 2-2**: Solano County SR2S Participation by School and **Figure 2-3**, while a more detailed report for parent survey responses at the program-level and for individual schools is provided in **Appendix B**. Since 2008, all travel information data has been limited to elementary and middle schools only.

Hand Tallies

Hand tally data for Solano County is available from the fall of 2008 through the spring of 2012[5]. Of the approximate 110 schools in Solano County, 28 participated in in-class hand tallies during the spring of 2012, the most schools to have ever participated in hand tallies since the program's inception. Overall, each semester's hand tally results represent between 45,000 to 70,000 trips taken at 22 to 28 schools.

[5] Although summarized in Table 4.1, detailed information concerning the hand tally results from fall 2007 are not available and have been excluded from the year-over-year comparison.

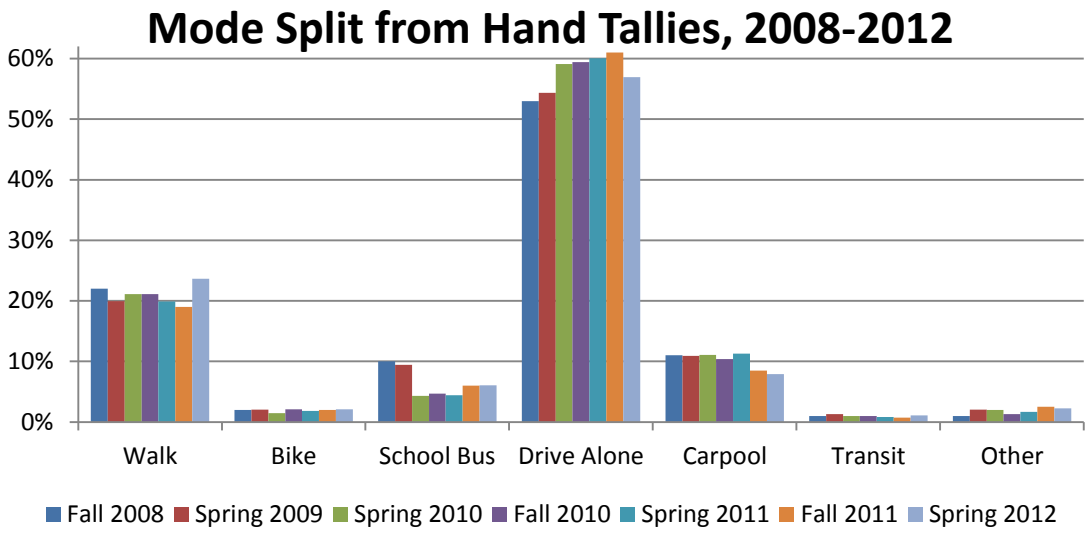
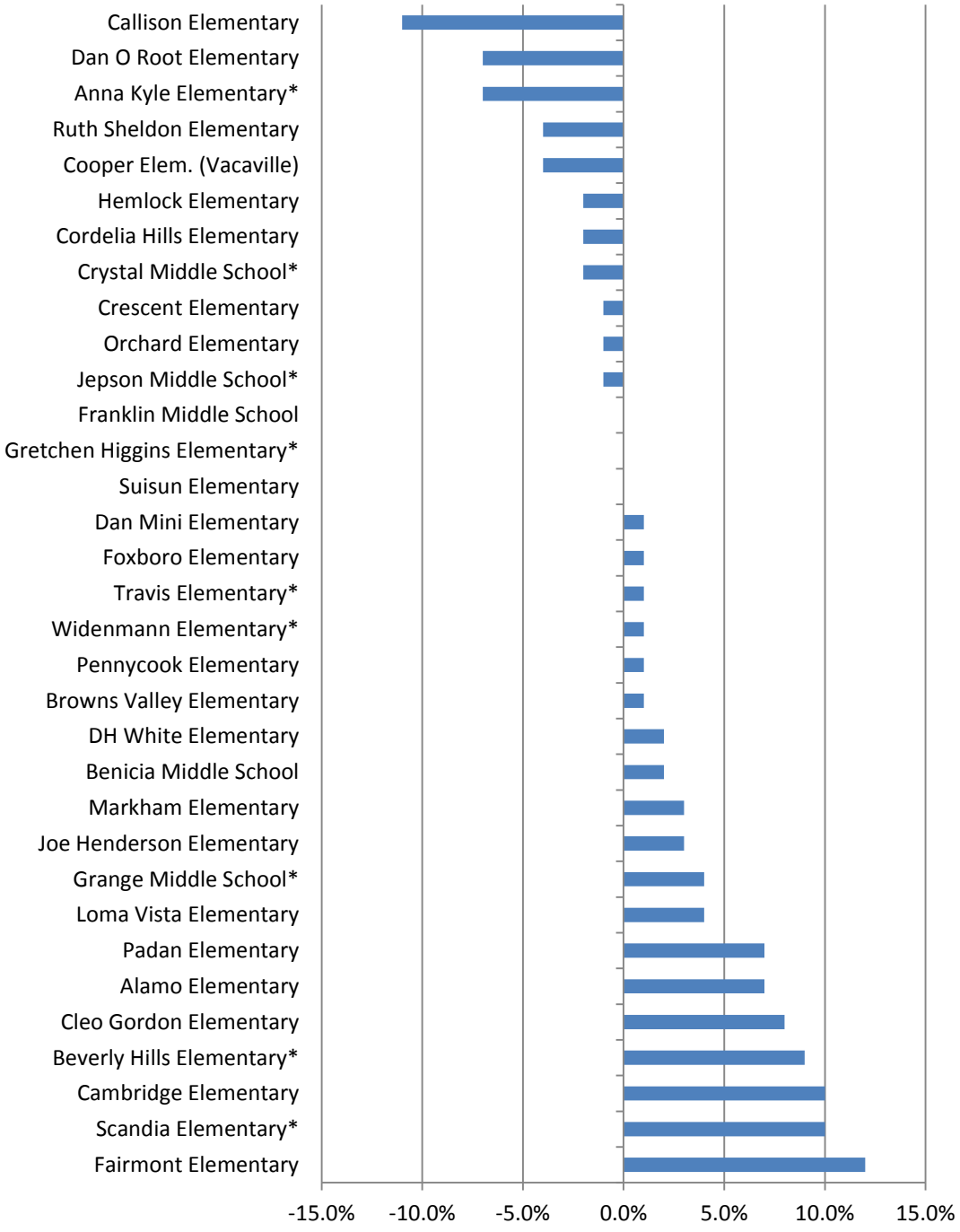


Figure 2-2: Mode Split for Solano County Students, 2008-2011

The data reveals that about one in five students walks to school, with this rate decreasing slightly until the spring of 2012 when walking reached its peak share of trips at 24%. Driving alone comprises the majority of school travel and increased significantly from 2008-2011, jumping from 53% to 61% of all trips. This increase appears to coincide with the significant reduction in school bus ridership in the spring of 2010, when school bus service was cut in several school districts. This trend reversed in the spring of 2012 when driving alone dropped to 57%, apparently a result of shifts to walking. Carpooling rates have remained steady at approximately 10% of school trips, although a drop is noticeable with the two most recent hand tally results. Bicycling, transit, and "other" travel modes (scooters and skateboards) are much less common forms of travel, although together comprise about 5% of all school-related trips.

The rise in driving to school from 2008 to 2011 could be attributable to a number of factors. Firstly, hand tallies participation varies among schools by semester. Due to the great geographical diversity of Solano County's cities, the participation of more auto-oriented schools in hand tallies can skew results even when trends remain the same. Second, the pressing budgetary concerns of Solano County school districts have led to school consolidations and yellow bus service cuts that place children further from school without additional transportation support. These actions were likely a major factor in changes noticeable between 2009 and 2010. Lastly, housing growth at the outer edges of cities may have been a factor in lengthening school trips and increasing driving rates to school. Some combination of these factors appears to have influenced increases in school-related driving between 2008 and 2011, which is particularly significant considering there was increased unemployment rates in Solano County and regional/national data that showed an overall drop in driving rates over the same period.

Despite the factors that point to increased driving up until very recently, the hand tallies for the spring of 2012 suggest progress is being made to get students and parents walking to school more often. STA has begun to implement more robust programming and promote the concept of walking school buses, and the increase in student walking trips may be the fruits of these labors. These gains, however, should not be considered a definitive shift until further data is collected and assessed in the next few semesters.



* These schools did not participate in SR2S program activities between survey periods

Figure 2-3: Change in Walk/Bike Hand Tally Mode Share – Individual Schools

Parent Surveys

Between the fall of 2011 and fall of 2012, STA solicited participation in a countywide online parent survey as part of the plan update and suggested route to school map process. On three separate occasions during this period, bi-lingual fliers promoting the survey were distributed to all schools in the program. Additional promotion of and links to the survey were included on the program website. Approximately 800 parents responded to the parent survey, representing information for over 1,300 students in the County. Ninety-eight (98) of the surveys were completed in Spanish.

The parent survey provides an opportunity to gather more fine-grained data than can be found in the hand tallies. Parents were asked not only about how students traveled to and from school, but also their level of Safe Routes to School awareness and participation, receptiveness to SR2S messaging, and the concerns that may be keeping them from allowing their child(ren) to walk or bike to school. A summary of highlights from the parent survey is provided below. The full data report is provided in **Appendix B**.

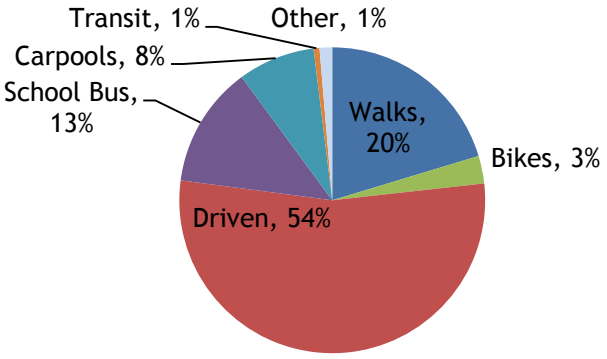


Figure 2-4: Mode Split for Students, spring 2012, parent survey

Figure 2-4: Mode Split for Students, spring 2012, parent survey shows the average mode split reported from the parent surveys. According to the responses, walking, biking, and other non-motorized travel (including skateboards and scooters) make up a quarter of all school trips taken by students, while being driven (or driving alone) represents over half of all trips to and from school. These results generally mirror that of the most recent hand tally from spring 2012, except that slightly lower walking rates and substantially higher rates of school bus patronage were recorded in the parent surveys. This difference is likely attributable to especially strong responses from student parents at Travis Elementary and Golden West Middle schools in the Travis Unified School District, where almost half of students are bussed and walking rates are lower than the County average.

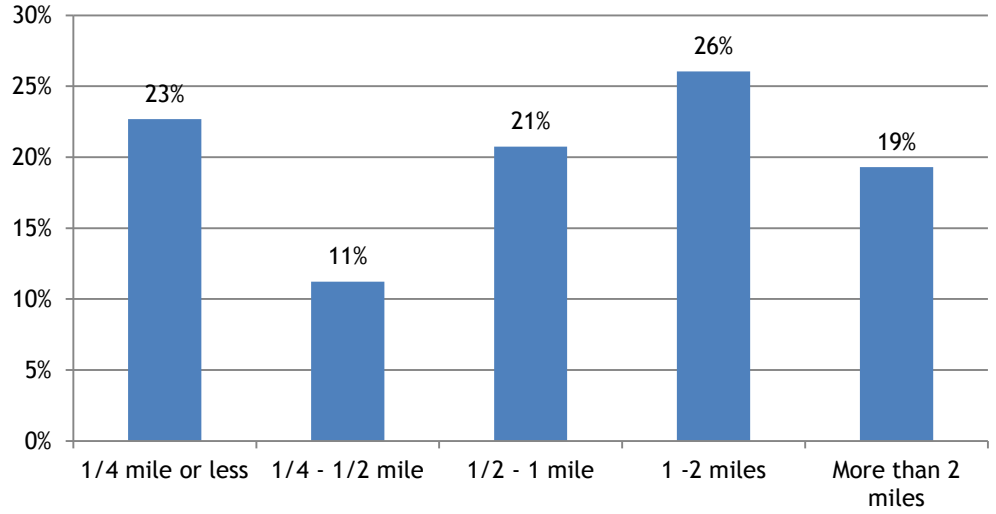


Figure 2-5: Approximate Distance from Home to School (for each child)

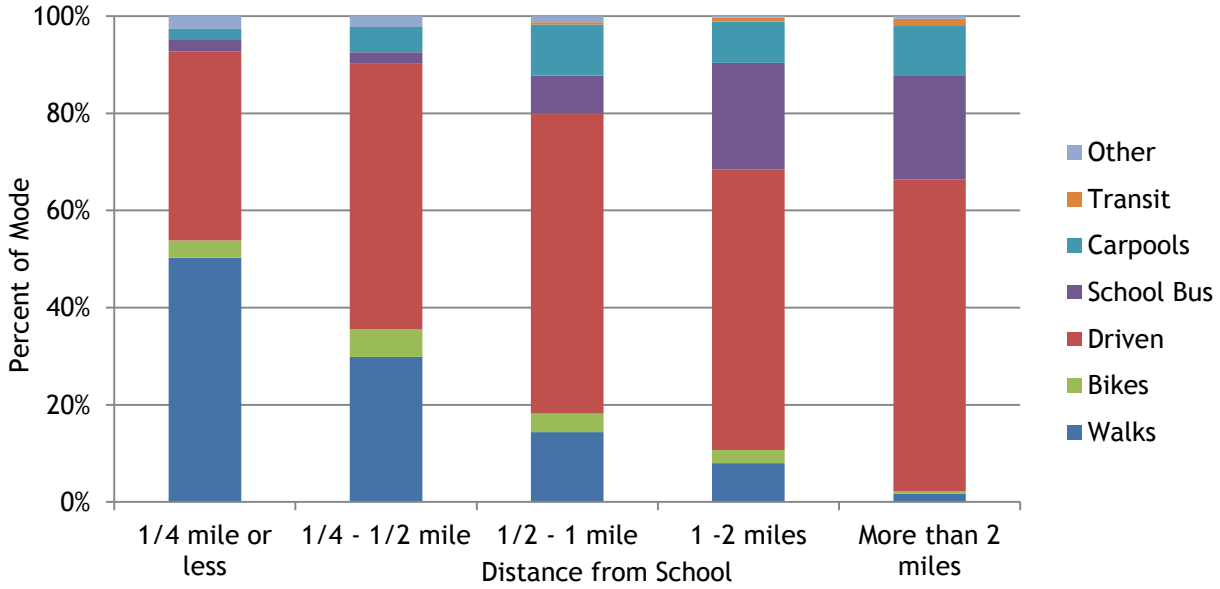


Figure 2-6: Percent Mode Split by Distance from School

Figure 2-5 and Figure 2-6 provide a snapshot of travel activity by distance from school. The data shows that approximately half of children walk when living within a quarter-mile of school, a rate that drops to 14% when trips are between a half-mile and one mile. Almost 40% of children are driven to school despite living within close walking distance, and 55% are driven with slightly longer trips up to a half-mile.

These numbers, however, reflect only a minority of all trips: two-thirds of all students have commutes longer than a half-mile, and almost half have trips over one mile in length. At these trip distances driving alone rates are significant, but remain comparable to shorter distances due to increased carpooling and bus ridership. 11% of students living between 1-2 miles from school were also reported by their parent to walk or bike. In total, 63% of all school-related miles travelled occur with drive alone/chauffeured trips, while just 5% are conducted by walking, biking, or on scooters/skateboards.

Figure 2-7 documents parent concerns that limit walking and biking to school. The most prevalent concern is 'stranger danger' or the fear that a child will be abducted or otherwise threatened by a stranger along their route. Three of the next four most cited concerns relate to traffic: speeding traffic, too much traffic, and unsafe intersections. Inclement weather and a lack of adult supervision were also noted as concerns from a majority of respondents. These responses seem to justify the program's current focus to organize walking school buses and identify safe walking routes, although indicate driver behavior and the physical environment at intersections remain key barriers.

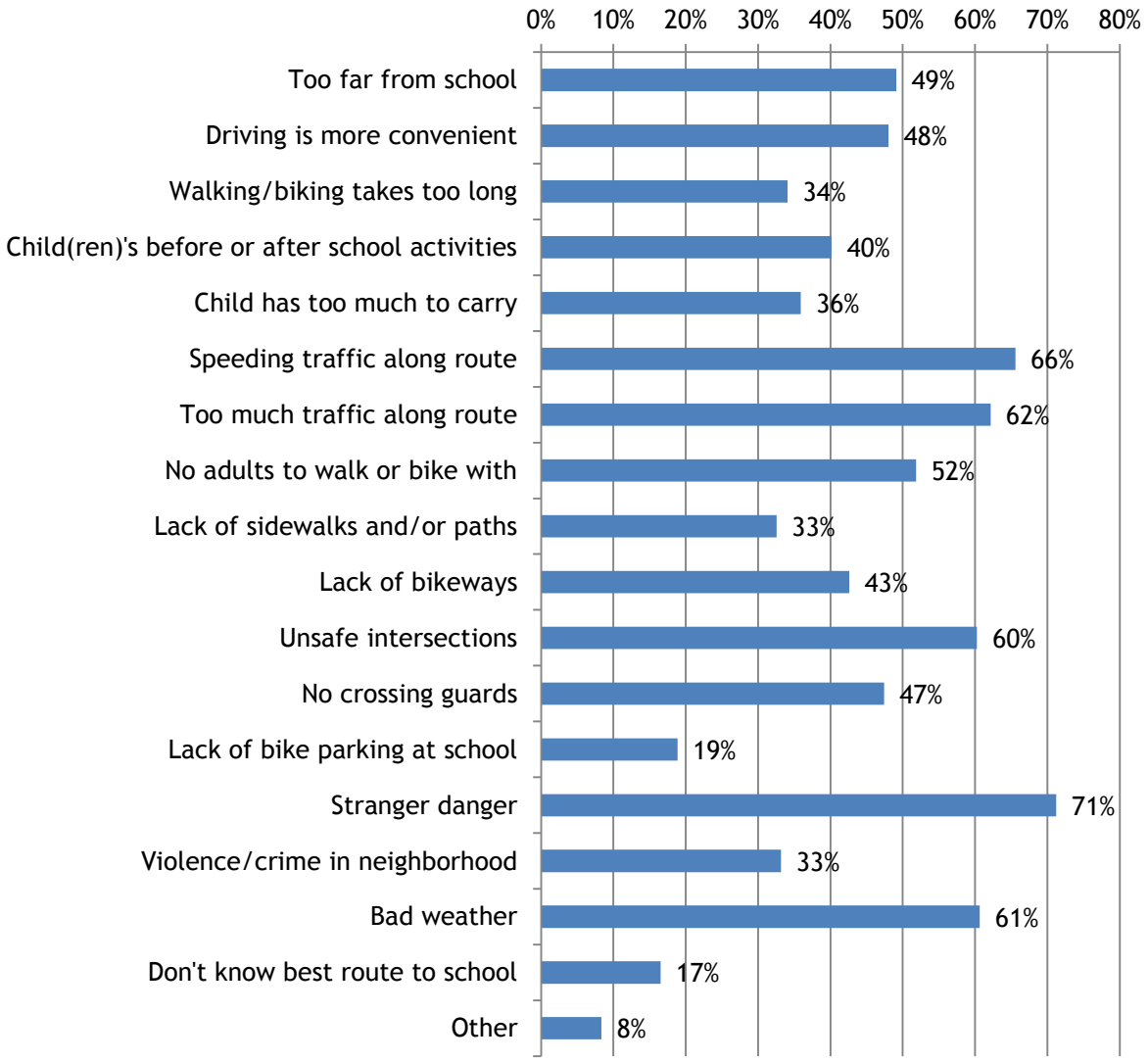


Figure 2-7: Parent concerns that limit walking/biking

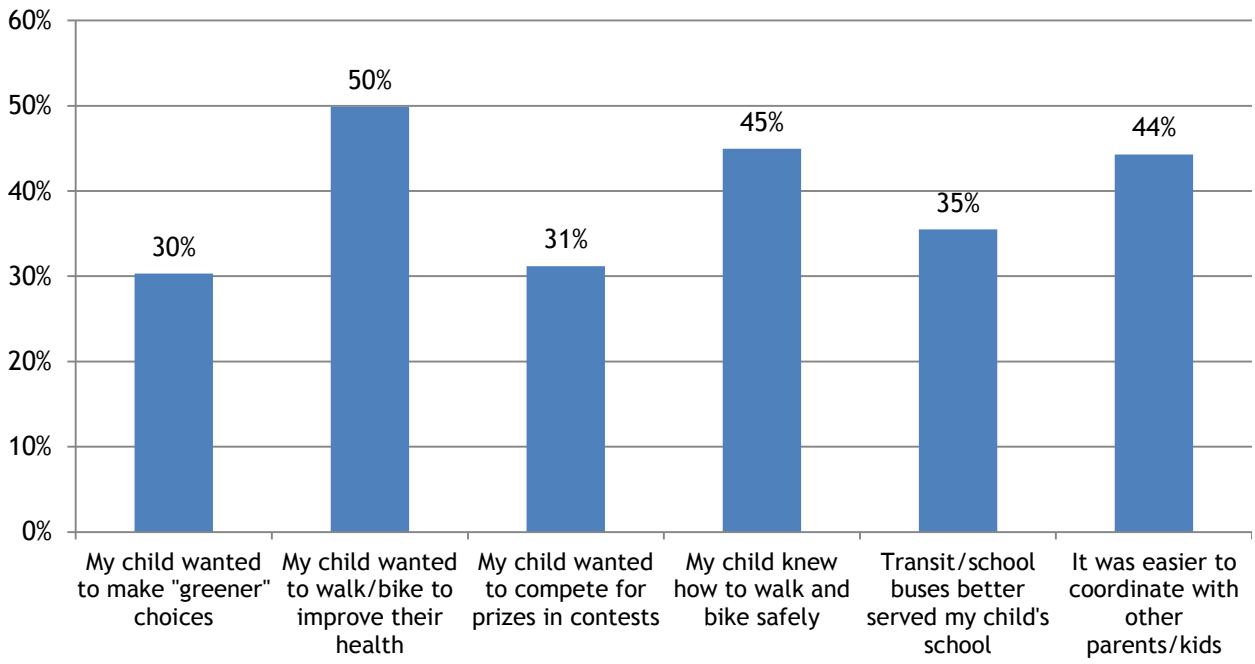


Figure 2-8: Factors that may influence parents to drive their children to school less often

Figure 2-8 highlights what factors might convince parents to drive their child(ren) less often to school. The most popular answer among respondents was if their child wanted to walk or bicycle to improve their health. In a separate but similar question, a large majority of parents characterized walking/biking to school as important for their child's health – indicating this factor may be an important message to send to parents to influence their (and their child's) travel habits. Child safety education and ease of coordination with other parents also ranked high as potential factors to drive less, while the least influential related to environmental concerns.

Summary Analysis

On average, between 20-24% of students in Kindergarten through 8th grade in Solano County currently walk to school. This rate is higher than the national average of 13%[6] and ranks near the middle of Bay Area counties behind Alameda, Marin and San Francisco but ahead of San Mateo and Napa.[7] At the same time, more than half of children living in easy walking distance to school are driven, while nearly one-third of parents would not let their child walk to school alone at any age due primarily to personal security and traffic safety concerns (and despite knowing the potential benefits to their children's health). Significant rates of carpooling and yellow bus service help keep drive alone rates down, especially for school trips over one mile in length. Overall miles travelled to school by bicycle, skateboard and scooter remain low, but account for 7-8% of school trips under a half-mile.

[6] 2009 data: http://www.saferoutesinfo.org/sites/default/files/resources/NHTS_school_travel_report_2011_0.pdf
[7] Bay Area county comparison based on preliminary analysis of parent survey reporting, 2011-2012.

3 Recommended Planning Framework

3.1 Plan Goals

Prior to the adoption of the 2008 STA Safe Routes to School Plan, the STA board adopted a framework of Goals, Policy Actions, and Measurable Objectives to strive for in the planning process.

2008 Plan Goals

- Goal 1A: Increase healthy and safe alternatives to driving alone/chauffeured trips to schools.
- Goal 1B: Reduce the number of driving alone/chauffeured trips and the number of student vs. vehicle accidents along routes to schools.
- Goal 2: Maximize interagency cooperation in all SR2S efforts.

The 2013 STA SR2S Plan Update provides a revised set of goals that build upon and refine those established in the 2008 STA SR2S Plan. These goals will help shore up the gains made over the last five years while putting in place a framework to grow the scale, scope, effectiveness, and sustainability of the SR2S program.

2013 Plan Goals

- Goal 1: Improve the health of Solano County children by focusing attention on and increasing active travel to school.
- Goal 2: Facilitate school travel routes that are accommodating, safe, convenient, and "complete" for all modes.
- Goal 3: Support sustainable communities by reducing school-related traffic congestion, air pollution, and vehicle miles traveled (VMT).
- Goal 4: Develop and sustain a SR2S program for the long-term.

3.2 2008 Plan Assessment

Three policy actions from the 2008 Plan formalized the strategic focus on Education, Encouragement, Enforcement, and Engineering; and led to the establishment of the Countywide Steering Committee and local task forces. In an attempt to further guide the program and support the 'E' of Evaluation, the Plan also identifies a number of objectives within the following topic areas: safety and security, health and air quality, traffic congestion, and the planning process. **Table 3–1** lists the key objectives and provides an update and comment on their current status.

Table 3-1: Review of 2008 Plan Objectives

2008 Plan Objective	Status/Comment
1. Decrease speed of vehicles along routes to school	Status: Aggregate Data Not Available Between 2008 and 2010, STA helped fund 40 speed feedback signs on school routes to help remind drivers to obey speed limits. Comprehensive data to assess the impact of this and other actions on vehicle speeds, however, is not available.
2. Decrease severe accidents involving children along routes to school	Status: Undetermined, Insufficient Data STA's enhanced enforcement grant has helped increase police presence along school routes in two communities, while safety assemblies and bicycle rodeos annually improve safety skills and supply bicycle helmets to hundreds of students. Crash data available during the development of this Plan includes the period 2005-2010. This timeframe does not allow for a reliable comparison of "pre" and "post" program conditions, and thus has not been assessed. Measurement of this objective is recommended for a future revision to this Plan, although it should be noted that the *rate* of severe crashes – as opposed to the overall number – may be important to consider if significantly more children or walking and biking to school.
3. Increase the number of children walking and biking to school	Status: Mixed Results, Further Study Recommended As measured by the student hand tally results, walking and biking activity slightly declined between 2008 and 2011, which was likely a factor of significant bus service cuts and school consolidation in several communities. The most recent tally data from spring 2012, however, shows a peak walking rate of 24% (compared to the 2008 baseline of 22%) and a slight increase in biking (from 2% to 3%). It is difficult to characterize this as an "increase" in walk/bike activity, however, until corroborated in future surveys.
4. Decrease the number of drive alone/chauffeured trips to school	Status: Mixed Results, Further Study Recommended Drive alone mode share as a percentage of trips increased between 2008 and 2011, although showed significant decline in the spring of 2012. Bus service cuts and school consolidation may have led to the prior increases, which were unusual for a recession and was not consistent with national trends that showed reduced vehicle miles travelled. More tally counts are needed to confirm whether or not the recent decline in driving is a sustained trend.

5. Increase the fitness level of students as measured by the California Fitness Test (CFT)	Status: Not Currently Being Met A comparison of the 2007/08 and 2010/11 CFT results for Solano County shows a general decline in student fitness at all grade levels (Grades 5, 7, and 9). In 2010/2011, between 54% and 57.5% of students were in the Healthy Fitness Zone (HFZ) for aerobic capacity as established by the testing methodology. Between 50% and 54% were in the HFZ for body composition. These numbers are lower than they were in 2007/2008, where aerobic capacity HFZ rates were 63%, 60.5%, and 50.7% (for Grades 5, 7, and 9 respectively), while body composition HFZ rates were 68-69% for all grades. At this time, it is unreasonable to expect changes in countywide CFT levels as a direct result of SR2S program activities, which are limited. As the Solano County program continues to expand, however, it may be relevant to observe CFT results for schools and/or students with high participation rates over time. (Note: A select review of CFT results for schools historically active in the program through 2012 did not show differences from the overall downward trend of student HFZ rates.)
6. Reach emission reduction goals (to be established by the Bay Area and Yolo-Solano Air Quality Management Districts) by measuring the reduction of vehicle miles traveled as a result of SR2S projects and programs.	Status: Multi-Year Evaluation in Progress As part of its Climate Action Initiatives Program, the Metropolitan Transportation Commission (MTC) is currently in the process of evaluating the effectiveness of SR2S projects and programs throughout the Bay Area – including those in Solano County - in reducing vehicle miles traveled (VMT). VMT calculations will be based on a "post" program implementation parent survey to be conducted in 2013/2014, and comparison with the "baseline" parent survey results described elsewhere throughout this Plan.
7. Hold quarterly Steering Committees with status reports from SR2S Community Task Forces. Produce quarterly reports for the STA Board.	Status: Meeting Target Objective The Countywide Advisory Committee – formerly the Steering Committee – has continued to meet on a quarterly basis to discuss and confirm program priorities and report out to the STA Board.

3.3 2013 Plan Goals, Policies, Objectives, Benchmarks

As described in **Table 3–1**, overall progress on the 2008 list of objectives is difficult to assess: in some cases the data is premature, in other cases it is insufficient to be reviewed at the countywide scale. At the same time, the goals could be slightly updated and expanded to better characterize the vision and reach of the current program.

What follows is a recommended planning framework to guide and evaluate the STA SR2S program in the years to come. While nearly all 2008 Plan objectives are maintained, in some cases alternative measures or

'benchmarks' have been identified to more easily assess conditions and impacts within the program's direct sphere of influence.

Goal 1: Improve the health of Solano County children by focusing attention on and increasing active travel to school

Objectives

- Objective 1A: Increase the rate of students walking, biking, and taking other active forms of travel to school
- Objective 1B: Annually increase the number of children exposed to Safe Routes to School education and encouragement activities
- Objective 1C: Continually improve the quality and variety of education and encouragement activities of the Solano SR2S Program

Recommended Policies & Programs

- Provide a variety and natural progression of bicycle safety curriculum by introducing on-street skills training for middle school and elementary students with previous SR2S skills training
- Implement a walking school bus program for all elementary schools in the County, and encourage 'bicycle trains' and bike clubs for older students
- Emphasize the health, environmental, educational, and social benefits of walking and bicycling to school through activities, contests, and incentives
- Form a coordinated media strategy, utilizing outreach, the program website, social media, and paid media of multiple formats
- Incorporate Safe Routes to Schools into school district wellness policies
- Support school districts to adopt and implement a bicycle helmet policy

Benchmarks:

- Mode share as recorded in student hand tallies and parent surveys (with a focus on those living within ½ mile of school)
- Students reached through bike rodeos, traffic safety assemblies, and other education activities
- Helmets and encouragement materials distributed and/or bicycles repaired
- Greater media exposure as measured through website traffic, Facebook followers, and number of articles or radio spots
- Annual publication/noticing of bike helmet policies in back to school student information packets

Goal 2: Facilitate school travel routes that are accommodating, safe, convenient, and 'complete' for all modes

Objectives

- Objective 2A: Limit traffic speeds and volumes along key routes to school
- Objective 2B: Reduce the frequency and severity of collisions near schools
- Objective 2C: Increase funding for walking, bicycling and transit investments near schools
- Objective 2D: Implement high priority capital projects from this Plan

- Objective 2E: Incorporate Safe Routes to School policies, priorities, and design guidance into future city general plan updates, specific plans, and other neighborhood planning efforts
- Objective 2F: Eliminate or reduce the impact of physical barriers and gaps that impede convenient and safe walking and bicycling to existing and new (planned) schools

Recommended Policies and Programs

- Prioritize physical improvements along suggested walking and bicycle routes to school. Consider formal adoption of a Safe Routes to School Priority Network and establishing best practice design guidelines for these facilities
- Develop a county school-based infrastructure program with dedicated funding for each jurisdiction
- Support creative strategies to ensure targeted school enforcement during commute periods, including the potential for continued STA enforcement grant funding and increased coordination with the California Highway Patrol (CHP) for school communities along state routes (e.g., SR 12)
- Ensure consistent and high-quality training of crossing guards throughout the county utilizing the manual/training video developed in 2012
- Carefully consider pedestrian, bicycle, and transit access and facilities in the siting and design of new and renovated schools; discourage school siting along high speed arterial streets
- Monitor and comment on (as necessary) the compatibility of new developments with non-motorized school travel demand and safety
- Assist schools in providing adequate, secure and conveniently located bicycle parking, skate board and scooter storage facilities to support increased active travel

Benchmarks:

- Number and severity of pedestrian/bicycle-related crashes within ½ mile of schools
- Percent of parent respondents citing traffic speeds, volumes, and intersection safety as a barrier to more walking and biking
- Grant funding and priority projects completed along suggested routes to school
- Percentage of active crossing guards who have completed training
- Number of city general plan updates incorporating Safe Routes to Schools

Goal 3: Support sustainable communities by reducing school-related traffic congestion, air pollution, and vehicle miles traveled (VMT)

Objectives

- Objective 3A: Convert drive alone and chauffeured trips to other modes, including carpooling and transit
- Objective 3B: Educate and engage parents on safe, healthy alternatives to driving their children to school, especially for those children that live within a quarter to one half mile from schools

Recommended Policies and Programs

- Expand bicycle skills training to include a focus on family-oriented riding and parent traffic skills
- Provide suggested routes to school maps for parents and promote the use of remote drop-off or "park & walk" areas

- Promote & enhance a localized SchoolPool[8] program for parents to arrange carpooling
- Discourage vehicle idling at schools
- Recruit/train parent and student volunteers as school safety officers and valet loading assistants
- Market existing and planned youth bus passes and integrate transit tours into school-based education events
- Work to limit school enrollment changes and policies that lengthen school commute trips
- Research current status of joint use of school facilities agreements and encourage development of joint use facility agreements where feasible

Benchmarks:

- Number of students/student families carpooling and taking transit to school (as measured by hand tallies)
- Local air quality around local schools during drop–off and pick-up times
- Vehicle and/or non-motorized counts at screenline locations during school drop off/pick up periods
- Emission reductions associated with overall VMT compared to past years parents survey data
- Number of joint use facility agreements in place

Goal 4: Develop and sustain a SR2S program for the long-term

Objectives

- Objective 4A: Maintain a countywide Advisory Committee that meets and reports to the STA Board quarterly, and support local SR2S Task Forces to meet on a regular basis
- Objective 4B: Identify and train a network of parent and school champions, including students, to help lead local SR2S implementation and increase program capacity
- Objective 4C: Broaden the range of SR2S events offered for schools that regularly participate in SR2S programming; expand program eligibility to new schools, including private schools
- Objective 4D: Seek and secure outside grant funding for SR2S programs and activities, and leverage local funding for school area improvements

Recommended Policies and Programs

- Increase the capacity of the STA Safe Routes to School program by developing stand-alone SR2S tools and conducting trainings to bring in school leadership, parent groups, and school champions as partners in walking and biking events.
- Organize regular SR2S "Summits" for interested students and champions to meet, exchange ideas, and foster collaboration. Consider providing mini-scholarships for such students to attend similar regional or national events
- Conduct hand tallies every semester and parent surveys every 1-2 years to be able to track progress and respond to feedback. Consider dropping non-responsive schools from program if consistently non-responsive to survey/tally requests

[8] SchoolPool is a ridematching service supported by the Metropolitan Transportation Commission (MTC). Solano County's SchoolPool tool is located online at: https://www.schoolpool.511.org/?client=solano

- Maintain a high level of functionality and parental activity on the STA SR2S website and related social media
- Seek adoption by Parent Teacher Associations or Organizations (PTA/PTO) of a walking school bus subcommittee to encourage and sustain walking school bus program participation over time

Benchmarks:

- Frequency and regularity of countywide SR2S Advisory Committee and Community Task Force meetings
- Number of schools (or percent of participating schools) with regular hand tally participation and high parent survey response rates
- Number of SR2S training events and participants, schools with identified parent/student champions
- PTA/PTO's with adopted walking school bus subcommittees and/or similarly formalized Safe Routes to School representation.

3.4 SR2S Non-Infrastructure Programs

This section summarizes the non-infrastructure program elements recommended in this Plan, and their estimated costs. Discussion of these elements is organized according to the individual "E's" of the Safe Routes to School Program. Due to the different nature and extent of supporting material, engineering recommendations are summarized separately in the following chapter (Chapter 4) and detailed under each local jurisdiction's chapter in Part Two of this report.

In order to develop general cost estimates for the non-infrastructure programmatic actions listed below, this report assumes a 'reasonable' rate of school participation/exposure and level of effort from existing SR2S staff (which varies by program). These assumptions are documented in the narrative discussion of each "E" below, and may change based on future funding availability, program priorities, and other considerations that are difficult to anticipate at this time. Unless otherwise noted, cost estimates are based on experience with the current program or similar programs in other Bay Area communities.

Table 3-2: Countywide SR2S Non-Infrastucture Program Estimated Costs (Annual)

"E"	2012 Program	Costs
Education	Distribute suggested routes to school map brochures for parents at participating schools, and promote use/awareness of the online web mapping tool. Develop maps for new participating schools, and/or revise existing maps as necessary when conditions change.	$20,000
	Work with school districts to incorporate safe routes curriculum into health, science, and math lessons at all grade levels. Utilize existing partner resources and class modules whenever possible to ensure STAR compatibility and school district buy-in. (Note: Ongoing annual costs could be substantially lower once initial materials and coordination are completed)	$60,000
	Continue and expand Bike Rodeos and Traffic Safety Assemblies	$80,000
	Expand the range of bicycle education programs to include on-street skills training for middle school and advanced elementary students, as well as adult and family-oriented bicycle rodeos.	$65,000

"E"	2012 Program	Costs
	Subtotal	$225,000
Enforcement	Facilitate cooperation between school districts and local police to provide enforcement; explore alternative measures when possible, including involvement from the California Highway Patrol (CHP) if relevant	$200,000
	Involve multi-jurisdictional police department task force in school enforcement	
	Distribute crossing guard training manual and develop tracking mechanism to ensure training compliance	Funded through STA Public Safety Grant
	Continue Student Safety Patrols at current schools and encourage the expansion of the program	$45,000
	Subtotal	$245,000
Encouragement	Support Walk & Roll to School events, and encourage local organization and responsibility among the leadership and parent groups of individual schools	$25,000
	Support/develop student and parent champions by organizing regular 'SR2S Summits' and coordinating with "student councils" and other school-based organizations	$20,000
	Work with school districts to successfully organize contests and secure adequate resources for incentive prizes	$20,000
	Work with schools to organize and implement bike trains at middle schools and high schools	$50,000
	Implement walking school bus with grant won by STA. Provide support for schools that want to start a new walking school bus.	Funded through Cycle 3 SRTS Grant
	Market existing and planned youth bus passes.	$15,000
	Promote and enhance the localized SchoolPool program for parents to arrange carpooling	$20,000
	Subtotal	$150,000
Evaluation	Conduct hand tallies every semester and parent surveys every 1-2 years	$15,000
Engagement	Form and implement a coordinated engagement strategy, utilizing outreach, the program website, social media, and paid media of multiple formats	$30,000
	Total of Estimated Costs	**$665,000**

Education

Education programs can include customized/integrated Safe Routes to School curriculum for students, basic safety courses like traffic safety assemblies, more advanced programs such as in-street skills training, and the promotion of suggested routes to school maps and other informational resources. The ideal educational component of a SR2S program includes all of these elements to provide variety, progression, and reinforcement of learning opportunities for all grade levels – both in the classroom and after school. The STA SR2S coordinator(s) should work with the Countywide Advisory Committee, County Department of

Education, Solano County Public Health, MTC Spare the Air Youth, and local school districts to explore options for curriculum integration and to test/ advance concepts not currently included in the Solano SR2S program.

As a potential next step, STA may consider expanding traffic safety assembly themes and formats to entice repeat appearances at interested schools[9], new on-street bicycle skills training for older middle school and advanced elementary school students, and/or a pilot curriculum project for a selected school district or subject area. These offerings would help enrich and institutionalize the Safe Routes to School program as part of the overall student learning experience in Solano County. Beyond the focus of educating students, STA should also consider developing family-oriented bicycle rodeos or school travel workshops to support/train parents interested in accompanying their child(ren) to school.

Education recommendations are estimated at approximately $225,000 for one year of programmatic implementation. Costs for curriculum include staff time needed for research/development and coordination with school district representatives, pilot testing and training for new modules/materials, and a reserve for printing costs. Estimates for bicycle rodeos and traffic safety assemblies assume participation from 60% of Solano County schools. Estimates for advanced programming are based upon assumed participation of 25% of Solano County schools and approximately five parent/family events. Estimates for suggested routes to school maps are based on projected costs for printing and distribution, with a small amount of staff time for data collection and Geographic Information System (GIS) mapping for new/refined maps.

Enforcement

While directed law enforcement can be a strong booster for a Safe Routes program, many of the police departments in Solano County are currently wrestling with difficult budget shortfalls. As such, the SR2S program has experimented with sponsoring school-focused enforcement (with the recent STA Public Safety Grants in Fairfield and Suisun City), and could look to expand such a program elsewhere in the county. Recommended non-law enforcement strategies include the expansion of student safety patrols/valets, which are currently active at individual schools on an ad hoc basis and help reduce drop off/pick up congestion in addition to promoting safety. Another strategy is continued emphasis on crossing guard placement and training, which is now supported by both a training manual and instructional DVD developed by the Suisun City Police Department as part of the STA Public Safety Grant.

An estimated $245,000 would be needed for all of these enforcement programs for one year. The enhanced law enforcement estimate comes from supplying a .35 FTE Traffic Safety Officer in 6 Solano County cities, at a cost of $33,000 per officer. The Safety Patrol estimate is based on the cost of materials and training at middle schools and elementary schools across Solano County, while crossing guard training is anticipated to be funded under the current safety grant and/or provided by local agencies.

Encouragement

Encouragement programs are essential to building up a culture of walking, biking, and ridesharing at participating schools. Managed by the STA SR2S coordinators with contracted assistance from Solano County Public Health, the most popular encouragement program to date consists of organizing and

[9] Experience in other Bay Area programs strongly suggests that repetition of Safe Routes programming, as opposed to one-time events and contests, is critical to impacting mode share at participating schools.

supporting "Walk & Roll" events that take place throughout the year. When these events can also be timed in May and October to coincide with the International Walk to School and Bike to School days, they provide great visibility for the program and high levels of participation from school parents and families. Other important encouragement activities include logistical and financial support for contests and SR2S incentives, promotion of carpooling to school (SchoolPool), and outreach/training for development of walking school buses.

As the SR2S program expands to more schools and/or is more intensely promoted at existing schools, a key strategy for maintaining a sustainable program is to cultivate a sense of responsibility and technical competence for executing encouragement events among individual school and parent 'champions.' By seeking to delegate ownership of the annual Walk & Roll events at certain schools, STA can focus on designing complementary contests and/or targeting sustained encouragement campaigns at schools with the most promise for travel mode shift. The program can also request that PTA/PTO's of individual schools designate a walking school bus or Safe Routes to School subcommittee to foster peer-to-peer encouragement and ongoing participation, STA and Solano Public Health staff can provide these PTA/PTO's representatives with special training sessions to develop parent volunteers' skills and confidence for sponsoring successful encouragement events, and can organize regular Safe Routes to School "Summits" for additional training and networking opportunities. Recognizing that there is perpetual turnover of parents and volunteers at school sites as children are promoted to higher grade levels and new schools, there is an on-going need for training and provision of technical assistance.

An estimated $150,000 would be required for annual implementation of the encouragement program recommendations (excluding the Walking School Bus program, which is currently funded through the 2014/15 school year). The estimates for Walk & Roll to School Day events include continued organizational leadership on behalf of STA, with the expectation that over time the focus could expand to alternative campaigns as school champions are more regularly involved with annual events. Costs are for staff time spent in support of the program, as well as supplies for the events.

The estimate for organizing student contests and helping secure incentives is partially based on the "This is How We Roll" Video Contest recently conducted by Alameda SR2S in the spring of 2012, and assumes that only a very small portion of the program budget is used to purchase incentives. The projected cost for an annual SR2S "Summit" assumes facility rental, staff time and incidentals, although these costs could vary greatly and may be offset with in-kind donations or small attendance fees. The estimates for the bike train are based upon required staff time to organize and run bike train events for 10 middle schools and high schools.

The estimates for bus youth passes are solely for marketing of the program, and not for costs incurred by each transit agency. Vacaville's City Coach provides free rides for youth during the month of August and provides a discounted youth pass during the summer and during the school year. Soltrans, serving Vallejo and Benicia, gives away free student passes at back-to-school events and sells discounted monthly youth passes. FAST, serving Fairfield and Suisun City, launched a youth pass program in the fall of 2012.

The estimates for the School Pool program are based upon anticipated staff requirements to work more closely with approximately 10 schools to set up local School Pools. The Schoolpool.511.org website already allows parents of students to make carpooling arrangements online, and includes slight customization for the Solano program. As part of this recommendation, STA could work with schools or school districts to promote

Schoolpool.511.org on school websites and through school activities (such as back to school night), or by utilizing PTA's to organize local ridesharing through email list-serves.

Due to the great variety of programming options, issues, and intensities at which they occur, these estimated costs may need adjustment depending upon the priority opportunities identified for the Solano SR2S program.

Evaluation

Conducting thorough evaluation is important to understanding which projects work, which don't, and where to provide further support. The estimated costs for evaluation include hand tallies and parent surveys in 35 schools, and the staff time associated with distribution, collection, and analysis of data. Additional analysis of local school travel issues, particularly the impacts of new projects, is strongly encouraged but assumed to be funded by local jurisdictions and/or school districts.

Engagement

Online Mapping Tool (Existing)

To facilitate public use of and input on suggested routes to school maps, STA has created a Google Maps-based online tool for the public. This mapping tool, linked through the updated STA SR2S website, allows parents to view and download suggested routes to school maps, find walking school bus routes, draw/suggest alternative routes their children use to get to school, point out issue areas and hazards, and provide additional comments and suggestions. In tapping into the collective knowledge of Solano County's parents, this feedback can be used to further refine the suggested routes to school maps over time, organize new walking school buses, and to provide feedback to local jurisdictions for addressing potential safety issues within school zones.

Traditional and Social Media Strategy

A concerted media strategy for the SR2S program (both traditional formats and web-based social media) will help raise the profile of the SR2S program within Solano County, both among parents and the general public. By driving parents and others to the program website, courting media coverage of SR2S events, and occasionally paying to run education campaign "spots" on local radio and in print, the program will help foster interaction with, and familiarity of, various elements of the Safe Routes to School program. These efforts will not only give the public a chance to feel directly involved with the programs being implemented, but will develop a sense of community between the supporters of the Safe Routes to School program.

Successful online exposure requires regularly added content, while the utilization of mapping tools and promotion of social media need regular maintenance and content moderation. A traditional media strategy requires sustained communication with local media contacts, development of press releases, coordination of media events, and funding for paid advertising. The estimated cost for these activities is $30,000.

Policy Implementation at the Local Level

An effort to truly develop and integrate Safe Routes to School recommendations into city and school district plans and policies requires an engagement strategy at the local SR2S task force level. Consistent with the policies and programs outlined in section 4.3, it is recommended that STA staff and the Countywide Advisory Committee work to engage and potentially expand local task force efforts to formalize SR2S recommendations from this Plan. Potential efforts may include: 1) expanding work with school districts and

individual schools to adopt and implement bicycle helmet policies in alignment with California Vehicle Code 21212; 2) continuing and expanding efforts to develop a WSB subcommittee within individual school PTA/PTO's to sustain program participation; 3) providing comment on proposals regarding school siting, speed limits, and access issues to current and planned schools; 4) working with schools to incorporate Safe Routes to School principles and policies within the school district wellness policies; 5) working to incorporate Safe Routes to Schools into City General Plan updates; and 6) working with school partners to explore joint use of school facilities and develop joint use facility agreements were feasible.

4 SR2S Engineering Program

This chapter provides summary and background context for the final "E" of the Safe Routes to School program: Engineering. As distinct from the non-infrastructure elements, engineering recommendations are by their nature more physically tangible and location-specific, and often more expensive in terms of dollar per student affected. Below is an outline of the project development process for the 2013 STA SR2S Plan Update, as well as review of total project costs and guidelines for implementation. Project specific details are included in the local planning chapters in Part 2 of this report.

4.1 Complete Streets

Widespread consensus has emerged over the past decade that the historic development of our nation's roadway infrastructure – largely catered to the convenience of automobiles – has left an 'incomplete' network for other travel modes, including walking and bicycling. The lack of appropriate facilities for non-motorized users is particularly acute for more vulnerable populations such as seniors and school-age children.

The concept of "Complete Streets" is to address and remove these inefficiencies in future roadway projects by giving equal consideration to all modes throughout the project life cycle, from facility programming and planning to roadway design and maintenance. While not every street may be appropriate for specific facilities, such as bicycle lanes, in practice this policy will result in greater connectivity of the sidewalk network, reduced vehicle travel speeds around schools, increased funding for share use trails and other non-motorized improvements.

As of 2013, Complete Streets policies are the official standard by which all transportation funding, planning, and engineering decisions are made throughout California and within the Bay Area. Caltrans Directive 64 mandates Complete Streets considerations on a statewide level, while MTC has developed a requirement for Bay Area cities to adopt local Complete Streets policies as a prerequisite for One Bay Area Grant (OBAG) funding eligibility. The 2013 STA SR2S Plan Update includes a planning framework and list of projects that represent and advance the concept of Complete Streets for school routes and zones. As such, funding and implementation of priority projects will expressly contribute to the goal of implementing Complete Streets for every city in Solano County. The recommended improvements at select schools in this plan can also inform similar, appropriate treatments at other schools in conjunction with planned roadway improvements. As Solano's cities update their General Plans, it is recommended that they include Safe Routes to Schools policies and make integral links between SR2S and their cities' Complete Streets policies.

4.2 Suggested Routes to School Mapping Project

As a separate but complementary activity to the 2013 STA SR2S Plan Update, the Alta consultant team, led by Brian Fulfrost & Associates, revised and expanded the Geographic Information Systems (GIS) methodology from the 2009 pilot suggested route maps project to create an automated mapping system for nearly every school in the seven school districts of Solano County. A summary of this data-driven process, which helped inform infrastructure recommendations in this Plan, is provided below.

Mapping Inventory and Route Suitability

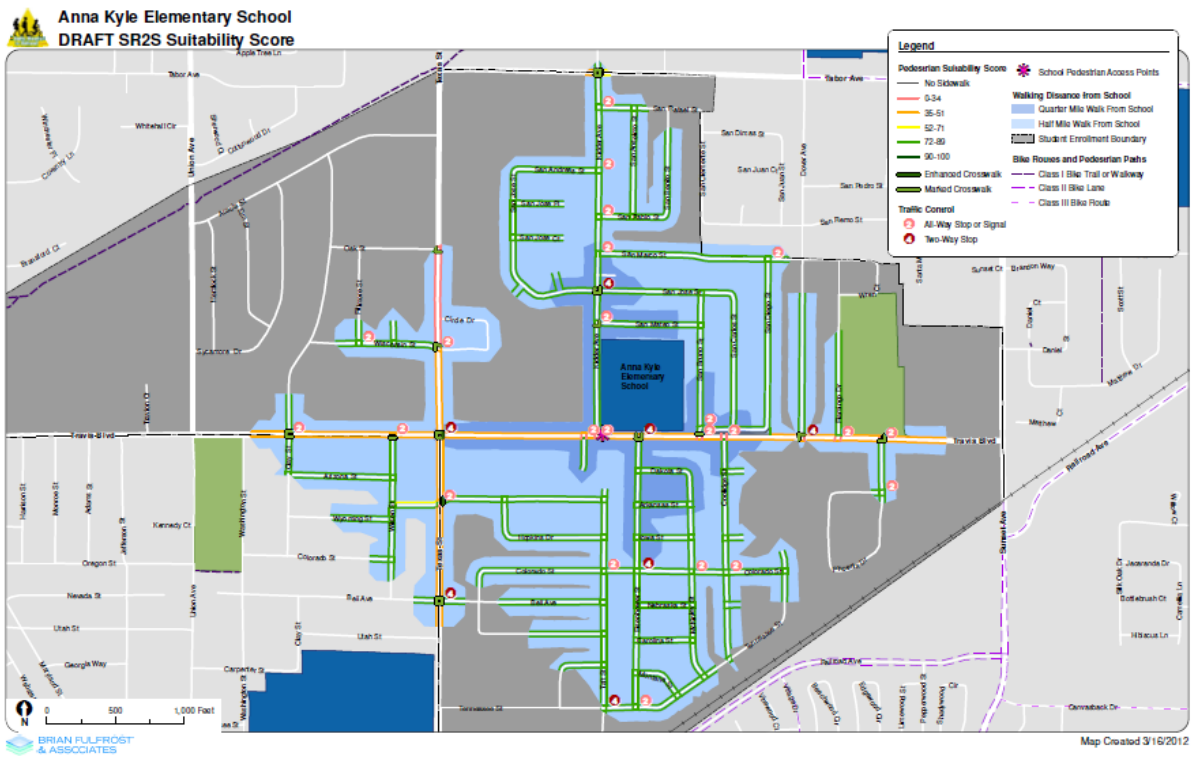
The SR2S mapping system is based on a detailed inventory of walking conditions on streets generally within a 20-minute walking radius – or 'walkshed' – of each school (which is approximately 3,600 feet at an assumed walking speed of 2.8 ft/s). Several middle and high schools have additional data collected for up to a one mile radius to account for potentially higher demand for longer walking and biking trips. This documentation process included both "virtual audits", using computer mapping programs such as Google Earth, and field audits where staff collected and stored data directly in the field using handheld GPS-enabled devices.

The route conditions collected for the mapping system at each school included the following:

- Presence/absence of sidewalks
- Sidewalk condition
- Sidewalk obstructions
- Presence/absence of curbside parking or landscape strip (for pedestrian 'buffer' from traffic)
- Roadway type (major arterial, minor/local road)
- Number of roadway lanes
- Presence/absence of center median
- Presence of bicycle infrastructure
- Traffic signals
- Stop controls (2/4 way)
- Crossing guard locations
- Presence/absence of crosswalks
- Type of crosswalks (enhanced high-visibility, 'standard' transverse)
- Presence/absence of curb ramps
- Type of curb ramp (single, bi-directional)

These criteria were compiled and ranked to produce a general pedestrian suitability score for each sidewalk and intersection segment within the school walkshed. The results of each school walkshed were then run through a weighted logarithm to identify the combination of "safest" and "most direct" routes to school. The routing system also considered the density of students living within walking distance of the school, starting walking and biking routes in locations that would benefit the greatest number of students. Draft suggested routes to school maps were reviewed by STA SR2S staff, the STA Advisory Committee, and local SR2S Task Forces in 2012, and at the time of this Plan's development are being promoted to schools and parents.

The physical data collected through the mapping process provides an extensive resource for engineers and planners to help identify potential Safe Routes to School capital improvements. The pedestrian suitability scores are also a valuable tool for prioritization (as described below in **Section 4.6**) and should help document need in an objective fashion to support outside grant funding requests. Citywide maps documenting areas of low pedestrian suitability are provided in **Appendix A**. In future years as new capital projects are built, STA will also be able to update the maps and re-run the routing analysis in GIS. Moving forward, it will thus be important to update these data files as conditions change within each school's walkshed.

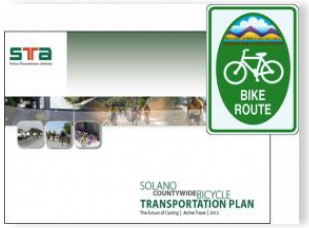


Example draft pedestrian suitability map that informed identification of suggested routes to school. Citywide maps highlighting low pedestrian suitability (in addition to suggested routes and collisions) are provided in Appendix A.

4.3 Relevant Planning Documents

A wide range of planning documents was reviewed to inform the 2013 STA SR2S Plan, as well as to encourage consistency with other planning priorities and leverage upcoming projects for maximum results. Below is a summary of the primary documents reviewed, details of which are highlighted where relevant in the individual local planning chapters in Part Two of the Plan (Chapters 6-13).

Solano Countywide 2012 Bicycle Transportation Plan



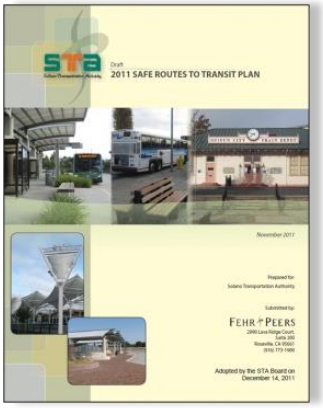
The Solano Countywide 2012 Bicycle Transportation Plan provides targeted infrastructure recommendations for bicycle improvements throughout the County. Many of the cities in Solano County do not have their own bicycle master plan, with the countywide bicycle transportation plan providing their only long-range guidance for bicycling improvements. The plan provides the cities of Solano County with eligibility when applying for grant funding from state and federal levels.

Solano Countywide 2004 Pedestrian Plan

The Solano Countywide 2004 Pedestrian Plan provides the cities of Solano County with detailed project lists for pedestrian-priority areas. The plan identifies areas of high pedestrian activity and provides design guidelines for implementing pedestrian-friendly areas throughout the County.

Solano 2004 Transportation for Livable Communities Plan

The Solano 2004 Transportation for Livable Communities Plan provides the county with a framework to achieve more integrated transportation and land-use decisions. Centered on promotion of "smart growth" development patterns, the plan identifies existing and future planning projects that will incentivize and promote development in the transit-rich urban cores of Solano County.



STA 2011 Safe Routes to Transit Plan

The STA 2011 Safe Routes to Transit Plan identifies select sites within Solano County that can serve as key transportation hubs for commuters using bus and rail transit options. The plan identifies barriers to commuters accessing these transit centers via foot or bicycle, and provides programmatic and infrastructural recommendations to improving multi-modal access to key transit centers.

SR 12 2011 Corridor Study (I-80 to I-5)

The SR 12 2011 Corridor Study examines possible improvements to the State Route 12 corridor through Solano County that will accommodate the expected increase in vehicle volume on the roadway over the next 20 years. Specifically, the SR 12 Corridor Study calls for significant expansion of the highway between the cities of Suisun City and Rio Vista. The Corridor Study also makes allowances for accommodating bicycle travel on State Route 12.

Jepson Parkway Concept Plan, 2000

The Jepson Parkway Concept Plan envisions a dedicated transit-way that will tie together the cities of Vacaville, Fairfield, and Suisun City. The transitway will provide an alternative to the congested Interstate 80, and will provide the opportunity to develop multi-modal transit centers to serve areas of all three cities that are currently far from their relatively transit-rich downtowns.

SR 12 2010 East Rio Vista Bridge Relocation Study

The State Route (SR) 12 bridge at Rio Vista is viewed as one of the "choke points" in future vehicle volume needs on the highway. The SR 12 2010 East Rio Vista Bridge Relocation Study examined possible new

alignments for the bridge and right-of-way through the City of Rio Vista. Significantly, multiple alignments proposed routing State Route 12 around Rio Vista, which is currently bisected by the highway.

Solano Rail Crossing Inventory and Improvement Plan, 2011

The Solano Rail Crossing Inventory and Improvement Plan documents all rail crossings that exist in Solano County and examines the safety risk that each crossing presents. The plan provides prioritized recommendations for improving the safety of these crossings and improving the efficiency of the key rail corridors in Solano County. Recommendations include significant grade separation projects for both vehicle crossings and pedestrian/bicyclist crossings of the rail right-of-way.

East Fairfield Community-Based Transportation Plan, 2012

The East Fairfield Community Based Transportation Plan is currently pending adoption by STA. This plan examines the transportation needs for low-income, senior, and other transit-dependent populations in East Fairfield. The plan identifies the cu rrent barriers to transit access and suggests a range of programmatic and infrastructural improvements which can provide better access to employment, services, and other activities essential to daily life.

4.4 Bicycle & Pedestrian Collisions

As part of the Suggested Routes to School mapping process, staff developed maps detailing the documented bicycle and pedestrian collisions for the cities of Vacaville, Vallejo, Fairfield, Suisun City, Benicia, Dixon, and Rio Vista. These maps display all pedestrian and bicyclist collisions with vehicles reported by the Statewide Integrated Traffic Records System (SWITRS)[10] between the years 2005 and 2010 as well as school locations within each city. Maps with bicycle/pedestrian collision locations and totals from 2005-2010 are provided at the beginning of each local planning section in **Part Two**; the same information is also provided on the pedestrian suitability maps documented in **Appendix A**.

The study of collision locations provides two uses. First, the maps informed priority locations for infrastructure improvements, helping extract the largest safety benefit from use of limited SR2S funding. Secondly, the proximity to crash locations was a factor in prioritizing identified projects and assessing potential outside grant funding competiveness. Below is a summary analysis of non-motorized collisions in Solano County, which do not include assessments of severity, crash type, party at fault, or other detailed measures.

The areas with the highest concentration of bicycle/pedestrian crashes in the County for bicyclists and pedestrians are in Fairfield and Vallejo. Fairfield has a significant cluster of incidents in the eastern/central portion of the city along Texas Street and Travis Boulevard. The approach to the Rancho Solano residential development in western Fairfield also had a high number of collisions, as did the Sunset Avenue corridor in

[10] SWITRS is maintained by the California Highway Patrol. Although it is widely believed that many pedestrian and bicycle crashes go unreported, this database is the standard by which crashes are documented and assessed by transportation planning, law enforcement, and other agencies in California.

Suisun City. Vallejo saw a large number of collisions in its historic downtown and along Springs Road in eastern Vallejo. The City of Benicia had their collisions primarily grouped around the historic downtown area. Vacaville had a fairly spread-out pattern of collisions primarily along arterial roadways, with overall totals less than cities of comparable size. Dixon had relatively few collisions, with almost all coming on the arterial roadways of 1st Street, A Street, and Pitt School Road. Rio Vista also had very few collisions reported, the majority of which are grouped along State Route 12.

4.5 2011/2012 Walk Audits

Based on priorities identified by the Local SR2S Community Task Forces, seventeen schools throughout the county were selected for walk audits as part of the 2013 Plan Update and Suggested Routes to School Mapping project. The locations and dates of these walk audits are summarized in **Table 4–1**.

A walk audit is an assessment of travel issues and behaviors developed by observing a school pick up or drop-off period. These walk audits helped "ground truth" data collected as part of the suggested routes to school mapping process, and provided insight into the specific barriers to walking and biking at each school. More detail of the walk audit process itself is provided in this section below, and to a greater extent in **Appendix E**.

The majority of capital improvement recommendations in this Plan are the result of the walk audits listed below. Additional projects were either carried over from the 2008 Plan, identified specifically by the Local Community Task Force, or through assessment of the suggested route to school pedestrian suitability data. These recommendations are organized according to individual schools and local plans in **Chapters 6-13**.

Table 4-1: Summary of STA Walk Audits Completed in 2011/2012

School District	City	School	Walk Audit Date
Benicia Unified School District	Benicia	Benicia Middle	March 23, 2012
		Matthew Turner Elementary	April 23, 2012
		Robert Semple Elementary	March 21, 2012
Dixon Unified School District	Dixon	C.A. Jacobs Intermediate	February 28, 2012
		Tremont Elementary	April 19, 2012
Fairfield/Suisun City Unified School District	Fairfield	B Gale Wilson Elementary	January 31, 2012
	Suisun City	Crescent Elementary	January 18, 2012
	Suisun City	Crystal Elementary	March 28, 2012
	Fairfield	Rolling Hills Elementary	February 10, 2012
	Unincorporated County	Tolenas Elementary	March 27, 2012
River Delta Unified School District	Rio Vista	DH White Elementary	November 14, 2011
Travis Unified School District	Unincorporated County	Center Elementary	February 7, 2012
Vacaville Unified School District	Vacaville	Browns Valley Elementary	February 27, 2012
		Callison Elementary	March 19, 2012
		Vacaville High	April 18, 2012
Vallejo City Unified School District	Vallejo	Johnston Cooper Elementary	May 21, 2012
		Joseph Wardlaw Elementary	November 14, 2012

For the walk audits listed in **Table 4–1**, the assessment team typically included Alta Planning + Design staff; the school principal; staff from the Solano Transportation Authority and Solano Public Health; representatives from the corresponding school district and law enforcement agency; members of the local Community Task Force; and for several schools, concerned parents. Audits were conducted at each school during the afternoon pick-up period, with advance notice/invitations given to area residents via a mailer. Each visit began with a discussion of current challenge areas and the types of issues to focus on for the walk audit. The team then observed student and parent travel activities during the release period, and reviewed the immediate school zone area for quality of sidewalks, curb ramps, signage, and other engineering elements and patterns of activity. After the release period was over, audit participants returned to discuss and document their findings on a large scale school area map. Based on observations and input provided by school staff, Community Task Force members and others, the project team developed recommendations which are presented for each school in a narrative and graphical format in the local planning chapters.

4.6 Project Prioritization

The majority of recommended engineering projects were determined through observations and analysis of conditions at the sites of walk audits from the fall of 2011 through the spring of 2012. The list of recommended engineering projects was then complemented by additional projects identified by the individual Community Task Forces and those projects deemed relevant to carry forward from the 2008 Plan.

All of the engineering projects were subjected to a scoring matrix that could provide both citywide and countywide prioritization ranking. A wide range of criteria were used to rank projects, with the results presented to each community's Task Force. Each Community Task Force provided feedback on the content and order of project rankings as well as Task Force approval. The ranking criteria are:

School Walk Score/Mode Share – Schools with high rates of walking and biking, or neighborhoods that ranked as walkable and bikable places, received a higher ranking. The rationale for this metric is that neighborhoods with great potential for walking and biking may reap the greatest benefit from infrastructure that improved safety for pedestrians and bicyclists. The Walk Score for each school was determined from the website www.walkscore.com, while the mode share was drawn from SR2S hand tallies, where available.

Grant Competitive – Schools that profile as competitive for SR2S grants received a high ranking in this criterion. One contributing factor was the rate of students eligible for the Free & Reduced Lunch Program, with the state SR2S program providing preference to schools with at least 75% of student qualifying.

Proximity to Crashes – Identified projects in proximity to bicyclist and pedestrian collisions with vehicles received a higher ranking. All pedestrian and bicyclist collisions from 2005-2010, as shown in the introduction to each Local Planning section, were used to determine crash proximity.

On Suggested Routes – Projects located on routes identified in the Suggested Routes to School mapping project receive a higher priority because it is assumed that improvements to these streets would serve the most students and have the greatest likelihood of encouraging mode shift away from driving alone.

Project in Other Plans or Serves Multiple Modes – Projects that are identified in other planning documents, such as the Countywide Bicycle Transportation Plan, receive a higher ranking because they are more competitive in grant proposals and have documented support. Projects with the potential to provide benefits to multiple modes of travel also get a high ranking in this criterion.

Achieves Gap Closure – Projects that close gaps for active forms of transportation (such as bike lanes or sidewalk construction), receive a high ranking in this criterion.

Benefit/Cost – Projects in this criterion that provide a high anticipated safety improvement versus their projected costs receive a high ranking.

School/City Support – During Community Task Force meetings to review the priority project lists, members provided feedback on which projects they felt were most essential.

These criteria were combined to provide an "overall priority" ranking. Each identified project was also assigned a "Lead Agency", who would be responsible for project implementation: projects on school grounds are typically led by the school district, while projects in the public right-of-way are generally led by each city. Some projects require additional cooperation with Caltrans and other stakeholders.

4.7 Capital Project Summary

Engineering recommendations are covered in greater detail in the individual jurisdiction chapters in Part Two of this Plan. **Table 4-2** below summarizes the projected cost for all projects identified, the projected cost for priority projects, the estimated total of outside grant funding that might be awarded to each jurisdiction over the next five years, and the estimated remaining contribution that would be required by both the cities and the county to fully implement all priority projects.

Table 4-2: Countywide Safe Routes to School Capital Projects – Funding Totals

	All Projects Identified	Total Priority Projects	Outside Grant Funding (Reasonable Anticipated, 5 years)	Priority Projects Gap (Estimated)
Benicia	$740,500	$424,000	$250,000	$174,000
Dixon	$180,200	$176,000	$50,000	$126,000
Fairfield	$1,854,300	$1,440,000	$500,000	$940,000
Rio Vista	$393,700	$250,000	$250,000	$0
Suisun City	$1,212,500	$875,000	$400,000	$475,000
Travis	Projects included with Fairfield and Vacaville Local Plans			
Vacaville	$1,056,500	$906,300	$25,000	$881,300
Vallejo	$1,540,000	$1,267,000	$525,000	$742,000
Program Sub Total	$6,977,700	$5,338,300	$2,000,000	$3,338,300

In summary, Safe Routes to School planning activities have identified nearly $7 million in capital project needs, with over 75% of this total considered a 'high' or 'medium/high' priority by the local SR2S Community Task Forces. In seeking to fund these projects, STA should consider setting a target goal of $2 million in outside grant funding over the next five years, and programming additional funds as available to help fill the remaining projected gap. To assist with these targets, the STA may support local jurisdictions with technical and coordination grant assistance (to ensure high priority projects are represented and do not unnecessarily

compete with one other) and should consider establishing a local SR2S engineering fund utilizing One Bay Area Grant (OBAG) or other regional funds targeted toward congestion reduction and improved land use/transportation integration.

4.8 Guidelines for Future Projects

In addition to the priority projects identified in the local planning chapters of the 2013 STA SR2S Plan Update, all jurisdictions within Solano County should make every attempt to meet the letter and spirit of complete streets guidelines in all future roadway projects and improvements. What follows is a list of principals to which future projects should cleave in order to meet complete streets guidelines, as well as a sample of recommended projects from this Plan that particularly exemplifies a Complete Streets philosophy.

Design Principles

Reduced Curb Radii

Reducing the radius of the curb line at intersections can have a number of benefits to pedestrians. By extending the sidewalk to reduce the radius of the curb at an intersection, the crossing distance is reduced for pedestrians. A reduction in curb radii also compels drivers to take turns at a slower speed than an intersection with wide curb radii. Designing a street for slower speeds will improve the pedestrian experience and will improve driver sightlines of pedestrians in the roadway. If lack of funding or other problems exist (e.g. drainage issues or lack of sidewalks), roadway hatch markings can sometimes be used as an interim measure to help slow vehicle turns and increase waiting space for pedestrians.

Smaller curb radii – especially for constrained areas – can also help yield sufficient space for the construction of bi-directional curb ramps and/or comfortable landing areas for single ramps. These slight changes can be the difference between a truly accessible route and one which perhaps meets the letter – but not the spirit – of the Americans with Disabilities Act (ADA) design guidelines.

Curb Extensions/Bulb-Outs

At intersections with high pedestrian traffic, jurisdictions should consider the construction of curb extensions, or 'bulb outs.' Curb extensions physically and visually narrow the roadway in a way that brings down driver speeds, reduces pedestrian crossing distances, and can reduce parking enforcement issues near crosswalks and street corners. Curb extensions are appropriate on streets with on-street parking and should not impede a bike lane or similar bicycle facility.

High Visibility Crosswalks

High visibility crosswalks have been proven to increase the yielding rate of drivers to pedestrians in the crosswalk.[11] High visibility crosswalks also help reduce the instances of drivers encroaching upon the crosswalk at a signalized intersection. Providing high visibility crosswalks in most cases, at both controlled and uncontrolled intersections, can help improve the comfort and ease with which pedestrians cross the street.

[11] For a good summary of the discussion of pedestrian safety and marked crosswalks, see Mitman, et al (2007). "The Marked Crosswalk Dilemma: Uncovering Some Missing Links in a 35-Year Debate," Transportation Research Board 2008 Annual Meeting CD-ROM.

Median Pedestrian Islands

Median pedestrian refuge islands should be considered where pedestrians must cross arterial, high volume, or otherwise high-speed roadways, especially for uncontrolled crossings. A median refuge island allows pedestrians to focus on one direction of traffic at a time while crossing the street. It also provides a waiting place for pedestrians who are not fast enough to cross the street in a single signal phase.

Reduced Lane Widths

Especially on local residential streets, but also on some collector streets, jurisdictions should consider the narrowing of travel lane widths where vehicle speeding issues or bicycle facility priorities exist. Providing overly wide travel lane widths induces higher speeds from drivers, whose speed perception is directly related to the width of the street. In addition to moving the curb line for reduced width, other measures include striping a bike lane or a "fog line" for parking isles.

Expanded, Improved Sidewalks

New and expanded sidewalks, whenever feasible, should be constructed using beyond standard minimum widths, and with a landscape buffer strip between the curb and sidewalk. Especially on streets where no street parking exists between travel lanes and the sidewalk (which includes many key arterials in Solano County), landscaping strips are an essential feature to promoting pedestrian comfort and confidence. Rolled curbs should generally be discouraged, as they blur the delineation between pedestrian space and vehicle space – with drivers often parking partially on the sidewalk and blocking pedestrian access.

Low Stress Bicycle Infrastructure

Jurisdictions should prioritize the completion of bicycle networks around schools, with special attention given to the locations with a combination of high connectivity and low 'stress' or conflict between drivers and bicyclists. Jurisdictions may consider providing school-serving bicycle facilities that go beyond the standards mandated in the CA MUTCD and CA HDM; facilities such as bicycle boulevards and physically protected bike lanes provide safe and inviting infrastructure that both students and parents will feel comfortable using. The use of green paint to highlight conflict or transitional areas, the use of painted buffers along with bike lanes, lane markings for bicyclists in the intersection, traffic calming treatments to reduce driver speed, and legible wayfinding on bike routes should all be considered on a project-by-project basis.

Pedestrian Countdown Heads/LPI

Ideally, all traffic signals within school zones should be equipped with countdown heads for pedestrians. Providing certainty for when the light will change encourages more pedestrians to cross at a particular intersection, and can reduce instances of jaywalking. On a case-by-case basis, jurisdictions should consider leading pedestrian indicators (LPI) for heavily trafficked signalized intersections in school zones to help temporally separate pedestrians from turning vehicles.

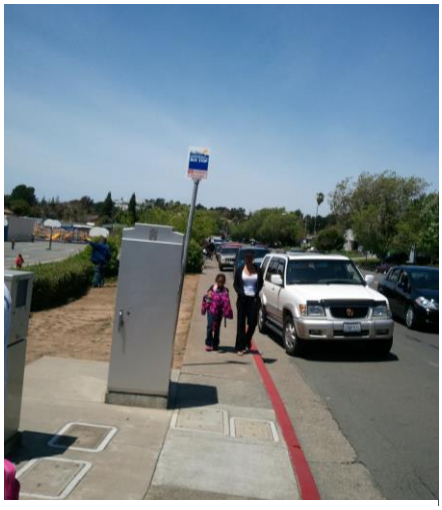
Residential Neighborhood / School Connectivity

New construction of housing units near schools, or retrofits to existing residential neighborhoods, should seek to reduce the length of and exposure to traffic along school travel routes and community services. To maximum extent possible, these developments should design a compact grid of pedestrian and bicycle-friendly streets, and/or include non-motorized pathways at the end of cul-de-sacs and across existing barriers.

Project Examples

Johnston Cooper Elementary, Vallejo – Tuolumne Street at Del Mar Avenue

Tuolumne Street is a four lane collector street that borders the eastern side of Johnston Cooper Elementary in Vallejo. The intersection of Tuolumne Street at Del Mar Avenue is a high-volume intersection for students, parents, and drivers traveling through the neighborhood. The sidewalks along Tuolumne Street and Del Mar Avenue are very narrow and often force users into the street, despite being a critical linkage for nearby parking areas and residential enclaves to the north, south, and east.



Project recommendations for Tuolumne Street and Del Mar Avenue will improve pedestrian safety and comfort, support new bicycle facilities, and enhance transit and school accessibility

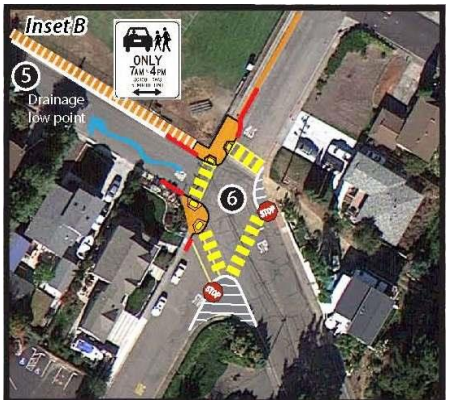
The Travel Plan for Johnston Cooper Elementary recommends a series of projects to improve pedestrian comfort and safety along this corridor and at this intersection. The plan calls for a 'road diet' on Tuolumne Street, or converting the roadway from four lanes to three and introducing bike lanes. This road diet encourages slower driving speeds while providing safe space for bicyclists. The bike lanes move vehicle traffic further from the sidewalk, creating a more comfortable space for pedestrians. Improved school zone signage would be relocated on Tuolumne Street, reinforcing slower driving speeds.

The sidewalks along Tuolumne Street would be expanded by moving the school fence abutting the sidewalk, creating a more comfortable pedestrian space with limited impacts on existing infrastructure. Where sidewalks cannot be expanded, an alternative walking path could be provided on school grounds as an alternative. Closer to Del Mar Avenue, the eroding slope abutting the sidewalk is proposed to be filled in, reinforced, and paved to expand the sidewalk and reduce potential hazards.

The intersection of Tuolumne Street at Del Mar Avenue would receive new curb extensions on all four corners of the intersection, extending to the the outer edge of the parking lane for easier crossings and natural enforcement of existing red curb zones. The adjacent bus stop waiting area would also be improved, as would the crosswalks and pedestrian signals. The final anticipated result is a new community gateway that improves safety for multiple modes across and along an existing arterial barrier, and enhances accessibility to the open school grounds, which include sports fields and children's play equipment.

Robert Semple Elementary, Benicia – East 3rd Street at S Street

The intersection of East 3rd Street and S Street is at the southern corner of the Robert Semple Elementary campus just north of Interstate 780. The intersection is overly broad and uninviting, with an eastern leg that comes in at a skew angle and narrow sidewalks with outdated and misaligned curb ramps. Used by many pedestrians who live south of Interstate 780 and use the tunnel under the highway to avoid neighboring arterial routes, improvements to this intersection would further reduce the "barrier effect" of the highway and help support walking in groups (as with a walking school bus).



Proposed changes to this intersection at Robert Semple include upgraded curb ramps, high visibility crosswalks, and low-cost striping near the tunnel entrance under I-780

The Travel Plan for Robert Semple Elementary calls for a mix of investment strategies at this intersection to improve accessibility and visibility, reduce pedestrian crossing distances and sidewalk gaps, and potentially expand on-street parking and/or school loading areas. Recommendations include a targeted curb extension along the primary access route to the pedestrian tunnel, upgraded crosswalks, widened sidewalks behind the face of curb, and low-cost hatch striping to avoid costly drainage issues while still narrowing corner turning radii and vehicle lane approaches.

5 Funding Sources

Many of the recommended SR2S programming can be carried out with parent volunteers, student volunteers, and school staff. Some of the local oversight of these programs can be managed by School or Parent Champions. Even so, funding is needed to plan and implement programs, hold events, print or procure materials, and develop marketing material and student curriculum. Many funding opportunities exist outside of the resources committed by STA to programmatic and capital improvements, and should be pursued by both STA and the cities of Solano County. This chapter provides a description of these sources.

5.1 Federal Funding Sources

The federal transportation law, MAP-21 (Moving Ahead for Progress in the 21st Century), signed into law in July of 2012 and replacing the longstanding SAFETEA-LU transportation bill, is the largest source of pedestrian and bicycle facility funding in the United States. The federal government funds transportation projects and programs in part through taxes and fees related to use of the transportation system.

Federal Funding (MAP-21)

MAP-21 is a newly enacted transportation bill, replacing the repeatedly re-authorized SAFETEA-LU transportation bill, which was established by the Intermodal Surface Transportation Efficiency Act (ISTEA) (1991). MAP-21 authorizes $105 billion over the 2013 and 2014 fiscal years for surface transportation programs. MAP-21 consisted of a significant realignment of funding rules and allocations over previous iterations of the SAFETEA-LU bill. The Transportation Enhancements (TE) program, federal Safe Routes to School (SRTS) program and Recreational Trails account have been consolidated under MAP-21 into a single account: the Transportation Alternatives (TA) account. The total amount of funding allocated to Transportation Alternatives in the two authorized years of MAP-21 is $808 million, a 33% decrease over the combined funding allocated to the previous three programs under SAFETEA-LU.

MAP-21 divides TA funding between statewide and local agencies for allocation to transportation projects. Half of TA funding is to be administered on the local level, with MPO's controlling distribution of funding. The MPO body administering local TA funding for East Palo Alto is the Metropolitan Transportation Commission (MTC). The other half of TA funding is to be administered by Caltrans. Caltrans, under MAP-21 rules, is empowered to "flex" funding from the TA account to other surface transportation programs. Caltrans has preliminarily agreed not to "flex" away their portion of TA funding. MAP-21 rules also preserve a level of funding for the Recreational Trails account. States must opt into a set-aside for Recreational Trails that matches the previous level of funding for that program, or lose the corresponding amount of funding.

Caltrans administers federal funding and provides project oversight including the issuance of National Environmental Protection Agency (NEPA) clearance for projects. Caltrans works with the local Metropolitan Planning Organization (MPO) to identify projects for funding that are selected through a competitive process. The MPO for the San Francisco Bay Area is the Metropolitan Transportation Commission (MTC) in Oakland, CA. Depending on the fund source, MTC will at times work with a local Congestion Management Agency (CMA), such as the Solano Transportation Authority (STA), to help distribute funding. The use of local-CMAs helps to better identify projects that best benefit a county directly versus looking at projects in relation to a larger region such as the San Francisco Bay Area.

The Congestion Mitigation and Air Quality Improvement Program (CMAQ) was established by ISTEA, and is retained under MAP-21, specifically for projects and programs that will contribute to the attainment of a national ambient air quality standard. CMAQ is jointly administered by FHWA and the Federal Transit Administration (FTA). The funds are available to all ozone, carbon monoxide (CO), and particulate matter (PM) nonattainment and maintenance areas based on population and the degree of severity of pollution. The San Francisco Bay Area is in nonattainment status for ozone 8-hour averaging time, PM1012, and PM2.513. Activities eligible for CMAQ funds include construction of bicycle and pedestrian facilities (paths, bike racks, support facilities, etc.) that are not exclusively recreational and reduce vehicle trips.

MAP-21: http://www.fhwa.dot.gov/map21/

5.2 State Funding Sources

The State of California uses both funds from federal sources that it is responsible for administering and funds from its own budget to implement transportation projects, including bicycle and pedestrian projects and programs. With the passage of MAP-21, the state of California has decided to consolidate state funding with federal funding into a single account: the Active Transportation Program (ATP).

Active Transportation Program (ATP)

With the consolidation of federal funding sources in MAP-21, the California State Legislature has moved to consolidate a number of state-funded programs centered on alternative transportation into a single account. The resulting Active Transportation Program (ATP) will replace the federal TA Program, Bicycle Transportation Account, the Safe Routes to Schools Program, and the Recreational Trails Program. The ATP's authorizing legislation (awaiting final approval as of September 2013) also includes placeholder language to allow ATP to receive funding from the newly established Cap-and-Trade Program in the future. For the 2013/2014 fiscal cycle, approximately $130 million is anticipated for this program, of which $24 million will be earmarked specifically for Safe Routes to School projects. The call for projects is expected in spring 2014. As of July 2014, the protected category of Safe Routes to School projects will be phased out.

The ATP will be administered by the California Transportation Commission (CTC), which is charged with finalizing program selection and distribution criteria. Goals of the Active Transportation Program are currently defined as the following:

1) Increasing the proportion of trips accomplished by biking and walking;
2) Increasing safety and mobility for non-motorized users;
3) Advancing active transportation efforts of regional agencies to achieve the greenhouse gas reduction goals as established pursuant to SB 375 (Chapter 728, Statues 2008);
4) Enhancing Public Health, including the reduction of childhood obesity through the use of program funding, including the use of Safe Routes to Schools programs;
5) Ensuring that disadvantaged communities fully share in the benefit of the program; and,
6) Providing a broad spectrum of projects to benefit many types of active transportation users.

[12] The notation PM_{10} is used to describe particles of 10 micrometers or less and $PM_{2.5}$ represents particles less than 2.5 micrometers in aerodynamic diameter.
[13] hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm

State Highway Operations & Protection Program

The State Highway Operations and Protection Program (SHOPP) is a Caltrans funding source with the purpose of purpose of maintaining and preserving the investment in the State Highway System and supporting infrastructure. Projects typically fall into the following categories: collision reduction, major damage restoration, bridge preservation, roadway preservation, roadside preservation, mobility enhancement and preservation of other transportation facilities related to the state highway system. In the past, SHOPP funds have been used to construct bicycle projects, including curb ramps, overcrossings, bike paths, sidewalks, and signal upgrades to meet ADA requirements. Jurisdictions work with Caltrans' districts to have projects placed on the SHOPP list.

The total amount available for the four-year SHOPP period between 2010/11 and 2013/14 fiscal years is $6.75 billion, which is a reduction in funding from prior SHOPP programs. Past project awards have ranged from approximately $140,000 to $4.68 million.

Online resource: www.dot.ca.gov/hq/transprog/shopp.htm

Caltrans Planning & Environmental Justice Grants

Caltrans also administers Transportation Planning Grant awards that improve mobility by innovatively problems or deficiencies in the transportation system. In the past year, Caltrans awarded $10 million in grant funding to 70 applicants. It contains both Environmental Justice Grants and Community Based Transportation Plan Grants.

Caltrans, Transportation Planning: http://www.dot.ca.gov/hq/tpp/grants.html

Environmental Justice Grant Program

This program promotes the involvement of low-income and minority communities, and Native American tribal governments in the planning for transportation projects. EJ grants have a clear focus on transportation and community development issues to prevent or mitigate disproportionate, negative impacts while improving mobility, access, safety, and opportunities for affordable housing an economic development. Grants are available to cities, counties, transit districts, and tribal governments.

Caltrans, Environmental Justice Program:

http://www.dot.ca.gov/hq/tpp/offices/ocp/completed_projects_ej.html

Community Based Transportation Grant Program

The Community-Based Transportation Planning (CBTP) grant program promotes transportation and land use planning projects that encourage community involvement and partnership. These grants include community and key stakeholder input, collaboration, and consensus building through an active public engagement process. CBTP grants support livable and sustainable community concepts with a transportation or mobility objective to promote community identity and quality of life.

Caltrans, CBTP Program: http://www.dot.ca.gov/hq/tpp/offices/ocp/completed_projects_cbtp.html

Petroleum Violation Escrow Account (PVEA)

In the late 1970s, a series of Federal court decisions against selected United States oil companies ordered refunds to the States for price overcharges on crude oil and refined petroleum products during a period of

price control regulations. To qualify for PVEA funding, a project must save or reduce energy and provide a direct public benefit within a reasonable time frame. In the past, the PVEA has been used to fund programs based on public transportation, computerized bus routing and ride sharing, home weatherization, energy assistance and building energy audits, highway and bridge maintenance, and reducing airport user fees. In California, Caltrans administers funds for transportation-related PVEA projects. PVEA funds do not require a match and can be used as match for additional Federal funds.

Online resource: www.dot.ca.gov/hq/LocalPrograms/lam/prog_g/g22state.pdf

Proposition 84 – Urban Greening

The Urban Greening Grant Program is funded under Proposition 84 and is managed by the Strategic Growth Council and the California Natural Resources Agency. Urban Greening grant funding is eligible for projects and planning efforts that decrease air or water pollution, reduce natural resource consumption, increase the reliability of local water supplies, or increase adaptability to climate change in urban areas. Projects must also construct or plan for new community green spaces to be eligible. Solicitation for the third and final round of planning grant awards took place in the summer of 2013, although continuation of this program (or a similar program) can be expected in future years.

Online resource: http://www.sgc.ca.gov/urban_greening_grants.html

Office of Traffic Safety (OTS) Grants

The Office of Traffic Safety distributes grants statewide to establish new traffic safety programs or fund ongoing safety programs. OTS grants may only be applied to non-infrastructure projects, such as bicyclist and pedestrian safety courses. Grant funding cannot replace existing programmatic funding. Applications are ranked on their potential safety impact and the applicant's track record on previous OTS grants.

California Office of Traffic Safety: http://www.ots.ca.gov/

Environmental Enhancement and Mitigation Funds

The Environmental Enhancement Mitigation Program (EEMP) provides grant opportunities for projects that indirectly mitigate environmental impacts of new transportation facilities. Projects should fall into one of the following three categories: highway landscaping and urban forestry, resource lands projects, or roadside recreation facilities. Funds are available for land acquisition and construction. The local Caltrans District must support the project. The average award amount is $250,000.

Online resource: http://www.dot.ca.gov/hq/LocalPrograms/EEM/homepage.htm

Land and Water Conservation Fund

The Land and Water Conservation Fund is a federal program that provides grants for planning and acquiring outdoor recreation areas and facilities, including trails. The Fund is administered by the California State Parks Department.

Cities, Counties, and District authorized to acquire and develop park and recreation space are eligible for grant funding. While non-profits are ineligible, they are allowed to apply in partnerships with eligible agencies. Applicants must fund the project entirely and will be reimbursed for half of the cost. Up to $2 million was available in the 2012 round of grant funding.

LWCF: http://www.parks.ca.gov/?Page_id=21360

5.3 Regional Funding Sources

One Bay Area Grant (OBAG)

This funding source managed by the Metropolitan Transportation Commission (MTC) establishes program commitments and policies for investing roughly $800 million over the four-year period that includes fiscal years 2012/13 – 2015/16. The OneBayArea Grant Program is a new funding approach that integrates the region's federal transportation program with California's climate law (Senate Bill 375, Steinberg, 2008) and the Sustainable Communities Strategy. Funding distribution to the counties will consider progress toward achieving local land-use and housing policies based on specifically designated allocation areas and design policies (Complete Streets).

The OBAG program allows flexibility to invest in transportation categories such as Transportation for Livable Communities, bicycle and pedestrian improvements, local streets and roads preservation, and planning activities, while also providing specific funding opportunities for Safe Routes to School (SR2S) and Priority Conservation Areas.

Online resources: http://www.mtc.ca.gov/funding/onebayarea/

Yolo-Solano Air Quality Management District Clean Air Fund

The Yolo-Solano Air Quality Management District's Clean Air Funds program is an annual program that can provide funds to facilitate alternative transportation programs including walking and bicycling programs and related infrastructure, public information, education and incentives for Yolo County and northeastern Solano County.

YSAQMD: http://ysaqmd.org/incentives.php

This page intentionally left blank.