Safety-based prioritization of schools for Safe Routes to School infrastructure projects:
A process for transportation professionals

SafeRoutes
National Center for Safe Routes to School

Determining the most effective use of limited infrastructure funds is a challenging task. It is especially difficult for local transportation professionals to prioritize infrastructure needs among multiple schools that may be eligible for Safe Routes to School (SRTS) funds to improve conditions for children to walk to school. This document explains a process to help transportation professionals identify schools within a city, school district or other local jurisdiction that merit additional review for specific pedestrian infrastructure improvements based on safety considerations (see Figure 1). Use of this process will result in a prioritized list of schools without carrying out a comprehensive field review and extensive data collection for every school site. Once the highest priority schools are identified, a field review of these schools should be performed to identify specific safety issues and infrastructure improvements. Parts of the Federal Highway Administration *Pedestrian Road Safety Audit*[1] have been adapted and included in this document to assist in this field review.
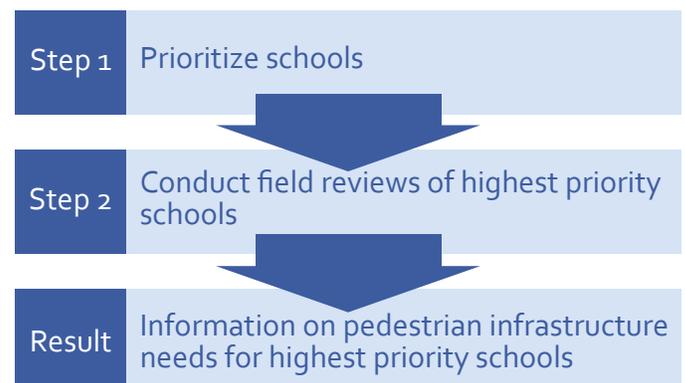
Focus on pedestrians

It is important to note that the primary emphasis of this resource is on infrastructure improvements that improve the safety of walking conditions. While bicycle travel shares some of the same needs as walking, other factors such as bicycle parking, on-road facilities and surface conditions need to be considered and are not discussed in this document.

Transferable to different funding sources

While the aim of this document is to assist transportation professionals who are preparing SRTS funding application for infrastructure improvements, it could also be useful when applying for funds from other sources, including Transportation Enhancements, Congestion Mitigation and Air Quality or local government capital improvements.

Figure 1:
Safety-based prioritization process for SRTS projects

Step 1	Prioritize schools
Step 2	Conduct field reviews of highest priority schools
Result	Information on pedestrian infrastructure needs for highest priority schools

The role of the transportation professional in SRTS programs

Safe Routes to School programs work to make it safer and more convenient for students to walk and bicycle to and from school and encourage more students to use these transportation modes. Successful programs generally use several strategies to achieve these goals, including assessing current walking and bicycling conditions, implementing education and encouragement strategies, engaging law enforcement and identifying and implementing engineering countermeasures. This comprehensive approach requires involvement from several segments of a community such as school administration, parents, students, neighbors, law enforcement, public health professionals, advocacy groups and other community members as well as transportation professionals. The transportation professional's role usually focuses on evaluating the transportation system to identify safety problems or travel barriers and selecting appropriate countermeasures to address those problems.

Steps for prioritizing schools and identifying SRTS infrastructure projects

When faced with multiple schools that may be eligible for Safe Routes to School funds to improve pedestrian infrastructure, the first step is to prioritize schools so that resources spent identifying specific infrastructure needs focus on the schools that rank highest.

A worksheet has been developed to assist in recording key factors for each school and assigning it to a priority group. The worksheet also includes a process to assist in documenting refining factors and prioritizing schools within groups. Information here is organized to follow the worksheet, which is included at the end of this document and available as an editable spreadsheet.[2]

Step 1: Prioritize schools

The school prioritization process requires assigning each school to one of five groups based on three key factors. Then, if necessary, additional refining factors can be used to order the schools within a group.

The group assignment for a particular school depends on current safety issues and the potential impact on pedestrians if improvements were made. Figure 2 includes definitions for each of the groups, with Group 1 schools being the highest priority. For instance, schools where children are already walking and there is a history of child pedestrian-related crashes would be classified as Group 1. Schools where children would walk if safety improvements were made belong in Group 3.

Key factors in prioritizing schools

To organize schools into these groups, assess the following factors:

- Crash history (Worksheet section 1)
- Safety concerns (Worksheet section 2)
- Current or potential pedestrian use (Worksheet section 3)

Crash history (Worksheet section 1)

Researching child pedestrian-related crashes near the school is the first task. Because the availability and format of crash data varies by jurisdiction, a range of approaches are presented below. It is important to be consistent in using the same set of information across schools, so the search strategy selected should be used for all sites. Approaches for collecting information about crash history include:

- Examine crash history data for the most recently available three years. If possible, look specifically at child pedestrian crashes near the school that occurred during likely school-related travel hours, days and months.

Another option is to look at crashes at major intersections that border the school and are encountered on student walking routes.

- If practical, evaluate each crash report to get an understanding of what happened. While not necessary at this point, understanding the circumstances behind crashes will be useful for those schools that are ultimately identified for potential improvements.

- At minimum, talk with the school principal, assistant principal, transportation director, crossing guards or someone else who has been at the school for at least a few years. Ask them if they remember any child pedestrian crashes near the school and the locations. They may also know about near-misses that wouldn't be captured in crash data.

- Ideally, both an examination of crash data and a discussion with a school official should take place.

Figure 2: School group definitions

Group 1	Group 2	Group 3	Group 4	Group 5
Students currently walk to this school and there is a history of pedestrian crashes (particularly during student arrival and dismissal times) along walking routes.	Students currently walk to this school and there are parent and/or school district concerns about safety conditions along one or more routes.	Few students who live within walking distance currently walk to this school due to traffic safety concerns. Safety improvements may lead to more students walking.	Very few students are able to walk to this school due to either distance or infrastructure barriers that would require extensive capital to alter. It is unlikely that safety improvements would lead to more/ any students walking.	Students walk to this school and the walking environment is generally safe with few or no concerns about traffic safety.

HIGHEST PRIORITY ————————————————————————→ **LOWEST PRIORITY**

Safety concerns (Worksheet section 2)

Often members of the school community are familiar with trouble spots on routes between homes and the school. Sources of information on safety concerns are often the same as for crash history, but each community is different. High priority for review should be given to areas in the school vicinity that have received a number of complaints or requests for investigation from the public, particularly students, parents, teachers and principals.

Current or potential pedestrian use (Worksheet section 3)

If appropriate infrastructure exists, SRTS programs typically encourage students who live within one mile of the school to walk to school. When assigning schools to groups, it will be important to know how many students live within walking distance of the school and therefore have the potential to walk. Additionally, it is helpful to have a sense of common walking routes or general areas where most of the students currently walk.

Current and potential use should be examined with an understanding that some conditions can be improved. However, sometimes there are conditions along a route that will likely never change (such as a major highway crossing) making it difficult to accommodate pedestrians. In other cases, changes in busing or school attendance boundaries impact how many students must or can walk to school. Section 3 of the worksheet contains questions to be addressed, and tips on how to collect the information are included below.

How many students currently walk to school?

To ascertain the current number of walkers, a poll of the students or an estimate from the principal may provide an acceptable approximation at this point. If student travel information has already been collected as a requirement for SRTS funding, then that information can be used for this purpose, too. In addition to current numbers, an estimate of the percentage of the total student population that is walking can help to put the information into context.

How many students live within the walking boundary?

The school's walking attendance boundary can help in understanding the potential number of student walkers and from what directions they may be traveling to the school. If the walking attendance boundary is not readily available, a simple one-half or full mile radius from the school may be used as this is a typical walk zone established by schools.

Are there routes or general areas where many or most students are walking? If so, where?

Information on common school walking routes might come from a knowledgeable school official or may have been collected for school travel plans or for school route mapping. If this information is available, it may provide a more precise geographic focus for future infrastructure needs assessment. Logically, improvements near the school (likely within a one-half mile radius) will almost always impact more students than more distant improvements. Improvements along the most-used school walking routes might also be prioritized.

Assigning schools to groups (Worksheet section 4)

Use the information collected about each school to place it into one of the five groups shown in Figure 1 (and in Section 4 of the worksheet). Schools assigned to Group 1 are the highest priority schools for infrastructure improvements whereas Group 5 schools have the lowest priority.

In organizing schools into groups, it may become apparent that some schools have more critical needs than others. However, in most circumstances, there will be several schools in a group that all look somewhat similar. In those instances, it will be necessary to rank within the highest priority groups. In other words, rank only the Group 1 schools if there is no possibility that Group 2 schools will be addressed or considered for infrastructure funding applications.

Optional: Prioritizing schools within groups (Worksheet page 2)

To rank schools that are in the same group, assess:

- Traffic volume and speed
- Pedestrian crossings
- Pedestrian infrastructure

The quantity of information collected at this point may be driven by the amount of time available and what information can be readily obtained. Field data collection is preferable at this point because it offers a greater understanding of existing conditions, particularly if the school location and traffic conditions are unfamiliar.

Traffic volume and speed (Worksheet section 5)

Heavy vehicle traffic in places with pedestrians increases the chance of a crash. The school or local law enforcement agency may have information about traffic volume if the public works or transportation department does not. While the worksheet provides a space to record the actual traffic counts, for the purposes of this process, relative traffic volumes are sufficient. Classify the traffic volume as high, medium, or low. High would refer to busy arterials, medium to collectors or high volume residential roadways and low to quiet residential roadways. If resources permit, traffic counts on key roadways could be conducted during school days, especially at some of the major crossing points. Be aware that while some streets may have low total daily counts, traffic volumes are much higher during school arrival and dismissal times.

Higher speeds are a risk for pedestrians since the severity of pedestrian injury increases with higher vehicle speeds. Focus particularly on intersections that many students must cross. The roadways that students must cross that have the highest vehicle speeds should be included for consideration. If available, a speed study on key roadways along schools or at major school crossings can help to determine the risk of that roadway. If speed studies have not been completed on all identified roadways, posted speed limits may be used when comparing among the schools. However, posted speed limits should only be compared to other posted speed limits, not actual speeds.

Pedestrian crossings (Worksheet section 6)

Street crossings are the locations of greatest concern for student pedestrian safety. Major street crossings along school routes should be evaluated for the presence of crossing aids, such as traffic signals, signs, median islands, warning devices or crossing guards.

Again, consulting a knowledgeable person affiliated with the school can likely tell you the most problematic crossing locations. A city pedestrian advisory board may also have input.

Existing pedestrian infrastructure (Worksheet section 7)

Well-maintained sidewalks help to provide a safe and comfortable walking environment. Ideally, sidewalks should be provided on both sides of the streets. In some communities, however, sidewalks may not be a priority on very low speed, low volume roadways with walkable shoulders.

An inventory of sidewalk facilities should be completed on the most immediate quarter mile of streets that border the school or serve as major school crossings. This inventory will serve as a first-step to compare infrastructure near schools and can simply state whether the adjacent roadways have sidewalks and whether these sidewalks are in good condition. The initial source for information on sidewalk location and condition may be the school, a Safe Routes to School Task Force or pedestrian advisory board or an onsite visit. Aerial photos, available online, can also reveal whether sidewalks are present as long as the photos are current.

Other considerations

The goal of this process is to assess the safety of walking conditions across several schools. If several schools have similar needs, some communities use additional considerations such as:

- Are the schools identified as the highest priority geographically spread throughout the district or community?

- Have schools serving minority or lower income families been given appropriate consideration?

These factors may be an important part of final decision-making. Also, the interest and support of the school community is integral to the success of a SRTS program. While not directly related to the safety benefit of a specific countermeasure, supportive school administration, parents and others can certainly influence whether infrastructure is used. Additionally, if the school or community has a Safe Routes to School Task Force, school safety committee or pedestrian advisory board, these groups should be told about the considerations used to prioritize schools and support the identified improvements. This will ensure broad community support and defendable decisions for the infrastructure priorities.

Step 2: Conduct field reviews of the highest priority schools

Once a school is identified as a high priority for infrastructure improvements, it is time to gather more detailed information on specific infrastructure needs. Before doing so, review the state SRTS program funding requirements and eligible projects. It is important to be aware of any funding limitations set by the state SRTS program before identifying specific problems and countermeasures. For example, some states do not fund projects that are not in the Right-of-Way (ROW) so knowing whether this is true in your state would be critical when identifying potential projects.

With a better understanding of the eligible SRTS projects, conduct a detailed field review at the highest priority schools. Nothing can substitute for walking the site. Observing and collecting data from the pedestrian perspective allows for closer observations of the roadside and pavement conditions and gives greater insight into driver and pedestrian behavior. Go during arrival and dismissal times on a school day in order to see how pedestrians, bicyclists, buses and other motor vehicles interact in the current environment.

During the field review, visit the major crossings and school walking routes that were previously identified and assess the current pedestrian infrastructure and needs.

Excerpts adapted from the Federal Highway Administration *Pedestrian Road Safety Audit*[1] (PRSA) can be used to assist in the field review. The roadway segment and crossing "prompt lists" offer reminders of features to assess. While the PRSA was developed as a tool to be used by an independent, multidisciplinary team of experts, the prompt lists are also useful for an individual engineer's field review.

The majority of the questions presented in the detailed prompt lists are applicable for evaluating pedestrian safety issues in and around school zones. The SRTS-focused PRSA prompt lists available at the end of this document have been adapted to include school-specific details.

In addition to the PRSA, there are other useful school-specific audit tools. The National Center for Safe Routes to School's *Assessing Walking and Bicycling Routes: A Selection of Tools*[3] provides a list of tools and characteristics of each to help users pick the tool that best fits their needs.

Next steps

This document provides a straightforward process to assist transportation professionals in prioritizing schools for potential Safe Routes to School funding and includes a resource to help assess specific pedestrian infrastructure needs. Once the most significant safety concerns at prioritized schools have been identified, appropriate countermeasures to address specific traffic safety issues can be determined based on engineering judgment. For more guidance on selecting countermeasures, see *PEDSAFE: Pedestrian Safety Guide and Countermeasure Selection System*.[4]

Decisions should factor in the relative cost of infrastructure countermeasures. Because some countermeasures are much more expensive than others, budgets go furthest when consideration is given to the benefit that will be received from each countermeasure. While expensive countermeasures may be most appropriate, there may be times when the same funds would be better spent on implementing less expensive remedies at many locations. Also consider the other E's of safe routes to school – Education, Encouragement and Enforcement and the role they could play in improving safety. See the *Safe Routes to School Guide*[5] for more information.

[1] www.saferoutesinfo.org/program-tools/pedestrian-road-safety-audit-guidelines-and-prompt-lists
[2] Editable worksheet available at www.saferoutesinfo.org/program-tools/prioritizing-infrastructure-projects
[3] www.saferoutesinfo.org/program-tools/engineering-tip-sheets-assessing-walking-and-bicycling-routes-selection-tools
[4] www.walkinginfo.org/pedsafe
[5] guide.saferoutesinfo.org

SRTS-focused roadway segment prompt list (adapted from the FHWA *Pedestrian Safety Road Audit*)

Group	Prompt
Presence, Design, and Placement	Are sidewalks provided along the street?
	If no sidewalk is present, is there a walkable shoulder (e.g. wide enough to accommodate cyclists/pedestrians) on the road or other pathway/trail nearby?
	Are shoulders/sidewalks provided on both sides of bridges?
	Are pedestrian facilities adequate in the area surrounding the school (e.g., do sidewalk widths accommodate peak periods of pedestrian traffic)?
	Is there adequate separation distance between vehicular traffic and pedestrians?
	Are sidewalk/street boundaries discernable to people with visual impairments?
	Are ramps provided as an alternative to stairs?
Quality, Conditions, and Obstructions	Will snow storage disrupt pedestrian access or visibility?
	Is the path clear from both temporary and permanent obstructions?
	Is the walking surface too steep?
	Is the walking surface adequate and well-maintained?
	Are there obstructions such as fences, parked vehicles, or vegetation that would prevent a driver from seeing a child at an approaching intersections or driveways?
	Are drop-off/pickup lanes separated from bus lanes to minimize confusion and conflicts?
	Are school gates appropriately located to provide convenient and direct access for pedestrians?
Continuity and Connectivity	Are sidewalks/walkable shoulders continuous and on both sides of the street?
	Are measures needed to direct pedestrians to safe crossing points and pedestrian access ways?
	Do pedestrian facilities provide connectivity to residential areas or transit facilities?
	For children that take the bus, do sidewalks provide direct access from the bus loading area for the school, without crossing parking lots or traffic lanes?
Lighting	Is the sidewalk adequately lit?
	Does street lighting improve pedestrian visibility at night?
Visibility	Is the visibility of pedestrians walking along the sidewalk/shoulder adequate?
Driveways	Are the conditions at driveways intersecting sidewalks endangering pedestrians?
	Does the number of driveways make the route undesirable for pedestrian travel?
Traffic	Are there any conflicts between bicycles and pedestrians on sidewalks?
Signs and Pavement Markings	Are pedestrian travel zones clearly delineated from other modes of traffic through the use of striping, colored and/or textured pavement, signing, and other methods?
	Is the visibility of signs and pavement markings adequate during the day and night?
	Is there a school speed limit zone that is adequately posted?
	Is the school zone marked properly?
	Is pedestrian signing near schools adequate and effective?

SRTS-focused crossing prompt list (adapted from the FHWA *Pedestrian Safety Road Audit*)

Group	Prompt
Presence, Design, and Placement	Do wide curb radii lengthen pedestrian crossing distances and encourage high-speed right turns?
	Do channelized right turn lanes minimize conflicts with pedestrians?
	Does a skewed intersection direct drivers' focus away from crossing pedestrians?
	Are pedestrian crossings located in areas where sight distance may be a problem such as obstructions from fences, parked vehicles, or vegetation?
	Do raised medians provide a safe waiting area (refuge) for pedestrians?
	Are supervised crossings adequately staffed by qualified crossing guards?
	Are marked crosswalks wide enough?
	Do at-grade railroad crossings accommodate pedestrians safely?
	Are crosswalks sited along pedestrian desire lines?
	Are corners and curb ramps appropriately planned and designed at each approach to the crossing?
Quality, Condition, and Obstructions	Is the crossing pavement adequate and well maintained?
	Is the crossing pavement flush with the roadway surface?
Continuity and Connectivity	Does pedestrian network connectivity continue through crossings by means of adequate, waiting areas at corners, curb ramps and marked crosswalks?
	Are pedestrians clearly directed to crossing points and pedestrian access ways?
Lighting	Is the pedestrian crossing adequately lit?
Visibility	Can pedestrians see approaching vehicles at all legs of the intersection/crossing and vice versa?
	Is the distance from the stop (or yield) line to a crosswalk sufficient for drivers to see pedestrians?
	Do other conditions exist where stopped vehicles may obstruct visibility of pedestrians?
	Are all intersection traffic control devices (stop signs or signals) visible and appropriately placed to enable approaching motorists to adequately react?
Access	Are driveways placed close to crossings?
Traffic	Do turning vehicles pose a hazard to pedestrians?
	Are there sufficient gaps in the traffic to allow pedestrians to cross the road?
	Do traffic operations (especially during peak periods) create a safety concern for pedestrians?
Signs and Pavement Markings	Is paint on stop bars and crosswalks worn, or are signs worn, missing, or damaged?
	Are crossing points for pedestrians properly signed and/or marked?
	Are crossings in school zones marked as school crossings?
Signals	Are pedestrian signal heads provided and adequate?
	Are traffic and pedestrian signals timed so that wait times and crossing times are reasonable?
	Is there a problem because of an inconsistency in pedestrian actuation (or detection) types?
	Are all pedestrian signals and push buttons functioning correctly and safely?
	Are ADA accessible push buttons provided and properly located?

Prioritizing Schools for Safe Routes to School Infrastructure Projects

School Name: _____   Date: _____

City/Town: _____   Reviewer: _____

School Contact: _____   Number of students: _____

Instructions: Use this worksheet to assist in prioritizing Safe Routes to School projects. Each section has a brief description and italicized sample questions to ask the school principal or other source with knowledge of the school and surrounding area. For guidance and additional information on how to complete each section, see *Safety-based prioritization of schools for SRTS infrastructure projects: A process for transportation professionals* available by keyword search at www.saferoutesinfo.org

Section 1 - Crash History (1-3 years; within 1/2 mile of school)

Search crash records and/or talk with the school principal or other source to obtain this information. *In your recollection, have any crashes involving child pedestrians occured near the school within the past 3 years? If so, do you know the location and circumstances of the crash?* Consider information such as age and number of victims, and time of day of crash.

Year	Fatal	Serious Injury	Injury	No Injury	Notes	Source

Section 2 - Safety Concerns

Use the following questions to ask the school principal or other source about traffic safety concerns in the school vicinity. Also note any concerns expressed by the public.

A. *Are there specific locations that pose traffic safety concerns for student walkers that you often hear about from parents or other school staff? If so, please briefly describe the locations and concerns.*

B. *How often do you hear these types of concerns: frequently, sometimes, or almost never?*

Concern	Frequency	Source

Section 3 - Current/Potential Pedestrian Use

Use the following questions to ask the school principal or other source about current and potential walkers. If student travel information must be collected as a requirement for Safe Routes to School funding that information may be used to answer the questions below.

How many students currently walk to school?	ANSWER:						
What percentage of the student population currently walks to school?	Zero	<5%	5-15%	16-25%	26-50%	51-75%	>75%
How many students live within the walking boundary?	ANSWER:						
What percentage of student population lives within the walking boundary?	Zero	<5%	5-15%	16-25%	26-50%	51-75%	>75%

Are there routes or general areas where many or most students are walking? If so, where?

Section 4 - Group Number

Using the information collected above, select the group number that best fits this school.

Group 1	Group 2	Group 3	Group 4	Group 5
Students currently walk to this school and there is a history of pedestrian crashes (particularly during student arrival and dismissal times) along walking routes.	Students currently walk to this school and there are parent and/or school district concerns about safety conditions along one or more routes.	Few students who live within walking distance currently walk to this school due to traffic safety concerns.	Very few students are able to walk to this school due to either distance or infrastructure barriers that would require extensive capital to alter. It is unlikely that safety improvements would lead to more/any students walking.	Students walk to this school and the walking environment is generally safe with few or no concerns about traffic safety.

Optional: Prioritizing schools within groups

The information below can be gathered and used to assist in ranking schools that fall within the same group.

Section 5 - Traffic volumes and travel speeds

Focus particularly on streets and intersections that many students must utilize on a primary walking route to school. For relative traffic volume, *High* would refer to busy arterials, *Medium* to collectors or high volume residential streets, and *Low* to quiet residential streets.

Street name	Traffic count	Relative volume level			Speed	Notes
		High	Medium	Low		

Section 6 - Pedestrian Crossings

Include major street crossings along school routes. Evaluate the presence of crossing aids, such as traffic signals, signs, median islands, warning devices or crossing guards. If fewer than 10 students cross a particular roadway, use judgement to determine whether it should be included.

Intersection	Crossing aids	Notes

Section 7 - Existing Pedestrian Infrastructure

Inventory the sidewalk facilities on the most immediate quarter mile of streets that border the school or serve as major school crossings.

Street name	Sidewalk presence	Sidewalk condition	Notes

Other Considerations