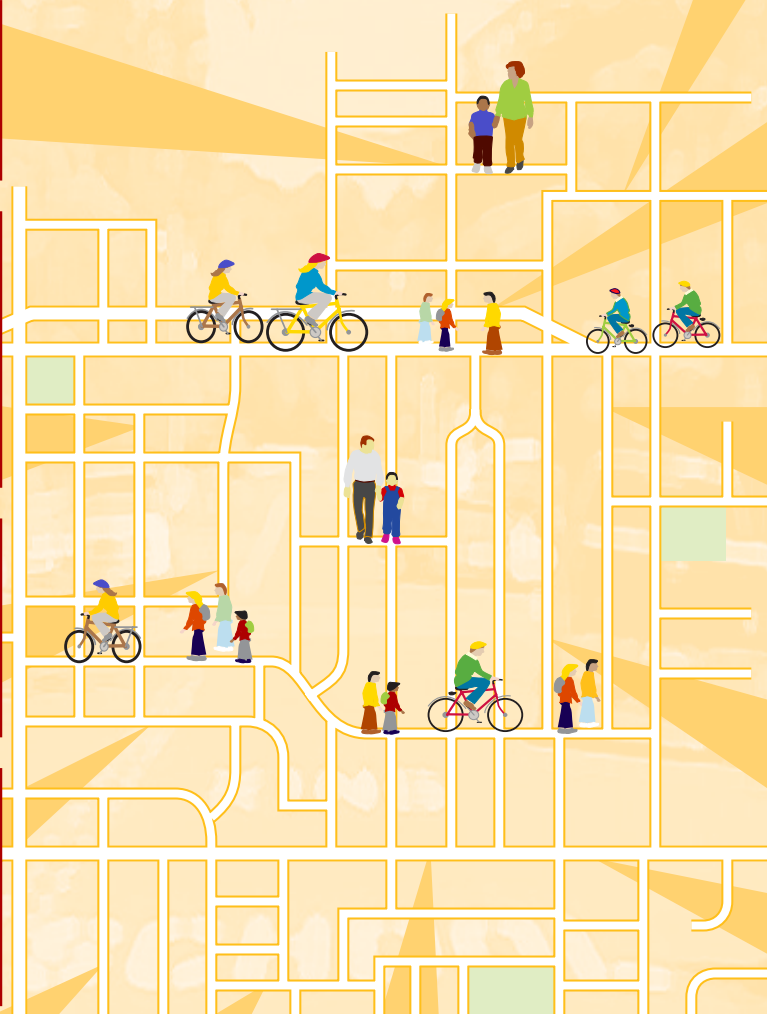


# Transportation Tools to Improve Children's Health and Mobility

Look What California Is Doing....



This fact sheet co-sponsored by:  
**California Office of Traffic Safety**  
**Safe Routes to School Initiative,**  
**California Department of Health Services**  
**Local Government Commission**

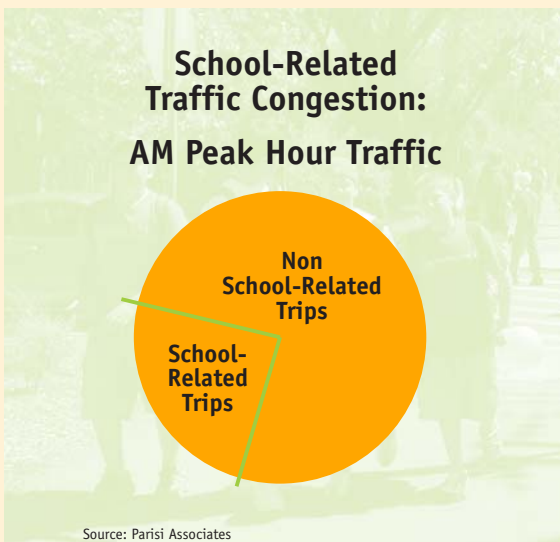
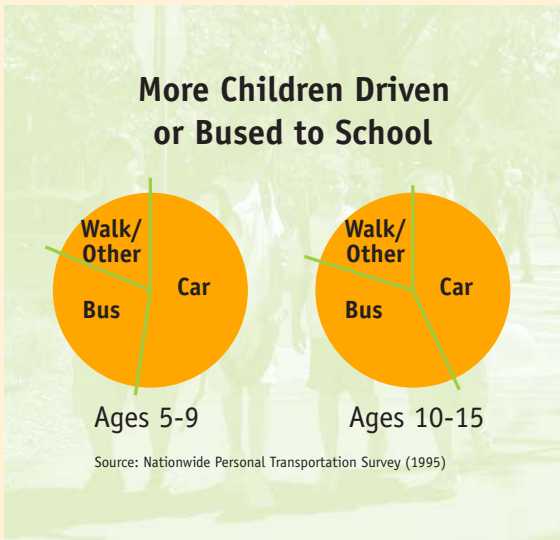
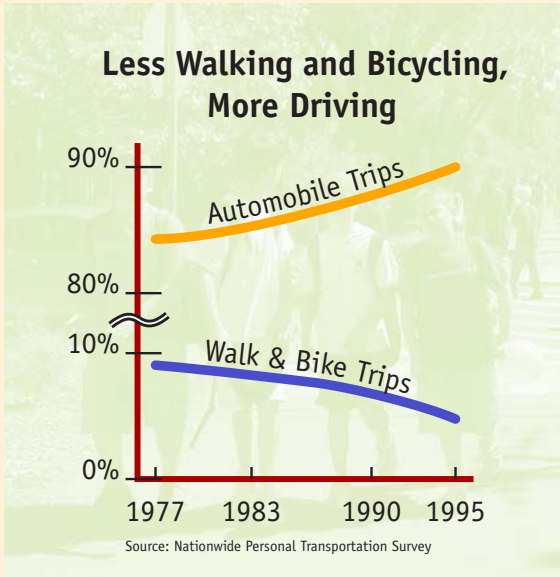
Prepared by:



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## Graphically Speaking...



## Why Should We Encourage More Children to Walk or Ride a Bicycle?

Did you walk or ride a bicycle to school? Chances are that you did. Thirty years ago, the sight of children walking and biking was common – 66 percent of all children did so. Now, however, 87 percent of all trips to and from school are by car or bus. The reasons for this generational shift are complex, as are some of the solutions.

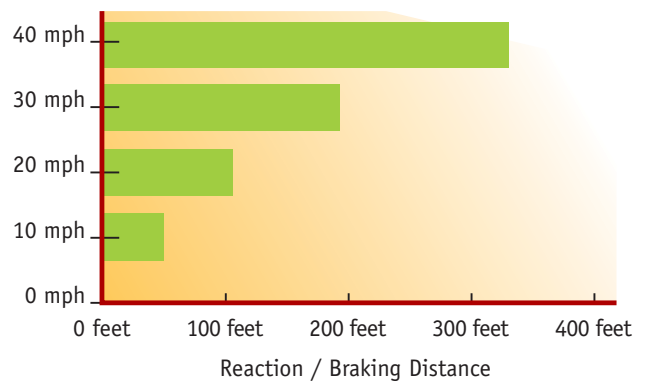
Public health and safety advocates are convinced we must get children back on their feet and on their bicycles again. On balance, the benefits outweigh the risks. The engineering of safer neighborhoods is one critical component in the new "Safe Routes to School" (SR2S) movement. In fact, parent and neighborhood groups, school and local officials, law enforcement officers and transportation professionals are already working together. Their motivation varies, as there are numerous risks facing children, families and communities when cars are relied on as the primary means of local transportation:

- In California, as many as 5,000 child pedestrians are injured each year.
- Pedestrian accidents are the second leading cause of fatal injuries among 5-to-12 year olds statewide; bicycle crashes are fifth leading cause.
- Children are not acquiring traffic skills critical to their own safety along roadways.
- Auto emissions are the largest cause of air pollution in California and are unhealthy to children's respiratory systems.
- 13 percent of children and adolescents are overweight or obese, more than twice the percentage two decades ago.

## A Matter of Life and Death: 20 mph vs. 30 mph vs. 40 mph

A slower car speed can mean a world of difference for pedestrians and bicyclists. Vehicle speeds of 20 mph require a combined total of 106 feet of motorist reaction and vehicle braking time. Speeds of 30 mph require 200 feet (more than the length of four traditional home lots), and speeds of 40 mph require 320 feet (more than the length of a football field). A pedestrian's or bicyclist's odds of surviving being hit by a car are exponentially lower as vehicle speeds increase.

### Travel Speed vs. Reaction and Braking Distance



# What's the Transportation Professionals Role?

As a transportation professional, your involvement is critical. It involves listening to as well as helping to educate children, the driving public, school officials and others about safety and mobility; and working with your police department in identifying and enforcing problem locations. You are the expert they will turn to for advice and identification of feasible solutions. You have an opportunity to be a community leader and make a difference.

One of the first steps you can initiate or participate in is a community audit of street, sidewalk and bikeway conditions. Join representatives from the school, parents and students in walking, bicycling and driving to and from school via a variety of routes. Collecting, organizing and communicating data takes time but requires few material costs. City staff, especially summer interns, may be an excellent resource. A citizen bicycle and pedestrian advisory committee or neighborhood association may also want to participate, or a local school might want to take on the work as a class project.

During the community audit, take photographs and note features such as:

- Are sidewalks or pathways continuous along the routes?
- Are sidewalks or pathways in good condition?
- Are there crosswalks and pedestrian signals to help people cross busy streets and intersections?
- Are curb ramps present at intersection crosswalks?
- Do drivers yield to pedestrians at driveways and crosswalks?
- Are there obstacles blocking the sidewalk?
- Are the sidewalks, pathways, and curb ramps ADA-compliant?
- Is secure and convenient bicycle parking available at school?
- Is there sufficient operating width for bicycles along the route?
- Is the roadway surface in good condition?
- Are curb radii too large, thus encouraging fast vehicle speeds?
- Do motorists behave appropriately?
- Do student pedestrians and bicyclists behave appropriately?
- Are sufficient sight distances and visibility provided, especially for pedestrians less than five feet tall?
- Are there adequate and visible signing and pavement markings?
- Is there enough lighting?
- Are crossing guards present?

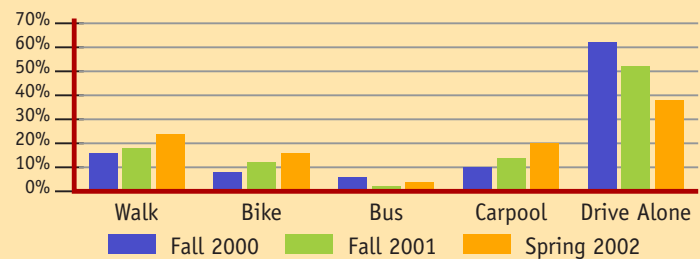
The answers to the above questions (and others) will be very helpful in developing solutions. Other key data you should collect include collision histories, vehicle speed information, traffic counts, etc.

Forms to assist you during your audit can be found at:  
[www.nhtsa.dot.gov/people/injury/pedbimot/bike/saferouteshtml/toc.html](http://www.nhtsa.dot.gov/people/injury/pedbimot/bike/saferouteshtml/toc.html)

*"One of the most beneficial elements of Safe Routes to School is that it forms a partnership between parents, schools, city and private engineers, police, and elected officials. Problems, constraints and solutions cut through the usual layers of communication. Everyone quickly realizes they have work to do and can successfully do it together."*

– Wayne Bush, PE, Mill Valley Public Works Director

## Children Walking and Bicycling to School



Marin County's Safe Routes to Schools Program has successfully increased walking, bicycling, and carpooling trips to schools over the past three years. See Safe Routes to School Success Story on Page 8.



## The 3 E's

### Education:



Education trains motorists, pedestrians and bicyclists about their rights and responsibilities and promotes intermodal travel. Educational examples include:

- Provide public traffic safety courses and teach safety programs in the classroom.
- Promote walking and biking through route maps, incentives, etc.
- Establish drop-off and pick-up procedures



### Enforcement:

Enforcement increases awareness and reduces the frequency of crime and traffic safety problems. Residents and local police can be enlisted to focus efforts around schools. Enforcement examples include:

- Post visible speed limits and school crossing signs.
- Aggressively enforce traffic violations.
- Foster "walking school buses" and "neighborhood watch" programs.



### Engineering:

Engineering approaches reduce speed, narrow crossing distances and improve children's visibility and safety. Engineering examples include:

- Design streets that calm traffic.
- Install walkways and bike paths.
- Improve safety where pedestrians cross streets.

## Problem-Solving Methods

Many problems related to routes to school can be reduced or alleviated through educational and/or enforcement measures. For example, children can be educated about safety skills and parents can be given instructions on school drop-off and pick-up procedures. Targeted enforcement measures can help reduce speeding and parking violations.

Not all issues related to school routing can be solved by applying educational and enforcement measures alone. Engineering solutions are often necessary, whether low-cost and easy to implement or higher-cost and complex.

Engineering methods include more than fixing or building sidewalks to separate pedestrians from fast-moving vehicles. Effective measures include tools to slow traffic down and increase driver awareness, and

in some cases to remove or narrow travel lanes to provide improved walking and bicycling facilities.

The chart below can be used to help identify some potential solutions – some low cost and some higher cost. The chart lists objectives that transportation professionals are likely to face when working to improve routes to schools.

Each of the objectives can be accomplished through a variety of individual actions. Yet, most measures will work best when used at multiple locations and in combination with other treatments. In addition, many of the measures will accomplish two or more objectives.

It is important to remember that the chart below is simply a guide and in all cases, professional judgment should be applied when making decisions about what measure will be best for a specific location.

Objective	Pedestrian design	Bicycle design	Intersection design	Traffic calming	Signals and signs	Other education & enforcement tools
<b>Improve mobility and reduce exposure for pedestrians and bicyclists</b>	Sidewalk/walkway Curb ramps Crosswalk enhancements Bus stop improvements Overpasses/underpasses	Add bike lane/shoulder Road narrowing Bicycle boulevard Widen outside lane or shoulder	Curb extensions Choker Pedestrian crossing island Raised intersection	Curb extensions Raised pedestrian crossing Raised intersection Crosswalk enhancements	Traffic signal Signal enhancement, e.g., countdown, audible Accessible pedestrian signal Signal timing	Safety training Crossing guards Participate in Walk and Bike to School Day Walking school bus or bicycle train
<b>Improve sight distance and visibility for motor vehicles, pedestrians and bicyclists</b>	Crosswalk enhancements Roadway lighting Move poles/newspaper boxes/signs at street corners Trim vegetation	Add bike lane/shoulder Widen outside lane Trim vegetation Bicycle boulevard	Curb extensions Raised intersection Paving treatments Move poles/newspaper boxes/signs at street corners	Curb extensions Speed tables Raised pedestrian crossing Crosswalk enhancements	High visibility SCHOOL and XING signs Advanced stop lines LED pedestrian signals Lighted crosswalks	Neighborhood notices re: vegetation blocking sight lines, vehicles parked on sidewalks, etc. Walking school bus or bicycle train
<b>Reduce speed of motor vehicles</b>	Curb extensions Raised pedestrian crossing Raised intersection Reduce width or number of lanes	Add bike lane/shoulder Reduce width or number of lanes Curb radius reduction	Raised intersection Modern roundabout Traffic circle Paving treatment	See all above, plus: Speed humps Choker and chicane Landscaping/paving treatments	Adjust signal timing for motor vehicles Lower speed limit, when warranted Speed feedback signs	Speed monitoring trailer Neighborhood Watch program, pace cars Street banners, yard signs Police enforcement
<b>Reduce volume of motor vehicles</b>	Pedestrian street Pedestrian-oriented design	Reduce number of lanes Bicycle boulevard	Gateway treatment Diverters or woonerfs	Partial street closure Full street closure	Turning restrictions One-way street conversion	Promote carpooling Travel by other modes and alternative routes
<b>Improve compliance with traffic laws</b>	In-street pedestrian crossing signs Pedestrian crossing flags Crossing guards Countdown signals	Bicycle lane signs Share the Road signs Pavement legends Bicycle signals	Red-light camera Mini-circle Countdown signals Improved timing to discourage jaywalking	Choker Chicane Speed hump	High visibility and warning signs Neighborhood signs Speed monitoring trailer	Traffic safety training Police enforcement Speed watch program

Source: Parisi Associates, adopted from Pedestrian Facilities Users Guide, Providing Safety and Mobility, US Department of Transportation, Federal Highway Administration, March 2002

## Innovative Tools

*"In many instances, we've become too rigid with historic standards and traditional project designs. To best meet the needs of our communities, we must listen to them and offer choices. And those choices may very well include alternative and innovative project designs."*

– Jeff Morales, Caltrans Director



Permanent speed feedback sign \*



In-street crosswalk sign \*



Walking school bus



Advance pedestrian signal timing

\* Please note that some devices are under demonstration and are not approved for use at the state or federal levels.

## Low-Cost and Easy-to-Implement Solutions



High-visibility school signing



Landscape maintenance



Traffic safety and education



Bicycle boulevard

## Short-term, Low-cost Solutions

Some infrastructure improvement projects require more time because of lengthy design and community input procedures, however, there are many low-cost measures that can be implemented in a short time.

Based on the results of the community audit, your own observations and studies, and your jurisdiction's policies and regulations, the following low-cost measures may be effective in providing safe routes to schools:

- Trim shrubs that limit sight distance and encroach into walkways
- Install higher-visibility signs and pavement markings
- Install advance limit lines at crosswalks
- Remove obstacles from sidewalks
- Close "gaps" in discontinuous sidewalks
- Repair damaged sidewalks or pathways
- Organize "walking school buses"
- Plant trees for traffic calming
- Create "bicycle boulevards"
- Narrow travel lanes and create bicycle lanes through restriping
- Increase the size of designated school zones
- Initiate a traffic and safety education campaign

Many of the above measures require little planning or engineering time, but can substantially benefit children's mobility.

## Getting Your Project Funded

Many effective safe routes to school tools require substantial capital funding. Local and regional transportation agencies all across California spend more than \$10 billion annually on transportation projects – most of which is flexible enough to use for pedestrian and bicycle access and safety improvements.

Ask about opportunities to obtain:

- Federal funding including Regional Surface Transportation Program (RSTP), Transportation Enhancement Activities (TEA), Congestion Mitigation and Air Quality Program (CMAQ), Federalized State Transportation Improvement Project (STIP) funds, all programmed through your Regional Transportation Planning Agency and/or Metropolitan Planning Organization
- Federal Discretionary and Demonstration Projects programmed through your local legislator and administered by Caltrans
- Bicycle Transportation Account (BTA), Hazard Elimination Safety (HES) program, Petroleum Violation Escrow Account (PEVA), and Community Based Planning Grants, all administered by Caltrans
- Traffic Safety Grants awarded annually by the California Office of Traffic Safety
- Environmental Enhancement Mitigation (EEM) grants administered by the State Resources Agency
- Air quality management program funding and TDA Article 3 funds
- County transportation sales tax measures, as well as local county and city funding
- Sales tax funding
- Private donations
- Safe Routes to Schools (SR2S) program funding, as discussed on the next page

See Additional Information on the last page of this brochure for links to websites about funding.

# Caltrans' Safe Routes to Schools Grants: Beyond the Guidelines

*"Improving education is my highest priority; but in order to learn, kids need to get to school safely."*

– Gov. Gray Davis, September 20, 2000

When California's governor signed the Safe Routes to Schools (SR2S) legislation, he created a grant program that dedicates \$20 to \$25 million a year for six categories of projects:

- Sidewalk improvements
- Traffic calming and speed reduction
- Pedestrian/bicycle crossing improvements
- On-street bicycle facilities
- Off-street bicycle/pedestrian facilities
- Traffic diversion improvements

Because the need for such projects is clear, the SR2S program immediately became highly competitive, with between 400 and 700 applications in each of the first three rounds of funding. The applications are filled with data and photographs that clearly portray uninviting routes to schools in rural, suburban and urban areas throughout California. Check the Caltrans' website, [www.dot.ca.gov/hq/LocalPrograms/saferoute2.htm](http://www.dot.ca.gov/hq/LocalPrograms/saferoute2.htm) for a list of previous grant recipients and project descriptions.

The bill's sponsors, the Surface Transportation Policy Project and the California Bicycle Coalition, intended that the SR2S program prioritize projects based on the consensus of transportation professionals, local law enforcement, school administrators and community leaders. Therefore, guidelines for successful SR2S projects call for the involvement of these stakeholders and others from the initial planning phase.

Each Caltrans district convenes a selection committee to review and rank the numerous applications. Applications are evaluated by criteria specified in the original legislation:

- Potential of the proposal for reducing child injuries and fatalities.
- Potential of the proposal for encouraging increased walking and bicycling among students.

Additional evaluation criteria include:

- Demonstrated need of the applicant.
- Identification of safety hazards.
- Identification of current and potential walking and bicycling routes to schools.
- Consultation and support for projects by school-based associations, local traffic engineers, local elected officials, law enforcement agencies, and school officials.
- Geographic and population distribution of Caltrans' district compared to other districts.

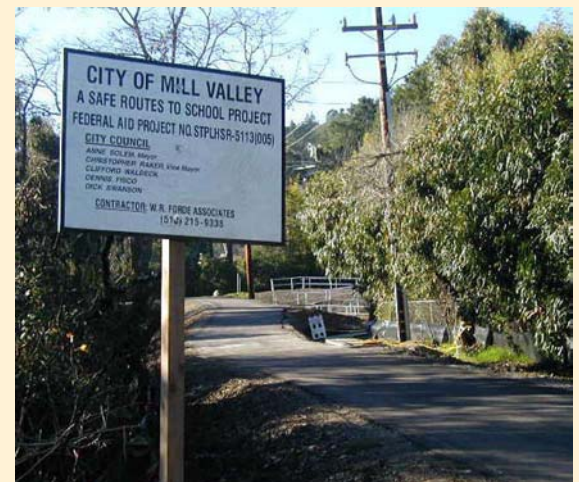
A Caltrans Local Assistance Program committee then reviews the highest-ranked applications and makes funding recommendations. Final decisions are made by Caltrans staff and the Governor's office.



## Successful Grant Applications

The Safe Routes to Schools grant program aims to fund projects where communities have developed a safe routes plan or shows an interest in making SR2S be more than a one-project engineering fix. Competitive applications highlight:

- How the proposal supports an existing traffic safety or health promotion plan.
- How the application has been developed through problem identification using a "walkability checklist" or other audit tool.
- Demonstrated understanding about how proposed engineering solutions interrelate to enforcement, education and other strategies.
- Evidence-based estimates regarding the impact of the proposed project – both risk reduction and health promotion.



# Safe Routes to School Success Story

In February 2000, the City of Mill Valley, California, formed a committee to address increasing congestion on the streets of this small town located just north of San Francisco. The committee included the City's Public Works Director and Police Chief, as well as representatives from the schools and other community members.

The committee sent surveys to the community, which garnered a 50 percent rate of return due to the concern of parents for the safety of their children. It was discovered that 60 to 70 percent of all students were driven to school. Based on traffic counts, they also found that 26 percent of morning traffic was school-related.

In Fall 2000, the City sponsored an open house on transportation issues that was attended by over 200 residents. Based on input received at the open house, the Public Works Department implemented some low-cost improvements aimed at improving walking and bicycling to school, including high visibility crosswalks and traffic signal phasing and timing changes.

The City then formed a Safe Routes to Schools Task Force. The task force identified focused areas surrounding each school, mapped the routes that children take to school, suggested safer routes when necessary, and with the help of the Public Works Department, recommended improvements. The task force also spearheaded events and contests to generate enthusiasm with children and the community. These included Walk and Bike to School Days and art contests.

In 2001, the City submitted an application for Caltrans' Safe Routes to Schools funding. Because of the extensive background work, community-consensus, and careful identification of issues, the application to install a multi-use trail, improved sidewalk connections, new curb ramps, and driver speed feedback units was successful.



Safe Routes committee field trip



New high visibility crosswalk



New multi-use pathway



Driver speed feedback sign

## Additional Information

For additional information about Safe Routes to School programs, as well as resources on engineering tools and funding, please refer to the following websites:

Caltrans Safe Routes to School Program:  
[www.dot.ca.gov/hq/LocalPrograms/saferoute2.htm](http://www.dot.ca.gov/hq/LocalPrograms/saferoute2.htm)

California's Safe Routes to School Initiative:  
[www.dhs.ca.gov/routes2school](http://www.dhs.ca.gov/routes2school)

Safe Routes to Schools Clearinghouse:  
[www.4saferoutes.org](http://www.4saferoutes.org)

California Highway Patrol:  
[www.chp.ca.gov](http://www.chp.ca.gov)

California Office of Traffic Safety:  
[www.ots.ca.gov/grants](http://www.ots.ca.gov/grants)

National Highway Traffic Safety Administration:  
[www.nhtsa.dot.gov](http://www.nhtsa.dot.gov)

National Center for Bicycling and Walking:  
[www.bikewalk.org](http://www.bikewalk.org)

Pedestrian and Bicycle Information Center:  
[www.pedbikeinfo.org](http://www.pedbikeinfo.org)

Local Government Commission:  
[www.lgc.org](http://www.lgc.org)

Surface Transportation Policy Project:  
[www.transact.org/ca](http://www.transact.org/ca)

Marin County Safe Routes to Schools Model Program:  
[www.saferoutestoschools.org](http://www.saferoutestoschools.org)

Parisi Associates:  
[www.parisi-associates.com](http://www.parisi-associates.com)

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