REGIONAL SAFE ROUTES TO SCHOOL PLAN PHASE II

Volume I

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COMMON TERMINOLOGY USED IN THIS DOCUMENT

Active Transportation – Transportation by means of a travel mode requiring physical exertion rather than machine power; examples: walking, jogging, biking, skating

Agency – Any public jurisdiction responsible for transportation programming, infrastructural or non-infrastructural; most commonly incorporated cities and towns

Improvement – An infrastructural facility or design aspect added to an existing transportation network, usually to resolve a flaw; examples: crosswalks, signage, speed humps

Municipality – Incorporated city or town

Parent Survey – *Refer to section 3.4 of this volume.*

Transportation Technical Advisory Committee (TTAC) – *Refer to section 2.1 of this volume.*

Teacher Tally – *Refer to section 3.4 of this volume.*

Travel Data – Data on the travel behaviors of a specified group, including routes and modes

Travel Mode – Means by which one travels; examples: walking, biking, driving, taking transit

Safe Routes to School – A nationwide branded focus on creating safe active transportation routes for children commuting to/from school

Walk Audit – *Refer to section 3.2 of this volume.*

Walkshed – Zones containing all locations reachable by foot from a specified location within a specified time frame (such as 5 or 10 minutes) or within a specified maximum walking distance

1. Purpose, Setting, and Goals

1.1 Purpose

This phase of the Regional Safe Routes to School (SRTS) Plan was created with the purpose of guiding strategic improvements to the safety and accessibility of non-motorized transportation networks around San Bernardino County schools. It seeks to build upon the findings from Phase I of the Regional Safe Routes to School Plan by (1) compiling findings from field observations and student travel pattern data collected from approximately ten percent of the County's public schools, (2) assembling an inventory of site-specific recommended school zone bicyclist and pedestrian network improvements based on these data, (3) providing resources for future implementation efforts at a regional scale, and (4) developing a strategy for collecting student travel data on a periodic basis for monitoring and modeling purposes. These resources can be used to assist local agencies in creating an effective, systematic, regionally consistent program for delivering necessary improvements to school-vicinity bicyclist and pedestrian commute networks. The ultimate goal is to promote walking and cycling to school, and improve the overall health of the students and community by providing safer and more accessible bicycle and pedestrian facilities.

Phase II of the SRTS Plan was made possible by funding from Cycle 1 of the California Active Transportation Program (ATP) as well as collaborative input from a broad set of stakeholders representing diverse regions and community sectors of San Bernardino County. This report is designed for use by public officials at the County, city, and school district levels; but is also designed for reference by teachers and school administrators, parents, and other community stakeholders. This first volume describes the processes leading to the Phase II engineering recommendations and strategies for future student travel data collection. Volume II details the data findings and engineering recommendations for each school, categorized by municipality.

1.1.1 Benefits of Safe Routes to School

Improved safety and accessibility of school-vicinity active transportation networks can benefit both students and the greater San Bernardino County community in several ways.

Health – Students who walk and bike to school on a regular basis get more daily physical exercise, have more time to socialize, and have more opportunities to develop a sense of independence and self-reliance. Merely walking one mile each way to school can amount to two-thirds of the 60 daily minutes of exercise recommended by the CDC. Furthermore, children making a habit of physical activity are likely to boost their academic performance. The California Department of Education has found that increases in physical fitness scores among state middle-schoolers correlate with higher Stanford Achievement Test scores, across socioeconomic strata and academic levels.

Public health in surrounding communities can also benefit from the reduction of vehicle emissions and noise levels when students shift their mode of travel from automobiles to walking and biking.

Safety – Addressing flaws or gaps in local active transportation networks can improve community safety by reducing collisions with roadway traffic. Walking on roads without sidewalks can more than double a pedestrian's risk of being struck by a vehicle. Children walking on high-traffic roads, as opposed to low-traffic ones, are six times more likely to be struck.

Economy – SRTS can have a positive economic impact by saving many parents the time they would normally spend driving their children to school, and reducing the need for a family motor vehicle.

Sustainability – Effective SRTS reduces the need for daily short-distance automobile trips. In 1969, 48% of students walked or biked to school, whereas in 2001 that share amounted to less than 16%. Modeling suggests that reestablishing 1969 rates of walking and biking to school in the present day would scale back 3.2 billion vehicle miles travelled, 1.5 million tons of carbon dioxide emissions, and 89,000 tons of associated pollutants nationally.

A comprehensive study of 800 schools in the District of Columbia, Florida, Oregon, and Texas receiving SRTS infrastructure improvements and multi-year programming demonstrated a 31% average increase in rates of walking and biking to school. Achieving sizeable mode shift from vehicles to active transportation is indeed feasible with effective SRTS planning and programming. With this mode shift comes the potential for these worthwhile benefits for students and their communities to materialize.

Source: Safe Routes to School National Partnership.

"The built environment is health policy and social policy in concrete." – Dr. Richard Jackson, UCLA School of Public Health

1.1.2 Fulfilling the Countywide Vision

This phase of the Regional Safe Routes to School Plan fulfills two core components of the Countywide Vision:

- *"We envision a complete county that capitalizes on the diversity of its people, its geography, and its economy to create a broad range of choices for its residents in how they live, work, and play."*

- *"We envision a sustainable system of high-quality education, community health, public safety, housing, retail, recreation, arts and culture, and infrastructure, in which development complements our natural resources and environment."*

A **Memorandum of Understanding (MOU)** with the Southern California Association of Governments (SCAG) commits the SBCTA to implementing the programs of the 2012-2040 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS). The adopted RTP/SCS includes strategies and policies related to SRTS. The MOU also incorporates elements of the San Bernardino County Active Transportation Vision, which establishes additional SRTS commitments.

Among these commitments in the MOU are strategies and policies related to SRTS including:

- Development of a Countywide SRTS Inventory to help local communities identify SRTS needs and to prioritize the most cost-effective and competitive projects.

- Exploration of opportunities, together with SCAG, to expedite Active Transportation funding for local infrastructure to support transit expansion and improved bicycle/pedestrian connectivity Countywide.

- Development of complete streets policies and implementable strategies.

- Pursuit of funding and support of legislative initiatives to benefit multimodal projects that exemplify the direction of the Countywide Vision.

- Continued involvement in the San Bernardino County Active Transportation Network, a convening of County agencies, community organizations, residents, and cities interested in improving the experience of and increasing facilities for walking and bicycling in San Bernardino County.

This Phase II Plan is one key step in meeting these goals.

Based upon the Countywide vision, the San Bernardino County Active Transportation Network has established the **County Active Transportation Vision** (2014) comprised of the following goals, to be pursued by increasing focus on active transportation facilities and programming:

- Reduce injuries.
- Improve quality of life.
- Increase daily commutes to school, to work, and short trips by bicycling, walking, and public transit.
- Reduce air pollution and protect the environment through cleaner transportation choices.
- Expand bicycle and pedestrian facilities, access, and connectivity.
- Improve the local economy.
- Improve wellness and public health.
- Build an image of a healthy, desirable San Bernardino County.

The County Active Transportation Vision was jointly developed by representatives from SBCTA, County Department of Public Health, Omnitrans, Safe Routes to School National Partnership, American Lung Association, MoveIE, and Inland Empire Bike Alliance.

The interagency commitment to develop a Regional SRTS Plan for San Bernardino County derives explicitly from these goals.

1.2 Setting

San Bernardino County is the largest county by area in the United States and the 12th most populous. It contains roughly 2.1 million residents and 630,000 enrolled students across 24 cities/towns and 33 school districts of highly diverse character.

A significant proportion of San Bernardino County residents live in community areas considered disadvantaged. Approximately 650,000 County residents live in and 170,000 students attend schools in locales ranked by CalEnviroScreen 3.0 as among the top 10% most disadvantaged communities statewide. In 2015 the County's Community Vital Signs (CVS) initiative measured the proportion of County residents less than 18 years of age living in poverty as 27%, slightly higher than the California statewide average of 24% in the same year.

Additionally, health indicators for the County populace are at concerning levels. The CVS reports that 64% of adult residents and 39% of middle school-age children are either obese or overweight. More than 150,000 individuals have asthma, 60,000 have chronic bronchitis, 23,000 have emphysema, and 420,000 have heart disease. CVS revealed that in 2010 the County childhood diabetes hospitalization rate was 51.2 per 100,000, much higher than the state rate of 34.9 per 100,000 in the same year. Lastly, as measured in 2009, only 19.0% of teens (aged 12 to 17) in the County met the federal Centers for Disease Control and Prevention recommendation of 60 minutes or more of daily physical activity, although this was higher than the statewide performance of 15.2%.

Fortunately, San Bernardino County's active transportation networks are growing at a rapid pace. Between 2001 and 2015, bike trail centerline mileage grew from 53 to 504 miles; a goal of 554 miles has been set for the end of the year 2020 and a long-term goal of approximately 1,700 miles was proposed in SBCTA's Non-Motorized Transportation Plan (2011), the direct predecessor to the Active Transportation Plan. The expansion of these networks within and between communities creates an opportunity to boost physical activity among County residents while also improving user safety.

Although bicycle and pedestrian travel account for only 15% of all trips in the County (of which students represent the greatest share), and account for only a miniscule share of overall passenger miles travelled (PMT), 8% of roadway injuries and 19% of roadway fatalities in the County are of bicyclists and pedestrians.[1] [2] Over 68% of all bicycle and pedestrian injuries and fatalities in the County between 2008 and 2012 occurred on roadways within a half-mile of a school.[3] Improving the safety and accessibility of the active transportation networks connecting students to schools is therefore a pressing regional need.

1.3 Regional SRTS Plan Phase II Selected School Sites

As a part of this phase of the Regional SRTS Plan, 55 schools accounting for roughly ten percent of public schools in San Bernardino County were selected for data collection and initial implementation. The schools, distributed across 16 school districts and 21 cities and towns, with a portion situated in unincorporated areas of the County, were identified through a process of collaboration with municipal stakeholders that was grounded in the recommendations from the focus area impact analysis of Phase I. There were 42 elementary schools, 9 middle schools, and 4 high schools selected for SRTS focus as part of this phase of the Plan.

Table 1: List of Selected Schools

San Bernardino County Municipality	Selected School	School District
City of Adelanto	Victoria Magathan Elementary School	Adelanto Elementary School District
Town of Apple Valley	N/A (Preexisting SRTS project)	
City of Barstow	Barstow High School	Barstow Unified School District
	Crestline Elementary School	Barstow Unified School District
	Montara Elementary School	Barstow Unified School District
City of Big Bear Lake	Big Bear Elementary School	Bear Valley Unified School District
	Big Bear Middle School	Bear Valley Unified School District
City of Chino	N/A (Preexisting SRTS project)	
City of Chino Hills	Chaparral Elementary School	Chino Valley Unified School District
	Glenmeade Elementary School	Chino Valley Unified School District
City of Colton	N/A (Preexisting SRTS project)	
City of Fontana	Alder Middle School	Fontana Unified School District
	Ted J. Porter Elementary School	Fontana Unified School District
City of Grand Terrace	Grand Terrace Elementary School	Colton Joint Unified School District
	Terrace View Elementary School	Colton Joint Unified School District
City of Hesperia	Hesperia Junior High School	Hesperia Unified School District
	Joshua Circle Elementary School	Hesperia Unified School District
City of Highland	Lankershim Elementary School	San Bernardino City Unified School District
	Warm Springs Elementary School	San Bernardino City Unified School District
City of Loma Linda	Mission Elementary School	Redlands Unified School District
City of Montclair	Moreno Elementary School	Ontario-Montclair School District
	Serrano Middle School	Ontario-Montclair School District
City of Needles	Needles High School	Needles Unified School District
	Needles Middle School	Needles Unified School District
	Vista Colorado Elementary School	Needles Unified School District
City of Ontario	Elderberry Elementary School	Ontario-Montclair School District
	Lincoln Elementary School	Ontario-Montclair School District
	Vina Danks Middle School	Ontario-Montclair School District
City of Rancho Cucamonga	Cucamonga Elementary School	Cucamonga School District
	Los Amigos Elementary School	Cucamonga School District
	Rancho Cucamonga Middle School	Cucamonga School District
City of Redlands	Clement Middle School	Redlands Unified School District
	Franklin Elementary School	Redlands Unified School District
	Lugonia Elementary School	Redlands Unified School District
City of Rialto	Joe Baca Middle School	Colton Joint Unified School District
	Maple Elementary School	Fontana Unified School District
	Ruth Grimes Elementary School	Colton Joint Unified School District
	Virginia Primrose Elementary School	Fontana Unified School District
City of San Bernardino	Hillside Elementary School	San Bernardino City Unified School District
	Marshall Elementary School	San Bernardino City Unified School District
	Riley Elementary School	San Bernardino City Unified School District
City of Twentynine Palms	Oasis Elementary School	Morongo Unified School District
	Palm Vista Elementary School	Morongo Unified School District
	Twentynine Palms Elementary School	Morongo Unified School District
City of Upland	Baldy View Elementary School	Upland Unified School District
	Citrus Elementary School	Upland Unified School District
	Sycamore Elementary School	Upland Unified School District
City of Victorville	Hollyvale Elementary School	Hesperia Unified School District
	University Preparatory School	Victor Valley Union High School District
City of Yucaipa	Dunlap Elementary School	Yucaipa-Calimesa Joint Unified School Dist.
Town of Yucca Valley	Onaga Elementary School	Morongo Unified School District
	Yucca Valley Elementary School	Morongo Unified School District
	Yucca Valley High School	Morongo Unified School District
Unincorporated San Bernardino County	Gerald A. Smith Elementary School	Colton Joint Unified School District
	Joshua Tree Elementary School	Morongo Unified School District
	Mary B. Lewis Elementary School	Colton Joint Unified School District
	Muscoy Elementary School	San Bernardino City Unified School District
	Vermont Elementary School	San Bernardino City Unified School District

This selection process was grounded in the understanding that schools within disadvantaged communities have fewer institutional or financial resources at their disposal to support necessary safety and accessibility upgrades to their local active transportation networks. This study sought to target those schools with both demonstrable need and willingness to collaborate in the data collection and eventual implementation processes.

Each school district was the focus of an outreach effort and each school was the focus of a data collection process, culminating in the creation of school-specific engineering recommendations which are enumerated in the city-by-city chapters of Volume II. The recommendations largely reflect the feedback received from local stakeholders concerning potential improvements to their local school transportation networks. One intended use of this Phase II study is to present jurisdictions with lists of prioritized projects for those schools as well as data resources for future funding and implementation purposes.

1.4 Previous Plan Phase: SBCTA's Regional SRTS Plan Phase I

This Plan phase was preceded by the SBCTA's ***Safe Routes to School Plan Phase I: Strategy* (2015),** which reviewed existing County resources, specified procedures for performing local walk audits, and developed an implementable regional framework for allocating resources to local school zones demonstrating the greatest need.

The report identified geographic focus areas through analysis of potential safety, accessibility, sustainability, and equity benefits as well as project readiness. Those findings and strategies are reflected in the recommendations of this second phase.

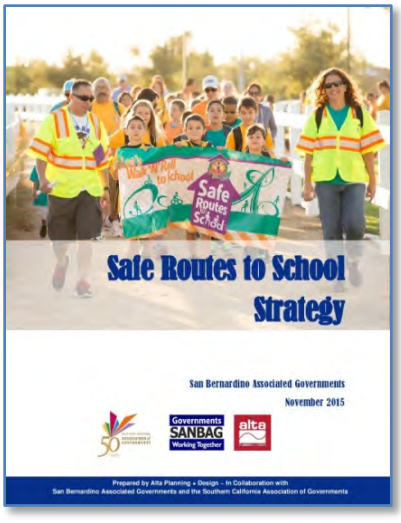


Figure 1: Regional SRTS Plan Phase I

Other reports related to this Regional SRTS Plan and the Active Transportation Plan include:

- San Bernardino County Long Range Transit Plan (Apr. 2010)
- SCAG 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (Apr. 2016)
- SBCTA Improvement to Transit Access for Cyclists and Pedestrians Study (Nov. 2012)
- San Bernardino County Active Transportation Vision (Aug. 2013)
- San Bernardino County Non-Motorized Transportation Plan (Revised 2015, orig. 2011)
- SBCTA Points of Interest Pedestrian Plan (PIPP)

1.5 Goals of the Regional SRTS Plan Phase II

The following constitute the goals of the SBCTA Regional SRTS Plan Phase II:

- Support the overall Countywide Vision and implementation strategy for providing safe routes to schools in San Bernardino County that encourage alternate mode choices for students and parents.
- Build upon the Phase I inventory and prioritization study to better integrate SRTS sites and corridors with Countywide active transportation efforts including the other components of the Active Transportation Plan.
- Develop a student data collection strategy to document the benefits of active transportation in order to leverage more SRTS funding for local jurisdictions.
- Conduct and document walk audits to better identify their exact infrastructural needs and provide access accommodations for students to bicycle and walk to school.
- Define a series of possible implementation efforts to identify and remove barriers, over time, to active transportation for all of the schools in the County.
- Address both actual and perceived safety concerns, together with strategies that could significantly decrease bicycle and pedestrian facilities and injuries.

The SBCTA Regional Safe Routes to School Plan is also grounded in the four broad goals of the previous Non-Motorized Transportation Plan (rev. May 2015), the direct predecessor to this Active Transportation Plan. Those goals were:

- ***Increased bicycle and pedestrian access.*** Expand bicycle and pedestrian facilities and access within and between neighborhoods, to employment centers, shopping areas, schools, and recreational sites.

- ***Increased travel by cycling and walking*.** Make bicycling and walking an integral part of daily life in San Bernardino County, particularly (for bicycle) for trips of less than five miles, by implementing and maintaining a bikeway network, providing end-of-trip facilities, improving bicycle/transit integration, encouraging bicycle use, and making bicycling safer and more convenient.

- ***Routine accommodation in transportation and land use planning*.** Routinely consider bicyclists and pedestrians in the planning and design of land development, roadway, transit, and other transportation facilities, as appropriate to the context of each facility and its surroundings.

- ***Improved bicycle and pedestrian safety*.** Encourage local and statewide policies and practices that improve bicycle and pedestrian safety.

References

1. 2009 CA Household Travel Survey
2. SCAT, 2012 RTP/SCS
3. Transportation Injury Mapping System. Refer to section 3.3 of this volume.

2. Public Outreach

Developing a list of schools for Phase II necessitated a preliminary process of stakeholder and community outreach. Involving stakeholders at the regional level helped bring to light unique pressures facing particular neighborhoods and schools as well as unique institutional assets among the various school districts and jurisdictions. Involving stakeholders at the school district and school administration levels ensured broad public awareness of the data collection process.

Development of Phase II involved (a) progress feedback from the SBCTA Transportation Technical Advisory Committee (TTAC), (b) continual collaboration with municipalities and school districts during the school selection process, (c) exhibitions at four public events, and (d) direct engagement with administrators, teachers, and parents of individual participating schools over the course of several months. Outreach to schools was concomitant with the data collection process.

Outreach followed the timeline below.

Stakeholder and Community Outreach Timeline

Feb 11, 2016: TTAC Kickoff Meeting. Presentation of purposes and goals of Phase II to the 26 constituent agencies of the SBCTA Transportation Technical Advisory Committee.

(Spring 2016 – Spring 2017): Ongoing outreach to schools and student travel data collection (tallies, surveys, and walk audits).

Apr 4, 2016: TTAC presentation on project progress and data collection strategies. Joint presentation with SBCTA Points of Interest Pedestrian Plan (PIPP) project consultants.

Apr 21, 2016: Joint Public Meeting with PIPP project consultants in Town of Apple Valley. Presentation by consultants of both projects on project scopes and site selection processes. Public briefing on GIS data analysis tools and collection of performance feedback through questionnaires.

Apr – Jun 2016: Assisting City of Colton and Town of Apple Valley in applying for ATP Cycle 3 grants to implement SRTS projects. Engagement with County Dept. of Public Health.

Jun 21, 2016: Presentation of SRTS planning process at National Innovative Communities Conference in Ontario, CA.

Jul 31, 2016: Participation at Sunset on Sierra public event in Fontana.

Oct 11, 2016: College Outreach Event at CSUSB. Pilot outreach event as a proof-of-concept for student travel data collection methods. 18 surveys collected.

Jan 17, 2017: “Lessons Learned” Workshop between consultant engineers and stakeholder agency representatives.

2.1 Transportation Technical Advisory Committee Input

The SBCTA Transportation Technical Advisory Committee (TTAC) served an advisory role in the genesis of this phase of the Regional SRTS Plan. Representatives from San Bernardino County, its 24 cities and towns, and Caltrans comprise the TTAC, which convenes roughly six times per year. A majority of the members of TTAC are either public officials or administrators, with abundant experience in regional community and transportation issues.

The TTAC oversaw the development of this Plan phase over the course of three progress meetings in February 2016, April 2016, and April 2017. Feedback from these meetings guided the process of selecting the 55 schools and initiating school district/administration outreach.

2.2 School Selection Process

The consultant team collaborated with the SBCTA, municipal engineers, school district superintendents, and the TTAC to develop a list of 55 schools—accounting for roughly ten percent of public schools in San Bernardino County—for SRTS focus as part of Phase II. The selection of schools among municipalities was shaped by two constraints:

- Each municipality in San Bernardino County (unincorporated areas considered for this purpose as a 'municipality') would have at least one school participating in Phase II, but ideally having two or three. Only one city has more than three schools participating in Phase II: The City of Rialto has four schools, although they are split between local school districts.

- Municipalities already implementing their own SRTS plan or program independent of the SBCTA Regional SRTS Plan would not have any schools participating, in order to reduce programming redundancy. However, those municipalities would still be involved in the advisory process by virtue of their membership in the TTAC. This constraint applied to the City of Chino, the City of Colton, and the Town of Apple Valley. The City of Grand Terrace is producing its own active transportation plan with a SRTS component. However, its schools lacked engineering recommendations and Phase II thus included two Grand Terrace schools.

These constraints ensured that Phase II reflected the regional scope and strategic nature of SBCTA's SRTS efforts as structured in Phase I. The 55 schools selected are distributed across 21 cities and towns plus three unincorporated locales. They also represent 16 of the County's 33 school districts.

Within the above constraints, and through coordination with municipalities and school districts, the school selection process implicitly reflected the principles of the focus area analysis from

Phase I:

- Impact to safety
- Impact to mode share
- Geographic distribution
- Consideration of project readiness
- Consideration of equity

These factors were emphasized in discussions with engineers from each of the 21 participating cities and the County when identifying schools for selection. Municipal representatives collaborated with consultant planners to identify schools that demonstrated a need for SRTS focus considering those impact criteria. Subsequent outreach to school district superintendents finalized the preliminary list and led into the school-by-school outreach process.

2.3 General Community Engagement Outreach

The outreach process for the SRTS Plan Phase II involved four diverse general community engagement events, detailed below.

In April 2016, project engineers presented initial progress at a **town hall meeting** in the Town of Apple Valley. The meeting was coordinated in partnership with the consultants of the Countywide Points of Interest Pedestrian Plan (PIPP) to allow agency staff, elected representatives, business and community members, and the general public to review and provide feedback on progress made up to that point. To involve audience members in the technical aspects of the project, engineers and planners explained common active transportation network improvements and demonstrated an interactive online GIS tool.

In June 2016, outreach and data collection methods including walk audits, tallies, and surveys were exhibited at the 7th Annual **National Innovative Communities Conference** in the City of Ontario.

In July 2016, project engineers engaged the public at the **Sunset on Sierra** event in the City of Fontana. For this event, city officials installed temporary bicycle safety improvements on local streets to demonstrate the benefits of safe active transportation networks.

Lastly, in October 2016, project engineers and planners engaged students at the **California State University, San Bernardino** campus with table exhibits and travel surveys similar to those shared with the selected local schools. Preliminary data on collegiate student travel patterns were gathered as part of a pilot effort for future regional data collection efforts.

2.4 School Outreach

Outreach to school district officials, students, and parents significantly informed the scope and focus of this Plan's engineering components.

The process of reaching out to the 55 schools for the data collection process began in Spring 2016. Most of the data collection was conducted the following Fall. School outreach aided in the securing of dates and times at which the greatest walk audit attendance could be expected. School staff also collaborated in the dissemination of promotional materials such as flyers prepared by consultants, email blasts, automated phone calls, and/or word spread by social media.

The SRTS consultant team followed a standardized outreach approach involving the superintendent of each of the 16 school districts:

1. Informing the school district superintendent about the project by providing a fact sheet and other relevant information. This emphasized the potential benefits of bicycle and pedestrian facility improvements for students along with grant funding opportunities.

Figure 2: Walk Audit Outreach Material

2. Requesting a letter of support from the superintendent or school district approving and encouraging schools to participate in the tallies, surveys, and walk audits. To expedite this process, a series of sample letters were provided to configure onto school district letterhead.

3. Contacting the schools and informing them of superintendent and school district support, and providing the letter. School staff has the approval to begin coordinating the tallies, surveys, and walk audits.

4. Coordinating with the school on tally and survey distribution, walk audit dates, and schedule for retrieving the tallies and surveys.

Ultimately, letters of support were obtained from 13 of the 16 represented school districts. The consultant team had existing relationships with the other three school districts allowing a more informal outreach process with their schools. Once firm communication was established with a particular school, the data collection process for that school could begin.

3. Walk Audits and Data Collection

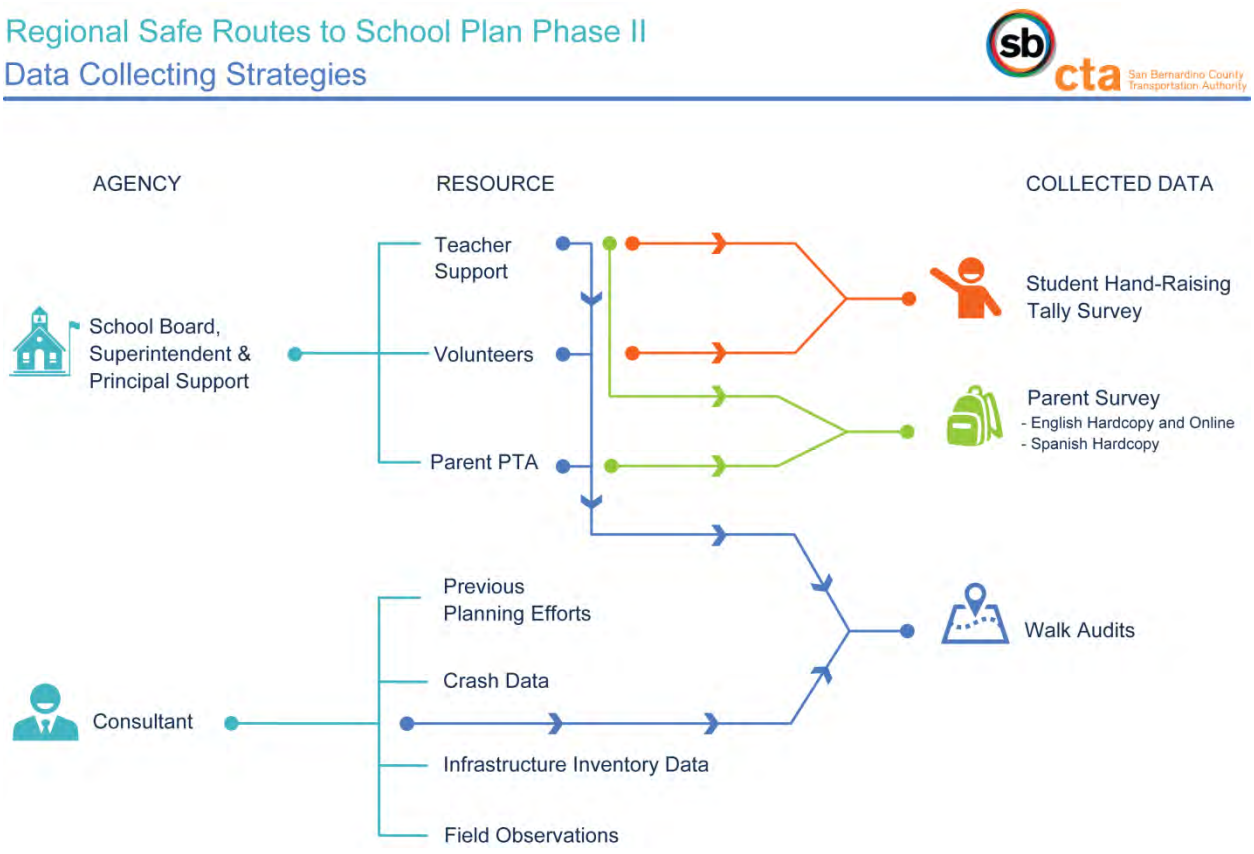


Figure 3: Data Collection Strategies

3.1 Field Observations

Prior to conducting the walk audits, consultant engineers conducted an assessment of pedestrian and bicycle network conditions at each of the 55 school sites. Aerial and street photographs were consulted where municipalities lacked up-to-date data on the locations of infrastructure features such as sidewalks, curb ramps, bike lanes, and crosswalks. Maps were then printed and used to verify the aerial assessment either prior to or during the walk audits. Updates based on field observations were incorporated into digital datasets.

Data collected as part of this effort included:

- Sidewalk network gaps
- Missing/present curb ramps
- Lack of lighting
- School zone feature condition
- Intersections difficult to cross
- Crosswalk striping
- Roadway speed
- Roadway condition

Documenting these data and incorporating them into the walk audit process enabled detailed discussion with school personnel and parents regarding the existing conditions around their schools and improvements they deemed necessary. This process helped expedite multiple aspects of the data collection process and the identification of bicycle and pedestrian network shortcomings.

3.2 Walk Audits

Engineers and planners in partnership with participating parents, students, and school officials performed thorough walk audits of the pedestrian and bicycle networks surrounding the selected schools. SRTS walk audits are field observation processes that seek to accrue data on the built environment surrounding school campuses, usually within a radius of 1/4- to 1/2-mile or around important student commute corridors. The data that are collected focus on potential network deficiencies that may affect commute safety, convenience, or accessibility for bicyclists and pedestrians, particularly safety concerns involving interactions with roadway traffic. The walk audits drew from the strategic toolkit (featured later in this volume) and focus area analysis produced in Phase I as well as from planners' and engineers' past experience and existing SRTS literature.

Parents and students are integral to the walk audit process as they have an intimate familiarity with the user experience of pedestrian and bicycle facilities near their school campus. They can offer unique perspectives on which aspects of their network work and which aspects fail, in contexts of different times of day and different levels of roadway traffic. SBCTA, engineers, planners, and school district staff collaborated to increase public awareness of these walk audits through bilingual marketing materials so that parents and students could contribute their input.

Walk audits took place at each selected school, excluding those in the City of Grand Terrace where walk audits were previously conducted for that city's Active Transportation Plan.

3.2.1 Walk Audit Process

A database was developed to track the schools that were selected for the walk audits and pre-populated with school and school district contacts. Each school was initially contacted and briefed on the project, including on the tallies, surveys, and walk audits. Once schools were confirmed to participate, coordination with school staff established details including:

- ***Options for date and time***. Some audits were scheduled in Spring 2016 due to weather, preference by the principal and school staff, or change in school leadership. Most of the walk audits were conducted in the Fall of 2016.

- ***Before- or after-school walk audit***. A majority of the walk audits were conducted in the afternoon. However, some schools preferred walk audits in the morning, particularly those in the desert subregion where the warmer afternoon weather would reduce attendance. Scheduling flexibility allowed our team to identify strategic dates/times to capture the most attendees.

- ***Other scheduled school events***. In a few instances, walk audits were scheduled as part of another school event in order to garner additional attendance where traditional scheduling would have resulted in lower turnouts. School events provided an opportunity for relationship building between walk audit participants, SRTS team members, and regional staff. This allows for a comfortable outlet for participation and a trusted outlet for integration of respective insights.

- ***Materials and publicity***. To publicize the walk audits, flyers were distributed with the parent surveys. In addition, signs were placed in areas where parents were dropping off and picking up their children to/from school. Printed material was made bilingual to be effective to a variety of audiences.

The audits themselves were scheduled to coincide with school drop-off / pickup times to maximize attendance and the quality of observations. Each audit featured an open workshop wherein SRTS team members could explain the process and gather observations from participants in addition to the tabulated data from street observations. Aerial maps aided in communicating location-specific concerns between participants and the SRTS team members.

Participating walk audit groups consisted of:

- Principals/Teachers
- Parents/guardians
- Students
- PTA/PTA members
- School administration members
- School district personnel
- Consultant team members
- Regional Staff

The walking routes were not determined prior to conducting the walk audits. Once the audience convened, a briefing was conducted to review the exercise and activities. Audiences were presented with common barriers to walkability/bikeability and potential network solutions, to educate them on these issues and to help them envision opportunities in their own neighborhood during the walk. As part of the briefing, the audience was asked where they would like to walk to discuss some of these known network shortcomings around the vicinity of the school. For large audiences, multiple groups were formed and walks were separated to cover a

greater footprint of the neighborhood surrounding the school.

During these walks, engineers took notes, discussed issues and solutions with participants, and verified the locations of pedestrian and bicycle facilities. The walks varied in length and time depending on attendance, weather, and the extent of local network deficiencies. They typically lasted 40 minutes and covered between one half-mile to one mile from the school campus. Due to many parental obligations, longer exercises were avoided.

Table 2: SRTS Issues and Solutions

Possible Issues	Possible Solutions
• Traffic behavior around school area (speed, movements, etc.) • Amount of traffic and congestion • Lack of right-of-way (ROW) for pedestrians or bicyclists • Conflicts between cars/bikes/pedestrians • Few safe places to cross streets • Traffic failing to yield • Sidewalks inaccessible for disabled users	• Bulb-outs • High-visibility crosswalks • Mid-block crosswalks • ADA-compliant curb ramps • School zone signage • Speed-feedback signage • Flashing beacons • Bike facilities • Sidewalk curbs/gutters • Street striping

Data gathered from the 55 walk audits underwent engineering refinement and informed the network improvement recommendations.

The process of including field observations and stakeholder participation in the walk audit stage of data collection ensures that the final recommendations ultimately reflect the idiosyncrasies of each school zone network and the reality of user experience.

Table 3: Walk Audit Dates and Times

Month	Date	School	Municipality	School District
April (2015)				
	14	Terrace View Elementary School	City of Grand Terrace	Colton Joint Unified SD
	27	Grand Terrace Elementary School	City of Grand Terrace	Colton Joint Unified SD
May (2016)				
	9	Alder Middle	City of Fontana	Fontana Unified SD
	9	Virginia Primrose Elementary	City of Rialto	Fontana Unified SD
	10	Crestline Elementary	City of Barstow	Barstow Unified SD
	16	Oasis Elementary	City of Twentynine Palms	Morongo Unified SD
	17	Barstow High	City of Barstow	Barstow Unified SD
	17	Montara Elementary	City of Barstow	Barstow Unified SD
	18	Lugonia Elementary	City of Redlands	Redlands Unified SD
	19	Ted J. Porter Elementary	City of Fontana	Fontana Unified SD
	23	Palm Vista Elementary	City of Twentynine Palms	Morongo Unified SD
	24	Twentynine Palms Elementary	City of Twentynine Palms	Morongo Unified SD
	31	Mission Elementary	City of Loma Linda	Redlands Unified SD
June				
	1	Dunlap Elementary	City of Yucaipa	Yucaipa-Calimesa Joint Unified SD
September				
	7	Hesperia Junior High	City of Hesperia	Hesperia Unified SD
	7	Joshua Circle Elementary	City of Hesperia	Hesperia Unified SD
	12	Los Amigos Elementary	City of Rancho Cucamonga	Cucamonga SD
	19	Citrus Elementary	City of Upland	Upland Unified SD
	19	Sycamore Elementary	City of Upland	Upland Unified SD
	23	Rancho Cucamonga Middle	City of Rancho Cucamonga	Cucamonga SD
October				
	4	Franklin Elementary	City of Redlands	Redlands Unified SD
	7	Viva Danks Middle	City of Ontario	Ontario-Montclair SD
	10	Clement Middle	City of Redlands	Redlands Unified SD
	10	Lincoln Elementary	City of Ontario	Ontario-Montclair SD
	11	Elderberry Elementary	City of Ontario	Ontario-Montclair SD
	13	Marshall Elementary	City of San Bernardino	San Bernardino City Unified SD
	19	Serrano Middle	City of Montclair	Ontario-Montclair SD
	20	Mary B. Lewis Elementary	Unincorporated SB County	Colton Joint Unified SD
	25	Hillside Elementary	City of San Bernardino	San Bernardino City Unified SD
	25	Joshua Tree Elementary	Unincorporated SB County	Morongo Unified SD
	26	Moreno Elementary	City of Montclair	Ontario-Montclair SD
	28	Lankershim Elementary	City of Highland	San Bernardino City Unified SD
	28	Muscoy Elementary	Unincorporated SB County	San Bernardino City Unified SD
	28	Vermont Elementary	Unincorporated SB County	San Bernardino City Unified SD
November				
	1	Chaparral Elementary	City of Chino Hills	Chino Valley Unified SD
	1	Glenmeade Elementary	City of Chino Hills	Chino Valley Unified SD
	2	Riley Elementary	City of San Bernardino	San Bernardino City Unified SD
	4	Ruth Grimes Elementary	City of Rialto	Colton Joint Unified SD
	7	Cucamonga Elementary	City of Rancho Cucamonga	Cucamonga SD
	7	Hollyvale Elementary	City of Victorville	Hesperia Unified SD
	10	Yucca Valley Elementary	Town of Yucca Valley	Morongo Unified SD
	14	Warm Springs Elementary	City of Highland	San Bernardino City Unified SD
	17	Onaga Elementary	Town of Yucca Valley	Morongo Unified SD
	18	Victoria Magathan Elementary	City of Adelanto	Adelanto Elementary SD
	29	Joe Baca Middle	City of Rialto	Colton Joint Unified SD

	29	University Preparatory	City of Victorville	Victor Valley Union High SD
	30	Yucca Valley High	Town of Yucca Valley	Morongo Unified SD
December				
	6	Needles High	City of Needles	Needles Unified SD
	6	Needles Middle	City of Needles	Needles Unified SD
	6	Vista Colorado Elementary	City of Needles	Needles Unified SD
	8	Maple Elementary	City of Rialto	Fontana Unified SD
	14	Baldy View Elementary	City of Upland	Upland Unified SD
April (2017)				
	13	Gerald A. Smith Elementary	Unincorporated SB County	Colton Joint Unified SD
May				
	4	Big Bear Middle	City of Big Bear Lake	Bear Valley Unified SD
	16	Big Bear Elementary	City of Big Bear Lake	Bear Valley Unified SD

3.2.2 Additional Workshops

Additional workshops with school stakeholders were occasionally scheduled, not to substitute for walk audits, but to supplement them. Some schools desired additional parent participation opportunities since many parents face time-consuming obligations such as work, caring for other children, etc. Workshop sessions were conducted either in school libraries or campus recreational areas to create opportunities for parent participation. Participants received informational briefings and were encouraged to make use of available maps and information boards to indicate local network safety issues. These participants included parents, students, and school staff. A few schools requested that these workshops take place at after-school events such as movie nights or book-reading nights to take advantage of a larger turnout.

3.3 Collision Analysis

Collision data, particularly on crashes involving youth, can help identify network locations where conditions are unsafe for bicyclists and pedestrians. The Transportation Injury Mapping System (TIMS) operated by the Safe Transportation Research and Education Center at UC Berkeley was used to map collisions near schools to highlight areas for additional field work. The locations of collision “hot spots” indicated by the data later informed walk audit routes and facility recommendations.

Table 4: Pedestrian and Bicyclist Collision Analysis

San Bernardino County Municipality	Selected School	Pedestrian Collisions		Bicyclist Collisions		Total Collisions	Total Fatal Collisions
		< ¼ mi	¼ - ½ mi	< ¼ mi	¼ - ½ mi		
City of Adelanto	Victoria Magathan Elementary	0	0	0	0	0	0
City of Barstow	Montara Elementary	0	1	0	0	1	0
	Crestline Elementary	0	1	0	0	1	0
	Barstow High	1	6	0	2	9	0
City of Big Bear Lake	Big Bear Middle	2	1	0	3	6	0
	Big Bear Elementary	1	2	2	0	5	0
City of Chino Hills	Glenmeade Elementary	3	4	0	3	10	2
	Chaparral Elementary	1	2	1	0	4	0
City of Fontana	Alder Middle	2	2	4	1	9	1
	Ted J. Porter Elementary	2	5	2	4	13	0
City of Grand Terrace	Grand Terrace Elementary	1	0	0	1	2	0
	Terrace View Elementary	0	0	0	0	0	0
City of Hesperia	Hesperia Junior High	0	0	0	0	0	0
	Joshua Circle Elementary	1	1	2	0	4	0
City of Highland	Warm Springs Elementary	2	12	2	7	23	1
	Lankershim Elementary	0	8	2	4	13	0
City of Loma Linda	Mission Elementary	1	2	2	3	8	1
City of Montclair	Moreno Elementary	1	7	2	8	18	0
	Serrano Middle	3	9	1	14	27	0
City of Needles	Needles High	0	1	1	1	3	0
	Needles Middle	0	0	0	3	3	0
	Vista Colorado Elementary	0	0	0	2	2	0
City of Ontario	Vina Danks Middle	4	12	1	15	32	0
	Lincoln Elementary	2	16	7	14	39	2
	Elderberry Elementary	3	20	2	10	35	0
City of Rancho Cucamonga	Los Amigos Elementary	0	1	1	6	8	1
	Cucamonga Elementary	0	1	0	2	3	0
	Rancho Cucamonga Middle	1	0	0	3	4	0
City of Redlands	Clement Middle	1	16	0	12	29	0
	Lugonia Elementary	2	14	1	9	26	0
	Franklin Elementary	2	17	4	13	36	0
City of Rialto	Maple Elementary	0	4	0	3	7	0
	Joe Baca Middle	4	5	1	3	13	1
	Virginia Primrose Elementary	2	3	0	2	7	0
	Ruth Grimes Elementary	0	7	1	5	13	1
City of San Bernardino	Marshall Elementary	0	10	1	2	13	1
	Riley Elementary	8	15	5	14	42	1
	Hillside Elementary	1	5	0	1	7	0
City of Twentynine Palms	Palm Vista Elementary	0	0	0	0	0	0
	Oasis Elementary	1	0	0	0	1	0
	Twentynine Palms Elementary	0	0	0	0	0	0
City of Upland	Sycamore Elementary	1	11	2	14	28	0
	Baldy View Elementary	2	21	0	35	57	2
	Citrus Elementary	0	12	4	20	36	1
City of Victorville	Hollyvale Elementary	0	0	0	0	0	0
	University Preparatory	1	0	0	0	1	0
City of Yucaipa	Dunlap Elementary	0	2	0	1	3	0
Town of Yucca Valley	Yucca Valley Elementary	0	0	1	0	1	0

	Yucca Valley High	0	1	0	1	2	0
	Onaga Elementary	1	3	0	0	4	1
Unincorporated Communities	Mary B. Lewis Elementary	2	1	0	1	4	1
	Gerald A. Smith Elementary	2	2	0	4	8	0
	Joshua Tree Elementary	0	0	0	1	1	0
	Vermont Elementary	1	3	2	1	7	0
	Muscoy Elementary	3	6	1	2	12	0

Table 5: Pedestrian and Bicyclist Collision Summary

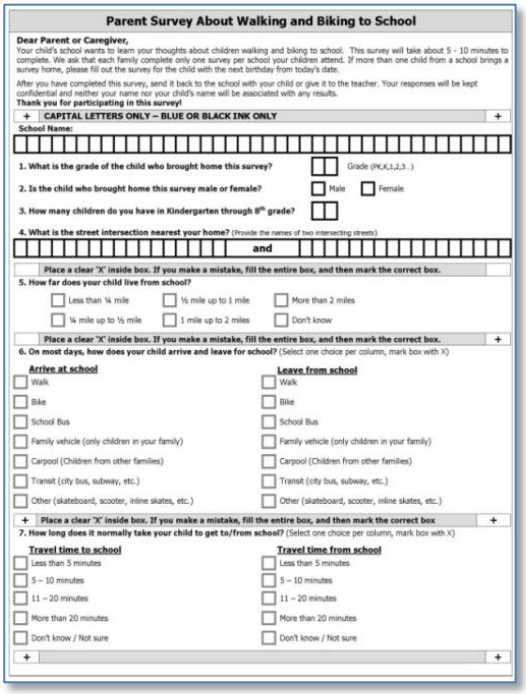
1/4 mi Pedestrian Collision	1/4 mi Bicyclist Collisions	1/4 - 1/2 mi Pedestrian Collisions	1/4 - 1/2 mi Bicyclist Collisions	Total Collisions	Total Fatal Collisions
65	55	272	250	642	17

3.4 National SRTS Teacher Tallies & Parent Surveys

Data on student travel patterns were a crucial basis for the corridor selection and ultimate recommendations. Stakeholder groups were engaged at each school for the purpose of data collection through the tallies and surveys. Two polling methods were implemented to gather data on student travel behavior uniformly across the 55 schools.

The "Safe Routes to School Students Arrival and Departure Tally Sheet" from the National Center for Safe Routes to School was used to obtain information regarding the mode of transportation students used to get to and from school during typical weekdays. At each school, one or more teachers were asked to survey students' morning and afternoon travel methods (walk, bike, school bus, family vehicle, carpool, transit, or other).

The "Parent Survey About Walking and Biking to School" form, from the National Center for Safe Routes to School, was used to obtain additional information regarding the distance from a student's home to school, modality usage, duration characteristics, at what age and issues affecting parents decision to allow their child to walk or bike to and from school, and other related information.


Parent Survey About Walking and Biking to School

Dear Parent or Caregiver,

Your child's school wants to learn your thoughts about children walking and biking to school. This survey will take about 5 - 10 minutes to complete. We ask that each family complete only one survey per school your children attend. If more than one child from a school brings a survey home, please fill out the survey for the child with the next birthday from today's date.

After you have completed this survey, send it back to the school with your child or give it to the teacher. Your responses will be kept confidential and neither your name nor your child's name will be associated with any results.

Thank you for participating in this survey!

CAPITAL LETTERS ONLY – BLUE OR BLACK INK ONLY

School Name:

1. What is the grade of the child who brought home this survey? Grade (PK,K,1,2,3...)
2. Is the child who brought home this survey male or female? Male Female
3. How many children do you have in Kindergarten through 8th grade?
4. What is the street intersection nearest your home? (Provide the names of two intersecting streets)

and

Place a clear 'X' inside box. If you make a mistake, fill the entire box, and then mark the correct box.

5. How far does your child live from school?

Less than ¼ mile | ½ mile up to 1 mile | More than 2 miles
¼ mile up to ½ mile | 1 mile up to 2 miles | Don't know

Place a clear 'X' inside box. If you make a mistake, fill the entire box, and then mark the correct box.

6. On most days, how does your child arrive and leave for school? (Select one choice per column, mark box with X)

Arrive at school	Leave from school
Walk	Walk
Bike	Bike
School Bus	School Bus
Family vehicle (only children in your family)	Family vehicle (only children in your family)
Carpool (Children from other families)	Carpool (Children from other families)
Transit (city bus, subway, etc.)	Transit (city bus, subway, etc.)
Other (skateboard, scooter, inline skates, etc.)	Other (skateboard, scooter, inline skates, etc.)

Place a clear 'X' inside box. If you make a mistake, fill the entire box, and then mark the correct box

7. How long does it normally take your child to get to/from school? (Select one choice per column, mark box with X)

Travel time to school	Travel time from school
Less than 5 minutes	Less than 5 minutes
5 – 10 minutes	5 – 10 minutes
11 – 20 minutes	11 – 20 minutes
More than 20 minutes	More than 20 minutes
Don't know / Not sure	Don't know / Not sure

Figure 4: SRTS Parent Survey

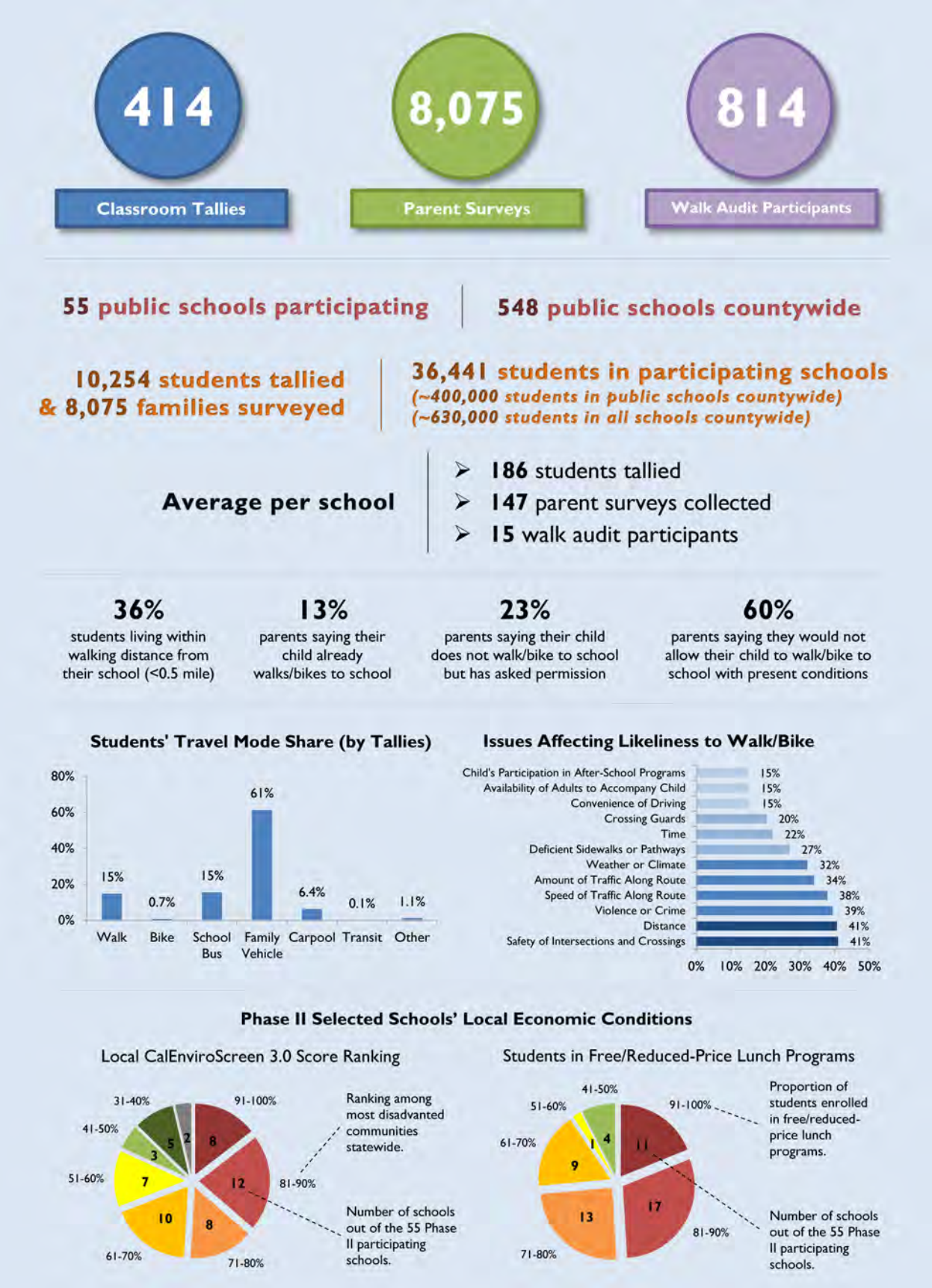
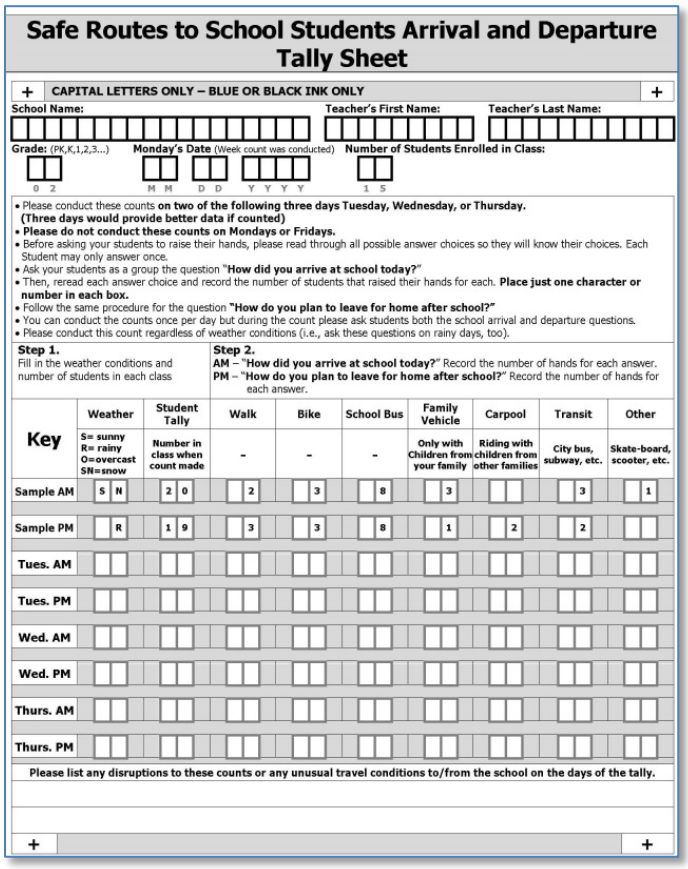


Figure 5: Data Collection Overview

3.4.1 Tally & Survey Process

Teacher tallies were conducted in the Spring and Fall of 2016. All schools were contacted in early spring to begin scheduling walk audits and distributing forms. For schools that were willing to participate in the spring, tallies were conducted in April and May. An attempt was made to schedule walk audits during this same time frame to facilitate retrieval of tallies and surveys once completed.



Safe Routes to School Students Arrival and Departure Tally Sheet

+ CAPITAL LETTERS ONLY – BLUE OR BLACK INK ONLY +

School Name: | Teacher's First Name: | Teacher's Last Name:

Grade: (PK,K,1,2,3...) 0 2 | Monday's Date (Week count was conducted) M M D D Y Y Y Y | Number of Students Enrolled in Class: 1 5

- Please conduct these counts **on two of the following three days Tuesday, Wednesday, or Thursday. (Three days would provide better data if counted)**
- **Please do not conduct these counts on Mondays or Fridays.**
- Before asking your students to raise their hands, please read through all possible answer choices so they will know their choices. Each Student may only answer once.
- Ask your students as a group the question "**How did you arrive at school today?**"
- Then, reread each answer choice and record the number of students that raised their hands for each. **Place just one character or number in each box.**
- Follow the same procedure for the question **"How do you plan to leave for home after school?"**
- You can conduct the counts once per day but during the count please ask students both the school arrival and departure questions.
- Please conduct this count regardless of weather conditions (i.e., ask these questions on rainy days, too).

Step 1. Fill in the weather conditions and number of students in each class

Step 2. **AM** – "**How did you arrive at school today?**" Record the number of hands for each answer. **PM** – "**How do you plan to leave for home after school?**" Record the number of hands for each answer.

Key	Weather	Student Tally	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
	S= sunny R= rainy O=overcast SN=snow	Number in class when count made	-	-	-	Only with Children from your family	Riding with children from other families	City bus, subway, etc.	Skate-board, scooter, etc.
Sample AM	S N	2 0	2	3	8	3		3	1
Sample PM	R	1 9	3	3	8	1	2	2	
Tues. AM									
Tues. PM									
Wed. AM									
Wed. PM									
Thurs. AM									
Thurs. PM									

Please list any disruptions to these counts or any unusual travel conditions to/from the school on the days of the tally.

+ +

Figure 6: SRTS Teacher Tally

Fall tallies were conducted between September through November 2016, depending on the availability of school personnel and other school activities. It was important to schedule the tallies early or later in the season due to inclement weather, especially in the desert and mountain regions.

When coordinating the tallies, teachers and school staff were instructed to conduct them on a Tuesday, Wednesday, or Thursday so that students could be asked about their morning travel as well as how they planned to get home later that day. Students tend to have different travel patterns on Mondays and Fridays and thus those days were avoided. In addition, student tallies and walk audits were avoided on weeks with abnormal transportation patterns such as Minimum Days or Walk to School Day.

To provide the surveys, each school was asked the number of classrooms—preferably home rooms—in which they planned to distribute them, and an average classroom size. Tallies and surveys were printed and grouped into the estimated classroom sizes, in both English and Spanish. Extra sets were made in case the school needed them. School staffs were assigned to allocate them with instructions to each teacher. Teachers distributed them to each child to take home to be completed by their parents or guardians.

Each school was given roughly two weeks to distribute and collect its set of tally and survey forms. Once received from the schools by the consultant team, they were organized by school and type and sent to the National Center for Safe Routes to School for input into their SRTS data clearinghouse, which tabulates data and creates reports using historic data.

3.5 CSUSB Pilot Student Data Collection

As aforementioned, the consultant team held an outreach event on the campus of California State University, San Bernardino in October 2016 to conduct a pilot survey of college-age students' travel patterns using methods similar to those implemented at the K-12 schools. This event was conducted to gauge student and faculty commute characteristics and to identify

network aspects perceived to impair the ease or accessibility of active travel.

A booth and exhibits were assembled on the campus' central lawn, where participation was anticipated to be greatest due to high visibility. The surveys collected from students and faculty posed active transportation questions such as the kinds of bicycle and pedestrian facilities and programs participants would like to see near and around their campus. This outreach effort may serve as a prelude to more expansive collegiate student data collection efforts in future years.

3.6 "Lessons Learned" Analysis and Findings

In January 2017, consultant engineers and planners, working with city/town and County staff and industry partners, conducted a Safe Routes to School (SRTS) project assessment encompassing the multiple cities in San Bernardino County. The ultimate aim of the assessment was to compile insights to identify the "lessons learned" from various projects in the form of a strategic methodology for each agency within the San Bernardino County to advance their active transportation planning efforts and funding opportunities.

The comprehensive findings from the exercise can be found in the appendix to this volume.

4. SRTS Data Collection Strategies

The Regional SRTS Plan Phase II seeks to assemble a set of strategies for future student travel data collection efforts that may be used by SBCTA - in partnership with municipalities and school districts - to implement SRTS network improvements elsewhere in the County. Data on student travel patterns will inform the process of implementing SRTS improvements at the 90% of San Bernardino County schools not featured in this Plan phase. Longitudinal student travel data, measuring travel patterns at each school over time, may also assist in monitoring the performance of existing and forthcoming network improvements.

4.1 Student Travel Data Collection Best Practices

Safe Routes to School plans and programs often take advantage of the data collection resources provided by the National Center for Safe Routes to School, established in 2006 within the University of North Carolina Highway Safety Research Center. The National Center for SRTS creates data collection materials, such as the teacher tallies and parent surveys used in this same Plan. This data can assist agencies in measuring how students travel to school and what factors underlie their decisions to travel by different modes. The National Center for SRTS forms collect data on mode share, parent concerns, school/class enrollment, and existing network issues. The Center makes the forms available online and also serves as a data clearinghouse: coordinators can send the completed forms directly to the Center to be digitized and statistically analyzed.

As a data collection tool the tallies and surveys are easy to implement and can yield reliable, detailed data. Their uniformity allows easy comparison of data from different schools and time periods. However, as noted in Phase I of this Plan, the forms are not user-friendly and the process of implementing them requires staff resources from both the schools and the implementing agency or consultant. An extensive outreach effort is the best way to ensure districts and schools collaborate in distributing the forms to as many teachers, students, and parents as possible.

Live automobile, bicycle, and pedestrian counts (not conducted as part of Phase II) serve as an alternate method for obtaining detailed student travel data. Performing such counts can simultaneously reveal significant network issues affecting mode share such as safety hazards or commute barriers for students travelling by bike or foot. However, counts too require staff resources from the agency or consultant – as well as an effective observation strategy ensuring that all travel corridors to and from a school are evaluated, on days and at hours that reflect students' typical commute conditions. Data from tallies and surveys can still be more valuable than even the highest-quality counts, since counts can only reveal network shortcomings from the engineering perspective rather than the user perspective.

Walk audits reveal common student commute routes and user consensus on major network issues, although with inconsistent implementation (which is highly probable) their results can be difficult to compare over different time periods. In common practice, walk audits are not performed on a regular basis at each site.

The Transportation Injury Mapping System (TIMS) operated by the Safe Transportation Research and Education Center at UC Berkeley provides useful data on roadway crashes and injuries within the state for the year 2006 on. Incidents are classified by location, date, type, severity, and other measures, allowing an agency or consultant to screen for those near schools and involving victims of student age. Such data can indicate which areas of a particular school's transportation network are both heavily travelled by students and unsafe for the students travelling there.

Lastly, schools generally retain data on the household addresses of enrolled students. This dataset can help identify important travel routes and high-priority network with remarkable accuracy and precision, although effort must be made to preserve fundamental privacy.

As school's student populations change every year, the relative accuracy of student travel data is more important than the degree of precision. For example, for a school serving only three grade levels, precise student address data becomes mostly obsolete after only two years. The goals for student travel data collection should be large sample sizes, numerous data variables, consistency over time, and accurate proportional representation of different social or geographical groups among those analyzed.

4.2 Current Data Collection Efforts in San Bernardino County

Currently in San Bernardino County, aside from the data collection process conducted as part of this Plan, no data on student travel patterns is collected regularly at the regional or County level. The Community Vital Signs initiative implemented by the County does collect data on students' level of daily physical activity, which can be a rough proxy for Countywide active transportation travel, but this would be an inadequate dataset for regional planning purposes.

At the state level, student travel data is collected every 10 years as part of the California Household Travel Survey. Data was collected in 2009 as part of the California supplement to the National Household Travel Survey (analyzed substantially in McGuckin (2013)). Each of these datasets yields the mode share of San Bernardino County students travelling to and from

schools. These periodic data may prove useful for Countywide performance evaluation, however they are updated too infrequently and at too broad a scope to inform SRTS implementation.

As noted in Phase I, few cities in San Bernardino County have undertaken data collection efforts explicitly evaluating student travel patterns. None collect these data on a regular, longitudinal basis. Some cities have recently collected student travel data as part of implementation of one-off improvement projects; a few of these efforts are listed below. The SBCTA could leverage its partnerships with these cities and school districts to make these data available for regional SRTS planning purposes. Supporting collaborative partnerships with municipal agencies and non-profits can be essential for the purpose of assembling useful regional student travel datasets.

Table 6: Selected Data Collection Efforts in San Bernardino County

Municipality	Project	Funding	Student Travel Data Collection
Town of Apple Valley	Apple Valley Safe Routes to Schools	ATP Cycle 1	Tallies & surveys conducted at 10 schools.
City of Barstow	City of Barstow's Active Transportation Plan	ATP Cycle 1	Tallies & surveys conducted at 10 schools.
City of Colton	City of Colton Active Transportation Program Plan	ATP Cycle 1	Tallies & surveys conducted at 10 schools.
City of Grand Terrace	Active Transportation Program Planning	ATP Cycle 2	Tallies & surveys conducted at 3+ schools
City of Rialto	City of Rialto Safe Routes to School Program	ATP Cycle 1	Tallies & surveys to be conducted at 29 schools.

4.3 Data Collection Strategies

This report makes the following strategic recommendations for future collection of student travel data to inform Countywide SRTS implementation.

4.3.1 Developing Regional Partnerships

Since the nature of this SRTS data collection process will ultimately be Countywide, routine, and long-term, it is crucial that the SBCTA identify potential regional partners to optimize the process' effectiveness. School administrations, school districts, municipal public works and police departments, municipal transit operators, and regional non-profits are all SRTS-relevant groups that offer the opportunity for useful, symbiotic partnerships.

Regional partners will be important as they will have a role in the reliability of any data requiring their involvement to procure. They also have experience in matters relating to student lifestyles, demographics, and safety issues that would contextualize the data findings. If their concerns are sought out and incorporated, that can only improve the overall SRTS planning process. Moreover, partnerships involving free exchange of data can benefit all parties.

The highest-priority partnerships would be ones involving the schools and school districts. Informing all implicated schools and school districts of the proposed SRTS program process at the outset of the regional data collection effort, fielding any relevant feedback, would be a worthwhile first step.

4.3.2 The Value of User Perspective

Data collection methodologies that examine student travel patterns as the outcomes of user-perceived transportation network issues will be more informative than methodologies that evaluate travel patterns as simple constants. If data can allow potential network improvements to be prioritized relative to each other based on user input, this will likely have the greatest positive impact on active transportation mode share among the County's students.

In this way the parent surveys made available by the National Center for SRTS are strategically useful data collection tools. In addition to their uniformity and level of detail, their ability to show which schools have low student walking and biking rates due to major network shortcomings rather than long average commute distance allows more effective regional improvement programming.

Combining data collection methods that show what issues users consider important (such as the surveys) with methods that show where those issues manifest themselves (such as walk audits and collision data) can further improve the effectiveness of programming at each school location.

Incorporating detailed user input has the added benefit of nurturing community buy-in to the regional SRTS program, which can bolster interagency partnerships.

4.3.3 Generating Reliable Longitudinal Data

Monitoring student travel patterns at individual schools over time will require the periodic collection of data in consistent formats. Teacher tally, parent survey, roadside count, collision, and address data are all generally consistent over time and would support such analysis; although the precision of any given tally, survey, or count can be significantly affected by sample size. Agencies and consultants can also collect those data on a regular basis without much fluctuation in procedure from year to year.

The reliability of user-input data can be negatively affected if they are collected either too infrequently or too frequently. Ensuring that regional partners (such as school districts and city public works departments) are familiar with the routine data collection procedures will streamline the overall process from year to year. On the other hand, as noted in the Phase I report, if surveys are conducted too often users will feel that their participation is not yielding perceivable results in their community and they may decline to participate. While other data types such as tallies and addresses can be routinely collected each year or each school semester, user-input data such as surveys should be collected only at a frequency that reflects the realistic pace of infrastructure programming – i.e. every few years. Walk audits in particular should not be repeated at any particular site unless there is a meaningful likelihood that new walk audit data would help ensure implementation of local network improvements, or unless some non-negligible inaccuracies need to be corrected from prior walk audits.

Lastly, large sample sizes help ensure data reliability. If a dataset on a school site is too small, it is unlikely to be truly reflective of the normal state there, and may only be illustrating outlier cases. Statistical analysis can help determine what dataset size is large enough for a given site (a demonstration: for a typical school with a student enrollment of 600, it is recommended to collect data on at least 61 students to yield results with a >90% level of confidence and <10% margin of error). Strong regional partnerships with the data-collecting groups, transparency about the purposes of the data collection, availability of multi-lingual materials (if applicable), and online informational resources for participants (if applicable) can help yield large dataset sizes.

4.3.4 Centralizing Data Collection

Implementation of this data collection process should most rationally be the responsibility of a single, centralized, County-level agency that would also retain data on infrastructure inventories. The SBCTA would fit this role best, although the San Bernardino County Department of Public Health, the County Department of Public Works, or the office of the County Superintendent of Schools alternatively could serve this role. As a result of this Plan phase, the SBCTA now has substantial prior experience with procurement of SRTS data of multiple types. SRTS programming also falls under the purview of active transportation planning, a Countywide objective in which the SBCTA has assumed a leadership role.

The responsible agency would need to oversee the maintenance of existing regional SRTS datasets, the procurement of new regional SRTS data on a periodic basis (with frequency varying by dataset type), the vitality of regional partnerships related to SRTS planning, the communication of data findings between data-collecting partners and planning and implementing partners, and public engagement in SRTS programming.

4.3.5 Guidance for Implementation

The following miscellaneous points give procedural advice based on the experience gained from carrying out data collection at the 55 schools. For additional recommendations, see the Lessons Learned section of this report.

- Before implementing surveys, inquire from the schools how many classes operate and how many students are in each class. Printing of hard copy surveys should over estimate class counts to ensure to cover any communication errors.

- Be aware of the need for bilingual materials based on the school specific demographics.

- Take the time to educate data collection collaborators (including teachers and principals) about the procedures and planning purpose can help ensure that datasets are of sufficient quantity and quality.

- Eliminate logistical hassles for the students, parents, teachers, school administrators, and/or city staff, when possible. Provide printed forms, mailing materials, and

shipping instructions. Centralize the distribution process around the school administration.

- Follow up on your surveys and tallies in a timely manner. Don't give the school too much time to complete the surveys/tallies – create a deadline that is realistic but not too lax as the task will be put off or forgotten.

- Ensure instructions to staff are clear and direct; do not provide any unnecessary details or distractions.

- Bear in mind that school site/districts are constantly busy.

4.4 Alternative Data Collection Strategies for Colleges & Universities

A different set of data collection strategies must be assembled for the County's colleges and universities, as the standard National Center for SRTS tallies and surveys used to collect data at K-12 schools are ill-equipped to account for college students' varying class schedules. Controlled-distribution surveys (i.e. paper format) are also more difficult to implement logistically as administration operations on college campuses are largely decentralized. Strategies that can be implemented are as follows:

- Take advantage of colleges' centralized digital infrastructure and personal email systems.

- Be wary of sample bias when using online surveys for large populations. Certain student groups are more likely to participate in an online survey than others, which undercuts the intent of surveying a representative sample of students.

COLLEGE SURVEY

The San Bernardino Associated Governments (SANBAG) is the council of governments and the transportation agency that is responsible for cooperative regional planning and developing an efficient multi-modal transportation system. A major component of this system is derived from Safe Routes to School programs (SRTS). These are programs that encourage and enable students to walk and bicycle to their schools. SANBAG has begun Phase 2 of this planning effort, and when complete, will provide guidance to establishing new SRTS programs in the region.

Although SRTS programs generally focus on K-12 schools, this plan will also look at local colleges and how their students get to school. Help shape the future of the San Bernardino region and make your voice heard by filling out this project survey!

For more information and to provide additional online comments, please visit:
http://tinyurl.com/SANBAG-SR2S-PII

1 Please select the answer that best describes who you are:
__ Student Living on Campus
✓ Student Commuting to Campus
__ Faculty Member
__ Campus Staff
__ Visiting Campus

2 What is your gender?
__ Male
✓ Female
__ Prefer not to answer

3 What is your age?
__ <18 ✓ 18-25 __ 25-50 __ 50+

4 Please provide your Zip Code:
92408

5 How do you currently arrive to and leave from Campus? (Check all that apply)
__ Walk
__ Bike
__ Transit
__ Carpool
✓ Drive
__ Other (please specify)

6 How far do you commute to campus?
__ <1 Mile ✓ 2-5 Miles __ > 5 Miles

7 If you indicated that you walk or bike to campus, how often would that be?
__ Daily
__ Weekly
__ Bi-weekly
__ Monthly
✓ Never

8 Do you feel safe and find it convenient to walk or bicycle to campus?
✓ Yes __ No

9 If not, why? Please indicate reasons below.
✓ I work/live far from campus
__ Road infrastructure is poor
__ Lack of bicycle and pedestrian facilities
__ Heavy traffic volume
__ I do not enjoy bicycling and walking
__ Other (please specify)

10 What kinds of facilities and programs would you like to see on your campus?
✓ Shower Facility/ Changing Room
__ Lockers / Extra Clothes
__ Secure Bicycle Storage
__ Extra Bicycles / Bike Loan Program
__ Bicycle Repair Station
__ Ride Matching Services
__ Shuttles (First/Last Mile)
__ Preferential Parking for Carpool
__ Other (please specify)

11 What kinds of commuter benefits would you like to have available on your campus?
__ Discounted Transit Passes
__ Discounted Train Passes
__ Carpool Options
__ Bicycle Commuter Incentive Program
✓ Flexible Work Hours
__ Guaranteed Ride Home
__ Other (please specify)

12 What college do you attend and/or work at?
Cal State San Bernardino

13 Want to stay informed about this project? If so, please provide your email address below. If you prefer, you may provide your phone number instead.
Email:
Phone:

14 For more information and to provide additional comments, please visit http://tinyurl.com/SANBAG-SR2S-PII

For a quicker, more convenient response, please fill out this same survey ONLINE at: https://www.surveymonkey.com/r/SANBAGSRTSPhase2

If you have any questions, please feel free to email us at SANBAGSRTS@gmail.com

Figure 7: Sample College or University Outreach Material

- Colleges often undertake their own student travel data initiatives, for reporting purposes, permit applications, or independent programming.

- Consider outreach to student groups dedicated to biking, sustainable lifestyles, or student life/wellness.

- Design of survey should be built on an electronic platform for mass appeal and affinity to the technology-savvy culture and demographic.

- Ensure that any hard copy surveys are quick to fill out – implementation of a hard copy survey campaign can parallel existing "university union" hours, sporting events, Greek life activities, and others to target mass amounts of students.

- Design of hard copy surveys should be built on a methodology that is easy to code into online platform (central database).

- Integrate data collection methodology into curriculum of General Education courses to capture a higher quantity of surveys.

Reference

McGuckin, N. (2013). Travel to School in California: Findings from the California - National Household Travel Survey. Princeton, NJ: Active Living Research, a National Program of the Robert Wood Johnson Foundation.

5. Programming Strategies

The Regional Safe Routes to School Plan Phase II provides school site specific engineer recommendations that seek to enable pedestrian and bicyclist travel modes to school. These improvements encompass pedestrian and bicyclist related treatments, which are detailed in the "tool box" breakdown.

5.1 Engineering Recommendation "Tool Box"

5.1.1 Pedestrian Facilities

Providing and improving pedestrian facilities like sidewalks and crossing treatments can enhance the walking experience for the user's routes to school.

Sidewalk - Sidewalks provide dedicated space intended for use by pedestrians that is safe, comfortable, and accessible to all. Sidewalks are physically separated from the roadway by a curb or unpaved buffer space.[1]

Benefits[3]:

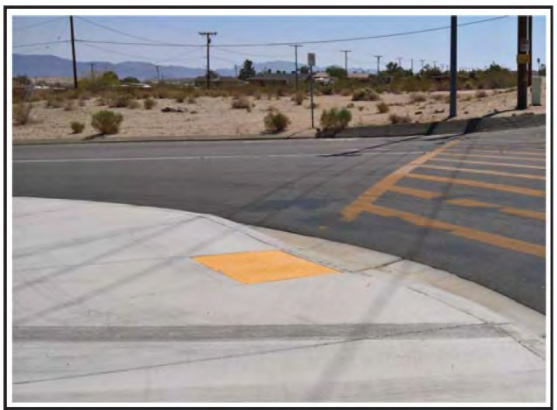
- Sidewalks provide a solid walking area for pedestrians, increased separation from vehicle traffic and protection from flooding/mud.
- Enhances connectivity and promotes walking.
- Enhanced pedestrian network can have a positive impact on land value.
- Can be maintained without replacement for 25 years or more (dependent on context).

Sidewalk

Curb Ramp - A curb ramp is a short ramp cutting through a curb or built up to it designed and constructed to be accessible and to provide a route that people with disabilities can use to safely transition from a roadway to a curbed sidewalk and vice versa[2].

Benefits:

- Provides tactile high visibility strip for pedestrian traction and notification.
- Inclusive to all persons interacting with the curb ramp.
- Note – Title II of the ADA requires state and local governments to make pedestrian crossings accessible to people with disabilities by providing curb ramps[4].



Curb Ramp

High Visibility Crosswalk - High-visibility crosswalks provide a designated walkway for pedestrians to cross from one side of a street to the other[3].

Benefits:

- Provides clear crossing right of way for pedestrians crossing the roadway.
- More visible to approaching vehicles and have been shown to improve yield behavior[3].

Considerations:

- Site location and quantity of pedestrian volumes/demand.
- Engineering judgment may be required to assess need.

High Visibility Crosswalk

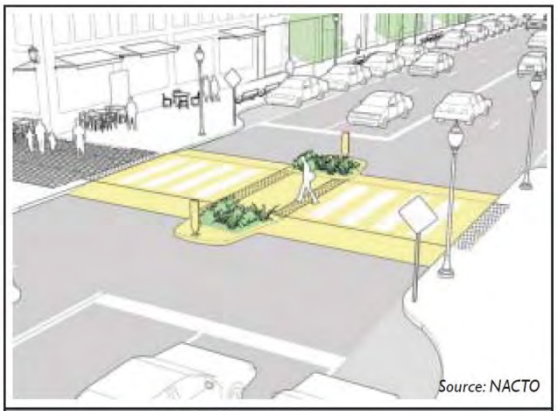
Mid-Block Crossing - Midblock crosswalks facilitate crossings to places that people want to go but that are not well served by the existing traffic network[3].

Benefits:

- Allows pedestrians to cross in the middle of a long block without walking all the way to a signalized intersection crosswalk.

Considerations:

- Pedestrian demand for the facility.
- May be supplemented with traffic control devices for optimal effect.



Mid-Block Crossing

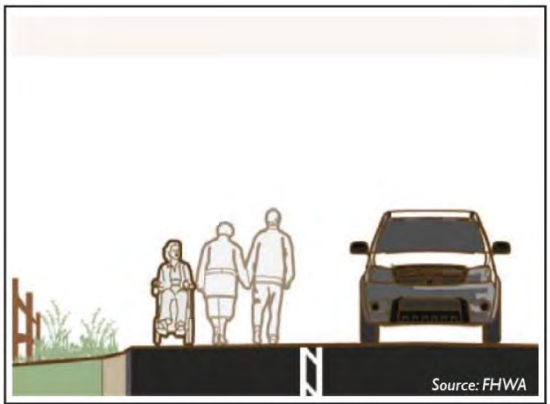
Pedestrian Lane - Pedestrian lanes provide interim or temporary pedestrian accommodation on local collector roadways lacking sidewalks. They are not intended to be an alternative to sidewalks and often will fill short gaps between other higher quality facilities[1].

Benefits:

- Provides a designated space on the roadway exclusively for pedestrians.
- Can be utilized in more rural settings where roadways are missing sidewalks[1].

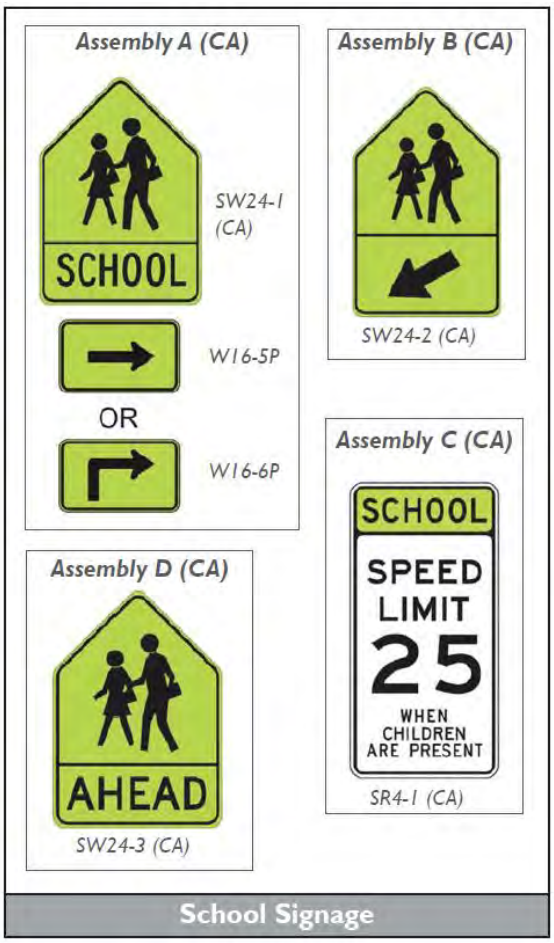
Considerations:

- Facility implementation should consider ADT volumes and used in lower volume instances.



Pedestrian Lane

School Signage - School signage helps advise road users that they are approaching a school zone with respective school features and facilities. The fluorescent signage directs attention towards areas with higher pedestrian exposure i.e. crosswalk or whether there is a reduction in the posted speed limit. California's MUTCD provides guidelines on which and where specific signs should be posted surrounding school sites. The typical signage assemblies utilized include: Assembly A – SW24-1 (CA) with attachments W16-5P and W16-6P, Assembly B – SW24-2 (CA), Assembly C SR4-1 (CA), Assembly D – SW24-3 (CA), Assembly E – R1-9 (CA), and R1-5 (CA).



School Signage

Benefits:

- Fluorescent warning signage that aligns with state/national guidelines to be placed in proximity to pedestrian features/right-of-way/crossings, surrounding a school site.
- Indicates to motorists that students may be walking or biking on that street.

Considerations:

- Follow California's MUTCD guidelines (Part 7) for proper installation and implementation of standard signs.

Paved Shoulder - Paved shoulders on the edge of roadways can be enhanced to serve as a functional space for bicyclists and pedestrians to travel in the absence of other facilities with more separation. Widths of such shoulder should consider characteristics of AADT volumes; incorporating tactile elements for vehicular detection i.e. rumble strips.

Benefits:

- Improves bicyclist experiences on roadways with high speeds or traffic volumes and can have the potential to reduce pedestrian conflicts/collisions[1].
- Facility is intended to be more permanent than a pedestrian lane.

Considerations:

- Enhancements with increased levels of striping and signs may interfere with low-clutter character of a rural environment[1].
- Requires a wider roadway to provide an accessible shoulder space[1].


Paved Shoulder

Bulb Out or Curb Extension – Visually and physically narrow the roadway, creating safer and shorter crossings for pedestrians while increasing the available space for street furniture, benches, plantings, and street trees[3].

Benefits:

- Increases overall visibility of pedestrian[3].
- Shortens pedestrian crossing distance[3].
- Slows down motor vehicle speeds[3].

Considerations:

- May require the relocation of existing utilities to maintain adequate curbside access and ensure location is not a hindrance to pedestrians and bicyclists.
- Additional consideration should be made when there are impacts on the drainage characteristics.

Bulb Out / Curb Extension

Advanced Yield Lines – Advanced yield lines are roadway markings that encourage drivers to slow down near a crosswalk.

Benefits:

- Offers more visibility of pedestrians who inhabit the crosswalk.
- May reduce multiple-threat collision.

Considerations:

- Must be supplemented with a crosswalk that is 20-50' from the facility and R1-5 or R1-5a MUTCD signage.

Advanced Yield Line

School Pavement Markings – Textual descriptions on roadway service to notify vehicular traffic of approaching speed limits, school zones, and school features.

Benefits:

- Posted approaching school to pair with school speed limit to reinforce regulations for vehicle speed.

Considerations:

- Signs should be used judiciously, as overuse may breed driver noncompliance and excessive signs may create visual clutter[5].
- Reference should be made to the MUTCD Chapter 7 for traffic control devices.

School Pavement Marking

Rectangular Rapid Flashing Beacons (RRFB's) – Rectangular rapid flash beacons (RRFBs), a type of active warning beacon, use an irregular flash pattern similar to emergency flashers on police vehicles and can be installed on either two-lane or multi-lane roadways.

Benefits:

- Paired with school sign to give heightened advanced school crosswalk warning (Assembly B (CA)).
- Offers lower cost alternative to traffic signals and hybrid beacons.

Considerations:

- May also be used for priority bicycle route crossings. Usually implemented at high-volume pedestrian crossings.

Rectangular Rapid Flashing Beacon (RRFB)

Speed Feedback Signs – A dynamic message sign that uses radar or laser technology to determine the speed of an approaching vehicle and then displays the speed to the driver. If motorists are speeding, the sign flashes the exceeded speed along with 'SLOW DOWN' or 'YOUR SPEED'.

Benefits:

- Often paired with school speed limit sign to give feedback of vehicular travel speed in school zone. Increased driver awareness of school zone and speed.
- Can be effective in reducing motorist speeds on wide roadways.

Considerations:

- A current speed survey is needed to determine the roadways 85% speed.
- Physical constraints include requiring a special type of pole, space for footing, and if the signs are not solar- a source of electricity.

Speed Feedback Sign

Push Buttons – Pedestrian push buttons are electronic buttons used by pedestrians to change traffic signal timing to accommodate pedestrian street crossings[5].

Benefits:

- Provides pedestrians at a traffic signal with sufficient time to cross a roadway.

Considerations:

- Pedestrians need to push the button to activate the walk phase.
- Are not needed if pedestrian recall is already in place for the traffic signal.

Push Button

Pedestrian Signal Heads - Pedestrian signal heads provide special types of traffic signal indications exclusively intended for facilitating pedestrian traffic - consisting of illuminated symbols of a walking person, upraised hand, and countdown timer[6].

Benefits:

- Indicates to pedestrians when to cross, when not to cross, and how many seconds are left to cross.

Considerations:

- Should have pedestrian push button to supplement.
- Old signal heads should be upgraded to include a countdown timer.


Pedestrian Signal Head

In-Pavement Flashers – In-pavement flashers are considered in-road warning lights (IRWL) that increases the visibility of pedestrian crossings at unsignalized locations. When activated, the flashing lights warn motorists that the crosswalk is being used.

Benefits:

- When added to supplement an already clearly marked crosswalk, flashers can further enhance the notice-ability of the crosswalk, and thus, pedestrians that are crossing.

Considerations:

- More expensive to install than just conventionally striped crosswalks.

In-Pavement Flasher

5.1.2 Bicycle Facilities

Bicycle-related treatments in this toolbox include bikeway facilities, bicycle parking, amenities, signage, and intersection elements. While bikeway facilities can be classified into three categories —off-street, on-street, and shared street, these broad categories include more specific bikeway types. Recommended treatments depend on the context — including street type, vehicle traffic speed and volume.

Class I Bike Path – An off-street bikeway facility that is physically separated from any street or highway, commonly planned along rights-of-way such as waterways, utility corridors, flood control access roads, railroads, and the like that offer continuous separated riding opportunities[4]. Typical signage utilized throughout a Class I Bike Path is included in the MUTCD Part 9B: Bicycle Regulatory Signs (R9-6), Mode-Specific Guide Signs (D11- 1a, D11-2, D11-3, D11-4), Shared-Use Restriction Sign (R9-7), and Bike Path Exclusion Sign (R44A(CA)).

Benefits:

- Provides a clear and designated path for bicyclists to use.
- Completely separated from roadways, serving both recreational and commuting purposes.

Considerations:

- Can include lengthy right-of-way acquisition processes.
- More expensive than on-street bikeway facilities.

Class I Bike Path

Class II Bike Lane – A portion of roadway that has been designated by striping, signaling, and pavement markings for the preferential or exclusive use of bicyclists[4]. Typical signage utilized throughout a Class II Bike Lane is included within the MUTCD Part 9: Bike Lane Sign (R81 (CA)), BEGIN (R81A 9CA)), No Parking Bike Lane Signs (R7-9, R7-9a), Bicycle Regulatory Signs (R9-5, R9-6, etc.) Pavement markings for Class II Bike Lanes (i.e. bicycle lane symbols, arrows, etc.) should be installed based on MUTCD Section 9C.04.

Benefits:

- Provides a designated portion of the street and or roadway to bicyclist (typically 5 feet wide.)
- Buffered Bike Lanes can create a greater sense of safety compared to unbuffered Bike Lanes.

Considerations:

- Bicyclists can feel unsafe without any physical barrier between them and ongoing traffic.
- Many bike lanes are striped too close to

Class II Bike Lane

curbside parking, where bicyclists ride with the risk of being hit by car doors ("door zone").

Class III Bike Route – Class III bikeways are established routes on roadways that are unable to accommodate other bikeways, thus designating a shared roadway between bicycles and motor vehicles. Design standards require specific signage, but additional enhancement can be provided by using shared roadway markings, or "sharrows". Typical signage utilized throughout a Class III Bike Route is included in the MUTCD Part 9B: Bicycles May Use Full Lane Sign (R4-11), Bicycle Route Signs (M1- 8, M1-8a, M1-9), Bicycle Route Sign Auxiliary Plaques, Reference Location Signs (D10-1 through D10-3) and Intermediate Reference Locations (D10-1a through D-103a). Sharrow guidance should reference the MUTCD 9C.07, which details distribution frequency, color, material, location, size, etc.

Benefits:

- Sharrows help indicate to motorists that the lane must and can be shared with bicyclists.

Considerations:

- Unexperienced bicyclists can feel pressured by faster driving motorists.
- Bicyclists can still feel unsafe without any physical barrier between them and ongoing traffic.

Classs III Bike Route (Sharrow)

5.2 Next Steps for Safe Routes to School: The "Six E's"

A Safe Routes to School plan or program evolving within a community draws upon certain attributes that bolster the longevity, sustainability, and overarching success of the plan or program. The "Six E's" of Safe Routes to School are: Evaluation, Engineering, Education, Encouragement, Enforcement, and Equity. While "engineering" has been detailed elsewhere, the remaining E's suggest the nexus for future implementation.

Evaluation – The preliminary efforts should be focused on the evaluation of existing conditions and/or established criteria. The evaluation of the scoped areas will allow for a baseline value to gauge project success in future years. This is the underlying intent of student travel data collection. The creation of the SBCTA Regional SRTS Plan Phase II implicated the implementation of some of these evaluation/data collection strategies, including the collection of over 8,000 surveys and tallies in over 400 classrooms. These surveys and tallies can provide a snapshot into the community being surveyed, as well as grounds for monitoring SRTS plans or programs.

Engineering – The engineering as a part of SRTS plans and programs should mitigate community concerns that are uncovered through the evaluation practices. Walk audits traditionally provide a wealth of insights on local transportation network issues, which can in turn be incorporated into infrastructural programming to support regional SRTS and active transportation goals. Well-grounded engineering can create safe, connected, and comfortable options for pedestrians and bicyclists in the surrounding built environments of target schools.

Education – The implementation of educational and non-infrastructural SRTS programming in the target community can have a lasting cultural impact. Education can improve the patterns of use and behavior involving the local transportation network, creating safer and more sustainable communities, in ways that engineering cannot. Education can also equip new users with the knowledge, skills, and confidence to take advantage of their local active transportation network. Educational strategies can be concurrent with encouragement strategies (described below), including such events as: Bicycle Rodeos, Walk to School Days, Safety clinics, temporary pedestrian-oriented road closures, and others.

Encouragement – By investing in encouragement strategies, SRTS programs can foster the growth of healthy active transportation behaviors in communities. Such strategies may involve events, clubs, and activities that inspire walking, bicycling, or carpooling through fun activities or other incentives. Effective and repeatable SRTS events that can be implemented might include "walking school buses" or "bike trains," which can be supported by maps illustrating suggested routes to school.

- Walk and Bike to School Day: These are events to encourage students to try walking or bicycling to school. The most popular events are International Walk to School Day (early October) and Bike to School Day (early May). Regular events, hosted monthly or weekly, promote regular use of active transportation and help establish sustainable habits.

- Walking school buses and bike trains: Regular (often daily) events in which adults

accompany students to walk or bike a pre-planned route to school. Routes can originate from a particular neighborhood or, in order to include students who live too far to walk or bike, begin from a designated parking lot. Parents take turns transporting groups of children—assuaging many parental fears by ensuring a supervised commute and meanwhile creating strong community bonds.

- Suggested walking and biking routes to school maps: These maps can help parents overcome fears related to traffic or unfamiliarity with safe routes to school. Maps show the locations of stop signs, traffic signals, crosswalks, paths, overcrossings, crossing guard locations, and similar elements that can help parents make decisions about choosing the route that best fits their family's walking or biking needs.

Enforcement – In an effort to ensure that the target community is promoting safe and responsible behaviors on the road and building respect among all road users, local agencies should pursue enforcement strategies. Such strategies could focus on deterring unsafe behaviors of drivers, bicyclists and/or pedestrians, and encouraging all road users to obey traffic laws and share the road. Especially surrounding school sites, the enforcement should seek to control vehicular speeds and vehicular behavior around pedestrians in crosswalks. One possible strategy of initial enforcement might incorporate a crossing guard program and student safety patrols. Incrementally more assertive enforcement strategies will require greater commitment of community resources including personnel and programmatic funding.

Equity – Ultimately, Safe Routes to School initiatives should integrate opportunities for a broad distribution of community members to participate in the discussion and development of the overall plan and implementation of network improvements. These initiatives, when implemented at the regional scale, should also prioritize SRTS programming for schools in disadvantaged areas where public agencies have fewer resources at their disposal to enable safe routes to school on their own.

References

1. FHWA Small Town and Rural Multimodal Networks (December 2016)
2. ADA Best Practices Tool Kit for State and Local Governments - Chapter 6
3. NACTO Urban Design Bikeway Guide
4. SBCTA's Non-Motorized Transportation Plan (rev. 2015)
5. National Center for Safe Routes to School
6. MUTCD (CA) Section 4E.01 Pedestrian Signal Heads

Appendix: Findings from "Lessons Learned" Analysis

In January 2017, consultant engineers and planners, working with city/town and County staff and industry partners, conducted a Safe Routes to School (SRTS) project assessment encompassing the multiple cities in San Bernardino County. The ultimate aim of the assessment was to compile insights to identify the "lessons learned" from various projects in the form of a strategic methodology for each agency within the San Bernardino County to advance their active transportation planning efforts and funding opportunities.

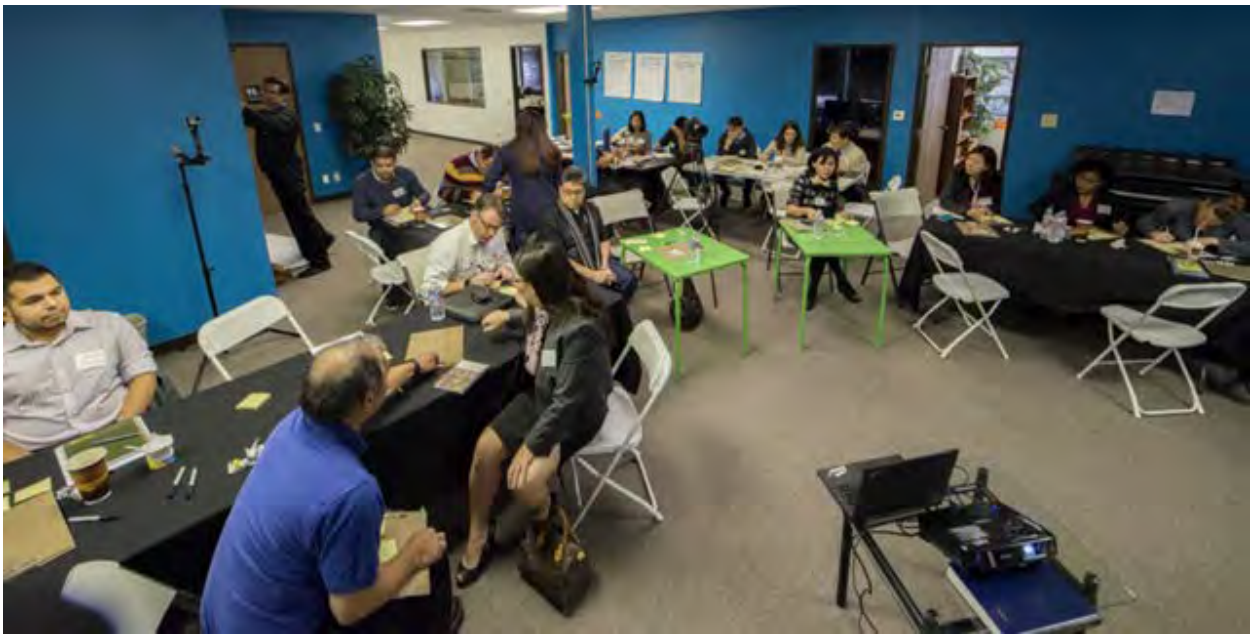
The workshop evaluated the results of the planning process of this Regional Safe Routes to School Plan Phase II, as well as six other Safe Routes to School and Active Transportation projects for Southern California public agencies:

- Town of Apple Valley Safe Routes to School Master Plan
- City of Barstow Active Transportation Plan
- City of Colton Active Transportation Plan
- City of Moreno Valley Safe Routes to School
- City of Rialto Safe Routes to School Plan
- City of San Jacinto Safe Routes to School

Overview

Participants from the variety of project backgrounds were tasked with assembling insights on the following typical phases of their Safe Routes to School or Active Transportation projects:

- Project kickoff and coordination
- Data collection
- Community engagement (interviews, surveys / audits, flyers / announcements / social media, etc.)
- Plan development
- Plan presentation



The group applied a focus on kickoff and coordination, community engagement: surveys and audits, and plan development. The key "lessons learned" from each of these project phases are summarized below.

Kick-off and coordination

For a successful program it is important to engage the administration in a timely manner, set clear goals and objectives, and put in place an appropriate and effective local steering team to help guide the effort.

Community engagement: tallies / surveys / audits

The heart of the program is engaging the community in the actual data collection process, which is implemented on a school-by-school basis. The key to success is ensuring the school administration is informed of the date, time and purpose, having the appropriate materials available, being respectful of participants' time, conducting the events when parents and staff are available, having a backup plan for engagement, and having the appropriate materials for announcing the event (flyers, announcements, social media).

Plan development

The major deliverable from the assessment program is the Plan. The Plan should be laid out with potential projects prioritized on a cost / benefit basis. For each project (school) there might be a fact sheet that includes the key times that are needed for the ATP or SRTS grants. A list of other potential grant sources should be provided.

Detailed Findings

Kick-Off and Coordination

Get the Superintendent and Principals Involved

- Start with the district superintendent and get their contact list for follow-up with respective principals.
- Encourage the School Board to create a SRTS policy, which is available from National SRTS. Have policies presented to and approved at a respective board meeting.
- Have the superintendent contact principals to get their involvement.
- Have principals participate in project kickoff meeting.
- Facilitate preliminary conversations with principals to understand concerns within their school area.

Timing

- Launch program kickoff with school district personnel late spring in order to coordinate with the following fall school calendar.

Clear Goals and Objectives

- Clearly articulate what the project includes and does not include.
- Make it clear what is expected and not expected of school staff.

Project Coordination/Oversight

- Use existing forums for project coordination and oversight. For example some agencies have Technical Advisory Groups for Transportation. This group would be a logical group to serve as the advisory group for project coordination and oversight. The advantages are that people are already attending these meetings saving both time and money.
- Brainstorm ideas for the advisory group with city staff focusing on finding a group that most closely aligns with project goals.
- Coordinate/partner with non-profits - this can promote community engagement, be a relationship multiplier and provides champions for the project (i.e. the city, school district, and chamber of commerce).

Community Engagement: Tallies / Surveys / Audits

Prior to Meeting

- Send e-mail to principal informing them of the date, time, purpose and intended participants. Include a project factsheet/overview document to provide them a better understanding of the process and purpose of the project. Ask the principal to identify preliminary focus areas and challenges noted within their school area.
- Communicate the purpose of the audit to the principal: what it is/what it is not.
- Be sure that all systems are in place for the walk audit including:
    - E-mail notification to participants
    - School contacts are prepared

  - Printing of all event materials is complete
  - Logistics for arrival, set up, and takedown

During the Audit

- Be respectful of people's time. Aim to start on time and end on time. Walk Audits should take no more than 60 to 90 minutes.
- Have materials and equipment set up a minimum of 30 minutes prior to the event taking place.
- Have visible signs at the entrance to the school that indicate where participants should meet.
- Graphics
  - Have a poster showing the project "Improvement Tool Box" that illustrates various types of pedestrian and bicyclist related treatments that are possible to make it safer for children to walk and bike to school.
  - Have both large (poster size – 24x36) and small (handout size – 8.5x11) maps showing the school area, extending about ¼ - ½ mile radially. Small maps should have enough blank space for participants to add notes.
- Develop a 20 second "sales pitch" to attract participants to the audit
  - Example: How can we make it safe for your kids to bike and walk to school? What are problem areas you have on your way to school?
  - Example: What do you not like about dropping your kids off at school? What would make you comfortable in having them walk or bike?

During the Walk

- Break participants into small teams in order to maximum coverage of surrounding area.
- Consider placing school staff / administration in a separate group as they might have different issues than parents.
- Encourage participants to take and share photos during the event.
- Let the participants lead where the walk audit goes, but ensure consultant facilitates conversations throughout observations.
- Ask – "show me where you have problems."
- Bring "Improvement Tool Box" on walk to help illustrate solutions when problems are identified.
- Bring water and snacks for participants.
- Have cool / fun tools for children to explore (i.e. vests, measurement tools, etc.). Make it fun and engaging.

Participation in Audit

- Increased participation happens when audits are conducted in association with existing school events such as "coffee with the principal" or school seasonal carnivals.
- Who should participate
  - Crossing guards
  - School staff
  - Parents/guardians
  - Safety resource officer (SRO)
  - City Engineer / Public Works.
    - A note of caution: be sure they are there to listen. If they are consistently saying "we tried that…it doesn't work," "that won't work," "that is a bad idea" it will hinder the conversation. It should be emphasized at the beginning of the audit that: "We are here to listen and get your thoughts and ideas."
  - Police Department if engaged in school safety
  - Kids at Junior and Senior High Schools
  - City council members / media. Go through PIO to arrange this. Make sure all council members are given the opportunity to attend.
- Have a plan B if participation in the walk audit is lower than expected.
  - Be willing to come back and reschedule.
  - Be ready to do "quick intercept interviews." Have clipboards with maps and intercept

parents that are either walking their kids to school or dropping them off by car; be brief but effective.

- When to schedule the audit
  - Avoid the first two weeks of a school term, last few weeks of school before breaks, parent teacher conferences, testing periods.

Flyers / Announcements / Social Media

- Identify social media outlets currently used by school. These may include:
  - PTA database
  - School list for Robocalls and text messaging
  - School/district website and/or Facebook pages
- Take home flyers
  - Be sure to have all content approved by the district before printing and delivery to school sites.
  - Have both printed and digital versions available.
  - Multilingual as appropriate for community.
  - Send home 1-2 weeks before scheduled event.
  - Prepackage flyers for each class with the right number of flyers for the number of students, making it easier for the teachers and administrators when distributing content.
  - Put extra flyers at the front office for added promotion.

Plan Development

- A key part of the Plan is the potential funding sources and funding schedule for grant submittal.
- Projects should be prioritized based on relating to a Cost/Benefit ratio. Benefits include increase in the number of kids biking and walking, increased safety, decreased traffic, health benefits
- Items requested in the ATP grant should be included in the Plan with a fact sheet for each school. Items should include:
  - Cal Environmental score (CES2.0 or 3.0)
  - Number of students in ¼ and ½ mile
  - % students on free and reduced meal program for each school
  - Source of information for each set of data