



Safe Routes to School guide

saferoutesinfo.org



Created February 2007



This guide was developed by the Pedestrian and Bicycle Information Center (PBIC) with support from the National Highway Traffic Safety Administration (NHTSA), Federal Highway Administration (FHWA), Centers for Disease Control and Prevention (CDC) and Institute of Transportation Engineers (ITE). This guide is maintained by the National Center for Safe Routes to School at www.saferoutesinfo.org.

Contributors

This guide was prepared by the Pedestrian and Bicycle Information Center of the University of North Carolina, Highway Safety Research Center with support from the National Highway Transportation Safety Administration, Federal Highway Administration, Centers for Disease Control and Prevention, and the Institute of Transportation Engineers.

All names appear in alphabetical order by section.

University of North Carolina Highway Safety Research Center Safe Routes to School Online Guide Development Committee

Principal Developers

Austin Brown.....	Pedestrian and Bicycle Information Center
Lauren Marchetti	Pedestrian and Bicycle Information Center
Nancy Pullen	Pedestrian and Bicycle Information Center
Margaret Scully.....	Pedestrian and Bicycle Information Center
Charlie Zegeer.....	Pedestrian and Bicycle Information Center

Supporting Developers

Karen Akins.....	Chittenden County Safe Routes to School Project
Boykin Bell.....	Ephesus Elementary School
Helen Chaney	Pedestrian and Bicycle Information Center
Michael J. Cynecki.....	City of Phoenix
Mark Fenton	Public Health & Transportation Consultant
Lauren Hightower.....	Pedestrian and Bicycle Information Center
Peter Lagerwey	City of Seattle Department of Transportation
John M. Moffat	National Highway Traffic Safety Administration
Genise Plessas.....	Natomas Park Elementary School
Craig Raborn.....	Pedestrian and Bicycle Information Center
Laura Sandt	Pedestrian and Bicycle Information Center
Tammy Sufi	Toole Design Group, LLC
Michael Schwartz.....	Pedestrian and Bicycle Information Center
Corey Teague.....	Pedestrian and Bicycle Information Center
Libby Thomas	Pedestrian and Bicycle Information Center
Jennifer L. Toole	Toole Design Group, LLC
Kathy N. Watts	Freelance Writer/Editor

Designers and Programmers

Michael Daul	Pedestrian and Bicycle Information Center
Zoe Gillenwater.....	Pedestrian and Bicycle Information Center
Paul Kendall.....	Pedestrian and Bicycle Information Center
Bethany Poteat.....	Pedestrian and Bicycle Information Center
Dwayne Tharpe	Pedestrian and Bicycle Information Center

Institute of Transportation Engineers Safe Routes to School Guidebook Committee

David Parisi.....	Parisi Associates Transportation Consulting, Committee Lead
Sharon Bagatell.....	Metro Atlanta Safe Routes to School/Atlanta Bicycle Campaign
Aaron Bartlett.....	Mid-America Regional Council
Brett Hondorp.....	Alta Planning + Design
Dakota InyoSwan.....	City of Portland Office of Transportation
Wendi Kallins.....	Marin County Bicycle Coalition
Jacky Kennedy.....	Active & Safe Routes to School/Green Communities Canada
Seleta J. Reynolds.....	Fehr & Peers
Sharon Z. Roerty.....	National Center for Bicycling & Walking

Additional Reviewers

Paula Bawer.....	National Highway Traffic Safety Administration
Katy Caggia.....	Olive Chapel Elementary School
John Fegan.....	Federal Highway Administration
Dennis Hoffarth.....	Atlanta Bicycle Campaign
Susan Kirinich.....	National Highway Traffic Safety Administration
Marv Levy.....	National Highway Traffic Safety Administration
Roger Mackett.....	University College London
Sarah Levin Martin.....	Centers for Disease Control and Prevention
Leigh Matusick.....	Florida School Crossing Guard Program
Mary Paul Meletiou.....	North Carolina State University
Kevin Nelson.....	Environmental Protection Agency
Kelly Parsons.....	Olive Chapel Elementary School
Terry Sills.....	Phoenix Arizona Police Department
Amy Wermert.....	Columbus Ohio Health Department

Image Contributors

Justin Booth	Sara Latta
Dan Burden	Anne Le Reverend
City of Auburn, Indiana	Dale McCormack
Jen Cole	Metro Atlanta Safe Routes to School Project
Karen Cranford	David Parisi
Michael J. Cynecki	PBIC Image Library
Environmental Protection Agency	Portland Office of Transportation
Mark Fenton	Richman Elementary School, Fullerton School District
Shawna Gorchek	Michael Ronkin
Jennifer Hefferan	Cara Seiderman
Megan Hoyt	seniordrivers.org
IWALK Image Collection	Robert Smith
Jewel Johnson	Julie Smykowski
Wendi Kallins	Jennifer Toole
Peter Lagerwey	Becky Weemhoff

Table of Contents

Introduction to Safe Routes to School: the Health, Safety and Transportation Nexus..... Chapter 1

Overview	1-1
History of Safe Routes to School.....	1-2
The Decline of Walking and Bicycling.....	1-3
Health Risks	1-7
Safe Routes to School Programs are Part of the Solution	1-11
Elements of Safe Routes to School Programs	1-12
Take Action Now	1-14
Promising Examples and Community Success Stories.....	1-15
References	1-17

Steps to Creating a Safe Routes to School Program..... Chapter 2

Steps to Creating a Safe Routes to School Program	2-1
---	-----

Engineering Chapter 3

Overview	3-1
Guiding Principles for Applying Safe Routes to School Engineering Solutions.....	3-2
What's Wrong With This Picture?	3-4
School Route Maps and the Tools to Create Them	3-8
The School Zone	3-13
Along the School Route.....	3-20
Crossing the Street	3-42
Slowing Down Traffic	3-67
Resources	3-76
References	3-77

Enforcement Chapter 4

Overview 4-1
Identifying Unsafe Behaviors..... 4-2
Role of the Enforcement Officer 4-4
The Community Enforcement Approach 4-5
The Law Enforcement Approach..... 4-8
Law Enforcement Methods 4-10
References 4-16

Encouragement Chapter 5

Overview 5-1
Special Events..... 5-3
Mileage Clubs and Contests 5-7
Ongoing Activities 5-12
Using More than One Encouragement Strategy 5-20
Resources 5-22
References 5-23

Education Chapter 6

Overview 6-1
Children..... 6-3
Parents 6-14
All Drivers Near the School 6-17
Neighbors..... 6-19
Resources 6-21
References 6-24

Student Drop-off and Pick-up Chapter 7

Overview 7-1
What’s Wrong With This Picture? 7-2
Student Drop-off and Pick-up Tools..... 7-4

Evaluation Chapter 8

Overview 8-1
When and How to Evaluate 8-3
Collecting Safe Routes to School Information 8-8
Evaluation in Six Steps 8-12
Appendices 8-27
Resources 8-50

Media and Visibility..... Chapter 9

Overview 9-1
Basics of Working with the News Media 9-2
Identifying the News Hook 9-5
Tools of the Trade 9-7
The Art of the Interview 9-8
Securing Program Spokespeople 9-11
Managing a Crisis 9-13
Resources 9-14
References 9-15

Safe Routes to School Guide

Introduction to Safe Routes to School: the Health, Safety and Transportation Nexus



Created February 2007



This guide was developed by the Pedestrian and Bicycle Information Center (PBIC) with support from the National Highway Traffic Safety Administration (NHTSA), Federal Highway Administration (FHWA), Centers for Disease Control and Prevention (CDC) and Institute of Transportation Engineers (ITE). This guide is maintained by the National Center for Safe Routes to School at www.saferoutesinfo.org.

Contents

Introduction to Safe Routes to School: the Health, Safety and Transportation Nexus

Overview.....	1-1
History of Safe Routes to School.....	1-2
The Decline of Walking and Bicycling.....	1-3
Health Risks	1-7
Safe Routes to School Programs are Part of the Solution	1-11
Elements of Safe Routes to School Programs	1-12
Take Action Now	1-14
Promising Examples and Community Success Stories.....	1-15
References	1-17

Overview

Today, more than ever, there is a need to provide options that allow children to walk and bicycle to school safely. Many communities struggle with traffic congestion around schools and motor vehicle emissions polluting the environment. At the same time, children in general engage in less physical activity, which contributes to the growing epidemic of obesity. At first glance, these problems may seem to be separate issues, but Safe Routes to School (SRTS) programs can address all these challenges through a coordinated action plan.

This chapter provides an introduction to SRTS programs. It examines why few children are walking and bicycling to school, what caused this shift from a generation ago, and the unintended consequences that possibly result. SRTS programs have a growing record of success as communities seek to increase the number of children walking and bicycling safely to school. This guide provides descriptions of many promising programs and community success stories.

SRTS programs use a variety of education, engineering and enforcement strategies that help make routes safer for children to walk and bicycle to school and encouragement strategies to entice more children to walk and bicycle. They have grown popular in recent years in response to problems created by an expanding built environment, a growing reliance on motor vehicles for student transportation and with the more recent development of federal and state funding of SRTS programs.

Each school starts from a unique situation and with different circumstances. Some schools have great places for walking and bicycling but few students are taking advantage of it. Other communities have children walking and bicycling to school in unsafe conditions or along poorly maintained routes, while some communities do not have children walking or bicycling to school at all. Successful SRTS programs involve the whole community. Parents, children, neighborhood groups, schools, law enforcement officers, community leaders, and transportation and public health professionals help identify the issues and solutions.



Jenkins Elementary, Scituate, Massachusetts. Jennifer Toole

The implications of SRTS can be far-reaching. SRTS programs can improve safety, not just for children, but for a community of pedestrians and bicyclists. They provide opportunities for people to become more physically active and to rely less on their motor vehicles. SRTS programs benefit the environment and a community's quality of life by reducing traffic congestion and motor vehicle emissions.

For communities concerned about traffic jams, unsafe walking conditions, physically inactive lifestyles and overall quality of life, SRTS programs can be an effective starting point for tackling these issues.

History of Safe Routes to School

The Safe Routes to School (SRTS) concept began in the 1970s in Odense, Denmark, over concern for the safety of school children walking and bicycling to school.^{1,2}

The SRTS concept spread internationally, with programs developing in other parts of Europe, Australia, New Zealand, Canada and the United States. The Bronx, a borough of New York City, started the first SRTS program in the United States in 1997; in the same year, the State of Florida implemented a pilot program. In August of 2000, the U.S. Congress funded two pilot SRTS projects through the National Highway Traffic Safety Administration. Within a year of the launch of the pilot projects, many other grassroots SRTS efforts began throughout the United States.

Success with the pilot projects generated interest in a federally funded national program. In 2003, advocates convened meetings with experts in pedestrian and bicycle issues to talk about SRTS issues and ideas for developing a national program. Momentum for a national SRTS program in the United States continued to build as several states developed their own programs.

In August 2005, federal transportation legislation devoted \$612 million for The National Safe Routes to School Program from 2005 through 2009. This national program is expected to greatly increase the number of SRTS programs around the country. For more information on the national program, go to www.saferoutesinfo.org.



Palm Bay Elementary, Palm Bay, Florida.

.....

The Bronx, a borough of New York City, started the first SRTS program in the United States in 1997; in the same year, the State of Florida implemented a pilot program.

.....

The Decline of Walking and Bicycling

Not long ago, children routinely moved around their neighborhoods by foot or by bicycle, and that was often how they traveled to and from school. That is no longer the case. Whether looking at the total proportion of children walking and bicycling to school, or just those children that live within a mile of the school, the decline is apparent.

- In 1969, 42 percent of children 5 to 18 years of age walked or bicycled to school.³
- In 2001, 16 percent of children 5 to 18 years of age walked or bicycled to school.³
- In 1969, 87 percent of children 5 to 18 years of age who lived within one mile of school walked or bicycled to school.³
- In 2001, 63 percent of children 5 to 18 years of age who lived within one mile of school walked or bicycled to school.³

The circumstances that have led to a decline in walking and bicycling to school did not happen overnight and have created a self-perpetuating cycle. As motor vehicle traffic increases parents become more convinced that it is unsafe for their children to walk or bicycle to school. They begin driving them to school, thereby adding even more traffic to the road and sustaining the cycle. Understanding the many reasons why so many children do not walk or bicycle to school is the first step in interrupting the cycle.

Many factors contribute to the reduction in children walking and bicycling to school. The U.S. Centers for Disease Control and Prevention has published the findings from two nationwide surveys of parents that identify barriers that prevent them from allowing their children to walk to school. In the 2004 survey, 1,588 adults answered questions about barriers to walking to school for their youngest child aged 5 to 18 years. Parents cited one or more of the following six reasons:



Rolling Terrace Elementary School, Rockville, Maryland.

Barrier⁴	Percentage of Parents Identifying with the Barrier
Distance to school:	61.5
Traffic-related danger:	30.4
Weather:	18.6
Crime danger:	11.7
Opposing school policy:	6.0
Other reasons (not identified):	15.0

Examining the underlying issues for each barrier provides an opportunity to understand how they can be addressed. These issues are explored in the following sections.

Distance to School

Up through the 1960s, many schools were located in the centers of communities, and this close proximity to residential areas contributed to high rates of walking and bicycling to school. Beginning in the 1970s, rather than renovating existing schools or building within the community, most new schools were built on the edges of communities where the land costs were lower. The

recent trend in school construction has been to build and operate a large school instead of several small schools.⁵ This pattern has led to numerous school closings and consolidations. Between 1940 and 2003, the number of public school districts decreased from 117,108 to 14,465, and the number of public and private elementary and secondary schools went from over 226,000 to approximately 95,000 in 2003.⁶ During that time, the population of students attending elementary and secondary schools grew from 28 million to 54.5 million.⁷ Not surprising, the average number of students per elementary and secondary school has increased over five-fold.⁸ The result is that today schools often accommodate many more students than in the past and in effect have become “mega-schools.” Bigger schools require larger tracts of land, often from 10 to more than 30 acres. The schools are frequently built where land costs are lower, which tend to be on the edges of communities instead of in the centers of existing communities.⁹

Fewer schools, many of which are located away from where students live, combined with larger enrollment populations, result in school catchment areas that are geographically larger than in the past. These expanded catchment areas require students to travel farther, making it difficult, if not impossible, for children to walk or bicycle to school.

In addition to increasing land costs, a host of other factors contribute to the placement of schools on the fringes of communities. Factors include school siting standards, school funding formulas, existing land use policies, and lack of coordination between planners and school officials.

- In 2004, 27 states had some form of minimum acreage standards for school siting. These standards often demand large tracts of land that can be found only in less developed parts of communities or outside of town.¹⁰
- School funding formulas that favor new construction over renovation of existing schools often do not consider long-term transportation, operation and maintenance, and infrastructure improvement costs (e.g., sewer, water and road) associated with building in a new location.¹⁰



Welty Middle School, New Philadelphia, Ohio.



Dan Burden

- The prevailing land use pattern and zoning ordinances require the separation of land by usage type. Low, medium, and high density residential, commercial, and institutional uses are each separated from one another and connected by motor vehicle. This makes walking to school in suburban areas challenging because of the low housing density (number of homes per acre) within walking and bicycling distance and the safety issues posed by busy roads or an incomplete sidewalk system.⁵
- Oftentimes school boards communicate with planning officials after a decision is made about a site for a new school or whether to close or renovate an existing school.⁵ One study, examining school

siting in North Carolina, found that in several communities school districts were exempt from local planning and zoning ordinances.

School consolidation has lengthened the trip between home and school, and longer trips coincide with few children walking and bicycling. By increasing the distance between home and school, consolidation of schools may discourage physically active trips to school while encouraging higher levels of motor vehicle use and pollution.

Traffic-Related Danger

Traffic-related danger was the second most common reason cited by parents for not allowing their children to walk to and from school, according to the nationwide survey.⁴

In 2010, 311 pedestrians and bicyclists ages 14 and under were killed, and approximately 23,000 children were injured while walking or bicycling in the United States.^{11,12} One response by many parents is to drive their child to school. However, being inside a motor vehicle does not ensure safety. In fact, motor vehicle crashes are the leading cause of death for school-age children.¹³ In the United States during 2010, 1,210 children ages 14 and under were killed and 171,000 children were injured as motor vehicle occupants.¹¹

As communities have accommodated increased motor vehicle traffic volumes, opportunities to walk and bicycle have suffered. Unsafe traffic conditions often are coupled with a lack of safe places to walk. Even in places where there are sidewalks, they are often in disrepair or are blocked.

Twenty percent to 25 percent of morning rush hour traffic is attributable to parents driving their children to school.^{14, 15} As the percentage of children walking and bicycling to school continues to decrease, motor vehicle traffic increases, and parents become more convinced that walking to school is unsafe for their children. Parents may believe that the safest way to school is for them to drive their children, but may not be aware that by driving they contribute to the traffic congestion and traffic danger surrounding the school.



Michael Ronkin



Dan Burden

Many injuries and fatalities can be avoided if streets are made safer, especially if structural improvements are combined with education activities to teach children and drivers about pedestrian safety and enforcement activities to ensure drivers follow safe driving rules.

Weather Conditions

While the weather has not changed much since a generation ago when so many children walked or bicycled, adverse weather was the third most frequently cited reason in the national survey parents gave for not allowing their children to walk to school.^{3, 4} Identifying weather as a barrier could be reflective of contemporary social norms in the United States, where people are accustomed to driving for almost every trip. This makes it easy to forego walking and jump in the car at the first sign of cold, rain or heat. Nevertheless, Safe Routes to School (SRTS) efforts have been launched in areas with all kinds of weather, from cities across Canada to Chicago, Illinois; Minneapolis, Minnesota; and Arlington, Massachusetts.

Crime Danger

Almost 12 percent of parents in the nationwide survey cited that crime danger prevented them from allowing their children to walk to or from school.⁴ Parental fears of crime include child kidnapping and assault. However, kidnappings make up less than 2 percent of all violent crimes against people under 18 years old and only 4 percent of all kidnappings occur in the vicinity of a school.¹⁶ These issues can generate strong fears and communities are finding ways to address these safety concerns. Crime concerns may be based on both real and perceived crime. Whether real or perceived, these fears affect how many children are allowed to walk or bicycle to school. SRTS programs work to identify what are the real dangers and what are perceptions and try to address both.

Sometimes children face danger in their own neighborhoods from gangs or other illegal activities. These issues also have been addressed by community groups that want walking conditions to be safe. For example, in Detroit, Michigan, the Injury Free Coalition for Kids and city officials joined together to identify concerns and began working on improvements in traffic flow, demolishing abandoned and burned out homes, cleaning up abandoned lots, improving the aesthetics of the childrens' routes, and working with the Detroit Police Department to address the presence of drug dealers and crime along the routes.



Chester, Vermont.

Opposing School Policies

Six percent of parents identified school policies as a barrier for walking to or from school.³ Some schools or communities do enforce school policies that prohibit children from walking and bicycling to school. Although the school rule may have stemmed from safety concerns for students, its implications could work against a SRTS program. The solution may be to address the safety issues rather than permanently prohibit walking and bicycling to school. Identifying and understanding the reasons underlying the policy can help programs address important issues and reverse the policy if appropriate.



Mark Fenton
Natomas Elementary School, Sacramento, California.

Health Risks

Insufficient Physical Activity

The U.S. Department of Health and Human Services recommends at least 60 minutes of physical activity for children on most, preferably all, days of the week.¹⁷ For children and adolescents, this regular physical activity helps build and maintain healthy bones and muscles, reduces the risk of developing obesity and chronic diseases, reduces feelings of depression and anxiety, and promotes psychological well-being.¹⁸

Despite these benefits, many children are not getting adequate physical activity. The Centers for Disease Control and Prevention (CDC) report that of children ages 9 to 13 years, 62 percent do not participate in any organized physical activity and 23 percent do not engage in any free-time physical activity outside of school hours.¹⁹ During the school day, only 8 percent of elementary schools and 6 percent of middle/junior high schools provide daily physical education classes, and recess is no longer provided in some elementary schools.²⁰ Unfortunately, less active children are more likely to be overweight, according to the American Academy of Pediatrics.²¹

Overweight and Obesity on the Rise

When it comes to children's health, the costs of inadequate physical activity and poor eating habits are alarming. Inadequate physical activity and poor eating habits are major contributors to the increased rates of childhood obesity and overweight in the United States. Obese children are at least twice as likely to become obese adults. This puts obese children at greater risk for premature death and chronic diseases than their healthy weight counterparts.^{25, 21} Public health and medical professionals have begun to speculate that the current generation of children may be the first that will not live as long as their parents.^{26, 27}

The following chart, using data from the National Health and Nutrition Examination Survey (NHANES), shows the proportion of American children in two age groups whose weight is higher than the 95th percentile of the recommended weight for their height.²⁸ The percentage



PBIC Image Library

The American Academy of Pediatrics notes that children in the United States spend about four hours in front of the television every day, and children who watch too much television are more likely to be overweight.²²

What is Childhood Obesity?

Health professionals have yet to define obesity for children. For adults, the Body Mass Index (BMI) can be used to determine whether an individual is obese. BMI is a tool that assigns a number based on body weight and height.²³ Adults with BMIs of 30.0 and above are considered obese. The appropriate way to define obesity for children is more complex, because children's body fatness changes over the years as they grow, and girls and boys differ in their body fatness as they mature.²⁴ The word overweight is the proper term to use for children who have a BMI greater than or equal to the 95th percentile for their age and gender. However, the words obesity and overweight are used somewhat interchangeably when discussing the growing weight problem among children and in this document. For more information on BMI, visit the CDC's BMI information at www.cdc.gov/nccdphp/dnpa/bmi/index.htm.

of 6 to 11 year-old and 12 to 19 year-old children who are considered severely overweight tripled in the last 30 years. Even among the youngest children, ages 2 to 6, the rate of being severely overweight has doubled.²⁹

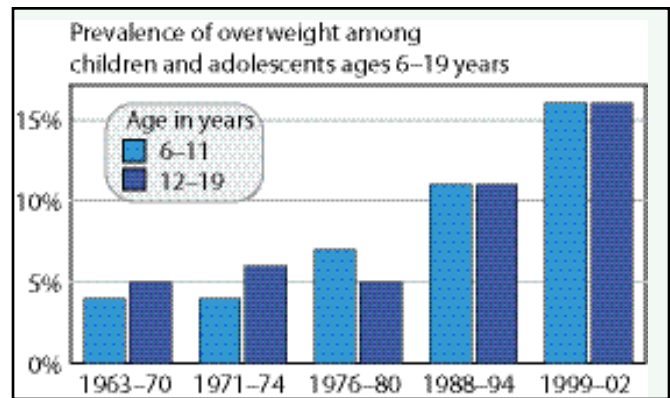
The negative health consequences of overweight and obesity include premature death and chronic diseases, such as diabetes, heart disease, high blood pressure, asthma and various cancer types.^{30, 31} Other impacts include increased health care costs, lost productivity and social stigmatization.^{30, 32} During childhood, many obese individuals experience social stigmas and discrimination, which are believed to lead to a high incidence of low self-esteem and symptoms of depression.³³ For obese children between 5 and 10 years of age, 60 percent already have at least one heart disease risk factor, such as high cholesterol or high blood pressure.³³ Obese children also have an increased risk of Type II diabetes, aggravated existing asthma, sleep apnea, decreased physical functioning and other negative physical effects.^{34, 26}

The growing obesity trend among adults is an alarming indication of what could happen to today's children. The maps of the United States on page 1-9 provide a portrait of the growth of obesity among U.S. adults since 1985. The maps show the percentage of U.S. adults in each state with a body mass index (BMI) of 30 or more, meaning they meet the medical definition of obesity for adults.²³

Developmental Health

While the physical health effects of obesity and lack of physical activity are becoming better understood, less is known about the impacts of the decline in walking and bicycling on child development. Adults, whose chief concerns pertain to children's health and safety, often forget that walking and bicycling to school may be a child's first chance at independence.

Some children today have less independence than their parents did, and this lack of independence can negatively impact their social behavior development.³⁶ Driving a child from home to school limits the child's opportunities to interact with their neighborhood and other children. Questions also have been raised regarding how children who spend all their travel time in motor

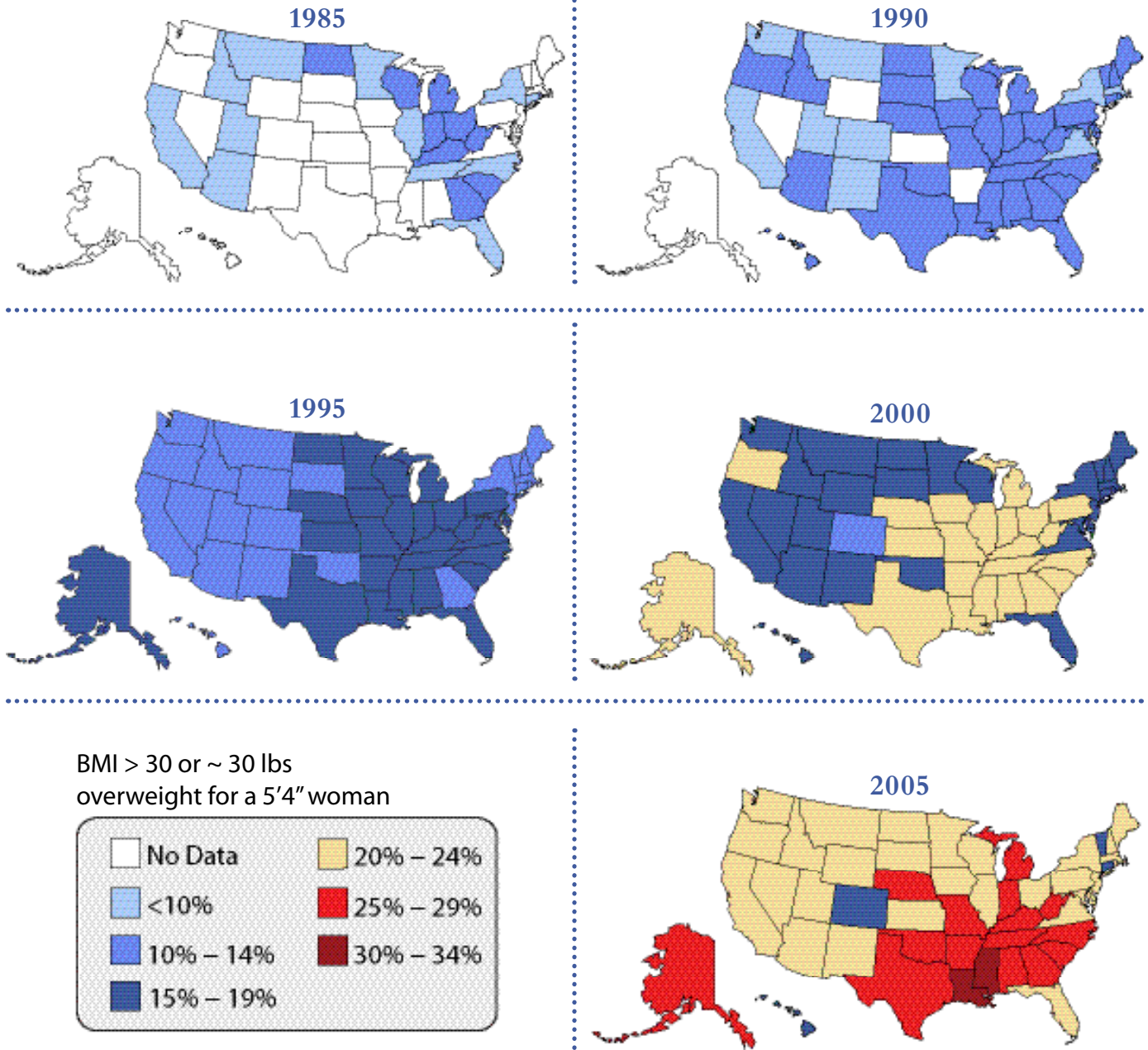


Excludes pregnant women starting with 1971-74. Pregnancy status not available for 1963-65 and 1966-70. Data for 1953-65 are for children 6-11 years of age. Data for 1966-70 are for adolescents 12-17 years of age, not 12-19 years of age.

Source: CDC/National Center for Health Statistics, National Health Examination Survey and NHANES

vehicles will master fundamental pedestrian and bicycling skills and what kind of drivers they will become because of their lack of experience negotiating traffic as walkers or bicyclists. Children who spend more time in supervised structured activities have fewer opportunities to explore their neighborhoods. Children may lose some relatively safe opportunities to make decisions independently. They miss some of the lessons gained from learning from mistakes and the confidence that comes with success.³⁷

Obesity Trends Among U.S. Adults



Data: Centers for Disease Control and Prevention, Overweight and Obesity Trends.³⁵

Environmental Health

Less walking and bicycling and more motor vehicle traffic can negatively impact air quality. In many cities across the United States the motor vehicle is the single greatest polluter.³⁸ Each year, motor vehicles emit millions of tons of pollutants into the air. Pollution control measures initiated in the past two decades have helped to reduce emissions per vehicle, yet auto emissions have continued to rise because people have doubled the miles they drive in that same time period.³⁹ Estimates from multiple cities indicate that the motor vehicle traffic generated by the travel to and from school adds 20 percent to 30 percent more traffic volume to the roads.^{40, 41}

Approximately 5 million children in the United States suffer from asthma, causing over 14 million lost school days per year.⁴² Children and adults with asthma are particularly sensitive to poor air quality. The 1996 Olympics in Atlanta provided an opportunity to examine the relationship of traffic, air quality and health. During the 1996 Summer Games, Atlanta virtually banned single-occupant motor vehicles downtown in order to prevent gridlock. A study of the ban and its effects shows a clear relationship between traffic reduction and fewer incidents of asthma attacks that required medical attention. Researchers found that morning rush-hour traffic volumes decreased by more than 23 percent and peak ozone amounts decreased by 28 percent during the 17 days of the Olympics.⁴³ Also, there was a 42 percent decrease in asthma related hospitalizations, emergency department visits and urgent care visits for children during the Olympics compared to the four weeks before and after the games.⁴³

Safe Routes to School programs help to reduce auto emissions by encouraging non-motorized forms of transportation, such as walking and bicycling to school.⁴⁴ A recent report by the U.S. Environmental Protection Agency used data from schools in Florida to compare travel choices and air quality implications. School location and the quality of the built environment between home and school affect how children get to school. The study concluded that schools located closer to students' homes in walkable neighborhoods would reduce traffic, produce a 13 percent increase in walking and biking, and a reduction of at least 15 percent in motor vehicle emissions.⁴⁴



Atlanta, Georgia.

.....
Motor vehicle traffic generated by the travel to and from school adds 20 percent to 30 percent more traffic volume to the roads.
.....



Mark Fenton

Natomas Elementary School, Sacramento, California.

Safe Routes to School Programs are Part of the Solution

Safe Routes to School programs are part of the solution to increase physical activity and improve unsafe walking and bicycling conditions. It may also improve air quality. The school setting provides an unique opportunity to create an environment that encourages walking and bicycling as a way to travel to and from school and, especially for walking, as an activity during the school day. This holds the potential to reach the vast majority of children who regularly attend and must travel to school.⁴⁵ Walking does not require special skills or expensive equipment, which makes it feasible for most of the population. School-based walking programs have the potential to address several of the most commonly cited barriers to physical activity, including motor vehicle traffic dangers and lack of a safe environment.⁴ Walking and bicycling to and from school can contribute towards the development of a lifelong habit and a community-wide norm of incorporating physical activity into daily routines. Children who walk to school are more physically active overall than those who travel to school by motor vehicle, although the journey to school itself contributed relatively little.



.....
Children who walk to school are more physically active overall.
.....

Elements of Safe Routes to School Programs

Communities use many different approaches to make it safer for children to walk and bicycle to school and to increase the number of children doing so. Programs use a combination of education, encouragement, enforcement and engineering activities to help achieve their goals. Another important element is evaluation, which is incorporated into each of these areas and also will be discussed separately at www.saferoutesinfo.org.

Because the needs of every community will be unique, each community or individual school may choose to emphasize different components to make its program work. Some schools have built sidewalks or painted crosswalks to enhance safety, while others have started Frequent Walker Clubs to motivate children to be active. Regardless of the focus, safety is the first concern. The following information explains the basic elements of a Safe Routes to School (SRTS) program.

Education

Education activities target parents, neighbors and other drivers in the community to remind them to yield to pedestrians, to drive safely and to take other actions to make it safer for pedestrians and bicyclists. Parents serve as role models for their children and play an important part in teaching them pedestrian and bicycle safety. Education activities also teach students how to walk and bicycle safely and the benefits of doing so.

Encouragement

Encouragement strategies generate excitement about walking and bicycling safely to school. Children, parents, teachers, school administrators and others can all be involved in special events like International Walk to School Day and ongoing activities like walking school buses. Encouragement strategies can often be started relatively easily with little cost and a focus on fun.

Enforcement

Enforcement activities can help to change unsafe behaviors of drivers, bicyclists and pedestrians. They can

.....
Programs use a combination of education, encouragement, enforcement and engineering activities.
.....



Dan Burden



Dunham Elementary School, Tucson, Arizona.

increase driver awareness of laws, and they also can improve driver behavior by reducing speeds and increasing yielding to pedestrians. In addition, enforcement activities teach pedestrians and bicyclists to walk and bicycle safely and to pay attention to their environment. Enforcement doesn't just involve law enforcement. Many different community members take part in making sure everyone follows the rules, including students, parents, school personnel and adult school crossing guards. In addition, the role of the law enforcement officers often goes beyond enforcement and can be included in all strategies of the SRTS program.

Engineering

Engineering addresses the built environment with tools that can be used to create safe places to walk or bicycle and can also influence the way people behave. Transportation engineers, city planners and architects use methods to create safer settings for walking and bicycling while recognizing that a roadway needs to safely accommodate all modes of transportation. Such improvements can include maintenance and operational measures as well as construction projects with a range of costs. When such programs are properly implemented, they may not only improve safety for children, but they also may encourage more walking and bicycling by the general public.



Dan Burden



PBIC Image Library

Take Action Now

Now is an excellent time for communities to make decisions that will create environments that encourage walking and bicycling to school. This issue is particularly timely because of expected school construction and the recently approved federal funding for Safe Routes to School (SRTS) programs. Decisions made now will determine whether walking and bicycling to school are feasible options for children for generations to come.

The U.S. Department of Education estimates that the U.S. student enrollment will grow by more than 1.7 million between 2000 and 2006. More than 92,000 public school facilities will be needed to accommodate that growth.⁴⁸ In addition, more than half of U.S. school facilities are at least 40 years old. The U.S. Environmental Protection Agency expects that \$100 billion to \$300 billion will be spent in the next few years to bring these facilities into good teaching condition.⁴⁹ With the growing demand for new and renovated facilities, communities need to make informed decisions about implications of school construction, renovation and the importance of maintaining walking and bicycling as an option.

SAFETEA-LU: Federal Funding for Safe Routes to School

In July 2005, Congress passed federal legislation that established a national SRTS program. The program, which was signed into law in August 2005, dedicates a total of \$612 million towards SRTS from 2005 to 2009. These funds are being distributed to states in proportion to the number of primary and secondary school students in the state, with no state receiving less than approximately \$1 million per year.

The legislation requires each state to have a Safe Routes to School Coordinator to serve as a central point of contact for the state. Designated percentages of SRTS funds must be used for both infrastructure projects and non-infrastructure activities. Specifically, the federal SRTS program provides funds that can be used for “planning, design, and construction of infrastructure-related projects that will substantially improve the abil-



Monarch Elementary School, Louisville, Colorado.

.....
Decisions made now will determine whether walking and bicycling to school are feasible options for children for generations to come.
.....

ity of students to walk and bicycle to school, on any public road or any bicycle or pedestrian pathway or trail within approximately two miles of a primary or middle school,” and “non infrastructure-related activities to encourage walking and bicycling to school, including public awareness campaigns and outreach to press and community leaders, traffic education and enforcement, student training, and funding for training, volunteers, and managers of SRTS programs.” The federal SRTS program allows state, regional and local agencies, as well as nonprofit organizations, to receive funds for SRTS activities.

For more information on about the federal SRTS program go to <http://safety.fhwa.dot.gov/saferoutes> and www.saferoutesinfo.org.

Promising Examples and Community Success Stories

Communities have begun to work together to address barriers to walking and bicycling to school. Promising examples from around the country illustrate the power of collaboration and the positive results communities can achieve.

East Cleveland, Ohio

East Cleveland, Ohio, had been identified as having one of the most dangerous communities in northeast Ohio for child pedestrians. Residents sought to change this by improving and adding signals, signs and crosswalks to create more pedestrian-friendly areas for the children to walk. Several community organizations joined together to help students stencil their names in footprints they spray-painted inside newly painted crosswalks in the area. Not only is the decorated crosswalk visually appealing, it also increases the students' feelings of ownership in the project and draws drivers' attention to the need to watch for young pedestrians. In conjunction with crosswalk and sign improvements, another project has been initiated to install and upgrade crosswalk signals and pushbuttons citywide.



Shawna Gorchek

Marin County, California

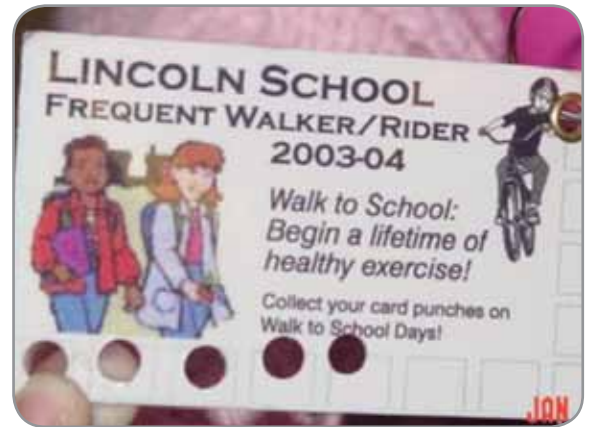
Part of the appeal of the successful Safe Routes to School (SRTS) program in Marin County, California, is its many different opportunities for participation and for success. Schools participate in International Walk to School Day, Walk or Wheelin' Wednesdays, Frequent Rider Miles Contests and Ride 'n' Seek, where families hunt for treasure as they explore neighborhood bicycle trails. Some parents supervise children in walking school buses and bicycle trains. Marin County promotes activities through fliers, posters, newsletters, articles in local papers, an e-mail distribution list and a Web site (www.saferoutestoschool.org). Using show-of-hand student transportation surveys administered in classrooms at participating schools, the Marin County SRTS program found increases in the number of children walking, bicycling and carpooling to and from school, and a reduction in the number of children arriving by private motor vehicle carrying only one student.⁵¹



Wendy Kallins

Elmhurst, Illinois

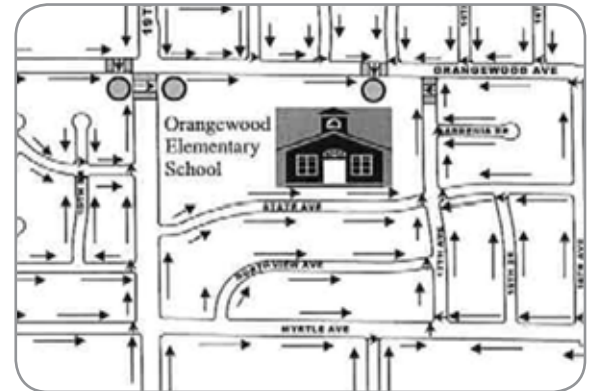
Frequent Walker cards at Lincoln Elementary in Elmhurst, Illinois, provide an example of a successful encouragement program. When students walk or bicycle to school, they receive hole punches in their Frequent Walker Cards. Children receive prizes for fully punched cards. Overall program participation in warmer months is between 90 percent and 95 percent, but even in colder months, 80 percent to 90 percent participate.



Julie Smykowski

Phoenix, Arizona

The city of Phoenix, Arizona, works with parents and schools to create Safest Routes to School Maps. The maps are used to show parents and students the recommended walking routes and crossing locations for students living within the walking attendance boundary. The maps help city officials identify priorities for sidewalk repair. If the missing sidewalk has been included in a walking path on the SRTS walking plan, the city builds the missing segments. Through this process, several miles of missing sidewalk segments have been built.



Michael Cynecki

In some places, community programs and projects have been developed to promote the renovation and protection of neighborhood-based schools. Through Milwaukee's Neighborhood School Initiative, the city decided to build six new schools from the ground up, add on to 19 existing schools and renovate 15 other existing schools.

South Carolina has recently eliminated its own state-mandated acreage requirements for new schools. This change will make it easier for existing buildings to be renovated.

In St. Paul, Minnesota, residents chose to renovate an existing boarded-up facility for school use in order to revitalize the community. The community restored the John A. Johnson building, a brick building founded in the 1920s, which had been in disrepair for some time. The building has become a central fixture on Saint Paul's East Side. Along with providing space for teaching, the school includes medical areas, a family center, counseling space and a YMCA.⁵⁰ This achievement in school renovation, while not done as part of a SRTS program, shows what can happen when communities come together and consider the long-term implications of their actions.



EPA

References

1. European Union Target. Odense - Safe routes for children. Available: www.eu-target.net/WorkAreas/MobilityEducation/OdenseSaferoutesforchildren.htm Accessed: January 18, 2006.
2. Troels, A. Safe routes give healthy cycling children. On Cykelby Web site Available: www.cykelby.dk/eng_safe%20routes.asp. Accessed: January 19, 2006
3. U.S. Centers for Disease Control and Prevention. Kids Walk-to-School: Then and Now—Barrier and Solutions. Available: www.cdc.gov/nccdphp/dnpa/kidswalk/then_and_now.htm Accessed: January 17, 2006.
4. U.S. Centers for Disease Control and Prevention. Barriers to Children Walking to or from School United States 2004, Morbidity and Mortality Weekly Report September 30, 2005. Available: www.cdc.gov/mmwr/preview/mmwrhtml/mm5438a2.htm. Accessed: December 28, 2005.
5. Center for Urban and Regional Studies. Good Schools- Good Neighborhoods- The Impacts of State and Local School Board Policies on the Design and Location of Schools in North Carolina. June 2003. University of North Carolina at Chapel Hill.
6. U.S. Department of Education. Digest of Education Statistics, Chapter 2, Table 85. 2004. Washington, DC: Elementary and Secondary Education. National Center for Education Statistics Available: http://nces.ed.gov/programs/digest/d04/tables/dt04_085.asp. Accessed: November 23, 2005.
7. U.S. Department of Education. Digest of Education Statistics, Chapter 1. Table 3. 2004. Washington, DC: Elementary and Secondary Education. National Center for Education Statistics Available: http://nces.ed.gov/programs/digest/d04/tables/dt04_003.asp Accessed: November 23, 2005.
8. Walberg H, Walberg H. Losing Local Control, Educational Researcher. June-July 1994 23;(5) 19-26.
9. U.S. Department of Education, National Center for Education Statistics, Common Core of Data Survey, Table 94 – Public elementary and secondary schools, by type and size of school: 2000-01, Prepared July, 2002
10. Council of Educational Facility Planners International. Schools for Successful Communities: An Element of Smart Growth. 2004. United States Environmental Protection Agency.
11. National Highway Traffic Safety Administration, Traffic Safety Facts 2010 Data, Children. Available: <http://www-nrd.nhtsa.dot.gov/Pubs/811641.pdf>. Accessed: July 30, 2012.
12. National Highway Traffic Safety Administration, Traffic Safety Facts 2004 Data, Pedalcyclists HS 809-768. Available: www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSF2004/809906.pdf Accessed: June 07, 2007.
13. National Highway Traffic Safety Administration, Traffic Safety Facts Research Note, March 2006. Motor Vehicle Traffic Crashes as a Leading Cause of Death in the United States, 2003. Available: www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/RNotes/2006/810568.pdf Accessed: June 07, 2006.
14. National Highway Transportation Administration cited in Safe Routes to School: Pledging Safe Communities for our Children. 2003. Accessed January 17, 2006.
15. Department for Environment, Transport and the Regions, England: Greater Vancouver Regional District: Morning Peak Trip by Purpose.
16. Finkelhor D, Ormrod R. Kidnapping of Juveniles: Patterns form NIBRS Juvenile Justice Bulletin. U.S. Department of Justice: Office of Justice Programs: Office of Juvenile Justice and Delinquency Prevention June 2000. Available: www.ncjrs.org/pdffiles1/ojjdp/181161.pdf. Accessed: November 11, 2005.
17. U.S. Department of Health and Human Services and U.S. Department of Agriculture. Dietary Guidelines for Americans 2005, Chapter 4. Available: www.health.gov/dietaryguidelines/dga2005/document/ Accessed: January 23, 2006.
18. U.S. Centers for Disease Control and Prevention. Physical activity and health: A report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, 1996.
19. U.S. Centers for Disease Control and Prevention. Physical activity levels among children aged 9-13 years---

- United States, 2002. *Morbidity and Mortality Weekly Report* August 22, 2003; 52 (SS-33): 785-788.
20. Brener N, Burstein G, DuShaw M, Vernon M, Wheeler L, Robinson J. Health services: results from the School Health Policies and Programs Study 2000. *Journal of School Health*. 2001 Sep;71(7):294-304.
 21. American Academy of Pediatrics, Committee on Nutrition. Prevention of Pediatric Overweight and Obesity *Pediatrics* August 2003;112(2): 424-430. Available: <http://aappolicy.aappublications.org/cgi/content/full/pediatrics;112/2/424>. Accessed: January 17, 2006.
 22. American Academy of Pediatrics. Television's Impact on Children. Available: www.aap.org/healthtopics/mediause.cfm Accessed: January 27, 2006.
 23. U.S. Centers for Disease Control and Prevention. BMI-Body Mass Index: BMI for Adults. Available: www.cdc.gov/nccdphp/dnpa/bmi/bmi-adult.htm. Accessed: January 19, 2006.
 24. U.S. Centers for Disease Control and Prevention. BMI-Body Mass Index: BMI for Children and Teens. Available: www.cdc.gov/nccdphp/dnpa/bmi/bmi-for-age.htm. Accessed: January 19, 2006.
 25. Serdula M, Ivery D, Coates R, Freedman D, Williamson D, Byers T. Do obese children become obese adults? A review of the literature. *Preventive Medicine*. 1993 March;22(2):167-77.
 26. Lavizzo-Mourey R. CEO of the Robert Wood Johnson Foundation. Speech given at the June 2, 2004 Opening Session of the TIME/ABC News Summit on Obesity June 2-4, 2004, Williamsburg, Virginia. Video available: www.rwjf.org/newsroom/activitydetail.jsp?id=10078. Accessed: January 20, 2006.
 27. Schauer P. Director of Bariatric Surgery, University of Pittsburgh Speech given at the June 4, 2004 at the TIME/ABC News Summit on Obesity June 2-4, 2004, Williamsburg, Virginia.
 28. U.S. Centers for Disease Control and Prevention. National Center for Health Statistics. Prevalence of Overweight Among Children and Adolescents: United States, 1999-2002. Available: www.cdc.gov/nchs/products/pubs/pubd/hestats/overwght99.htm#Table%201. Accessed: January 31, 2006.
 29. Hedley A, Ogden C, Johnson C, Carroll M, Curtin L, & Flegal K. Prevalence of overweight and obesity among U.S. children, adolescents and adults, 1999-2002. *Journal of the American Medical Association*, 2004 September; 291(23):2847-50).
 30. U.S. Department of Health and Human Services. (2001). *The Surgeon General's call to action to prevent and decrease overweight and obesity*. Rockville, MD: Office of the Surgeon General, 2001.
 31. Pi-Sunyer F. Comorbidities of overweight and obesity: current evidence and research issues. *Medicine and Science in Sports and Exercise*, 1999 November;31(11 Supplement), S602-608.
 32. Mokdad A, Ford E, Bowman B, Dietz W, Vinicor F, Bales V, Marks J. Prevalence of obesity, diabetes, and obesity-related health risk factors, 2001. *Journal of the American Medical Association* 2003 January;289(1):76-79.
 33. Institute of Medicine. *Childhood obesity: Health in the balance*, 2005. Available: www.nap.edu/books/0309091969/html/. Accessed: January 3, 2006.
 34. Hedley A, Ogden C, Johnson C, Carroll M, Curtin L, & Flegal K. Prevalence of overweight and obesity among U.S. children, adolescents and adults, 1999-2002. *Journal of the American Medical Association*, 2004 September; 291(23):2847-50).
 35. U.S. Center for Disease Control and Prevention, *Overweight and Obesity Trends 1985-2004*. Available: www.cdc.gov/nccdphp/dnpa/obesity/trend/maps/index.htm. Accessed: January 29, 2006.
 36. Huttenmoser M. *Children and Their Living Surroundings: Empirical Investigations into the Significance of Living Surroundings for the Everyday Life and Development of Children*. *Children's Environments* 1995 December; 12(4), Available: www.colorado.edu/journals/cye/CYE_BackIssues/. Accessed January 17, 2006.
 37. Hillman M. *The Impact of Transport Policy on Children's Development*. Presentation at the Canterbury Safe Routes to Schools Project Seminar, London U.K. May 29, 1999. Available: www.spokeseastkent.org.uk/mayer.htm. Accessed: January 17, 2006.
 38. U.S Environmental Protection Agency, Office of Mobile Sources. *motor vehicle Emissions: An Overview*

- August, 1994 Fact Sheet OMS-5, 400-F-92-007. Available: www.epa.gov/otaq/consumer/05-autos.pdf Accessed: January 23, 2006.
39. National Safety Council. What You Can Do About Car Emissions. Available: www.nsc.org/ehc/mobile/mse_fs.htm#problem. Accessed: January 17, 2006.
 40. Dubay A. "See Dick and Jane Sit in Traffic," The Press Democrat, September 7, 2003 cited in Travel and Environmental Implications of School Siting. U.S. Environmental Protection Agency EPA 231-R-03-004. October 2003 Available: www.epa.gov/smartgrowth/pdf/school_travel.pdf. Accessed January 20, 2006.
 41. Department of Environment, Transport and the Regions, London, Greater Vancouver Regional District. 1999. Morning Peak Trip by Purpose.
 42. Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Adolescent & School Health", Available: www.cdc.gov/nccdphp/dash/healthtopics/. Accessed: January 23, 2006.
 43. Friedman M, Powell K, Hutwagner L, Graham L, Teague G Impact of Changes in Transportation and Commuting Behaviors During the 1996 Summer Olympic Games in Atlanta on Air Quality and Childhood Asthma. Journal of the American Medical Association. 2001 February 285(7):897-905.
 44. U.S. Environmental Protection Agency. Travel and Environmental Implications of School Siting, Report No. 231-R-03-004, October 2003. Available: www.smartgrowth.umd.edu/pdf/SchoolLocationReport.pdf. Accessed: January 17, 2006.
 45. Tudor-Locke C, Ainsworth B, Popkin B. Active commuting to school: an overlooked source of childrens' physical activity? Sports Med. 2001;31(5):309-13.
 46. Cooper A, Page A, Foster L, Qahwaji D. Commuting to school: are children who walk more physically active? American Journal of Preventive Medicine. 2003 November;25(4):273-6.
 47. Cooper A, Andersen L, Wederkopp N, Page A, Frosberg K. Physical activity levels of children who walk, cycle, or are driven to school. American Journal of Preventive Medicine, 2005 October;29(3):179-184.
 48. U.S. Department of Education. Digest of Education Statistics, 2002 National Center for Education Statistics 2003-060. Available: <http://nces.ed.gov/programs/digest/d02/index.asp>. Accessed: January 17, 2006.
 49. U.S. Department of Education. Condition of America's Public School Facilities, 1999. Office of Educational Research and Improvement.
 50. Saint Paul Public Schools Web site. John A. Johnson Achievement Plus Elementary School wins national award for ties to Saint Pauls East Side, September 29, 2004 Available: www.spps.org/29Sep2004.html. Accessed: January 26, 2006.
 51. Staunton C, Hubsmith D, Kallins W. Promoting safe walking and biking to school: the Marin County success story. American Journal of Public Health. 2003 September; 93(9):1431-1434.

Steps to Creating a Safe Routes to School Program



Steps to Creating a Safe Routes to School Program

Starting a Safe Routes to School (SRTS) program is an opportunity to make walking and bicycling to school safer for children and to increase the number of children who choose to walk and bicycle. On a broader level, SRTS programs can enhance children’s health and well-being, ease traffic congestion near the school, improve air quality and improve community members’ overall quality of life. The steps outlined in this chapter are meant to provide guidance by providing a framework for establishing a SRTS program based on what has worked in other communities. Some communities may find that a different approach or a reordering of these steps works better for them.

1 Bring together the right people

Identify people who want to make walking and bicycling to school safe and appealing for children. Sharing concerns, interests and knowledge among a variety of community members with diverse expertise can enable groups to tackle many different issues.

Consider whether the group wants to plan for SRTS in a single school, district-wide or at another level. Each has potential benefits; for example, a school district-wide group could create policies that would impact all schools while a school-specific group could work on detailed issues relating to that school and dedicate more resources to that one location.

Look for existing groups where an SRTS program is a natural fit, such as a city or school district safety committee, PTA, school site council, wellness council or a pedestrian and bicycle advisory board. If there are no appropriate groups to take on the issue, form an SRTS coalition. When asking for participation explain why SRTS is needed and tell people specifically how they can help. For more information on forming an SRTS coalition, see the National Highway Traffic Safety Administration’s Safe Routes To School Toolkit at www.nhtsa.dot.gov/people/injury/pedbimot/bike/Safe-Routes-2002.

Involve children in the SRTS program to learn what is important to them with respect to their journey to school and around their neighborhood. Ask them questions like: Do they like being driven everywhere by their parents? Would they rather walk and bicycle around their neighborhoods? What do they think about

their route to school? What would they change about their trip to school?

Communities with flourishing SRTS programs have attributed their success in part to a program champion — someone who has enthusiasm and time to provide leadership for the group and keep things moving. However, a champion can not do it alone, he or she will need support. Building the next generation of leaders along the way will assure that the program continues. This is particularly important when the champion is a parent who is likely to move on when their child transitions to another school.



Hurst Elementary School, Hollyhill, Florida.

Potential Coalition Members

Different communities will find different organizations and individuals ready to be involved. This list is not exhaustive, but is intended to provide ideas for the creation of a well-rounded group that represents a wide range of interests and expertise that are related to SRTS.

School:

- Principal and other administrators.
- Parents and students.
- Teachers (physical education or health teachers are a good place to start).
- PTA/PTO representative.
- School nurse.
- School district transportation director.
- School improvement team or site council member.
- Adult school crossing guards.

Community:

- Community members.
- Neighborhood or community association members.
- Local businesses.
- Local pedestrian, bicycle and safety advocates.

Local Government:

- Mayor's office or council member.
- Transportation or traffic engineer.
- Local planner.
- Public health professional.
- Public works representative.
- Law enforcement officer.
- State or local pedestrian and bicycle coordinator.

2 Hold a kick-off meeting

The kick-off meeting has two main goals: to create a vision and to generate next steps. One approach is to ask each participant to share a vision for the school five years in the future. Responses are often statements, such as: “a school with fewer cars at the entrance,” “more active children” and “safe walkways.” This focuses the group on the positive — what they would like to have — rather than what is wrong. Another way to create a positive vision is to ask people to share a positive memory of walking or bicycling to school when they were young. Provide a presentation on SRTS programs including issues and strategies related to engineering, enforcement, education, encouragement and evaluation. The group can then discuss the appropriate next steps and best way to work toward their vision. This may include forming committees to separate out the tasks.



PBIC Image Library

Forming Committees

Coalitions sometimes create committees to take on the major tasks, allowing members to focus on a specific activity related to their skills and interest. Some possible SRTS committees include:

Mapping and information gathering committee

Obtains maps, collects information about where children live, the routes they take to school and the condition of the streets along the way.

Outreach committee

Collects input from parents, teachers and students, and publicizes the program to the school and community.

Education and encouragement activities committee

Works closely with school administration and teachers to put education and encouragement activities in place, gathers materials for activities and solicits donations for programming and prizes.

Enforcement and engineering committee

Develops recommendations for enforcement and engineering solutions. Works closely with local government and other resources to find funding and make improvements.

Traffic safety committee

Identifies unsafe drivers' behavior and develops an education campaign to increase awareness.

3 Gather information and identify issues

Collecting information can help to:

- Identify needed program elements.
- Provide a means to measure the impact of the program later.

First, look at walking and bicycling conditions for students. This can be done by observing or mapping the routes that lead to school. Collecting traffic counts and speed and injury data can help identify driver-related safety issues. Walking around the school as a group to observe arrival or dismissal time can be one of the best ways to reach a collective understanding of the issues and potential solutions. Finding out about existing policies that may make it easier or more difficult to walk or bicycle to school can also be useful. For example, a school may not allow children to bicycle to school. Understanding and addressing underlying issues for a policy may be addressed by the SRTS plan.

Second, determine how many children currently walk or bicycle to school. The school may already know this. Parent surveys can also be used to understand parents' attitudes towards walking or bicycling to school and

identify barriers to walking and bicycling that need to be addressed. See Resources at www.saferoutesinfo.org/ resources for Student In-class Travel Tally and Parent Survey forms to use. SRTS coalition members can lend expertise in locating data sources and can help collect the necessary information.



David Parisi

4 Identify solutions

Solutions to issues identified by the group will include a combination of education, encouragement, engineering and enforcement strategies. Safety is the first consideration. If it is not safe for children to walk and bicycle to school, then they should only be encouraged after problems are addressed. Some problems will require engineering solutions; others may require education, encouragement, enforcement or a combination of strategies. Here the expertise of the different partners is especially valuable.

It is likely that the coalition will generate a long list of potential ideas and solutions. The next step will be easier if the list is prioritized. Are some issues more critical to address than others? Are there “quick wins” that the group can identify that would help to generate additional enthusiasm early in the program?

5 Make a plan

The SRTS plan does not need to be lengthy, but should include encouragement, enforcement, education and engineering strategies; a time schedule for each part of these strategies; a map of the area covered by the plan; and an explanation of how the program will be evaluated. Strategies that can be implemented early will help the group feel successful and can build momentum and support for long-term activities. Be sure to include fun activities; that is what encouragement is all about.

6 Fund the plan

Parts of a SRTS program will cost very little money. For example, most International Walk to School Day coordinators say they spend less than \$100 on their events. There are many low-cost engineering solutions that can be put into place in a relatively short amount of time such as new signs or fresh paint on crosswalks. On the other hand, some changes, such as new sidewalk construction, may need large amounts of capital. There are several places to seek funding for SRTS program activities including:

- Federal programs: SAFETEA-LU (including funds allocated to SRTS), Congestion Mitigation and Air Quality, Surface Transportation Program,

Recreational Trail Program and others.

- State SRTS programs.
- Environmental and air quality funds.
- Health and physical activity funds.
- County and city funding.
- Philanthropic organizations.

For more information about these funding resources, see Legislation and Funding at www.saferoutesinfo.org/legislation_funding.

7 Act on the plan

There are things that can be done right away without major funding, so some parts of the SRTS plan can start right away while waiting on other parts. Hold a fun-filled kick-off event and invite the media. For example, participate in International Walk to School Day or celebrate a Walking Wednesday. If the school is located too far for children to walk from home, identify places where families can park and walk part of the way. If improvements are needed before children can walk to school, start walking activities before, during or after school right on the school grounds. Enforcement, education, encouragement and engineering strategies will all come together as pieces of the plan are implemented.



Reidville Elementary, Spartanburg, South Carolina.

Evaluate, make improvements and keep moving

After the program begins, careful monitoring will identify which strategies are increasing the number of children safely walking and bicycling to school. Proper adjustments can be made as this and other new information is gathered. One simple evaluation measure is to re-count the number of walkers and bicyclists and compare this number to the findings in Step 3 (the baseline count). See the Evaluation chapter of this Guide at www.saferoutesinfo.org/guide/evaluation for more information on how to measure impact.

The coalition also needs to consider how to sustain energy and interest in the program so that children continue to walk and bicycle to school safely. Key strategies for keeping the program going include:

- Identifying additional program champions.
- Letting people know about the successes: Get visibility for activities through local media and school communications and publicize your activities. Making the work fun and positive makes it more likely that people will want to continue and others will want to become involved.

- Encouraging policy changes: These might be school, school district or local government policies that support children walking and bicycling to school. For example, local planning departments may promote new school construction within walking and bicycling distance of residential areas. School district adoption of a safety curriculum means that the pedestrian and bicycle education will continue to be provided to children.
- Creating a permanent committee: A permanent committee within the PTA, school site council or other group means that SRTS will continue to receive attention and energy.

An SRTS program has the potential to improve walking and bicycling conditions near a school and spread interest into other parts of the community. Coalitions that persist in their efforts and make measurable improvements based on their evaluation will be rewarded with safer places for children to walk and bicycle and more children choosing safe routes to school.

A Safe Routes to School program has the potential to improve walking and bicycling conditions near a school and spread interest into other parts of the community.

Engineering



Contents

Chapter 3: Engineering

Overview	3-1
Guiding Principles for Applying Safe Routes to School Engineering Solutions	3-2
What’s Wrong With This Picture?	3-4
School Route Maps and the Tools to Create Them	3-8
School Route Maps	3-8
Neighborhood Walk-about and Bike-about	3-9
Walking and Bicycling Audits	3-10
School Traffic Control Plans.....	3-12
Around the School	3-13
Understanding The School Environment.....	3-14
School Enrollment Boundary	3-14
School Walk Zone.....	3-14
School Zone	3-15
Existing Conditions Map.....	3-15
School Zone Signing and Marking.....	3-16
School Speed Limit Sign.....	3-18
Overhead School Flasher Speed Limit Sign.....	3-19
Changeable Message Signs.....	3-19
Portable Speed Limit Signs and Radar Speed Trailers	3-20
School Advance Warning Signs and Crosswalk Signs.....	3-20
Post-covering	3-21
Pavement Markings	3-21
Parking Restrictions	3-22
School Traffic Control Plan	3-22

Along the School Route.....	3–23
Universal Design and Access.....	3–23
Sidewalks.....	3–24
Design and Strategy.....	3–24
Street Lighting.....	3–29
ADA / Universal Design	3–30
Driveways.....	3–31
Bikeways	3–33
Paths.....	3–35
Connectivity	3–36
Bike Racks	3–38
Crossing the Street	3–39
Tools to Reduce Crossing Distances for Pedestrians.....	3–40
Marking Crosswalks	3–49
Signing Crosswalks.....	3–51
Traffic Signals.....	3–56
Slowing Down Traffic	3–65
Narrow Lanes.....	3–66
Chokers and Chicanes	3–67
Speed Humps	3–68
Raised Pedestrian Crosswalks.....	3–69
Neighborhood Traffic Circles.....	3–70
Reduced Corner Radii.....	3–71
Speed Sensitive Signals	3–73
Resources	3–74
References	3–75

Overview

Engineering is one of the complementary strategies that Safe Routes to School (SRTS) programs use to enable more children to walk and bicycle to school safely. Communities tailor a combination of engineering, education, encouragement and enforcement strategies to address the specific needs of their schools.

Engineering approaches can improve children’s safety to enable more bicycling and walking. Engineering is a broad concept used to describe the design, implementation, operation and maintenance of traffic control devices or physical measures, including low-cost as well as high-cost capital measures.

This chapter serves as a toolbox of various engineering techniques aimed at creating safe routes to school. It focuses on tools that work to create safe routes by improving paths, creating safer crossings and slowing down traffic. At the same time, it recognizes the importance of a balanced roadway environment that can accommodate the needs of all modes of transportation, be it foot, bicycle or motor vehicle. In this chapter, there are examples of urban, suburban and rural school locations, which will provide various perspectives on engineering challenges and solutions.

Engineering strategies are best used in conjunction with education, encouragement and enforcement activities. The Education chapter describes the pedestrian and bicycle safety messages and how to deliver the messages to children, parents and others. Driver, bicyclist and pedestrian behavior changes, such as those discussed in the Enforcement and Encouragement chapters, complement the engineering strategies described in this chapter.



Kentfield, California.

.....
“Engineering” is a broad concept used to describe the design, implementation, operation and maintenance of traffic control devices or physical measures.
.....

Guiding Principles for Applying Safe Routes to School Engineering Solutions

Several principles guide this discussion of Safe Routes to School (SRTS) engineering solutions as well as the design of a built environment that provides safe routes for children as they walk and bicycle to school. The following list states and briefly describes some of the principles:

Infrastructure within the school zone and beyond is a prerequisite for walking and bicycling.

The physical environment often determines whether many children walk or bicycle to school. To safely walk or bicycle to school along a street or separate path, or to cross a street along the way, children need well-designed, well-built and well-maintained facilities.

SRTS programs address infrastructure needs at schools as well as along a child's route to school. Children walk and bicycle to school from locations outside the immediate school zone and often from beyond the school's designated walk zone. SAFETEA-LU, the federal transportation legislation, provides funding for SRTS activities within approximately a two-mile radius of a school.

Relationships are everything.

The relationship of school buildings to sidewalks and street crossings can determine the level of comfort and safety a pedestrian or bicyclist experiences. All elements are interconnected; the street is connected to the sidewalk and the sidewalk is connected to the building. Getting this relationship right is critical. One important point: do not put motor vehicles between sidewalks and schools. Such obstructions add a conflict point on a child's walking route. Another relationship to consider is the school's location relative to its students' homes. A child's route to school should have a minimal number of busy street crossings, and school attendance boundaries should be drawn with this principle in mind.



Peter Lagerwey

The relationship between the crossing, the building and the sidewalk are important elements in developing a safe route to school. Mary Scroggs Elementary School, Chapel Hill, North Carolina.

Easy-to-implement and low-cost solutions are focused on first, while longer-term improvement needs are identified and the implementation process is begun.

Effective improvements do not always require substantial funds. For example, signs and paint are relatively inexpensive and can make a big difference. Completion of these projects can build momentum and community interest in making other improvements. Smaller cost-effective projects, when concurrently implemented with larger more expensive projects are likely to have lasting impacts on the built environment and garner interest and support from the community.

Some engineering improvements will require substantial time and financial commitment. Projects such as new sidewalks and bridges or the reconstruction of a street crossing should be identified early and advanced through the various stages required to complete them. As these longer-term improvements are developed, smaller projects can be implemented to build momentum and maintain community interest in creating safe routes to school.

Engineering treatments are matched to the type of problem.

As communities consider improvements for the routes to school, care should be taken to identify problems or obstacles and to provide appropriate solutions to alleviate these specific problems.

Collectively, these principles guide the decisions that local professionals and members of the school community make as they begin to address issues that will improve the built environment for children to safely walk and bicycle to school. These principles will help guide decisions as communities:

- Create school walking and bicycling route maps using a variety of assessment tools and exercises.
- Identify and regulate the school zone.
- Provide and maintain bicycle and pedestrian facilities along the school route including sidewalks, on-street bicycle facilities, paths, bridges and tunnels.
- Provide safe street crossings for bicyclists and pedestrians.
- Slow down traffic.



Peter Lagerwey

Crosswalks are an effective, low-cost, and easy-to-implement engineering treatment. It is important, however, to be aware of guidelines for appropriate placement and use of crosswalks. Guidelines can be found at www.walkinginfo.org/engineering/crossings-crosswalks.cfm

What's Wrong With This Picture?

Following are a number of photographs to help identify the types of problems that children may encounter on the trip to or from school. These examples focus on some of the most common problems, many of which are easy to correct. If these problems are addressed and obstacles to safe walking and bicycling routes are eliminated, more parents will allow their children to walk and bicycle to school and children will be safer doing so.

• what's wrong with this picture?



David Parisi

Tree root damage has pushed the sidewalk up. The sidewalk is angled greater than the 2-percent Americans with Disabilities Act requirement, and the lifted section presents a tripping condition.

• what's wrong with this picture?



David Parisi

There is no paved sidewalk for these students to use, and the rolling terrain can “hide” children walking in the street.

• what's wrong with this picture?



David Parisi

Motor vehicle is stopped in the crosswalk and in the red (no parking/stopping) zone. The red curb paint is faded.

• what's wrong with this picture?



David Parisi

This picture was taken one block from school. The sidewalk abruptly ends, forcing children to walk in the street; visibility is obscured at the corner by the bushes and fence.

• what's wrong with this picture?



Bushes are growing over the sidewalk.

• what's wrong with this picture?



This motor vehicle is parked on the sidewalk. Not only does this cause pedestrians to walk in the street, it will damage the sidewalk.

• what's wrong with this picture?



This is a damaged multi-use pathway with cracks in the surface and debris on the trail. The cracks are an obstacle for walkers, bicyclists and particularly people in wheelchairs.

• what's wrong with this picture?



The driver entering this street, just before the school crosswalk, is likely looking left for oncoming motor vehicles and may not see the pedestrian or the crosswalk to the right. The amount of traffic on this busy street is prompting this child to dart across.

• what's wrong with this picture?



This empty bicycle rack is broken and is not a recommended design. It is difficult to lock bicycles to this rack and keep them in an upright position. It is also not a well-placed rack; only one side is useable.

• what's wrong with this picture?



Hedges block access to the sidewalk at the end of this school crosswalk. There is no curb ramp, and the bushes block access to pedestrians in wheelchairs and any other students attempting to cross.

• what's wrong with this picture?



This gate and lock were recently installed by neighbors to block access to their private road. The locked fence also blocks access to the sidewalk that leads to the school.

• what's wrong with this picture?



This is a pathway off a sidewalk at a school. The pathway ends at a parking lot and is blocked by parked motor vehicles. There is no sidewalk for students to cross the parking lot and walk to the school buildings. The bicycle rack is poorly placed and inaccessible.

• what's wrong with this picture?



This is a well-marked school crosswalk with advanced warning signs. (Note the back of the sign in the middle of the image.) However, school children must walk 10 to 12 feet into the travel lane, while in the crosswalk, before they can see approaching traffic.

• what's wrong with this picture?



This well-marked school crosswalk has good signage, but there is a discontinuous sidewalk on the right side and no curb ramps.

• what's wrong with this picture?



This is a long line of motor vehicle traffic for drop-off and pick-up of school children. The sidewalk on the left side of the street is narrow and almost entirely blocked by overgrown bushes.

School Route Maps and the Tools to Create Them

Identifying the safest and most direct route for a student's journey to school is an important step in the process of developing safe routes to school. This section describes school route maps and a variety of tools used to gather information about, and improve the environment for, walking and bicycling near schools.

School Route Maps

A school route map informs each student of the safest and most convenient walking and bicycling route to school and can identify areas along the student's route that require improvements to make the route safe. While school route maps are often developed for all households within the school walk zone, consideration should be given to areas outside of the defined walk zone and, when appropriate, to the entire enrollment area of a school.

A school walking and bicycling route map not only provides way-finding for the safest routes for students to walk and bicycle to and from school, it identifies where engineering treatments may be needed and where adult school crossing guards and traffic control devices, such as signs, crosswalks and traffic signals, should be provided. In order to identify the optimal routes to school as well as problem areas, it may be necessary to conduct an assessment of the physical environment surrounding the school. Walk-about, bike-about and audits are methods for assessing the built environment; these are described in the following two sections.

As part of the school route map development and evaluation processes, areas that receive an improvement, such as an engineering treatment, should be reassessed after the implementation of a change to determine if the route is now safe(r) for walking and bicycling. Attendance boundaries and mapped walking routes and bicycling routes should be reviewed at least annually to see if there have been changes to the school attendance boundary, the walk zone or the adjacent neighborhoods.



Michael Cynecki

Some schools publish maps for students and parents to use.

.....

A school route map informs each student of the safest and most convenient walking and bicycling route to school.

.....

Putting It Into Practice: Developing a Safe Routes to School Walking Route Map

Roadrunner Elementary School, Phoenix, AZ

Phoenix, like many other communities, is working with school officials and parents to develop walking route maps to provide young students guidance on the safest routes to walk to and from school. The program not only makes the school trip safer by identifying the safest routes, but it also involves a comprehensive review of the walking routes by school officials and parents to identify problem areas. The walking route plan helps to identify where improvements are needed and where to place crosswalks, STOP signs and adult school crossing guards. The ultimate purpose of the walking routes is to encourage more children to walk to school and discourage parents from driving their children to school.

The school provides the walking attendance boundary map and parent volunteers to work on reviewing and developing the walking routes. The city provides aerial photographs, quarter-section maps and guidelines for parents and school officials on how to conduct their reviews. The process requires parent volunteers or school officials to review the entire walking route and to identify the most desirable walking route to serve each household within the walking attendance boundary. This exercise may also involve a revision of the walking attendance boundary if safe routes can be identified or created to serve more students.

Once the walking route maps are completed, traffic officials review the areas of concern and work with school officials to ensure the right number and placement of adult school crossing guards. The city provides final versions of the maps and maintains the computer files for the walking routes. It is the responsibility of the school officials to distribute the walking route plans to the parents at the start of the school year and when new students are enrolled at the school. School walking route maps are reviewed annually to identify if there are any changes to or within the school walking attendance boundary.

For another example of mapping safe routes to school visit the 2004 PEDSAFE "Safe School Route Mapping" Rochester, New York, case study at www.walkinginfo.org/pedsafe/casestudy.cfm?CS_NUM=33.

Neighborhood Walk-about and Bike-about

Neighborhood walk-about and bike-about are environment analysis exercises used in many Safe Routes to School (SRTS) programs to raise awareness of the issues and conditions facing walking and bicycling, to garner support for needed changes and to gather information needed to help create school route maps. The walk-about and bike-about seek to identify and document the traffic and safety issues near schools and identify potential short- and long-term solutions to deal with these safety issues.

The neighborhood walk-about and bike-about are organized by the community or school and may involve local policymakers, traffic engineers and planners, law enforcement, safety professionals, school district



Participants of a neighborhood walk-about familiarize themselves with the school zone.

personnel, school nurses, parents, students, school principals and local media. The group typically meets at the school, observes the school activities during drop-off and pick-up time, and tours the school zone and walking and bicycling routes to the school. Along the way, safety concerns are documented and photographed for later discussion. Active & Safe Routes to School (www.saferoutestoschool.ca) offers a list of items to consider during a walk-about. Participants also can complete easy-to-use checklists, such as the Walkability Checklist (www.walkinginfo.org/cps/checklist.htm) and Bikeability Checklist (www.bicyclinginfo.org/cps/checklist.htm) while conducting the walk-about or bike-about.

After the tour, the group reconvenes at the school to discuss their findings and potential short- and long-term solutions to address the problems they encountered. Participants leave the meeting with a clear plan of action that includes responsibilities for each person and follow-up dates. Results of the walk-about and bike-about are communicated to the school community through newsletters or other channels. A walk-about and bike-about can also be conducted by teachers with students as a hands-on learning experience about their community.

Walking and Bicycling Audits

Walking and bicycling audits, sometimes called assessments, are processes that involve the systematic gathering of data about environmental conditions (social, built and natural) that affect walking and bicycling. Audits are typically performed by personnel with experience in pedestrian and bicycle issues or training on the specific audit tool used. One objective of the audits is to document factors that help or hinder safe walking and bicycling. These factors include, but are not limited to, street lighting, sidewalk width and condition, traffic volume, presence of bicycle lanes, topography, and presence of dogs, trash and debris.

Audits might focus on a school site, a corridor popular for bicycling or an intersection that residents find daunting. Walking and bicycling audits are tools that provide community stakeholders (parents, children, school staff, public works or traffic department staff, local engineers or planners, and law enforcement officers) with the

information they need to effectively analyze the design and condition of the transportation network. This information can help identify areas conducive to walking and bicycling, identify areas where changes are needed and inform the solutions chosen to create change. For engineers and planners, audits provide useful feedback to help them incorporate these ideas into their work.

Numerous walking and bicycling audit tools exist, and they can vary in the scope and scale of data they collect. Some audits focus broadly on the network or route level, while others hone in on details of the individual street segments that comprise a route or network. Determining which type of audit tool is most appropriate will depend on the audit participants, data needs and available resources. Collecting information on every street segment will provide a detailed and comprehensive assessment, but it may require data collection training and labor intensive data collection and analysis. Audit information collected at the neighborhood level can provide an overview of the walkability and bikeability along routes to school, but it may not allow for pin-pointing a specific area along the route that is a trouble spot.

In addition to assessing infrastructure and conditions currently in place, audits can be used to analyze proposed development construction plans or other projects that will introduce change into a neighborhood. Audits are useful for analyzing proposals to ensure that the needs of bicyclists and pedestrians are accommodated in all stages of a project.

Results from the walking and bicycling audits combined with the walk-about and bike-about activities and parent and student surveys form the basis of the design of a Safe Routes to School program. This information can also be used in the development of school traffic control plans.

For audit tool information, see the following:

- School Site Assessment Form and Neighborhood Assessment Form in the Maryland Safe Routes to School Guidebook at <http://www.walktoschool.org/resources/safety-education.cfm>.
- School Site Assessment and the Neighborhood Site

Assessment in the Safe Ways to School “Toolkit” from the Florida Traffic and Bicycle Safety Education Program. at www.dcp.ufl.edu/centers/trafficsafetyed/html_safe-ways.html

- A host of audit tools developed by health professional and planners, which consider the built environment from a walking, bicycling and health standpoint, are available at the Active Living Research Web site at www.activelivingresearch.org/index.php/Tools_and_Measures/312.
- Walking and Bicycling Suitability Assessment at www.unc.edu/~jemery/WABSA.
- Cycle Audit and Review from the UK Department of Transportation at www.dft.gov.uk/stellent/groups/dft_roads/documents/page/dft_roads_504721.hcsp.

Putting It Into Practice: School Walking Routes Pilot Project Ontario, Canada

Research suggests that if there were safe routes for children to walk or bicycle to school more families would choose this form of transportation. The School Walking Routes pilot project of Green Communities’ Active & Safe Routes to School (ASRTS) set out to test this.

The School Walking Routes pilot project was implemented in four steps:

1. Mapping

Students in participating schools were asked to draw their routes to school on maps of their school’s catchment area. Maps were sorted by grade and by street and one master map was created of the most popular routes.

2. Observing

Municipal transportation staff collected baseline data for each mapped route at each school site.

3. Analyzing traffic

Municipal transportation staff coordinated traffic counts at each of the four schools before, during and after the pilot project.

4. Surveying

Parents, children and community members were surveyed at the start and end of the project.

Families who chose to participate in walking school buses were encouraged to walk along the designated routes, which were selected by local municipal and police staff as the best route from the perspective of traffic safety and pedestrian controls. SCHOOL ROUTE signs placed along the route provide the following benefits:

- Notification to drivers that they are on a designated walking route to a school and need to use extra caution.
- Encouragement for parents to walk their children along the designated walking route, thus creating more eyes on the street. This is critical in the establishment and sustainability of walking school buses.
- Encouragement for pedestrians and bicyclists to cross only at the designated intersections.
- Promote the culture of child safety in general.

Project organizers found that collecting data through observations is labor-intensive, not cost-effective and there are many factors contributing to transportation choices of families from one day to the next. Also, signs coupled with other ASRTS initiatives can change behaviors of drivers and encourage more people to walk their children to school.

Phase One of the School Walking Routes pilot project was implemented in Toronto in April 2002. During 2004, Phase Two of the School Walking Routes pilot project was expanded from the City of Toronto to three other Ontario municipalities: London, Brantford and Brampton.

For more information visit Active & Safe Routes to School at www.saferoutestoschool.ca.

School Traffic Control Plans

A comprehensive traffic control plan can help create a balanced roadway environment to accommodate the needs of all modes of transportation, be it by foot, bicycle or motor vehicle. A traffic control plan is a map of a school campus and the adjacent street system marked with proposed engineering improvements to increase the safety of bicyclists and pedestrians.

Putting It Into Practice: Traffic Control Plan Park Elementary School, Marin County, CA

Schools in two communities in Marin County, California, developed comprehensive traffic control plans to increase the safety of bicyclists and pedestrians traveling to school.

The schools mapped typical routes that students used to walk and bicycle to school and proposed safety improvements along those routes. The schools used this analysis to apply for and receive funding to complete suggested improvements. One map proposed a new signing and striping plan for a local elementary school. It lays out proposed signing and pavement marking measures, taking into account many streets surrounding the school.

The traffic control improvements in Marin County, in conjunction with Safe Routes to School encouragement activities, have led to an increase in the number of students walking and bicycling to school, as well as an increase in carpooling.

For more information about this story visit the 2004 PEDSAFE "Safe Routes to School Program" Marin County, California, case study at www.walkinginfo.org/pedsafe/casestudy.cfm?CS_NUM=9.



David Parisi

Park Elementary, Marin County, California.

Around The School

Ideally, the school zone starts at the front door and encompasses the campus and as many blocks as possible that surround the school and have a high concentration of school-generated traffic. Often the school zone includes the streets along the school and usually the area one to two blocks around it. The school zone should be marked with special signing to alert drivers of the high concentration of children. School crossing signs, speed signs, school zone pavement markings and other traffic calming devices remind drivers to treat the area with special care and attention.

Understanding The School Environment

There are generally three zones around the school that you need to think about when doing a Safe Routes to School project: the school enrollment boundary, the school walk zone, and the school zone.

School Enrollment Boundary

The school enrollment boundary is the entire zone around the school from which students are drawn.

School Walk Zone

The school walk zone is typically a subset of the enrollment zone. School walk zones may be defined by State or Local policy, but if not, a general rule of thumb is that the walking boundary is $\frac{1}{2}$ mile or 1-mile out from an elementary school, sometimes further for middle and high schools. The shaded circle on the map above is intended to provide a visual of a “walk zone”, but rarely is the walk zone an exact circle. Some students will live too far away from the school to reasonably be expected to walk, and they are typically provided with bus service. Walk zones defined by policy typically indicate



School enrollment boundary. Image provided by Dave Parisi.



School walk zone. Image provided by Dave Parisi.

.....

Since school zones are locations frequented by children, making the area safe for children at any time of day is a sound investment for the community.

.....

the area within which students are NOT provided with bus service (note that some schools may define this as the no-transport zone, not the walk zone). Determining walk zones, whether policy based or through the general rule-of-thumb, can be helpful in focusing your efforts in identifying engineering problems and solutions.

School Zone

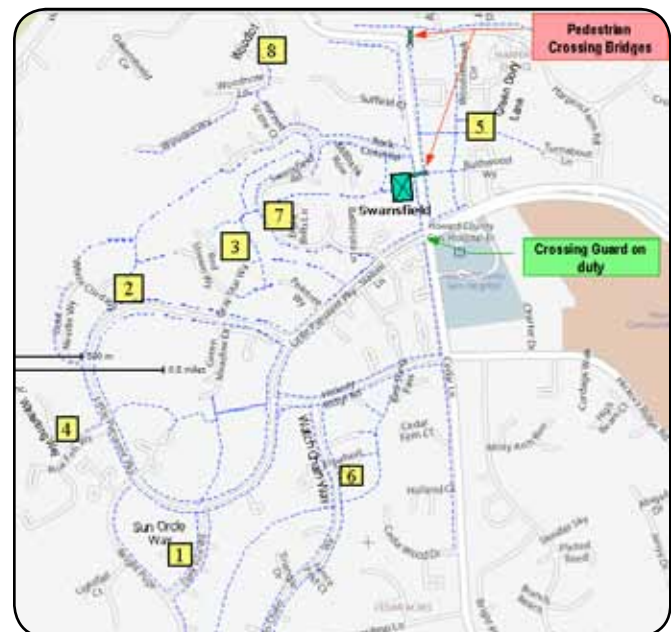
The school zone is the roadway (or roadways) immediately adjacent to the school (shown in yellow on the map to the right), usually extending one to two blocks in each direction. Speed limits are often reduced in the school zone during morning and afternoon hours. Special signing is used – crossing signs, speed signs, school zone pavement markings – so that motorists know to treat the area with special care and attention.

Existing Conditions Map

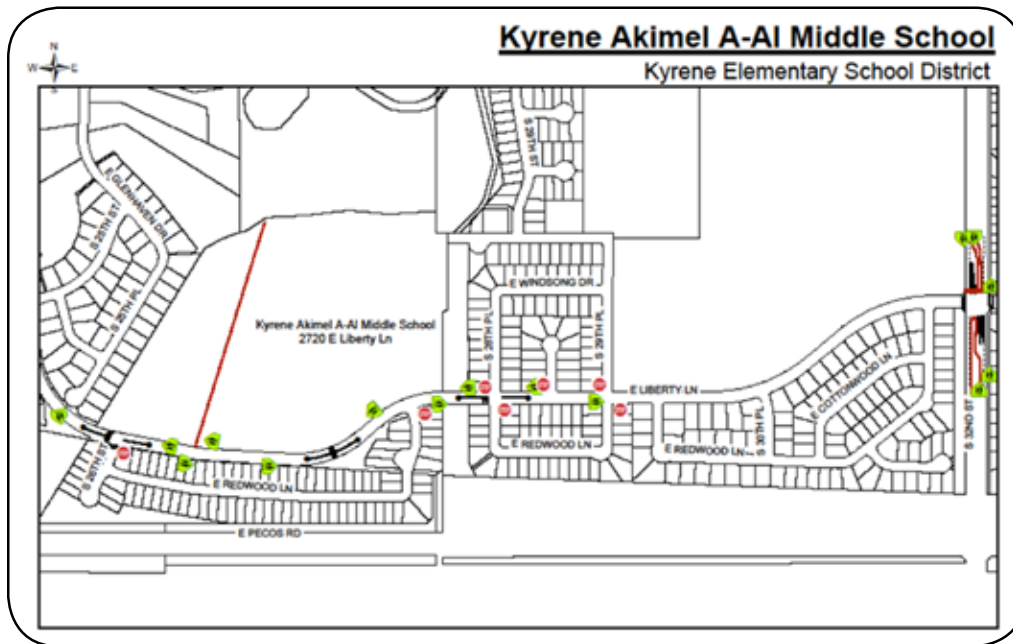
Prior to identifying engineering problems and solutions, it can be helpful to have an “existing conditions map” that identifies where existing sidewalks and pathways are located, where crossing guards are located, and where crosswalks and traffic signals are located. Partners in your local traffic engineering department may be able to provide or create such a map. If not, parents and school staff can conduct a simple walk audit of areas in the walk zone to begin to document existing conditions and identify major concerns.



School zone. Image provided by David Parisi.



Swansfield Elementary School, Howard County, MD. Image provided by Jennifer Toole.



Comprehensive traffic control plan for Kyrene Akimel A-AI Middle School in Phoenix, AZ. Image provided by Mike Cynecki.

School Traffic Control Plan

A comprehensive traffic control plan – like the one below – can benefit the Safe Routes to School program. Comprehensive traffic control plans lay out proposed signing and pavement marking measures, taking into account key streets surrounding the school. These school traffic control plans can also be used during annual school checks of signs and markings.

School Zone Signing and Marking

School zone signs and pavement markings provide important information to drivers to improve safety within the school zone. The 2009 Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD), Part 7 sets forth principles and standards for controlling traffic in school areas, although many states and local jurisdictions provide additional guidance. The principles and standards in the MUTCD provide information on appropriate design, application, and maintenance of all traffic control devices (including signs, signals, and markings) and other controls (including adult school crossing guards, student patrols, and grade-separated crossings) required for the special pedestrian conditions in school areas.[1]

Some jurisdictions recommend or require school signs that are larger than the sizes of signs recommended by

the MUTCD or may allow different types of pavement markings. School zone signs and markings on public streets must comply with the MUTCD as well as consider any relevant local or state guidelines that are themselves consistent with the MUTCD. Signs should be used judiciously, as overuse may lead to driver noncompliance and excessive signs may create visual clutter.

Guidelines for making schools accessible to children with disabilities can be found in the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and the Public Rights-of-Way Accessibility Guidelines (PROWAG). ADAAG applies to the school site itself whereas PROWAG addresses the route to school. The Department of Justice established the 1991 ADAAG as a standard, which means that compliance is required for all newly constructed or altered school facilities.

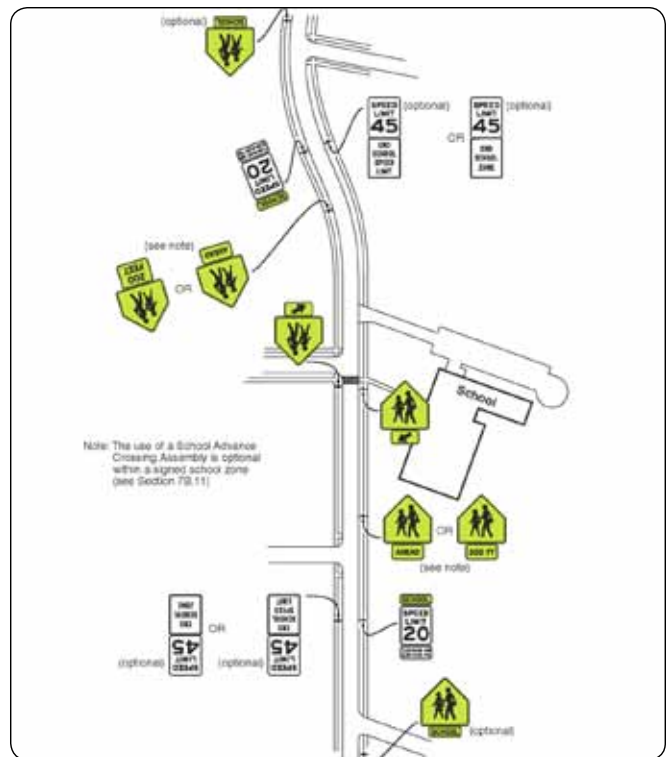
Properly designed and applied traffic calming devices encourage good motorist and pedestrian behavior in the school zone. Traffic calming measures such as high visibility crosswalks, street narrowing and signage can be in place all the time. Since school zones are locations frequented by children, making the area safe and accessible for children anytime of day is a sound investment for the community.

Properly designed and applied accessibility improvements, such as curb ramps, accessible pedestrian signals, and accessible sidewalks and pathways are also sound community investments. They benefit not only children with disabilities but also parents with strollers, senior citizens, and others with permanent or temporary mobility impairments.

Methods for addressing bicyclist and pedestrian safety and accessibility within the school zone will be discussed in this section. Topics include:

- School Speed Limit Sign
- Overhead School Flasher Speed Limit Sign
- Changeable Message Sign
- Portable Speed Feedback Sign
- School Advance Warning and Crosswalk Signs
- Pavement Markings
- Parking Restrictions
- School Traffic Control Plan

For more information on traffic calming in school zones visit the 2004 PEDSAFE “School Zone Traffic Calming” Portland, Oregon, case study at <http://tinyurl.com/7rguusa>



This diagram from the MUTCD shows typical placement of SCHOOL advance warning signs, SCHOOL SPEED LIMIT signs, SCHOOL CROSSING signs and END SCHOOL ZONE signs.

Treatment: Signing and Marking the School Zone

Description/Purpose

Signs and pavement markings provide important information to drivers to improve road safety. Examples include retroreflective yellow-green SCHOOL advance warning signs and SPEED LIMIT 25 MPH WHEN FLASHING signs.

Marked crosswalks help guide children to the best routes to school.

Expected Effectiveness

The limited empirical evidence suggests that signs and pavement markings help educate drivers and improve driving behaviors in school zones.

Costs

Costs depend on the school zone treatment selected and the intensity of application. The cost for signs generally ranges from \$50 to \$150 per sign, plus installation costs.³ Pavement marking costs vary by type of paint and marking design.

Keys to Success

- Schools should develop Safe Routes to School traffic control plans that include sign and marking recommendations.
- Traffic signs and pavement markings used on public streets and property must comply with the Manual on Uniform Traffic Control Devices (MUTCD). See Chapter 7 of the MUTCD for traffic control used in school areas.

Key Factors to Consider

Signs should be used judiciously; overuse may breed driver noncompliance and excessive signs may create visual clutter.

Evaluation Measures

- Pedestrian and bicyclist conflicts in the school zone.

School Speed Limit Sign

School speed limit signs vary among states, but their main objective is to alert drivers that they are entering a school zone and they need to slow down for school children. The MUTCD (<http://mutcd.fhwa.dot.gov/pdfs/2003r1/Ch7.pdf>) provides guidance for installing school area speed limit signs in school zones at a specified distance from marked school crosswalks or a certain distance from the edge of school property. The school speed limits typically range from 15 to 25 mph. These devices are important but should not be overused. Excessive and unreasonable use may lead drivers to ignore the devices.

School speed limit signs alert drivers that they are entering a school zone and they need to slow down for school children. The MUTCD provides guidance for installing school area speed limit signs in school zones at a specified distance from marked school crosswalks or a certain distance from the edge of school property. School speed limits vary based on state law and typically range from 15 to 25 mph. These devices are important but should not be overused. Excessive and unreasonable use may lead drivers to ignore the devices. Occasional police enforcement is also needed at these signs. School flasher speed limit signs are sometimes used on busy streets, where they can help attract drivers' attention to the school speed limit. School flasher speed limit signs that are activated only during school hours are probably more effective at drawing a driver's attention compared to school flasher speed limit signs that flash throughout the day.[5]



School speed limit sign at Diggs-Latham Elementary School in Winston-Salem, NC. Image provided by Mike Cynecki.



School flasher speed limit sign at Arrowhead Elementary School in Glendale, AZ. Image provided by Mike Cynecki.

Overhead School Flasher Speed Limit Sign

School flasher speed limit signs can be installed overhead for even better driver visibility than side mounted school flasher speed limit signs. The best uses for overhead signs and beacons are at locations where drivers cannot see the marked crosswalk due to topography or other unusual barriers, such as on the crest of a hill or around a curve.

Changeable Message Sign

Permanently mounted changeable message signs are illuminated with messages or speed limits and are used to heighten awareness of speed limits in the school zone or to establish a lower speed during school crossing times. Solar units are available for under \$10,000 per sign and non-solar units are sold for under \$8,000. While the non-solar equipment is less expensive to purchase, it requires a hard wire connection to a power source, which can be much more expensive.

Speed Feedback Sign

One type of changeable message sign is a speed feedback sign which shows “Your Speed” and the “Speed Limit” to alert drivers to their actual speed and the posted speed limit. Speed feedback signs can record traffic counts and are programmed via a Personal Digital Assistant. They work best if they flash or provide a SLOW DOWN message if drivers exceed a preset speed threshold. Speed feedback signs still need to be used with other standard speed limit signs, which should be placed in advance of or next to speed feedback signs.

Portable Speed Limit Signs and Radar Speed Trailers

Portable speed limit signs are movable signs that remind drivers of the posted speed limit. Radar speed trailers alert each passing driver to their traveling speed. These machines are used in some jurisdictions along with law enforcement. For example, the signs are put in place, parents are notified that law enforcement officers will be present, and then officers show up to ticket speeders and drivers who fail to stop for children in marked crosswalks. In other locations, signs are used with no further enforcement activity. Portable speed limit signs are discussed further in the Enforcement chapter.



Overhead school flasher speed limit sign at Second Street School in Frankfort, KY. Image provided by Mike Cynecki.



This solar-powered changeable message sign used in Mill Valley, CA is adjacent to a school and is only operational during the school commute periods. Image provided by David Parisi.



Typical portable radar speed trailer.

School Advance Warning and Crosswalk Signs

School advance warning and school crosswalk signs are important elements of a safe route to school. Chapter 7 in the 2009 edition of the MUTCD (<http://mutcd.fhwa.dot.gov/pdfs/2009/part7.pdf>) designates these signs to be used in advance of and at school crossings. The MUTCD and local and state regulations should be followed when considering installation in any area. Traffic signs, as well as pavement markings, which are symbols, stencils or legends applied to the surface of a roadway or a curb along public streets, must be installed or authorized by the local traffic authority, such as the city, county or state traffic engineering department. Signs should not be overused or underused, and when installed, they need to be maintained and kept clear of tree branches and other visual obstructions.

Post-covering

Retroreflective yellow-green post covers can be bolted onto sign-posts to draw additional motorist attention to school warning signs. This treatment is permitted in the MUTCD.

Pavement Markings

Pavement markings, or stencils, are an effective way to enhance driver awareness near schools. They can be used to supplement regulations and warnings provided by traffic signs and signals, or they can convey regulations, guidance, and warnings independently.

The use of pavement markings is governed by the MUTCD and by state regulations and guidance. In some cases, state regulations and guidance may differ from the MUTCD. For example, while the MUTCD requires white crosswalks and stencils, California calls for yellow crosswalks and stencils in school zones. Examples of stencils commonly used in school zones include SCHOOL, SLOW SCHOOL X-ING, STOP, and 25 MPH. Check with your local jurisdiction for guidance.



Austin Brown

Example of a school advance warning sign.



Austin Brown

Example of a school crosswalk sign.



School warning sign with retroreflective yellow-green post covering in Phoenix, AZ. Image provided by Mike Cynecki.



Pavement markings at Morey Middle School in Denver, CO. Image provided by Mike Cynecki.

Stencils should be checked annually. Installing stencils with thermoplastic or other plastic materials may cost more initially, but these materials will last longer than paint and reduce long-term maintenance costs. In areas that receive snow, consideration must be given to the fact that stencils may be obscured by snow during the winter months, and that regular plowing may shorten the lifespan of the marking.

Parking Restrictions

Parking restrictions are needed to regulate parent parking, but care must be taken not to push motorists into adjacent neighborhoods or deny parents appropriate and adequate space for parking and drop-off activities. Curb paint and signs can be used individually or together to help convey messages regarding parking restrictions. For additional information, see Part 7 of the MUTCD (<http://mutcd.fhwa.dot.gov/pdfs/2009/part7.pdf>).



Parking restriction sign at Latham Elementary School in Winston-Salem, NC. Image provide by Mike Cynecki.

Along the School Route

Children that walk or bicycle to school need safe and well-designed facilities between their home and school. This section describes the types of infrastructure found along the school route that improve the conditions for walking and bicycling, including:

- Sidewalks
- Bikeways
- Paths
- Connectivity



Sidewalks

Sidewalks, specifically paved sidewalks, are an important piece of a walking route to school. Paved sidewalks are “pedestrian lanes” that provide people with space to travel within the public right-of-way separated from motor vehicles and on-road bicycles. They should have a level, hard surface and be separated from motor vehicle traffic by a curb, buffer or curb with buffer. Sidewalks provide places for children to walk, run, skate and play, and are often used by young bicyclists. Continuous and accessible sidewalk networks improve mobility for all pedestrians and are particularly important for pedestrians with disabilities. They provide access for all types of pedestrian travel to schools as well as work, parks, shopping areas, transit stops and other destinations

Many roads around schools are not equipped with sidewalks and can be unsafe for walking. According to a study by the UNC Highway Safety Research Center conducted for the Federal Highway Administration, the likelihood of a site with a paved sidewalk being a crash site is 88.2 percent lower than a site without a sidewalk after accounting for traffic volume and speed limits.⁶ A study of the California SRTS program has shown that providing sidewalks is one of the most effective engineering measures in encouraging children to walk to school.⁷

Sidewalks should be part of all new and renovated development. Streets that do not have sidewalks, particularly those on routes where children walk or bicycle to school, should be identified and assessed to determine if retrofitting these streets with sidewalks is appropriate. Where feasible, sidewalks should be provided on both sides of the street. A sidewalk on only one side forces pedestrians to either walk in the street or cross the street twice to get to the side with a sidewalk and back again.

Design and Strategy

Sidewalk Surface Types

Sidewalks can be surfaced with a variety of materials to accommodate varying budgets and contexts. While urban, suburban and heavily used sidewalks are typically made of concrete, less expensive walkways may be constructed of asphalt, crushed stone, or other materials



Peter Lagerwey



Peter Lagerwey

Many parents are not willing to allow their children to walk to school if there is no place for them to walk.



While concrete is the most common sidewalk material, other construction materials may be acceptable, but may require more maintenance.

if they are properly maintained and accessible. In more rural areas, a “side path” made of a material other than concrete may be suitable and be a better fit with a rural environment.

Concrete is more expensive than asphalt to install, but it lasts longer and requires less maintenance, which may make it a better value in the long run. Although brick pavers may appeal to some designers, they can require more maintenance and create a tripping condition. Pavers may also pose a problem to pedestrians in wheelchairs if the bricks settle or become lifted. Safe sidewalk surfaces are firm, stable, and slip-resistant.

Sidewalk Placement

Sidewalk placement, or setback, along streets should take into account worn paths and buffer zones, and provide room for snow storage where snowfall is prevalent. The worn path that pedestrians create when there is not a sidewalk demonstrates where people naturally want to walk. The area between the street and the worn path or sidewalk is a “buffer zone” which provides space between pedestrians and motor vehicles. Unfortunately, when sidewalks are built along major arterial streets many tend to not include a buffer zone, thus placing pedestrians uncomfortably close to high-speed traffic. Sidewalks also need to provide a continuous path. Just as streets are designed and built to provide a continuous network, sidewalks also should provide users with a continuous path.

Sidewalk Width

The preferred minimum sidewalk width recommended for safe routes to schools is five to six feet. Walking can be a social activity; facilities are needed to accommodate social walking. The six-foot width allows for two people to walk comfortably side by side and provides sufficient space for pedestrians crossing in the opposite direction. Sidewalks with a width of eight to ten feet or more should be built where there is no sidewalk buffer along an arterial street and along roads adjacent to school grounds where large numbers of walkers are expected.



Peter Lagerwey

Common sense dictates that these two sidewalks should be connected.



Peter Lagerwey

The worn path in this picture clearly illustrates where pedestrians want to walk relative to traffic.



Dan Burden

This narrow four-foot wide sidewalk doesn't work very well for these two children.

The Americans with Disabilities Act (ADA) of 1990 mandates the establishment of minimum walkway clearance widths and there are variety of organizations that offer sidewalk width recommendations. Updated and revised in 2004, the ADA and the Architectural Barriers Act (ADA-ABA) Accessibility Guidelines for Buildings and Facilities state that walking surfaces should have a clear width minimum of 36 inches.⁸ This clear width minimum is the minimum width for passage and not a sidewalk width recommendation.⁹ The clear width is the width of section of the walkway that is completely free of obstacles, vertical obstructions and protruding objects. The 36 inch width is the minimum width required to provide sufficient space for a person who uses mobility aids to travel within the restricted space.¹⁰ However, restricting the pedestrian zone to 36 inches prevents passing and does not allow for two-way travel. The ADA-ABA guidelines state that where sidewalks are less than five feet in width, passing spaces sufficiently wide enough for wheelchair users to pass one another or to turn around shall be provided at intervals of 200 feet.⁸ For more details visit ADA-ABA Accessibility Guidelines for Buildings and Facilities at www.access-board.gov/ada-aba/index.htm and the Accessible Rights-of-Way: A Design Guide at www.access-board.gov/prowac/guide/PROWGuide.htm.

The walkway width recommendations stated in several pedestrian facility guides exceed the 36-inch minimum needed for accessible travel as defined by the ADA-ABA Accessibility Guidelines for Buildings and Facilities.

- The Guide for the Planning Design and Operation of Pedestrian Facilities from the American Association of State Highway and Transportation Officials (AASHTO) recommends a minimum clear width for a sidewalk of four feet, and for sidewalks that are less than five feet in width passing space at least five feet in width should be provided at reasonable intervals.¹¹
- The Design and Safety of Pedestrian Facilities from the Institute of Transportation Engineers (ITE) recommends different sidewalk width depending on the land uses and street type adjacent to the sidewalk. For residential areas, ITE recommends sidewalks widths ranging from four feet to five feet depending on housing density and for commercial areas a sidewalk width minimum of five feet. Sidewalks are required on a local street within two blocks of a school site that is on a walking route to school.¹²
- Designing Sidewalks and Trails for Access: Best Practices and Design Guide Part 2 (www.fhwa.dot.gov/environment/sidewalk2) from the FHWA recommends a minimum width of five feet of sidewalk that is free of obstacles.¹³

Sidewalk Buffers

The space between the sidewalk and closest lane of moving vehicles is the sidewalk buffer. In general, there are four types of sidewalk buffers:

Planting strip of grass and trees

This is the preferred buffer as it provides a more pleasant, shaded environment to walk.

Bicycle lane

If a planting strip is not possible, a bicycle lane can provide an acceptable buffer between pedestrians and motor vehicles.

Parked cars

Parked motor vehicles can provide a buffer between pedestrians and moving vehicles, but can also create a visual screen for pedestrians as they cross at midblock.

Street furniture

Examples include benches, newspaper boxes, street lighting and public art.

If a sidewalk buffer does not exist, an effort should be made to provide a wider sidewalk. A wider sidewalk allows a pedestrian to avoid the splash zone (area adjacent to a motor vehicle travel lane into which water spray created by a motor vehicle traveling through water on the roadway enters) and provides a snow storage area and a more comfortable separation between moving vehicles and pedestrians. Guidelines for sidewalk buffers are available in the FHWA's *Designing Sidewalks and Trails for Access* (Section 4.1.2) at www.fhwa.dot.gov/environment/sidewalk2/sidewalks204.htm and AASHTO's *Guide for the Planning, Design, and Operation of Pedestrian Facilities* (Section 3.2.4).^{13, 14}

Sidewalk and Landscaping Maintenance

Sidewalks and adjacent landscaping should be monitored for conditions that may impede safe pedestrian use. Sidewalks that have been damaged by tree roots, ground swelling or heat buckling present a tripping danger to pedestrians and can often be easily repaired. Sidewalks must be smooth and in good repair to accommodate wheelchairs. A smooth sidewalk is also safer for strollers, young bicyclists and skateboarders. A program to monitor sidewalks for repair should be instituted by local agencies. Parents, school officials and students are



Peter Lagerwey



Sidewalks should be monitored for repair.



Peter Lagerwey

These trees need trimming to provide clear access to this sidewalk, which is within 100 feet of an elementary school and along a major route to school.

an excellent source of feedback on sidewalk condition. This feedback provided to the agency can be used to list and prioritize sections of sidewalks that require maintenance.

Properly maintained landscaping along sidewalks helps maintain appropriate sight distances and makes it easier for pedestrians to use the sidewalks. Property owners are required to keep trees and bushes from blocking

sidewalks and obstructing visibility at corners. If overgrowth is an issue, neighborhood “pruning parties” or friendly reminders from residents of the neighborhood can inform property owners about the need to maintain landscaping. Local public works or traffic departments can provide guidance on plantings, including the type of plants allowed along sidewalks, the distance from the sidewalk that plants can be installed and how often plants are to be maintained.

Treatment: Sidewalks

Description/Purpose

Paved walkways that clearly delineate that area of the public right-of-way for pedestrian use and typically separated from motor vehicles by a curb or buffer area.

Expected Effectiveness

Sidewalks reduce the likelihood of pedestrian crashes by more than half the likelihood in areas where sidewalks don't exist.¹⁵ Another study found the likelihood of a site with a paved sidewalk being a crash site is 88.2 percent lower than a site without a sidewalk (after accounting for traffic volume and speed limits).⁶

Costs

Costs vary depending on such factors as width and materials but are approximated at \$15 per linear foot.³

Keys to Success

- Careful planning of the sidewalk design and network to ensure functionality and coverage.
- Inclusion of curb ramps for each crosswalk at an intersection.
- Providing an adequate buffer between the sidewalk and road, such as a planting strip, bicycle lane and/or on-street parking.

Key Factors to Consider

- Overcoming previous road construction projects that ignored the need for sidewalks.

Evaluation Measures

- Frequency and percent of “walking along roadway” crashes.
- Pedestrian volume.

Street Lighting

Street lighting improves pedestrian visibility and personal security. On streets with lots of trees, street lighting scaled to pedestrians (low lights) illuminates the sidewalk even after the trees grow big and tall. Street lighting improves safety by allowing pedestrians and motorists to see each other. It also adds to personal safety and aesthetics. Two-sided lighting should be considered along wide streets, and it is especially important to provide lighting at the crossings. Lighting can also be helpful along streets adjacent to the school grounds to minimize school vandalism and improve security. While most school walking activity occurs during daylight hours, the morning school trip in the middle of winter often occurs during hours of darkness, and many school activities occur during nighttime hours.



Peter Lagerwey

The image of a newly completed boulevard with lights.

Treatment: Street Lighting

Description/Purpose

Lighting along streets, especially at crosswalks, that more clearly illuminates areas of pedestrian activity to increase driver visibility and improve nighttime pedestrian security.

Expected Effectiveness

Better street lighting can reduce nighttime pedestrian crashes and increase the vision and awareness that drivers have relative to pedestrians.^{16,17} Increases actual and perceived pedestrian safety and comfort.

Costs

Costs vary widely depending on materials used, lighting design, utility service agreements and other factors. However, a general cost estimate is \$2,000 to \$3,000 per streetlight.¹⁸

Keys to Success

- Installing lighting on both sides of wide streets and avoiding “dark spots.”
- Using uniform lighting levels.

Key Factors to Consider

- Acquiring adequate funding.
- Design issues regarding height and existing objects, such as trees.

Evaluation Measures

- Number of nighttime pedestrian crashes.
- Percentage of all pedestrian crashes that occur at night.
- Increased pedestrian activity and reduction in crime.

ADA / Universal Design

The purpose of universal design is to provide an environment that is equally accessible and comfortable for users of all abilities and ages, including children. To help ensure access for all, the Americans with Disabilities Act (ADA) of 1990 prohibits discrimination on the basis of disability. Sidewalks and other pedestrian facilities in the public right-of-way are subject to the requirements of the ADA. In 2004 the U.S. Access Board released the Americans with Disabilities Act (ADA) and the Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities. These guidelines contain scoping and technical requirements for accessibility to sites, facilities and buildings by all users. Much of the information on walkway and street design contained in the ADA-ABA guidelines are contained in the 1999 Accessible Rights-of-Way: A Design Guide. The Federal Highway Administration (FHWA) document Designing Sidewalks and Trails for Access also provides detailed guidance on the design of pedestrian facilities that can be used as a supplement to the ADA-ABA guidelines.

Curb Ramp Design

According to ADA guidelines, curb ramps should be perpendicular wherever possible, where each corner has two ramps installed perpendicular to the face of the curb (vs. a single ramp facing diagonally into the intersection). A big advantage of having two ramps at the corner and small curb radii is that the curb ramps can lead directly along the line of travel, guiding pedestrians into the crosswalk rather than into the middle of the intersection. Two ramps that end at the crosswalk also provide directional guidance to pedestrians with vision impairments. When a corner is retrofit with new curb ramps, the crosswalk markings may have to be moved so that the curb ramp fully aligns within the crosswalk.



Peter Lagerwey

This sidewalk meets ADA requirements and is easy to maneuver by people in wheelchairs as well as other pedestrians.



Dan Burden

Each corner should have two curb ramps, one for each crossing.



Peter Lagerwey

The two-foot deep truncated dome tactile strip at the bottom of the curb ramp has a contrasting color to the rest of the sidewalk.

Driveways

Driveway Design

Properly designed driveways, as they cross sidewalks, can enhance pedestrian safety by providing a consistent surface and reminding drivers that they are crossing a sidewalk. The following principles should be applied to driveway design:

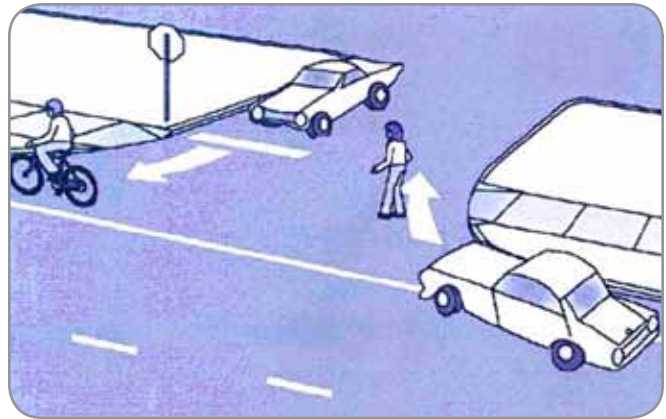
- The sidewalk continues across the driveway at the same elevation or level.
- The driveway apron does not go through the sidewalk.

Ramps may be necessary at intersections when pedestrians cross the street, but the rest of the sidewalk network should be continuous and at one level. At driveways, there is no need to break the sidewalk network. Driveways should not look like intersections. Radius driveway designs, like the one pictured on the right, encourage higher turning speeds and makes it less likely that the drivers will yield to pedestrians on the sidewalk.

Providing a level, continuous sidewalk not only brings the sidewalk up to the standards of universal access for persons in wheelchairs, but also changes driver behavior. The driver exiting or entering the driveway is more aware that they are crossing a sidewalk, will proceed more slowly and is more likely to stop. Wing-type driveways (see illustration) also cause slower turning movements.

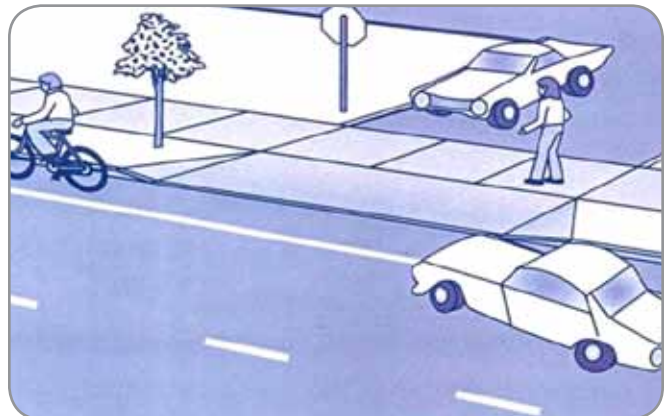
Alternative driveway designs for constrained spaces can be used. When there is not room for a full driveway apron, some alternative driveway designs can still comfortably maintain the level pedestrian pathway across the driveway. This will avoid cross-slope problems for wheelchair users.

Fewer driveways and narrower driveway crossings will provide for improved pedestrian safety for children, especially for busy commercial zones. School walking routes should keep busy driveway crossings to a minimum. If young students are required to cross a busy school driveway, an adult should be assigned to monitor or direct the students at the driveway.



Dan Burden

Radius-type driveways allow higher motor vehicle speeds. Driveways should not be designed like this.



Peter Lagerwey

Wing-type driveways provide the best pedestrian crossing as long as the driveway apron does not extend into the sidewalk area.



Peter Lagerwey

Sidewalks must allow a flat driveway crossing that is at least three feet wide with a side slope of less than 2 percent.

Treatment: Driveway Design and Location

Description/Purpose

Designing driveway crossings for pedestrians can improve the walking environment, improve visibility and reduce conflicts between drivers and pedestrians. Reducing the number of driveways can make it easier for people with disabilities to access and walk on the sidewalk.

Expected Effectiveness

Proper driveway design and placement can improve the safety of the pedestrian environment.

Costs

Costs will vary by project; no additional cost if part of original construction project.³

Keys to Success

- For best results, driveways should be properly designed and consolidated at the outset. Local regulations can govern appropriate design when driveways are created.

Key Factors to Consider

- Projects that propose to retrofit or consolidate driveways after they are built should include an adequate level of public involvement and education to gain support from the community.

Evaluation Measures

- Reduced conflicts at driveways for pedestrians, bicyclists and drivers.

Bikeways

Providing student travel facilities along the street is not just about walking, but about bicycling too. Bicycling is an important way for children to travel to and from school. Bicycling can help students who live too far from school to walk to participate in active transportation. Use of on-street facilities is more appropriate for upper elementary school and older children who have sufficient bicycle handling skills and knowledge of bicycle and traffic safety rules. See the Education chapter for more information. On-street bicycle facilities discussed in this section:

- Bicycle routes and maps designating streets for bicycling.
- Bicycle lanes.
- Shared lane markings.
- Paved shoulders.
- Bicycle boulevards.

Streets

Most bicycling occurs on neighborhood streets where children live and go to school. Trails and pathways can complement, but certainly are not a substitute for, the residential street network. A considerable amount of all bicycling occurs on the street system, and for children especially, most will occur in the streets near where they live. Some communities have designated special bicycle routes that are marked with guide signs. Other communities have provided maps showing streets that are ideal for bicycling.

Children of all ages, even high school students, will bicycle to school if given the opportunity. When designating bicycle routes to encourage bicycling to school, target all age groups, including elementary, middle, junior high and high school students.

Bicycle Lanes

Bicycle lanes provide a striped and stenciled lane for one-way bicycle travel on roadways. Bicycle lanes offer a comfortable space for older or more experienced children to ride. Bicycle lanes have been positively associated with an increase in the share of commuting by bicycle to work.^{19,20} Typically, bicycle lanes are installed on road-



Bicycle helmet use should be strongly encouraged and mandated where required by law.



Peter Lagerwey

Older students will ride if given the opportunity.



Dan Burden

Bicycle lanes should include the lane line and bicycle lane symbol.

ways with higher traffic speeds and volumes. However, where the lane is directly serving a school, communities may elect to stripe bicycle lanes on low-traffic residential streets in order to provide an additional level of visibility for younger bicyclists.

Bicycle lanes located next to motor vehicle parking should be at least five feet wide. The preferred width of bicycle lanes next to a curb is also five feet, although four feet, excluding the gutter pan, may be adequate. Bicycle lanes should not be wide enough to accommodate a motor vehicle as drivers may attempt to use a wide bicycle lane as a travel lane. Bicycle lanes should be designated through the use of signs or painted symbols and motor vehicle parking restrictions. Accommodating bicycle lanes within an existing roadway right-of-way may be a challenge.

Some communities have established school bicycle safety routes and bicycle lanes that are functional just during school commute hours. Because these installations can conflict with existing on-street parking, some cities have experimented with “time-of-day” bicycle lanes; the parking lane becomes a bicycle lane during school hours and then reverts to on-street parking for evening and overnight. One disadvantage to this concept is that overnight parking may block the bicycle lane during the start of the bicycle lane hours.

Shared Lane Markings

A Shared Lane Marking (SLM) is placed in a travel lane to indicate the lateral positioning of a bicyclist. Where parking is allowed, it may help reduce the chance of a bicyclist impacting the door of a parked car. This mark-



ing may also help to increase the distance between a bicyclist and an overtaking motorist.

Shared Lane Markings are particularly useful when marked bike lanes are not an option due to street width or other factors, and can be used to link bicycle lanes within a comprehensive bicycle network.

Note that Shared Lane Markings should not be placed on roadways that have a speed limit above 35 mph and can not be placed on road shoulders or in designated bicycle lanes.

Information on Shared Lane Markings, including proper placement, can be found in Section 9C.07 of the 2009 MUTCD (<http://www.fhwa.dot.gov/publications/research/safety/pedbike/10041/10041.pdf>).

Shoulders

Paved shoulders benefit both bicyclists and drivers. They provide a place for bicyclists to ride that is removed from the motor vehicle travel lane and reduce the likelihood of crashes from motor vehicles drifting out of their travel lane (run off the road crash). Building shoulders on existing roadways or including them in new roadway projects can often be justified by the safety benefit provided to drivers. While pedestrians can walk along shoulders, shoulders should not be considered a good substitute for sidewalks in urban areas.



Wide shoulders can accommodate groups of bicyclists.

Paths

Separated multi-use paths (sometimes known as shared-use paths) are passageways that are used to increase the connectivity of the pedestrian and bicycle network. Paths can connect neighborhoods directly with schools and shorten the distance children must walk or bicycle. However, paths must be designed properly, especially where they intersect roadways, to minimize the risk of pedestrian and bicyclist crashes. Guidelines for designing paths are available in the Federal Highway Administration's Designing Sidewalks and Trails for Access Part 2 Best Practices and Design Guide at www.fhwa.dot.gov/environment/sidewalk2/sidewalks214.htm and in the American Association of State Highway and Transportation Officials' Guide for the Development of Bicycle Facilities.

Guidelines for the width of a multi-use path can range from eight to 14 feet or more.²² Under most conditions, the recommended minimum width for a two-direction path designed for bicyclists and pedestrians is ten feet. However, when heavy traffic is expected, a path width of 12 to 14 feet is preferred. In some instances, a width of eight feet can be adequate, especially if the proportion of bicyclist or pedestrian travel is small and the overall number of users is not large.²³



Separate multi-use paths often provide a safe and more convenient alternative to riding or walking along a street and can be an integral part of the school walking and bicycling route plan.

Abandoned rail lines and utility corridors often make excellent corridors for multi-use paths. Pavement for multi-use paths can be asphalt or concrete. Measures should be taken to keep motor vehicles off of the path, yet allow maintenance vehicles to have access. This can be accomplished with removable posts (bollards) that lock into place. The space between posts should typically be about five feet wide to prevent motor vehicle access, but comfortably allow bicycle access. Agencies need to monitor conditions along the path for maintenance and repair. School officials, students and other path users can be a good source of information to alert the agency when bushes need trimming along the path or the surface is in need of debris removal or repair.

Treatment: Paths

Description/Purpose

Paths are passageways that are used to increase the connectivity of the pedestrian and bicycle network.

Expected Effectiveness

The presence of paths can increase the number of walking and bicycling trips made and decrease the time and distance it takes to travel from one point to another.

Costs

Costs vary by project conditions and scope. Availability of right-of-way can significantly change the total cost of projects.

Keys to Success

- Provide signs to show pedestrians and bicyclists how to access the path network and where it leads.
- Path designs should incorporate the appropriate width and/or number of lanes for the anticipated pedestrian and bicycle traffic.
- Paths should connect frequently visited origins and destinations.

Key Factors to Consider

- Considerations for lighting, maintenance and safety should be made.
- Acquiring easements can be a challenge.

Evaluation Measures

- Pedestrian and bicycle volume.

Connectivity

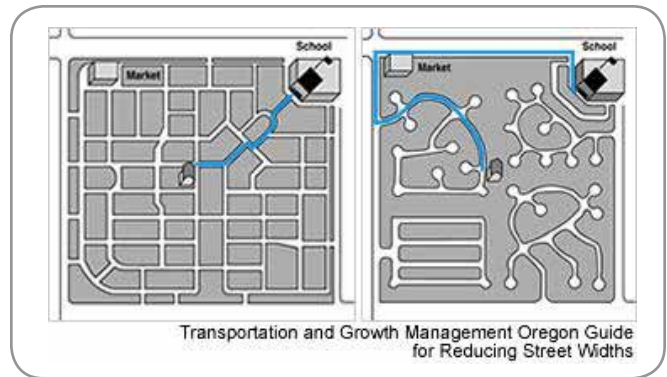
The connectivity of various bicycle and pedestrian facilities directly impacts the ability to walk or bicycle to school. Characteristics of a well-connected road or path network include short block lengths, numerous three and four-way intersections and minimal dead-ends (cul-de-sacs).²⁷ As connectivity increases, travel distance decreases and route options increase. A network of streets, sidewalks, bicycle lanes and paths in which all parts are well-connected to each other reduces the distance children have to travel to get from home to school, allows for the use of more local streets rather than major roadways and provides a greater choice of routes to travel to and from school.



David Parisi

Paved paths connect cul-de-sacs in this community.

Street layout directly impacts the ability to walk or bicycle to school. Frequently, the layout of subdivision streets makes distances much longer than they need to be. Long neighborhood block lengths and cul-de-sacs contribute to this problem. Neighborhoods that are designed with long blocks and numerous cul-de-sacs are often barriers to walking and bicycling to school; they reduce connectivity and increase travel distance between the home and school.



The diagram on the left illustrates a street layout based on a grid system and the diagram on the right illustrates a layout which consists of many dead end streets with few exits or entrances. The diagram on the left provides a greater street connectivity than the diagram on the right. A trip from home to school for a child who lives in the neighborhood on the left is feasible on foot or by bicycle. It features a short distance using local streets, with no major streets to navigate. For the child who lives in the neighborhood on the right, the trip is longer and takes place mostly on busy streets. As a result, many parents will choose to drive their child to school which will overburden the arterial street system and create unnecessary traffic congestion at the school.

To help solve the cul-de-sac issue, connector paths between cul-de-sacs and other destinations can be constructed:

- At the time when the subdivision is first developed.
- As a voluntary retrofit.
- As a mandatory retrofit when the property is sold or redeveloped.



Peter Lagerwey

Connectivity is an important consideration when making a community walkable.

Treatment: Increasing Connectivity

Description/Purpose

Increasing connectivity of streets, paths and sidewalks reduces travel distances and makes it easier for pedestrians and bicyclists to access destinations.

Expected Effectiveness

The presence of paths, bridges or other neighborhood connectors can increase the number of walking and bicycling trips and decrease the time and distance it takes to travel from one point to another.

Costs

Costs vary by project conditions and scope; no additional costs are associated when connectivity is included in initial construction.

Keys to Success

- Sidewalk and roadway connectivity should be considered at the outset of design.
- Developments can be retrofitted for connectivity with the use of cut-throughs.

Key Factors to Consider

- Increasing roadway connectivity may sometimes cause an increase in unwanted through-vehicle traffic. Appropriate studies should be performed to estimate the effects of increasing roadway connectivity.
- It may be possible to retrofit existing, poorly connected street networks with a pedestrian path, bridge or sidewalk to increase connectivity.

Evaluation Measures

- Pedestrian and bicycle volume.

Bike Racks

Students must have a functional, secure place to park their bike once they reach school. Not having a well planned bicycle parking option can lead to several undesirable outcomes, such theft, damage and locked bikes in or on critical safety infrastructure like emergency exits, hand rails and fire hydrants.

According to the Association of Pedestrian and Bicycling Professionals Bicycle Parking Guidelines, there are four elements to a bicycle rack system:

1. The Rack Element

The rack element is the part of the bike rack that supports one bicycle. A good bike rack element holds the bike frame without bending the wheel and should have no moving parts. Rack elements are typically constructed of metal in an inverted u-shape, which allows for a variety of bicycle sizes and locks.

2. The Rack

A rack is one or more rack elements joined on any common base or arranged in a regular array and fastened to a common mounting surface. Anchor the rack so that it cannot be stolen with the bikes attached and provides easy, independent bike access. Inverted u-shaped rack elements mounted in a row should be placed on 30" centers, allowing two bicycles to be secured to each rack element.

3. The Rack Area

The rack area is a bicycle parking lot where racks are separated by aisles and may contain one or more racks. If possible, the rack area should be protected from the elements using any combination of structures, like a wall and awning. Try to avoid locating a bike rack area on grass or dirt as a rainy day can turn the bicycle parking lot into a mess. Instead, locate the bike rack area on a concrete pad.

4. The Rack Area Site

The rack area site is the relationship of the rack area to a building entrance and approach. Locate the bike rack area within visibility of the building

entrance it serves and consider the route cyclists' use to approach that entrance. Bike rack areas should be sited in a space that minimizes vandalism and maximizes use, while avoiding conflicts with driveways, buses, and large numbers of pedestrians.

Ideally, rack areas should be sited as close, or closer, than the nearest car parking space and provided near all high traffic building entrances. When choosing between a larger bicycle rack area or multiple smaller rack areas, it is preferred to choose multiple locations that are more convenient to users.



Crossing the Street

A child's journey to school on a bicycle or by foot will likely require crossing one or more streets. Many situations arise at street crossings that can impact the safety of the crossing for all pedestrians. Underlying good, safe design at pedestrian crossings is the need to keep the street crossing simple. The development of safe crossings for children is guided by several principles including the need to:

1. Establish or identify good crossing locations.
2. Reduce crossing distances.
3. Provide crossings that are direct, so that children with visual impairments can easily negotiate them,
4. Use appropriate traffic controls such as marked crosswalks, traffic signals and warning signs or flashers.
5. Slow motor vehicle speeds.

Engineering improvements recommended for creating safer routes to school are based on these principles. This section describes a variety of treatments that are used to create safer street crossings:

- Tools to reduce crossing distances for pedestrians.
- Marked crosswalks.
- Traffic signals.



Dan Burden

Street crossings are a vital part of the safe school route.

Putting It Into Practice: School Crossing Audit Procedure Phoenix, AZ

Phoenix, Arizona, has developed an audit procedure to evaluate individual school crossings to identify if any improvements can be made at the crossing and to identify locations where extra attention is needed. The audit procedure normally is conducted by a traffic engineer, a police representative and representatives from the school and school district. A separate audit form is completed for each individual crosswalk, and audits are performed on the major crossings. Audits are conducted when children are crossing, which allows for an evaluation of the crossing guard procedures. This also allows the guard to provide their input on traffic and other conditions at the crossing. A point system was developed for various conditions at the crossing; once the audit is completed, a letter summarizing findings and recommendations is sent to the principal and the district offices. Once the improvements are implemented, a follow-up audit is conducted to further monitor conditions. Over 200 audits have been completed and they have resulted in various improvements including new signs and crosswalks, street lights, curb ramps, larger waiting pads, stand-back lines, specialized crossing guard training, extra law enforcement and the installation of traffic signals.

See the City of Phoenix's School Crossing Safety Audit at www.saferoutesinfo.org/guide/engineering/phoenix_school_crossing_safety_audit.pdf

Putting It Into Practice: Swansfield Walk To School Day

Swansfield Elementary School, Columbia, MD

Swansfield Elementary School in Columbia, MD held its first Walk to School Day in 2005. The event was so popular that the school launched a Safe Routes to School program soon afterwards. From the outset, Swansfield's program involved students with disabilities. During Walk-to-School days, the school designated an alternative bus drop-off location a short distance from the school (along a school walking route) so that children who could not walk to school would be able to participate — including students with disabilities who receive special busing services. Teachers and parent volunteers were posted at the alternative location to assist special education students so that they were fully involved in the event and were able to walk to school with their peers.



David Parisi

In addition to ensuring that SRTS encouragement programs included students with disabilities, Swansfield used SRTS grant money (including federal and local funds) to improve accessibility to the campus, including eliminating key sidewalk gaps and installing ADA-compliant curb ramps.

Tools to Reduce Crossing Distances

Wide, multilane roads are barriers to walking and bicycling to school. If children cannot cross multilane roads then they are, in essence, trapped in their neighborhoods, unable to walk or bicycle to school or to play and explore outside of their immediate neighborhood.

School walking routes and big roads do not mix. High-speed, busy, multilane roads are a barrier to walking and bicycling. In an effort to provide safe routes for children, such roads should mark the boundary of a school walking zone. Ideally, school attendance boundaries should be designated along the major arterial streets to avoid the need for young children to cross them, and schools should be built within neighborhoods, not on the other side of busy streets from students' homes.

The distance required to cross a street and the length of time that a pedestrian is exposed to traffic can be shortened with curb extensions and crossing islands. Curb extensions, also known as curb bulbs or bulb-outs, reduce the distance pedestrians must walk in the street, while crossing islands also simplify a crossing by breaking it into two pieces.



Dan Burden

Wide crossings can be barriers to children.



Elementary school children should not have to walk across wide, complex intersections like these for their school commute.

On the street, pedestrian, and bicycle facilities that are covered in this section:

- Bicycle routes and maps designating streets for bicycling.
- Bicycle lanes.
- Shared lane markings.
- Paved shoulders.
- Bicycle boulevards.

Pedestrian and Bicycle Bridges and Underpasses

There are locations where a pedestrian bridge or underpass is the only way for pedestrians and bicyclists to cross the street, such as when children would otherwise be forced to cross freeways or major multi-lane arterial streets to get to or from school. However, the benefits of bridges and underpasses must be weighed against their substantial costs, which can be \$2 million or more. The convenience of bridges and underpasses should also be considered. If they require pedestrians and bicyclists to follow an indirect path, they are unlikely to be used. Some schools station adult crossing guards at nearby bridges to ensure that students use them.

Curb Extensions

Curb extensions narrow the roadway and reduce the crossing distance by providing an extension of the sidewalk area into the parking lane. This brings pedestrians out from behind parked motor vehicles and helps pedestrians and drivers to better see each other. This is especially important for smaller children who are often invisible behind parked motor vehicles and may take longer to cross the street. For main streets, reducing the crossing time permits the green-light time for the major street traffic to be increased proportionately.²⁸ A curb extension also can slow turning vehicles and prevent drivers from parking on or near a crosswalk. Curb extensions must be designed to accommodate drainage. There are cases where curb extensions may not be needed or desirable on every leg of an intersection, such as when the street leg is narrow, parking is not permitted, or the curb would interfere with a bicycle lane or the ability of fire trucks or other large vehicles to negotiate a turn.²⁸



Pedestrian bridge at Isaac Middle School in Phoenix, AZ. Image provided by Mike Cynecki.



Curb extensions prevent motorists from parking too close to the intersection.

Treatment: Curb Extensions

Description/Purpose

The extension of the curb out from the sidewalk and into the street, typically at an intersection. Curb extensions increase pedestrian visibility and decrease pedestrian exposure distance in the street, crossing time and vehicle turn speeds.

Expected Effectiveness

- Better sight distances for pedestrians and drivers.
- Motor vehicles cannot park in, or too near, crosswalks if curb extensions are properly designed.
- Increases driver awareness of pedestrians.

Costs

Costs vary widely, ranging from \$2,000 to \$20,000, depending on details of design, drainage and movement or removal of utility poles or controller boxes.³

Keys to Success

- Adequate lighting is needed to keep drivers from running into the curb extension.

Key Factors to Consider

- Curb extensions work best when installed on streets that have on-street parking (parallel, diagonal or perpendicular).
- Curb extensions should be designed to accommodate large vehicles and bicycles, as appropriate.
- Drainage issue must be addressed.

Evaluation Measures

- Number of crashes involving pedestrians.
- Severity of crashes.
- Speeds of through and right-turning motor vehicles.

Crossing Islands

Pedestrian crossing islands (also known as refuge islands) are raised islands located in the middle of a street that narrow the travel lanes at that location. These can be located at an intersection or midblock. Crossing islands simplify and reduce the pedestrian exposure time at a crossing. By breaking the crossing into two stages, crossing islands improve pedestrian wait time, reduce crossing distance and allow pedestrians to focus on one direction of traffic at a time. Crossing islands are designed with a gap that is level with the street to allow wheelchairs and pedestrians to cross through the island. Crossing islands provide refuge for those who begin crossing too late or are too slow to cross the entire street in one signal cycle.²⁸



Cara Seiderman

Raised crossing islands simplify the crossing and provide a safe refuge in the street.

Treatment: Crossing Islands

Description/Purpose

Raised medians in the middle of a street at an intersection, midpoint of the block or continuously along street. They protect crossing pedestrians from oncoming traffic by serving as a barrier from motor vehicles, reduce crossing distance and allow pedestrians to focus on one direction of traffic at a time.

Expected Effectiveness

Significant reduction in pedestrian crashes on multi-lane streets and on multi-lane streets at unsignalized crossing locations.^{29, 30}

Costs

- Costs vary widely depending on the length and type of individual crossing islands, ranging from \$6,000 to \$200,000.¹⁸
- Continuous raised medians cost \$15,000 to \$30,000 per 100 feet depending on conditions.³

Keys to Success

- Most effective on high volume, multi-lane streets.
- Should be accessible to pedestrians with a visual impairment or in wheelchairs.
- Adequate lighting and markings can help to ensure driver awareness of crossing islands.

Key Factors to Consider

- Landscaping, utilities and maintenance issues must be addressed in the overall design.
- Can benefit motor vehicle safety as well by reducing head-on vehicular crashes.
- Potential business opposition due to loss of left-hand turn ability.
- May conflict with right-hand turns for large vehicles.
- Must be Americans with Disabilities Act-compliant.

Evaluation Measures

- Number of pedestrian crashes.
- Number of vehicular crashes, especially left-hand-turn crashes, angle crashes at driveways and head-on vehicle-vehicle crashes.

Crossing Islands for Offset or Two-Stage Crossings

Another innovation in crossing islands is to stagger or offset the two halves of the crosswalk at the island. This further reinforces the concept of a two-stage crossing and separates the crossing of each direction of traffic. The median island is fenced and directs the pedestrian to face traffic once they reach the center island, before crossing the second half of the street. The median island must be fully wheelchair accessible.



Michael Cynecki

Two-stage crossing island at Sunnyslope High School in Phoenix, Arizona.



Michael Cynecki

Diagrammatic sign on a two-stage crossing island in Phoenix, AZ. Image provided by Mike Cynecki.

A diagrammatic sign installed in a two-stage crossing island can be quite helpful in alerting pedestrians about possible dangers from moving vehicles when the closest lane of traffic stops.

For more information on staggered medians visit PedSafe's "Staggered Median" case study Tucson, Arizona (http://www.walkinginfo.org/pedsafe/casestudy.cfm?CS_NUM=34).

Waiting Areas and Stand-back Lines

Larger waiting areas and stand-back lines are low cost measures to improve safety at busy crossings. Large groups of students should not be waiting to cross immediately next to high-speed moving traffic. Waiting areas at crosswalks can be provided along with stand-back lines painted to keep children further back from busy streets when waiting to cross.

When adequate waiting areas and stand-back lines are provided, the adult school crossing guard should be the only person between the curb and the stand-back line. The stand-back line gives the guard something to point at when telling children to stand back from the street.



Michael Cynecki

Waiting areas and stand-back lines keep students further back from busy streets when waiting to cross in Phoenix, Arizona.

Treatment: Waiting Areas

Description/Purpose

Extra paving at busy crossings where large numbers of pedestrians can congregate before crossing the street without having to stand on landscaping, dirt or mud.

Expected Effectiveness

Waiting areas provide a separation between moving traffic and students, bicyclists and parents with strollers waiting to cross.

Costs

Costs range from \$500 to \$1,500 depending on the size of the additional waiting area.

Keys to Success

- Working with schools to evaluate the crossing and making sure the waiting area is large enough to accommodate potential pedestrian volumes.

Key Factors to Consider

- Potential need for larger sidewalk easement.
- Potential relocation of landscaping and/or utilities.

Evaluation Measures

- Pedestrian capacity of waiting area.

Treatment: Stand-back Lines

Description/Purpose

A painted line on the sidewalk at a crossing, typically 5 to 10 feet from the back of the curb line, which pedestrians wait behind before crossing.

Expected Effectiveness

Increases pedestrian safety by increasing the distance between waiting pedestrians and vehicular traffic. The line also gives something for the crossing guard to point at when telling students where to wait before it is safe to cross the street.

Costs

Stand-back lines are extremely inexpensive, with an average cost of \$50; however, the lines may need repainting annually.

Keys to Success

- Ensuring a large enough waiting area, but stand back-lines can also be effective on narrow sidewalks.

Key Factors to Consider

- Ensuring the stand-back line is in good condition (visible) at the start of each school year. Colors for blue-stake markings should not be used.

Evaluation Measures

- Pedestrian-vehicle conflicts.

Putting It Into Practice: Student Waiting Pads and Stand Back Lines Phoenix, AZ

These images highlight the differences before and after a waiting area and stand-back line were installed at RE Miller Elementary School in Phoenix, AZ.

Unfortunately, many school crossings are at busy streets, and many of the sidewalks in Phoenix were built prior to the time when sidewalk buffer areas were required as a part of the design to separate pedestrians and motor vehicle traffic. It is important to provide a separation between moving vehicles and young children waiting to cross a busy street. This is not possible with a five foot-wide sidewalk.

One such school crossing was identified by the Washington Elementary School District in northwest Phoenix. This is a crossing for RE Miller Elementary School for nearly 100 children over a busy five-lane street with nearly 40,000 motor vehicles per day. Despite the presence of two crossing guards and a 15 mph school zone, the school district expressed a concern about the large groups of children waiting on a five-foot wide sidewalk before crossing.

The school district, City, and property owners worked together on a solution to provide a safe area for students to wait. The property owner (church) provided an easement to build a 10 ft by 20 ft waiting area behind the sidewalk. The school district moved the existing wood fence behind the new student waiting pad, and the City modified the landscaping behind the sidewalk, poured a concrete pad for students, and placed a 'Stand-Back' line between the sidewalk and student waiting area. These low-cost and low-tech measures provided a considerable safety benefit at the crosswalk. Since then, Phoenix has built nearly 80 student waiting areas at major crossings where large numbers of students congregate before crossing. Even more of the painted 'stand-back' lines have been installed at numerous school crossings.

This example illustrates that you do not have to spend a lot of money to obtain a big safety dividend. Some of the least expensive measures can have a big impact on safety.



Before

Michael Cynecki



After

Michael Cynecki

Road Diets

Street crossings are safer for pedestrians when there are fewer lanes to cross. Multiple lane threat is a problem that arises when pedestrians have to cross more than one lane in each direction. A multiple-threat pedestrian crash is a crash that occurs when a motor vehicle in one lane stops and provides a visual screen to the driver in the adjacent lane. The driver in the adjacent lane continues to move and hits the pedestrian. This type of collision, where the pedestrian is hit in the second, third or fourth lane, is common on multilane roads and typically results in a more serious collision due to a higher impact speed. Additionally, providing yield lines and set-back stop lines can reduce the risk of a multiple threat crash, as discussed later in this chapter.

One way to reduce the multiple lane threat to pedestrians is to decrease the width of the road and number of lanes that pedestrians must cross. This “road diet” is one of the best tools to improve the safety of pedestrian crossings by reducing the number of through lanes for motor vehicles. The next three images illustrate the road diet applied to a four-lane roadway that is difficult to cross. Pedestrians must cross four travel lanes, there is no center pedestrian crossing island, no buffer between the road and sidewalk and there is no designated space for bicyclists. Additionally, it is difficult for drivers to make left turns into the driveways and side streets along this road.

Through the road diet, the roadway has now been reduced from four lanes to three lanes, one lane in each direction plus a two-way center turn lane. There is now room to install bicycle lanes, and the bicycle lanes create a sidewalk buffer for pedestrians. This road diet was accomplished with paint, which has a relatively small cost and requires no construction.

A much better pedestrian connection along this roadway is now possible. The restriping of this roadway improves pedestrian crossings along the entire corridor since pedestrians only cross two through lanes, versus four lanes of travel. This roadway configuration also allows for the placement of crossing islands at some locations. Adjacent residents and businesses also benefit from this change because left turns into and out of their property



Peter Lagerwey

In this image, the pedestrians have crossed over the first of two lanes. The driver in the inside lane has stopped to let them cross. However, the driver in the outside lane has not seen the pedestrians and is still moving.



Dan Burden

This four-lane road is difficult for pedestrians to cross before the road diet.



Dan Burden

This shows the same road converted to three lanes plus bicycle lanes after the road diet.

are now easier. Thus, road diets can benefit pedestrians, bicyclists, drivers and adjacent businesses.

The center lane can be supplemented by landscaped crossing islands with dedicated left turn pockets at some locations. In the end, road diets are one of the best improvements to create a balanced transportation system that meets the needs of all users, including children on their journey to school.



Dan Burden

Pedestrian crossing islands can be added in the center lane at select crossing locations.

Treatment: Road Diet

Description/Purpose

Road diets are reductions of lanes on multilane roadways that can reduce crossing distances, as well as motor vehicle speeds, providing safety benefits to pedestrians, bicyclists and drivers. Road diets can also redistribute space to bicyclists and pedestrians by creating room for bicycle lanes and sidewalks.

Expected Effectiveness

Narrowing roadways and/or reducing the number of lanes that pedestrians are required to cross can result in slower motor vehicle speeds and reduced crossing exposure time, corresponding to a reduction in pedestrian crashes.

Costs

Costs vary depending on the scope and scale of the road diet.

- The cost of restriping a four-lane street to one lane in each direction, a two-way left-turn lane and bicycle lanes is about \$5,000 to \$20,000 per mile, depending on the number of lane-lines that must be repainted.
- Net costs may be lower for road diets when restriping a roadway after a resurfacing project.
- The cost of adding sidewalks and raised medians is much higher, estimated at \$100,000 per mile or more.³

Keys to Success

- Considerations must be made for overall safety and roadway capacity operation.
- It is also desirable to include the entire affected area in the decision-making process.

Key Factors to Consider

- Reducing the number of lanes may result in lower motor vehicle capacity and increased delay for drivers in some situations.
- A level-of-service analysis should be conducted to determine whether the number of lanes on a roadway is appropriate and how alternative routes will be impacted by a road diet.

Evaluation Measures

- Reduction in motor vehicle speed or reduction in crashes and/or crash severity involving crossing pedestrians or bicyclists.

Marking Crosswalks

A marked crosswalk can benefit pedestrians by directing them to cross at locations where appropriate traffic control, including traffic signals or adult school crossing guards, either currently exist or can be provided. However, marked pedestrian crosswalks in and of themselves do not slow traffic or reduce pedestrian crashes.

It may be helpful to install marked crosswalks at signalized intersections or locations where crosswalks are typically marked, at key crossings in neighborhoods with designated school walking routes, and at uncontrolled crossings.

There are several reasons to install marked crosswalks, a few being:

- To indicate a preferred pedestrian crossing location.
- To alert drivers to an often used pedestrian crossing.
- To indicate school walking routes.

Marked Crosswalks at Uncontrolled Crossings

Marked crosswalks at uncontrolled intersections must be carefully designed to ensure that they enhance, rather than reduce, pedestrian safety. In some circumstances marked crosswalks should not be installed unless measures are taken to reduce traffic speeds, shorten crossing distances, enhance driver awareness, and/or provide an active warning of pedestrian presence.

Marked crosswalks alone (without other substantial treatments) should not be installed across uncontrolled roadways where the speed limit exceeds 40 mph or either:

- The roadway has four or more lanes of travel without a raised median or pedestrian refuge island and an ADT of 12,000 vehicles per day or greater; or
- The roadway has four or more lanes of travel with a raised median or pedestrian refuge island and an ADT of 15,000 vehicles per day or greater.

Note: The wording above complies with the 2001 Traffic Control Device Handbook, Chapter 13. The exact wording in the 2009 MUTCD on this issue is currently worded slightly differently and is being considered for revision by FHWA.



IWALK 2005

A marked crosswalk guides students along the school walking route to Ocoee Elementary School in Orlando, Florida.

.....

*It is important that both
drivers and pedestrians
clearly see the crossings.*

.....

Marked crosswalks should be designed to minimize crossing distances and should be straight, to make them easier for children with visual impairments to navigate. In many cases, crosswalk enhancements including raised median islands, traffic and pedestrian signals, or street lighting may also be needed. More substantial improvements are typically needed on high-volume multilane roads.

Treatment: Marked Crosswalks

Description/Purpose

Marked crosswalks are painted pedestrian crossings that specify proper locations for pedestrians to cross the street.

Expected Effectiveness

Properly placed marked crosswalks can encourage pedestrians to walk at preferred crossing locations while increasing the visibility of a pedestrian crossing and driver awareness. There is no proven reduction in pedestrian crashes resulting from marking crosswalks without adding other more substantial crossing treatments such as raised medians, traffic and pedestrian signals or improved nighttime lighting.

Costs

Costs range from \$100 for a regular striped crosswalk to \$300 for a ladder crosswalk to \$3,000 for a patterned concrete crosswalk.³ Maintenance costs should also be considered based on the paint material used.

Keys to Success

- Locations chosen to have marked crosswalks should be convenient, accessible and in the direct pedestrian route.^{28, 30} For more information see the Institute of Transportation Engineers Traffic Control Devices Handbook, 2001 and Zegeer, 2002.

Key Factors to Consider

- On multilane, high volume roads, substantial treatments, including raised medians, are also needed so pedestrian crash risks do not increase.
- Crosswalk markings must be placed so that the curb ramp is within the crosswalk.

Evaluation Measures

- Reduction in motor vehicle conflicts and increase in pedestrian activity within the crosswalk.

High-Visibility Crosswalks

Marked crosswalks guide pedestrians and alert drivers to a crossing location, so it is important that both drivers and pedestrians clearly see the crossings. Crosswalks can be marked in paint or a longer lasting plastic or epoxy material embedded with reflective glass beads. Although more expensive, longer-lasting crosswalk marking materials are a better value over time as they require less maintenance.

The minimum crosswalk width is six feet wide, but school-related crosswalks should be 10 to 15 feet wide or wider at crossings with high numbers of students. School-related crosswalks should be checked annually before the start of the school year. If necessary, fresh paint should be applied and other improvements made to keep the crosswalks in good condition.

The MUTCD allows for two high-visibility crosswalk designs, ladder and diagonal markings.



Crosswalk A is a traditional parallel line crosswalk. Crosswalk B is high-visibility crosswalk with a ladder design

Signing Crosswalks

In-street signs

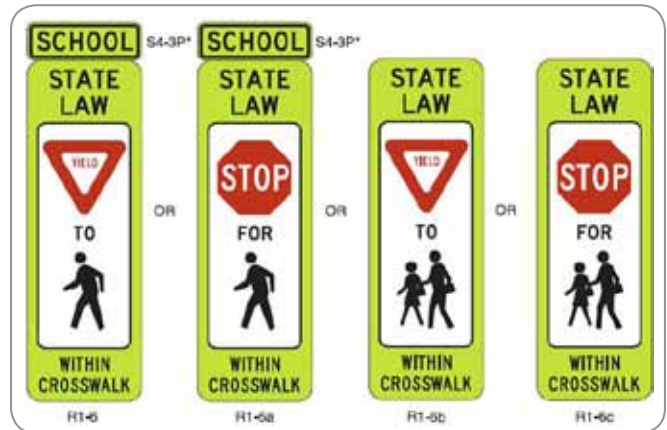
In-street crosswalk signs can be installed at unsignalized pedestrian crossings to make the crosswalk more visible and increase driver yielding. They are more effective on two-lane, low-speed streets than on multi-lane, high-speed streets, and are prohibited by the 2009 MUTCD at signalized intersections. They can be easily damaged and need to be reset or replaced when struck.

In-street pedestrian crossing signs should be placed at the crosswalk in the street or on a median, but should not obstruct the pedestrian path of travel. In-street signs can be permanently installed in the roadway or mounted on a portable base to allow them to be taken in and out of the street during the school day. When portable in-street signs are used for school crossings, they should be monitored by a school official or adult school crossing guard.

The MUTCD allows for two high-visibility crosswalk designs, ladder and diagonal markings.

Overhead signs and flashing beacons

School crosswalks with overhead signs (and sometimes flashing beacons) may be helpful in alerting drivers of a busy crossing at a wide or higher speed street. These are usually placed at mid-block crossings but can be used at intersections with uncontrolled crossings. Overhead signs are easier for drivers to see in cases where on-street parking, street trees, or other visual obstructions. Flashing beacons at a marked crosswalk may draw additional attention to the crosswalk. In a busy urban environment, flashing beacons may not provide much benefit, while on a rural road, they may increase driver awareness of the crosswalk. In other locations the beacons are set with a timer to flash only during crossing times, or are pedestrian-activated by an automatic detector or push button and only flash when pedestrians are present.



In-street yield and stop signs. The 2009 MUTCD added a new option to use the schoolchildren symbol rather than the pedestrian symbol when an in-street sign is used at a school crossing. Image from the 2009 MUTCD.

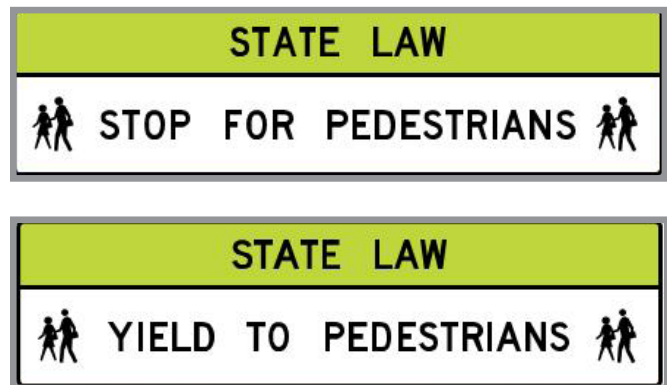


Figure 1 Overhead pedestrian crossing sign. The 2009 MUTCD allows the use of the schoolchildren symbol as shown in the modified image above. Image from the 2009 MUTCD.

Rectangular Rapid Flashing Beacon

Rectangular rapid flashing beacons (RRFBs) are active warning devices used to alert motorists of crossing pedestrians at uncontrolled crossings. They remain dark until activated by pedestrians, at which point they emit a bright, rapidly flashing yellow light, which signals drivers to stop.

Studies suggest that RRFBs can significantly increase yielding rates over standard pedestrian warning signs. Results have shown that motorist yielding can be increased from baselines averaging 5% to 20% with the standard pedestrian warning sign treatment to sustainable yielding rates of 80% with this device.

RRFBs should be installed on both the right and left sides of the crosswalk, or in a median if available. They are not currently included in the MUTCD, but jurisdictions can use them if they obtain approval from FHWA.

In-pavement Flashers

Crosswalks with in-pavement flashers, or ‘flashing crosswalks,’ consist of embedded lights that are activated when a pedestrian pushes a button or starts walking across the crosswalk. The 2009 MUTCD allows them at uncontrolled crossings to further alert drivers to crosswalks at night but does not allow them at crosswalks controlled by traffic signals, STOP signs or YIELD signs. Crosswalks with in-pavement flashers are expensive to install and maintain, and should not be selected without first considering other solutions.

A 2009 review of literature on in-pavement flashing lights may be found on the Pedestrian and Bicycle Information Center’s website. For more information on case studies related to in-roadway warning lights visit 2004 PEDSAFE “School Zone Improvements” (http://www.walkinginfo.org/pedsafe/casestudy.cfm?CS_NUM=27). Cupertino, California case study. Evaluations of use of in-roadway warning lights are available from Washington and Florida.



Image: Provided by PBIC Designing for Pedestrian Safety Course.



In-pavement flashers at crosswalks are also an option that can be considered.

Advance Stop/Yield Line

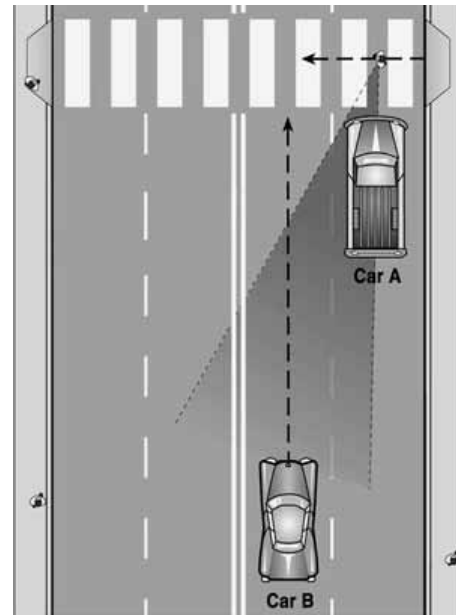
Advance stop or yield lines encourage drivers to stop further back from the crosswalk, promoting better visibility between pedestrians and motorists, and helping to prevent multiple-threat collisions particularly at mid-block or uncontrolled crossings.

A multiple-threat collision is a pedestrian crash type that occurs when pedestrians have to cross more than one lane in each direction. A motor vehicle in one lane stops and provides a visual screen to the motorist in the adjacent lane. The motorist in the adjacent lane continues to move and hits the pedestrian.

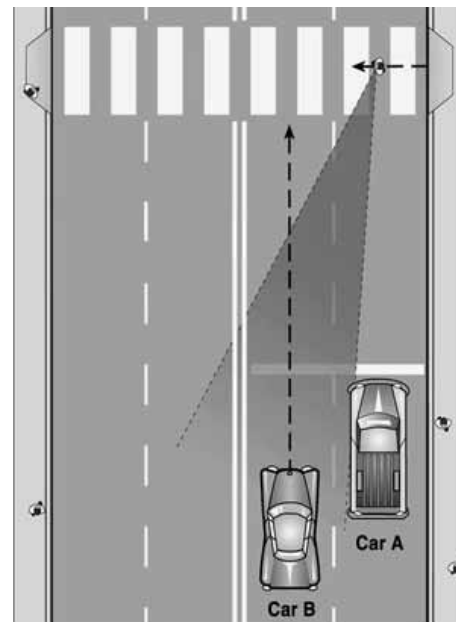
The 2009 MUTCD recommends that yield or stop lines used at uncontrolled multi-lane crossings be placed 20 to 50 feet in advance of the crosswalk; however, a distance of 30-50 feet is preferable. This distance is far enough away to provide for improved sight distance in the adjacent lanes. If the bars are placed more than 50 feet away, motorists are more likely to ignore the line and stop only a few feet prior to the crosswalk. At signalized midblock locations, the 2009 MUTCD recommends separation of at least 40 feet between the stop line and the nearest signal indication.



Painted triangles (shark's teeth) are used as the yield line at unsignalized locations.



Problem: Car 1 stops to let pedestrian cross; car 1 masks car 2, obstructing the pedestrian's and car 2's view of one another. Car 2 doesn't stop and may hit the pedestrian at a high rate of speed.



Solution: place advance stop/yield line so car 1 stops further back; car 1 no longer masks car 2, which can better see and be seen by the pedestrian.

The following signs can be used to reinforce advance stop or yield lines.



R1-5



R1-5a



R1-5b



R1-5c

Parking Restrictions

Restricting parking at corners will improve visibility of the crossing for both drivers and pedestrians. At a minimum, 30 feet should be kept clear in advance of marked crosswalks to help pedestrians and drivers see each other better. Distances greater than 30 feet are generally better, but parking restrictions have to be balanced with the need of the driver. For example, if parent parking is severely restricted or completely removed near schools, parents may ignore all parking restrictions.



Charlie Zegeer

Removing parking from corners can improve visibility between pedestrians and approaching drivers.

Treatment: Parking Restrictions at Corners

Description/Purpose

Restricting how close motor vehicles may park to a crosswalk (20-foot minimum per MUTCD) to improve pedestrian and driver sight distance.

Expected Effectiveness

Eliminating parking spaces too close to a crosswalk will improve pedestrian and motor vehicle visibility, which can reduce the likelihood of pedestrian-vehicle conflicts and collisions.

Costs

Costs involve new street markings, signs, enforcement and public education efforts. Roadway reconstruction issues may also affect the overall cost.³³

Keys to Success

- Accurately identifying problem locations and appropriate improvements.
- Educating the public about the purpose of proposed improvements.
- Enforcing parking restrictions.

Key Factors to Consider

- Potentially strong resistance to the loss of parking spaces by business owners and local residents, especially in areas with limited parking.

Evaluation Measures

- Number of crossing pedestrian crashes.
- Number of pedestrian-vehicle conflicts.

Traffic Signals

Signalizing busy intersections and providing signalized crosswalks help create safe routes to schools for children. New traffic signals are very expensive and must be warranted or they could cause more harm than good. Warrants for installing traffic signals are provided in the Manual on Uniform Traffic Control Devices (MUTCD) 2009 Edition Chapter 4C at <http://mutcd.fhwa.dot.gov/pdfs/2009/part4.pdf>.

Traffic signals are the highest form of traffic control. However, their benefit to the pedestrian network is contingent upon the application of several principles including:

Mark all legs of an intersection.

Pedestrian paths (marked crosswalks) should be provided on all sides of an intersection where pedestrian crossings are desired. A school walking route plan may limit crossings to three or fewer legs, but all options should be available for school officials to select the most desirable crosswalks to use.

Provide pedestrian signal heads in all directions.

Pedestrian signal indications (WALK, flashing DON'T WALK, DON'T WALK or walking man and raised hand symbols) should be provided at every signalized crossing.

Only use pedestrian pushbuttons if they are needed.

Push buttons are generally appropriate at locations with low or intermittent pedestrian activity. If used, they should be in clear view, wheelchair accessible and responsive to those who push the buttons.

Install landings on all corners.

Fully accessible landings should be in place on all corners to provide a safe place for people to wait.

Paint stop bars for motor vehicles on all approaches.

Stopping motor vehicles in advance of the marked crosswalk keeps the crosswalk clear for pedestrians and can reduce right-turn-on-red conflicts

Install curb ramps on each corner.

Two curb ramps per corner; eight per intersection is generally recommended, although there are situations where one diagonal ramp per corner is an acceptable option (e.g., where there is a wide turning radius and two ramps per corner is not feasible).

Provide streetlights on all four corners.

Proper illumination is critical at signalized intersections. Children are smaller and more difficult for motorists to see, especially in darker conditions, such as occur during arrival in the winter months.



Dan Burden

.....
Pedestrian signal indications (WALK, flashing DON'T WALK, DON'T WALK, or walking man and raised hand symbols) should be provided at every signalized crossing.
.....

Treatment: Traffic Signal Installation

Description/Purpose

Signals that control the flow of traffic and provide sufficient time for safe and efficient pedestrian crossings.

Expected Effectiveness

When signals are installed at appropriate locations (where warranted) they should improve pedestrian safety and also reduce the severity of motor vehicle crashes, even though total motor vehicle crashes (including rear-end collisions) may increase. Research is limited on the effect of traffic signals on pedestrian crashes, although some pedestrian signal timing schemes have been shown to significantly reduce pedestrian crash risk.

Costs

Costs range from \$30,000 to \$140,000.³

Keys to Success

- Signal cycles should be kept short.
- Marked crosswalks encourage pedestrians to cross at the signal.
- Pedestrian actuation (pushbuttons) should only be used if the pedestrian volume is low enough to support it.

Key Factors to Consider

- Potential increase of vehicular crashes (especially rear-end collisions).
- Potential traffic diversion to adjacent streets.

Evaluation Measures

- Motor vehicle–pedestrian crashes.
- Pedestrian ability to complete their crossing before the steady DON'T WALK is displayed.
- Signal compliance of pedestrians.

Timing

The signal phasing and/or timing can be modified to increase the time available for pedestrians to cross, to give priority to the pedestrian at an intersection, and/or to provide a separation in time of motor vehicle and pedestrian crossings. The timing or phasing of traffic signals is a complex issue, impacted by the signal timing itself as well as other conditions at the crossing including pedestrian and driver behaviors. Factors that contribute to the complexity of traffic signal timing and phasing include:

- Duration of time pedestrians must wait for the WALK signal.
- Number of motor vehicle movements that conflict with the pedestrian WALK signal.
- Amount of time that is provided for people to cross the street.
- Speed at which people are walking.
- Presence or absence of a button people have to push to get a walk indicator and adequate time to cross the street.

- Presence or absence of one or more adult school crossing guards available to assist younger students while crossing the street. See *Adult School Crossing Guard Guidelines* for more information at www.saferoutesinfo.org/guide/crossing_guard/index.cfm.
- The potential for conflicts between pedestrians and right-turning motor vehicles.



PBIC Image Library

Treatment: Modified Traffic Signal Phasing and/or Timing

Description/Purpose

The signal phasing and/or timing can be modified to increase the time available for pedestrians to cross, to give priority to the pedestrian at an intersection and/or to provide a separation in time of motor vehicle and pedestrian crossings. Lead Pedestrian Interval is an example of modified signal phasing/timing.

Expected Effectiveness

Studies of exclusive pedestrian timing have shown a reduction in pedestrian crashes by 50 percent in some downtown areas with high pedestrian volumes and low vehicle speeds and volumes. Other signal modifications have also resulted in a decrease in motor vehicle–pedestrian conflicts at intersections (e.g., leading pedestrian interval).³⁴

Costs

The cost for adjusting signal timing is relatively low. The cost for installing new signals ranges from \$20,000 to \$140,000.³

Keys to Success

- Ensure that signals are placed so that they are visible to pedestrians and pushbuttons, if provided, are easy to reach.

Key Factors to Consider

- Signal cycles should be kept fairly short to minimize pedestrian delay, but wider intersections may require longer cycle lengths.
- The speed and volume of motor vehicles should also be considered in signal timing calculations and decisions.

Evaluation Measures

- Number of conflicts with motor vehicles (especially turning vehicles) and pedestrians at intersections.

Accessible Pedestrian Signals

Accessible pedestrian signals are audible signals that indicate when it is or is not appropriate to cross the street. Federal ADA guidelines encourage the use of accessible pedestrian signals where there is a need to accommodate pedestrians with visual impairments. Accessible signals come in a variety of designs but include an audible signal and tactile guidance for pedestrians. See the 2009 MUTCD for additional information on accessible signals.

Minimize Pedestrian Wait Time

The longer people must wait to cross the street, the more likely they will decide to cross against the signal. Pedestrian wait time can be reduced by shortening the overall signal cycle length or by providing an actuated demand-responsive pedestrian signal. Some pedestrians, especially large groups of children, may need more than the 4 feet per second standard that is used to calculate the time needed for the pedestrian clearance interval. However, longer pedestrian clearance intervals may result in longer signal cycle lengths, and thus longer wait times between 'Walk' signals.

Increase Pedestrian Clearance Intervals

The pedestrian clearance interval is the time remaining for pedestrians to cross the street once the flashing red hand indication is displayed on a pedestrian signal. The 2009 MUTCD requires this interval to be calculated based on a minimum walking speed of 3.5 feet per second. However, some pedestrians, especially large groups of children, may need additional time to cross. Consideration should be given to increasing the pedestrian clearance interval if a pedestrian signal must accommodate pedestrians that need more time to cross. However, these considerations should be balanced against the potential for increased wait times between 'Walk' signals.



This accessible pedestrian push button not only has an audible tone when the WALK signal comes on, but it also has a vibro-tactile signal. This is for a crosswalk at a midblock traffic signal.

Treatment: Accessible Pedestrian Signals

Description/Purpose

Audible signals for the visually impaired that indicate when it is or is not appropriate to cross the street.

Expected Effectiveness

- Audible signals increase awareness of all pedestrians, including those visually impaired, which can lead to fewer pedestrian crashes.³⁹
- Can decrease pedestrian cross time.

Costs

Costs range from \$400 to \$600 per signal.⁴⁰

Keys to Success

- Locator tones should be used to help persons with visual impairment find pushbuttons.
- Appropriate sound levels should be used to limit audible intrusion into the surrounding neighborhood.

Key Factors to Consider:

- APS may be unclear as to which crosswalk it refers.
- Directional guidance may be needed at wide, skewed or angled intersections.

Evaluation Measures

- Motor vehicle–pedestrian crashes.
- Motor vehicle–pedestrian conflicts.
- Pedestrian crossing ability at current clearance interval.

Pedestrian Pushbuttons

Pedestrian pushbuttons are electronic buttons used by pedestrians to change traffic signal timing to accommodate pedestrian crossings. Pushbuttons may be needed at some crossings, but their use should be minimized. Signals can be put in pedestrian “recall” for key time periods of day such as school crossing times. During these periods the pedestrian WALK signal would be displayed every signal cycle. As traffic signals become more complex pedestrian pushbuttons are needed. If buttons exist, pedestrians must push them to get enough time to cross the street. Standard pushbuttons often result in longer waits to cross the street, especially if the pedestrian fails to push the button. Only about 50 percent of pedestrians actually push the buttons based on a FHWA research project.[34] If used, they should be clearly visible and within easy reach for people in wheelchairs. Pushbuttons need to be checked periodically to assure that they are working and will place a call into the signal.



Studies show that 50 percent or fewer pedestrians use the push button to cross, yet if they do not use the button they may not get enough time to cross.³⁴

Treatment: Pedestrian Pushbuttons

Description/Purpose

Electronic buttons used by pedestrians to change traffic signal timing to accommodate pedestrian crossings.

Expected Effectiveness

- Improves pedestrian travel time and compliance.
- Reduces delay to vehicular traffic when pedestrians are not present.

Costs

Costs range from \$400 to \$1,000 per pushbutton.³⁵

Keys to Success

- Must be well-signed, easily locatable and within reach of all pedestrians.
- Should not be used where pedestrian traffic is frequent, as the pedestrian phase should be built into the cycle.
- Buttons for neighboring crosswalks should be located at least 10 feet from each other.
- Locator tones can assist visually impaired pedestrians to find the pushbutton.

Key Factors to Consider

- Visually impaired pedestrians may have difficulty determining if a pushbutton is present.
- Accessible pedestrian signals may need to be considered at some locations.

Evaluation Measures

- Pedestrian volume.
- Pedestrian compliance to WALK/DON'T WALK signal.

No Turn on Red

Pedestrian and motor vehicle conflicts are a common occurrence when driver get a green light and pedestrians get a green light or a WALK signal at the same time. While drivers are required to stop for pedestrians, conflicts are likely to occur. One solution is to install a “leading pedestrian interval” (LPI) which illuminates the pedestrian WALK signal, while the motor vehicle signal remains red for the first few seconds of the cycle. The LPI gives pedestrians an opportunity to start walking and establish a presence in the crosswalk before drivers can begin their turn. The LPI is usually about three seconds or more.

For more information visit the 2004 PEDSAFE “Leading Pedestrian Interval (2 of 2)” St. Petersburg, Florida, case study at www.walkinginfo.org/pedsafe/casestudy.cfm?CS_NUM=66.

Motorists making a right-turn on a red light are often looking left towards oncoming traffic and do not pay attention to pedestrians who may be approaching from the right. Restricting right-turn-on-red (RTOR) is another way to reduce conflicts between pedestrians and motorists at traffic signals. The RTOR restrictions can be limited to certain times of the day or can apply to all hours, prohibiting drivers from turning right without a green signal. The MUTCD identifies two conditions related to pedestrians when restricted RTOR may be most effective including:

- Where an exclusive pedestrian phase exists.
- Where an unacceptable number of pedestrian conflicts result from RTOR, especially conflicts involving children, older pedestrians or persons with disabilities.³⁶

When RTOR is prohibited, there may be more right-turn-on-green conflicts between motor vehicles and pedestrians when both the right turning drivers have a green light and the pedestrian has the WALK signal on the adjacent crosswalk. The use of leading pedestrian intervals can reduce this effect. Prior to deciding to restrict RTOR, the advantages and disadvantages must be carefully considered.



Dan Burden

Standard concurrent signal timing illustrates conflicts that can arise between crossing pedestrians and turning motor vehicles.

.....
Restricting right-turn-on-red is another way to reduce conflicts.
.....



PBIC Image Library

NO TURN ON RED sign may reduce some pedestrian conflicts in the near-side crosswalk, but may increase conflicts in the adjacent crosswalk.

Treatment: Right-turn-on-red Restrictions

Description/Purpose

Right-turn-on-red (RTOR) restrictions, which can be limited to certain times of the day or can apply to all hours, prohibit drivers from turning right without a green signal. Restricting this turning movement can reduce conflicts with pedestrians crossing at intersections.

Expected Effectiveness

Studies differ in terms of effectiveness, but the 2000 MUTCD identifies two conditions related to pedestrians when restricted RTOR may be most effective: 1) Where an exclusive pedestrian phase exists. 2) Where an unacceptable number of pedestrian conflicts result from RTOR, especially conflicts involving children, older pedestrians or persons with disabilities.^{37, 36}

Costs

Costs associated with this treatment will vary widely based on conditions at the site, but are relatively low compared to other treatments. The average cost for a basic sign ranges from \$30 to \$150 plus installation costs of approximately \$200 per sign.³

Keys to Success

- NO TURN ON RED signs should be installed adjacent to the signal on the right side of the street and clearly visible to right-turning drivers. Enforcement programs can help establish compliance with the law.

Key Factors to Consider

- RTOR restrictions may increase delay at intersections for motor vehicles and cause an increase in right-turn-on-green conflicts, but the use of leading pedestrian intervals can reduce this effect.

Evaluation Measures

- Number of crashes and conflicts.
- Pedestrian and driver compliance with intersection regulations.

Pedestrian Countdowns

Adequate time must be provided for pedestrians to cross the street safely. Countdown signals help by giving pedestrians information about how much crossing time remains. There is a good deal of confusion by most pedestrians on the meaning of the flashing DON'T WALK signal. While it technically means don't start walking if the pedestrian has not yet started to cross the street, some pedestrians and drivers think that they are supposed to see the WALK signal for the entire crossing and they will not have enough time to cross as soon as the flashing begins. The countdown signal shows the number of seconds remaining to cross the street. Some studies have shown that countdown signals reduce the number of stragglers in the street when the signal changes, although some people may still start late.



Michael Cynecki

Countdown pedestrian signals provide pedestrians with more information on how much time is left and are very well-received by pedestrians.

Treatment: Countdown Pedestrian Signals

Description/Purpose

A timer display that counts down the seconds remaining for a pedestrian crossing.

Expected Effectiveness

- Reduces the number of pedestrians caught in the crosswalk when the cycle ends.
- Increases pedestrians' perceived safety.

Costs

Costs range from \$300 to \$800 per signal.³⁸

Keys to Success

- Should give WALK message with countdown indication each cycle in areas with sufficient pedestrian volume.
- Signals should be easily visible from both sides of crosswalks.
- The countdown signals are more applicable where pedestrians are crossing streets with multiple lanes in each direction.

Key Factors to Consider

- For wide streets, countdown pedestrian signals may be of particular benefit, especially if there are a substantial number of older pedestrians or persons with mobility disabilities who cross.

Evaluation Measures

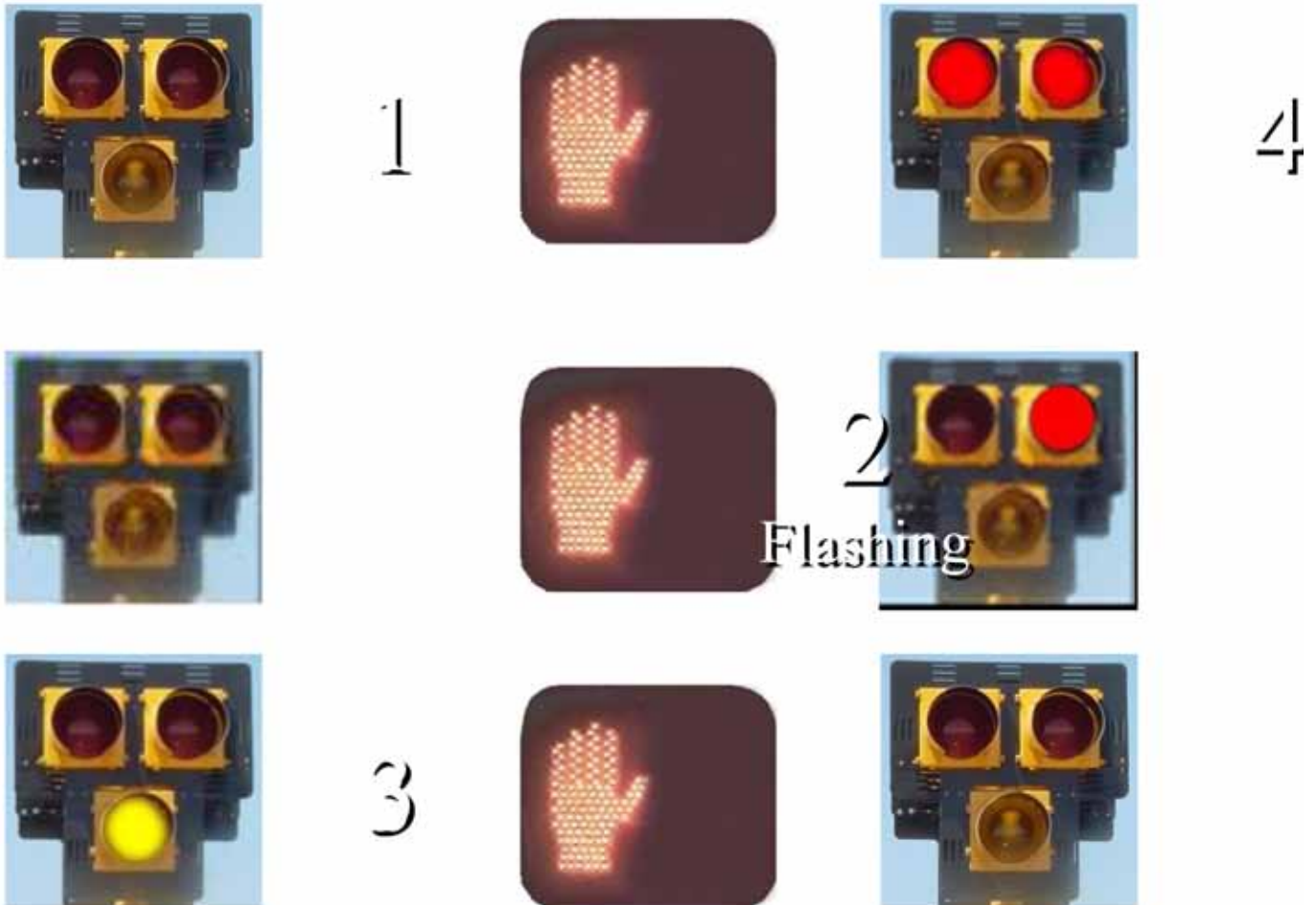
- Number of pedestrians caught in the crosswalk when the cycle ends.
- Perceived pedestrian safety.

Pedestrian Hybrid Beacon

The pedestrian hybrid beacon is a potential solution for locations where neighborhoods are located on the opposite side of a wide or busy street from a school. It is often very difficult to get drivers to follow the law and yield to pedestrians at these midblock “uncontrolled” crossings, even when marked. At the same time, there may not be enough pedestrian crossings to warrant a full traffic signal.

The 2009 MUTCD states that the pedestrian hybrid beacon should not be used at or within 100 feet of an intersection or driveway controlled by a STOP sign. Pedestrian hybrid beacons are intended as a solution for midblock crossing locations.

Pedestrian hybrid beacons have the advantage of providing a controlled crossing for pedestrians without delaying motorists unnecessarily. They remain dark until activated by a pedestrian. Activation results in a sequence of amber and red beacon lights, which signal to drivers when to stop for crossing pedestrians and when to go again after pedestrians have cleared the crosswalk.



Slowing Down Traffic

High-speed motor vehicles pose a serious threat to the safety of children who are crossing streets. One of the biggest challenges in providing children with safe walking and bicycling routes to school involves slowing down traffic.

Slower motor vehicle speeds allow drivers to stop in a shorter distance and reduce the chance of injuring a pedestrian or bicyclist. A motor vehicle traveling on a level surface at a rate of 40 mph will need nearly 300 feet between the vehicle and the child to stop in time to avoid a collision. This distance is reduced to approximately 197 feet for a vehicle traveling at 30 mph, 112 feet for a vehicle traveling at 20 mph and 77 feet for a vehicle traveling at 15 mph.⁴¹

Pedestrian crash severity is also much lower at low motor vehicle speeds. If a pedestrian is struck by a motor vehicle traveling at 40 mph there is an 85 percent likelihood that the pedestrian will be killed. This percentage drops to 45 percent at 30 mph and 5 percent at 20 mph. Thus, slowing motor vehicle speeds not only reduces the chance of a crash due to the shorter stopping distance that is required, but it also reduces the chance of a pedestrian fatality or serious injury.⁴²

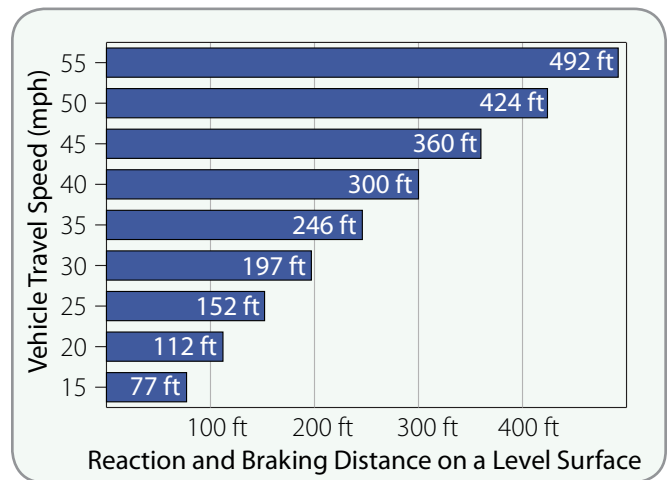
When slowing or “calming” traffic, the right design invites the right driver response. The guiding principle of traffic calming is to influence driver speed and behavior through good design whenever possible, rather than by traffic control measures such as traffic signals and STOP signs.

There are many design and engineering tools that can be used to slow down traffic and make it safer for children to walk and bicycle to school including:

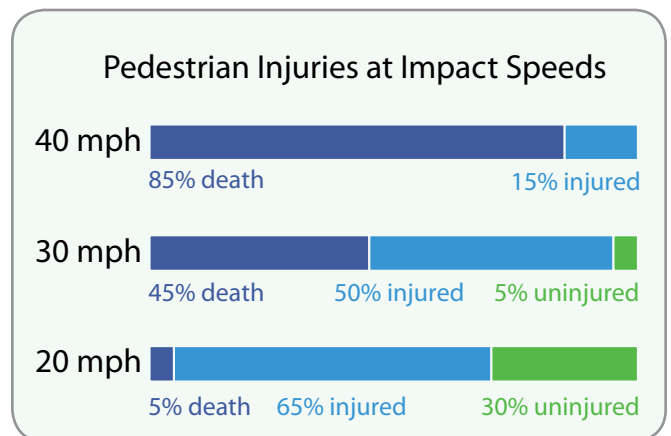
- Narrow lanes.
- Chokers and chicanes.
- Speed humps.
- Raised pedestrian crosswalks.
- Neighborhood traffic circles.
- Reduced corner radii.
- Speed sensitive signals.



Wide high-speed streets can create a barrier to walking to school. This is the type of condition that should not occur along a child’s route to school.



Relationship between motor vehicle speed and braking distance when traveling on a level surface.⁴¹



The relationship between pedestrian injury severity and motor vehicle impact speeds.⁴²



City of Auburn, Indiana

Which street has lower speeds? The street on the right with trees and a narrower pavement width will naturally result in slower driver speeds.

Narrow Lanes

There are several ways to narrow a street. Paint is a simple, low cost and easy way to narrow the street or travel lanes. If the narrower lanes can result in a striped shoulder, the shoulder will provide a buffer for pedestrians, a place for bicyclists to ride and a refuge for disabled motor vehicles. The shoulder stripe will also provide better driver guidance. Interior traffic lanes can be narrowed to 10 feet wide to encourage slower speeds. Narrow lanes can also result from road-diet projects which can include painted medians, center turn lanes, bicycle lanes or parking lanes.



Peter Lagerwey

As there is no sidewalk along this child's route, reducing the lane width works to slow motor vehicles and provide a place to walk.

Treatment: Narrow Lanes

Description/Purpose

The reduction of lane widths to increase pedestrian safety.

Expected Effectiveness

- The narrower lanes can reduce motor vehicle speed, which may reduce total pedestrian crashes.
- They also reduce lengths of pedestrian crossings.

Costs

Costs vary by technique.

- Reducing the width of lanes due to adding bicycle lanes costs approximately \$1,000 per mile.
- Completely restriping a street to reduce lanes, add bicycle lanes or add on-street parking costs approximately \$5,000 to \$10,000 per mile.
- Adding a raised median or widening a sidewalk is approximately \$100,000 or more per mile.³

Keys to Success

- Adequate planning for large and emergency vehicles.
- Capacity and level of service should be analyzed to ensure appropriate design.
- Community involvement is needed to ensure balanced street safety throughout the area.

Key Factors to Consider

- Potential diversion of traffic onto neighboring streets.
- Potential adverse effects on large vehicles and bicycles.

Evaluation Measures

- Pedestrian crashes and severity.
- Reduction in motor vehicle speeds.

Chokers and Chicanes

Traffic calming can also result from narrowing the street through the use of chokers and chicanes. Chokers narrow both sides of the street to form a section of about 20 to 24 feet wide. Chicanes provide alternating narrow and wide sections, and a curved driving path similar to a slalom. Chicanes work best when supplemented with centerline striping and in some cases edgeline striping. Both chokers and chicanes need to have a vertical element in the narrowed section such as landscaping so the narrowed section can be seen easily by approaching drivers. Lighting at the narrowed section is also helpful. If drivers do not see and perceive the narrowing treatments, they may not slow down, and may even collide with the narrowed street section. Care must be used to accommodate storm water runoff when designing chokers and chicanes, and they should not be used if it will result in the loss of bicycle lanes or badly needed on-street parking.



Michael Cynecki

A choker has been installed on this street to calm traffic.

Treatment: Chokers and Chicanes

Description/Purpose

Parallel or offset curb extensions that effectively reduce road width for a specific distance are intended to reduce motor vehicle speeds and cut-through traffic, and make drivers aware of pedestrian activity.

Expected Effectiveness

Few formal evaluations have been performed, but these treatments are implemented based on the assumption that they do in fact benefit pedestrians by slowing motor vehicle traffic, reducing the number of severe crashes and increasing safety.

Costs

Costs for chokers range from \$5,000 to \$20,000, depending on site conditions and landscaping. Costs for landscaped chicanes range from \$10,000 (for a set of three chicanes) on an asphalt street to up to \$30,000 on a concrete street. Drainage and utility relocation often represent a significant portion of the cost for both chokers and chicanes.³

Keys to Success

- For chokers to perform effectively, the street must be narrowed such that motor vehicles approaching from opposite directions do not have enough room to pass.

Key Factors to Consider

- Ensure that bicycle safety and mobility is not compromised and that streets are still wide enough to accommodate emergency motor vehicles.
- Chicanes may reduce the number of on-street parking spaces.

Evaluation Measures

- Motor vehicle speeds.

Speed Humps

Speed humps represent one type of traffic calming measure that has been used by many local agencies for slowing traffic. Modern speed humps are 12 to 14 feet wide and have a rounded appearance that is 2.5 to 4 inches high at the center. Longer and flatter speed humps are referred to as speed tables. Speed humps have been shown to reduce motor vehicle speeds on streets where they were installed.⁴³ Despite their ability to reduce motor vehicle speeds, speed humps have certain disadvantages and are generally disliked by many drivers, fire departments and other emergency service providers. They often are not feasible on collector streets or arterial streets due to their impact on emergency response times. Other problems with speed humps include their impact on storm water runoff and snowplowing, and complaints about drivers driving onto the sidewalk to avoid the hump. The presence of speed humps also complicates street resurfacing.

While speed humps have been used extensively by some agencies, other traffic calming measures such as street-

narrowing traffic circles or traffic diverters to eliminate cut-through traffic are often more effective and appropriate. Speed humps have been removed at some locations in the U.S., Europe and the Netherlands.



Michael Cynecki

Speed humps have been a very common traffic calming measure.

Treatment: Speed Humps

Description/Purpose

An elongated section of raised pavement designed to reduce motor vehicle speeds. Longer and flatter speed humps are referred to as speed tables.

Expected Effectiveness

An overall reduction of motor vehicle speeds. More specifically, 85th-percentile speeds reduced by 4 to 23 mph.

Costs

Speed humps cost approximately \$1,000 each. Speed tables range from \$2,000 to \$15,000 each.³

Keys to Success

- Selection of appropriate areas, which are primarily low-volume residential streets.
- Complete coverage of lane width to ensure drivers do not veer into bicycle lane to avoid the hump.
- Should not be used on sharp curves.

Key Factors to Consider

- Potential increase in noise.
- Potential drainage issues on some streets.
- Increase in cost and complexity of resurfacing.
- Appropriate design important to prevent motor vehicle passenger discomfort.

Evaluation Measures

- Number of crashes and motor vehicle–pedestrian conflicts.
- Motor vehicle speed and driver delay.

Raised Pedestrian Crosswalks

Raised pedestrian crosswalks serve as traffic calming measures by extending the sidewalk across the road and bringing motor vehicles to the pedestrian level. The raised crosswalks allow the pedestrian to cross at nearly a constant grade without the need for a curb ramp and makes the pedestrian more visible to approaching drivers. They have a trapezoid-shaped cross-section to slow drivers at the pedestrian crossing where the slowing will be most effective. Speed tables outfitted with crosswalk markings are used on local streets, but they may not be

applicable for some collector streets due to an increase in emergency vehicle response time.

Roadways are not the only places traffic calming devices can be useful. Raised crosswalks can be used in school parking lots to slow traffic and more safely allow pedestrians to cross the parking lots. When used, care must be taken to accommodate drainage in the parking lot and to prevent water from pooling.

Treatment: Raised Pedestrian Crosswalks (Speed Tables)

Description/Purpose

A speed table the width of a typical crosswalk stretching across an entire intersection, slowing traffic and keeping the crossing at grade with the sidewalk.

Expected Effectiveness

- Decrease in motor vehicle speeds generally occurs.
- An increase of vehicular yield rate by as much as 45 percent due to adding speed tables.⁴⁴

Costs

Costs range from \$2,000 to \$15,000.³

Keys to Success

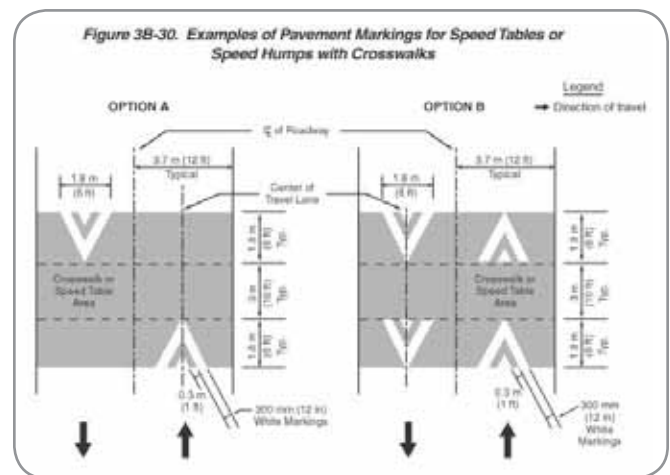
- Should not be used on sharp curves or steep grades.
- Visually impaired pedestrians need warning strips at edges to indicate the beginning of the crosswalk.
- Colors and special paving materials can be used for an urban design effect.

Key Factors to Consider

- May not be appropriate if the intersection is part of a bus or emergency route.
- Potential drainage issues.

Evaluation Measures

- Number of crashes.
- Severity of crashes.
- Motor vehicle speeds.
- Traffic volume.



At a speed table, a marked crosswalk provides a level area for pedestrians crossing the street. Traffic is slowed as drivers must go up and over the crosswalk.



The raised crosswalk in this picture slows traffic at the sidewalk crossing and draws more attention to the pedestrian crossing.

Neighborhood Traffic Circles

Traffic circles can help slow traffic on local and collector streets and calm traffic for pedestrians. While traffic circles are typically not ideal for use at a school crossing location, they can help calm traffic along a street, making the crossing locations on that street safer. Traffic circles typically have less of an impact on emergency vehicles than speed humps or speed tables, and can add to the aesthetics of the street. Neighborhood traffic circles on local streets do not need to have raised splitter islands, but they should be illuminated with streetlights. Landscaping also is important for aesthetics and making the islands visible to drivers. Provisions are needed for maintaining the landscaping and providing water to the landscaping.



Michael Cynecki

Example of a traffic circle used in a neighborhood.

Treatment: Neighborhood Traffic Circles

Description/Purpose

Neighborhood traffic circles are raised islands in residential intersections intended to reduce motor vehicle speeds.

Expected Effectiveness

In a study in Seattle, Washington, minicircles were found to reduce motor vehicle crashes by an average of 90 percent.⁴⁵ They also slowed motor vehicle speeds, reducing the likelihood and severity of pedestrian crashes.

Costs

The cost for a landscaped traffic circle on an asphalt street is about \$6,000 and ranges from \$8,000 to \$12,000 for a landscaped minicircle on a concrete street.³

Keys to Success

- Keep turning radii tight to avoid compromising pedestrian and bicyclist safety.
- Accommodate larger motor vehicles by providing a mountable curb on the outer portion of the traffic circle.

Key Factors to Consider

- Landscaping in the circle should not block sight distance.
- The needs of blind pedestrians should be considered when determining the design and placement of neighborhood traffic circles.

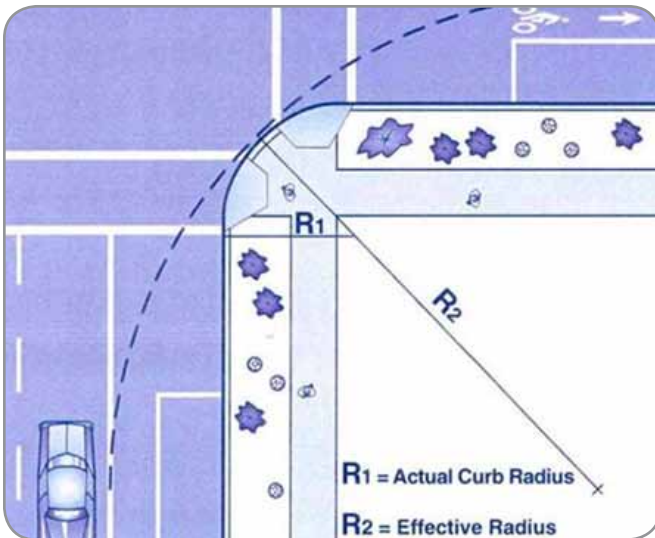
Evaluation Measures

- Crashes and injury severity.

Reduced Corner Radii

There is a direct relationship between the size of the curb radius and the speed of turning motor vehicles. A large radius may easily accommodate large fire trucks, other large trucks and school buses, but it also allows other drivers to make high speed turns, and it increases the crossing distance for pedestrians. Drivers who drive faster are less likely to stop for pedestrians. A larger radius will also result in a longer crossing distance for the pedestrian. The solution is to reduce the curb radius.

When designing curb radii, consider what motor vehicles actually need when turning. Instead of assuming that every corner needs to be cut back, look at other factors such as on-street parking and bicycle lanes to determine how much space a turning motor vehicle will need. The effective radius that exists should include the width of parking lanes and bicycle lanes on both streets. Large trucks do not need to stay on their half of the street when turning on local streets. There is not a need to design for the largest vehicle that may use a street, especially for streets inside neighborhoods.



The effective radius that exists should include the width of parking lanes and bicycle lanes on both streets.



A large turn radius allows drivers to make higher speed turns and increases the crossing distance.

.....
There is a direct relationship between the size of the curb radius and the speed of turning motor vehicles.
.....



PBIC Image Library

Treatment: Reduced Corner Radius

Description/Purpose

The reduction of a corner radius to produce a tighter turn results in decreases in turning speeds, improved motor vehicle and pedestrian site distances, and a shortened pedestrian crossing distance.

Expected Effectiveness

Reduces the most common type of pedestrian crash by decreasing right-turn motor vehicle speeds. Shortening of crossing distance can improve signal timing and reduces the exposure of pedestrians to motor vehicles.

Costs

Costs range from \$2,000 to \$20,000 depending on drainage, utilities and other site features.³

Keys to Success

- The needs of all road users including pedestrians, bicyclists, buses, trucks and cars need to be considered in designing or retrofitting corner turn radii.
- Appropriate design based on street type, angle of intersection, land uses, etc. should also be considered.

Key Factors to Consider

- Designing for maintenance vehicles, emergency vehicles and school buses. Pedestrians are at risk if large vehicles ride over the curb.

Evaluation Measures

- Right-turning motor vehicle–pedestrian crashes.
- Total pedestrian crashes.

Speed Sensitive Signals

Some agencies have installed innovative traffic control measures, such as speed sensitive traffic signals, to reduce motor vehicle speeds. These devices involve using pavement loops to detect the speed of a motor vehicle. If the speed exceeds the speed limit, the traffic signal ahead will display a red light. Drivers learn that speeding on such streets will require them to stop at the traffic signal and be further delayed. This treatment is not applicable to local streets inside neighborhoods that do not have traffic signals, but can be applicable to collector and some arterial streets. Some communities are timing their traffic signals to a preset reasonable speed. Drivers who exceed the preset speed will be stopped at the next traffic signal. Signs with SIGNAL SET AT XX MPH can be installed along the street to alert drivers.



Boulder, Colorado.

Peter Lagerwey

Putting It Into Practice: Speed Sensitive Signals Boulder, CO; Arlington, VA; and Washington, D.C.

High-speed motor vehicles pose a serious threat to the safety of children who are crossing arterial streets near schools and are one of the largest challenges in providing Safe Routes to School. Innovative measures have been used to reduce motor vehicle speeds such as the speed sensitive signals used in Boulder, Colorado; Arlington, Virginia; and Washington, D.C.

The signals use pavement loops to detect the speed of a motor vehicle. If the motor vehicle exceeds the speed limit, the traffic signal ahead displays a red light. Drivers learn that speeding on such streets will require them to stop at the light and be further delayed. The sign SPEED SENSITIVE SIGNAL conveys that message to drivers.

Resources

Active Living Research (for list of audit tools)

www.activelivingresearch.org/index.php/Tools_and_Measures/312

An Analysis of Factors contributing to “Walking Along the Road” Crashes: Research Study and Guidelines for Sidewalks and Walkways — Federal Highway Administration Report Number FHWA-RD-01-101

www.walkinginfo.org/pdf/rd/SidewalkReport.pdf

BIKESAFE (Bicycle Countermeasure Selection System)

www.bicyclinginfo.org/bikesafe

Cycle Audit and Review from the UK Department of Transportation

www.dft.gov.uk/stellent/groups/dft_roads/documents/page/dft_roads_504721.hcsp

Maryland Safe Routes to School Guidebook

<http://www.walktoschool.org/resources/safety-education.cfm>

Pedestrian Facilities User’s Guide: Providing Safety and Mobility — Federal Highway Administration Report Number FHWA-RD-01-102

www.walkinginfo.org/pdf/peduserguide/peduserguide.pdf

PEDSAFE (Pedestrian Safety Guide and Countermeasure Selection System)

www.walkinginfo.org/pedsafe/index.cfm

Safety Effect of Marked and Unmarked Crosswalks at Uncontrolled Locations: Executive Summary and Recommended Guidelines

http://www.walkinginfo.org/pdf/rd/crosswalk_021302.pdf

Safe Ways to School “Toolkit” developed by The Florida Traffic and Bicycle Safety Education Program

www.dcp.ufl.edu/centers/trafficsafetyed/html_safe-ways.html

2003 Manual on Uniform Traffic Control Devices (MUTCD) of the U.S. Department of Transportation, Federal Highway Administration

<http://mutcd.fhwa.dot.gov>

2004 Guide for the Planning, Design, and Operation of Pedestrian Facilities from the American Association of State and Highway Transportation Officials (AASHTO)

www.walkinginfo.org/pp/exem2005.htm

Walking and Bicycling Suitability Assessment Project for simple tools to assess the suitability of your local streets for walking and bicycling

www.unc.edu/~jemery/WABSA

References

1. The Manual on Uniform Traffic Control Devices (MUTCD) 2003. Federal Highway Administration (FHWA). Part 7 Traffic Controls for School Areas Section. Chapter 7A. General, Section 7A.04 Scope. Available: <http://mutcd.fhwa.dot.gov/pdfs/2003r1/Ch7.pdf>. Accessed: February 13, 2006.
2. The Manual on Uniform Traffic Control Devices (MUTCD) 2003 Federal Highway Administration (FHWA). Available: <http://mutcd.fhwa.dot.gov/pdfs/2003r1/pdf-index.htm>.
3. PEDSAFE: Pedestrian Safety Guide and Countermeasure Selection System September, 2004. FHWA-SA-04-003 U.S. Department of Transportation Federal Highway Administration Available: www.walkinginfo.org/pedsafe/index.cfm
4. The Manual on Uniform Traffic Control Devices (MUTCD) 2003. Federal Highway Administration (FHWA). Part 7 Traffic Controls for School Areas, Section 7B.08 School Advance Warning Assembly (S1-1 with Supplemental Plaque) and Section 7B.09 School Crosswalk Warning Assembly (S1-1 with Diagonal Arrow) Available: <http://mutcd.fhwa.dot.gov/pdfs/2003r1/Ch7.pdf>. Accessed: February 9, 2006.
5. Guide for the Planning, Design, and Operation of Pedestrian Facilities. July 2004. Chapter 2: Planning for Pedestrians; Section 2.5.4 Traffic Control and Crossing Near Schools. American Association of State Highway and Transportation Officials (AASHTO).
6. McMahon P, Zegeer C, Duncan C, Knoblauch R, Stewart J, Khattak A. An Analysis of Factors Contributing to “Walking Along Roadway” Crashes: Research Study and Guidelines for Sidewalks and Walkways Report No. FHWA-RD-01-101. University of North Carolina Highway Safety Research Center, Chapel Hill, NC. February 2002. Available: www.walkinginfo.org/pdf/r&d/SidewalkReport.pdf. Accessed: December 16, 2005.
7. Boarnet M, Day K, Anderson C, McMillan T, Alfonzo M. California’s Safe Routes to School Program: Impacts on Walking, Bicycling, and Pedestrian Safety. Journal of the American Planning Association; Summer 2005; 71(3); 301-317.
8. Americans with Disabilities Act (ADA) and the Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities. Chapter 4: Accessible Routes, Section 403: Walking Surfaces. U.S. Access Board July 23, 2004 Available: www.access-board.gov/ada-aba/final.htm#Surfaces. Accessed: February 16, 2006
9. Accessible Rights-of-Way: A Design Guide. Section 3.2.1 Sidewalk Width U.S. Architectural and Transportation Barriers Compliance Board (the Access Board). November 1999. Available: www.access-board.gov/provac/guide/PROWGuide.htm Accessed: February 16, 2006.
10. ADA Accessibility Guidelines for Buildings and Facilities (ADAAG) Chapter 4. Accessible Elements and Spaces: Scope and Technical Requirements; Section 4.3 Accessible Route; 4.3.3 Width. U.S. Access Board. Available: www.access-board.gov/adaag/html/adaag.htm#4.3. Accessed: February 16, 2006
11. Guide for the Planning, Design, and Operation of Pedestrian Facilities. July 2004. Chapter 3: Pedestrian Facilities Design; Section 3.2.3 Sidewalk widths. American Association of State Highway and Transportation Officials (AASHTO).
12. Design and Safety of Pedestrian Facilities. A recommended practice of the Institute of Transportation Engineers 1998 Chapter 3: Sidewalks and paths, pg 30-34.
13. Designing Sidewalks and Trails for Access. Part 2 Best Practices and Design Guide. September 2001. Chapter 4 Sidewalk Corridors; Section 4.1.2.3 Pedestrian zone. Available: www.fhwa.dot.gov/environment/sidewalk2/sidewalks204.htm#sid. Accessed: February 16, 2006.
14. Guide for the Planning, Design, and Operation of Pedestrian Facilities. July 2004. Chapter 3: Pedestrian Facilities Design; Section 3.2.4 Buffer Widths. American Association of State Highway and Transportation Officials (AASHTO).

15. Knoblauch R, Tustin B, Smith S, Pietrucha M. Investigation of Exposure Based Pedestrian Accident Areas: Crosswalks, Sidewalks, Local Streets and Major Arterials. Report No. FHWA/RD-87-038, February 1987.
16. Pegrum B. The Application of Certain Traffic Management Techniques and Their Effect on Road Safety. National Road Safety Symposium, March 1972.
17. Freedman M, Janoff M, Koth B, McCunney W. Fixed Illumination for Pedestrian Protection. Report No. FHWA-RD-76-8, Federal Highway Administration, December 1975.
18. Metropolitan Transportation Commission website. Planning; Bicycle/Pedestrians Safety Toolbox, Engineering, Roadway lighting improvements. Available: www.mtc.ca.gov/planning/bicyclespedestrians/tools/roadwayLighting/index.htm. Accessed: December 19, 2005
19. Nelson A and Allen D. If You Build Them, Commuters Will Use Them. Transportation Research Record, 1997. 1578: p. 79-83.
20. Dill J, Carr T. Bicycle Commuting and Facilities in Major U.S. Cities: If You Build Them, Commuters Will Use Them. Transportation Research Record, Journal of the Transportation Research Board, 1828: 116-123, 2003.
21. Nabti J, Ridgeway M. Innovative Bicycle Treatments: An Informational Report. Institute of Transportation Engineers. Washington, D.C. May 2002.
22. Guide for the Development of Bicycle Facilities. American Association of State Highway and Transportation Officials (AASHTO), 1999.
23. Turner S, Sandt L, Toole J, Benz R, and Patten R. FHWA University Course on Bicycle and Pedestrian Transportation, Draft Report, Federal Highway Administration, McLean, VA, May 2004.
24. Japan Road Association. Accident Prevention Effects of Road Safety Devices: Annual Report, 1969.
25. Moore R, Older S. Pedestrian and Motor Vehicles are Compatible in Today's World. Traffic Engineering, Vol. 35, No. 12, September 1965.
26. National Cooperative Highway Research Program. Report 500, Vol 10: A Guide for Reducing Collisions Involving Pedestrians. Transportation Research Board. Washington, D.C. 2004. Available: http://trb.org/news/blurb_detail.asp?id=4043. Accessed: December 16, 2005.
27. Victoria Transport Policy Institute TDM Encyclopedia; Roadway Connectivity, Creating More Connected Roadway and Pathway Networks Available: www.vtpi.org/tdm/tdm116.htm. Accessed: March 3, 2006.
28. Guide for the Planning, Design and operation of pedestrian facilities. American Association of State and Highway Transportation Officials (AASHTO) 2004 pg 74-75.
29. Bowman, B. and Vecellio, R., Effects of Urban and Suburban Median Types on Both Vehicular and Pedestrian Safety, Record No. 1445, Transportation Research Board, Washington, DC, 1994.
30. Zegeer, C, Stewart J, Huang H, Lagerwey P. Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations: Executive Summary and Recommended Guidelines. FHWA-RD-01-075 Federal Highway Administration, U.S. Department of Transportation, McLean, VA, 2002. Available: www.walkinginfo.org/pdf/rd/crosswalk_021302.pdf. Accessed: December 13, 2005.
31. Traffic Control Devices Handbook 2001. Pline J, Editor. Institute of Transportation Engineers. Washington D.C. 2001.
32. Huang H, Hughes R, Zegeer C, Nitzburg M. An Evaluation of the LightGuard Pedestrian Crosswalk Warning System. Prepared by University of North Carolina Highway Safety Research Center and Center for Applied Research for Florida Department of Transportation Safety Office, June 1999.
33. National Cooperative Highway Research Program. Report 500, Vol 10: A Guide for Reducing Collisions Involving Pedestrians. Transportation Research Board. Washington, D.C. 2004. Available: http://trb.org/news/blurb_detail.asp?id=4043. Accessed: December 16, 2005.
34. Zegeer C, Opiela K, Cynecki M. Pedestrian Signalization Alternatives. Report No. FHWA/RD-83-102, Federal Highway Administration. Washington, DC, 1983.

35. Metropolitan Transportation Commission Web site. Planning; Bicycle/Pedestrians Safety Toolbox, Engineering, Pedestrian pushbutton treatments. Available: www.mtc.ca.gov/planning/bicyclespedestrians/tools/pedPushbutton/index.htm. Accessed: December 19, 2005.
36. Manual on Uniform Traffic Control Devices, Millennium Edition. U.S. Department of Transportation. Federal Highway Administration. December 2000.
37. Zegeer C, Cynecki M. Methods of Increasing Pedestrian Safety at Right-Turn-on-Red Intersections. Report No. FHWA/RD-85/047. Federal Highway Administration, Washington, D.C. March 1985.
38. Metropolitan Transportation Commission website. Planning; Bicycle/Pedestrians Safety Toolbox, Engineering, Countdown signals. Available: www.mtc.ca.gov/planning/bicyclespedestrians/tools/countdownSignal/index.htm. Accessed: December 19, 2005.
39. Van Houten R, Retting R, Farmer C, Van Houten J. Field Evaluation of a Leading Pedestrian Interval Signal Phase at Three Urban Intersections. Insurance Institute for Highway Safety. Arlington, VA. April 1997.
40. Metropolitan Transportation Commission Web site. Planning; Bicycle/Pedestrians Safety Toolbox, Engineering, Pedestrian pushbutton treatments. Available: www.mtc.ca.gov/planning/bicyclespedestrians/tools/accessiblePedSignals/. Accessed: December 19, 2005.
41. Policy on Geometric Design of Highways and Streets, 2001 4th Edition. Chapter 3, Elements of Design. American Association of State Highway and Transportation Officials.
42. U.K. Department of Transportation, 1987. Killing Speed and Saving Lives, London, UK DOT.
43. PEDSAFE: Pedestrian Safety Guide and Countermeasure Selection System September, 2004. FHWA-SA-04-003 U.S. Department of Transportation Federal Highway Administration. See case studies for Speed humps. Available: www.walkinginfo.org/pedsafe/pedsafe_curb1.cfm?CM_NUM=24. Accessed: February 20, 2006.
44. Hawkey L, Henson C, Hulse A, Brindle R. Towards Traffic Calming: a Practitioners Manual. Federal Office of Road Safety, Canberra, Australia, August 1992.
45. Institute of Transportation Engineers and the Federal Highway Administration. Traffic Calming State of the Art. August 1999.

Enforcement



Contents

Enforcement

Overview	4-1
Identifying Unsafe Behaviors.....	4-2
Driver Behaviors.....	4-2
Speed Matters.....	4-2
Pedestrian and Bicyclist Behaviors	4-3
Role of the Enforcement Officer	4-4
The Community Enforcement Approach	4-5
Safety Patrols.....	4-5
Adult School Crossing Guards	4-5
Neighborhood Speed Watch Programs	4-6
The Law Enforcement Approach.....	4-8
Effective Safe Routes to School Law Enforcement has Three Basic Steps.....	4-8
The Media’s Role in Enforcement Efforts.....	4-9
Law Enforcement Methods	4-10
Speed Trailers.....	4-10
Active Speed Monitors	4-11
Traffic Complaint Hotlines.....	4-11
Photo Enforcement.....	4-12
“Pedestrian Decoy” Operations	4-13
Progressive Ticketing.....	4-14
Speed Enforcement in School Zone	4-15
References.....	4-16

Overview

The main goal for Safe Routes to School (SRTS) enforcement strategies is to deter unsafe behaviors of drivers, pedestrians and bicyclists, and to encourage all road users to obey traffic laws and share the road safely. Enforcement is one of the complementary strategies that SRTS programs use to enable more children to walk and bicycle to school safely. But enforcement used alone will not likely have a long-term effect. Communities must utilize a combination of enforcement, engineering, education and encouragement strategies to address the specific needs of their schools and achieve long-term results.

The public typically thinks of enforcement as officers writing tickets. In fact, enforcement, especially for SRTS programs, is a network of community members working together to promote safe walking, bicycling and driving. This can be accomplished through safety awareness, education and, where necessary, the use of ticketing for dangerous behaviors. Enforcement includes students, parents, adult school crossing guards, school personnel and neighborhood watch programs all working in conjunction with law enforcement. Working together to enforce rules for safe walking, bicycling and driving makes it safer and easier for everyone to walk and bicycle.

This chapter will describe the common unsafe behaviors often encountered near schools and the multiple approaches that communities use to improve these behaviors.



.....

Enforcement includes students, parents, adult school crossing guards, school personnel and neighborhood watch programs all working in conjunction with law enforcement.

.....

Identifying Unsafe Behaviors

Enforcement programs start with identification of the unsafe behaviors of drivers, pedestrians and bicyclists around the school. Then appropriate strategies for improving these behaviors can be selected. There are many ways to identify unsafe behaviors; an observation of student arrival and departure from school is a good way to start. Speed measurements and examination of recent crash reports near the school provides additional information. Look for the common unsafe behaviors listed below when observing traffic around a school.

Driver Behaviors

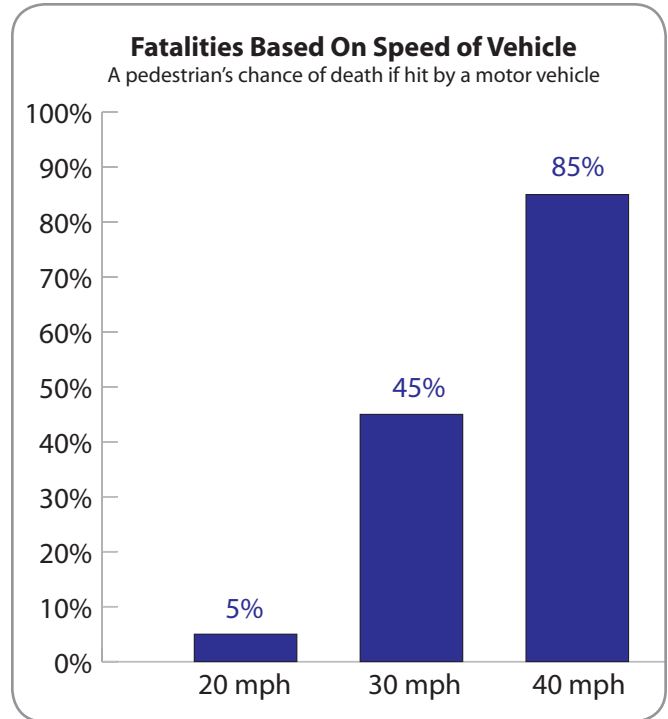
Unsafe driver behaviors occur both on the route to the school and on the school campus.

Unsafe driver behaviors on the streets around the school include:

- Speeding through residential streets and school zones. (Speed is directly related to crash frequency and severity. See chart.)
- Failing to yield to students walking or bicycling, especially in crosswalks. (The law requires drivers to stop for pedestrians in crosswalks; it's a law that is often ignored.)
- Running red lights or stop signs.
- Passing stopped school buses.
- Parking or stopping in crosswalks.

Speed Matters

Some drivers don't think about the risks they create. A driver may not think going 10 mph over the speed limit will be noticeably less safe, but just a 10 mph difference in speed can be critical to whether a pedestrian lives or dies when struck by a motor vehicle. This is especially true for children and older pedestrians. At 20 mph, a pedestrian has about a 5 percent chance of dying if he is hit by a motor vehicle. At 30 mph, the chance of dying increases to roughly 45 percent. If a pedestrian is hit by a motor vehicle traveling 40 mph, the risk of dying increases to 85 percent.¹



Killing Speed and Saving Lives, UK Department of Transportation.

Frequently, speeding problems near schools are related to the school itself. Often the parents and staff from the school are the speeders.²

Unsafe driver behaviors on the school campus typically involve student drop-off or pick-up. These include:

- Illegal parking.
- Motor vehicles stopping in a bus zone.
- Dropping off students in the street rather than in the appropriate location adjacent to the curb.
- Drivers letting students walk between parked motor vehicles and buses.
- Violating school drop-off and pick-up procedures.

Pedestrian and Bicyclist Behaviors

Another critical component of enforcement activities is making sure that children and other pedestrians and bicyclists know and follow the safety rules. Efforts should focus on students' behavior on the route to school in order to minimize the risks that student pedestrians and bicyclists may encounter.

Unsafe pedestrian behaviors include:

- Not following the directions of the crossing guard or traffic signals.
- Not looking left, right and left again before crossing the street.
- Crossing a street at an undesirable location.
- Darting out between parked vehicles.
- Wearing dark clothes when there is poor lighting.

Unsafe bicyclist behaviors include:

- Riding into traffic without looking left, right and left again.
- Riding against traffic instead of with the traffic flow.
- Turning left without looking and signaling.
- Not obeying traffic signs and signals.
- Riding out from driveway or between parked vehicles
- Not wearing bicycle helmet.
- Not being visible at night when riding in road.



Dan Burden

Role of the Enforcement Officer

Law enforcement officers see first hand the consequences of motor vehicle crashes. They also see first hand the behaviors that cause these consequences. From conducting education and enforcement campaigns to identifying unsafe conditions, law enforcement officers can play multiple roles in Safe Routes to School (SRTS) programs.

Demands on a police department and the level of participation departments can offer varies from community to community. It is important to understand what the local law enforcement resources are. For some communities, law enforcement resources must be reserved for situations where students face harm or when unsafe behaviors persist despite the use of other methods.

State police or highway patrols, sheriff departments and local law enforcement agencies all may be partners in the program. There are at least three general types of law enforcement officers that typically assist SRTS efforts:

Traffic Enforcement Specialists

These officers are assigned to specialize in traffic enforcement. They respond quickly to traffic safety hot-spots.

Community Action Officers (CAOs)/Precinct Officers

These officers are generally assigned to a specific portion of the city and work on problem areas. While they do not specialize in traffic enforcement, they can be called in for enforcement activities at the start and end of school days and help coordinate with motor officers.

School Resource Officers (SROs)

Some law enforcement officers are assigned to schools and concentrate on special problems such as drugs, gangs, and other on-campus problems. They can also be used to help solve special traffic problems on or near the campus and can coordinate with the motor officers and CAOs.



Dan Burden

Officers can serve in the following ways:

- Teach safety issues to children, school officials, parents and the community.
- Evaluate local traffic concerns, observe problem areas and behaviors, and provide input about safe routes.
- Provide an enforcement presence that discourages dangerous behaviors on and off the school campus. This may mean issuing warnings to drivers breaking traffic laws. Drivers who have made a minor error will often respond to a warning from an officer by being more careful. Drivers who continue to violate traffic laws need to be ticketed.
- Monitor crossing guards and make sure they are acting safely in the street and are not taking chances or over-stepping their duties as guards.
- Monitor students to ensure that they cross at safe locations and do not take unnecessary risks.

The Community Enforcement Approach

Representatives of communities and schools can improve safety behaviors in many ways. Older students can become safety patrol members and help during drop-off and pick-up times at the schools. Adults can volunteer to become crossing guards to enforce safe behaviors at crossings. Neighborhood speed watch programs can provide opportunities for residents to educate drivers about their driving speeds while making drivers aware that the neighborhood is concerned about safety. All adults in a community need to set good examples for their children and others by crossing streets in crosswalks when they are available and following other traffic rules.

Safety Patrols

Student safety patrols enhance enforcement of drop-off and pick-up procedures at school by increasing safety for students and traffic flow efficiency for parents. Such efforts allow students to participate in promoting traffic safety where they learn skills they can use in their everyday lives. Having a student safety patrol program at a school requires approval by the school and a committed teacher or parent volunteer to coordinate the student trainings and patrols. Before beginning a program, school officials should be contacted for approval of the program and to determine how liability issues will be addressed.

Students who are chosen for safety patrol officers are in good company. Past school safety patrol officers include current members of the U.S. Supreme Court, as well as former presidents Bill Clinton and Jimmy Carter.

Adult School Crossing Guards

Adult school crossing guards can play a key role in promoting safe driver and pedestrian behaviors at crosswalks near schools. They help children safely cross the street and remind drivers of the presence of pedestrians. A guard helps children develop the skills to cross streets safely at all times. Adult school crossing guards can be parent volunteers, school staff or paid personnel. Annual classroom and field training for adult school crossing guards as well as special uniforms or equipment to increase visibility are recommended, and in some locations required. The presence of guards can lead to more parents feeling comfortable about their child walking or bicycling to school. For more information see the Adult School Crossing Guard Guidelines, which were developed by the National Center for Safe Routes

Tool: Safety Patrol

Definition

Students assist with student arrival and departure at school.

Advantages

- Provides needed help.
- Builds student role models.

Considerations

- Requires adult coordinator.
- School approval needed.



Pembroke Hill Lower School, Kansas City, Missouri.

to School and the Pedestrian and Bicycle Information Center with funding from the National Highway Traffic Safety Administration. A copy of the Guidelines can be found at www.saferoutesinfo.org/guide/crossing_guard/index.cfm.

Tool: Adult School Crossing Guards

Definition

Crossing guards promote safe behaviors at crosswalks by helping children safely cross the street at key locations and reminding drivers of the presence of pedestrians.

Advantages

- Can control behaviors at high-risk locations.
- Can make parents more comfortable allowing children to walk or bicycle to school.

Considerations

- Requires dedicated funding or reliable volunteer system.
- Requires training and equipment.

Neighborhood Speed Watch Programs

Neighborhood speed watch programs, a traffic-related variation of a neighborhood watch or crime watch, encourage citizens to take an active role in changing driver behavior on their neighborhood streets by helping raise public awareness and educate drivers about the negative impact of speeding. In these programs, residents record speed data in their neighborhood using radar units borrowed from a city or county law enforcement agency. Residents record the speed and license plate information of speeding motor vehicles. This information along with a letter is sent to the owner of the vehicle informing them of the observed violation and encouraging them or other drivers of their vehicle to drive at or below the posted speed limit. This type of awareness encourages some speeding drivers to slow down. Drivers also learn that residents will not tolerate speeding in their neighborhoods.

The organization of neighborhood speed watch programs can vary. Some jurisdictions have “Citizen’s Patrol” elements in the police department and others have neighborhood volunteers to oversee the program.

In Sacramento, California, a member of the County Traffic Engineering Section meets with interested residents, teaches them how to use the radar equipment and



Linden Hill Elementary School, Wilmington, Delaware.



David Parisi

Tool: Neighborhood Speed Watch Programs

Definition

Neighborhoods work with law enforcement to observe motor vehicle speeds.

Advantages

- Residents become aware of local traffic issues.
- Police gain additional information regarding problems.
- Peer pressure is placed on speeders.

Considerations

- Needs law enforcement personnel to work with neighborhoods.
- Requires radar guns or other measurement equipment..

collect data, and explains appropriate ways to interact with drivers. The county loans a radar unit to a group representative and volunteers use it to record speeds and license numbers of vehicles exceeding the speed limit. The county sends letters to violators and asks them to slow down.

In North Carolina, the City of Greensboro's Department of Transportation will loan a radar gun and trailer display unit to citizens to monitor speeds along their street. The unit displays the speed limit for the street and the travel speed of passing motor vehicles, and volunteers record the speeds.

For details of another speed watch program, visit PEDSAFE "Neighborhood Speed Watch Programs" Phoenix, Arizona, case study at www.walkinginfo.org/pedsafe/casestudy.cfm?CS_NUM=71. Neighborhood Speed Watch Programs have also been implemented in:

Salt Lake City, Utah

www.slcgov.com/transportation/TrafficManagement/speedwatch.htm

Seattle, Washington

www.ci.seattle.wa.us/transportation/speedwatch.htm

Montgomery County, Maryland

[www.cleanaircounts.org/Resource Package/A Book/Paving/calming/montgomery/triage_1.htm](http://www.cleanaircounts.org/Resource%20Package/A%20Book/Paving/calming/montgomery/triage_1.htm)

Tampa, Florida

www.tampagov.net/dept_Public_Works/Transportation/Speed_watch.asp



Greensboro, North Carolina.

The Law Enforcement Approach

The previous sections summarized ways that the school and neighborhood can work together to improve safety behaviors. This section looks specifically at what only the law enforcement officer can do.

Law enforcement includes a variety of methods that use both technology and personnel to raise awareness and educate drivers about their driving behaviors and how they relate to the safety rules. An effective law enforcement program is more about providing visible police presence for improved behavior than writing a lot of tickets. The intent of enforcement is to get people to change dangerous behaviors that could cause a crash and subsequent injury or fatality. However, for some dangerous behaviors, enforcement activities need to be implemented early. For example, giving citations for exceeding the speed limit, even by 5 to 10 mph, is especially important in school zones since driving speed increases the likelihood of being severely injured or killed if struck by a vehicle.¹

Effective Safe Routes to School Law Enforcement has Three Basic Steps

Involve parents and the community.

Generally, most of the traffic around schools is made up of neighborhood residents, parents of students, and the school's faculty and staff. An effective program will seek to notify all groups that a strong traffic law enforcement program is beginning.

Use public awareness and education first.

Public awareness and education needs to occur before law enforcement activities. The awareness and education messages should inform people of the problem and why enforcement action is needed. This will generate public support and help to offset any complaints from those who are caught breaking the law. The public next needs to be told what the enforcement activities will be and when they will start. Methods for raising awareness include sending flyers home with students, mailing materials to residents living within a certain distance of the school and using local television stations and newspapers to spread the message.



Peter Lagerwey



Peter Lagerwey

Portable speed limit signs and speed reader boards are effective tools for providing real time speed information to drivers.³ For some drivers, raising that awareness may be enough to cause them to alter their unsafe actions.

Provide officer training.

Officer training is critical to an effective law enforcement program. The training should include information on what, when, where and how law enforcement should occur to maximize behavior change and to reduce the number of crashes involving pedestrians.

The Media's Role in Enforcement Efforts

All the components of a good law enforcement program — creating awareness, alerting the public and the actual enforcement event — benefit from media coverage. The goal is to garner substantial media attention, not give numerous tickets. If 10 drivers receive tickets and 100,000 people hear about it, the enforcement effort will have a bigger impact than if officers issue 100 tickets and only the recipients know what happened. The key to a successful campaign is to provide information before the enforcement event occurs to encourage community support and facilitate positive coverage. Without such prior notification, drivers may claim to be caught by surprise, which can lead to negative publicity.

There are many ways to involve the media. For example:

- Neighborhood and school leaders can hold a press conference to talk about pedestrian safety and tell the public that they are requesting more enforcement.
- Organizers can provide the press with packets of information about walking and safety statistics, and information about the need to improve the health of students.
- Informed parents, students and educators can be available to talk to the media. A child who is well-versed in the pedestrian problems near the school can provide an important perspective. Hearing a child explain how difficult it is to cross a street will have a bigger impact than reading a statistic.

Parents and the entire community can be made aware of the enforcement effort in a variety of ways to ensure they know what will happen before the program begins in force. School officials or event organizers can:

- Send home fliers with students.
- Publish an article in the local newspaper.
- Send an e-mail to all parents.
- Put up speed reader boards so drivers see for themselves what their speeds are compared to safe speeds in school zones.
- Post information signs near where the enforcement effort will occur.

As the population becomes more ethnically diverse, providing safety messages to the public in varying languages and with culturally relevant messages will be critical for the success of the effort.

.....
The key to a successful campaign is to provide information before the enforcement event occurs to encourage community support and facilitate positive coverage.
.....

Law Enforcement Methods

A variety of law enforcement methods can help change unsafe behaviors, making walking and bicycling safer and more attractive for children and their parents. Regardless of the method used, enforcement activities require follow-up to maintain their effectiveness. To measure the impact of an enforcement activity in a specific situation, make a quick study before and after the enforcement effort. Before-and-after studies do not have to be elaborate and can be as simple as measuring speeds or observing behaviors at crosswalks and parent drop-off and pick-up zones. Examine the results and decide on the next steps. If the results are positive, the method used may be enough to improve behavior. If the results indicate little change in unsafe behaviors, perhaps another method should be used. Even with initial success, communities will need to repeat enforcement efforts periodically in order to sustain improvements in drivers' behaviors.

.....

Regardless of the method used, enforcement activities require follow-up.

.....

Speed Trailers

Portable speed trailers visually display drivers' real-time speeds compared to the speed limit. These devices may be effective in reducing speeds and increasing awareness of local speed limits.³ Portable speed trailers are most effective when the trailer flashes SLOW DOWN or flashes a bright white light that mimics a photo speed camera or a blue and red light that mimics a police vehicle when drivers are moving too fast. Some speed trailers have the capability to collect traffic count data and speed data throughout the day, which can be used to identify the most dangerous traffic times when more enforcement is needed.

In some cases, back-up speed enforcement by officers may be needed when radar speed trailers are used. If a



David Parisi

Neil Cummins Elementary School, Corte Madera, California.



Dan Burden



Michael Cynecki

driver fails to slow when the sign tells them that they are violating the law, an officer may stop the driver. The officer may choose to use the time to educate the driver with a warning, but a flagrant speeder needs to receive a ticket to reinforce the safety message. Typically, officers do not issue tickets based on the speed on the display unit. Instead, they use certified radar equipment if they are monitoring speed at the location.

Speed trailers are best used in residential areas and can be used in conjunction with neighborhood speed watch programs or other safety education programs.^{5, 6} Speed trailers need to be placed in locations where they do not block pedestrians, bicyclists, motor vehicle traffic or other vital traffic control signs. Speed trailers are not substitutes for permanent actions, such as traffic calming treatments to address neighborhood speeding issues.⁷

Active Speed Monitors

Active speed monitors are permanent devices to keep drivers aware of their speeds and the need to slow down near schools. They are typically mounted on a speed limit sign and visually display drivers' real-time speeds as they pass. Drivers see how fast they are actually driving compared to the posted speed limit. Some active speed monitors are solar-powered.

Traffic Complaint Hotlines

A traffic complaint hotline allows community members to report traffic problems directly to law enforcement. It is used to identify the worst traffic problem areas and the most frequent traffic complaints. Police follow up with enforcement in the identified area and schedule additional enforcement if needed.

Tool: Speed Trailer

Definition

Portable trailer that displays drivers' speeds.

Advantages

- Provides immediate feedback.
- Does not require officer to be present.
- Relatively low cost.
- Can be moved to varying locations near the school.

Considerations

- Not a substitute for permanent action.

Tool: Active Speed Monitor

Definition

Permanent device that displays drivers' speeds.

Advantages

- Provides immediate feedback.
- Does not require officer to be present.

Considerations

- Cannot be moved around easily.

Tool: Traffic Complaint Hotline

Definition

Community members report traffic problems to police.

Advantages

- Enables law enforcement to quickly identify issues.
- Enables public to be engaged.

Putting It Into Practice: Traffic Complaint Hotline Phoenix, AZ

The City of Phoenix, Arizona, operates a traffic complaint hotline in which a police sergeant monitors all of the complaints and assigns enforcement areas to other motor officers based on calls to complaint center. If the hotline caller leaves his or her name and phone number, an officer returns the call with enforcement results, including when the enforcement was conducted and for how long. Officers also report how many warnings, moving violations and non-moving violations were issued during the enforcement effort. When officers observe a high number of violations, they schedule additional enforcement. The City of Phoenix reports that school traffic concerns account for approximately 80 percent of the traffic complaints and requests for enforcement on the hotline. The hotline created a stronger link between police officials and the community at large as residents saw their complaints were addressed.

Photo Enforcement

Automated photo speed enforcement takes a real-time photo of traffic to record vehicle speeds and behaviors. It can be used to document speeders and those who drive dangerously through crosswalks. In several evaluations, the presence of photo enforcement at intersections has resulted in fewer drivers running red lights and a decline in collisions.^{8, 9} The mere presence or threat of photo speed enforcement at a school may result in better driver compliance and behavior.

Automated photo speed enforcement (photo radar) is just one of many tools law enforcement has to influence driver behavior and reduce vehicle speed. Photo radar systems typically operate on set speed thresholds, (e.g., 11 mph or more over the posted speed limit) only capturing images of motor vehicles moving at or above the established threshold. When a violation occurs, the system captures speed data, as well as images of the motor vehicle (and in some systems the driver) at the time of the violation. Citations are typically issued through the mail to the registered owner of the vehicle after a review of the vehicle and registration information is completed.

Photo enforcement technology does not replace traditional methods of traffic enforcement. Rather, it serves as a supplement to traditional traffic enforcement techniques, in addition to educational and engineering efforts designed to enhance traffic safety.

The use of photo enforcement technology may be affected or limited by state or local statutes. Communities wishing to apply this technology to their traffic safety efforts should consult with local courts, prosecuting authorities, law enforcement and community groups in the planning and development of their photo enforcement programs. Some states do not allow photo speed enforcement, and for other states the areas where photo enforcement is permitted vary. Some states may not allow photo radar in general, but permit it in school zones. Also, in some locations where photo enforcement is not permitted, citizen advocates can petition their legislators to permit its use in school zones. An acceptable compromise may be reached if, for example, photo enforcement is limited to school crossings during school arrival and departure times. Photo radar provides



communities with a highly flexible tool that can be deployed when and where it is needed for maximum effect. Most systems also capture data on traffic flow and average speeds, enabling communities to measure the effectiveness of the deployments in relation to crash data for the area. A permanent, fixed photo speed enforcement camera in a neighborhood will almost never be financially viable, but a mobile photo speed unit that can be carried in vans provides a feasible alternative. Such mobile units can provide excellent citywide coverage for multiple schools. In these cases, a vendor operates the equipment, but law enforcement officers review the photos and issue citations.

Tool: Photo Enforcement

Definition

Mobile cameras connected to speed measuring devices record violations and citations can be issued.

Advantages

- Flexibility, does not require presence of officer.
- An effective deterrent to speeding because would-be offenders do not know when camera is operating.
- An effective part of an overall traffic safety program.

Considerations

- Does not replace traditional approach to traffic enforcement.
- Equipment costs.
- Not allowed in all states.
- Requires public and political support to be effective.
- Can lead to reaction without effective public education efforts.
- Requires input from a variety of sources such as courts, prosecutors and community groups for maximum effectiveness.

The implementation of any photo enforcement program should be carefully planned, have reasonable and attainable expectations and include public input and political support. Alerting the public to the photo speed enforcement effort before it begins is critical to avoid negative publicity. Visible warning signs need to be placed in front of the future camera's location before the effort begins so drivers will understand what will happen. An effective photo enforcement program will allow for the continuous two-way exchange of information with the community and have the flexibility to meet changing traffic safety issues and concerns.

“Pedestrian Decoy” Operations

Another way to bring attention to problems with drivers not yielding to pedestrians is through a “pedestrian decoy” when law enforcement officers in highly visible civilian clothes pose as pedestrians crossing the street while other hidden officers observe their attempts. If a driver violates safe crossing rules by failing to yield to the pedestrian, the hidden officers pursue and apprehend violators. Because it is such a highly visible approach, it often garners media interest and publicizes the need for drivers to be aware of pedestrians.

To execute a successful “pedestrian decoy” operation, law enforcement should complete the following steps:

1. Identify high-risk locations for pedestrians and communicate these locations to law enforcement, traffic engineers, schools and the public.
2. Observe the locations to see the types of violations that are occurring.
3. Calculate a reasonable amount of time for a driver to see and react to the pedestrian, and mark that distance back from the crossing with a cone or

sign. One measure would be the “slide-to-stop” formula using a speed 10 mph over the posted limit.

4. Dress the “pedestrian” or law enforcement officer in high-visibility civilian clothes. He or she should not step into the street if the motor vehicle has passed the safe distance cone.
5. Identify violators and apprehend them. Other officers observe the crossing attempts from a hidden location that allows them to pursue and apprehend violators. If a concealed location is not feasible, the decoy officer can carry a radio to alert fellow officers of a violator.

Effective programs operate in Miami Beach, Florida, and in Annapolis and Montgomery counties in Maryland. Additional cities in Washington, Oregon, Nevada, Georgia, Maryland and New Mexico are actively pursuing the concept.

Tool: “Pedestrian Decoy” Operation

Definition

Police officers pose as pedestrians to identify drivers who fail to stop for crossing pedestrians.

Advantages

- Can be high visibility through media coverage.
- Can quickly identify offenders.
- Poses no threat to actual pedestrians.

Considerations

- Requires police resources, which may include overtime pay.
- Needs to be done at regular intervals.

Putting It Into Practice: “Pedestrian Decoy”

Miami Beach, FL

Miami Beach, Florida, implemented a successful “pedestrian decoy” operation. Police conducted a two-week driver yielding enforcement program using informational fliers, written and verbal warnings, decoy pedestrians and saturation enforcement operations along two corridors with a high pedestrian crash experience.

The “pedestrian decoy” operation increased the percentage of drivers yielding to pedestrians. These increases were sustained for a period of a year with minimal additional enforcement, according to results from an evaluation of the program.¹⁰

Progressive Ticketing

Progressive ticketing is a method for introducing ticketing through a three-staged process. Issuing tickets is the strongest strategy of an enforcement program and it is usually reserved for changing unsafe behaviors that other strategies failed to change or that pose a real threat to the safety of students.

There are three main steps of an effective progressive ticketing program:

1. Educating

Establish community awareness of the problem. The public needs to understand that drivers are speeding around schools and the consequences of this speeding for children's safety. Raising awareness about the problem will change some behaviors and create public support for the enforcement efforts to follow.

2. Warning

Announce what action will be taken and why. Give the public time to change behaviors before ticketing starts. Fliers, signs, newspaper stories and official warnings from officers can all serve as reminders.

3. Ticketing

Finally, after the warning time expires, hold a press conference announcing when and where the law enforcement operations will occur. If offenders continue their unsafe behaviors, officers issue tickets.

Beginning a ticketing program with education and warnings is important, as it provides time to build support for the program as well as time for offenders to change their behaviors. Communities often find that parents receive many of the warnings and tickets issued by officers with school officials also being occasionally ticketed.^{2, 11} When conducting speed enforcement inside neighborhoods, 75 percent to 80 percent of the ticketed drivers live within a mile of the enforcement site. Conducting enforcement at a school results in the percentage typically being on the higher side of this range.

Issuing warnings allows law enforcement to contact up to 20 times as many non-compliant drivers than the writing of citations does. In addition, the high frequency of stops ensures not only that many people directly make contact with law enforcement, but also that many

Tool: Progressive Ticketing

Definition

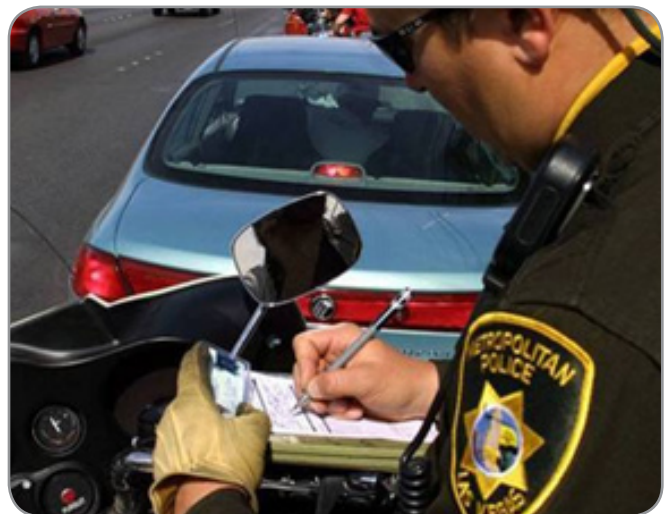
After a period of awareness building, unsafe behaviors are detected and ticketed.

Advantages

- Can be high visibility through media coverage.
- Can quickly identify offenders.
- Consequences are often sufficient to deter behaviors.

Considerations

- Requires police resources, which may include overtime pay.
- Needs to be done at regular intervals.
- Should be reserved for serious offenses.



Dan Burden

others witness these stops and are prompted to start to obey the rules.¹⁰

Issuing tickets is needed, however, to deal with the drivers who continue the unsafe behaviors. Ticketing also gives the program credibility by showing that law enforcement is doing exactly what they said they would do if unsafe behavior did not change. Unfortunately, for some people receiving a ticket and experiencing the consequences are the only ways to get them to become safer drivers.

Speed Enforcement in School Zone

Strict enforcement of speed laws in school zones is one law enforcement tool that can improve the safety for children walking and bicycling to school as well as drivers. A zero tolerance policy for speeders in school zones and even an increase in fines for drivers who violate the posted school zone speed limit are potential approaches.



David Parisi

Putting It Into Practice: Double Fines for Speeders in School Zones State of Washington

In 1997, Washington State enacted legislation that doubled the basic fine for drivers speeding in a school zone. This fine cannot be waived, suspended or reduced. One-half of the revenue generated is directed into an account managed by the State's Governor's Highway Safety Office (the Washington Traffic Safety Commission) that is designed to enhance safety in school zones and pupil transportation. The legislature allows \$1.5 million to be spent per biennium, with \$1 million for law enforcement and \$500,000 for public education. Funds for law enforcement are available to agencies through an application process. These funds can be used to purchase equipment, such as radars, computers, patrol cars or motorcycles that improves safety in school zones or pupil transportation. The public education funds make it possible to produce and disseminate products such as public service announcements, radio and bus ads, and crossing guard equipment. The funds have also been used to provide mini-grants to support International Walk to School Day celebrations around the state and have paid for the creation and distribution of the School Administrator's Guide to Pedestrian Safety and the School Safety Resource Kit.



Through proactive enforcement, where law enforcement officers are focusing on school zone safety, communities have seen reductions in collisions in school zones. For example, collision rates in school zones have declined by 23 percent in Bremerton, Washington, and by 13 percent in Tumwater, Washington.

References

1. Killing Speed and Saving Lives, UK Department of Transportation 1987.
2. Moffat, John. National Highway Traffic Safety Administration. Email communication from April 7, 2006.
3. Case Study 70, Radar Trailers in Neighborhood, Bellevue, Washington. In PEDSAFE: Pedestrian Safety Guide and Countermeasure Selection System September, 2004. FHWA-SA-04-003 U.S. Department of Transportation Federal Highway Administration Available www.walkinginfo.org/pedsafe/case_studies2.cfm?op=L&subop=I&state_name=Washington.
4. FHWA Course on Bicycle and Pedestrian Transportation. Lesson 14: Pedestrian Signing and Pavement Markings. U.S. Department of Transportation, Federal Highway Administration. Available: http://safety.fhwa.dot.gov/ped_bike/univcourse/swless14.htm . Accessed December 28, 2005
5. Pedestrian Facilities Users Guide: Providing Safety and Mobility. March 2002. FHWA-RD-01-102 U.S. Department of Transportation, Federal Highway Administration.
6. Case Study 71, Neighborhood Speed Watch Programs, Phoenix, Arizona. In PEDSAFE: Pedestrian Safety Guide and Countermeasure Selection System September, 2004. FHWA-SA-04-003 U.S. Department of Transportation Federal Highway Administration Available www.walkinginfo.org/pedsafe/case_studies2.cfm?op=L&subop=I&state_name=Arizona
7. Pedestrian Facilities Users Guide: Providing Safety and Mobility. March 2002. FHWA-RD-01-102 U.S. Department of Transportation, Federal Highway Administration.
8. Case Study 67, Red Light Camera Enforcement, Boulder Colorado. In PEDSAFE: Pedestrian Safety Guide and Countermeasure Selection System September, 2004. FHWA-SA-04-003 U.S. Department of Transportation Federal Highway Administration Available: www.walkinginfo.org/pedsafe/case_studies2.cfm?op=L&subop=I&state_name=Colorado.
9. Case Study 68, Red Light Photo Enforcement, West Hollywood, California. In PEDSAFE: Pedestrian Safety Guide and Countermeasure Selection System September, 2004. FHWA-SA-04-003 U.S. Department of Transportation Federal Highway Administration Available www.walkinginfo.org/pedsafe/case_studies2.cfm?op=L&subop=I&state_name=California
10. Van Houten, R., and J.E.L. Malenfant, The Effects of a Behavioral Pedestrian Enforcement Program on Yielding Behavior in the City of Miami Beach, Final Report Proposal, Center for Education and Research in Safety, December 2003.
11. Gillum, Jack. "Traffic officers at school zones: As classes start, police step up speed patrols." The Arizona Republic. Aug. 8, 2005. Available: www.azcentral.com/12news/news/articles/0808bts-traffic08-CP.html Accessed: April 11, 2006.

Encouragement



Created February 2007

Contents

Encouragement

- Overview 5-1**
- Special Events 5-3**
 - International Walk to School Events 5-4
 - Other Special Events 5-5
- Mileage Clubs and Contests 5-7**
- Ongoing Activities 5-12**
 - Walking School Buses and Bicycle Trains 5-12
 - Park and Walk 5-17
 - On-campus Walking Activities 5-18
- Using More than One Encouragement Strategy 5-20**
- Resources 5-22**
- References 5-23**

Overview

Encouragement strategies are about having fun; they generate excitement and interest in walking and bicycling. Special events, mileage clubs, contests and ongoing activities all provide ways for parents and children to discover, or rediscover, that walking and bicycling are do-able and a lot of fun.

Encouragement is one of the complementary strategies that Safe Routes to School (SRTS) programs use to increase the number of children who walk and bicycle to school safely. In particular, encouragement and education strategies are closely intertwined, working together to promote walking and bicycling by rewarding participation and educating children and adults about safety and the benefits of bicycling and walking.

Encouragement activities also play an important role moving the overall SRTS program forward because they build interest and enthusiasm, which can buoy support for changes that might require more time and resources, such as constructing a new sidewalk.

In brief, encouragement activities:

- Can be quick and easy to start.
- Can be done with little funding.
- Can be organized by parents, students, teachers or community volunteers.
- Focus on fun and enjoyment.
- Jumpstart a community's interest in walking and bicycling.
- Show quick success and generate enthusiasm for other strategies that may require a greater investment of time and resources.
- Can foster safe walking, bicycling and physical activity behaviors that will be useful throughout children's lives.
- Offer teachable moments to reinforce safe walking and bicycling behaviors.

There are many encouragement strategies that will be described in this chapter, such as Walk to School Days, when the whole school is invited to take one day off

from their usual routine to join in the parade of children walking and bicycling to school. Walking school buses and bicycle trains are organized efforts that group children with adults for safety and for fun while contests help to encourage students to walk or bicycle by offering rewards and recognition.

The ideas described in this chapter are just a sample of what a community can create. Divided into three categories, each category in this chapter includes a description, a summary of how to conduct the activity and examples of how real-life communities are “putting it into practice.”



Families walking to Saluda School in Saluda, North Carolina.



Walking to Putnam Heights Elementary School in Eau Claire, Wisconsin.

Planning Encouragement Efforts That Fit the Community

Answering the following questions can help a community plan encouragement activities that are the right size and reach the intended audience. An assessment of school walking routes along with surveys or informal discussions with parents, school personnel and students are ways to gather this information.

- **Is it safe to walk or bicycle to school?**

If conditions are safe for all, encouragement strategies can begin immediately. At any given school there may be one or more routes that are safe for walking and bicycling, while other routes may need improvements. Families that live along safe routes should be encouraged to use them while making safety improvements to the unsafe routes. At the same time, walking activities can be held on school grounds in areas that have unsafe routes to school. Holding a walk before, during or after the school day that takes children around the school campus can help get them excited about more walking and ready to use safe routes once they are in place.

- **Are there children who live near enough to school to walk or bicycle but do not currently do so? If yes, why are they not walking or bicycling?**

Encouragement strategies can help address the barriers. For example, would parents allow their children to walk or bicycle if they were in groups or accompanied by adults?

- **Do many children live too far from school to walk or bicycle?**

Most encouragement strategies can include children that live beyond walking and bicycling distance, such as by establishing park and walk locations so that families can walk part of the trip to school.

- **What is the degree of interest and volunteer involvement?**

This will determine the initial size of the program. Should activities start small or is there enough interest, resources, and staff or volunteers to kick off a larger effort?

The encouragement activities that are chosen will be influenced by the number of children that are able to walk and bicycle from home and whether there is a desire to include children who live too far or have unsafe routes. For every activity a plan to measure the impact should be created so that volunteers and partners can find out how their work is making a difference.

Special Events

A special event is usually a one-day activity to celebrate walking and bicycling to school. Most often, families walk or bicycle from home or from a group meeting area. Signs, balloons and banners can be used to create an air of excitement and celebration. When they arrive at the school, participants might be greeted by the school principal or a school mascot and receive snacks and small gifts like stickers. A press conference, songs, flag salute or other group activity round out the event.

Volunteers help plan the event, walk with children and give out items at the school. These events offer the added benefits of bringing visibility to Safe Routes to School (SRTS) and related issues as well as educating families and the broader community about the benefits and joy of walking and bicycling safely to school. They may be held once a year, such as International Walk to School Day, or several times during the year.



Justin Booth

International Walk to School Day at Early Childhood Center 61, Buffalo, New York.



Jewel Johnson

International Walk to School Day at Edgecombe Elementary, Baltimore, Maryland.

Strategy: Special Event

Description

- Specially designated day when families walk or bicycle to school.
- May include a group walk from a designated meeting point, healthy snacks, giveaways for children, an assembly, media coverage and/or the use of walkability and bikeability checklists.

Advantages

- Less labor intensive than ongoing activities.
- Opportunity to engage broader community, including politicians and other community leaders, and bring visibility for Safe Routes to School.
- Opportunity to gain media coverage.

Considerations

- Requires providing a route, or routes, that will be safe for all participants which may not be a route from their homes.
- Limited ability to promote daily walking to school.

Quick steps for a special event

1. Find partners including parents, school personnel, law enforcement and community members.
2. Plan the celebration, including a safe route and any needed volunteers and incentives.
3. For International Walk to School events in the United States, register at www.walktoschool.org/register.
4. Promote the event.
5. Have fun.

See www.walktoschool.org/getstarted/index.cfm for tools, activities and detailed information.

International Walk to School Events

International Walk to School Day, held in October each year, joins children and adults from around the world to celebrate walking and bicycling to school.

This event can be a fun way to kick off an SRTS program. In fact, many participating communities use the event to work towards creating safe environments that support walking and bicycling every day. A survey of U.S. Walk to School Coordinators in 2002 found that 43 percent were working towards making permanent changes in conjunction with their event, and that percentage is on the rise.^{1, 2} In 2005, over one-half of registered events were part of ongoing activities at the school to promote bicycling and walking.³

Since it began in the United States in 1997, participation, both within the United States and in other countries, has grown every year. The event's popularity led to the establishment of October as International Walk to School Month, giving communities the flexibility to celebrate on a single day, week or throughout the month. Information about how to register for and plan a local event can be found at www.walktoschool.org. Also see the 2005 International Walk to School Report at www.walktoschool.org/resources/reports.cfm.



Jen Cole



Anne Le Reverend

Walking to Vallecito School in San Rafael, California.

Walkability and Bikeability Checklists

Walkability and bikeability checklists are designed for use by parents, children, school officials and other community members to assess the safety conditions of the route to school. They are often used during special events to get children and adults to think about what is good and what needs to be improved along the school route. Results are summarized and shared with decision makers and media to help gain support for needed improvements. Easy to use tools like the Walkability and Bikeability checklists are good ways for the public to identify the issues that need to be addressed. See the Engineering chapter for information about other assessment tools.

Download the Walkability Checklist at www.walkinginfo.org/walkingchecklist.cfm and the Bikeability Checklist at www.bicyclinginfo.org/cps/checklist.cfm.

Walkability Checklist

How walkable is your community?

Take a walk with a child and decide for yourselves.

Everyone benefits from walking. These benefits include improved fitness, clean air, reduced risks of certain health problems, and a greater sense of community. The walking route to be safe and easy. Take a walk with your child and use this checklist to decide if your neighborhood is a friendly place to walk. Take heart if you find problems; there are ways you can make things better.

Getting started:

First, you'll need to pick a place to walk, like the route to school, a friend's home or just somewhere fun to go.

The second step involves the checklist. Read over the checklist before you go and as you walk, note the location of things you would like to change.

At the end of your walk, give each question a rating. Then add up the numbers to see how you rate your walk overall!

After you've rated your walk and identified any problem areas, the next step is to figure out what you can do to improve your community's walk. You'll find both immediate actions and long-term solutions under "Improving Your Community's Walk..." on the third page.



Putting It Into Practice: International Walk to School Day

Hinsdale Consolidated School District, Hinsdale, IL

A few years ago, Hinsdale parents, school administration and community leaders were concerned about the increasing traffic congestion and the decreasing number of walkers around their seven neighborhood schools. Through collaboration with schools, villages and other governing bodies, their first Walk to School event was held.

The first year's celebration was promoted with the slogans, "Feel the Power of the Fourth" and "May the Fourth be With You", and signs with Yoda from Star Wars on them. The Star Wars theme was used to remind participants of the October 4th Walk to School date. As part of the day, participants were asked to complete walkability checklists in order to learn more about safety concerns along walk routes. Students and their families along with caregivers, law enforcement officers, firefighters, local, state and federal political leaders, teachers and staff, all wearing walk to school buttons, arrived at school on foot. A short flag pole ceremony and recognition of dignitaries and supporters wrapped up the event.

The Walk to School celebration described here as well as those held in subsequent years brought visibility to pedestrian safety concerns, which helped build support for a planned network of sidewalks, with the focus on providing walkways to schools, parks, and other locations generating pedestrian traffic. Other school based activities, including classroom lessons, mileage clubs and incentives have been initiated to meet the interest in promoting walking.⁴

Other Special Events

Many communities choose to have more than one Walk to School Day during the year, and some expand their event to include bicyclists, parents and drivers. "Walk and Roll to School Day" is a popular theme for many, but some places choose a separate day to celebrate bicycling including Earth Day, Trail Day, Car Free Day, Bicycle-to-Work Day and Bike Month. Traffic Safety Day, another event theme, provides an opportunity to include education for drivers. See the Education chapter for more information on safety days.



Mesa, Arizona

Putting It Into Practice: Cycle Saturation Project

St John's Catholic Primary School, Rotherhithe, United Kingdom

St. John's Primary School has taken up bicycling with great enthusiasm as a result of a £20,000 (approximately \$34,000) local project funded by Rotherhithe Community Council. The funds have been used for bicycle training, bicycle events and bicycle racks to encourage bicycling to school as an alternative to riding in a motor vehicle.

Southwark Cyclists (www.southwarkcyclists.org.uk), the project coordinators, selected St. John's school because of the principal's support and the students' enthusiasm, 84 percent of whom expressed a desire to bicycle to school. The key reason for the school's involvement was concerns about the traffic congestion during pick-up and drop-off times.

The Cycle Saturation project, managed on a day-to-day basis by SEA/RENUE (www.sustainable-energy.org.uk), built on the students' desires to bicycle to school by providing bicycle training for all interested students. Cycle Training UK (www.cycletraining.co.uk) provided the instructors to train students, parents and teachers and conducted maintenance workshops to ensure that the students' bicycles were well-maintained. The project also added new bicycle racks because the existing ones were full every day.

The school also planned a series of events to complement the training, beginning in April with an event that included bicycle games. In June, all children and adults who bicycled that month were invited to a Bicycle Breakfast. The events were capped by a Bike Week bicycling celebration. With the help of Southwark Cyclists, these events were held jointly with a neighboring school where bicycling was already very popular. For the following school year, a bicycle club was planned in order to build on the momentum of the project and ensure that the bicycle racks stay full in the future.

Putting It Into Practice: Monthly Walk and Roll to School Days

Mason Elementary, Duluth, GA

When the Safe Routes to School project started at suburban Mason Elementary School, just a handful of the 1,200 students walked to school and only one bicycled. So when the first "Walk and Roll to School Day" was planned, organizers weren't sure the event would be much of a success. Organizers reported that over 100 kids walked with the Walking School Bus, 50 joined the Bicycle Train, lots of parents came out and the enthusiasm for the now-monthly Walk and Roll to School Days hasn't let up since.

To keep it interesting, each monthly Walk and Roll event at Mason had a special theme. In November, with growing darkness, the theme was "Be Safe, Be Seen." In January it was "A Polar Bear Walk and Roll" to encourage walking and bicycling in cold weather. Children were greeted with hot chocolate and a giant painted polar bear. In February, the theme focused on healthy hearts; in March, kids were encouraged to "Be One Less Car." At the end of the school year, the theme was a retrospective of the year's Walk and Roll events including a picture album and a banner decorated with students' personal reflections on walking and bicycling to school. One fifth grader tearfully lamented moving on to middle school because she would miss these special days.

Organizers reported that the Walk and Roll events at Mason have planted the seeds for daily walking and bicycling. The new bicycle racks are often full, walking and bicycling has become "cool" to do, and the "coolest" kids try to hide their excitement on Walk and Roll Days. "What's the big deal?" they said, "We do this every day!"

Mileage Clubs and Contests

Mileage clubs and contests encourage children either to begin walking and bicycling to school or to increase their current amount of physical activity by making it fun and rewarding. Generally children track the amount of miles they walk or bicycle and get a small gift or a chance to win a prize after a certain mileage goal is reached.

Mileage clubs and contests are usually designed in one of three ways:

1. On an individual basis where every child logs miles walked or bicycled and has a chance to win.
2. As a classroom competition where a classroom's collective miles are compared against other classes.
3. As a competition among schools.

Winners are rewarded with prizes including medals, certificates or trophies.

These activities are very flexible. Depending on the school, the competition aspect can be emphasized or not, and the rewards can be elaborate or simple. In rural areas or other places where the route to school is unsafe or difficult to walk or bicycle, the activity can be modified by providing credit for distance walked and bicycled at home, to and from a bus stop, or during the school day on campus.

Mileage clubs and contests usually involve incentives like prizes or small gifts. In order to be most effective, incentives need to be provided in concert with other strategies over a period of time, not just given once.^{5, 6, 7, 8}



In Marin County, California, prizes were awarded for frequent walker/rider contest winners.



Students walking the track in Fayetteville, North Carolina.

Strategy: Mileage Clubs or Contests

Description

Children are rewarded for walking and bicycling, usually based on reaching certain distances or walking or bicycling a certain number of times.

Advantages

- Can provide quick reinforcement for walking and bicycling.
- Children like incentives.
- Can include all students.
- Can include walking and bicycling beyond the trip to school.

Considerations

- Needs a coordinator.
- Requires record-keeping.
- Should be age appropriate and simple in design.

Quick steps to a mileage club or contest

1. Identify coordinator and (if necessary) obtain school's support.
2. Decide where children can accrue mileage (on the way to school, at home, on the school campus).
3. Create system for logging and tracking mileage or number of times walked/bicycled.
4. Decide on incentives.
5. Promote.
6. Kick off.
7. Recognize and reward participation.
8. Track participation.
9. Make changes as needed.

Putting It Into Practice: "Passport to Health"

Lytchett Matravers Primary School, Dorset, England

In October 2004, Lytchett Matravers Primary School in Dorset, England, launched a walking incentive initiative called "Passport to Health." Involving more than 400 children, the initiative was designed to reduce traffic around the school and to improve the health and fitness of children and parents.

As part of the initiative, children are given a "passport" that is stamped each time they walk to and from school. The number of stamps received depends on the distance walked. The school produced a map of the local area on which every road was color-coded into zones, so that children who come to school by motor vehicle can be dropped off within a specific zone and still earn stamps for their passports. The school has also marked out a walking route around the playground, so children traveling to school by bus can participate by walking measured distances within the playground at certain times of the day. Children exchange the earned passport stamps for small prizes.

Since the initiative's introduction, organizers have measured an 18 percent reduction in motor vehicle use around the school, as well as a 16 percent increase in walking and bicycling rates. Children and a group of staff members are now responsible for managing the initiative on a daily basis. Lytchett Matravers is working with other schools in the area that want to develop similar passport schemes.



Robert Smith

Earning passport stamps at Lytchett Matravers Primary School in Dorset, England.

Putting It Into Practice: "Go for Gold" Buckinghamshire, United Kingdom

"Go for Gold" is an informal walking initiative developed to encourage children to walk to school with the added benefits of helping to reduce traffic congestion and pollution and to promote healthier lifestyles.

Children who choose to register for the activity are issued a "passport" that is marked with a sticker for every walk to school. Organizers designated drop-off and parking areas so children who live farther away have the chance to walk at least part of the way. When a student walks to school ten times, he or she receives a colored star, and different colors are awarded for successive milestones, with gold the highest ranking. Incentives are awarded according to the number of stars a student has collected.

Go for Gold is simple and inexpensive, and schools participating in the initiative have seen a significant decrease in motor vehicle use. One school reduced motor vehicle use from 62 percent in 2000 to 26 percent in 2001 with 80 percent of children participating. The reduction has been maintained at 26 percent through 2003. The Go for Gold initiative has been replicated in other school districts in the UK. In 2002, the Go for Gold initiative received the International Walk to School Award for its impressive accomplishments.



Putting It Into Practice: Frequent Walker/Rider Program Lincoln Elementary School, Elmhurst, IL

In an effort to increase physical activity and health awareness as well as to reduce traffic congestion, the Lincoln Elementary PTA developed a Frequent Walker/Rider Program in 2003 to encourage children to walk or bicycle to school on a regular basis. Walk to School Days are scheduled for the third Tuesday of each month and are published on the school calendar.

On each Walk to School Day, parent volunteers and teachers meet children at the four primary school corners to punch students' Frequent Walker/Rider Punchcards. As incentives for participation, walkers and bicycle riders receive small prizes, and the school holds a year-end event to recognize children who have participated on the majority of the Walk to School Days.

The Frequent Walker/Rider Program led to an increase in the number of walkers and bicycle riders on the Walk to School Days as well as on a daily basis. Lincoln Elementary has approximately 500 children who live within a mile and a half of the school, and overall participation in the warmer months was between 90 percent and 95 percent. In colder months, participation falls only slightly (to between 80 percent and 90 percent) on the scheduled days. The activities have become part of the school's culture, and Lincoln children look forward to participating each year.



Putting It Into Practice: The IWALK Club Ontario, Canada

The IWALK Club was initiated in 2004 by Green Communities' Active & Safe Routes to School (ASRTS) in Ontario, Canada, as a strategy to encourage families to walk to school more regularly using the motivation of increasing daily physical activity. The Club makes walking and other forms of active travel fun by using incentives and rewards for students and by introducing in-school activities. The IWALK Club has several goals:

1. Reduce motor vehicle trips to the school.
2. Encourage walking and other active travel.
3. Reduce pollution and climate change emissions.
4. Promote healthier lifestyle choices for students and their families.



Schools register for the IWALK Club online and complete a short questionnaire which serves as a baseline for each school. Students are provided with an IWALK Club card and every time they walk to school or participate in a related in-school activity, like a kilometer club or walking club, they receive a stamp in their card. Every tenth stamp is a golden sneaker sticker. Five golden sneaker stickers equal 50 walks, upon which the student receives a certificate of achievement. Schools can add their own incentives, like an extra recess for class achievement or the awarding of a Golden Shoe Award.

Curriculum-linked classroom activity ideas are provided with the IWALK Club package along with a funky poster map of the world to encourage classes to "walk around the world" by walking to school or in school. All classroom resources are linked to the Ontario curriculum and cover several subject areas including science, math, geography, history, art, writing, music and physical education. The classroom resources cover the issues on the importance of daily physical activity; the impacts of air quality and climate change on human and environmental health; community design, land use planning and transportation; healthy, active bodies for healthy, active minds; and traffic safety and awareness.

Green Communities conducts a follow-up evaluation with each registered school and compares it to the baseline information. Schools that show a measurable difference in participation are entered into a drawing for three grand prizes, awarded each year during International Walk to School Week.

To learn more about this program, download resources and view the registration form, visit the ASRTS program IWALK Club at <http://saferoutestoschool.ca/index.php?page=iwalkclub>.

Putting It Into Practice: Snapshots From Several Communities

Various Locations

There are many ways to design mileage clubs and contests. A few brief examples are provided here. Also see the National Highway Traffic Safety Administration Safe Routes to School Toolkit at www.nhtsa.dot.gov/people/injury/pedimot/bike/Safe-Routes-2002 and the Marin County Safe Routes to School site at <http://saferoutestoschools.org/events.html> for further detail and other ideas.

Collecting miles in Marin County

In Marin County, California, many activities motivate children to walk and bicycle to school. For example, Hall Middle School in Marin County developed the Golden Sneaker Award: a sneaker spray-painted gold and placed on a pedestal. Children keep track of each time they walk or bicycle to school and keep a classroom record. To include children who are unable to walk or bicycle to school, children are allowed to accrue miles on the weekend or during school recess. Each month the class with the most children walking and bicycling the greatest number of times receives the trophy and usually a celebration.



Proud students show off the Golden Sneaker Award at Hall Middle School in Larkspur, California.

Also in Marin County, children participate in "Frequent Rider Miles." Patterned after GO GERONIMO, an alternative transportation program in the San Geronimo Valley of Marin County, this activity rewards children who come to school walking, bicycling, by carpool or by bus by awarding points that are accrued and redeemed for prizes. This contest was successful in getting students to walk and bicycle on a regular basis.

Traveling across the land in Toronto

Tracking the miles walked and bicycled across land (and sometimes sea!) is another popular theme that offers added benefits such as promoting physical activity and integrating educational elements, such as geography, into the activity. Individual students, classes or schools track the distances they have walked or bicycled and add the miles together to travel across a map of their state, province, country or even a continent.

Students at Maurice Cody Public School in Toronto, Ontario, Canada, created their own Cross Canada Walking Tour. After crossing Canada, they crossed North America; by the end of the 2003 school year they had "walked" though Central America to the Panama Canal. Several other schools in Canada now use a map and classroom curriculum provided by Green Communities to track their progress and learn as they make their way across the country.

Tracking mileage

Several resources are available on the Internet to support a mileage tracking program.

- **Green Communities' Active & Safe Routes to School**
Offers a variety of activities and resources for tracking walking and bicycling mileage.
www.saferoutestoschools.ca
- **PE Central mileage log**
www.peclgjit.org/logit.asp
- **America on the Move mileage tracking system**
<http://aom.americaonthemove.org>
- **Go for Green "Walking Tour of Canada"**
<http://asrts.goforgreen.ca>
- **Marin County Bicycle Coalition Walk and Bike Across America.**
www.saferoutestoschools.org/walk

Ongoing Activities

Ongoing walking and bicycling activities are defined here as activities that are held daily, weekly or several times per month throughout the school year. Walking school buses, bicycle trains, park and walk activities and routine on-campus walks all are ongoing encouragement activities. When planning, some schools choose more than one encouragement activity and include opportunities for children that cannot walk or bicycle the route to school from their home. See the end of this section for examples of how two schools created comprehensive, inclusive encouragement campaigns.

Walking School Buses and Bicycle Trains

A walking school bus and bicycle train both consist of groups of students accompanied by adults that walk or bicycle a pre-planned route to school. Routes can originate from a particular neighborhood or, in order to include children who live too far to walk or bicycle, begin from a parking lot. They may operate daily, weekly or monthly. Often, they are started in order to address parents' concerns about traffic and personal safety while providing a chance for parents and children to socialize.

Walking school buses and bicycle trains can be loosely structured or highly organized. For example, walking buses or bicycle trains can be as simple as neighborhood families deciding to walk or bicycle together. More formal, organized walking school buses and bicycle have a coordinator who recruits volunteers and participants, creates a schedule and designs a walking route. While requiring more effort, more structured walking school buses and bicycle trains offer the opportunity to involve more children.



Students are excited about the walking school bus at the Morton Way Public School in Brampton, Ontario, Canada.



Metro Atlanta Safe Routes to School Program
Students prepare to ride to B.B. Harris Elementary in Duluth, Georgia.

Strategy: Walking School Bus or Bicycle Train

Description

Group of children that walk or bicycle to school together accompanied by one or more adults.

Advantages

- Can be loosely structured or highly organized (see “Quick steps” below).
- Can include a meeting point with a parking lot so children and parents who must drive can participate.

Considerations

- Requires identifying appropriate routes.
- Requires parents to walk with children or use waivers to address liability concerns.
- More organized structure requires considerable planning.
- Bicycle train participants need to wear helmets.



A bicycle train in Mill Valley, California.

Quick steps to a walking school bus or bicycle train

Loose, informal structure

1. Invite families who live nearby to walk or bicycle as a group.
2. Pick a route and take a test walk or ride.
3. Decide how often the group will travel together.
4. Start walking or bicycling.

Highly organized, more formal structure

1. Determine the amount of interest in a walking school bus or bicycle train. Contact potential participants and partners and identify a coordinator.
2. Identify the route(s).
3. Identify a sufficient number of adults to supervise walkers or bicyclists. (The Centers for Disease Control recommends one adult per three children for children ages 4 to 6 and one adult for six children for older elementary children ages 7 to 9.⁹ For bicyclists, one adult per three to six children is advisable.)
4. Finalize logistical details including setting a time schedule, training volunteers and promoting participation.
5. Kick off the activity.
6. Track participation.
7. Make changes to the activity as needed.

See *The Walking School Bus: Combining Safety, Fun and the Walk to School* at www.saferoutesinfo.org/guide/walking_school_bus/index.cfm for more detailed guidance.

Putting It Into Practice: Bike Trains at Mason Elementary

Duluth, GA

Planning their kick-off Walk and Roll to School Day, the Mason Safe Routes to School Team thought they'd include a bicycle train, but with only one student ever seen bicycling to school, they didn't actually expect more than a rider or two to pedal with the train that morning. To their great surprise, 45 children showed up with bicycles and helmets, eager to participate in Mason's first-ever bicycle train.

With that overwhelming start, the Mason bicycle train has become an integral part of the school's monthly "Walk and Roll to School Day" events. The train is staffed by volunteers from the local Gwinnett County Bicycle Users Group and a few Mason parents. The "engineer" leads the group, the "caboose" brings up the rear, and adults are interspersed between the children, with a typical ratio of one adult to four children. The train has two starting "stations" in the morning, and the two groups merge to form a large train that rides down the highly traveled road to the school. In the afternoon, the bicycle trains run back to their starting stations.

Prior to each monthly event, the Safe Routes Team sends each student home with a flier announcing the Walking School Bus and Bike Train schedule. The flier includes a permission slip, and students must return the permission slip signed by a parent in order to participate. This procedure helps clarify liability issues and assists in planning for the number of adults needed for the event. Children in kindergarten through second grade must have a parent accompany them. At the start of each ride, the train leaders are provided a list of participants.

Riders are asked to bring their own helmet and lock, but the bicycle train leaders always have extra helmets on hand. As the group gathers, the leaders distribute bright neon-green reflective safety vests, provided by the Georgia Department of Transportation. The vests provide high visibility for safety on the road and have become the signature of the Mason bike train.

A few years ago, bicycling to school was unheard of at Mason. The monthly well-supervised bicycle trains have shown families in the neighborhoods around the school that bicycling can be a transportation option and many have now incorporated bicycling into their own daily travel patterns.

Putting It Into Practice: Walking School Bus

C.P. Smith Elementary School, Burlington, VT

C.P. Smith Elementary School's walking school bus has operated every Wednesday since March 2005 as part of a Safe Routes to School program.

While the neighborhood bordering the school has a fairly complete sidewalk system, some families were concerned about their children walking to school with the considerable traffic congestion along the route. In winter 2005, parents organized a meeting with other interested families to discuss their concerns and develop guidelines for a walking school bus. The group determined the bus's route, time of departure, meeting points and other details.

Now, every Wednesday morning the bus departs from a walk leader's house with a small group of children. For late arriving students, a closed garage door indicates that the bus has left the station. The group continues along a major roadway picking up children along the way. Some parents join in the walk while others escort their children to the stop and leave when the bus arrives. There is no written schedule, however, organizers plan to install signs along the route indicating stops and schedule.

Before the walking school bus began, approximately six children walked this route to school. Now on Walking Wednesdays there are between 25 and 40 children, and the traffic congestion along the route has all but disappeared.



Cold weather does not stop C.P. Smith's walking school bus.

Putting It Into Practice: Structured Daily Walking School Bus

Natomas Park Elementary School, Sacramento, CA

At Natomas Park Elementary School in Sacramento, California, parents organize the walking school bus, which includes five routes based on where children live and a schedule with times for each stop. In order to participate, parents register their children ahead of time.

Walk leaders include parents and employees from a local business, which is a sponsor of the activity. Each volunteer must have a background check prior to participation. Training for volunteers, provided by the parent leader, includes first aid, CPR and pedestrian safety. While walking, volunteers wear vests and carry first aid kits.

To recognize the walkers' achievements, parent volunteers track the total number of miles walked during the school year and announce it at a year-end assembly. Walkers also receive T-shirts and certificates.

About 50 children participate and many more children are now seen walking to school. Organizers have recently expanded the activity to include remote sites where parents can drop off their children and adult volunteers walk with the children the rest of the way to school.



A walking school bus at Natomas Park Elementary School.

Putting It Into Practice: Walking School Bus

Olive Chapel Elementary School, Apex, NC

In 2004, the Olive Chapel Walk to School Coalition kicked-off a monthly walking school bus, giving families an opportunity to walk to school despite the construction that neighborhoods near the school had experienced in recent years.

“Neighborhood captains,” parents and children walk from six separate departure points to the school. One route meets in a parking lot so families who live too far to walk can participate. Reminders about the monthly walk are sent home on the previous Friday, and children who participate receive prizes.

Parent volunteers act as neighborhood captains. At the start of the school year, they receive safety training. During the walks, they wear green vests and use whistles to communicate to children when they need to stop. Because the activity is designed to be family-oriented, parents are required to walk with their children to school, but they are free to arrange among themselves to supervise each other’s children.

A volunteer parent and the school physical education teacher share leadership of this growing activity. Since it began, one route has had as many as 200 people who regularly walk.



Olive Chapel Elementary students walk to school.

Putting It Into Practice: Informal Walking School Bus

Ephesus Elementary School, Chapel Hill, NC

At Ephesus Elementary School, a loosely organized walking school bus gets families out the door. In the past few years, more families have started walking, bicycling and riding scooters to school. In various neighborhoods, parents and children meet and walk to school together. If a parent is unable to walk on a particular day, another parent is contacted to supervise and walk with the child. According to parents, one of the greatest benefits of walking to school is the chance to socialize and get to know other families.



Sara Latta

Ephesus Elementary School walkers on International Walk to School Day.

Park and Walk

A pre-determined parking lot acts as the meeting area for families who drive and then park and walk the remaining distance to school. Some communities require parents to walk with their children to school while others have designated adult volunteers to walk groups of children from the parking area to school.

Park and walk campaigns have the potential to reduce traffic congestion around a school and encourage physical activity for parents and children. This strategy is especially helpful for including families who live too far from the school to walk or who do not have a safe route to school.



Karen Cranford

Walking to Kendallvue Elementary in Morrison, Colorado.

Strategy: Park and Walk

Description

Instead of driving to the school, families drive to a remote parking lot and walk the remainder of the trip.

Advantages

- Includes families who live too far to walk or have an unsafe route.
- Encourages neighborhood involvement.
- Reduces traffic congestion at the school.

Considerations

- Requires identifying a safe route from the parking area to the school.
- Requires working with the parking lots owner.

Quick steps to a park and walk activity

1. Locate a parking lot within walking distance of the school. Work with lot owner to allow use.
2. Map a safe route to school from parking area.
3. Recruit volunteers if parents are not required to walk with their children.
4. Promote it.
5. Kick off.
6. Track participation.
7. Make changes to the activity as needed.

Putting It Into Practice: Park and Walk With a Walking School Bus

Arborfield, Newland and Barkham C.E. Junior School, Arborfield, England

In order to ease congestion around Arborfield, Newland and Barkham C.E. Junior School, the school's council established a School Travel Plan in March 2004. The plan includes a walking school bus that leaves from a designated parking area where parent volunteers supervise the children's walk to school.

After the plan was created, organizers asked parents to register their children and also to volunteer to lead the walking school buses. A local organization gave permission for the school to use its parking lot as the designated area for parents to meet the walking school bus. Children who participated were required to register each day, wear a fluorescent jacket and leave the lot at the predetermined time guided by volunteers.

As an incentive for children, school officials regularly ask special guests, like Santa Claus in December, to join their walks to school. School officials report many benefits of their activities: walking school buses are free of capital costs, and they help ease congestion and pollution. The children enjoy the walk, make new friends and have the opportunity to see things around them that they might miss if they were driven to school.

See Park and Walk "The Walking Bus" at www.arborfield.wokingham.sch.uk/walking%20bus.htm for more information.¹⁰



Arborfield, Newland and Barkham C.E. Junior School Walking School Bus, Arborfield, England.

On-campus Walking Activities

In rural areas or other places where it is unsafe or difficult to walk to school, communities can encourage walking on the school campus. For example, school officials can establish walking activities before or after school or during recess, physical education or health class. Walk routes on the school grounds provide all students an opportunity to walk a safe route and increase their physical activity. Ideas presented in the Mileage Clubs and Contests section also provide suggestions for incorporating routine walking into the school day.



Logging miles on the track at Trumansburg Elementary School, Trumansburg, New York.

Strategy: On-campus Walking Activities

Description

Walks are held on the school campus during the school day, such as during physical education classes or recess, or occur before or after school.

Advantages

- Includes children that may otherwise not be able to participate in SRTS activities.

Considerations

- Needs school or volunteer coordinator and support from administration.
- May require time in the school schedule.

Quick steps to on-campus walking activities

1. Identify a coordinator and obtain school's support.
2. Determine the scope of the activity: Who will be involved? When will they walk? Where will they walk? For how long will they walk?
3. Set goals for walkers either by accumulated distance, amount of time or number of days walked.
4. Obtain incentives (optional).
5. Promote.
6. Kick off.
7. Track participation.
8. Make changes to the activity as needed.

Putting It Into Practice: The Morning Mile

Jenkins Elementary School, Scituate, MA

The "Morning Mile" at Jenkins Elementary was designed to give bus riding students an opportunity to enjoy the benefits of walking.

Parent volunteers, including men in the school's "Dad's Club," and Physical Education teachers created a half-mile loop around the school grounds for the children to walk during regular, all-school Morning Mile walks. The Dad's Club built wide timber stairways to provide pedestrian access to the playground and school. Teachers report that children had more enthusiasm for schoolwork and behaved better after venting some energy during the Morning Mile walks.



Children walking the Morning Mile at Jenkins Elementary School in Scituate, Massachusetts.

Using More than One Encouragement Strategy

The following two schools used a combination of encouragement activities: creating weekly walks, park and walk locations, contests and walking school buses to make a comprehensive, thorough encouragement component that has really motivated children and parents.

Putting It Into Practice: Comprehensive Encouragement Campaign Maurice Cody Public School, Toronto, Ontario, Canada

On Wednesday, June 8, 2005, Canada's Clean Air Day, families and staff at Maurice Cody Public School in Toronto celebrated their 200th Walking Wednesday! The celebration involved many VIPs who accompanied students, parents and staff in a community parade led by a Scottish piper.

Maurice Cody, a Junior Kindergarten through sixth-grade public school with approximately 500 students, has participated in the Green Communities' Active & Safe Routes to School since 1997. They have successfully combined daily physical activity with environmental protection and classroom learning in their Walking Wednesday activity. They are also one of four Toronto schools participating in Green Communities' School Walking Routes pilot project.



Maurice Cody celebrates its 200th Walking Wednesday.

Maurice Cody was one of the first three schools to participate in Green Communities' Active & Safe Routes to School program and the very first Toronto school to implement Walking School Buses. Almost all of the students at Maurice Cody live within walking distance of the school and about 86 percent of the school's students walk to school on Wednesdays.

Maurice Cody inspired the first weekly Walking Wednesday activity in Canada in 1999, following on the heels of International Walk to School Day, and then went on to initiate a Cross Canada Walking Tour. Not content to stay in Canada they then set off across North America and by the end of the 2003 school year they had "walked" to the Panama Canal!

The program relies heavily on parent volunteers with support from staff and students. Every Wednesday morning volunteers greet students at tables set up in the school yard or inside the school during inclement weather. Walking Wednesday banners hang on the fence around the school. As walkers arrive, they are greeted with a compilation of walking-themed music. They receive a Cody Coyote hand stamp and sign in on large shoes made from poster board which are then displayed in the school hall. For families who are unable to walk all the way to school on Wednesdays, they are urged to "walk a block" — actually a minimum of two blocks.

To track participation and encourage continued participation, each Wednesday classroom teachers count the number of students who arrive at school "actively." During the Tuesday morning announcements the participation numbers from the previous Walking Wednesday are given, along with a reminder to "W-A-L-K: Walk to School on Wednesday!" At the end of each school year, a Recognition Assembly is held and the much coveted Golden Shoe Award is presented to the class with the highest participation in Walking Wednesdays throughout the year.

See more information on Walking Wednesdays at <http://saferoutestoschool.ca/index.php?page=walkwheelwed>.

Putting It Into Practice: Comprehensive Encouragement Campaign

Morton Way Public School, Brampton, Ontario, Canada

For six years, Morton Way Public School has actively and successfully promoted walking to school through a variety of program elements: weekly Walking Wednesdays; "Walking Weeks," including International Walk to School Week, Earth Week and Environment Week; parent-led walking school buses along designated routes; "IWALK Club" cards students use each time they walk; and a "25 [Cars] or Less" campaign. With 96 percent of the students living within walking distance of the school, their Green Communities Active & Safe Routes to School program is focused on increasing daily physical activity and reducing the number of motor vehicles in the school zone at drop-off time. For the school's 870 students, the goal is to make every day Walk to School Day!

On Walking Wednesdays, parents and one teacher act as walking school bus leaders, meeting students at various locations in the school community and walking safely and happily to school as a group. Along one route, the number of participants has risen from four to over thirty. (Some leaders walk with their "buses" on other days of the week, too.) On Wednesdays, students hold up a banner outside the school stating, "Peel Students Walk" (purchased by the Police Services Board). Permanent banners (provided by Go for Green) proudly announce: "Morton Way Walks" and "Morton Way Celebrates Walking Wednesdays." As students arrive at the school, songs about walking are played outside on the stereo. Once a month, parents and grandparents are invited into the library for tea and to hear guest speakers. These "meet and greet" sessions, sponsored by the school administration, help build a sense of community. Find out more about Walking Wednesdays at <http://saferoutestoschool.ca/index.php?page=walkwheelwed>.

To promote walking every day, each student has an "IWALK Club" card to track the number of times they walk to school. Students receive small rewards after reaching ten walks and then again after fifty. Completed cards are posted on a bulletin board. As an added incentive, students can become "Walking Winners" in the monthly Walk to School Draw and classes with 100 percent participation can win the use of a bag of playground equipment for a week.

Started in 2005, the "25 or Less" campaign aims to further reduce the number of motor vehicles dropping off children in front of the school. Stickers saying "25 or Less" and "We are counting...on you!" are posted throughout the school. To promote participation, reminders are included in the school newsletter, and the number of motor vehicles is announced daily. An enthusiastic Morton Way teacher even wrote a poem describing the goals.

The Walk to School Program has now been in place for six years. Walking Wednesday is practically considered a day of the week, even by kindergarten students. Morton Way staff members are committed to the program, and they are determined to continue it, led by a five teacher "Active Schools Committee." Much of the weekly responsibilities are conducted by dedicated students who make up the "Walk to School Committee." They conduct weekly surveys, then calculate, post and announce the Walk to School results, including the classes with 100 percent participation. In 1999 surveys showed that almost half of students were driven to school regularly. In 2000 Walking Wednesdays began, and ever since, between 80 percent and 95 percent of students walk, bicycle, scooter or in-line skate to school on Wednesdays. More students are using active means of transportation on other days, too, as indicated by the reduction in the number of motor vehicles dropping off students from an average of 75 to 55.



Dale McCormack

One reason Morton Way students walk is because they care about the environment.



Morton Way students walk to celebrate Earth Week.

Resources

International Walk to School in the USA

www.walktoschool.org

International Walk to School

www.iwalktoschool.org

Walking School Bus

www.walkingschoolbus.org

NHTSA SRTS Toolkit

www.walktoschool.org/resources/srts-nhtsa.cfm

PE Central Log-It

www.peclogit.org/logit.asp

America on the Move

<http://aom.americaonthemove.org>

Marin County Bicycle Coalition Safe Routes to School Walk Across America

www.saferoutestoschools.org/walk

Active & Safe Routes to School

www.saferoutestoschool.ca

Active & Safe Routes to School Walk Across Canada

<http://asrts.goforgreen.ca/english>

The Walking School Bus: Combining Safety, Fun and the Walk to School

www.saferoutesinfo.org/guide/walking_school_bus/index.cfm

References

1. Pedestrian and Bicycle Information Center. International Walk to School 2004 Coordinator Survey. (unpublished).
2. Pedestrian and Bicycle Information Center. International Walk to School 2005 Coordinator Survey. (unpublished).
3. Pedestrian and Bicycle Information Center. International Walk to School 2005 Event Registration. (unpublished).
4. DeVahl J, King R, Williamson JW. Academic incentives for students can increase participation in and effectiveness of a physical activity program. *Journal of American College Health*, 2005 May-Jun;53(6):295–8.
5. Baranowski T, Perry C, Parcel G. How Individuals, Environments and Health Behavior Interact. Ch 8. p. 177–80. in *Health Behavior and Health Education Theory, Research, and Practice 3rd Edition*. Editors Glanz K, Rimer B, Lewis F.
6. Marchetti L, Lowrance J, Tolbert W, and Carmon T. High school students conduct seat belt and alcohol awareness campaigns: A statewide incentive program. 1994. University of North Carolina Highway Safety Research Center, Chapel Hill, NC.
7. Marchetti L, Hall W, Hunter W, and Stewart J. Strategies to educate and increase occupant protection usage among rural drivers and passengers. 1992. University of North Carolina Highway Safety Research Center, Chapel Hill, NC.
8. Marchetti L, Hall W, Hunter W, and Stewart J. Strategies to educate and increase occupant protection usage among rural drivers and passengers. 1992. University of North Carolina Highway Safety Research Center, Chapel Hill, NC.
9. Centers for Disease Control and Prevention. KidsWalk to School: A guide to promoting walking to school. Accessed at www.cdc.gov/nccdphp/dnpa/kidswalk/pdf/kidswalk.pdf on November 20, 2005.
10. Information compiled from Arborfield, Newland and Barkham C.E. Junior School. Available: www.arborfield.wokingham.sch.uk/walking%20bus.htm Accessed: March 28, 2006. And from Wokingham District Council, Available: www.wokingham.gov.uk/index.asp?pgid Accessed: March 28, 2006.

Education



Created February 2007

Contents

Education

- Overview 6-1**
 - Who6-1
 - When6-1
 - What and How.....6-2

- Children..... 6-3**
 - School-based Education6-3
 - When to Teach.....6-3
 - Key Messages For Children6-3
 - Strategies For Educating Children6-8

- Parents 6-14**
 - Key Messages For Parents6-14
 - Strategies For Reaching Parents.....6-15

- All Drivers Near the School 6-17**
 - Key Messages For Drivers Near the School.....6-18
 - Strategies For Reaching All Drivers Near the School6-18

- Neighbors..... 6-19**
 - Key Messages For Neighbors6-19
 - Strategies For Reaching Neighbors.....6-20

- Resources 6-21**
 - Pedestrian and Bicycle Safety6-21
 - Personal Safety.....6-23
 - Health and Environment6-23

- References 6-24**

Overview

Education is one of the complementary strategies in a Safe Routes to School (SRTS) program. Education activities include teaching pedestrian, bicyclist and traffic safety and creating awareness of the benefits and goals of SRTS. While education dovetails with engineering and enforcement, it is most closely linked to encouragement strategies. For example, children may learn pedestrian and bicyclist safety skills and then get the chance to join a mileage club that rewards children for walking or bicycling to school. Encouragement activities also offer “teachable moments” to reinforce pedestrian and bicyclist safety education messages.

Planning education strategies includes identifying:

- Who needs to receive information.
- When the education should be delivered.
- What information needs to be shared.
- How the messages will be conveyed.

Who

Audiences for SRTS education include:

- Children.
- Parents.
- Drivers.
- Neighbors.

Once a community decides to begin a SRTS program, each of these audiences plays a role in receiving and/or providing related education. Some sub-groups may require particular attention, such as families who do not speak English as a first language, individuals with vision, hearing or mobility impairments, and families with low-incomes. These groups are often overlooked so planning ahead for how they will be reached is important.

When

Before beginning encouragement strategies, children should receive pedestrian and bicyclist safety education. Sometimes education strategies need to begin quickly. For example, in areas with unsafe routes where children are already walking or bicycling out of necessity, educa-



Law enforcement officer teaching children about pedestrian safety in Baltimore, Maryland.



David Parisi

Educating drivers in a school drop-off and pick-up area.

tion is urgently needed to reduce the risk of injury to children until other measures can also be put into place. The timing for education activities can also depend on the issues in the community and how education fits with other parts of the SRTS program.

What and How

What information needs to be shared with each audience is presented in this chapter as “key messages.” How the information can be conveyed is described in “strategies.” Key messages and strategies are organized by audience. It is worthwhile to read about all groups because there is overlap among them. For example, sometimes parents and neighbors are also drivers near the school and thus need to be reached for a variety of reasons in a variety of ways.

.....
In areas with unsafe routes where children are already walking or bicycling out of necessity, education is urgently needed.
.....

Effective Education Strategies for Children and Adults

Planning successful Safe Routes to School (SRTS) education activities requires considering how children and adults learn best. Children benefit from a combination of educational methods such as group activities, hands-on skill building and discussion. Many of the pedestrian and bicyclist safety skills that children need cannot be taught solely by verbal instruction; they also require practical experience.^{1, 2} Hands-on activities, such as simulated street crossings and bicycle handling drills provide children with the opportunity to watch and apply safety skills. A parent or instructor walking or bicycling with a child enables the child to learn in a “real world” setting, and allows the adult to assess how well the child understands and applies safety skills.

Adults learn best when they feel the topic is relevant to them.³ SRTS education aims to provide parents with information about how to address barriers to walking and bicycling and how to create and promote safe walking and bicycling behaviors and environments for their children. For example, if vehicles frequently speed near the school, parents may be educated on both how the speed of a vehicle hitting a pedestrian relates to the seriousness of injuries and potential solutions for improving safety.

Children

Teaching children to safely walk and bicycle is of central importance in Safe Routes to School (SRTS) programs. A secondary, valuable focus is teaching children about the benefits of walking and bicycling, such as the positive impact these activities have on personal health and the environment. Knowing these benefits can help children understand the importance of these activities and inspire participation.

School-based Education

This section focuses on the delivery of education through the school because:

- While ideally children receive most of their instruction from parents, this does not always happen. School-based education assures that all children get the chance to learn and practice the same skills.
- All children can benefit from learning bicycle and pedestrian safety behaviors, regardless of whether they will walk and bicycle to school, as these skills will serve them throughout life.
- The reality in some communities is that young children who would ideally be supervised by adults are walking to school alone, which makes providing safety education and other strategies all the more important.

When to Teach

A challenge with providing safety education in the schools is that children, even in the same grade, vary in their readiness to handle traffic situations, such as choosing a safe time to cross a street. In general, children are not ready to cross a street alone until age 10.⁴ Ideally parents are a central figure in their children's safety education. Parents have the best opportunities to



A family travels together to Marilyn Elementary School in Atlanta, Georgia.

effectively assess their individual child's skills and teach safe behavior in the course of daily life so they should be encouraged to participate in their child's safety education. It is also important to emphasize to children that they need to check with their parents before walking or bicycling alone. Children may believe that because they have been taught how to cross a street, for example, that they are ready to do so on their own.

Key Messages For Children

This section includes four main education topics that relate to Safe Routes to School (SRTS) for children:

- Pedestrian safety skills.
- Bicyclist safety skills.
- Personal safety.
- Health and environment benefits.

Strategies for educating children around these key messages are provided in the next section, Strategies for Educating Children.

It is also important to emphasize to children that they need to check with their parents before walking or bicycling alone.

Pedestrian Safety Skills

When pedestrians between the ages of five and nine are injured it is most often when motor vehicles have hit them as they cross the street midblock, particularly from between parked motor vehicles.⁵ Running across intersections and getting off of school buses are also common times for children to be hit by motor vehicles. In general, children are not ready to cross a street alone until age 10.⁴ However, children vary in their developmental readiness to make decisions about where and when to walk and cross a street. Parents are often the best judges of when their child is ready to walk without an adult. When they are ready for this level of independence, children need to know how to choose where to walk, as well as when, where and how to cross a street. These skills also require an understanding of how to interact with drivers.

Children need to know the following points:

- Ask a parent before walking anywhere without them.
- Use sidewalks or paths. If there are no sidewalks or paths, walk as far from the motor vehicles as possible on the side of the street facing traffic.
- Watch for motor vehicles turning or pulling out of driveways.

Children who are old enough and have parent permission to cross the street need to know the following additional points:

- Choose the route with the fewest streets to cross. Avoid crossing busy or high-speed streets.
- Be more visible to drivers by wearing bright clothing in the daytime. When there is little or no light, such as at sunrise or sunset, wear retro-reflective gear or carry a flashlight.
- Always look for motor vehicles. Drivers are supposed to obey the rules and watch for pedestrians but they cannot be relied on to always do so.
- Do not cross behind or within 10 feet of the front of a bus or other large motor vehicle because the driver can not see this area.
- Stop at the edges of driveways and curbs or edges of the street where no curb exists and look for motor vehicles before proceeding.



Practicing crossing the street in Greensboro, North Carolina.



Preparing to practice pedestrian safety skills in Santa Ana, California.



Practicing safe riding skills at Manor School in Fairfax, California.



Children practice crossing in a simulated setting at College Gardens Elementary School, Rockville, Maryland.

- Watch for parked motor vehicles that may be getting ready to back up or pull forward.
- Before crossing, always look for motor vehicles even after a crossing guard, parent or other adult says it is okay to cross.
- Walk, don't run, across the street.
- If crossing the street at midblock:
 - Stop at the curb and look left, right and left again for traffic.
 - Wait until no traffic is coming and begin crossing. Keep looking for traffic until you have finished crossing.
- If crossing between parked motor vehicles is necessary:
 - Stop at the curb and check to see if the motor vehicles are running or if anyone is in the driver seat. If there is a driver, make eye contact and be sure you are seen before stepping in front or behind the motor vehicle.
 - If safe, walk to the edge of the parked motor vehicles, and look left, right and left again before crossing. Keep looking for traffic until you have finished crossing.
- If crossing the street at an intersection:
 - Obey traffic signs and signals.
 - When the signal indicates it is time to cross, check for motor vehicles. Drivers may not obey the rules and turning drivers may not look for pedestrians.
 - Look to see if motor vehicles are coming. Look left, right and left; then behind and in front for turning motor vehicles. Keep looking for traffic until you have finished crossing.



David Parisi

Santa Barbara, California.

Bicyclist Safety Skills

Riding a bicycle is a major step towards independence and mobility for children and, like walking, is a skill that can be used throughout a lifetime. Supervised practice time on the bicycle is the most important way for children to gain riding and safety skills. It can also instill confidence and create better riders as well as better future drivers who are more aware of bicyclists on the street.

Before riding to school, children first need to have sufficient bicycle handling skills, including the ability to:

- Ride in a straight line.
- Ride in a straight line while scanning the situation ahead, behind and to the side.
- Stop quickly using the bicycle's brakes without swerving, falling or colliding with anything.
- Swerve in a controlled manner to avoid a hazard or collision.

When children have these skills, they should learn and be able to demonstrate the following safety behaviors before riding to school:

Preparing for the ride

- Dress appropriately. Wear brightly colored, close-fitting clothing. Tie your shoes and secure long laces and loose pant legs. Do not wear headphones.
- Wear a properly fitted helmet. See the Resources section for information about bicycle helmet fit.
- Ride a bicycle that fits. When seated on the bicycle, both feet should be firmly planted on the ground and hands should reach the handlebars.

- Ride a bicycle that is in good condition. Tires should be firm, brakes should prevent tires from rotating when pushed, chain should not droop or be rusty and the seat and handlebars should be tight.
- Do not carry anyone else on the bicycle. A bicycle with one seat is a bicycle for one person.
- Do not carry anything in your hands. Use a backpack, basket or panniers to carry school supplies and books.
- It is best to ride only in daylight. If riding when it is dark, use headlights, taillights and reflectors, and wear bright clothing with reflective material.

During the ride

- Choose the route with the fewest streets to cross. Avoid busy and high-speed streets.
- Before entering the street, look for other vehicles to the left, right, in front and behind.
- Keep paying attention to your surroundings. Watch for other vehicles and hazards, such as potholes and parked motor vehicles, along the route.
- Watch for motor vehicles turning into or exiting at driveways.
- Stop at all intersections, and check for traffic before crossing. When possible, cross at locations where adult school crossing guards are present. It may be best to dismount and walk your bicycle across large or busy intersections.
- Ride in a straight line with two hands on the handlebar unless signaling.
- Follow all traffic laws, including:
 - If riding in the street, ride in the same direction as motor vehicles, on the right hand side of the street, about two or three feet from the edge.
 - Use hand signals when turning and stopping.
 - Obey traffic signs and signals.
- Always check in front and behind for traffic before changing lanes, crossing intersections or turning.
- If riding on a sidewalk or path, ride slowly and be prepared to stop quickly.

Bicycle Helmets

The protective effects of bicycle helmets are well-documented.^{7,8} Studies on bicycle crashes have shown that helmet wearers have a significantly lower risk of head and facial injuries than bicyclists without helmets.^{9,10,11} In fact, one study found that bicyclists wearing helmets had reductions in their risks of head and brain injuries of 85 percent and 88 percent respectively.¹²

Bicycle helmets must be used by students participating in bicycling program. Some schools have rules that require students to attend a bicycle safety education class before bicycling to school and to wear a helmet whenever bicycling to school. In addition, many states and municipalities have laws requiring helmet use. See the Bicycle Helmet Safety Institute for a list of locations with bicycle helmet laws at www.helmets.org.



Bicycle safety training at Henry Elementary School in Tucson, Arizona.



A law enforcement officer teaches bicycle safety in Tucson, Arizona.

Personal Safety

In addition to pedestrian and bicyclist skills, many schools teach children ways to avoid potential risks in their environment beyond traffic, like criminal activity and people that may want to harm them. Fear of abduction or assault discourages some parents from allowing their child to walk or bicycle to school. Although child abduction, particularly near a school, is very rare, SRTS programs need to address not only the real dangers from crime, but also parents' perceptions. Whether dangers are real or perceived, both affect parents' decisions to allow their children to walk or bicycle to school. Some students and parents worry about bullying by other children while walking or bicycling to school. Schools address bullying as part of violence prevention programs, which can be incorporated into the SRTS program.

Walking school buses can help address personal safety concerns by providing a way for children to walk in a group with adult supervision.

Health and Environment Benefits

Beyond safety, education for children may also address benefits to personal health and the environment provided by walking and bicycling. Health benefits often focus on the importance of physical activity. Children learn about how the cardiovascular and muscular systems function and how physical activity can strengthen these systems. Although most children engage in physical activity primarily because they think it is fun, highlighting the relationship between personal health and physical activity gives children another reason to be physically active.

Education may also include information about the impact of motor vehicle use on air quality and limited energy resources. Children learn that they can help keep the environment healthy by walking and bicycling instead of traveling in a motor vehicle.

See the Resources section of this chapter for related programs and materials.



Allegheny Elementary School, Pittsburgh, Pennsylvania.

.....

Highlighting the relationship between personal health and physical activity gives children another reason to be physically active.

.....



Morton Way Elementary School focuses on air quality as a reason to walk in Brampton, Ontario, Canada.

Strategies For Educating Children

The preceding section, Key Messages for Educating Children, describes the topics that may be included in Safe Routes to School (SRTS) education for children. This section includes ideas for:

- Ways to deliver the education message.
- How to support classroom-based teaching.
- Sources of instructors.

Ways to Deliver Education

A variety of methods are available for teaching children about safety and health. Deciding on a method (or more than one) may be influenced by:

- How much content is to be covered.
- The amount of time available.
- The desired outcome.

For example, one-time instruction, such as an assembly, generally offers the least information and requires the least time. Skills practice, which requires more time and extensive preparation, shows the greatest promise for children to adopt safety skills.¹

This section describes the following educational methods:

- One-time instruction.
- Classroom or physical education lessons.
- Parent involvement.
- Structured skills practice.

While each method is described separately, SRTS programs usually use a combination of methods. In fact, a multi-pronged approach will most likely reach more children.

One-time Instruction

One-time instruction, such as an assembly, offers an opportunity to reach many children quickly. The event builds school-wide excitement about bicycling and walking while offering a way to introduce safety education in schools where competing demands for class time do not allow for more extensive instruction.

Assemblies work best when they are short, visual, focused on a single topic, age-appropriate and engage



Tam Valley School students test their bicycle and pedestrian safety knowledge by playing Jeopardy in Mill Valley, California.



School assembly in Santa Ana, California.

children. Educational messages may be taught through skits, songs, chants, photographic or artistic presentations, videos, guest speakers or other ways of engaging a large audience. Classes working on related topics, such as health or air quality, can share what they have learned with other children in the audience.

Children may have a hard time remembering or applying what they learn in these brief sessions. One-time methods can be made more effective by reinforcing them throughout the year by inserting messages in school-wide announcements, signs and newsletter articles.

Classroom or Physical Education Lessons

In a classroom or physical education class, education can be provided in the following ways:

- Stand-alone lessons.
- Lessons integrated into subjects such as language arts and math.
- Comprehensive curriculum delivered in every grade.

Ideally, children will receive a comprehensive bicycle and pedestrian safety curriculum which includes hands-on skills practice. Many schools see bicycle and pedestrian safety, whether as part of a comprehensive curriculum or not, fitting nicely into physical education.

Lessons Integrated Into Classroom Subjects

Safety education can be integrated into traditional classroom subjects to meet education standards in many ways. Examples include:

Math

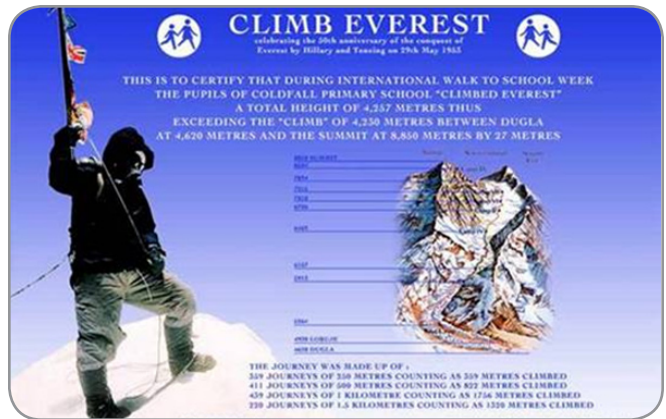
- Calculating average walking speeds or distances.

Science

- Walking outdoors to collect samples and observe nature.
- Learning about climate change, pollution and how walking and bicycling can play a protective role.

Reading

- Reading about nature or walking.



Students at Coldfall Primary in London, England, calculated their collective miles walked and bicycled and “climbed” to the top of Mount Everest.



A student’s map of barriers to walking to school from Annapolis Elementary School, Annapolis, Maryland.

School-based Instruction Requires Support

Teacher interest and enthusiasm is critical for success of any school-based education that will be part of the SRTS program. However, many demands are placed on teachers. If classroom or physical education teachers are to provide instruction, it may be helpful to consider the following steps to increase the chance of a successful education component.

Get administrators on board.

For teachers to devote class time to instruction, the principal needs to support and encourage it. If needed, the PTO/PTA can help persuade school administration of the importance of safety education.

Link the lesson content to state or local education standards.

Doing so will help justify the use of class time and will help children learn necessary skills and concepts.

Provide lesson plans to teachers.

Given the heavy workload on teachers, sample lesson plans may make it easier for teachers to get involved.

Encourage parent involvement.

Parents and other community members can volunteer their time to help.

Language arts

- Writing about walking or what is seen on the route to school.

Art

- Designing posters to encourage walking.

Geography

- Tracking students' walking and bicycling mileage and plotting it on a map.
- Learning about places that the school or class “visits” as they gather miles. (See more details in the Encouragement chapter.)
- Drawing a map of the route to school.

Health

- Learning about the cardiovascular system.
- Calculating heart rate.
- Using pedometers to count steps.

Parent involvement

Parents can be the best instructors for their children because:

- They can serve as role models for safe walking and bicycling behavior.
- They can observe their child's behavior and provide guidance in real-life situations.

Information about what's being taught in school can be sent home and parents can be asked to reinforce the skills with their children. Encouraging parents to take a walk with their child provides time for them to assess the child's skills, such as whether the child pays attention to traffic, chooses appropriate places to walk and has the ability to gauge gaps in traffic that allow for safe street crossing. Parents can also play a role in the school by volunteering to help with classroom and skills practice.

Structured Skills Practice

Skills practice gives children a safe, supervised environment in which to learn safety behaviors. Pedestrian skills practice includes where and when to cross a street and proper crossing procedure. Bicycle skills training includes bicycle handling drills and may also include a supervised group ride in a neighborhood. Simulated situations, whether on foot or bicycle, require space such as a playground or closed parking lot and more than one



IWALK

Walking to Rushton Elementary School in Mission, Kansas.

Safety education can be integrated into traditional classroom subjects to meet education standards in many ways

adult. Bicycle skills practice also usually requires cones, stop signs and other props.

Skills practice may be included in the following ways:

- Part of classroom or physical education class-based lessons.
- Part of an after-school program.
- A one-time event such as a bicycle rodeo.

Bicycle skills practice or any on-bicycle activity is more logistically complex than pedestrian safety training and a knowledgeable instructor such as a law enforcement officer, bicycle club member or experienced physical education teacher is needed. Bicycle skills practice is generally conducted with older elementary children and may occur one-time as a bicycle rodeo, or over several sessions as a more complete bicycle safety training.

Bicycle Rodeo

Bicycle rodeos are one-time events for children to practice basic bicycling techniques and can serve as an opportunity to check children's bicycles for fit and functioning and to provide instruction on proper helmet use. Rodeos require a knowledgeable instructor and use a simulated setting for practice. Simulated settings may be playgrounds or parking lots set up with stop signs, traffic cones and other props. Often a stop sign course is set up to teach children how to stop and look for oncoming traffic. Other activities teach balance, stopping, turning and control. Rodeos are often community sponsored instead of solely conducted by a school.

Bicycle Safety Training

Bicycle safety training generally lasts five to 10 hours over several sessions and includes both information and on-bicycle practice of safe ways to operate a bicycle. At the end of the course, participants apply their knowledge and skills in simulated or actual on-road settings. Simulated activities are as described for a bicycle rodeo, but allow more time for practice and mastery. Knowledgeable instructors may be available from the local law enforcement agency or bicycle club. For example, the League of American Bicyclists offers trained instructors to teach their Bicycle Education program, which is available at www.bikeleague.org/programs/education.

See the Resources section for activities, lesson plans, comprehensive curricula and pedestrian and bicycle skills training programs.

The table on the following page provides a summary of some of the key advantages and considerations of each method that has been described here.

Sources of Instructors

All of these educational strategies require at least one individual who is knowledgeable and willing to teach. A variety of people may take on this role. If instruction is to be provided at the school, teachers may cover the material themselves or they may appreciate guest instructors, such as a local bicycle club member or law enforcement officer. Parents can play a central role as instructors for their own children, but they may need guidance on what to teach. After-school activities are another opportunity to provide safety training and can tap into other community resources.



PBIC Image Library

A bicycle rodeo course.

The following individuals can play a role in educating children:

- Physical education or classroom teacher.
- Law enforcement, fire department or safety personnel.
- Local bicycle club member including a League of American Bicyclists Instructor.
- Parent.
- Volunteer.
- School nurse.
- Public health professional.
- Community group, such as a local Safe Kids coalition.

	Advantages	Considerations
One-time instruction	<ul style="list-style-type: none"> • Requires little time. • Reaches many children at once. 	<ul style="list-style-type: none"> • Children may not retain information. • Requires activities that will engage a large audience with a range of ages and attention spans.
Classroom or physical education lessons	<ul style="list-style-type: none"> • Reaches all children regardless of whether they currently walk or bicycle to school or have parent instruction. • Can be part of progressive instruction year to year. 	<ul style="list-style-type: none"> • Requires class time. • Requires instructor preparation time.
Parent involvement	<ul style="list-style-type: none"> • Uses opportunities to assess and teach pedestrian skills in real-life situations. • Each child receives guidance based on his or her individual developmental readiness. 	<ul style="list-style-type: none"> • Children may not all equally benefit as some parents may not choose to be involved. • Parents may need guidance as to what are appropriate safety messages.
Structured skills practice	<ul style="list-style-type: none"> • More likely that children will retain and apply skills than education without hands-on practice.¹ 	<ul style="list-style-type: none"> • Requires space, equipment (including helmets) and several adults.

Putting It Into Practice: Bicycle Safety Training

B.B. Harris Elementary, Duluth, GA

At B.B. Harris Elementary in Duluth, Georgia, Safe Routes to School Project staff collaborated with the school's physical education teachers to train 450 children in grades three through five in bicycle safety over one month. Using the League of American Bicyclists Kids Bicycle Education and the Basics of Bicycling curricula, the school developed a five-session bicycle safety program to fit the physical education schedule. The course was entitled "Safe Bicycle Driving," and the instructor (certified by the League of American Bicyclists) began each class by telling the students that this was effectively their very first driver's education class; whatever they grow up to drive — cars, trucks, motorcycles or bicycles — the same rules of the road apply.

Through the training, the children had opportunities to fit helmets and bicycles, practice bicycle-handling skills, and learn four basic rules of the road. On the final day, the students were introduced to "Harristown, A Bicycle-Friendly City" in the gym, with simulated streets and destinations, such as a store, a park and a library. The students rode around the "city" to the Harristown destinations, some as bicycle drivers and some as vehicle drivers. A few served as police officers, giving out tickets to those who violated a rule of the road. The students then received a "Safe Bicycle Drivers License" and an activity booklet by the same name.

Putting It Into Practice: Institutionalizing Safety Education Rockville, MD

In Rockville, Maryland, all 7,000 elementary students receive bicycle and pedestrian education. Since 2004, bicycle and pedestrian safety has been a standard part of the school system's teaching curriculum. The program was initiated by City of Rockville staff and is now coordinated by physical education teachers.

The curriculum includes a series of interactive lesson plans designed for each grade. Students in kindergarten through second grade learn basic pedestrian concepts. Older elementary school students (grades three through five) focus on bicycle safety fundamentals such as proper use of a bicycle helmet, rules of the road, laws pertaining to bicyclists and bicycle handling techniques. Students practice pedestrian and bicyclist skills through simulated scenarios using bicycles, helmets and pedestrian safety props supplied by the city. In addition, the school's safety patrol practices bicycle and pedestrian safety skills and then reinforces safety messages to students.

At Farmland Elementary school in Rockville, few students bicycled to school before the program began. Afterwards, the bicycle rack was full every day. The Washington Area Bicyclist Association has begun to extend the reach of the program into other schools in Montgomery and Prince George's counties. The Maryland Pedestrian and Bicycle Safety Education Program has been made available to public and private schools, law enforcement agencies and community organizations throughout Maryland, as well as being available online for any community to use at <http://www.walktoschool.org/resources/safety-education.cfm>



Practicing bicycle skills in a simulated environment at Farmland Elementary School, Rockville, Maryland.

Parents

Education directed towards parents can strongly influence whether more children walk and bicycle to school in a safe manner. Parents control whether their child walks or bicycles to school and how their child behaves during these activities. A parent's own behavior also impacts the safety of his or her child and all children as they walk or bicycle to school. For example, a parent who speeds to drop off his or her child at the school makes a less safe environment for walkers and bicyclists. Parents who walk with their children to school can provide supervision and guidance for children who are learning how to negotiate traffic and people in their environment.

Key Messages For Parents

In relation to Safe Routes to School (SRTS), parents play a role in their child's safety in three ways:

1. As teachers of safety behaviors.
2. As drivers on the school campus during drop-off and pick-up times.
3. As drivers near the school.

Different messages apply to parents for each of these roles.

Parents as Teachers

Practice safe walking and bicycling with your child. Parents teach and model safe behavior for their children. Children have the best chance of retaining and applying walking and bicycling skills if they have a chance to practice them with supervision and reinforcement. It is similar to the need to teach teens to drive; new drivers are not expected to have the skills or knowledge to drive safely without receiving instruction.

Parents need detailed information about proper safety practices specific for their child's age. Most parents naturally want to do what is best for their child and need to be aware of the appropriate safety messages to share with their child. An informed and interested parent can identify safe walking and bicycling routes for his or her child, teach his or her child rules as they walk or



Parents walking their children to Benteen Elementary in Atlanta, Georgia.



David Parisi

Passing out educational fliers to drivers.

bicycle, and model safe behavior themselves. See the Key Messages for Children section for more information.

Parents as Drivers on the School Campus During Drop-off and Pick-up Times

Follow correct drop-off and pick-up procedure if driving to the school is necessary. Drivers need to know the appropriate locations for pick-up and drop-off at the school and any special rules that apply at these times. A well-designed drop-off and pick-up procedure along with drivers who correctly follow the procedure will improve the safety of everyone arriving to or departing from school. See the Student Drop-off and Pick-up chapter for more information on how to improve the safety of this process.

Parents as Drivers Near the School

Parents are no different than other drivers. Some contribute to safety problems by speeding through school zones and failing to obey traffic signals. See the next section, All Drivers Near the School, for messages and strategies for reaching parents in this role.

Strategies For Reaching Parents

A variety of strategies can be used to reach parents as they teach their children safety skills and drive on the school campus and adjacent streets.

Print materials

To communicate with parents, school Web sites, e-mails to parents or information sent home with students can all be used. In California, some schools hold Traffic Safety Days to promote safe driving in the school zone, as well as encourage safe walking and bicycling. School officials, parent volunteers, law enforcement officers and others distribute fliers and talk to drivers who pick up or drop off children. Walkers and bicyclists are given safety information and incentives at a welcome table as they arrive at the school.

Enforcement strategies

Signs, pavement markings, notices and educational fliers placed on windshields of illegally parked motor vehicles remind parents of proper rules and procedures. See the Enforcement chapter for more information.

Media stories

Local news stories that focus on Safe Routes to School (SRTS) can also include key messages about pedestrian, bicyclist and traffic safety.

Training

While many parents feel comfortable teaching their child pedestrian safety, they sometimes feel less prepared to teach bicycling rules of the road. One bicycle club in Marin County, California, responded to this need by offering a training class for parents on how to teach bicycling skills to their children. Some communities have sought ways to improve parents' driving behavior through training.

For more information see the Strategies for Reaching All Drivers Near the School section and the Student Drop-off and Pick-up chapter.



Peter Lagerwey

Parking signage indicates special rules during school drop-off and pick-up times, Seattle, Washington.



David Parisi



David Parisi

Traffic Safety Day at Tamalpais High School in Mill Valley, California.

Putting It Into Practice: Parent Safety Drive Initiative

Dorset County Council, England

Dorset County Council's innovative Parent Safety Drive was piloted at Sherborne's Abbey Primary School in 2003. It aims to reduce the county's high number of child passenger injuries and to cut down on unnecessary trips to school by motor vehicle by helping and encouraging parents to become better, safer and more sensible drivers. Linked to the development of school community supported travel plans, this scheme aims to change parent attitudes to motor vehicle use in a practical, non-threatening way. The initiative is promoted in partnership with the local National Health Service Primary Care Trust, which provides a range of health services for local people and is eager to work in partnership with the local highway authority to reduce the number of child transportation-related injuries and improve driving standards.



The focus of the program is to:

- Improve parents' driving standards.
- Reduce the number of child road casualties.
- Encourage more sensible use of the motor vehicle.
- Reduce the number of parent vehicles within the immediate environment of the school.

Parents spend an hour with an experienced driving instructor who shares useful defensive driving and hazard awareness advice and tips using familiar local streets. There is no test or assessment involved. Parents drive on a range of roads, including congested urban environments and quieter but faster rural roads. Safer parking and reversing techniques are included in the session together with an opportunity to discuss in-car safety issues and suggestions for locations to park and walk the remainder of the trip to school. Highway code knowledge is revisited as well. It is promoted as a rare chance to refresh driving skills, perhaps for the first time since taking a driving test. There is a fee for the drive of £18 per hour, but a subsidy is planned. Evaluation from parents who have participated was reported as encouraging.

This initiative requires schools to recruit volunteers and to promote the concept of parent driver improvement as a fundamental objective in the school travel planning process. It also requires persuading some parents that you never stop learning as a driver and that 100 percent concentration is required.

Visit Dorset County Council's road safety Web page at www.dorsetcc.gov.uk/rsafe to find out more about driver improvement schemes.

All Drivers Near the School

Many parents, community members and school personnel drive near the school on most weekdays. Each driver can contribute to or detract from the safety of the walking and bicycling environment for children. Failure to comply with traffic laws and posted speed limits are examples of driving behaviors that result in unsafe conditions.

A National Safe Kids study of 27 cities found that of the vehicle speeds recorded during the 30 minutes before and after school, 65 percent of drivers exceeded the posted speed limit with 23 percent of these drivers traveling at least 10 mph above speed limit and 33 percent traveling 30 mph or more beyond the limit.¹⁴

The need to reduce the number of speeders and the speeds at which they travel is crucial to ensure the routes to school are safe. As motor vehicle speed increases, so does the pedestrian injury severity and the likelihood of death. A pedestrian struck by a motor vehicle moving 20 mph has a 5 percent chance of dying. As motor vehicle speed increases to 30 mph and 40 mph, the likelihood that the pedestrian will be killed increases to 45 percent and 85 percent respectively.^{15,16} Slowing motor vehicle speeds not only reduces the chance of a pedestrian-vehicle collision because of the reduced stopping distance required, but it also reduces the chance of a pedestrian fatality or serious injury.

Along with speeding, failure to comply with stop signs and traffic signals also contributes to unsafe environments. A National Safe Kids study on driver behavior at intersections in school zones and residential neighborhoods found that 45 percent of drivers failed to completely stop at the intersection even though a stop sign was present, and of these 7 percent did not even slow down for the sign. Although the study found that drivers were more likely to stop when a pedestrian was present compared to not present, 36 percent of drivers violated the stop signs when pedestrians were waiting at the curb to cross and 24 percent of drivers did not come to a complete stop at the intersection while pedestrians were crossing.¹⁷

Additionally, a study of crosswalks in school zones shows that approximately 30 percent of drivers stopped within or beyond the boundaries of crosswalks, thus blocking the pedestrian path.¹⁸

Drivers traveling at safe speeds, yielding to pedestrians and bicyclists, and stopping at stop signs and crosswalks help create a pedestrian and bicyclist-friendly



Michael Cynecki

Roadrunner Elementary School, Marana, Arizona.

.....
A National Safe Kids study of 27 cities found that of the vehicle speeds recorded during the 30 minutes before and after school, 65 percent of drivers exceeded the posted speed limit.
.....

Key Messages For Drivers Near the School

Drivers near the school can help create an environment that feels safe and inviting for pedestrians and bicyclists. They need to know the following:

- Watch for, and yield to, pedestrians and bicyclists near and around the school.
- Obey speed limits for the school zone.
- Come to a complete stop at stop signs.
- Do not block pedestrian crosswalks.

Strategies For Reaching All Drivers Near the School

A good time to provide safety messages to drivers is while they are in their motor vehicles and near the school, through signage, enforcement strategies and media.

Signage

Sign messages, such as “Drive 25, Keep Kids Alive”¹⁹ and “Give Our Kids a Brake,”¹⁹ remind drivers to slow down and help to build a cooperative community spirit. Although these signs are not in the Manual on Uniform Traffic Control Devices (MUTCD), communities are allowed to install educational and guide signs which are not uniform. Signs installed on private property, like yards, are not covered by the MUTCD. Stickers and banners are also sometimes affixed to garbage cans or hung across streets. Before hanging banners or signs across streets or on public signposts, approval should be obtained from the appropriate government office. See the Engineering chapter for more information about signage.

Enforcement Activities

Enforcement strategies can be combined with education, such as by using speed trailers at key locations around schools. Speed trailers display the speed a motor vehicle is traveling as it passes the trailer. See the Enforcement chapter for additional examples.

Media

Radio announcements played during drive times can serve as timely reminders. Other media, such as newspaper articles or television features, can be used to draw attention to the importance of careful driving when



David Parisi

Burton Valley, California.



David Parisi

Signage reminds drivers to obey speed limits in Bellevue, Washington.

children are present and to highlight a Safe Routes to School (SRTS) program.

Parents and neighbors often make up a large amount of the traffic near a school during school drop-off and pick-up times. See the Parents and Neighbors sections of this chapter to learn about messages and strategies to reach them.

Neighbors

Neighbors include residences and businesses near the school. The success of a Safe Routes to School (SRTS) program can be influenced by neighbors who can either play an active role in making it safer for children to walk and bicycle to school or resist these efforts. While some neighbors have children who attend the school, many do not. Addressing their needs and concerns and involving them in the SRTS process will increase the odds that they will be supportive.

Key Messages For Neighbors

Messages to neighbors depend on local conditions. If there are environmental barriers to safe walking routes, often the neighbors can help.

Messages for neighbors include:

- Keep sidewalks clear so they are passable by pedestrians. Sometimes motor vehicles, garbage cans, snow and other materials force pedestrians off of walkways and into traffic.
- Prune plants and shrubs to enhance visibility. This will help pedestrians, bicyclists and drivers see one another, particularly at street crossings.
- Keep unleashed pets off the route. A loose animal can be intimidating and deter walking or bicycling, regardless of the friendliness of the animal.

Also see the Key Messages for All Drivers Near the School section for additional relevant messages.



Michael Cynecki

Neighborhood near Arrowhead Elementary School in Phoenix, Arizona.



Michael Cynecki

Keep sidewalks clear. Peoria, Arizona.



A walking route free of obstructions for students going to Laguna Elementary School in Tucson, Arizona.

Strategies For Reaching Neighbors

Neighbors should be engaged early in the Safe Routes to School (SRTS) planning process. This provides an opportunity for SRTS coordinators to hear and address these concerns and increases the likelihood that neighbors will take action to make or keep routes safe. The impact of potential SRTS activities on neighbors should be assessed. For example, a remote drop-off area may be initiated to ease traffic congestion near the school. While it improves safety for pedestrians and bicyclists and gives those that live further away the chance to walk, it may also create traffic problems in new areas. Identifying and addressing these issues need to be part of the process.

Ways to reach neighbors include:

- Attend neighborhood group meetings to introduce SRTS, discuss neighbors' needs and concerns and ask for their help. A community in California invited neighbors to a "pruning party" and provided supplies and assistance to trim vegetation growing over the sidewalks. If conflict over trimming trees and bushes occurs, local officials can often resolve issues by enforcing local ordinances.
- Host an open house for neighbors and parents to learn more about SRTS.
- Install informational signs in highly visible locations around the neighborhood.
- Distribute fliers to homes near the school. Some communities have mailed information with utility bills.

.....
Neighbors should be engaged early in the Safe Routes to School planning process.
.....



David Parisi

Examples of educational fliers.



David Parisi

Sign leading participants to a Safe Routes to School open house in California.



Resources

Pedestrian and Bicycle Safety

OECD Keeping Children Safe in Traffic

Report by the Organisation for Economic Co-operation and Development draws on best practices and research results to show how child casualties can be reduced. Free executive summary. \$45 for full report. www.oecd.org/document/9/0,2340,en_2649_34351_31416393_1_1_1_1,00.html

League of American Bicyclists

Bicycle safety and bicycle maintenance education for bicyclists of all levels and ages. Information on how to find Bicycle Education courses taught by League Certified Instructors. www.bikeleague.org

Safe Kids

Walking and bicycling safety tips for parents to teach children. www.safekids.org/tips/tips.html

Bicyclinginfo

Tools and resources for improving bicycle safety including education and enforcement, bicycle parking and a bikeability checklist. www.bicyclinginfo.org

Walkinginfo

Tools and resources for improving pedestrian safety including education and enforcement, pedestrian safety plans, a walkability checklist and crash data. www.walkinginfo.org

American Academy of Pediatrics “About Bicycle Helmets” brochure

Describes why children need helmets and how to select one. www.aap.org/family/thelmabt.htm

Bicycle Helmet Safety Institute

Information about states with helmet laws, studies on bicycle helmet use and a list of bicycle helmet videos. www.helmets.org

Consumer Product Safety Commission recalls and standards

Search on “bike helmets” for benefits of wearing helmets and product recall announcements. www.cpsc.gov

ASIMO Step to Safety Pedestrian Safety Video

Teaches safe street crossing procedure for children ages 5 through 9. <https://asimo.honda.com/pedestriansafety/index.asp>

FHWA Bicycle Safety Education Resource Database

Searchable database by audience, riding skill level and bicycling topic. www.bicyclinginfo.org/ee/fhwa_db.cfm

FHWA Good Practices Guide for Bicycle Safety Education

For program developers or those seeking an existing bicycle safety education program. www.bicyclinginfo.org/ee/bestguide.cfm

NHTSA Ride Smart, It’s Time to Start

Video for middle school students that promotes bicycle helmet use. www.nhtsa.dot.gov/portal/site/nhtsa/menuitem.810acaee50c651189ca8e410dba046a0

NHTSA Bike Smart, Bike Safe

Bicycle safety video and materials for elementary school children in English and Spanish. www.nhtsa.dot.gov/portal/site/nhtsa/menuitem.810acaee50c651189ca8e410dba046a0

Florida DOT and University of Florida Dept of Urban and Regional Planning, Florida Traffic and Bicycle Safety Education Program

Elementary and middle school materials and activities. www.dcp.ufl.edu/centers/trafficsafetyed/safeways.htm

Hawaii Bicycling League BicycleEd Hawaii Program

For fourth grade students in public schools; offers classroom and on-bike instruction with a focus on comprehension of street patterns and acceptable street behavior. www.hbl.org

North Carolina DOT Division of Bicycle and Pedestrian Transportation and the Bicycle Federation of America (now the National Center for Bicycling and Walking), Basics of Bicycling Curriculum

Bicycle safety and on-bike handling skills for elementary school children in North Carolina. www.ncdot.org/transit/bicycle/safety/programs_initiatives/curriculum.html

Bicycle Coalition of Maine Bicycle Safety Education Program

The program serves kindergarten through eighth grade, but is aimed primarily targeted to fourth and fifth grade students. www.bikemaine.org

Bicycle Transportation Alliance Bicycle Safety Program

Hands-on bicycle safety courses for fourth through seventh grade children in Oregon. www.bta4bikes.org/at_work/programs.php

Texas Bicycle Coalition Texas Supercyclist

Curriculum to certify elementary health and physical education teachers to teach fourth and fifth grade students the basics of traffic safety, with emphasis on bicycle riders as vehicle operators. www.biketexas.org/content/view/36/49

Rockville Department of Recreation and Parks Maryland Bicycle and Pedestrian Safety Education Program

Pedestrian safety skills for children in kindergarten through second grade and bicycling skills for children in third through fifth grade through a combination of classroom and hands-on skills practice. Free and downloadable from the Internet. www.walktoschool.org/resources/safety-education.cfm

NHTSA Safe Routes to School Toolkit, Classroom Activities

Designed to assist parents and school personnel with initiating and implementing SRTS programs and includes information for developing pedestrian and bicycle safety curricula and lessons and how to integrate safety education messages into other academic subjects. www.nhtsa.dot.gov/people/injury/pedbimot/bike/Safe-Routes-2002/overview.html

NHTSA Safe Routes to School Practice and Promise

Provides decision makers with information about SRTS, including the history of SRTS, the key factors and strategies used by successful programs, the risks and benefits, and case studies of SRTS programs from around the United States and abroad. www.nhtsa.dot.gov/people/injury/pedbimot/bike/Safe-Routes-2004

Marin County Bicycle Coalition Safe Routes to School Program

Lesson plans on physical fitness, healthy lifestyles and the environment. www.saferoutestoschools.org

Active & Safe Routes to School Canada, IWalk Week Activity Ideas

Kindergarten through high school hands-on learning activities covering safety, health and the environment. www.iwalktoschool.org/resources.htm

Personal Safety

Center for Missing and Exploited Children Guidelines for Programs to Reduce Child Victimization

Provides school personnel, parents and communities with guidance about program elements and messages needed to teach personal safety to children. www.thelost.org/missingkids/servlet/ResourceServlet?LanguageCountry=en_US&PageId=0

Center for Missing and Exploited Children Know the Rules ... For Going To and From School More Safely

Tips to help parents prepare their children for a safer journey to and from school. www.missingkids.com/missingkids/servlet/ResourceServlet?LanguageCountry=en_US&PageId=892

U.S. Department of Justice Personal Safety for Children: A Guide for Parents

Provides information for parents about how to talk to children about safety, advice to parents about how to keep children safe, and tips to children about how they can protect themselves. <http://ojdp.ncjrs.org/publications/PubAbstract.asp?pubi=196166&ti=&si=&sei=&kw=&PreviousPage=PubResults&strSortby=&p=&strPubSearch=>

US HRSA Stop Bullying Now

Resources for adults and educational messages for children. <http://stopbullyingnow.hrsa.gov>

Health and Environment

USDA My Pyramid

Activities and physical activity messages for children. www.mypyramid.gov

CDC Verb Campaign

Physical activity promotion for middle school children. www.cdc.gov/youthcampaign

Georgia Clean Air Campaign

Classroom activities and information for parents and educators. www.cleanaircampaign.com

US EPA Environmental Kids Club

Classroom activities and information for parents and educators. <http://epa.gov/kids>

City of Portland Office of Transportation Kids on the Move

Curriculum focuses on safety and the impact of vehicle use on the environment. Free and downloadable from the Internet. www.trans.ci.portland.or.us/saferoutes/learning/teachers/KidsOnTheMove/default.htm

References

1. Tolmie A, Foot H, McLaren B. Child development and the aims of road safety education: a review and analysis. Road safety research report no 1. London: Department of the Environment, Transport and the Regions, 1996. Available: www.dft.gov.uk/stellent/groups/dft_rdsafety/documents/page/dft_rdsafety_504586.hcsp. Accessed: December 6, 2005
2. Kearsley Greg. Explorations in Learning & Instruction: The Theory Into Practice Database. Copyright 1994-2005. Social Learning Thoery (A. Bandura) website: <http://tip.psychology.org/bandura.html> accessed: December 7, 2005.
3. Lieb, Stephen. Principles of Adult Learning. Fall 1991 Available: <http://honolulu.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/adults-2.htm>. Accessed: December 8, 2005.
4. National Highway Traffic Safety Administration. Resource Guides. TIP #8: Kids on the move: walking and bicycling safely. Available: www.nhtsa.dot.gov/cps/newtips/pages/tip8.htm Accessed: January 9, 2006.
5. Transportation Research Board of the National Academies. "NCHRP Report Volume 10: A guide for reducing collisions involving pedestrians." 2004, TRB, Washington, DC.
6. National Highway Traffic Safety Administration. Resource Guides. TIP #10: School Bus Safety. Available: www.nhtsa.dot.gov/cps/newtips/pages/Tip10.htm Accessed: June 14, 2006.
7. Attewell, Robyn G, Kathryn Glase, and Michael McFadden. Bicycle helmet efficacy: a meta-analysis. *Accident Analysis and Prevention* 2001; 33: 345-352.
8. Thompson, Diane C, Frederick P Rivara, and Robert S Thompson. Helmets for preventing head and facial injuries in bicyclists. *The Cochrane Database of Systematic Reviews* 2000; 4: CD001855.
9. Thomas, Steven, Caroline Action, James Nixon, Diane Battistutta, W Robert Pitt, and Ronald Clark. Effectiveness of bicycle helmets in preventing head injury in children: case-control study. *British Medical Journal*. 15 January 1994; 308: 173-176.
10. Thompson, Diane C, Frederick P Rivara, and Robert S Thompson. Effectiveness of bicycle safety helmets in preventing head injuries: a case-study study. *Journal of American Medical Association*. 25 Dec 1996a; 276(24): 1968-1973.
11. McDermott, Frank T, John C Lane, GA Brazenor, and Elizabeth A Debney. The effectiveness of bicyclist helmets: a study of 1710 casualties. *The Journal of Trauma* June 1993; 34(6): 834-845.
12. Thompson, Robert S, Frederick P Rivara, and Diane C Thompson. A case-study control of the effectiveness of bicycle safety helmets. *New England Journal of Medicine* 25 May 1989; 320(21): 1361-1367.
13. Finkelhor, D and Ormrod, R. Kidnapping of Juveniles: Patterns from NIBRS Juvenile Justice Bulletin, US Department of Justice: Office of Justice Programs: Office of Juvenile Justice and Delinquency Programs June 2000. Available: www.ncjrs.org/pdffiles1/ojjdp/181161.pdf. Accessed: November 11, 2005.
14. Child Pedestrians at Risk in America: A National Survey of Speeding in School Zones. October 2000. National SAFE KIDS Campaign Available: www.usa.safekids.org/tier3_cd.cfm?folder_id=300&content_item_id=474 Accessed: December 8, 2005.
15. U.K. Department of Transportation, *Killing Speed and Saving Lives*, London, 1987.
16. Pasanen, E; Salmivaara, H. Driving speeds and pedestrian safety in the City of Helsinki. *Traffic Engineering + Control*. June 1993. Vol. 34, no. 6, pp. 308-10.
17. Kids at Crossroads: A National Survey of Physical Environment and Motorist Behavior at Intersections in School Zones. October 2004. National SAFE KIDS Campaign. Available: www.usa.safekids.org/content_documents/Ped_Study_2004.pdf Accessed: December 9, 2005.
18. Stop Sign Violations Put Child Pedestrians at Risk: A National Survey of Motorist Behavior at Stop Signs in School Zones and Residential Areas. October 2003 National SAFE KIDS Campaign. Available: www.usa.safekids.org/tier3_cd.cfm?folder_id=300&content_item_id=11410 Accessed: December 9, 2005.
19. "Keep Kids Alive Drive 25" is a registered trademark of Keep Kids Alive Drive 25, P.O. Box 45563 Omaha, Nebraska, 68145. Available: www.keepkidsalivedrive25.org/parenttips Accessed: April 13, 2006.

Student Drop-off and Pick-up



Contents

Student Drop-off and Pick-up

- Overview 7-1**
- What’s Wrong With This Picture? 7-2**
- Student Drop-off and Pick-up Tools..... 7-4**
 - Encouraging Walking, Bicycling and Carpooling.....7-5
 - Curb Striping and Other Pavement Markings.....7-7
 - Signs.....7-8
 - Separating Motor Vehicles From Pedestrians and Bicyclists.....7-8
 - Drop-off and Pick-up Lane.....7-10
 - Assistants to Help Students In and Out of Vehicles7-11
 - Off-site Queuing Lane7-11
 - Temporary Street Closures and One-way Streets7-12
 - Temporary Use of School Grounds as a Drop-off and Pick-up Zone7-13
 - Education7-13
 - Monitoring and Enforcement of Drop-off and Pick-up Policies7-14

Overview

The purpose of a Safe Routes to School (SRTS) program is to encourage and enable more children to walk and bicycle to school safely. Communities tailor a combination of engineering, enforcement, education and encouragement strategies to address the specific needs of their schools. This includes the walk or bicycle journey to and from school as well as the drop-off and pick-up process of children at school who are transported by motor vehicle. The drop-off and pick-up process must be safe and efficient for students and parents arriving by bus or private motor vehicle, as well as those who arrive on foot and bicycle.

Some parents are reluctant to allow their children to walk or bicycle to school due to the traffic congestion and perceived traffic danger during student arrival and dismissal. This often results in more parents driving their children to school which adds to the extra congestion and safety problems at the school, creating an increasing cycle of more traffic problems and less walking. By improving the drop-off and pick-up process, traffic conditions become safer for all, including pedestrians and bicyclists. Better organized and safer traffic conditions will ease the concerns of parents, and make them more willing to allow their children to walk or bicycle.

This chapter will help readers identify problems associated with the drop off and pick up of students at school, and identify engineering, enforcement, education

and encouragement solutions to these problems. The purpose of improving the drop-off and pick-up process is to increase the safety and attractiveness of traveling to and from school on foot or by bicycle. The drop-off and pick-up process, as with all components of a SRTS program, requires coordination with local government officials, law enforcement, school officials, parents and the general public.

Improving the drop-off and pick-up process will:

- Increase safety for everyone in route to and from school, as well as on school grounds.
- Employ engineering, enforcement, education and encouragement strategies.
- Require a site-specific application of strategies; each school will have its own set of limitations and opportunities.



Casselberry, Florida.



Mike Cynecki

Orangewood Elementary School, Phoenix, Arizona.



David Parisi

Rogers Elementary School, California.

What's Wrong With This Picture?

There are many ways that a drop-off and pick-up zone can become dangerous for children. The next several images illustrate a variety of situations that are chaotic and potentially unsafe.

what's wrong with these pictures?



David Parisi



David Parisi

This drop-off and pick-up site employs some useful strategies including striping, signs and enforcement, but it is not working. The pictures show the chaos along the curb and in the street. Note the double parking, erratic behavior and dangerous mix of pedestrians and motor vehicles.

what's wrong with this picture?



David Parisi

Motor vehicles are parked in the school crosswalk.

what's wrong with this picture?



David Parisi

Motor vehicles are driving in the wrong direction. Children are exiting motor vehicles in the middle of the street.

• what's wrong with this picture? •



David Parisi

This small child is running across a busy parking lot unaccompanied.

• what's wrong with this picture? •



David Parisi

The driver of this motor vehicle is making a U-turn in the school drop-off and pick-up zone.

• what's wrong with this picture? •



David Parisi

Motor vehicles are parked along the NO STOPPING zone when they should not be.

• what's wrong with this picture? •



David Parisi

The school utilizes orange cones to mark the drop-off and pick-up lanes and a driver still performs an illegal U-turn.

Student Drop-off and Pick-up Tools

When assessing the drop-off and pick-up process, activity on school grounds (on-site), as well as activity in the area surrounding the school (off-site), must be considered. These images depict an on-site drop-off and pick-up process that is orderly; motor vehicles are approaching single file and releasing students directly to the sidewalk in the designated drop-off zone.



David Parisi



David Parisi

But off-site, on a street near the same school, the process is chaotic. Notice the backed-up street, delaying commercial vehicles, school buses and parents wishing to drop off children. Such situations are often accompanied by unsafe driving behavior as everyone rushes to beat the morning bell or get to work on time. Developing safe routes to schools requires an orderly process for dropping off and picking up children, both on and off the school campus.



David Parisi



David Parisi

Numerous tools can be used to improve the safety and efficiency of the drop-off and pick-up process at schools including:

- Encouraging walking, bicycling and carpooling.
- Curb striping and other pavement markings.
- Signage.
- Separating motor vehicles from pedestrians and bicyclists.
- Adding a drop-off and pick-up lane.
- Assistants to help students exit and enter motor vehicles.
- Adding an off-site queuing lane.
- Temporary street closures and one-way streets.
- Temporary use of school grounds as a drop-off and pick-up zone.
- Education, including maps and frequent reminders using school announcements and newsletters.
- Monitoring and enforcement of drop-off and pick-up policies.

Encouraging Walking, Bicycling and Carpooling

Naturally, a Safe Routes to School (SRTS) Program encourages students to bicycle and walk to school. But, some students simply live too far from their school to walk or bicycle, and are not provided with bus service. For those parents who must drive their children to school, several strategies can reduce traffic congestion at the school and in the adjacent streets, including park and walk and carpool programs. A park and walk program makes use of an off-site location (such as a nearby church or park) as a parking area for parents who then walk their child to school or join a regularly scheduled walking school bus to complete their journey. The Encouragement chapter of this guide describes park and walk and walking school bus programs in detail.

Families that have no alternative to driving their children to school can also carpool to reduce traffic congestion at the school.

Communities such as Charlottesville, Virginia (www.rideshareinfo.org/schoolPool.asp), Fort Collins, Colorado (www.fcgoc.com/transportation/schoolpool.php), and Santa Cruz, California (www.commutesolutions.org/schoolpool.html), have developed “school pool” programs in which a voluntary group of parents share the responsibility of getting children to and from school safely. This can include walking, bicycling, carpooling or taking the bus, and whether done on a daily basis, occasionally or in case of an emergency, school pools help communities address child safety and reduce traffic congestion.

Many larger metropolitan areas around the nation have free programs that assist people with forming carpools. These programs are now extending their reach to include school related trips. The school pool program, for example, is a service that provides “matchlists” to parents with students attending the same school so that students may carpool, walk or bicycle together. In some cases, participating schools provide student rosters containing names, addresses and phone numbers to the agency, which then provides the computer matching. In other cases, parents sign up individually and are matched with parents at the same school. After parents receive a matchlist of other parents it is up to them to make the arrangements they prefer.



This flier from the Marin County, California, Safe Routes to School program advertises their School Pool program that promotes walking, bicycling and carpooling.

.....
Families that have no alternative to driving their children to school can also carpool.
.....



David Parisi

Carpoolers have preferred drop-off and pick-up lanes at St. Marks School in San Rafael, California.

The Mid-America Regional Council runs the RIDESHARE program for the greater Kansas City Region. School Pool is a service of RIDESHARE a free commuter matching services. Visit www.marc.org/rideshare/schoolpool.htm to learn more about how this program works. RIDES for the San Francisco Bay Area operate a similar program. Bay Area Commuters, Inc. is a nonprofit organization promoting commute alternatives to driving alone to school or work.

Walking school buses and bicycle trains can be loosely structured or highly organized. For example, walking buses or bicycle trains can be as simple as neighborhood families deciding to walk or bicycle together. More formal, organized walking school buses and bicycle have a coordinator who recruits volunteers and participants, creates a schedule and designs a walking route. While requiring more effort, more structured walking school buses and bicycle trains offer the opportunity to involve more children.

Tool: Encouraging Walking, Bicycling and Carpooling

What is it and how does it work?

Urge students and parents to walk and bicycle to school, and when not possible, to ride the bus or carpool.

Benefits strategy provides

- Decrease traffic at school.
- Reduce vehicle emissions.
- Increase physical activity levels.

Key factors to consider

- Develop encouragement activities to reflect specific situation at each school and within each community.

Putting It Into Practice: "25 or Less" Campaign

Morton Way Public School, Brampton, Ontario, Canada

Morton Way Public School in Brampton, Ontario, Canada, has 877 students in junior kindergarten through grade five. Approximately 50 students travel to school by school bus, and the rest of the students live within walking distance of the school. During the past four years Morton Way has sustained a successful walk to school program with between 83 and 92 percent of students walking or bicycling to school on specific days.

Despite the success of the program, the Morton Way community still felt there were too many private vehicles dropping off students. They recently implemented a new initiative to reduce the amount of motor vehicles at the school through a "25 [Cars] or Less" campaign. A "thermometer" is displayed to alert drivers how many vehicles dropped off students the day before and school PA announcements update the students of progress. There are also signs displayed around the school promoting the 25 or Less campaign.

See the Encouragement chapter for a description of other Morton Way Safe Routes to School activities.

Curb Striping and Other Pavement Markings

Curb striping or painting is used in drop-off and pick-up zones to clarify parking and other curb use rules. The color painted on curbs means:

White (or no color)

Parking allowed, unless restricted or limited by signs.

Blue

Parking for the disabled only. Drivers must have a disabled person parking placard (typically hanging on the rear view mirror) or disabled person or disabled veteran license plate.

Green

Parking allowed for a short time. The time is usually shown on a sign next to the green zone, or it may be painted on the curb. Green curb can also be used for student loading zones if accompanied by the appropriate signs.

Yellow

Stop only long enough to load or unload passengers. Drivers are usually required to stay with their vehicle.

Red

No parking. Red curb may also be used in NO STOPPING or NO STANDING zones in conjunction with the appropriate signs. A bus may stop at a red zone marked for buses. Red is also used to designate fire lanes at schools.

In some cases it may be helpful to stripe out the loading area, both for the driver and for the waiting students. Some schools stripe the path the drivers are supposed to use for drop off and pick up, and some schools use pavement arrows and pavement stencils to designate circulation patterns and where loading is to occur.



Mike Cynecki

Pavement stencil at Monroe Elementary School in Utah.



Mike Cynecki

The blue line used by the Deer Valley School District in the Phoenix, Arizona, metropolitan area designates parent drop-off circulation for school parking lots. This sign corresponds to the blue pavement markings used by the Deer Valley School District in Phoenix, Arizona.



David Parisi

The combined use of signs and striping on a residential street adjacent to school property clarifies the intended curb use. The white curb marking indicates an area in which drop-off and pick-up of passengers is permissible. Santee, California.



Mike Cynecki

This is part of an on-site drop-off and pick-up zone with highly visible red striping. The loading and unloading occurs in a specially marked area beyond the red curb. Orangewood Elementary School, Phoenix, Arizona.

Tool: Curb Striping

What is it and how does it work?

Delineate zones and intended use with paint.

Benefits strategy provides

- Low cost.
- Provides continuous explanation of zone.

Key factors to consider

- Maintain paint.
- Use standard colors.
- Educate parents and students on proper use.
- Use in conjunction with signing to clarify purpose.



David Parisi

Nonstandard signs are not always understood by drivers. This sign is often hit by motor vehicles and leads some drivers to believe the entire street, and not just the crosswalk, is off-limits to parking.

Signs

Signs help define areas in drop-off and pick-up zones and explain their proper use. Signs should be standard, highly visible, properly installed and well-maintained.

Some signs can be confusing if improperly placed or poorly worded. Signs with fewer words are easier to read and understand. Standard signs should be used on school property and in the surrounding area for regulating and guiding traffic. A local traffic engineer can recommend appropriate signs and their placement. See the Engineering chapter for more information on signing.

Separating Motor Vehicles From Pedestrians and Bicyclists

Separating or eliminating conflicts between students arriving on foot or bicycle from those arriving by buses and motor vehicles is highly recommended. Adequate physical space should be provided for each mode by which students arrive at school. Also, the route provided for each mode should be separate from other modes. Provision of sidewalks and bikeways that are separate from lanes dedicated to buses and lanes dedicated to motor vehicles will reduce a student's exposure to traffic. Students walking or riding to school should not have to cross busy driveways or roadways to access the campus. If they do, an adult school crossing guard or older student should be placed at the crossing to assist students safely across.



Mike Cynecki

When worded properly and when parents are educated properly, some nonstandard signs can be quite helpful in regulating drop-off zones. Orangewood Elementary School (left) and Roadrunner Elementary School (right), Phoenix, Arizona.

Tool: Signing

What is it and how does it work?

Clearly indicates intended use of zone.

Benefits strategy provides

- Low cost.
- Provides continuous explanation of zone.

Key factors to consider

- Use standard signs.
- Install signs properly.
- Maintain signs.

It may be appropriate to provide a separate travel lane for buses, a separate lane for private motor vehicles and specific routes for pedestrians and bicyclists. Separate bus zones can be established either on the school site, or on the adjacent street, wherever sufficient room exists. Preferably, the bus zone is not immediately adjacent to the private motor vehicle area to ensure that there is no spillover from the motor vehicles into the bus area.

A separation of arrival and departure times may also be useful. Staggered bell times for groups of students help to disperse the traffic peak at schools during the relatively short drop-off and pick-up periods. Staggered release or bell times for walkers and bicyclists, and bus riders and carpoolers can help reduce pedestrian or bicyclist exposure to, and minimize conflicts with, motor vehicles. Conflicts often occur when private motor vehicles and buses arrive at the same time and in the same location. For example, buses may use a drop-off and pick-up lane at a certain time, followed by private motor vehicle use at a later time. Staggered bell times are most applicable for schools with a large student population or when two or more schools are in close proximity to one another.

To further reduce conflicts, school facilities can be arranged to eliminate or reduce the number of children walking through parking lots. Children should walk around parking lots on dedicated walkways or sidewalks. If this is not possible, clearly marked walkways through parking lots with adult or older student monitors should

be used, and speed calming treatments, such as humps or bumps, should be employed in the parking lots.

School bus loading areas should be separated from parent drop-off and pick-up areas if at all possible. Signs, pavement markings, gates or orange cones may be used to provide this separation, but some education and enforcement will also be needed.



Mike Cynecki

Phoenix, Arizona.



Mike Cynecki

Traffic cones can be used to keep parents from entering the bus loading area at Monroe Elementary School in Utah.

Tool: Separating Vehicles From Pedestrians and Bicyclists

What is it and how does it work?

Provide different school access points in space or time for various student travel modes.

Benefits strategy provides

- Provide efficient and safe flow of all modes with minimal mixing.

Key factors to consider

- Can be costly if construction is needed.
- New schools and rebuilt or modernized schools should be carefully reviewed to ensure that separation is present.



David Parisi

Mill Valley, California.

Drop-off and Pick-up Lane

A drop-off and pick-up lane is an area on a street adjacent to school grounds or directly on the school grounds that is dedicated to the loading and unloading of students by private motor vehicles.

This school created a drop-off and pick-up lane on the street adjacent to school grounds. The picture to the left shows a corral where children wait to be picked up. Motor vehicles with identification tags that correspond to an individual student line up in the yellow-lined area. When the motor vehicle progresses to the white-striped loading area, the appropriate child exits or enters the vehicle. Signs, such as the one in the picture to the right, can remind drivers to follow the established process.



David Parisi

Marin Horizon School, Mill Valley, California.

An on-site drop-off and pick-up lane can employ the same general technique as in the on-street drop-off and pick-up lane. The system illustrated in the pictures to the right uses two lanes rather than one, and the lanes are actually on school grounds. Several motor vehicles in one lane progress to the unloading zone, release the children simultaneously and move out when all the children have cleared the street. The next group of motor vehicles moves into the loading zone from the other line of queued vehicles and repeats the process. Curb striping delineates the areas, signs further explain their proper use, orange cones mark the lanes and school personnel orchestrate the entire process.

Tool: On-street and On-site Drop-off and Pick-up Lane

What is it and how does it work?

- A lane designated for drop off and pick up of students from private motor vehicles only.
- May be on school grounds or on street adjacent to school.

Benefits strategy provides

- Speeds up and provides order to the drop-off and pick-up process.

Key factors to consider

- Clearly delineate zone and define process.
- The student loading area should be at the far end of the lane to maximize vehicle storage. In some cases two storage lanes may be used.
- Unload or load three or four motor vehicles at a time.
- Do not create a process that negatively impacts students arriving on foot or bicycle, and do not encourage more parents to drive students to school.



David Parisi

Monta Vista School, Santa Barbara, California.

Assistants to Help Students In and Out of Vehicles

Providing curb-side assistants in drop-off and pick-up zones to help students exit and enter motor vehicles can provide order to the process and decrease its time.

Parents, school personnel, safety patrol or older students can serve as valets and open curb-side doors for students to enter and exit motor vehicles and remove bags or other items. This speeds up the drop-off and pick-up process by eliminating the need for the parents to get out of the vehicle and ensures students are directly accessing designated locations. These assistants should wear safety vests or belts, and the loading area should be designated by signs or paint and be located at the far end of the lane. It is best to have enough assistants to help load three or four vehicles at a time to speed up the process in a safe manner.



Richman Elementary School, Fullerton School District

Tool: Assistants to Help Students In and Out of Vehicles

What is it and how does it work?

Person opens and closes curb-side motor vehicle door for students entering and exiting vehicles. Parents stay in vehicle and leave immediately after the child exits.

Benefits strategy provides

- Speeds up drop-off and pick-up process.
- Channels students directly from motor vehicle to pedestrian zone or from pedestrian zone to motor vehicle.

Key factors to consider

- Parents, school personnel and safety patrol can all participate.
- Need to educate parents and children on the process.
- Assistants should wear safety belts or bright vests.

Off-site Queuing Lane

Another strategy to improve the safety and efficiency of the drop-off and pick-up process is the use of off-site queuing lanes.

The street in this photograph is a major collector. During arrival and departure of students, the right lane is marked no parking and the motor vehicles line up for drop off and pick up. As students are loaded or unloaded from the motor vehicles at the drop-off and pick-up zone the vehicles in the queue advance. Off-site queuing lanes, in conjunction with drop-off and pick-up lanes and assistants to help students enter and exit motor vehicles, can speed up and improve the safety of the loading and unloading process.

In some instances, striping a center turn lane on a collector street can provide a queuing area for left-turning drivers waiting to enter the school drop-off and pick-up area, without blocking other traffic using the street.



Tool: Off-site Queuing Lane

What is it and how does it work?

Orderly line of vehicles on street adjacent to school waiting to pull into the drop-off and pick-up zone.

Benefits strategy provides

- Reduces conflict with non-school traffic.
- Speeds up and provides order to the drop-off and pick-up process.

Key factors to consider

- Clearly delineate queue.
- Do not block non-school traffic with queue.
- Does the public right-of-way provide sufficient space for the vehicles, or does the needed width infringe on private property?
- Do not extend the motor vehicle queue through a student crosswalk.

Temporary Street Closures and One-way Streets

Temporary street closures during student arrival and departure times can improve the efficiency and safety of the drop off and pick up of students at school. Temporary street closures eliminate motor vehicles in areas congested with pedestrians, bicyclists and perhaps buses. Another similar technique is to designate a street as one-way during drop-off and pick-up times. Signs are essential for this method.

Both temporary street closures and temporary use of one-way streets can work well in densely developed neighborhood schools. Any proposed street closures must be approved by the appropriate local transportation agency and must be coordinated closely with neighbors. It is also important to ensure that employing either of these techniques does not create traffic problems on other streets. Remember that all of these techniques should improve the safety of the overall process, and not simply relocate the chaos.



David Parisi

These images illustrate the temporary closures of neighborhood streets adjacent to schools in Seven Trees, California, (right) and Monroe Middle School, California (left). The closures are marked by the use of movable barricades.

Temporary Use of School Grounds as a Drop-off and Pick-up Zone

A section of the school grounds, such as a play area or parking lot, can be used as a dedicated drop-off and pick-up zone only when children are arriving at, or leaving, school. Temporary drop-off and pick-up zones can be useful in older, urban schools that were built without student loading areas when most children walked to school rather than being driven to school.

Some schools have received permission from their fire department or fire marshal to use a gated fire lane that encircles the school building as a parent pick-up and drop-off zone. This use requires parents to always stay in their vehicle, and to use a circulation pattern so that students load on the building side of the vehicle. At other times this area is closed to motor vehicle traffic.

Tool: Temporary Street Closures and One-way Streets

What is it and how does it work?

Officially close street to traffic, or create a one-way street only during drop-off and pick-up times.

Benefits strategy provides

- Decreases traffic and chaos at drop-off and pick-up times with minimal cost.

Key factors to consider

- Coordination with local government and adjacent property owners is necessary.
- School officials may have to place and remove barricades and maintain them during the street closure.
- Do not relocate traffic problems to adjacent neighborhood streets by employing this strategy.

Tool: Temporary Use of School Grounds as a Drop-off and Pick-up Zone

What is it and how does it work?

Use school play area, parking lot or other area as a drop-off and pick-up zone.

Benefits strategy provides

- Provides a separate space for drop-off and pick-up by motor vehicle.

Key factors to consider

- Useful in schools in densely developed areas with space constraints.
- Education of parents and students is important.
- Need good sign and paint plan; cones may be helpful.
- To use a fire lane as a drop-off or pick-up zone, schools need to obtain approval from the fire department beforehand.

Education

Educating parents and students on proper drop-off and pick-up procedure is essential in developing a safe and efficient system.

Regular reminders of drop-off and pick-up procedure from school officials to students and parents is one way to keep parents informed. Information provided to parents should be clearly stated, provide consistent messages and be delivered regularly throughout the school year. Maps of the drop-off and pick-up area with traffic flow patterns are very helpful. It is often good to begin a new drop-off plan at the start of a new school year or after a break, and after sufficient notice has been given to parents and students about the new plan.

Some schools hold traffic safety days to provide students and parents with useful information. Drivers are reminded of traffic safety principles and school drop-off and pick-up policies and processes. At this time children can be recognized and rewarded for walking or bicycling to school. Drivers who are not following proper process can receive warnings from school personnel, parents or law enforcement officers. Giving small rewards, such as stickers or pencils, to students whose parents follow proper process may be more beneficial in correcting bad habits than punishing poorly behaved parents.

Communities with a large non-English speaking population may benefit from multi-lingual educational literature, parking lot monitors and events.



David Parisi



David Parisi

Monitoring and Enforcement of Drop-off and Pick-up Policies

Enforcement of drop-off and pick-up rules is essential in creating a safe drop-off and pick-up environment. Enforcement as it applies to the entire Safe Routes to School program is discussed in detail in the Enforcement chapter, so it will be mentioned just briefly here.

Enforcement of drop-off and pick-up policies and process can be performed by a variety of people. Schools around the country have had success utilizing law enforcement officers, school personnel or parent volunteers. When new drop-off and pick-up plans are implemented assistance may be requested from law enforcement officers to make sure traffic flows smoothly during the first few days. Implementing a new plan may also require more volunteers or monitors to regulate parent activity in the first few days.



This notice is placed on a vehicle windshield to inform the driver that they have illegally parked in a drop-off and pick-up zone for buses.

Tool: Monitoring and Enforcement of Drop-off and Pick-up

What is it and how does it work?

Inform and remind the school community of drop-off and pick-up policies and process.

Benefits strategy provides

- May be the only additional activity necessary to keep drop-off and pick-up safe and efficient.

Key factors to consider

- Regular reminders and consistent application of rules are necessary.
- Reward students if their parents follow the process.
- Police assistance may be requested when implementing a new plan.

.....
Enforcement of drop-off and pick-up rules is essential in creating a safe drop-off and pick-up environment.
.....

Evaluation Guide for Community Safe Routes to School Programs

Identifying issues, improving activities
and understanding results



Contents

Evaluation Guide for Community Safe Routes to School Programs

Overview	8-1
Benefits of Evaluation	8-1
Audience	8-1
Purpose	8-2
When and How to Evaluate	8-3
The Timing of Evaluation	8-3
Options for Evaluation.....	8-4
Collecting Safe Routes to School Information	8-8
Kinds of Information to Collect	8-8
Ways to Collect Information	8-8
Evaluation in Six Steps	8-12
Step 1: Plan the Program/Collect Information	8-12
Step 2: Write Objectives.....	8-17
Step 3: Decide What, How and When to Measure	8-19
Step 4: Conduct the Program and Monitor Progress.....	8-22
Step 5: Collect Information and Interpret Findings	8-23
Step 6: Use Results.....	8-25
Appendices	8-27
A. Safe Routes to School Student Travel Tally.....	8-28
B. Safe Routes to School Parent Survey.....	8-29
C. Evaluation Worksheet	8-31
D. Example Completed Evaluation Worksheet	8-36
E. Working with an Evaluation Specialist	8-44
F. Evaluation Designs.....	8-45
G. Writing Smart Objectives	8-46
H. Data Collection, Storage and Management.....	8-47
I. Examples of What and How to Measure	8-48
J. Tips for Working with the Media.....	8-49
Resources	8-50

Overview

Around the country, communities are conducting Safe Routes to School (SRTS) programs in order to enable and encourage children to walk and bicycle safely to school. Communities tailor a combination of engineering, education, encouragement and enforcement strategies to address the specific needs of their schools. Evaluation is an important component of any SRTS program. **Evaluation** is used to determine if the aims of the strategies are being met and to assure that resources are directed toward efforts that show the greatest likelihood of success. Also, evaluation can identify needed adjustments to the program while it is underway. This information describes how to conduct a SRTS program evaluation that is tailored to that program's objectives and strategies.

Benefits of Evaluation

Every SRTS program, no matter the size, can benefit from evaluation. For local programs, evaluation allows for:

- **Making sure that the underlying problem is identified so that proper strategies to address the problem are picked.** Sometimes a SRTS program begins without a good understanding of the underlying issues resulting in a less successful program.
- **Setting reasonable expectations about what the program can do.** By knowing the starting point, SRTS programs can set specific and reasonable objectives.
- **Identifying changes that will improve the program.** Part of evaluation is monitoring what happens throughout the life of a project so that mid-course corrections can be made, if needed, to improve chances of success.
- **Determining if the program is having the desired results.** This is a primary purpose of any evaluation and can be used to inform funding sources, the media, and the public to help build support for SRTS.

There are benefits that extend beyond an individual program. Data collected and shared by local programs can influence future funding at the local, state and national level. Today's SRTS exists in part because of the evaluations of earlier programs. In the 1970s, Odense, Denmark, initiated SRTS efforts to combat the high rate of pedestrian and bicyclist injuries. Over a 20-year

period, the number of injured school children in Odense decreased 30–40 percent. That success helped lead to the establishment of SRTS programs in the U.S. — first in the Bronx in New York City, then Congressionally-funded pilot programs in Arlington, MA, and Marin County, CA, and then state-level programs in Texas and California, as well as others. Evaluation of the success of those early programs in increasing walking and bicycling to school and reducing the numbers of parents driving their children to school, combined with strong demand, spurred Congress to establish the \$612 million National Safe Routes to School Program in 2005. Findings from evaluations conducted by local programs will play a similarly important role when policymakers at the national, state, and local levels decide whether and how to continue SRTS programs.

Audience

This information is intended for all those who have an interest in the success of SRTS programs, particularly those seeking information about how to evaluate a local program. This information is written with local program implementers in mind — people who are busy and responsible for many tasks, who do not necessarily have experience with evaluation but are invested in the success of SRTS. It is not expected that readers intend to conduct a scientific research study. The information focuses on ways to gather information about a program's progress, potential improvements and results that do not take lots of time or necessarily require a specialist.

Ideally, evaluation begins when the SRTS program is in the planning phase. However, the information in this

section can be helpful for those with programs at other points, too, such as:

- Applying for funding in order to justify the request.
- Identifying problems and potential solutions if a part of the program is not having the desired impact.
- Conducting or completing a program to be able to identify successes or needed adjustments.

Purpose

This information is designed primarily to assist in the development and implementation of a local SRTS program evaluation plan. It describes how the timing of evaluation corresponds to the life of a program; gives an overview of commonly used ways to collect data, including two ready-to-use data collection instruments (see the student travel tally in Appendix A and parent survey in Appendix B); and then outlines a six step process for SRTS program evaluations.

If initial planning meetings have already taken place or an application for funding has been submitted, it is likely that the first step has already been accomplished. A worksheet (Appendix C) provides a way for program implementers to organize their program information for each step and a completed worksheet (Appendix D) serves as an example.

Every effort has been made to condense this information to the most vital information needed for a local SRTS program. Readers interested in developing a deeper understanding of evaluation are encouraged to review the Resources section.

Six Step Process for SRTS Program Evaluation

1. Plan the program/Collect information
2. Write objectives
3. Decide what, how and when to measure
4. Conduct the program and monitor progress
5. Collect information and interpret findings
6. Use results

.....

This guide outlines a six step process along with tools and a worksheet for developing an evaluation plan.

.....

When and How to Evaluate

Safe Routes to School (SRTS) evaluation plans come in different sizes and shapes to fit different program goals, strategies and resources. This section provides an overview of the times during a SRTS program when evaluation occurs and then provides two evaluation plan options based on those times. The options differ in amount of time and resources required. The benefits and drawbacks of each option are provided to assist program implementers in deciding what evaluation plan would work best for their situation.

The Timing of Evaluation

The evaluation process mirrors the lifespan of a program. It ideally begins when the program is initially formulated and ends after a program ends. Evaluation helps in different ways at different times in the program's life. Each time provides important information that can strengthen or improve a program.

Evaluation occurring:

- **Before** the program collects baseline information and helps plan the program.
- **During** the program identifies progress and/or challenges and areas needing improvements.
- **After** the program identifies changes in behaviors, attitudes and/or the physical environment and informs decisions about the future of the program.

Before the Program Begins

Understanding what is happening in a community and around a school requires the collection of baseline information in order to discover barriers and assets to walking and bicycling and to understand the circumstances before a program takes place. Baseline data collection also serves as a reference point against which to compare conditions during and after the SRTS program, such as the number of walkers. This evaluation stage is also called formative assessment.



Naples, Florida.

.....
Evaluation ideally begins when the program is initially formulated and ends after a program ends.
.....

During the Program

This information gathering occurs while the program or a particular activity is underway. Monitoring what activities are being done during the program is a way to check that a program is doing what it planned to do and to identify improvements to make along the way. It can reveal what is working and what is not and can allow for quick fixes. For example, if the program includes crossing guards and the evaluation reveals that the parents are not obeying them, then there is the opportunity to work toward solving that problem right away. Evaluation during the program usually includes counting things such as the number of education sessions taught, the number of walkability checklists completed or the number of fliers distributed — all related to what activities are being conducted. This kind of monitoring continues through the life of a program as a way to report on what took place. This evaluation stage is also called process evaluation.

After the Program

This data collection occurs after the program or activity is completed and can reveal the program's effects. The same evaluation tools used to collect data before the program was implemented are used to gather data after the program's completion. The evaluation consists of measuring changes in knowledge, attitudes, beliefs, behaviors, or the physical or social environment from before the SRTS activity or project occurred to after the activity or project ended (or yearly). This is also called outcome evaluation. Additionally, the project conclusion is when the data collected during the program are summarized in order to understand what took place and whether the planned activities were conducted as intended. Summarizing this information helps make sense of the outcome evaluation results because it explains the context in which the results were achieved.



The standard method of evaluation is the preferred method as it is more comprehensive and allows for adjustments during the program.

Options for Evaluation

This section discusses two evaluation methods for local programs to consider: standard and basic. The standard method of evaluation is the preferred method as it is more comprehensive and allows for adjustments during the program. However, it is understood that not everyone will have the resources for standard evaluation. Therefore, the basic evaluation will also be explained.

Standard evaluation:

Evaluation is done before, during, and after the program.

Basic evaluation:

Evaluation is done before and after the program.

Standard evaluation can be conducted by the program implementers or with the help of a professional evaluator. Standard evaluation is ideal since it provides information throughout the life of the program and can be used to examine the effectiveness of specific strategies. However, for some programs the ideal must be balanced with the time and the resources available. Basic evalua-

tion may be the choice that fits the circumstances.

This information is shaped around standard evaluation conducted by the program implementer, since it provides a more complete picture than basic evaluation and does not have the costs associated with engaging an evaluation specialist. However, the worksheets and evaluation tools can be used for either of these evaluation plans. Below are descriptions of these options.

Standard Evaluation:

- Data collection is done before, during and after the program (Steps 1, 4 and 5)
- Provides more information for improving the program along the way than basic evaluation
- Provides a better understanding of what worked in the program than basic evaluation
- Requires more time and resources than basic evaluation

Six Step Process for SRTS Program Evaluation

Standard Evaluation

Collects data during steps 1, 4 and 5.

BEFORE
DURING
AFTER

1. Plan the program/Collect information
2. Write objectives
3. Decide what, how and when to measure
4. Conduct the program and monitor progress
5. Collect information and interpret findings
6. Use results

Basic Evaluation

Collects data during steps 1 and 5.

BEFORE
DURING
AFTER

1. Plan the program/Collect information
2. Write objectives
3. Decide what, how and when to measure
4. Conduct the program
5. Collect information and interpret findings
6. Use results

Similar to basic evaluation, standard evaluation includes the information collected before and after the program. However, standard evaluation also requires monitoring program activities *while they are underway*. In addition, programs may also choose to add questions to the parent survey or gather other information to learn more about specific issues relevant locally. For example, if speed around the school is believed to be a problem and a public education campaign to remind drivers about appropriate driving speed is planned, then gathering speed data before, during and after the program would make sense.

The diagram above shows how the timing of the data collection relates to the six steps for evaluation.

Standard Evaluation with the Assistance of a Professional Evaluator:

- Ideal for large, complex programs.
- Allows for a more rigorous research design for understanding what worked.
- Requires more resources than standard or basic evaluation conducted by the implementers.

A professional evaluator offers the opportunity for a more rigorous research design which often provides a more valid and reliable picture of what is happening

with the program, why it is happening, and the relationship between the evaluation results and program activities. While involving an evaluator is not necessary or feasible for every program, for some, such as large, multi-component programs, it may be most appropriate. See *Working with an Evaluation Specialist* (Appendix E) for information on how to find and best use an evaluation specialist. More complex evaluation designs require additional considerations of what and how information will be collected. See *Evaluation Designs* (Appendix F) for more information.

Basic Evaluation:

- Data collection is done before and after the program (Steps 1 and 5)
- Provides the minimum amount of evaluation a program should conduct
- Requires the least amount of time and resources

Basic evaluation includes collecting baseline information using a student travel tally and parent survey and using these tools again when the program is over. This will enable program implementers to gain insights on attitudes, behaviors, and conditions before a program begins and what changes have taken place after the program. For example, changes in student travel tallies will reveal any increase or decrease in the number of

students walking or bicycling to school, and the responses to the parent survey will reveal any changes in parent attitudes toward walking and bicycling to school.

The diagram on the previous page shows how the timing of the data collection relates to the six steps for evaluation.

Basic Evaluation Tips

When time and resources are very limited, some basic steps can help.

Local programs often have many responsibilities, just one of which is monitoring the progress and effects of their Safe Routes to School (SRTS) program. If time and resources are very limited, collecting data before and after the program can provide information to help guide program planning, understand the progress and identify next actions. This basic evaluation calls for data collection during Steps 1 and 5 of the standard evaluation process.

Note: Using the SRTS student travel tally (Appendix A) and parent survey (Appendix B) developed by National Center for Safe Routes to School enables programs to use online tools at www.saferoutesinfo.org/tracking to enter data, generate reports and summarize results.

Before the Program

Collect Baseline Information

Before starting any SRTS activities:

- Use a student travel tally and parent survey to identify current student walking and bicycling rates and parent attitudes toward children walking or bicycling to school.
- Compile the information. Baseline information from the tools in this section can be entered onto Web-based tools at www.saferoutesinfo.org/tracking to summarize information and create basic reports.
- Ask the school principal to describe:
 - the main walking and bicycling routes
 - any safety concerns
 - any known pedestrian or bicyclist crashes in recent past
 - any rules relating to walking/bicycling to school
- Assess the main walking and bicycling routes. Walk the main routes that students take or would take when walking or bicycling to school looking for any safety concerns and other potential barriers.

Use Results to Inform SRTS Program Plan

Use information to determine strategies and goals. Correct unsafe conditions before conducting encouragement activities.

After the Program

Collect Information Again at the End of the Program

Collect the student travel tally and parent survey information again. Enter the data into the Web-based tools at www.saferoutesinfo.org/tracking. These tools can generate reports that compare findings. If engineering improvements were made, reassess the walking and bicycling routes affected with the audit checklist.

Compare Results Collected Before and After the Program to Identify Changes

Did walking and bicycling increase? Did parents' attitudes change? Did safety improvements occur? Did parents recognize these improvements?

To plan and conduct a more thorough evaluation that could provide deeper insights on a program's achievements and results, see standard evaluation.

Who Will Be Involved in the Evaluation?

One person cannot do all the planning for evaluation alone. The group responsible for planning and conducting the Safe Routes to School (SRTS) program will also most likely be responsible for evaluation. The following stakeholders all can play important roles.

Implementers:

Those involved in running the SRTS program.

Partners:

Those who support the program with resources, such as finances or time

Participants:

Those served or affected by the program, including students, parents/caregivers or neighbors.

Decision-makers:

Those in a position to do or decide something about the program.

Professional evaluators:

Those whose assistance is required if a complex research design or data analyses is planned. (See Appendix E.)

SRTS program leader:

The person who oversees the evaluation process and convenes the stakeholders.

Sharing Information as it is Collected

Since each stage of evaluation provides important information that can strengthen or improve a program, the results need to be put to use as soon as possible at each stage:

Before the program:

Helps inform the program objectives and activities so the findings can be shared with those who can get the program started.

During the program:

Identifies what is or is not working while the program is being conducted. These results should be shared with those who can make mid-way changes to the program to improve it.

After the program:

Highlights the changes since the program began. These results need to be shared with those that can re-fund the program or make other decisions about whether to expand or change the program.

Collecting Safe Routes to School Information

Now is when a program begins to consider what kind of information will be collected for evaluation. There are many ways to gather information that will inform and evaluate a Safe Routes to School (SRTS) program. This section describes the types of information collected and the methods for collecting it. The next section will integrate what these methods are and when these different methods might be used.

Kinds of Information to Collect

There are two kinds of information that will be collected:

Numbers

This is also called **quantitative** data. A good example of this type of data is tallies of how students arrive at school.

Words

This is also called **qualitative** data. A good example of this type of data is what a principal says about traffic safety around the school during an interview.

Results of some data collection methods, such as surveys or observations, may be either numbers or words depending on the type of questions asked. Quantitative data is sometimes easier to handle — numbers from surveys are entered, totaled and compared. However, qualitative data offers a richer understanding of the how or why behind quantitative findings. For example, interviews with parents who participate in a walking school bus help reveal why they choose to be involved and how the walking school bus improves their perception of traffic safety. Interview questions can collect personal opinions or experiences; however, the answers may not necessarily reflect reality. For example, the question “Do walking school buses keep children safe?” can best be answered with data rather than personal opinion. Both quantitative and qualitative data are useful and can inform each other so that together they paint a more complete picture. The type of information collected (quantitative or qualitative) becomes important later when it is time to interpret findings because they will be analyzed in different ways.



.....

Both quantitative and qualitative data are useful and can inform each other so that together they paint a more complete picture.

.....

Ways to Collect Information

There are five ways often used by SRTS programs to collect information:

1. Tallies/counts
2. Surveys
3. Observations and audits
4. Interviews
5. Existing data sources

1. Tallies/Counts

Tally forms are simply ways to count numbers of people or things. Tally forms can answer a question that every SRTS program needs to be able to answer: *How do students travel to and from school?* Tallies can be used to count the number of children traveling to and from school using different modes of travel, such as walking, bicycling, bus, private vehicle, etc. Travel behavior enables a program to measure changes after SRTS activities. It also provides a means of identifying which

modes of travel to target and gives a general understanding of the school travel environment.

School Travel Tally Forms

Student travel tally forms (Appendix A) developed by the National Center for Safe Routes to School are available for download and use. There is a 1-page tally sheet that teachers complete and online tools (www.saferoutesinfo.org/tracking) that generate a cumulative report for the entire school. Basic steps for use are to the right.

2. Surveys

Surveys or questionnaires are commonly used in evaluation. They provide a low-cost way to obtain information from many people in a relatively short amount of time, and they allow responses to be anonymous. Surveys may be distributed in many ways such as paper and pencil, telephone, e-mail messages, or over the Internet. Questions for a survey need to be carefully written and ideally pre-tested with potential respondents to be sure that the questions are understandable and that the answers will provide the kind of information sought. Entering survey data and generating results can be time consuming. The parent survey (described below and at box at right) developed by the National Center for Safe Routes to School has a Web-based entry tool (www.saferoutesinfo.org/tracking) that automatically summarizes results.

Parent surveys can answer the question: *What are the attitudes and issues that may influence how students get to and from school?* Understanding why students are or are not walking and bicycling is important. A survey may reveal that parents or caregivers perceive it is unsafe for their children to walk or bicycle. Then the job for a local program is to determine if the perception is reality. If safety is an issue, strategies to fix the unsafe conditions are needed. If it is a *perception* of a safety issue rather than a real danger, then strategies to correct such misperceptions are needed. Without this information, the local program might focus efforts on an issue that will not result in significant improvements.

Parent Survey

A parent survey (Appendix B) developed by the National Center for Safe Routes to School is available for down-

Safe Routes to School Student Travel Tally Forms

Instructions:

- For two days of one week, teachers ask students how they got to school that day and how they got home the previous day.
- Students raise their hands for each mode (walk, bike, car, etc) of travel and the teacher records the counts.
- The in-class tally sheets are collected and the cumulative results are added up. This can be done by entering information into an online data entry tool (www.saferoutesinfo.org/tracking).
- The summary tool also displays some basic analysis information, such as graphically comparing the amount of walking or biking during the morning and the afternoon.

Safe Routes to School Parent Survey

Instructions:

- The survey can either be sent home with students for their parents or caregivers to complete or can be distributed as part of parent-teacher conferences.
- Surveys are returned to teachers, who then submit them (often to the SRTS program implementer) to be summarized.
- An online tool (www.saferoutesinfo.org/tracking) assists local program leaders in data entry and summarizing the survey results.

load and use. The survey includes questions about what affects parents' decisions to let children walk or bicycle to school, the presence of factors that might influence parents' decisions, and parents' perceptions of safety related to walking or bicycling to school.

Completion of the survey requires about 5 to 10 minutes. Basic steps for use are above.

3. Observations and Audits

Information can be gathered by both observing the physical environment and the behaviors of people like pedestrians, bicyclists and drivers. There are many existing tools available, such as walkability and bike-ability checklists and instructions for conducting a walk or bicycle audit (go to www.saferoutesinfo.org/guide/engineering and click on School Route Maps and the Tools to Create Them in the menu). The tools range from those designed for use by the general public to detailed, technical audits intended for transportation professionals.

4. Interviews

This may include interviewing people one-on-one or in groups. Individual interviews may be informal, such as chatting with parents when they drop off children at school, or formal interviews with a principal, town planner, or another stakeholder using pre-planned questions. A benefit of interviewing is that it will render more specific information about a person's experience, opinions or knowledge than a survey. On the other hand, it can be time consuming and responses are not necessarily anonymous.

5. Existing Data Sources

Existing data sources can reveal important information, especially before a program begins. There are many potential sources with a variety of helpful information. Statistics about pedestrian and bicycle crashes may be available from local or state injury prevention programs, hospitals or law enforcement agencies. The school or town may already have a walking route map, and potentially, the school or local health agency may already ask students about their attitudes and behaviors regarding physical activity which would eliminate the need to collect some data. The school may also have records that reveal how many students live within walking and bicycling distance.

Evaluation Standards

There are four important questions to consider during the entire process of evaluation. These four questions summarize key evaluation standards (see Resources) of utility, feasibility, accuracy and propriety which are important to consider before moving forward with an

Observation of a School: Student Arrival or Departure

One of the best ways to understand walking and bicycling safety issues at a particular school is by observing students arriving or departing during a normal school day. This includes observing children as they walk or bike the routes to school, how they cross streets, the interactions they have with cars and buses on the school campus, and how they make their way to the school door. The goal is to identify two main things:

- The physical environment for walking and bicycling both on the school campus and in the surrounding area; and
- The behaviors of pedestrians, bicyclists and motorists and buses.

A good way to start is in a neighborhood near the school. Follow the route the students are taking. Upon arrival on school campus, walk in a loop to observe all locations and forms of behavior. Jot down things that need to be addressed. Have an observer at the main entrance fifteen minutes prior to school starting and the first fifteen minutes when school is dismissed.

evaluation plan.

Is the evaluation useful?

The amount and type of information collected should meet the needs of those who intend to use the evaluation findings. If not, there is no need to collect the data. For example, collecting student body weight data would only make sense if the program included increasing physical activity among its goals.

Is the evaluation feasible?

The evaluation should be possible and realistic to complete. The information must be collectable within the needed timeframe and costs must fall within a reasonable budget.

Is the evaluation accurate?

The evaluation findings should be correct. For example, if an observation of student arrival only counted students arriving on one street but not another street,

then the findings would not be a complete, true picture of student travel.

Is the evaluation fair?

The evaluation has to be conducted with awareness of the rights of the people involved in the program. For example, no one should be singled out or made to feel uncomfortable because of how they respond to a question.

Working with Schools

Data collection, such as student travel to and from school or surveys of parents, will require close coordination with the school. For example, schools may have rules about collecting information from students and it will require time from teachers, school staff and administration in order for data collection to be a success.

Collecting data from students can be challenging. Be aware that data are routinely collected from students to meet state requirements and additional requests may be difficult to accommodate. Furthermore, parent permission may be needed before surveying students. The following tips come from program implementers who have fostered relationships that have eased the way for data collection:

- Learn and act on the permission requirements early if students are to be surveyed.
- Develop a relationship with and gain the understanding of the school board and school principal as to why Safe Routes to School (SRTS) is important and how data collection will help.
- Learn what data is already being collected in what manner and see if there is a way to coordinate efforts.
- Find a key supporter of the SRTS data collection efforts in the administrative office.

Evaluation in Six Steps

Ideally, planning a Safe Routes to School (SRTS) program and planning its evaluation are done together. For local programs just starting to talk about SRTS, it is the right time to be thinking about how progress and results will be measured. If a local program has already spent time developing a plan and collecting information about what is happening that is related to walking and bicycling to school, then the first step of evaluation most likely has occurred even if no one considered it to be evaluation.

A six step process for conducting an evaluation is described in detail in this section. Program implementers may choose to record their local program information on the downloadable blank worksheet (Appendix C). An example school (Appendix D) is used to demonstrate how an evaluation might be planned using the worksheet.

Step 1: Plan the Program/Collect Information

Planning for evaluation should start when the program is in its very beginning phase. For programs already underway, the components of this step may already be accomplished. This step includes the following actions (not necessarily in this order):

- Defining the program’s goal(s)
- Collecting baseline data and understanding current walking and bicycling conditions
- Picking activities

If these actions are done, move on to Step 2. If not, this section will explain why and how to accomplish these tasks.

1a. Defining the Program’s Goal(s)

Knowing what to evaluate requires that a local program knows what it wants to achieve in the long term. A goal is a broad statement of the program’s purpose. It may be the first decision made before launching a program. Sometimes baseline data and other information are collected first and those findings drive the goal.

Deciding on the program’s goal requires input from all stakeholders. A local program may have one or more goals. The goal(s) may be tailored to a community’s particular interests or needs or chosen from the stated purposes or desired outcomes of the Safe Routes to School National Program.

Six Step Process for SRTS Program Evaluation

1. Plan the program/Collect information
2. Write objectives
3. Decide what, how and when to measure
4. Conduct the program and monitor progress
5. Collect information and interpret findings
6. Use results

.....
Planning for evaluation should start when the program is in its very beginning phase.
.....

The purposes of the Safe Routes to School National Program stated in the Federal legislation are:

- To enable and encourage children, including those with disabilities, to walk and bicycle to school.
- To make walking and bicycling to school a safer and more appealing transportation alternative, thereby encouraging a healthy and active lifestyle from an early age.
- To facilitate the planning, development and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption and air pollution in the vicinity of schools.

The desired outcomes of the Safe Routes to School National Program are:

- Increased bicycle, pedestrian and traffic safety
- More children walking and bicycling to and from schools
- Decreased traffic congestion
- Improved childhood health
- Reduced childhood obesity
- Encouragement of healthy and active lifestyles
- Improved air quality
- Improved community safety
- Reduced fuel consumption
- Increased community security
- Enhanced community accessibility
- Increased community involvement
- Improvements to the physical environment that increase the ability to walk and bicycle to and from schools
- Improved partnerships among schools, local municipalities, parents and other community groups, including non-profit organizations

1b. Understanding Local Walking and Bicycling Conditions

Before beginning a SRTS program, it helps to have an understanding of current circumstances that may influ-



Mike Cynecki

Anchorage, Alaska.

ence walking and bicycling to school. These include both assets that make a community supportive of children walking and bicycling, as well as barriers that make it difficult or unsafe. The information helps generate ideas about how to run the program in order to capitalize on assets and overcome barriers. For example, assets revealed through this process may be financial support or resources, such as volunteers to help run the activities or a local media outlet or business that wants to champion the cause.

Collecting data about the current situation is equally important and serves as baseline data that can be used for comparison after SRTS activities have been conducted. For example, the walkability of a particular route or parental attitudes toward walking and bicycling may be assessed before a program begins. These same measures should be repeated after the program has been implemented to see if a change occurred.

There are pieces of information to collect that will paint the picture of local conditions, including:

School information:

School information includes particular characteristics about a school and its circumstances that influence walking and bicycling by students. Examples include policies, school district boundaries or staggered dismissal times.

Walking and bicycling numbers:

This information includes the number of students

Collecting data about the current situation is equally important and serves as baseline data that can be used for comparison after Safe Routes to School activities have been conducted.

walking and bicycling to school and the number that live close enough that walking and bicycling would be an option if all other conditions, like safety or convenience, were met.

Safety issues:

Safety issues may include traffic, personal safety and lack of facilities, such as sidewalks, bike paths, crosswalks, or bicycle racks.

Attitudes about walking and bicycling:

Parents, children and school staff all have attitudes about walking and bicycling that influence their behavior. For example, if parents believe that children are more attentive at school if they walk, then this may motivate them to walk to school with their child.

Other assets:

There can be financial support or resources, such as volunteers to help run the activities or a local media outlet that wants to champion the cause. Assets to consider include:

- Sources for grant money
- Sources for volunteer support
- Local government resources (particularly needed for built environment changes, such as sidewalks)
- Local business support
- Media interest

Tools to Use for Collecting Information:

- The student travel tally will reveal current walking and bicycling counts.
- The parent survey will uncover attitudes about walking and bicycling and provide insight into what kinds of actions might increase the number of children walking and bicycling.
- The walking and bicycling route assessment is an important way to identify safety and other problems on travel routes.

- An **interview with the school principal** or someone else who knows about children's travel to and from school. Information to considering gathering includes:
 - The number of children who live within walking or bicycling distance
 - How the school district defines walking and bicycling distance
 - School personnel who might be interested in participating in a SRTS program
 - Rules or policies that impact travel to school

Other Ways to Learn About Current Conditions

There are many other worthwhile ways to gather information about current conditions, including:

- Survey the community regarding their views on walking and bicycling to school.
- Interview different groups, including:
 - Stakeholders: Ask what they see as the strengths and weaknesses in the community with regard to SRTS.
 - Students: Ask what might persuade them to walk or bicycle to school.
 - School Resource Officer or other local law enforcement officers: Ask them to identify potentially unsafe intersections or driver and pedestrian behaviors.
 - School board members: Ask for their suggestions regarding strategies.
 - School nurse: Ask about health and safety benefits and concerns related to walking or bicycling to school.
- Crash reports from the local police department
- Student attitude surveys
- Discussions with groups of parents or parent interviews

Example School

In this example, the school knew their first goal was to increase safe conditions for walking and bicycling to school. The information collected about local conditions and issues helped them set their other goal to reduce traffic congestion.

Safe Routes to School Program Evaluation Plan

School: High Hopes Elementary School

1. Program Planning Information

1a. Program goal(s):

- Increase safe walking and bicycling to school
- Reduce traffic congestion around school

1b. Local conditions and issues (formative assessment):

(1) School information:

- Half of school enrollment lives within a mile of school
- School has no policies against walking or bicycling

(2) Walking and bicycling numbers:

10 percent of children walk or bicycle to school

(3) Safety issues:

- Principal stated that one child was hit by a car last year in the crosswalk.
- Police stated that speeding was a problem; using radar gun to determine speeds, they determined that the average driver is going 35 mph instead of 25 mph through school zone during morning arrival.
- Observation of school campus during morning arrival showed traffic congestion around drop-off area to be a problem for walkers and bicyclists.
- Walk audit of routes to school showed good conditions for walking.

(4) Attitudes affecting walking and bicycling:

- Parent survey rated safety as main concern
- Discussions with parents showed interest in their children being able to walk to school if adult supervision provided

(5) Other assets that can benefit the program:

- Opportunity to receive grant to fund program
- Parents willing to provide volunteer help

Conclusions:

- Strategies to increase walking and bicycling to school should include adult supervision.
- Efforts are needed to reduce speeds around the school.
- Drop-off and pick-up area is a problem.

1c. Activities or Strategies

The program reaches its goals through activities or strategies. Examples of activities include initiating walking school buses, fixing broken sidewalks and focused speeding enforcement in school zones. There are many strategies that may be included in a SRTS program and more than one strategy may be needed to achieve any one goal. For example, to reach the goal of increased knowledge, educational strategies may be initiated. To achieve the more complex goal of the changing behaviors of drivers, pedestrians or bicyclists, education, encouragement, enforcement and engineering strategies together may be needed. The following are examples of some of the possible program activities divided into categories often used by SRTS programs: education, encouragement, engineering and enforcement. For more information see www.saferoutesinfo.org/guide.

Education Activities:

- Safety games or safety trainings
- Materials for parents to teach safety to children

- Classroom programs
- Materials for drivers near schools or drivers' safety training

Encouragement Activities:

- Walking school buses
- Walk and Wheel Wednesdays
- Incentive programs
- Mileage clubs
- Walk to School Day

Engineering Activities:

- Sidewalks or paths
- Signs or signals
- Rerouting of pick-up and drop-off areas away from walkers

Enforcement Activities:

- Crossing guards
- Campaign to reduce speeds around schools
- Neighborhood Hotline

Example School

This school decided to take a comprehensive approach and identified more than one strategy for each of education, encouragement, engineering and enforcement.

Safe Routes to School Program Evaluation Plan

School: High Hopes Elementary School

1. Program Planning Information

1c. Program Activities

Education Strategy:

Provide basic bicycle and pedestrian safety classroom lessons to school children, reinforced by take-home safety sheets for parents as well as a map of existing safe walking and biking routes.

Encouragement Strategy:

Start a Walk and Wheel Wednesday program that includes organized walking school buses and an incentive program.

Engineering Strategy:

Reroute parent drop-off area away from walkers and bicyclists, including improving the pedestrian crosswalk to school site.

Enforcement Strategy:

Develop a Parent Driver Safety Campaign that includes a school zone speed enforcement program and a clear enforcement message.

Step 2: Write Objectives

At this point, the program's goal(s) are set, information relating to current walking and bicycling has been examined and activities have been selected. The next step is to write objectives for the activities. Objectives describe what is expected for both while the program is underway and after the program or an activity is completed. This information will ultimately help program implementers know if they have achieved what was intended.

There are two different kinds of objectives:

1. Those that describe **what will be done**, such as Walk to School events, called **process objectives**.
2. Those that describe **what change is expected** or desired as a result of what has been done called **outcome objectives**.

Selected program activities need to have both process and outcome objectives. In general, objectives should include specific information about what is to happen, to

Six Step Process for SRTS Program Evaluation

1. Plan the program/Collect information
2. Write objectives
3. Decide what, how and when to measure
4. Conduct the program and monitor progress
5. Collect information and interpret findings
6. Use results

whom, by when, and in what amount. These are sometimes called SMART (specific, measurable, achievable, relevant, time-bound) objectives (see Appendix G). The table below provides examples of the two types of objectives that can be tailored to fit a local program.

Activity	Objectives: What will be done	Objectives: What change is expected
Initiate Walking Wednesday	Distribute 100 fliers announcing the Walking Wednesday program during first two months of the activity.	Increase the number of children walking on Wednesdays from 20 to 50 by the end of the school year.
Promote Safe Routes to School (SRTS)	Present information on the SRTS program at PTA meeting and place article in school newsletter during first two months of the activity.	Increase parental support of SRTS by 50% by the end of the school year as measured by changes to the parental support question in the parent survey.
Conduct Pedestrian Safety Education	Deliver safety presentations to all 4th grade classes within one year.	85% of 4th Graders pass a walking safety knowledge test within one year.
Promote Bicycle Helmet Use	Custom-fit 50 helmets for bicyclists during the fall semester.	Increase students wearing bicycle helmets from 20% to 60% by end of school year.
Install Sidewalks	Get sidewalk improvements listed on city plan during the school year.	Complete all sidewalk gaps along the 4 major designated safe routes to school within a three year period.
Install Bicycle Rack	Install two bike racks at the school by end of the fall semester.	Increase the percent of children bicycling to school from 1% to 5% within 3 years.
Conduct Bicycle Security Education	Teach 80% of bicycle riders how and why to properly lock their bicycles by the end of fall semester.	Decrease the percent of parents from 18% to 10% who identify "security concerns" as a barrier to allowing their child to ride a bicycle to school by the end of the spring semester.
Encourage Speed Reduction	Hold one news conference and deliver informational fliers to all school parents within two months of start of the activity.	Reduce speeds in school zone from 35 mph to 25 mph during the first year of the SRTS program.
Enforce Parking Regulations	Place 50 information cards on illegally parked cars during the first three months of activities.	Reduce illegal parking during arrival and dismissal by 60% by the end of the school year.

Example School

The example shows how the school is developing the evaluation plan for their encouragement strategies. Objectives are divided into "What will be Done" and "What Change is Expected." The time frame for when this will happen is also filled in. The completed worksheet shows the evaluation plan for all the strategies. In the next step, "What will be Measured" and "How and When It will be Measured" will be completed.

Safe Routes to School Program Evaluation Plan

School: High Hopes Elementary School

Encouragement Strategy:

Start a Walk and Wheel Wednesday program that includes organized walking school buses and an incentive program.

Time Frame:

Kick-off in October (International Walk to School Month) and promote weekly through school year

Data Collectors:

What will be Done	What will be Measured	How and When it will be Measured
Five walking school buses established		
An average of 50 students participate in Walk and Wheel Wednesdays program		
A six-week long incentive program with 50 children participating		
Change Expected	What will be Measured	How and When it will be Measured
20 percent increase in children walking or bicycling to school on Wednesdays		

Notes:

Step 3: Decide What, How and When to Measure

After objectives are written, the next step is to identify what will be measured and how and when the information will be collected.

What to Measure

Knowing the activities and their objectives makes what to measure easy to decide. For example, if a selected activity is to encourage parents to walk with their children to school by initiating “Walking Wednesdays,” then determining the number of parents and children who walk on Wednesdays (the “**what**”) by observing and counting them (the “**how**”) will reveal any changes in behavior. Using an example from the table in Step 2, the objective might say, “Increase the number of children walking on Wednesdays from 20 to 50 by the end of the school year.” The table found in this section provides more examples of what may be measured depending on the objective.

For every objective, there should be at least one measurement. For some objectives there may be multiple measurements. Using another example from Step 2, if the objective states, “Reduce speeds in school zone from 35 mph to 25 mph during the first year of the Safe Routes to School program,” potential measurements include the speed of vehicles near the school and the number of warnings given to drivers in the school zone. How the information will be collected then needs to be determined. In the speed reduction example, a portable speed detection device and police records are two possible ways.

How to Measure

Collecting SRTS information offers an array of choices for measuring. Re-using the same tools from the planning process (Step 1) allows a comparison of the information before and after the program. Adding additional measures is a way for programs to better understand the potential impact of specific program activities.

Depending on what information is desired, different people may supply it. For example, while parent surveys may show that parents think speeds are reduced, the speed measures collected by law enforcement can show if speeds really are reduced.

Six Step Process for SRTS Program Evaluation

1. Plan the program/Collect information
2. Write objectives
3. **Decide what, how and when to measure**
4. Conduct the program and monitor progress
5. Collect information and interpret findings
6. Use results

When to Measure

At a minimum, information should be collected before and after the activity in order to identify any changes that have occurred. The information that was collected before the program began provides the baseline information. Collecting information while the activity is underway (Step 4) will provide additional information.

When measuring walking and bicycling rates, it is also important to consider weather variations in the four seasons and the impact on walking and bicycling. Given that walking and bicycling may vary with temperature and precipitation, ideally information would be collected in the fall, winter, and spring so the same seasons could be compared.

The table on the following page shows examples of combining what will be done and what change is expected with what will be measured, how it will be measured and when (before, during or after the program).

Also see Examples of What and How to Measure (Appendix I) organized by strategy.

Objectives	What to Measure	How and When to Measure
Initiate Walking Wednesday		
Distribute 100 fliers to parents announcing the Walking Wednesday program within the first 3 months of school. (What will be done)	Number of fliers distributed	Count of distributed fliers (During)
Increase the number of children walking on Wednesdays from 20 to 50 within 1 year. (Change expected)	Number of students walking on Wednesdays	<ul style="list-style-type: none"> Classroom travel survey on Wednesdays Observational count of students walking on Wednesdays (Before*, during and after)
Install Sidewalks		
Get sidewalk improvements on city plan within 1 year. (What will be done)	Presence of sidewalk improvements on city plan	Existing data on city plan (During)
Complete gaps in sidewalks along routes to school within 2 years. (Change expected)	Presence and quality of sidewalks	<ul style="list-style-type: none"> Observation Walkability assessment (Before* and after)
Install Bicycle Rack		
Install two bike racks at the school within 1 year. (Change expected)	Number of bike racks at the school	<ul style="list-style-type: none"> Observation School audit (Before* and after)
Encourage Speed Reduction		
Hold one news conference and deliver informational fliers to all school parents regarding speed awareness campaign within the first 3 months. (What will be done)	Number of news conferences and fliers distributed	Count of news conferences and fliers distributed (During)
Reduce average speeds in school zone from 35 mph to 25 mph within 1 year. (Change expected)	<ul style="list-style-type: none"> Speed of vehicles near school Number of citations given 	<ul style="list-style-type: none"> Portable speed detection device Records from local law enforcement agency (Before*, during and after)
Enforce Parking Regulations		
Place information cards on illegally parked cars warning drivers of the danger they create during first 6 months. (What will be done)	Number of cards distributed	Count of cards distributed (After)
Stop illegal parking during arrival and dismissal within 1 year. (Change expected)	Number of illegally parked cars	Observational count (Before*, during and after)
Conduct Pedestrian Safety Education		
Deliver safety presentations to all 4th grade classes within 1 year. (What will be done)	Number of classes receiving presentations	Count of presentations (After)
All 4th graders pass a walking knowledge quiz within 1 year. (Change expected)	Score on quiz	Paper and pencil quiz (Before* and after)
Promote Bicycle Helmet Use		
50 helmets are custom fit for students within 1 year. (What will be done)	Number of helmets fitted	Count of helmets distributed (After)
Increase percentage of student bicyclists wearing helmets from 20% to 60% within 1 year. (Change expected)	Number of bicyclists with helmets	<ul style="list-style-type: none"> Observational count of bicyclists with helmets Survey of bicyclists (Before*, during and after)
Encourage Yielding to Pedestrians		
Distribute 100 fliers about meetings and activities to neighborhood during first month of school. (What will be done)	Number of neighborhood residents who attend meetings	Sign in sheet at meetings (During)
Improve percent of drivers yielding to pedestrians from 30% to 70% within 1 year. (Change expected)	Driver behavior around school at school arrival and departure times	Observation of drivers yielding to students within school zones at school arrival and departure times (Before* and after)

* Use the student tally and parent survey to capture this information before the program begins.

Example School

Now the school can complete the sections on: what will be measured, how it will be measured, and when. This is also when the data collectors can be determined.

Safe Routes to School Program Evaluation Plan

School: High Hopes Elementary School

Encouragement Strategy:

Start a Walk and Wheel Wednesday program that includes organized walking school buses and an incentive program.

Time Frame:

Kick-off in October (International Walk to School Month) and promote weekly through school year

Data Collectors:

- SRTS Program coordinator to conduct travel surveys and walking school buses location information
- PE teacher to count Walking Wednesday participants
- School Wellness Coordinator or nurse to collect incentive sheets and distribute incentives

What will be Done	What will be Measured	How and When It will be Measured
Five walking school buses established	Number of walking school buses and number of children in each school bus	Count walking buses at beginning and end of school year
An average of 50 students participate in Walk and Wheel Wednesdays program	Number of students walking to school on each Walk and Wheel Wednesday	School travel tally sheets collected on designated Wednesdays Count of students arriving at school by walking or wheeling
A six-week long incentive program with 50 children participating	Number of students who sign-up to participate Number of students who receive incentives	Total count of participating students at beginning and end of six week program
Change Expected	What will be Measured	How and When It will be Measured
20 percent increase in children walking or bicycling to school on Wednesdays	Number of children walking or bicycling	School travel tally sheets collected before, during and after program

Notes:

Step 4: Conduct the Program and Monitor Progress

Step 4 is when the program's progress will be monitored using the process developed in Step 3. Monitoring or tracking usually involves counting or describing activities. Examples include:

- Counting participants at a bicycle rodeo event.
- Observing crossing guard locations to determine improved safety or increased use.
- Observing a student pick-up location for improved safety or reduced numbers of vehicles.
- Interviewing a walking school bus leader to learn about safety issues or whether parents and students are enjoying the walking school bus.

The intent is to put results into action to improve the program while the program is underway. For example, counting participants at a bicycle rodeo event may reveal that the number of participants is lower, higher or about the same as what was planned. If participant numbers were low, having this information would allow for

Six Step Process for SRTS Program Evaluation

1. Plan the program/Collect information
2. Write objectives
3. Decide what, how and when to measure
4. Conduct the program and monitor progress
5. Collect information and interpret findings
6. Use results

additional promotion or other strategies to address the shortfall before the next bicycle rodeo. Finding participation to be higher than planned may mean that additional volunteers or equipment will be needed for the next rodeo. When the program ends, this tracking will also make it possible to summarize all activities.

Example School

For this school, the interim results indicate that the strategies may be starting to work but that more effort needs to be put into informing parents.

Safe Routes to School Program Evaluation Plan

School: High Hopes Elementary School

4. Conduct the Program and Monitor Progress

Findings during the program:

- Students were unaware of safe walking and bicycling behavior
- Students and families were unaware of existing safe routes to school
- Three walking school bus routes established
- Police report speeding is reduced by some but not all drivers
- Parents interviewed unaware of speed enforcement
- Incentive program increases participation in Walk and Wheel Wednesday program
- Parents do not yield to pedestrians in crosswalk

Recommendations for adjustments:

- Reinforce student safety presentations with hands-on safety events
- Identify two more routes for walking school buses
- Get media coverage of enforcement efforts
- Send information home to parents about enforcement efforts
- Introduce different incentive programs throughout the school year
- Crossing guard needs to be stationed at crosswalk

Step 5: Collect Information and Interpret Findings

When the program is over or at a logical evaluation point, like the end of the school year, it is time to examine both whether activities were carried out as intended and whether the results met expectations. This is when data collected in Step 1 is collected again in the same manner as originally collected. Once data are collected, the results are interpreted.

The Interpretation Process

Interpreting results, also called data analysis, does not have to be hard or complex. The process for analysis mainly depends on whether the data is words (like quotes from interviews) or numbers (like responses to survey questions). Some forms of data require little to no analysis, such as direct quotes from an interview with a traffic engineer before and after a traffic improvement.

A brief summary of how to analyze results is included here. More complex analyses may require working with an evaluation specialist.

Interpreting Number-Based Information

The basic steps include:

1. Entering the data into Microsoft Excel, Access, Epi Info or other programs.
2. Checking for data entry errors. A common method is to enter all or some of the data twice to see if it matches and fix any errors detected.
3. Tabulating the data (e.g., calculate the number of participants or percentage of participants who walked to school every day or at least one day per week).
4. Sorting data by sub-groups (like grade or gender).
5. Making comparisons with program objectives, with a comparison site (if one has been identified), or with other Safe Routes to School programs.

Adapted from the *CDC Physical Activity Evaluation Handbook* (www.cdc.gov/nccdphp/dnpa/physical/handbook).

Six Step Process for SRTS Program Evaluation

1. Plan the program/Collect information
2. Write objectives
3. Decide what, how and when to measure
4. Conduct the program and monitor progress
5. Collect information and interpret findings
6. Use results

.....
Interpreting results, also called data analysis, does not have to be hard or complex.
.....

Interpreting Word-Based Information

Basic analysis of word-based information (respondents' verbal answers in interviews, focus groups, or written commentary on surveys) includes:

- Reading through all the data.
- Organizing comments into similar categories (e.g., concerns, suggestions, strengths, weaknesses, similar experiences, recommendations, etc.).
- Labeling the categories or themes.
- Attempting to identify patterns in the themes. For example, parents who walked a particular route with their child to school all felt the route was safe.

Adapted from the *Basic Guide to Program Evaluation* (www.managementhelp.org/evaluatn/fnl_eval.htm#anchor1665834).

Once the analysis is complete, conclusions can be drawn and outcomes summarized. Below are a few examples of possible findings.

(1) Program Activity: Using a Frequent Walker Punch Card to encourage students to walk or bicycle to school.

Finding A: More students walking and bicycling and parents' surveys show more positive attitudes toward the benefits and feasibility of these travel modes.

Finding B: More children are not walking or bicycling and parent surveys reveal some of the reasons.

(2) Program Activity: Conducting an education and enforcement campaign to decrease speeding in school zones.

Finding A: Speeds reduced, parents aware of campaign and feel safer.

Finding B: Speeds reduced, parents unaware of campaign and do not feel safer.

Finding C: Speeds not reduced, parents unaware of campaign and do not feel safer.

When Results Do Not Match Expectations

If objectives were not met, what explanations are there? Were activities conducted as planned? Were any necessary changes made along the way? Were there external factors that might have worked against the Safe Routes to School program? For example, perhaps students were redistricted so that fewer lived within walking or bicycling distance compared to when the program began, or there may have been an event that had a huge impact, such as a pedestrian injury. Consider the context in which the results took place before drawing any conclusions.

Each of these findings would lead to different conclusions and recommendations which will be discussed in the next step.

Example School

In this example, the school was able to show an increase in students walking to school and identified some strategies that could improve the program.

Safe Routes to School Program Evaluation Plan

School: High Hopes Elementary School

5. Collect Information and Interpret Findings

Results:

- Students walking to school increased from 50 to 75, a 50 percent increase
- 50% increase in helmet usage among students bicycling to school
- Four walking school buses started; 5th bus to start next fall
- Parent surveys show awareness of speed campaign but not more willing to let children walk
- Nearly all (90%) of parents use new drop-off site

Recommendations:

- Continue walking school bus program
- Continue Walk and Wheel to School day
- Secure source for free bicycle helmets
- Continue speed enforcement program with more effort to inform parents at the start of school next year

Step 6: Use Results

This is where all the work to collect and interpret the findings pays off. It is an opportunity to build off of what is working, change what is not working as well as it could and announce successes. This step includes: preparing the products of the evaluation like recommendations and reports, sharing them with stakeholders and other audiences, and following up to promote maximum use.

Formulating Recommendations

The first task is to create recommendations based on the evaluation findings. When developing recommendations:

- Align recommendations with stakeholders' and funders' priorities when possible.
- Share draft recommendations with stakeholders and solicit feedback before finalizing the report.
- Target recommendations appropriately for each audience. For example, a local health department might be most interested in increased physical activity levels, while local law enforcement might be more interested in decreased traffic violations.

Using the example program's goals and findings from Step 5, a sample of potential recommendations was developed.

(1) Program Activity: Using a Frequent Walker Punch Card to encourage students to walk or bicycle to school.

Finding A: More students walking and bicycling and parents' surveys show more positive attitudes toward the benefits and feasibility of these travel modes.

Recommendation: Continue use of the Frequent Walker Punch Card.

Finding B: More children are not walking or bicycling and parent surveys reveal some of the reasons.

Recommendation: Adjust activity to address barriers identified by the parents.

Six Step Process for SRTS Program Evaluation

1. Plan the program/Collect information
2. Write objectives
3. Decide what, how and when to measure
4. Conduct the program and monitor progress
5. Collect information and interpret findings
6. Use results

(2) Program Activity: Conducting an education and enforcement campaign to decrease speeding in school zones.

Finding A: Speeds reduced and parents aware of campaign and feel safer.

Recommendation: Continue campaign and monitor to see if the effect is maintained.

Finding B: Speeds reduced, parents unaware of campaign and do not feel safer.

Recommendation: Keep the enforcement program in place, but modify the educational outreach.

Finding C: Speeds not reduced, parents unaware of campaign and do not feel safer.

Recommendation: A different enforcement or education technique is needed as well as other changes.

Sharing Results and Recommendations

There are several reasons to share results, including:

- Providing positive reinforcement for everyone involved, including children, families, stakeholders and funders.
- Offering a newsworthy "hook" that can result in media coverage of the program.
- Providing a way to share lessons learned.
- Communicating next steps and additional needs, thus moving the program forward.

Channels for information sharing include:

- School or community newsletters and Web sites
- Stories in the local media (see Tips for Working with the Media in Appendix J for tips on getting media coverage, or for more in-depth information, see the Media and Visibility chapter)
- Reports to the local decision-makers and political leaders in the community
- Meeting or conference presentations

For example, community leaders may be reached through a short report presented at a town council meeting with the media invited. Results also are shared with funders as progress reports or to solicit additional

funds. Knowing the positive impacts of a Safe Routes to School program will help to keep the program alive.

The primary purpose of sharing evaluation findings is for local program partners to know what is working and what changes to make to improve the program and to celebrate successes. Local evaluation results can have other benefits. Documented successes are needed as communities struggle to identify the best approaches for improving walking and bicycling to school. Local program leaders cite case studies as one of the most helpful types of information. Schools with programs or strategies that are evaluated to be successful are encouraged to share their results with the National Center for Safe Routes to School so that these programs can be shared with the rest of country.

Example School

Below shows how the school organized how they would share their program results according to the audience.

Safe Routes to School Program Evaluation Plan

School: High Hopes Elementary School

6. Plan for Using Results

Individual or Organization with Whom to Share Results	Format in which the Results will be Shared	Channel by which the Results will be Shared	Which Results or Recommendations will be Shared
School parents	Report	<ul style="list-style-type: none"> • PTA meeting • Article in newsletter 	<ul style="list-style-type: none"> • Speeding reduced • Walking buses a success • More students walking
Community	Media story	<ul style="list-style-type: none"> • Local newspaper • Radio station 	<ul style="list-style-type: none"> • Speeding reduced • Walking buses a success • More students walking
Community officials	Report	Town Council meeting	<ul style="list-style-type: none"> • Speeding reduced • Walking buses a success • More students walking
Students	Presentation	School assembly and classrooms	<ul style="list-style-type: none"> • Walking buses now a way to get to school • More students walking
Local business contributors	Presentation	Chamber of Commerce meeting	<ul style="list-style-type: none"> • More students walking • Part of encouragement programs
Funders	Presentation/ Report	News conference with funders present	<ul style="list-style-type: none"> • More students walking • Safer because of reduced speeds • How program should be continued with recommendations

Appendices

A. Safe Routes to School Student Travel Tally

This form will help measure how students get to school and whether the SRTS program affects trips to and from school. Teachers can use this form to record specific information about how children arrive and depart from school each day for a week. The information this form helps collect will be used to help track the success of SRTS programs across the country. Also available online at www.saferoutesinfo.org/resources under the Evaluation heading.

B. Safe Routes to School Parent Survey

This survey asks for information about what factors affect whether parents allow their children to walk or bike to school, the presence of key safety-related conditions along routes to school, and related background information. The survey results will help determine how to improve opportunities for children to walk or bike to school, and measure parental attitude changes as local SRTS programs occur. Also available online at www.saferoutesinfo.org/resources under the Evaluation heading.

C. Evaluation Worksheet

This worksheet follows the format of the six steps presented in this guide. Program implementers may choose to use it to record their local program information and evaluation plan development. Also available online at www.saferoutesinfo.org/guide/evaluation in Appendix C.

D. Example Completed Evaluation Worksheet

This example worksheet demonstrates how a local program could use it to plan and conduct its evaluation. Also available online at www.saferoutesinfo.org/guide/evaluation in Appendix D.

SAFE ROUTES TO SCHOOL

STUDENT ARRIVAL AND DEPARTURE TALLY SHEET

School Name: Zip Code: -

Teacher: Grade (K-8)

Monday's Date / / # of students enrolled in class
M M / D D / Y E A R

Teachers, here are simple instructions for using this form:

- Please conduct these counts **on any two days from Tuesday, Wednesday, or Thursday of the assigned week**. Only two days worth of counts are needed, but counting all 3 provides better data.
- **Please do not conduct these counts on Mondays or Fridays.**
- Before asking your students to raise their hands to indicate the *one answer* that is correct for them, read through all potential answers so they will know what the choices are.
- Ask your students as a group the question **"How did you arrive at school today?"**
- Read each answer 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?"**
- 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 class each day.			Step 2. Ask students "How did you arrive at school today?" and "How do you plan to leave for home after school?" (record number of hands for each answer)								
	Weather S= sunny R= rainy O= overcast Sn= snow	Number of Students (in class when count made)	Walk	Bike	School Bus		Family Vehicle (only with children from your family)	Carpool (riding with children from other families)	Transit (city bus, subway, etc.)	Other (skateboard, scooter, inline skates, etc.)	
SAMPLE	S	2 7	4	2	1	1	7	3	0	0	
Tues AM											
Tues PM											
Wed AM											
Wed PM											
Thur AM											
Thur PM											

Comments (List disruptions to counts or any unusual travel conditions to/from the school on the days of the tally):

Thank you for helping gather this information!

SURVEY ABOUT WALKING AND BIKING TO SCHOOL

- FOR PARENTS -

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!**

School Name:

Completing this form: Please write with CAPITAL letters. Mark boxes with "X" instead of "√".

1. What is the grade of the child who brought home this survey? (K - 8) grade
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? children
4. What is the street intersection nearest your home? *(provide the names of two intersecting streets)*

	AND	
--	-----	--

5. How far does your child live from school? *(choose one and mark box with X)*

- | | | |
|---|---|---|
| <input type="checkbox"/> a. less than 1/4 mile | <input type="checkbox"/> c. 1/2 mile up to 1 mile | <input type="checkbox"/> e. More than 2 miles |
| <input type="checkbox"/> b. 1/4 mile up to 1/2 mile | <input type="checkbox"/> d. 1 mile up to 2 miles | <input type="checkbox"/> f. Don't know |

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

Arrive at school	Leave for home
<input type="checkbox"/> a. Walk	<input type="checkbox"/> a. Walk
<input type="checkbox"/> b. Bike	<input type="checkbox"/> b. Bike
<input type="checkbox"/> c. School Bus	<input type="checkbox"/> c. School Bus
<input type="checkbox"/> d. Family vehicle (only with children from your family)	<input type="checkbox"/> d. Family vehicle (only with children from your family)
<input type="checkbox"/> e. Carpool (riding with children from other families)	<input type="checkbox"/> e. Carpool (riding with children from other families)
<input type="checkbox"/> f. Transit (city bus, subway, etc.)	<input type="checkbox"/> f. Transit (city bus, subway, etc.)
<input type="checkbox"/> h. Other (skateboard, scooter, inline skates, etc.)	<input type="checkbox"/> h. Other (skateboard, scooter, inline skates, etc.)

7. How long does it normally take your child to get to/from school? *(fill-in circle for one choice per column)*

Travel time to school	Travel time from school
<input type="checkbox"/> a. Less than 5 minutes	<input type="checkbox"/> a. Less than 5 minutes
<input type="checkbox"/> b. 5 - 10 minutes	<input type="checkbox"/> b. 5 - 10 minutes
<input type="checkbox"/> c. 11 - 20 minutes	<input type="checkbox"/> c. 11 - 20 minutes
<input type="checkbox"/> d. More than 20 minutes	<input type="checkbox"/> d. More than 20 minutes
<input type="checkbox"/> e. Don't know / Not sure	<input type="checkbox"/> e. Don't know / Not sure

8. Has your child asked you for permission to walk or bike to/from school in the last year? (select one) YES NO

9. At what grade would you allow your child to walk or bike without an adult to/from school? (select a grade between K – 8) grade (or I would not feel comfortable at any grade)

10. Which of the following issues affected your decision to allow, or not allow, your child to walk or bike to/from school? (select all that apply, mark with X in box)

- Distance
- Convenience of driving
- Time
- Child's before or after-school activities
- Speed of traffic along route
- Amount of traffic along route
- Adults to walk or bike with
- Sidewalks or pathways
- Safety of intersections and crossings
- Crossing guards
- Violence or crime
- Weather or climate

11. Would you probably let your child walk or bike to/from school if this problem were changed or improved? (select one choice per line) (My child already walks or bikes to/from school)

- | | | |
|------------------------------|-----------------------------|-----------------------------------|
| <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> Not Sure |
| <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> Not Sure |
| <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> Not Sure |
| <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> Not Sure |
| <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> Not Sure |
| <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> Not Sure |
| <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> Not Sure |
| <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> Not Sure |
| <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> Not Sure |
| <input type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> Not Sure |

12. In your opinion, how much does your child's school encourage or discourage walking and biking to/from school? (select one, mark with X in box)

- Strongly Encourage Encourage Neither Discourage Strongly Discourage

13. How much FUN is walking or biking to/from school for your child? (select one)

- Very Fun Fun Neutral Boring Very Boring

14. How HEALTHY is walking or biking to/from school for your child? (select one)

- Very Healthy Healthy Neutral Unhealthy Very Unhealthy

15. What is the highest grade or year of school you completed? (select one, mark with X in box)

- Grades 1 through 8 (Elementary) College 1 to 3 years (Some college or technical school)
- Grades 9 through 11 (Some high school) College 4 years or more (College graduate)
- Grade 12 or GED (High school graduate) Prefer not to answer

16. Please provide any additional comments below:

Thank you for participating in this survey!



Program Evaluation Plan Worksheet

1. Program Planning Information

1A. PROGRAM GOAL(S):

1B. LOCAL CONDITIONS AND ISSUES (FORMATIVE ASSESSMENT):

(1) School information:

(2) Walking and bicycling numbers:

(3) Safety issues:

(4) Attitudes affecting walking and bicycling:

(5) Other assets that can benefit the program:

Conclusions:

1C. PROGRAM ACTIVITIES

Education Strategy:

Encouragement Strategy:

Engineering Strategy:

Enforcement Strategy:

2. Objectives

For each strategy, write at least one objective that describes what will be done (also called a process objective) and another objective that describes the change expected (also called an outcome objective). See the next page.

3. What, How and When to Measure

Next to each objective, fill in what will be measured, how it will be measured, and when (before, during or after the program). See the next page.

STRATEGY:

Time Frame:

Data Collectors:

What will be Done	What will be Measured	How and When it will be Measured

Change Expected	What will be Measured	How and When it will be Measured

Notes:

4. Conduct the Program and Monitor Progress

FINDINGS DURING THE PROGRAM:

RECOMMENDATIONS FOR ADJUSTMENTS:

5. Collect Information and Interpret Findings

RESULTS:

RECOMMENDATIONS:

6. Plan for Using Results

Individual or Organization with Whom to Share Results	Format in which the Results will be Shared	Channel by which the Results will be Shared	Which Results or Recommendations will be Shared



1. Program Planning Information

1A. PROGRAM GOAL(S):

- Increase safe walking and bicycling to school.
- Reduce traffic congestion around school.

1B. LOCAL CONDITIONS AND ISSUES (FORMATIVE ASSESSMENT):

(1) School information:

- Half of school enrollment lives within a mile of school
- School has no policies against walking or bicycling

(2) Walking and bicycling numbers:

10 percent of children walk to bicycle to school

(3) Safety issues:

- Principal stated that one child was hit by a car last year in the crosswalk
- Police stated that speeding was a problem; using radar gun to determine speeds, they determined that the average driver is going 35 mph instead of 25 mph through school zone during morning arrival.
- Observation of school campus during morning arrival showed traffic congestion around drop-off area to be a problem for walkers and bicyclists.

(4) Attitudes affecting walking and bicycling:

- Parent survey rated safety as main concern
- Discussions with parents showed interest in their children being able to walk to school if adult supervision provided

(5) Other assets that can benefit the program:

- Opportunity to receive grant to fund program
- Parents willing to provide volunteer help

Conclusions:

- Strategies to increase walking and bicycling to school should include adult supervision.
- Efforts are needed to reduce speeds around the school.
- Drop-off and pick-up area is a problem.

1C. PROGRAM ACTIVITIES

Education Strategy:

Provide basic bicycle and pedestrian safety classroom lessons to school children, reinforced by take-home safety sheets for parents as well as a map of existing safe walking and biking routes.

Encouragement Strategy:

Start a Walk and Wheel Wednesday program that includes organized walking school buses and an incentive program.

Engineering Strategy:

Reroute parent drop-off area away from walkers and bicyclists, including improving the pedestrian crosswalk to school site.

Enforcement Strategy:

Develop a Parent Driver Safety Campaign that includes a school zone speed enforcement program and a clear enforcement message.

2. Objectives

For each strategy, write at least one objective that describes what will be done (also called a process objective) and another objective that describes the change expected (also called an outcome objective). See the next page.

3. What, How and When to Measure

Next to each objective, fill in what will be measured, how it will be measured, and when (before, during or after the program). See the next page.

EDUCATION STRATEGY:

Provide basic bicycle and pedestrian safety classroom lessons to school children, reinforced by take-home safety sheets for parents as well as a map of existing safe walking and biking routes.

Time Frame:

Year-long with focus on month before start of Walking Wednesday program

Data Collectors:

- Safe Routes to School Coordinator to count number of presentations scheduled
- Classroom teachers to count number of students at presentations
- Safe Routes to School Taskforce to do traffic counts

What will be Done	What will be Measured	How and When it will be Measured
All 4th-6th grade classes receive bicycle and pedestrian safety presentations	<ul style="list-style-type: none"> ▪ Number of presentations ▪ Number of children present 	Count number of presentations and children in attendance
Take-home bicycle and pedestrian safety sheets for parents via backpack mail (500 sheets)	Safety Sheets distributed	Count number of safety sheets created and distributed
Map of existing routes sent to all parents via backpack mail	Number of maps distributed	Number of maps created and distributed

Change Expected	What will be Measured	How and When it will be Measured
90 percent of 4th-6th graders will increase knowledge of safe behavior	Student safety knowledge	<ul style="list-style-type: none"> ▪ Count number of students who receive presentations. ▪ Score on student knowledge surveys ▪ Observe student safety behavior during Walk and Wheel days
50 percent of parents will increase their knowledge of safe behavior	Parent safety knowledge	<ul style="list-style-type: none"> ▪ Count number of parents who receive safety sheets ▪ Count number of parent-driver violations before and after distribution of safety sheets
20 percent of students and families will identify a safe walking and bicycling route	Students walking and wheeling to school	Number of students using existing walking routes through traffic counts before, during and at the end of the school year

Notes:

ENCOURAGEMENT STRATEGY:

Start a Walk and Wheel Wednesday program that includes organized walking school buses and an incentive program.

Time Frame:

Kick-off in October (International Walk to School Month) and promote weekly through school year

Data Collectors:

- SRTS Program coordinator to conduct travel surveys and walking school buses location information
- PE teacher to count Walking Wednesday participants
- School Wellness Coordinator or nurse to collect incentive sheets and distribute incentives

What will be Done	What will be Measured	How and When it will be Measured
Five walking school buses established	Number of walking school buses and number of children in each school bus	Count walking buses at beginning and end of school year
An average of 50 students participate in Walk and Wheel Wednesdays program	Number of students walking to school on each Walk and Wheel Wednesday	<ul style="list-style-type: none"> ▪ School travel tally sheets collected on designated Wednesdays ▪ Count of students arriving at school by walking or “wheeling”
A six-week long incentive program with 50 children participating	<ul style="list-style-type: none"> ▪ Number of students who sign-up to participate ▪ Number of students who receive incentives 	Total count of participating students at beginning and end of six week program

Change Expected	What will be Measured	How and When it will be Measured
20 percent increase in children walking or bicycling to school on Wednesdays	Number of children walking or bicycling	School travel tally sheets collected before, during and after program

Notes:

ENGINEERING STRATEGY:

Reroute parent drop-off area away from walkers and bicyclists, including improving the pedestrian crosswalk to school site.

Time Frame:

Over the upcoming school year

Data Collectors:

- Town engineer/planner to evaluate current conditions
- Safe Routes Taskforce to collect traffic counts

What will be Done	What will be Measured	How and When it will be Measured
A new parent drop-off area is designated away from walkers and bikers	New drop-off site is designated and promoted	The way the new drop-off site is publicized (number of new signs, announcements)
Crosswalk is improved	Improvements made to crosswalk	Way crosswalk was improved (paint signage, etc.)

Change Expected	What will be Measured	How and When it will be Measured
100 percent of parent-drop-offs are rerouted to new site	Number of parents who use new drop-off site	Traffic counts at before and after rerouting
100 percent of students who walk and bicycle have access to a safe crosswalk to the school	<ul style="list-style-type: none"> ▪ Number of students using crosswalk ▪ Number of pedestrian and bicycle accidents involving a motor vehicle at crosswalk site 	<ul style="list-style-type: none"> ▪ Traffic counts before and after crosswalk improvement ▪ Police data of accident reports six months after improvement ▪ Anecdotal data from Principal six months after improvement

Notes:

ENFORCEMENT STRATEGY:

Develop a Parent Driver Safety Campaign that includes a school zone speed enforcement program and a clear enforcement message.

Time Frame:

Month-long fall campaign to be repeated in the spring

Data Collectors:

- Police to measure speeds
- Police to report enforcement activities and citations issued
- Safe Routes to School Team to collect enforcement

What will be Done	What will be Measured	How and When it will be Measured
Student Safety Poster and message contest	<ul style="list-style-type: none"> ▪ Number of student poster submissions ▪ Selection of 1 message and poster 	<ul style="list-style-type: none"> ▪ Count posters ▪ Count number of times safe message is replicated in safety campaign materials
Distribute 500 fliers/stickers to parent drivers with enforcement message	Number of fliers/stickers distributed	Number of fliers/stickers distributed at end of month-long campaign
Site speed trailer in high-traffic school zone area	Number of speeding cars and average speeds	Record number of cars that are over speed limit and speed (single day count)
Police conduct enforcement activity 3 days each month of the campaign	<ul style="list-style-type: none"> ▪ Number of days of enforcement activity ▪ Number of traffic violators 	<ul style="list-style-type: none"> ▪ Count number of police enforcement days ▪ Count number of citations
Conduct 1 news conference	Number of media that are present at news conference	Media stories from news conference

Change Expected	What will be Measured	How and When it will be Measured
Reduce average speed from 35 mph to 25 mph during arrival and departure times	Reduced speeds	<ul style="list-style-type: none"> ▪ Speed data from speed trailer during one-day counts ▪ Number of traffic violations during police enforcement days
Increase parent driver awareness and improve driver behavior	Number of traffic violations (cited and observed)	<ul style="list-style-type: none"> ▪ Observations during Walk and Wheel Wednesdays at beginning and end of month-long campaign ▪ Police data collected at end of month-long campaign

Notes:

4. Conduct the Program and Monitor Progress

FINDINGS DURING THE PROGRAM:

- Students were unaware of safe walking and bicycling behavior
- Students and families were unaware of existing safe routes to school
- Three walking school bus routes established
- Police report speeding is reduced by some but not all drivers
- Parents interviewed unaware of speed enforcement
- Incentive program increases participation in Walk and Wheel Wednesday program
- Parents do not yield to pedestrians in crosswalk

RECOMMENDATIONS FOR ADJUSTMENTS:

- Reinforce student safety presentations with hands-on safety events
- Identify two more routes for walking school buses
- Get media coverage of enforcement efforts
- Send information home to parents about enforcement efforts
- Introduce different incentive programs throughout the school year
- Crossing guard needs to be stationed at crosswalk

5. Collect Information and Interpret Findings

RESULTS:

- Students walking to school increased from 50 to 75, a 50 percent increase
- 50% increase in helmet usage among students bicycling to school
- Four walking school buses started; 5th bus to start next fall
- Parent surveys show awareness of speed campaign but not more willing to let children walk
- Nearly all (90%) of parents use new drop-off site

RECOMMENDATIONS:

- Continue walking school bus program
- Continue Walk and Wheel to School day
- Secure source for free bicycle helmets
- Continue speed enforcement program with more effort to inform parents at the start of school next year

6. Plan for Using Results

Individual or Organization with Whom to Share Results	Format in which the Results will be Shared	Channel by which the Results will be Shared	Which Results or Recommendations will be Shared
School parents	Report	<ul style="list-style-type: none"> ▪ PTA meeting ▪ Article in newsletter 	<ul style="list-style-type: none"> ▪ Speeding reduced ▪ Walking buses a success ▪ More students walking
Community	Media story	<ul style="list-style-type: none"> ▪ Local newspaper ▪ Radio station 	<ul style="list-style-type: none"> ▪ Speeding reduced ▪ Walking buses a success ▪ More students walking
Community officials	Report	Town Council meeting	<ul style="list-style-type: none"> ▪ Speeding reduced ▪ Walking buses a success ▪ More students walking
Students	Presentation	School assembly and classrooms	<ul style="list-style-type: none"> ▪ Walking buses now a way to get to school ▪ More students walking
Local business contributors	Presentation	Chamber of Commerce meeting	<ul style="list-style-type: none"> ▪ More students walking ▪ Part of encouragement programs
Funders	Presentation/ Report	News conference with funders present	<ul style="list-style-type: none"> ▪ More students walking ▪ Safer because of reduced speeds ▪ How program should be continued with recommendations

E. Working with an Evaluation Specialist

Some programs will have the resources and interest in conducting a more comprehensive, complex evaluation and will seek the assistance of a specialist in order to do so. The role of an evaluation specialist and tips for creating a successful product are described here.

The Role of an Evaluation Specialist

If a program plans to use an evaluation specialist, the specialist should be included from the very beginning. The specialist can help identify what can be measured and what questions an evaluation will be able to answer. The evaluation specialist can anticipate potential future problems that may arise when gathering or analyzing particular types of data. For example, the evaluator will recognize the potential effect of seasonal differences in the number of walkers, or the impact political changes might have on enforcement activities. Beyond recognizing the potential problems, however, the evaluator will also know how to deal with them.

A specialist may perform the following tasks:

- Design the evaluation
- Identify and train data collectors
- Collect the data
- Provide interim feedback during the program
- Analyze data and present the findings
- Provide input on recommendations

The evaluator can determine survey tools, train data collectors and decide how to analyze results. Program implementers need to stay in communication with the evaluator to make sure that the processes and products align with expectations.

Finding an Evaluation Specialist

For Safe Routes to School programs, a local college or university will most likely be the best source of evaluators or leads on where to find someone. When seeking an evaluator, consider the following list of desirable characteristics:

- Explains evaluation and related processes in understandable terms.
- Demonstrates previous evaluation experience, particularly in use of observations, surveys, and analysis of existing data.
- Writes technical information in a clear, logical manner and uses graphics to help explain findings.
- Knows where to access needed data, such as pedestrian and bicycle injury and fatality rates.
- Has experience working with non-professional data collectors.
- Statistical analyses may be appropriate, depending on what is going to be measured. Describe what is known about the planned program activities and ask the evaluator what he or she would recommend. Ask for a description of situations which would not require statistical analyses. If the answer is “Statistical analyses are always required,” that may indicate a problem.

Adapted from the National Highway Transportation Administration’s *Art of Appropriate Evaluation* (www.nhtsa.dot.gov/people/injury/research/ArtofAppEvWeb/pages/5GettingHelp.htm).

F. Evaluation Designs

The quality of an evaluation varies by design. The most rigorous design is a randomized trial, which requires randomly assigning individuals or groups to either intervention or control status. This is probably not feasible or appropriate for a community-level Safe Routes to School (SRTS) program. Less rigorous designs have strengths and weaknesses to consider when choosing among them.

Common Evaluation Designs for Program Evaluation

Pre and Post One-Sample Tests:

For example, assess how many students walk to school before a kick off event takes place and how many students walk after the event.

Strength:

Easy to conduct, it is the most feasible design.

Weakness:

Results may not be accurate as there is no control for outside factors that may explain the findings even in the absence of the SRTS program.

Pre and Post Two-Sample Tests:

For example, measure how many students walk or bike before and after SRTS has been in place for 6 months and measure at those same points in time in a similar school elsewhere that did not take part in SRTS.

Strength:

Fairly easy to conduct, better control than the one-sample test, especially if the second school is similar with regard to outside factors.

Weakness:

No two schools are exactly alike with regard to outside factors; some unmeasured difference between the two schools may still explain the result rather than the SRTS program itself.

Time-Series Design:

For example, measure rates of walking and bicycling before the SRTS program, then every other month for one year. A time-series design is most feasible with one sample (the school where the program occurs). However, it is more accurate when it includes a comparison school to rule out the possibility of other explanations (beyond the SRTS program) for the changes.

Strength:

The strongest of the three designs presented here when it includes a comparison group. Provides information over time.

Weakness:

More costly to conduct and because the comparison school will not be exactly the same, some differences in the results will still not be explained just by the presence of the SRTS program.

Adapted from *Physical Activity Evaluation Handbook* DHHS, CDC, 2002.

Note: All of these designs require baseline data (data collected before the SRTS program begins). This is another reason it is important to identify conditions before the program starts.

G. Writing Smart Objectives

Planning for a program, and the evaluation of that program, is made easier by carefully creating objectives that include specific information about what is to happen to whom by when in what amount. Following the “SMART” acronym helps create objectives that are measurable and attainable. The meaning behind each letter of SMART is described below.

Specific

A specific objective guides measurement while a vague objective is hard to measure. For example, to find out whether a Safe Routes to School (SRTS) program increased students’ well-being is harder to measure than whether the program increased the number of steps they took before school.

Measurable

To qualify as measurable, there should be a tool, like a tally form, or methodology to capture the needed information.

Achievable

Objectives should be attainable. If only 25 percent of the students live within 2 miles of school, it is not realistic to expect that a SRTS program will result in walking and bicycling by 50 percent of all students. It is important to consider all the information gathered before the program to derive realistic objectives.

Relevant

While it may seem obvious, the objective should relate to the intended activities. For example, if a SRTS program is focused on engineering improvements on one particular route to school, it is not relevant to have walkability of the entire community as the objective.

Time-Bound

An objective needs to have a time frame. If not, it may be arguable that an objective is yet to be met some time in the future, or someone may expect the objective be met sooner than is realistic. A date or time frame eliminates these uncertainties.

For examples of SMART objectives, see Step 2: Write Objectives.

“SMART” Objectives

Specific
Measurable
Achievable
Relevant
Time-bound

H. Data Collection, Storage and Management

Planning for data collection includes making important decisions about the people involved and the data itself. Consider the following:

1. From Whom Will Information Be Collected?

If information from parents is desired, will data from all parents with children at a particular school be collected? If information from students is needed, will all students be surveyed or interviewed or observed? Selecting a smaller group of people to represent the entire group of interest (like parents or children) can make data collection much easier. However, it can be tricky because the appropriate size (sometimes called the sample size) may vary depending on the question. For example, if the number of children walking or bicycling to school is desired, the appropriate group from which to collect data may be the subset of students who live within two miles of school. If awareness of safety issues is to be measured, the entire student body (and their parents) may be the appropriate sample. If gathering information from the entire student body is not possible, a representative sample is needed, which may require stratified random sampling. While this term may sound complex, it only means separating students by grade, sex, race/ethnicity or another variable and randomly selecting some from each sub-group (for example, ten boys and ten girls from each grade, randomly selected as every third boy or girl who enters the classroom on data collection day).

2. Data Collectors

Consideration must be given to who will collect the data and how they will they be trained. Good training helps ensure consistent data collection from different data collectors. Without this, it is difficult or impossible to ensure that results are accurate. Common errors, such as entering the wrong information, may arise out of boredom or fatigue. Ideally, having a second person enter all the data or a fraction of it again helps to avoid this error by testing how frequently errors are occurring and working to fix the problem. If an evaluation specialist has been hired, he or she will be responsible for training data collectors and making a plan to prevent errors.

3. Protecting Confidentiality

Confidentiality is often of concern to schools and many districts have their own policies and procedures that must be followed. For example, if any data will be collected from students, informed consent from the parents is often required.

4. Data Storage

In most cases, data will be stored electronically in a spreadsheet or database. This is helpful because once raw data from paper forms (tally sheets, surveys, etc.) has been converted to a reliable electronic format it can be transferred to other software programs for analyses and/or graphic design.

I. Examples of What and How to Measure

The examples below are organized by strategy. “How to measure” column also indicates in bold the type of method it is. For more information about these methods in general, see Ways to Collect Information on page 8-8.

Topic	What to measure	How to measure
Engineering Topics		
Install bicycle racks	Construction of bicycle racks	Observation
Construct sidewalks	Prioritization on local improvement plan	Existing records from city
	Construction of sidewalks	Observation
Improve intersection near school	Installation of signage and devices	Observation
Build walking and bicycling paths	Presence of walking and/or bicycling paths	Audit Observation
Enforcement Topics		
Driver education campaign to encourage slowing down	Number of fliers distributed Number of media stories	Observation
	Number of warnings or citations given near school	Data from police department
Using a speed trailer	Speed of vehicles near school	Portable speed detection device Existing data or log
Beginning a school safety patrol	Number of safety patrol volunteers training	Observation
Enforcing no parking in drop-off and pick-up areas	Number of fliers placed on illegally parked cars	Observation
	Number of tickets for illegally parked cars	Records from Law Enforcement
	Number of illegally parked cars	Observation
Education Topics		
Teach pedestrian or bicyclist safety to students	Score on a knowledge survey	Survey Student interviews
Practice pedestrian or bicyclist safety skills with students.	Percent of helmeted bicyclists	Observation
	Percent of pedestrians crossing properly	Observation
Educate parents about laws requiring yielding to pedestrians and bicyclists	Score on survey question	Survey
	Number of parent driver violations	Observation
Develop an “Eyes on the Street” program	Number of volunteers in program	Tally
Encouragement Topics		
Hold a Walk to School event	Number of participants	Interview with school staff person Survey of students
	Media coverage	Existing data from newspaper
Conduct a walking school bus/bicycle train program	Number of participants	Observation
	Training of students and volunteers	Survey of students
	Parents’ attitudes about walking and bicycling to school	Interview with leader Written or telephone survey
Use a Frequent Walker Punch Card	Number of cards distributed Number of prizes given	Tallies
Promote a Morning or Recess Mile program	Number of participants	Observation

J. Tips for Working with the Media

- **Make sure there's something newsworthy to say.** The story should “hook” onto a newsworthy element, such as an existing national or state-level event or involvement of a local official or celebrity.
- **Think visually.** Student-made posters or school mascots provide great visuals for the media, and they make photos of events more appealing.
- **Prepare for an interview.** Use talking points to ensure a consistent message about your Safe Routes to School program. Think ahead of time about people who might speak to the media for an interview and obtain their permission to share their contact information.
- **It is okay to pick up the phone and talk to a reporter or editor about the program.** Find out who covers a beat related to Safe Routes to School (education, physical activity, local issues, etc.) For television, the best time to call is between 10am-2pm and 7pm-10pm to avoid peak news broadcast hours.
- **Be available.** Make it a priority to answer requests when possible.
- **Limit the length of news releases and advisories.** When writing a news release or media advisory, keep the length to one or two pages and offer more detailed information on a Web site or through supplemental materials. It is important to include accurate and complete contact information.
- **Establish media partnerships.** Approach local media to discuss opportunities for partnering on the promotion of Safe Routes to School. Contact the community affairs department to discuss potential partnerships, such as public service announcements.

For template media materials and resources, see www.saferoutesinfo.org/resources/index.cfm.

For more information, see the Media and Visibility chapter of the SRTS Guide (www.saferoutesinfo.org/guide/media).

Adapted from the National Center for Safe Routes to School Media Tip Sheets (www.saferoutesinfo.org/resources/marketing_tip-sheets.cfm).

Resources

This information can be used to develop most desired types of evaluation, but it is limited by the enormous potential scope of activities that might be part of a Safe Routes to School program and by the scope of program evaluation and evaluation research. The following resources are for readers interested in developing a better understanding of evaluation, either for their own benefit or to conduct more complex evaluation.

General Resources

- *Demonstrating Your Program's Worth: A Primer on Evaluation for Programs to Prevent Unintentional Injury*, 2000 (www.cdc.gov/ncipc/pub-res/demonstr.htm)
- *Art of Appropriate Evaluation* (www.nhtsa.dot.gov/people/injury/research/ArtofAppEvWeb/index.htm)
- *Safe Routes to School: Practice and Promise* (www.nhtsa.dot.gov/people/injury/pedbimot/bike/Safe-Routes-2004/pages/section-3-ExperienceField.htm)
- *Physical Activity Evaluation Handbook*, 2002 (www.cdc.gov/nccdphp/dnpa/physical/handbook/pdf/handbook.pdf)
- *CDC Evaluation Working Group Resource List* (www.cdc.gov/eval/resources.htm)
- *Guiding Principles for Evaluators* (www.eval.org/Publications/GuidingPrinciples.asp)

Evaluation Standards

Joint Committee on Standards for Educational Evaluation Program. *Evaluation standards: How to assess evaluations of educational programs*. 2nd ed. Thousand Oaks, CA: Sage Publications, 1994.

Evaluation Texts

- *Handbook of Practical Program Evaluation*, 2nd ed, Wholey and Newcomer, 2004.
- *Evaluation: A Systematic Approach*, 7th ed, Rossi, et al, 2005.
- *Case Study Research; Design and Methods*, 3rd ed, Yin, Robert K., Sage Publications, London, 2003.

Media and Visibility



Contents

Media

- Overview 9-1**
- Basics of Working with the News Media 9-2**
 - Who’s Who in the Newsroom 9-3
 - Quick Tips 9-4
- Identifying the News Hook..... 9-5**
 - Timeliness 9-5
 - Impact 9-5
 - Prominence 9-5
 - Proximity 9-6
 - Magnitude 9-6
 - Conflict 9-6
 - Oddity..... 9-6
- Tools of the Trade 9-7**
- The Art of the Interview 9-8**
 - Tips for Interviews..... 9-8
 - Dealing with Difficult Questions 9-9
 - Rights as an Interviewee 9-10
- Securing Program Spokespeople 9-11**
- Managing a Crisis 9-13**
- Resources 9-14**
- References 9-15**

Overview

Working with the news media can be an effective, low-cost strategy to promote and expand Safe Routes to School (SRTS) programs. The news media can have a tremendous effect on the attitudes and behaviors of their audience. When news anchor Katie Couric underwent a colonoscopy live on television, rates for the procedure across the U.S. jumped more than 20 percent.¹

While the influx of consumer-driven media, such as YouTube, is on the rise, traditional media sources are still the primary source of information for most people. Nearly 74 percent of consumers get their information from local television news and approximately 69 percent read the local newspaper. Local media are also considered highly credible sources of information by consumers, along with national newspapers and broadcast news.²

Media attention surrounding a SRTS program can help grow a program by making more people aware of its existence. For example, media attention could increase community participation in a Walk to School Day or help garner support from local elected officials.

Promoting SRTS programs through the media may also impact safety surrounding schools and neighborhoods. Announcing the launch of a program in the news media can alert local drivers that more children will be walking or bicycling in the neighborhood, possibly encouraging them to be more alert.

Getting information out in the headlines about Safe Routes to School is worth the investment. Use this chapter to learn more about increasing the newsworthiness of your SRTS program and maximizing your media relations activities.



Nashville, Tennessee.

Basics of Working with the News Media

Think like a Journalist

One of the first steps in effective media relations is to understand the perspective of the news media. By asking yourself, “*What makes my Safe Routes to School program newsworthy?*” you are one step closer to seeing your program in the headlines.

If you would like to invite the media to an event or pitch a story to a journalist, first ask yourself, how can I offer the media an interesting story? Gather information you can offer the journalist, such as how the Safe Routes to School (SRTS) program impacts the community, the number of children walking and bicycling within the program and the effect the program has had on the children and school. If possible, find out information about the types of stories the journalist writes and offer information to support those types of stories.

Accuracy is Essential

A journalist’s reputation, both in the newsroom and with their audience, is dependent on their ability to accurately report the news. Journalists rely on their sources to provide them with accurate, credible information. If you can position yourself as a reliable source of information to a journalist, then they will be more likely to call you for information surrounding a story and also respond to your story ideas.

If you are unsure or unaware of the answer to a journalist’s question, it is best to say “I don’t know, but I can find out” and follow through on that promise. After an interview, if you realize you misspoke or gave false information, call the reporter right away and give them the accurate information.

Being a Journalist is not a 9 to 5 Job

Understanding the difference in a journalist’s deadline and your own is important. News is happening 24 hours a day, and the media works around the clock to cover it. A journalist does not call at 4:50 p.m. on a Friday afternoon to annoy you. They simply may have just started their “day” or just been handed the assignment. If you are able to work with the media under their tight dead-



lines, you will be seen as an asset.

“No Comment” is not an Option

It is never a good idea to answer a question with “no comment.” In the eyes of the reader or audience, “no comment” is an automatic assumption of guilt or wrongdoing. It is important to anticipate difficult questions that could potentially be asked, and prepare sincere, honest answers. For example, if it is a school’s policy to not discuss pending policy, then let the reporter know this instead of saying, “no comment.”

“Off the Record” is off the Table

Always assume that anything you say in an interview will appear in the story. There is no binding agreement that requires a reporter to honor an “off the record” comment, so even if you were to give information off the record, there is no guarantee it will stay off the record. In addition, if you are an employee of the government or some other public agency, any information you provide is public record.

Work Together as a Team

Media organizations are increasingly promoting their own worthy causes. Approach your local television, radio or newspaper about the possibility of working together to co-promote Safe Routes to School. Many times, news anchors or other media personalities can record public service announcements surrounding SRTS issues such as pedestrian safety or Walk to School Day.

Who's Who in the Newsroom

If you are talking to the wrong person in the newsroom, you are not only wasting their time, you're wasting your own as well. Understanding the difference in roles among members of the news media can be important in getting your message into the right hands. While titles can vary across newsrooms, here is a quick rundown of "who's who" in the newsroom.

Newspaper Editor:

These individuals serve as gatekeepers, making decisions on the types of stories that make it into print. They can also make changes after the reporter has finalized a story. Oftentimes they cover a specific topic or a series of topics, such as Health, Education or Crime.

Reporter:

Reporters are out "in the field," working to uncover stories, research information to support their stories and conducting interviews. Pitch reporters on stories specific to the areas they cover.

Anchor:

These individuals are the "face" of the TV news. While they have an extremely public presence, they typically do not control which stories get on the air. Consider inviting anchors out to events as a local celebrity.

Assignment Editor:

These individuals assign stories to reporters and photographers. Depending on the size of the outlet, there are typically several assignment editors who work during the week and another who covers the weekend. When calling or contacting a station, ask for the assignment editor to make sure they are aware of your event or story idea.

Producers:

Producers typically work in the broadcast sector and brainstorm story ideas. Many times, producers work on longer stories called "packages" or a series of stories being covered by the outlet.

Photographer/Videographer:

Photographers accompany reporters to capture the visual and auditory elements for a story. Sometimes photographers cover a story independently of a reporter. When it comes to newspaper photographers, the



.....
*Understanding the difference
in roles among members of the
news media can be important in
getting your message into the
right hands.*
.....

stories they cover independently may not be exhaustive in length, but they may get front page coverage if the photo is a good one.

Editorial Boards:

This group of individuals, usually at a print publication, makes the decisions on what editorials will run in the publication. Set up a meeting with the editorial board to try to get on the radar of the publication.

Calendar Editor:

These individuals are responsible for publishing the outlet's calendar or events section. Send announcements or media advisories for special events and other Safe Routes to School activities.

Quick Tips

While the following tips will not guarantee that the media will cover your Safe Routes to School (SRTS) story, they can certainly up your odds. Use these basics of media relations to further develop the newsworthiness of your event or program.

- Make sure you have something newsworthy to say. Your story should **“hook” onto a newsworthy element**, such as an existing national or state-level event or involvement of a local official or celebrity.
- **Think visually.** Posters made by children or school mascots provide great visuals for the media, and they make photos of events more appealing.
- Prepare for the media interview. Use **talking points** to ensure a consistent message about your program. Think ahead of time about people who might speak to the media for an interview – but make sure you discuss this with them beforehand.
- **Call a reporter or editor** to talk about your program or event – just make sure you target someone who covers a beat related to SRTS (education, physical activity, local issues, etc.) For television, the best time to call is between 10 a.m. – 2 p.m. and 7 p.m. – 10 p.m. so that you are not calling during peak news broadcast hours.
- **Position yourself as a resource.** Make sure the media understands what kind of information you can provide them and make it a priority to answer requests when possible.
- Keep the length of a news release or media advisory to **one or two pages** when drafting a news release or media advisory. Offer more detailed information on a Web site or through supplemental materials. It is important to include accurate and complete contact information.
- Approach your local media to discuss **opportunities for teaming up** on the promotion of SRTS. Contact the community affairs department to discuss potential partnerships, such as public service announcements.
- Visit www.saferoutesinfo.org/resources/index.cfm for **template media materials and resources**.

Identifying the News Hook

In order to get news coverage, you have to have something newsworthy to say. As media events and messages are developed, it is important to first identify the “hook” that will be used. The “hook” is that critical piece of newsworthy information that will capture the attention and interest of both the news media and their audiences.³

While there is never any guarantee for media coverage, incorporating newsworthy hooks simply increases the likelihood of interest and coverage from the media. There are many variations of news “hooks” within Safe Routes to School (SRTS) including the following:

- Timeliness
- Impact
- Prominence
- Proximity
- Magnitude
- Conflict
- Oddity

Timeliness

The timeliness hook ties SRTS to an event or season, such as “Back to School,” or other events that could incorporate a SRTS message. In addition to times of the year, media events can also be tied to national campaigns, such as International Walk to School Day or National Bike Month.

Timeliness Examples:

- Walking school bus leads the way on Walk to School Day**
Kansas City Star
- Back to School Tips**
American Academy of Pediatrics Newsletter

Impact

The media is also interested in how a potential story impacts their audience in the community. Stories surrounding funding announcements and infrastructure

.....

“Just because you are worthy, doesn’t mean you are newsworthy” – David Henderson

.....

projects are examples of how SRTS can have an impact on the community.

SRTS media stories can also incorporate information on how walking and bicycling to school can have an impact on the health of children, the environment surrounding a school and the safety in nearby neighborhoods.

Impact Examples:

- Town of Joyce getting its first-ever sidewalk**
Peninsula Daily News
- Traffic calming policy to get vote**
Denver YourHub.com

Prominence

Prominent members of the community are a natural draw for the media. These individuals can be leaders within schools and districts or government, as well as prominent members of the community.

The prominence hook can also involve the media itself. Often media personalities are local celebrities themselves. Consider inviting a news anchor to attend an event or ask your local meteorologist to do the weather live from an event.

Prominence Examples:

- Governor wants kids to hoof it**
WFIE News

Proximity

In order to define proximity, you must understand the audience of the media organization. The proximity of The New York Times is much wider than the proximity of a small, community newspaper. Editors at small community newspapers are generally going to be more interested in what is happening in their county as opposed to events in a distant county.

Proximity Examples:

Oakwood students walk the walk, take part in annual international event

Dayton Daily News

Magnitude

The magnitude hook incorporates the element of quantity into the SRTS story. Will there be a record number of children walking or bicycling during an event? Are you announcing a large amount of statewide funding for the program? If you are conducting pre- and post-surveys, consider promoting your survey results as well to the media.

Magnitude Examples:

\$4 Million to improve school pedestrian safety

North Jersey Media Group

Conflict

Conflict can create a platform to promote the issues of SRTS, such as an increased need for pedestrian safety in surrounding neighborhoods and the importance of enforcing speed limits around schools. Conflict can bring about a positive story, with a headline such as “Support for sidewalks improved safety for kids”

Conflict Examples:

Parents upset with traffic plan for school route

Lincoln Journal Star

Walk to School Day underscores dangers

News Bank

Oddity

Incorporating an odd element within your program or event can also attract the attention of the media. To utilize this hook, look for ways to incorporate an unusual twist into your SRTS story.

Oddity Examples:

Principal’s 18-mile trek to school sets example

Deseret News

Tools of the Trade

As the volume of media outlets is on the rise, the target audience for each has become more tailored and the number of journalists within each media outlet has decreased.⁴ With this downsizing of the newsroom has come an increased reliance on outside sources for information. Many newsrooms rely on tips from their viewers to know more about what is going on in the community.

Safe Routes to School (SRTS) programs have a tremendous opportunity to reach out to the news media to promote the aspects of their programs. In order to supply the media with newsworthy and accurate news stories, it is helpful to know more about the tools of the trade.

Media Lists:

A media list contains the reporters' names, the types of stories they cover, their contact information and their preferred method of contact, if known. An updated media list can help you make contact with the right media outlet or journalist.

News Release:

The news release is a basic form of communication to the media that announces some type of event or announcement. News releases can be faxed, mailed, emailed or delivered in person to the outlet or journalist. Consider writing a news release to announce the launch of a SRTS program or funding, release the findings of a SRTS survey or to promote a walking school bus program. For template news releases provided by the National Center for Safe Routes to School, please visit www.saferoutesinfo.org/resources/marketing_press-releases.cfm.

Media Advisory:

The media advisory announces the basic information about a newsworthy event. It includes the who, what, where, when and significance of the event. Consider using a media advisory to announce a Walk to School Day event or the presentation of SRTS funding. For a template Walk to School Day media advisory, please visit www.walktoschool.org/resources/media-advisory.cfm.

Talking Points:

Talking points can offer helpful information on topics such as trends in school travel, safety, physical activity, environment and air quality, background on the event, Safe Routes to School and a list of participating countries. Provide a copy of talking points to journalists as background. Talking points can be helpful during interviews with local media, meetings with parents or any other communication planned surrounding a SRTS program. For SRTS-related talking points, please visit www.saferoutesinfo.org/resources/marketing_talking-points.cfm.

Letter to the Editor:

Letters to the Editors can be written to raise an issue concerning the readers of that publication. Keep letters brief, as publications typically have length guidelines.

Op-Ed Piece:

An op-ed piece is an editorial submitted to a media outlet for publication. Generally longer than letters to the editor, op-ed pieces can be written to comment on the importance of pedestrian and bicycle safety or the need for proper infrastructure surrounding a school.

The Art of the Interview

After writing the news release and preparing for weeks, the phone rings. It is a reporter wanting to cover your story and do an interview. Now what? With proper preparation and a little practice, an interview can be an enjoyable and rewarding experience.

Here are a few general guidelines for a good interview:

- Speak in bullet points. Most broadcast news stories are 10 to 30 seconds long and the newspaper doesn't have the space for lengthy quotes. Keep it **straight, to-the-point and compelling**.
- Stick to the talking points and **avoid going off onto tangents**.
- Be prompt in your response when a reporter leaves you a message. Most reporters are working under a tight deadline, so **respond to phone calls and requests as quickly as possible**.
- **Ask for clarification** if a question is unclear. It is better to understand what the reporter wants to know than answering around the question and appearing evasive.
- **Do not feel pressured** to answer questions you do not know the answer to. If you are a parent and a reporter is asking about a specific school policy, refer them to the principal or a teacher who would be more acquainted with the topic.
- **Avoid jargon and complicated terminology**. For example, use the more general term "engineering improvements" instead of specific jargon such as "bulbouts."
- Be aware and try to **avoid nervous habits** such as repetitively saying "uuumm" or shifting your feet.
- **Avoid expressing your personal opinion** when speaking about the program. If you think a school could do more to reduce speed in its drop-off zone, the front page of the newspaper may not be the best place to announce this.



- **Never say "no comment."** If you simply do not know the answer, then say that. If it is against policy to answer a certain type of question, then tell that to the reporter.

Tips for Interviews

Tips for TV Interviews

- Look at the reporter, not the camera. Talk with the reporter as if you are having a one-on-one conversation.
- Unless the interview is live, do not be ashamed to stop and start over if you lose your train of thought or stumble over your words.
- Avoid wearing white or brightly patterned clothing.

Tips for Radio/Print Interviews

- Use your talking points: If you are conducting a radio or newspaper interview over the phone in your office, have your talking points at hand. The information is right in front of you and no one is there to see you using it. Just be sure to not sound as if you are reading straight from the document.
- Consider using pre-recorded audio clips called actualities to promote your Safe Routes to School program. Actualities are pre-recorded statements

With proper preparation and a little practice, an interview can be an enjoyable and rewarding experience.

regarding the program that the media can access to use in conjunction with their stories. Work with your agency's public information officer on how to develop actualities.

- Do not conduct an interview on a cell phone unless absolutely necessary because of the possibility for dropped calls or poor reception.

Tips for Live Interviews

- Do a dress rehearsal of the interview if time permits. Anticipate questions that may be asked and prepare short, concise answers using your main points.
- Make sure you know whether there will be “call-ins” where the audience can call in to ask questions.
- Make sure you turn off all phones and TVs to minimize background noise if you are doing the interview in your office or home.
- Always operate under the assumption that your microphone is on and recording.
- Pay attention to your body language. Do not slouch. If you are sitting right next to the reporter, look them in the eye as if you are having a one-on-one conversation.

Dealing with Difficult Questions

- **Anticipate** any difficult questions the media may ask and **prepare** your answer. It is easier to answer the tough questions if you have given them some thought beforehand.
- **Never speak for someone else.** If the reporter asks you, “How do you think the school's neighbors will feel about all of the construction from the new sidewalk project?” simply politely say, “You will need to speak with the neighbors about that.”

- Generally it is not a good idea to answer questions about **hypothetical situations**. The media could integrate this response in the future surrounding a situation that is similar, but slightly different.
- Learn to **bridge the question** back to one of your main points. Answer the question, and follow up with one of your key message points using a transition, such as “and it is also important to point out...”
- Never comment on **topics you are unfamiliar with** or do not have all of the information surrounding.
- **Correct the journalist tactfully** before answering a question if the journalist uses a false assumption as a lead-in for the question.
- Do not let a journalist rush or push you into a response. Listen to the entire question before answering and **take your time** in giving your response.
- Do not let a “pregnant pause” force you into **talking just to fill the air**. Answer the question using your key points and wait until the journalist asks the next question.
- **Never say “no comment.”** In the eyes of the audience, this response equals an automatic admission of guilt or wrongdoing, regardless of whether this is true or not. If you do not know the answer to a question, say so. If it is against policy to answer a question, say so.

Rights as an Interviewee

During or before an interview, you have the right to:

- Request basic information about the reporter and the story. You have the right to know the reporter's name and the media outlet for which they are writing. It is also a good idea to know the beat the reporter covers, the deadline they are working under as well as the general gist of the news story they are writing. Most credible journalists will have no problem sharing this information.
- Determine whether you are being recorded. When you receive a phone call from a reporter, particularly for a radio interview, ask whether you are or will be recorded.
- Provide information at a later time. If you are not 100 percent sure of an answer, tell the reporter you would like to double-check your information and get back to them. They will appreciate the accuracy and you will become a reliable resource for them.

Interviewees do not typically have the right to:

- Demand questions in advance. Journalists may share questions or the general point of the interview with you, but you cannot demand to know all of the content of the interview in advance.
- Review the story before it runs. Occasionally a journalist will ask you to review a story for accuracy, but consider this the exception to the rule.
- Ask for another reporter to do the story. This will not only irritate the reporter, but will probably reduce the likelihood you would ever get coverage from that media outlet again.

Securing Program Spokespeople

Spokespeople are a great resource when you are planning to work with the media. By already having several program spokespeople lined up, you are helping the media out by arranging interviews for their story. At the same time, you should work to ensure these individuals offer a consistent, positive message about your Safe Routes to School (SRTS) program. Spokespeople can also find other ways to promote the program, such as writing letters to the editor or submitting op-ed pieces to the local newspaper.

Preparation is Key

When planning an event or story idea, think in advance of who you would like to speak with the media. Line up several individuals in advance and make sure they are comfortable speaking with the media.

Do your best to inform the spokesperson about the aspects of your SRTS program, if they are not already aware of them. Provide them with a program brochure and talking points. A spokesperson's lack of knowledge could present itself during a media interview. Imagine inviting a prominent figure to speak at a Walk to School event. During an interview the reporter asks "How do you think the program impacts the community?" and their response is "I'm not exactly sure what the program does, they just invited me to the event."

Talking Points

Draft talking points for the SRTS program so that everyone will be on the same page when communicating information about the program. Distribute the talking points to your spokespeople. These talking points can also have other uses, such as for meetings with parents or any other communications planned surrounding your program.

For general talking points about SRTS and International Walk to School Day, please visit the National Center's Resource Center at www.saferoutesinfo.org/resources/marketing_talking-points.cfm



Arlington, Virginia.

The Faces of SRTS

There are many options for securing a spokesperson for your SRTS program. The most important element is that they are knowledgeable of the program. Here are a few options for spokespeople:

Parents

Parents can offer a unique perspective on a SRTS program, whether they are coordinating an entire program or simply walking to school with their children once a year during Walk to School Day. Parents can comment on the importance of safety surrounding a school and the reasons why they choose to walk or bike with their children. Encourage parents to speak about the benefits they see in walking or bicycling.

Children

There is nothing cuter — and more attractive to the media — than a child talking about how they love to walk or bicycling to school. It really gets at the heart of why SRTS is such an important initiative — the impact on the children. Make sure you have the permission of the child's parent or guardian before putting them in front of the camera.

Teachers

Teachers can also offer good anecdotal information about how a SRTS program affects the children in their classroom. Many times teachers are the driving force behind a school-based SRTS program and can speak to the history and details of the program.

Community Leaders and Other Prominent Figures

Given their prominence, community leaders are a great ally to have when arranging media interviews. If the individual is unaware of the program, provide them with supplemental information about SRTS, such as talking points or a brochure.

Experts

The news media will also be interested in speaking to experts on the elements of SRTS, such as pedestrian safety, engineering, evaluation, environment, etc. Members of a state or local SRTS advisory committee can be a great resource for expert spokespeople.

Managing a Crisis

While no one likes to think about bad things happening, they do happen. Speaking to the media may seem like the last thing you would want to do during a crisis, yet preparing with a sincere, honest response may mean the difference in the life of your SRTS program. The following outlines a few helpful tips on working with the media in the event of a crisis situation.

Create a Plan

Work with a school or your SRTS advisory committee to create a crisis communications plan. Bring together all of your SRTS stakeholders — those individuals that represent all aspects of the SRTS program — and brainstorm a list of all possible crisis situations that could occur. For each possible scenario, map out the best plan of action to handle the crisis.

Within this plan, create a section for working with the media in the event of a crisis. This section includes standby statements, contact information for all local and state-wide media and detailed information on how, when and where the media will be addressed during and after the crisis.

Draft Standby Statements

Once the potential crisis situations have been identified, work to draft standby statements. These are written template statements you have on hand in the event of a crisis and only issue in the event of that crisis. Drafting and approving text before a crisis happens will allow you to spend more time communicating with your stakeholders.

Designate a Primary Spokesperson

Within the plan, designate at least one primary spokesperson. There may be multiple options for spokespeople in the event of a crisis, but once the crisis occurs, it is important that there is only one primary spokesperson the media will receive information from. This guarantees a singular, defined message.

.....

“Simply put, the media don’t ‘owe it’ to any person or institution to provide positive coverage. Their job is to cover news, and, when all is said and done, the media’s definition of news is the only one that counts.” – Ray Jones

.....

Respond Quickly and Honestly

Following a crisis, it is important to respond quickly and effectively. If you cannot immediately respond to a media request, let them know exactly when you will be responding and follow through on this promise.

Begin by tailoring the standby statement to include the specifics of the situation. Update this statement and re-release as new developments in the situation occur. Even if there is nothing new to report, a simple statement of concern and update can be released.

Evaluate and Update

Following a crisis situation, it is essential to evaluate your response to the event and update the plan as necessary. Did information get communicated to the right parties? What hurdles prevented you from responding accurately and quickly?

Resources

Public Relations Society of America

www.prsa.org

Institute for Public Relations

www.instituteforpr.org

The Institute for Public Relations is an independent nonprofit organization that builds and documents research-based knowledge in public relations, and makes this knowledge available and useful to practitioners, educators, researchers and their clients.

National Association of Broadcasters

www.nab.org

Google News Alerts

www.google.com/alerts

Google Alerts are email updates of the latest relevant Google results (web, news, etc.) based on your choice of query or topic. You can set up a Google News Alert to send you updates on Safe Routes to School in the news.

National Education Association School Crisis Guide

www.neahin.org/schoolcrisis/index.html

The NEA's School Crisis Guide offers step-by-step advice for schools and districts to use before, during, and after a crisis.

National Association of School Psychologists

www.nasponline.org/resources/crisis_safety/neat_media.aspx

Suggestions for dealing with the media during a crisis

References

1. “The Katie Couric Effect.” Time Magazine. Accessed 10/30/2007 at <http://www.time.com/time/magazine/article/0,9171,1005302,00.html>.
2. “Media Myths & Realities, 2007 Media Usage Survey” University of Southern California’s Annenberg Strategic Public Relations Center
3. “Reaching Audiences: A Guide to Media Writing” Yopp, McAdams
4. “The State of the News Media 2006” Project for Excellence in Journalism. Accessed 10/24/2007 at http://www.stateofthenewsmedia.org/2006/narrative_overview_intro.asp?cat=1&media=1