

TOOLBOX SECTION

8

Children and School Zones





A very high priority should be placed on children's safety while walking to school.

CHILDREN AND SCHOOL ZONES

Walking to school is a memory that many people cherish, yet there has been a radical drop in the number of children doing this over the past few decades. At the same time, there has been a dramatic increase in health problems in children due to lack of physical fitness. The prevalence of childhood obesity and diabetes has risen to an all time high in the United States within the last decade. Walking to school can provide many benefits.



Children at a crossing
(Dan Burden, PBIC)

For example, walking to school:

- Serves as a transportation mode to and from the school site
- Can be fun
- Provides opportunities for daily exercise
- Connects children with their neighborhood and the natural world
- Teaches children independence and the responsibility that comes with it
- Reduces traffic congestion and environmental impacts

Physical improvements and educational programs are often needed to encourage and aid walking to school. Improvements to school walk routes can improve walkability of neighborhoods in general.

A very high priority should be placed on children's safety while walking to school. When a collision occurs between a moving vehicle and child, the consequences are often severe and tragic. Because of this, communities work very hard to promote student pedestrian

IN THIS SECTION

- *SPECIAL CONSIDERATIONS RELATED TO CHILDREN*
- *IMPROVING STUDENT PEDESTRIAN SAFETY – A COOPERATIVE PROCESS*
- *SCHOOLS AS COMMUNITY FOCAL POINTS*
- *LOCATION OF NEW SCHOOLS IN NEIGHBORHOOD DESIGN*
- *DESIGN CONSIDERATIONS IN AREAS SURROUNDING SCHOOLS*
- *SAFE ROUTES TO SCHOOLS*
- *TRAFFIC CONTROL AND CROSSINGS NEAR SCHOOLS*
- *CROSSING GUARDS*
- *EDUCATIONAL TOOLS AND PROGRAMS FOR STUDENT PEDESTRIAN SAFETY*
- *ONGOING MAINTENANCE*
- *OTHER RESOURCES*



A study by the US Centers for Disease Control found that long distances and dangerous motor vehicle traffic were the most common major barriers to students walking or biking to school.

EXHIBIT 8.1 *Some Special Limitations of Children Aged 5 to 9*

Because children are shorter than adults—their typical eye height is 3 ft (0.9 m) above ground, their field of vision is different.

Children have one-third narrower side vision than adults and are less able to determine the direction of sounds.

Children have trouble judging speeds and distances of moving cars.

Children are sometimes too small to be seen by fast moving or inattentive drivers.

Children move less predictably than adults.

Children have shorter attention spans and may grow impatient at crossings.

Children have less experience as pedestrians and may not be fully aware of dangerous conditions.

Children lack the understanding of drivers' intentions at intersections, crossings, or drop-off points, since they don't drive.

Source: Washington State Pedestrian Design Guidelines

safety. There are well known processes and techniques for promoting student pedestrian safety, and this toolbox section explains many of them.

Special Considerations Related to Children

It is important to remember the special limitations of children when designing for them. Children are more vulnerable to collisions than adults both physically and developmentally. Exhibit 8.1 lists the special limitations of children aged five to nine that need to be considered when walking routes to and around schools.

In addition to children's inherent vulnerability to traffic, research has shown that adults tend to overestimate a child's capabilities to deal with traffic, particularly when crossing the street. Adults sometimes fail to realize that many children under age nine lack the developmental skills to safely and consistently cope with moving traffic. Clearly both students and adults need to be educated about student pedestrian safety.

Improving Student Pedestrian Safety— a Cooperative Process

The safety of student pedestrians requires a coordinated effort from all stakeholders: parents, teachers, schools and school districts, public works departments, transportation departments, law enforcement, neighborhood groups, and the general community. All stakeholders must work together to identify problems and implement improvements. For example, on Oahu, there is a committee that meets once a month to discuss potential traffic safety concerns for students. Public agencies can also work with private developers to design neighborhoods with student pedestrian safety in mind.

Schools as Community Focal Points

Schools are often focal points in the community, serving as places of education and also providing spaces for meeting, voting, and other community services, as well as outdoor fields and facilities for play and recreation. These multiple functions will naturally draw diverse



Younger children are particularly vulnerable to collisions. In the ten-year-period between 1998 and 2008, nearly one-half of all school-age pedestrians killed in school transportation-related crashes were between the ages of 5 and 7 in the United States.

Source: National Highway Traffic Safety Administration,
National Center for Statistics and Analysis

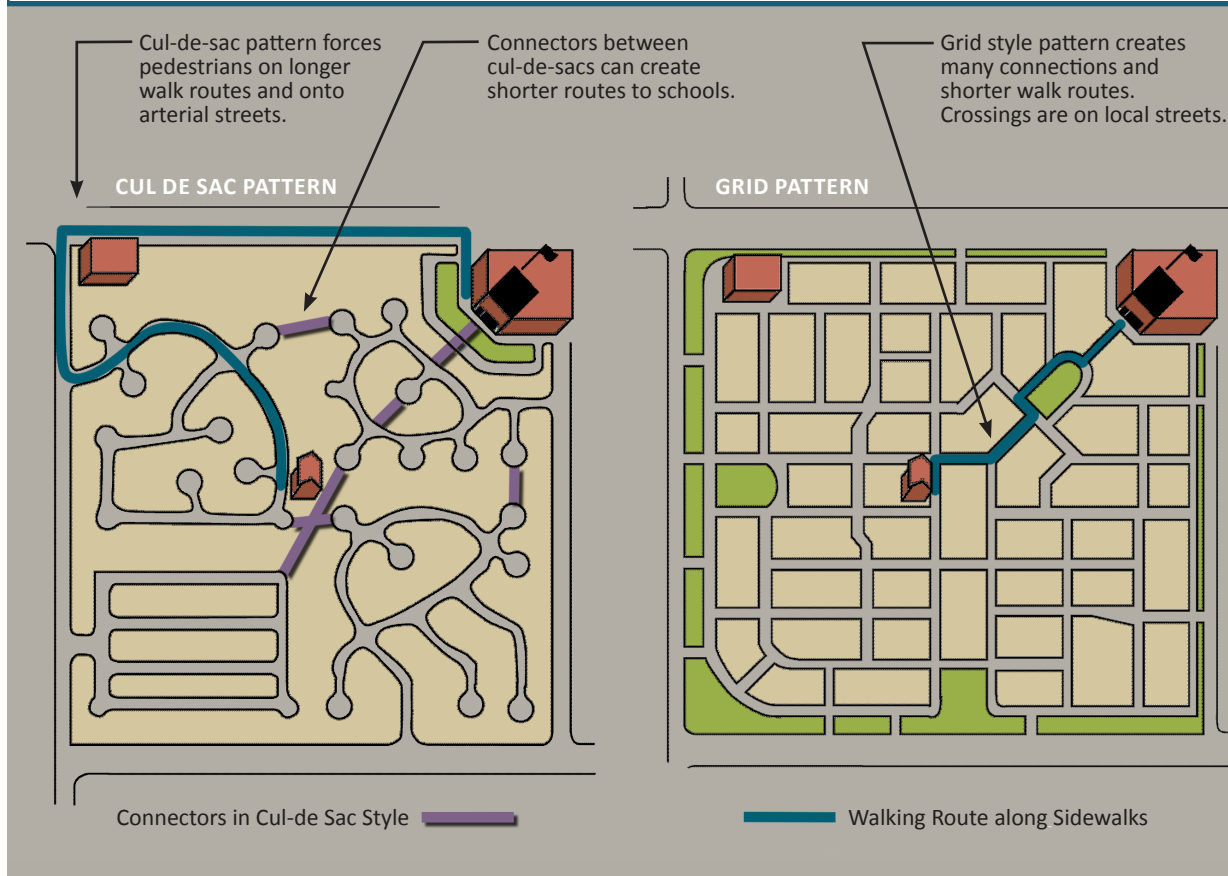


Parents play an important role in student pedestrian safety (Alea High School Website)

It is important to remember the special limitations of children when designing for them.



EXHIBIT 8.2 *Neighborhood street patterns can affect walking distances and safety.*
(Adapted from the National Center for Safe Routes to School website information, www.saferoutesinfo.org)



elements of the community together. In turn, the community can benefit from improvements to student pedestrian safety because these improvements enhance the walkability of the neighborhood in general.

Location of New Schools in Neighborhood Design

When master planning new communities, schools should be located within walking distance of all proposed neighborhoods and residential areas.

Schools should be centered within the community since they often provide important community services (meeting rooms, playgrounds, gyms, etc.) Schools also should be located where major street crossings are minimized. Elementary and middle schools should be located in residential neighborhoods on local streets. This prevents young children from having to cross an arterial street to get to their school. It may be preferable to refurbish an older school that is already in a residential neighborhood than to build a new school. In Hawaii, no school should be located directly on state highways. When designing enrollment boundaries, consideration should be given to crossings; boundaries should be drawn to avoid difficult crossings for young children.

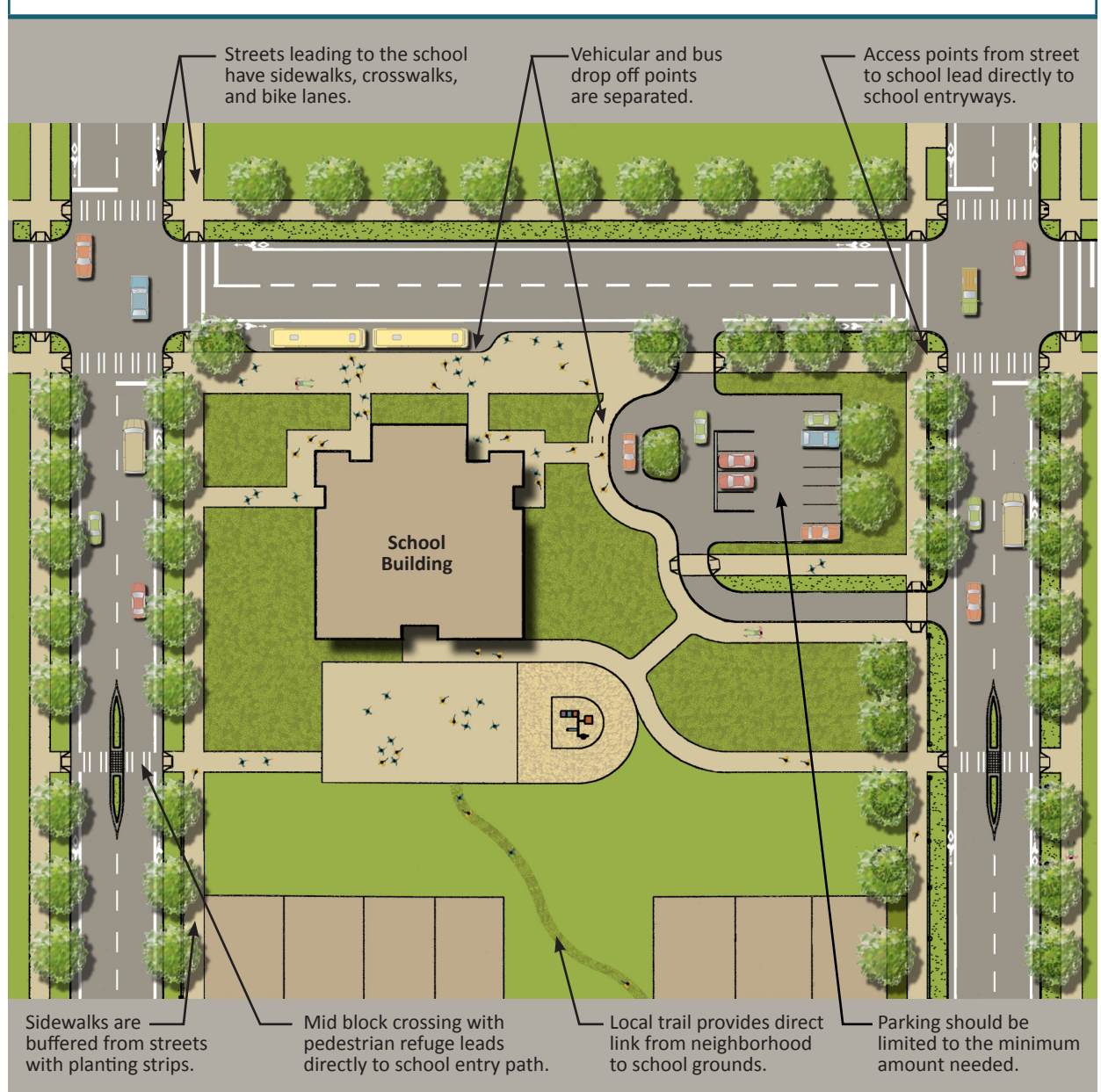
Neighborhood design itself also influences student pedestrian safety. Grid-style street patterns increase connectivity and can result in short walking distances to schools. Crossings are kept to local streets. Curvilinear and cul-de-sac style neighborhoods tend to channel pedestrians out to the more dangerous arterial streets, which lengthens walking distances. Cut throughs from cul-de-sac to cul-de-sac can reduce this problem. See Exhibit 8.2.

Design Considerations in Areas Surrounding Schools

Considerations of the needs of students walking to school should be integral to the design of streets and shared use paths located within walking distance of schools.

School sites should be accessible to pedestrians from all sides. Streets leading to the school site should be designed to include full sidewalk or walkway improvements and other elements that contribute to pedestrian safety and comfort. Intersections and crossings within the vicinity of the school need to be well designed, with a focus on the needs of student pedestrians. (See "Traffic Control and Crossing," later in this toolbox section.) It is equally important to consider how bicycle access to schools can be improved, as many students travel by bike. Exhibit 8.3 shows typical elements on and adjacent to school sites that function well for pedestrians and encourage pedestrian travel. Exhibit 8.4 illustrates design solutions for a school site in a suburban or rural area. Exhibit 8.5 lists best practices for design near schools.

EXHIBIT 8.3 *A Well Designed School Site in an Urban Area*



Sidewalks and Walkways

Sidewalks and walkways should be provided in all areas surrounding the school and on the school site. Vertical separation (curbs) and horizontal separation (planting buffers, ditches, or swales) from motor vehicle traffic should be installed to separate student pedestrians from traffic. Wider sidewalks at the school will accommodate a greater number of students as they approach the school.

On roads without sidewalks, widened shoulders accommodate pedestrians. Shoulders may be paved or unpaved, but if unpaved, a well compacted, firm, stable, and slip resistant surface of crushed rock or other material is required. Shoulders that are part of a designated school walk route should be minimum 5 ft (1.5 m) wide, 8 ft (2.4 m) preferred, and should be provided on both sides. If a shoulder can only be provided on one side, provide a minimum of 8 ft (2.4 m) in width to allow students to walk off the roadway in either direction. Although this is not the most desirable solution (shoulder on only one side), it is better than having no pedestrian travel areas at the roadside.

EXHIBIT 8.4 A School Site in a Suburban or Rural Location with Well-designed Pedestrian Facilities for Students



EXHIBIT 8.5 Best Design Practices Near Schools

Surrounding and adjacent streets should provide sidewalks and bike lanes.

School buildings should be accessible to pedestrians from all sides (or at least, from all sides with entries/exits).

Paths and trails should provide direct links between the school site and the surrounding neighborhoods.

Buses, cars, bicycles, and pedestrians should be separated and provided with their own designated travel routes.

Bus and auto drop-off zones should be separated to minimize confusion and conflicts.

Pedestrian travel zones (sidewalks, etc.) should be clearly delineated from other modes of traffic (through the use of striping, colored and/or textured pavement, signing, and other methods).

Parking should be minimized; people should be encouraged to walk to school.

Pedestrians should be clearly directed to crossing points and pedestrian access ways by directional signing, fencing, bollards or other elements.

Strategically located, well-delineated crossing opportunities should be provided, including marked crosswalks at controlled intersections and mid-block crossings (signalized if warranted).

Traffic calming devices (raised crossings, refuge islands, bulb-outs at crossings, on-street parking, traffic circles, landscaping, etc.) should be installed in the vicinity to slow vehicles.

View obstructions should be avoided so there is clear visibility of pedestrians throughout the area.

Parking restrictions should be required in areas close to children walk routes.

Student crossings and bus loading zones should be adequately lit.



Students safely cross the street while holding hands.

Middle school students walking home from school in Hawaii.



School Bus Stop Design

Bus stops must provide sufficient waiting area away from the roadway for the number of children using the stop. Exhibits 8.6 and 8.7 illustrate two typical designs for school bus stops—one for streets with sidewalks and one for areas where widened shoulders function as the pedestrian travel zone.

Visibility at Crossings and Along School Walk Routes

Since children are smaller than adults and more difficult for motorists to see, special attention should be paid to providing an unobstructed visual field between motorists and school children. Street furniture, utility poles, mailboxes, and other obstructions should not hide the pedestrian from view. Low growing plants and shrubs, with a maximum height of 2 ft (0.6 m), that won't block views of pedestrian should be selected. Trees along streets should be upward branching, with lower branches pruned to 8 ft (2.4 m) above ground.

Student Drop-Off and Pick-Up Zones

Student drop-off and pick-up zones can create hazardous situations for children because of

congestion and driver inattention or distraction. These zones should be clearly marked, separated from the bus drop-off zone, and located away from school crossings. Adequate queuing space on the school site needs to be identified. Further, parents should be informed well in advance of the location and guidelines for using these zones. This gets them started off with the best behavior.

Drop-off and pick-up zones should be located on school sites and not on streets or roadways in the vicinity of schools. Parking also should be restricted around schools and at school crossings. Recommended setbacks for parked vehicles near school crossings is 100 feet. Refer to Toolbox Section 2—Pedestrian-Friendly Streets for more information.

EXHIBIT 8.6 Typical Bus Stop Design for Urban Location with Sidewalks

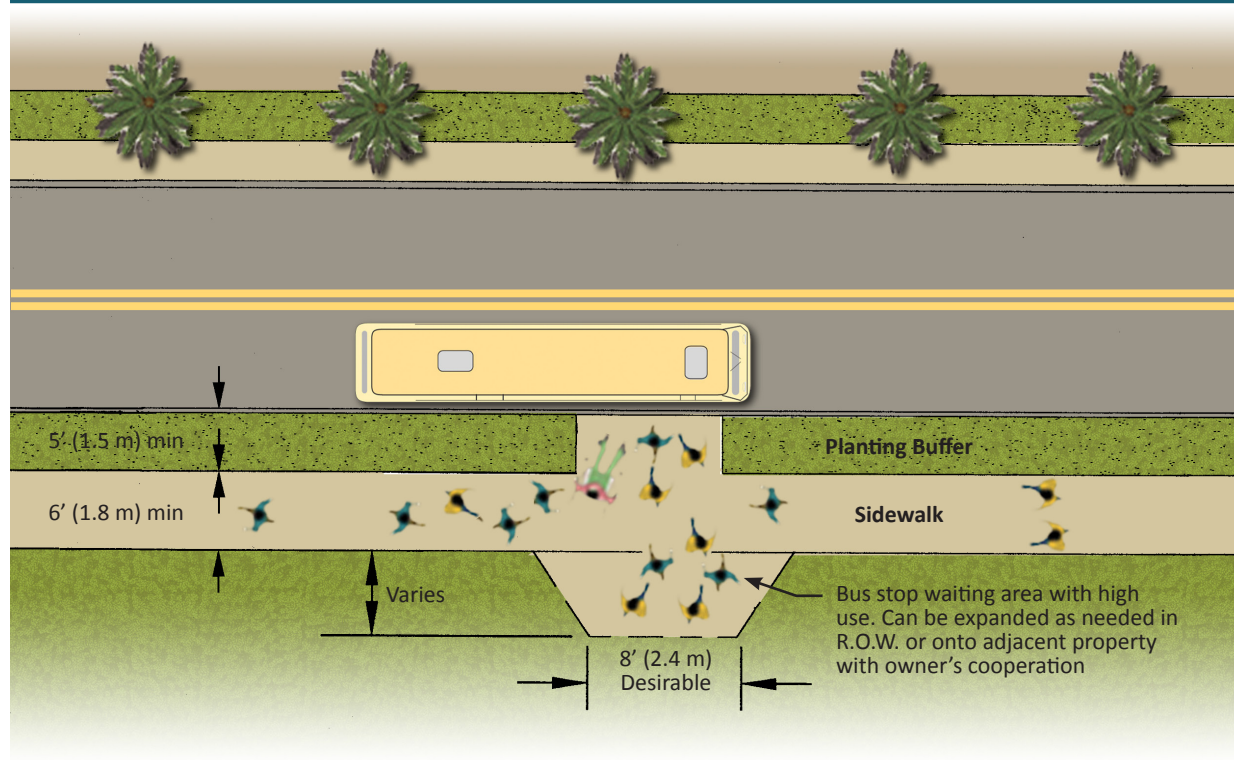


EXHIBIT 8.7 Typical Bus Stop Design for Rural Location

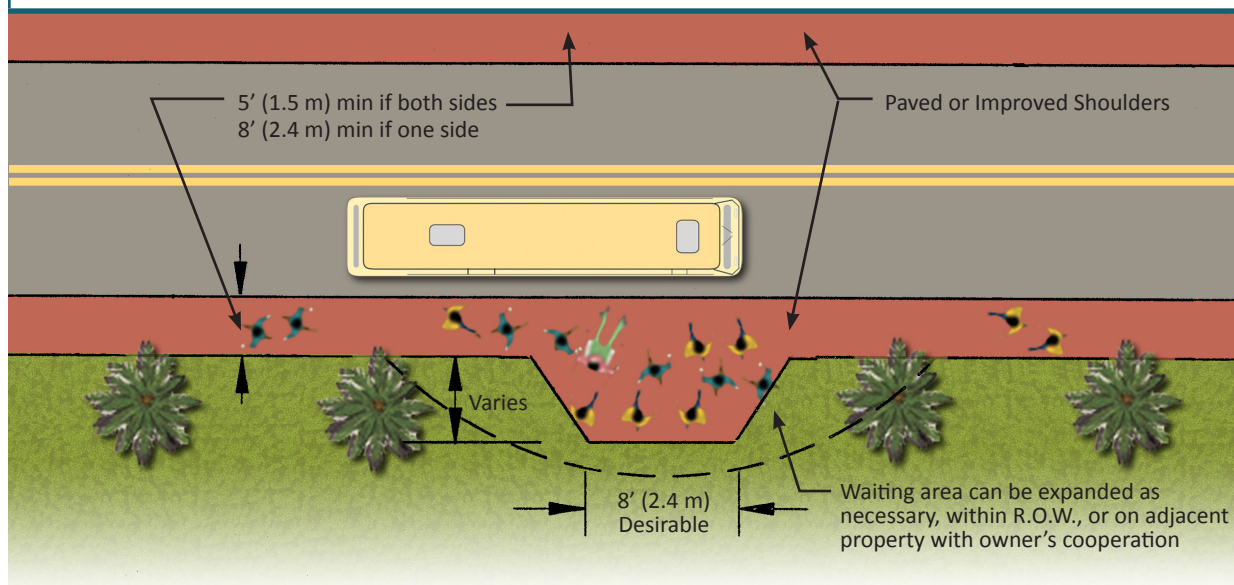


EXHIBIT 8.8 Hawaii's Safe Routes to School Hui



EXHIBIT 8.9 Procedures for Developing School Walk Routes

1. Form Safety Advisory Committee (SAC).
2. Prepare base maps.
3. Inventory existing walking conditions.
4. Inventory traffic characteristics.
5. Design the walk routes.
6. Prepare the draft walk route maps.
7. Review the route maps with the SAC.
8. Have route maps approved by the school board.
9. Distribute and explain the maps.
10. Evaluate the program.

Safe Routes to Schools

One of the most important tools communities can harness to improve student pedestrian safety is a “Safe Routes to School” program. The three primary purposes of providing a Safe Routes to School program are to:

1. Enable children to walk/bike to school.
2. Make bicycling and walking to school a safer and more appealing transportation alternative, thereby encouraging a healthy and active lifestyle from an early age.

3. Facilitate planning and implementation of projects that will improve safety, reduce traffic and fuel consumption, and air pollution in the vicinity (approximately 2 miles) of primary and middle schools (grades K-8).

The program should address both infrastructure projects (improvement of physical facilities along school routes), and educational programs. The development of a Safe Routes to School program requires a coordinated effort by all the stakeholders in a school district, including

parents, teachers, schools, neighborhood residents, public works departments, law enforcement, and the general community. The Safe Routes to School National Partnership shares best practices, helps secure funding, and provides educational materials for Safe Routes to School programs including activities in Hawaii (see Exhibit 8.8). See Toolbox Section 10—Effective Pedestrian Programs for further information on Safe Routes to School program activities in Hawaii.

It is important to note that the current federal transportation authorization, Moving Ahead for Progress in the 21st Century (MAP 21), includes a new Transportation Alternatives Program (TAP) that establishes funding for a variety of programs including Safe Routes to School. TAP administers funding for Safe Routes to School activities through state departments of transportation. Non-profits are no longer eligible to receive Safe Routes to Schools funding to implement projects under TAP.

School Walk Routes

Basic procedures for developing school walking and bicycle routes are listed in Exhibit 8.9.

EXHIBIT 8.10 Inventories like this one can help raise awareness of student pedestrian safety and define safe walking routes to schools. (National Center for Safe Routes to School Walkability Checklist)

Take a walk and use this checklist to rate your neighborhood's walkability.

How walkable is your community?

Location of walk

Rating Scale: 1 2 3 4 5 6
awful many problems some problems good very good excellent

1. Did you have room to walk?

☐ Yes

☐ Some problems:

☐ Sidewalks or paths started and stopped

☐ Sidewalks were broken or cracked

☐ Sidewalks were blocked with poles, signs, shrubbery, dumpsters, etc.

☐ No sidewalks, paths, or shoulders

☐ Too much traffic

☐ Something else

Rating: (circle one)

Locations of problems:

1 2 3 4 5 6

2. Was it easy to cross streets?

☐ Yes

☐ Some problems:

☐ Road was too wide

☐ Traffic signals made us wait too long or did not give us enough time to cross

☐ Needed striped crosswalks or traffic signals

☐ Parked cars blocked our view of traffic

☐ Trees or plants blocked our view of traffic

☐ Needed curb ramps or ramps needed repair

☐ Something else

Rating: (circle one)

Locations of problems:

1 2 3 4 5 6

3. Did drivers behave well?

☐ Yes

☐ Some problems: Drivers ...

☐ Backed out of driveways without looking

☐ Did not yield to people crossing the street

☐ Turned into people crossing the street

☐ Drove too fastp

☐ Sped up to make it through traffic lights or drove through traffic lights?

☐ Something else

Rating: (circle one)

Locations of problems:

1 2 3 4 5 6

4. Was it easy to follow safety rules?
Could you and your child...

☐ Yes

☐ No

Cross at crosswalks or where you could see and be seen by drivers?

☐ Yes

☐ No

Stop and look left, right and then left again before crossing streets?

☐ Yes

☐ No

Walk on sidewalks or shoulders facing traffic where there were no sidewalks?

☐ Yes

☐ No

Cross with the light?

Rating: (circle one)

Locations of problems:

1 2 3 4 5 6

5. Was your walk pleasant?

☐ Yes

☐ Some problems:

☐ Needed more grass, flowers, or trees

☐ Scary dogs

☐ Scary people

☐ Not well lighted

☐ Dirty, lots of litter or trash

☐ Dirty air due to automobile exhaust

☐ Something else

Rating: (circle one)

Locations of problems:

1 2 3 4 5 6

How does your neighborhood stack up?
Add up your ratings and decide.

1. _____

2. _____

3. _____

4. _____

5. _____

Total: _____

26-30

21-25

16-20

11-15

5-10

Celebrate! You have a great neighborhood for walking.

Celebrate a little. Your neighborhood is pretty good.

Okay, but it needs work.

It needs lots of work. You deserve better than that.

It's a disaster for walking!

Now that you've identified the problems, go to the next page to find out how to fix them.

EXHIBIT 8.11 A School Walk Routes Map
(Adapted from MUTCD Figure 7A-1)



CASE STUDY

SABIN ELEMENTARY SCHOOL, PART I

People who use the school and live in the neighborhood often know more about the traffic and safety issues than professionals alone. This case study from Portland, Oregon shows that parents' and neighbors' contributions can be substantial and their participation should be strongly encouraged:

"In 1997, the Portland Traffic Calming Program (TCP) undertook a School Safety Project on the streets adjacent to Sabin Elementary School to improve student pedestrian safety. After initial discussions with the school staff, parents, and neighborhood residents, it became clear that those using the school every day had identified additional traffic safety hazards that TCP assessment had not identified, including school-related bus and auto traffic congestion directly in front of the school and on its surrounding streets. Another concern was parking problems, such as the screening of kids crossing the street to/from school by parents parking in no-parking zones to drop-off, or pick-up, their own children."

(Italics added. Case Study #38 from walkinginfo.org)

A coalition of over 20 state, federal, non-profit, and private agencies have worked together to advance the Safe Routes to School program and promote healthy community design in the State of Hawaii. Exhibit 8.10 provides an example of a school walkability checklist that communities and school districts can use as a tool to define needs around schools.

The process of making school route maps raises awareness of safety issues, garners support for the proposed improvements, identifies specific traffic and safety issues, and gathers information on the best routes. Once the school walk route has been established, pedestrian safety deficiencies along the walk route can be identified. Remedial actions can then be considered and implemented as funding becomes available. Inexpensive options such as painted markings and signs should be implemented first while funding is being sought for more expensive improvements like new crossings or signals. See below for information on traffic control measures in school zones. (Refer to Exhibit 8.11 for an example of a school walk routes map.)

Traffic Control and Crossings Near Schools

Traffic control related to schools is a sensitive subject. The methods used to protect children as they walk to school need to be carefully considered and analyzed by traffic engineering professionals (including state and county traffic engineers) on a case-by-case basis before solutions are implemented. They should also be reviewed by a Safety Advisory Committee established by the school district.

Overuse of traffic control measures or implementation of nonuniform procedures and devices can cause confusion, lead to crashes, produce unnecessary costs, and lessen the respect for traffic controls that are warranted.

Traffic control and safety measures near schools include sidewalks and walkways, marked crosswalks, special school signs and markings, speed limit reduction, traffic calming techniques, and signalization, including flashing beacons. Exhibit 8.12 lists traffic control considerations for school zones.

Sidewalks and walkways are discussed above in the section on School Site Design. They should be an integral part of all new school projects.

EXHIBIT 8.12 *Determining Crossing Treatments and Traffic Control in School Zones*

According to the ITE’s School Trip Safety Program Guidelines, the following elements are normally considered when determining appropriate traffic control measures:

- Existing and potential traffic volumes and speeds
- Inventory of existing traffic control devices and roadway facilities
- Adequacy of gaps in the stream of traffic
- Numbers and ages of children crossing (pedestrian volumes and characteristics)
- Adequacy of sight distance
- Collision statistics
- Location of the school and relationship to surrounding land uses (both existing and planned)

All crosswalks on designated school routes should be marked. Note that on streets with an Average Daily Traffic (ADT) volume of 12,000 trips or above, crosswalk markings must be combined with other safety measures (Safety Effects of Marked versus Unmarked Crosswalks at Uncontrolled Locations, FHWA, 2005). See the section on Crosswalk Markings in Toolbox Section 5.

EXHIBIT 8.13 School Related Signs



Options:



School Area and School Zone Sign (S1-1): This sign can be used to warn motorists that they are approaching a school area. It must be used to identify the location of the beginning of a state-designated school zone. It can be combined with “ALL YEAR” or “SCHOOL” plaques, or pointer arrows if the school zone is near an intersections.



Options:



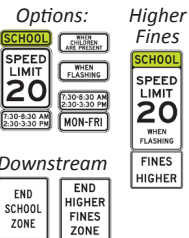
School Advance Crossing Assembly: This sign combines the School Sign with an “AHEAD” or “XX FEET” plaque to warn motorists of an upcoming school crossing. It must be used in advance of school crosswalks. MUTCD Table 2C-4 gives guidelines for how far in advance of the school crossing to place this assembly. It may be omitted if a School Zone sign is placed in advance of the crosswalk.



School Crossing Assembly: This sign combines the School Sign with a diagonally pointing downward arrow, and must be used at school crossings. It may not be used for crossings other than those adjacent to schools or on established school pedestrian routes. Also, it may not be used on approaches controlled by a Stop or Yield sign.



School Bus Stop Ahead: This sign is intended for use in advance of locations where a school bus stop is not visible for an adequate distance. It is not intended for these signs to be placed everywhere a school bus stops, but only in locations where terrain or other features limit sight distance and there is no opportunity to relocate the stop to a more visible location.



School Speed Limit and Fines Signs: These signs must be used to indicate the speed limit within designated school zones if a traffic engineering study recommends it or state statute (*see below) requires it. School Speed Limit Signs may be accompanied by signs that indicate applicable hours or conditions of speed limit reduction (e.g. “when children present”). If higher fines for traffic violations are in effect, the applicable Fine signs must also be installed. The downstream end of the school speed limit or higher fines zones must also be identified. See the MUTCD Section 7B.15 for more information.

In Street Signs



Overhead Sign



In-Street and Overhead Crossing Signs: These signs may be used to provide additional warning to motorists about the presence of school children. Seasonal use of in-street signs can provide an additional safety measure at the beginning of the school year, when it is particularly important for motorists to be attentive to the presence of student pedestrians. These signs may be used instead of or in combination with the School Crossing Assembly, and should follow the guidelines for size and placement in Section 2B.12 of the MUTCD. They may not be used at signalized crossings. An overhead warning sign can also be used at school crossings, and may be internally lit. It should not be used in conjunction with the diagonally downward pointing arrow.

School Signs and Markings

There are special signs and markings used in school zones. School signs authorized by the MUTCD are shown in Exhibit 8.13. The new standard color for school signs is retroreflective yellow-green. This color can also be applied to sign posts to make them more visible. See Exhibit 8.14. The sign placement requirements discussed below are from the MUTCD. Refer to that document for additional information about design, height, size, placement, and installation of school signs and markings.

ON-PAVEMENT “SCHOOL” MARKINGS

The word “SCHOOL” can be marked on the pavement itself in advance of the school zone as an additional warning to motorists. This marking should only be used to supplement the required warnings signs listed in Exhibit 8.13. See Exhibit 8.15 for the school marking dimensions.

School Speed Zones

Lower vehicular speeds increase pedestrian safety by reducing the chance of a collision with a pedestrian. In addition, the rate of fatalities is greatly reduced when the vehicular speeds are lower. See Exhibit 8.16. Speed limits in school

* HRS291C-104 addresses speeding in a school zone or construction area: “The director of transportation shall place official signs in school zones. Signs posted pursuant to this subsection shall be plainly visible at all times under ordinary traffic conditions. (c) Any person who violates this section shall be fined \$250.00.”



Pavement markings warn motorists of an upcoming school crossing. (Dave Panisi)

EXHIBIT 8.14 Using the new retroreflective yellow-green sign at schools and crossings alerts drivers to pay extra attention. (Mike Cynecki)



EXHIBIT 8.15 In Pavement Markings Across Two Lanes

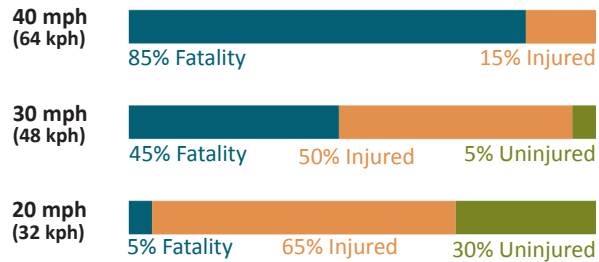


zones can vary, but generally are set somewhere between 15 and 25 mph (24 and 40 kph). Speed limits should be established on the basis of a traffic engineering study or based on the requirements of the local or state jurisdiction. The MUTCD suggests that school speed zones should extend 200 feet in advance of the school, school crossing, or other school related activities. This distance can be increased based on a traffic engineering study. Other traffic calming measures may be more effective than a school speed zone by itself.

Traffic Calming Techniques

Traffic calming techniques that may be appropriate in school zones include raised crossings, refuge islands at crossings, traffic circles, chicanes, bulb-outs, speed humps, narrower streets, on-street parking, a forced one-way route around the school, trees and landscaping along the right-of-way, and gateways. Speed enforcement, radar speed signs, and speed watch programs are also good methods for calming neighborhood traffic in school zones, although their effectiveness may only last for a limited time, unless consistently implemented. Refer to Toolbox Section 2 for

EXHIBIT 8.16 Pedestrian Injuries and Deaths at Impact Speeds (Adapted from the National Center for Safe Routes to School "Slowing Down Traffic" webpage)



Over two-thirds of school-age pedestrians who died in school transportation related crashes were killed by school buses.

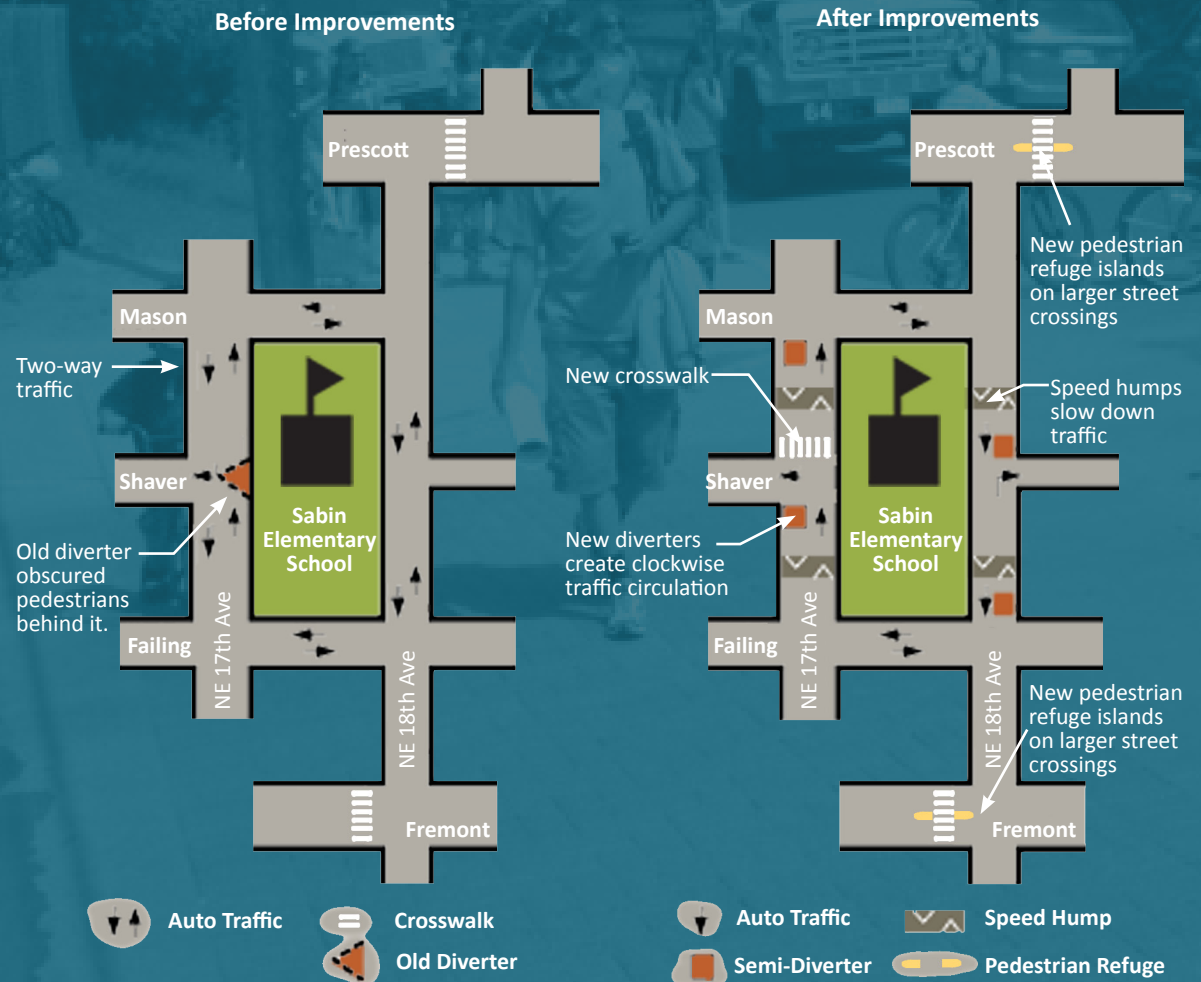
Source: National Highway Traffic Safety Administration, National Center for Statistics and Analysis

CASE STUDY

SABIN ELEMENTARY SCHOOL, PART II

The Sabin Elementary School Study shows how student pedestrian safety can be improved with traffic calming measures, new crosswalks, and pedestrians refuges.

SABIN ELEMENTARY SCHOOL TRAFFIC IMPROVEMENTS



(Graphic adapted from walkinginfo.org Case Study #38.)



Students can learn about pedestrian safety in the classroom. (Hawaii Safe Routes to School Hui)

Crossing guards can help students in crossing the street safely.



more specific design recommendations related to traffic calming. Traffic calming techniques should be chosen on the basis of a traffic engineering study and with the approval of roadway owners and the school's safety advisory committee.

Signalization and Flashing Beacons

A traffic engineering study should be conducted to determine the need for a signalized school crossing. If a new signal is added, provide pedestrian signal indications and push buttons at signalized school crossings and mark the designated crosswalks. Signal timing should be designed for the age and ability of the students who will use the crossing. Coordinating signal timing with adjacent signals will help minimize traffic disruption. In some cases re-routing the walking route to an existing signal may be preferable to adding a new signal. For a complete discussion on signal placement and design, refer to the MUTCD. See Toolbox Section 5 for more information on intersections, crossings and signalization.

Flashing beacons are commonly used in school zones and are often attached to school speed

limit signs. These beacons are only activated during hours that students are present in the school zone. Flashing beacons are discussed in Part 4 – Highway Traffic Signals of the MUTCD, and a mid-block crosswalk is one of the specific applications noted for this device.

Crossing Guards

The use of well-trained adult crossing guards is considered to be one of the most effective methods to improve student pedestrian safety at crossings. Adult crossing guards help children cross the street at key locations and remind drivers of the presence of student pedestrians. A crossing guard program should be developed by a lead organization that brings together key members of the community. This may include school administration, teachers, local traffic engineers, law enforcement officers and parents. The role of this group is to:

1. Identify locations where guards are needed
2. Hire and train guards
3. Provide uniforms and equipment
4. Secure funding



The Safe Routes to School program provides an excellent guide to crossing guards, Adult School Crossing Guard Guidelines. Much of the information in this section is from that document. Refer to it for further information.



Crossing guards should be hired, trained, and supervised by the agency that has jurisdictional authority to do so.

Identifying Locations Where Crossing Guards are Needed

The lead organization determines the criteria for locations that need crossing guards, gathers information about local conditions, and determines the need for the crossing guards. Information to consider includes:

Age of students who are crossing; width of street and number of lanes to cross; sight distance at crossing; safe gaps in traffic; presence of traffic control devices (signals, signs, pavement markings); vehicle speed; traffic and pedestrian volumes; attendance boundary and walk zone for the school; distance of crossing from the school; adjacent land use; crash history at the crossing.

Hiring and Training Adult Crossing Guards

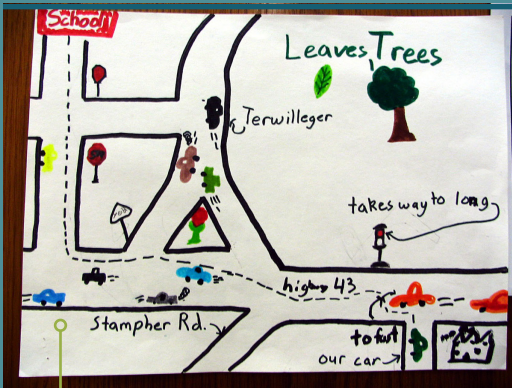
Crossing guards should be hired, trained, and supervised by the agency that has jurisdictional authority to do so. This may be the school district, local law enforcement, transportation departments or local schools. On Oahu, the Honolulu Police Department's (HPD) Traffic Division hires and trains crossing guards.

HPD also runs the Junior Police Officer (JPO) program at schools. Crossing guards are only used at elementary schools.

Volunteer guards may be used, but training, evaluation, and discipline of volunteers can be problematic. Guards should be thoroughly trained in traffic laws, crossing procedures, methods to signal drivers to stop, site-specific factors and potential hazards, and emergency procedures. In addition they should understand the special limitations of children as pedestrians, and be trained in the best ways to communicate with them. They should also understand that they serve as role models to children.

Uniforms and Equipment

Crossing guards should wear uniforms and use equipment that are highly visible and easily identifiable. The uniform should include a retro-reflective traffic vest and should be clearly different from the uniforms of local law enforcement officers. A stop paddle is the most frequently used piece of equipment, and it can be supplemented by a whistle, gloves, and hat.



Lessons about pedestrian safety can be integrated into classroom activities. Here a student has identified problems on the route to school. (Dan Burden, PBIC)

Funding

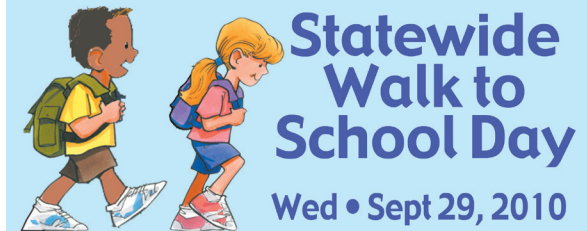
Adequate and steady funding is essential to the success of a crossing guard program. Funding can be obtained through a variety of sources, including taxes, local school boards, sheriff, police, public works and transportation departments, and through surcharges on parking fines. Parent-Teacher Associations and other organizations may also help secure funding.

Educational Tools and Programs for Student Pedestrian Safety

The importance of safety education programs cannot be overemphasized. Audiences include children, parents, drivers and neighbors. All these groups can play a significant role in improving student pedestrian safety. Children need to be taught how to cross a street safely, how to behave around school buses, and how to avoid the inherent dangers of motor vehicles.

Parents need understand their role as teachers and role models to their children, and know the best practices to convey to their children. They also need to understand student drop-off

EXHIBIT 8.17 *One-time events can encourage students to walk to school.*
(Hawaii Safe Routes to School Hui)



Kick off your Safe Routes to School Program and join other schools around the State for a fun and easy way to create some excitement at your school for walking and biking!

Here's how it works:

- Students are encouraged to walk and bike to school beginning at 7am that morning.
- Families who live too far to walk may drop off children at a specific "Park and Walk" location where a "Walking School Bus" led by an adult volunteer will walk with them to school.
- Your school may elect to have a "Welcome Station" along the route, offering water and/or prizes.
- Parents and community members are encouraged to support the Walk to School Day by walking with students or volunteering as greeters at the Welcome Stations.

Interested in getting started?

Call PATH at 808-326-PATH (7284) or email saferoutes@pathhawaii.org for help to plan a special day for your school



Sponsored by the
Hawaii Safe Routes to School Hui
www.saferouteshi.org



and pick-up safety. ***They should not encourage children to cross streets in order to avoid automobile queuing lines.*** Drivers and neighbors (which include parents) need to understand child pedestrian vulnerability. They need to know where school zones and crossings are and how important it is to obey speed limits in these areas. Neighbors specifically need to understand the value of clearing the sidewalks which border their property and keeping pets on leash.

Teenagers can often behave foolishly and can also benefit from safety programs tailored to their age group. Pedestrian safety programs should be combined with or supplemented by bicycle safety programs as well.

Strategies for conveying safety skills to students include special events, on-going classroom or physical education instruction, integration of safety education into traditional classroom subjects, parent involvement, and structured skills practice. Considerably more information can be found at the ***National Center for Safe Routes to School***.

Many organizations currently exist that can help parents, teachers, and school officials assist in

providing safe travel for children. Their websites contain extensive information. Below are some of the tools available.

- The ***National Center for Safe Routes to School*** provides extensive information on all aspects of walking to school and student pedestrian safety. Much of the information in this toolbox section is based on their website. It is part of the University of North Carolina's Highway Safety Research Center, and receives funding from the National Highway Traffic Safety Administration.
- The ***National Partnership for Safe Routes to School*** is a network of more than 500 nonprofit organizations, government agencies, schools, and professionals working together to advance the Safe Routes to School (SRTS) movement in the United States. It sets goals, shares best practices, leverages infrastructure and program funding, and advances policy changes to help agencies that implement Safe Routes to School programs.
- The ***Kids Walk-to-School*** website of the US Centers for Disease Control and Prevention focuses on encouraging students to walk

or bike to school, increasing awareness of the importance of physical activity and pedestrian safety, and mobilizing communities to work together to create safe routes to school. Their ***Guidebook*** provides extensive information on how to promote walking to school.

- ***Walk to School***—an organization devoted to encouraging walking to school and recognizing the need to create safe walking communities for children.
- ***Walk Wise Hawaii (WWH)*** is an HDOT public education program that works through community partnerships, presentations and the media to educate pedestrians and drivers on safe walking and driver awareness of pedestrians.

Ongoing Maintenance

The school district and school site officials are responsible for providing ongoing maintenance of pedestrian facilities and traffic control elements on the school site. This includes sidewalks within the right-of-way adjacent to the school site. Public and private property

owners are typically responsible for repairs and reconstruction of the sidewalk within the street right-of-way adjacent to their property. State, local, or county jurisdictions are responsible for maintaining facilities and traffic control elements at intersections and mid-block crossings. Before the opening of school each year, elements that affect pedestrian travel in the area of the school should be inspected. Some of the things to look for include:

- Signs that are clearly visible and easy to read (paint has not worn off; tree branches are not in the way, it has not been vandalized or knocked down)
- Traffic control devices, signals, and actuators that function properly
- Sidewalks and walkways that are clear of obstruction; pavement that is smooth
- Crosswalks and pavement markings that are clearly visible
- Pedestrian's visibility that is not compromised by overgrown landscaping, parking, signs, fencing, or other obstacles at intersections, crossings, and along walkways

Other Resources

For more specific design guidelines for various pedestrian facilities that may be developed within the vicinity of schools, refer to other toolbox sections. The following resources provide additional information related to pedestrian facilities and educational programs for children and school zones.

- Federal Highway Administration Safe Routes to School program development guidance. Website: <http://safety.fhwa.dot.gov/saferoutes/> (May 2013).
- Federal Highway Administration. *Manual on Uniform Traffic Control Devices*. 2009.
- Florida, State of. *Florida Pedestrian Planning and Design Handbook*.
- Institute of Transportation Engineers, Traffic Engineering Council Committee TENC-5A-5, Zegeer, Charles V. (Chair). *Design and Safety of Pedestrian Facilities, A Recommended Practice of the Institute of Transportation Engineers*. 1998.
- National Center for Safe Routes to School. Website: <http://www.saferoutesinfo.org/> (May 2013).
- National Center for Safe Routes to School and National Highway Transportation Safety Association. Adult School Crossing Guard Guidelines. Safe Routes to School website: http://guide.saferoutesinfo.org/crossing_guard/ (May 2013).
- National Highway Traffic Safety Administration, National Center for Statistics and Analysis, *School Transportation Related Crashes*. Publication No. DOT 811 165. Website: <http://www-nrd.nhtsa.dot.gov/Pubs/811165.PDF> (May 2013).
- Oregon State Department of Land Use, Conservation, and Development. *Neighborhood Street Design Guidelines: An Oregon Guide for Reducing Street Widths*. 2000. Website: <http://www.oregon.gov/LCD/docs/publications/neighstreet.pdf> (May 2013).
- Safe Routes to School National Partnership. Website: <http://www.saferoutespartnership.org/home> (May 2013).
- Walkinginfo.org School Zone Improvements. Website: <http://www.walkinginfo.org/engineering/schools.cfm> (May 2013).

- Walk Wise Hawaii Website: <http://hawaii.gov/dot/highways/safe-communities/walkwisehawaii> (May 2013).
- Washington State Department of Transportation. KJS Associates Inc., MacLeod Reckord, and Educational Management Consultants. *A Guidebook for Student Pedestrian Safety, Final Report*. 1996.
- United States Access Board. *Public Rights-of-Way Accessibility Guidelines (PROWAG)*. Draft-rulemaking in process. Website: <http://www.access-board.gov/prowag/> (May 2013).
- United States Access Board. *ADA Accessibility Guidelines for Buildings and Facilities (ADAAG)*. (Reference for applicable requirements to school site design) Website: <http://www.access-board.gov/adaag/html/adaag.htm> (May 2013).
- United States Centers for Disease Control. *Barriers to Children Walking and Biking to School*. 1999. Website: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5132a1.htm> (May 2013).

