CHAPTER 7. SAFE ROUTES TO SCHOOLS TOOLKIT

7.1. INTRODUCTION

This Safe Routes to School (SR2S) "Toolkit" represents a critical component of the Miami Valley's local and regional bikeway network. The toolkit's purpose is to provide an overview of tools and strategies for improving safety and accessibility for bicyclists and pedestrians around school zones. The toolkit was developed to assist the 30 school districts within the MVRPC planning area expressing interest in improving walking and bicycling conditions in and around school areas.

This chapter is organized according to the Four E's (Engineering, Education, Encouragement, and Enforcement), with Education and Encouragement grouped together since many educational programs are intended to be fun and motivating, and many encouragement programs include an educational component. The fifth "E" – Evaluation – refers to the periodic review of projects and programs to measure their performance. In addition to the Four E's, this toolkit also includes a section discussing operational tools that can improve safety for children walking and bicycling to school. A separate document from this Plan includes Project Description Sheets highlighting potential route-to-school improvements for the 61 Miami Valley schools expressing interest in pursuing SR2S improvements.

7.2. WHAT IS SAFE ROUTES TO SCHOOL?

Safe Routes to School refers to a variety of multi-disciplinary programs aimed at promoting walking and bicycling to school, and improving traffic safety around school areas through education, incentives, law enforcement, and engineering measures. Walking and biking to school are healthy alternatives to being driven, and can provide a sense of independence for children who may otherwise be restricted by school buses or parents' schedules. Safe Routes to School programs typically involve partnerships among municipalities, school districts, community and parent volunteers, and law enforcement agencies. Among the goals of SR2S programs is improved safety for children, establishing good health and fitness habits in children, and decreased traffic and air pollution. SR2S programs help integrate physical activity into the everyday routine of school children. SR2S programs also address the safety concerns of parents by encouraging greater enforcement of traffic laws, educating the public, and exploring ways to create safer streets.

7.3. BENEFITS OF A SR2S PROGRAM

The primary benefit of implementing a SR2S program is the resulting increase in safety for children walking and bicycling to school. A comprehensive strategy based on a cooperative effort between school officials, parents, residents, and city staff may ensure that specific traffic, pedestrian, and bicycle improvements become priority projects eligible for State, Federal or other grant funding. The involvement of various stakeholders throughout the Safe Routes process increases the likelihood for implementation of needed safety improvements. While the primary focus of a SR2S program is improving safety for children walking and biking to school, the safety benefits from the infrastructure improvements often extend to all bicyclists and pedestrians in the vicinity of schools.

In addition to safety enhancements, a SR2S program helps integrate physical activity into the everyday routine of school children. Health concerns related to sedentary lifestyles have become the focus of statewide and national efforts to reduce health risks associated with being overweight. Identifying and improving routes for children to safely walk and bicycle to school is one of the most cost-effective means of reducing weekday morning traffic congestion and can help reduce auto-related pollution.

Safe Routes to School improvements are often discussed in terms of the Four E's: Education, Encouragement, Enforcement and Engineering.

Engineering — Signing, striping, and infrastructure improvements are implemented along school commute routes.

Education — Students are taught bicycle, pedestrian and traffic safety skills, and educational campaigns aimed at drivers are developed.

Encouragement — Events and contests such as walk-to-school days are used to encourage more walking, bicycling, or carpooling through fun and incentives.

Enforcement — Various techniques are used by law enforcement to ensure that traffic laws are obeyed, such as traffic stings targeted at pedestrian safety and speed feedback trailers.

There are numerous other excellent SR2S toolkits and guidebooks available, many of which are listed at the end of this chapter in the Resources section. This toolkit is not intended to supplant the information in those other guidebooks, but should instead be viewed as focused guidebook for describing tools and programs that may be appropriate to implement as part of regional and local SR2S efforts. For a more comprehensive overview of SR2S programs, including more details on specific educational and encouragement activities and tips for parents and teachers for starting a successful SR2S program, it is recommended that readers refer to one of the other guides such as the NHTSA Safe Routes to School guide or the Florida Safe Ways to School Toolkit.

7.4. THE SCHOOL SITE AUDIT

One primary purpose of this toolkit is to provide a resource for local groups to conduct a "school site audit" of their school. A school site audit, sometimes called a walking audit or walkabout, is an assessment of the pedestrian and bicycling conditions around the school area. Typically school site audits are conducted by the local school group or task force on foot, by walking the routes that the students use to get to school. A site audit could also be conducted on bicycle in order to better evaluate bicycling conditions.

The goal of a site audit is to document conditions that may discourage walking and bicycling to school, and to identify solutions to improve those conditions. The audit should involve identification of the built environment around a school (e.g., streets, sidewalks, paths, crosswalks and intersections, bike routes, traffic controls), the drop-off and pick-up operations (e.g., presence of designated loading areas), as well as behaviors of students, parents, and motorists that could contribute to unsafe conditions for bicyclists or pedestrians (e.g., speeding, jaywalking, failure to yield to pedestrians).

A School Site Audit checklist form is provided at the end of this toolkit asking for detailed information related to: 1) Student Drop-Off and Pick-Up Areas; 2) Bus Loading Zones; 3) Sidewalks and Bicycle Routes; 4) Intersections Near the School Property; 5) Sight Distance; and 6) Traffic Signs, Speed Controls and Pavement Markings. Local school task forces should use the School Site Audit checklist as a basis for conducting their walkabout.

Along with the checklist, an aerial map of the school area is an essential part of the site audit. Each school group would be provided with an aerial map of their school area that should be marked up with identified issues and suggested improvements. The marked-up aerials, along with the information from the checklist form, would then be forwarded to a designated Community Task Force and used to helping to pinpoint and prioritize improvements in the school area.

The toolkit provides some of the most common measures from the "4 E's" that can be implemented to improve school area safety. The most successful SR2S programs will not focus on just one type of solution, but will involve the implementation of a combination of measures from all 4 E's. Many problems can be solved through relatively low-cost educational and enforcement activities. However, some problems do require more expensive engineering or design solutions.

It is important to note that not all tools in this toolkit will be applicable or appropriate for a given school. Many of the engineering tools have specific warrants for their installation and will require evaluation by a local traffic engineer to determine if they are feasible for a particular location. For this reason, it is strongly recommended that a local traffic engineer be invited along on all school site audits to provide guidance on the applicability of specific engineering improvements.

7.5. ENGINEERING TOOLS: IMPROVEMENTS FOR THE PHYSICAL ENVIRONMENT

Engineering tools focus on the design of transportation facilities that provide safe and functional accommodation for bicyclists, pedestrians, and motorists. Engineering measures can help to improve pedestrian and bicyclist safety and access, reduce traffic volumes, and decrease vehicle speeds. These measures may include signage, markings, signals, paths, and other traffic calming improvements that enhance safety and mobility. Although some engineering solutions are higher-cost infrastructure improvements, many engineering tools can be implemented without large expenditures, such as posting signs, modifying signal timings, or painting crosswalks or bike lanes.

7.5.1. The School Zone

In Ohio, school zones can be designated on all roadways contiguous to a school serving K through 12th grade. School Zone signage should be posted at the school boundary, but can be posted up to 300 feet in advance. Regardless of the posted speed limit on the roadway, the speed limit is 20 MPH in designated school zones when children are present. With School Zones signed and delineated, focused traffic enforcement can occur to target speeding and other moving violations.

7.5.2. School Area Signage

The 2003 Manual on Uniform Traffic Control Devices (MUTCD) and 2005 Ohio MUTCD Supplement (OMUTCD) provide guidance on the use of school area signs and markings. Key signs include the School Warning, School Crosswalk Warning, School Speed Limit, and School Advance Warning. The use of other signs is described in the 2003 MUTCD and the 2005 OMUTCD as well, including "END SCHOOL ZONE."

7.5.3. Pavement Markings

Pavement markings have definite and important functions in a proper scheme of school area traffic control. In some cases, they are used to supplement the regulations or warnings provided by devices such as traffic signs or signals. In other instances, they are used alone and produce results that cannot be obtained by the use of any other device, and can serve as an effective means of conveying certain regulations, guidance, and warnings that could not otherwise be made clearly understandable. Pavement markings have limitations – they might not be clearly visible when wet or covered in snow, and might not be durable when subjected to heavy traffic. The "SLOW SCHOOL XING" marking, used in advance of uncontrolled crosswalks, is the most important school-specific pavement marking. The 2003 MUTCD and 2005 OMUTCD also provide guidance on the use of stop lines, yield lines, curb markings, and other symbol markings.

7.5.4. High-Visibility Signage

One way of increasing the visibility of school area signage is through the use of Fluorescent Yellow-Green signs. When the fluorescent yellow-green background is used for school signing, a systematic approach should be used, so that the mixing of standard yellow and fluorescent yellow-green is avoided.

7.5.5. Sidewalks

Sidewalks are the most fundamental element of the walking network, as they provide an area for pedestrian travel that is separated from vehicle traffic. Sidewalks are typically constructed out of concrete and separated from the roadway by a curb/gutter and sometimes a landscaped buffer area. Sidewalks are a common application in urban and suburban environments, but are less common in rural areas and environments where objections to the "urban" aesthetic of sidewalks often arise. In rural areas, pedestrian travel commonly occurs along the shoulder of the roadway, areas that are often unpaved.

One of the first elements to observe when evaluating at the walking environment around the school zone is the sidewalk network. Is a continuous network of sidewalks or pathways provided to access the school site from surrounding neighborhoods? Are there any

gaps? What is the condition of the walkways?

Installing new sidewalks can be costly, particularly if drainage improvements such as undergrounding of roadside culverts and installation of curb/gutter is part of the design. However, fixing short gaps in an existing sidewalk network is important to ensure the continuity of the system and can be a relatively low-cost fix. Alternatives to sidewalks in rural areas include pedestrian paths separated from a roadway by a bioswale (to serve drainage purposes), or traffic-calming measures on low-volume streets where pedestrians must share the road with motorists.

7.5.6. Shared Use Paths

Shared use paths (also referred to as "trails", and "multi-use paths") are often viewed as recreational facilities, but can also serve an important function as a walking and bicycling corridor to school. Shared use paths serve both bicyclists and pedestrians, and provide additional width over a standard sidewalk. These facilities may be constructed adjacent to roads, through parks or open space areas, along creeks, or along linear corridors such as abandoned railroad lines. In rural areas, shared use paths can serve as an alternative to formal curb, gutter and sidewalks; if an asphalt hardscape is not desired, paths can be constructed with decomposed granite or another aggregate material to better fit in with the rural environment. Regardless of the type, paths constructed next to the road must have some type of vertical (e.g., curb or barrier) or horizontal (e.g., landscaped strip) buffer separating the path area from adjacent travel lanes.

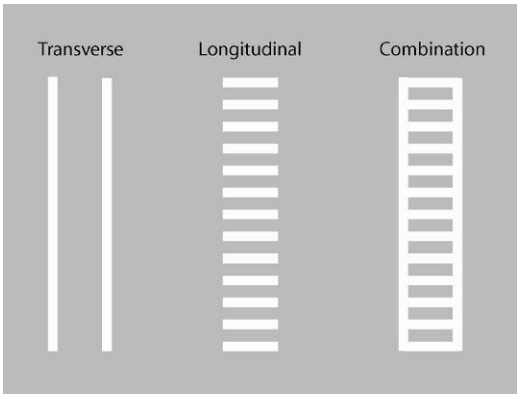
7.5.7. Crossings

School crosswalks denote the preferred location for children to cross the street. Crosswalks should be marked at all intersections on established routes to school where there is substantial conflict between motorists, bicyclists, and pedestrian movements, where students are encouraged to cross between intersections, or where students would not otherwise recognize the proper place to cross. The SLOW SCHOOL XING marking is used in advance of uncontrolled school crosswalks. The 2003 MUTCD and 2005 OMUTCD Supplement also provide guidance on the use of stop lines, yield lines, curb markings, and other symbol markings.

7.5.8. Increasing Visibility of Pedestrians at Crossings

Various treatments can be used to increase the visibility of crossing locations, helping to enhance the safety of school children crossing the street and to warn motorists to expect children crossing the street at a specific location.

High-Visibility Crosswalk Striping



Various striping patterns can be used – the most common types of crosswalk striping are shown in the diagram below. The standard crosswalk striping pattern consists of two parallel lines, called the "transverse" pattern. A number of higher-visibility patterns are also in use, such as longitudinal and combination markings, which add bars for increased visibility.

Application of these high-visibility patterns varies widely from jurisdiction to jurisdiction; in some cities they are not used at all, while in other cities high-visibility crosswalks are installed regularly. High visibility markings should be considered for all high-volume crossings near schools, and where conditions demonstrate a need for an increased visibility marking (e.g., a mid-block location).

Even within a jurisdiction, there may not be consistent application of high-visibility patterns, with a mix of transverse or continental patterns applied throughout a city. It is recommended that jurisdictions choosing to install high-visibility crosswalks adopt a single pattern and apply it consistently across the jurisdiction. Standardizing crosswalk markings helps both motorists and pedestrians recognize designated crossings.

Other Crosswalk Surface Treatments

Aside from the striping pattern, other crosswalk surface treatments can include textured surfaces or colored pavement. While such treatment may provide aesthetic benefits, they can be expensive to implement and often require additional maintenance. In particular, textured surfaces such as concrete or brick pavers are generally not recommended for use as a crossing treatment due to accessibility (may be difficult for wheelchair users), long-term maintenance issues, and low visibility to drivers.

In-Street Yield-to-Pedestrian Signs

In-Street Yield-to-Pedestrian Signs are flexible plastic signs installed in the median to enhance a crosswalk at uncontrolled crossing locations. These signs communicate variations of the basic message 'State Law: Yield to Pedestrians.' At school crosswalks, these signs are sometimes installed on a portable base and brought out in the morning and back in at the end of each day by school staff, which may reduce the chance that the sign will become "invisible" to motorists by being left out all the time. For permanently-installed signs, maintenance can be an issue as the signs may be run over by vehicles and need to be replaced occasionally. Installing the signs in a raised median can help extend their lifetime.

Overhead Flashing Lights

Overhead flashing lights can be used at uncontrolled crossing locations with high vehicle volumes or speeds, or where other conditions demonstrate a need for a more intense treatment than a high-visibility crosswalk. Several overhead flashing warning light types exist, including both standard yellow, fluorescent yellow-green, and

LED displays. These hang from a mast arm extending over the street. Some applications use flashing red or yellow beacons to enhance overhead signs, while at others, it is the pedestrian crossing sign itself that flashes. They can utilize passive or active actuation. Drawbacks of overhead flashing lights include higher-cost and the fact that they may not be immediately understood by motorists.

In-Pavement Crosswalk Lights

Another crossing treatment that is increasingly being utilized is in-pavement crosswalk lighting, consisting of flashing lights mounted in the street pavement adjacent to the outside of the crosswalk markings, positioned so as to be seen by oncoming traffic. The lights are actuated, either through a push-button or a motion sensor, to flash while the pedestrian crossing is in use. Several studies, including one based on the installation of in-pavement crosswalk lights in the City of Santa Rosa, California have found that flashing lights embedded in the pavement at uncontrolled crosswalks have a positive effect in enhancing a driver's awareness of crosswalks and modifying driver habits to be more favorable to pedestrians.

7.5.9. Mid-Block Crossings

Because pedestrians tend to take the most direct route to their destination, significant demand for mid-block crossings exists when the nearest crosswalk is too far to expect pedestrians to walk (generally more than 500 feet between intersections). By channeling pedestrians to a preferred crossing location, mid-block crosswalks can enhance pedestrian safety where blocks are too long to expect all crossings to occur at intersections and in places where large numbers of people are crossing mid-block.

Selection of appropriate locations should be undertaken carefully, especially on multi-lane (four or more lanes) roads with heavy traffic volumes (generally greater than 12,000 ADT). As part of the review process for crosswalk installation, an engineering study should be used to analyze factors including (but not limited to) gaps in traffic, approach speed, sight distances, illumination, the needs of special populations, and the distance to the nearest traffic signal. Uncontrolled crosswalks should not be installed near traffic signals, since pedestrians should be encouraged to cross at the signal in most situations. Mid-block crossings may be coupled with medians or pedestrian refuges to shorten crossing distances, especially in multi-lane locations with high volume and high-speed vehicular traffic.

7.5.10. Advance Stop and Yield Lines

Stop lines consist of solid white lines extending across approach lanes to indicate the point at which the stop is intended or required to be made, in compliance with a STOP sign or traffic signal. The MUTCD requires stop lines be placed a minimum of four feet in advance of the crosswalk line at controlled intersections. However, studies have shown that moving the stop line farther back from the pedestrian crosswalk can provide an improved factor of safety and for improved visibility of pedestrians. In some places, the stop line has been moved back by 15 to 30 feet relative to the marked crosswalk with considerable safety benefits for pedestrians.

At uncontrolled crosswalk locations in Ohio, "yield" lines may be used instead of stop lines (Ohio State law requires motorists to yield to pedestrians in a crosswalk). The yield lines consist of a row of solid white isosceles triangles pointing toward approaching vehicles, and are often referred to as "shark's teeth." As with stop lines, moving the yield lines farther back from the crosswalk can help to improve sight distance. This is especially important at mid-block crossings, where motorists yielding too close to crosswalks on multi-lane approaches place pedestrians at risk by blocking other drivers' views of pedestrians, and pedestrians' views of other vehicles.

7.5.11. Traffic Signals and Pedestrians

Traffic control signals generally operate in one of three modes: fixed-time signals, which have a regular cycle of phases; fully-actuated signals, which use detection of vehicles and pedestrians to actuate all movements through the intersection; and semi-actuated signals which have vehicle and pedestrian detection only on one of the streets being controlled. In both actuated signal situations, the pedestrian waiting to cross must be detected, typically by pushing a button to get a WALK phase. The MUTCD states that the pedestrian clearance time should be sufficient to allow a pedestrian who leaves the curb or shoulder during the WALK signal indication to travel at a walking speed of four feet per second, to reach the far side of the traveled way or at least a median of sufficient width for pedestrians to wait. The four feet per second "normal" walking rate has been greatly debated by transportation professionals, as many feel that it does not adequately take into account users who may walk slower, such as children or senior citizens. Many transportation engineers working on pedestrian issues recommend using a walking speed of three or 3.5 feet per second in areas with high concentrations of schoolchildren or senior citizens.

Leading Pedestrian Interval

One innovative pedestrian signal timing option is the Leading Pedestrian Interval (LPI). An LPI gives pedestrians an advance walk signal before the motorists get a green light, which makes pedestrians more visible to motorists and therefore motorists more likely to yield to them.

In addition to pedestrian signals at intersections, pedestrian-only traffic signals can be used at mid-block locations, where pedestrian volumes meet the warrants established in the MUTCD.

Countdown Signals

Countdown signals include a pedestrian signal with standard shapes and color and an added display showing the countdown of the remaining crossing time. The countdown timer starts either at the beginning of the pedestrian phase or at the onset of the pedestrian clearance interval. The timer continues counting down through the pedestrian clearance interval. At the end of the pedestrian clearance interval, the countdown device displays a zero and the DON'T WALK indication appears.

7.5.12. Curb Extensions

Curb extensions (sometimes called curb bulbs or bulb-outs) have many benefits for pedestrians. They shorten the street crossing distance, provide additional space at corners, allow pedestrians to see and be seen before entering the crosswalk, and simplify the placement of elements like curb ramps. Curb extensions may be used at any corner or mid-block location where a parking lane that can absorb the extension of the curb. Curb

extensions are often effective at locations with crossing distances wider than 40 feet; locations adjacent to high-intensity pick-up/drop-off activity; or at locations with sight distance or visibility issues.

Curb extensions have the potential to conflict with bicycle travel if not designed properly. Curb extensions should never extend into a bike lane, and should generally align with the edge of the parking lane. Curb extensions can create drainage problems or trash accumulation, and may be expensive to install due to utility and drainage relocation. While one of their main advantages is reducing vehicle turning speeds, they can have an impact on the turning ability of trucks and other large vehicles.

7.5.13. Grade-Separated Crossings

Occasionally, it may be necessary to raise or lower a pedestrian crossing above or below the existing grade, using a pedestrian/bicycle overcrossing/undercrossing. Due to their high cost, grade-separated crossings should only be considered when there are no safe and convenient alternative routes; such as when needed to cross a freeway, major highway, railroad or waterway. Even in these cases, bicycle/pedestrian grade-separated crossings should be built only after careful consideration. Those that require significant elevation change, such as to cross over a freeway, can be infrequently used by pedestrians. Grade-separated crossings can feel unsafe because pedestrians are isolated from others. For this reason, pedestrian facilities should be incorporated into existing and new vehicle crossings where feasible. The design of pedestrian grade-separated crossings should be consistent with ODOT guidelines for shared use paths, in terms of width, grade, lighting, surfaces, and other characteristics.

7.5.14. Traffic Calming

Traffic calming is a traffic engineering technique prioritizing people over motor vehicles in the design of neighborhood streets. Traffic calming measures are intended to enhance pedestrian safety and encourage safe driving by slowing vehicles and reducing cut-through traffic on local neighborhood streets. Potential traffic calming tools include raised crosswalks, curb extensions, chicanes, chokers, pedestrian refuge islands, medians, traffic circles and roundabouts, speed humps, and radar speed displays. Traffic calming may also involve total reconfiguration of roadway lanes, such as four-lane to three-lane conversions (or "road diets") that also provide opportunities to add bike lanes and median refuge islands along a corridor.

There are benefits and drawbacks to each traffic calming tool. For instance, speed humps may slow vehicle speeds at that location, but may contribute to people speeding between humps and may increase emergency vehicle response times. Chicanes and chokers may slow traffic and provide reduced crossing distances for pedestrians, but may present obstacles to cyclists if not properly designed.

7.5.15. Lighting

Safe sidewalks are a primary component of good pedestrian environments, and well-lit environments convey a feeling of comfort and safety, particularly at night. Lighting should be located in the furnishings and/or frontage zones of the sidewalk, and at all roadway crossings to increase pedestrian visibility. Lighting is also an important element for shared use paths, at underpasses and other isolated locations. Lighting should be scaled for pedestrians.

7.5.16. On-Street Bicycle Facilities

Although it may be appropriate for younger children to bicycle on the sidewalk, designated on-street bicycle facilities can provide a space for older or more experienced children to bicycle on-street. Particularly for older grade levels, as children become more confident in their cycling skills and ride at faster speeds, designated on-street facilities may help to reduce bicycle/pedestrian conflicts on congested walkways near schools. Use of on-street facilities is more appropriate for children with better bike handling skills, as they need to be aware to stay within the bike lane (if striped) or to the right of traffic (on signed routes), obey stop signs and other traffic signals, and watch for traffic pulling out of side streets or driveways. Bike lanes provide a striped and stenciled lane for one-way travel on the roadway. Shared roadways provide for shared use of the roadway lane with motor vehicle traffic and are identified only by signing.

7.5.17. Bicycle Parking

Providing a secure and convenient location for bicycle parking is one way to help encourage more children to bicycle to school. Attributes of good bike parking include:

- Protection from vandalism/theft
- Protection from damage to the bicycle
- Protection from weather
- Convenient to destination

Several factors need to be considered when determining bicycle parking needs:

Amount: A sufficient amount of parking must be made available so that bicycles are not crowded.

Location: The location must be convenient to the end destination. An appropriate location for the parking site needs to be identified.

Type of device: Many schools use "wheel holder" type racks which only support the bicycle by the wheel and can damage the bicycle, and also do not allow the bike to be locked up by the frame with a

U-lock. The preferred bike rack design should keep the bike upright by supporting the frame, allow the bike to be locked by the frame, and allow one or both wheels to be secured.

Monitoring: At the upper grade levels, where bicycles are likely to be more expensive, a monitor could provide an additional level of security at the bike parking area. Placement of the bike parking in a visible location near the school administrative offices or other location where a school staff member is present, is another option. Constructing a bike cage, where the bike racks are placed inside a locked corral-type facility, can provide for electronic monitoring, as only students with a key card or code can enter the cage.

7.5.18. Operational Tools: Improving the School Commute and Drop-Off/Pick-Up Areas

Operational tools focus on methods to ensure that vehicle traffic, busing and transit, and walking and bicycling to school are conducted in the safest and most efficient way possible. Many of the identified operational tools focus on vehicle pick-up and drop-off activities, ensuring adherence to established procedures, developing specific systems to move vehicles through the loading zone, and use of monitors to expedite the process. Other operational tools focus on ways to incorporate walking and bicycling into the school commute, while ensuring that children are kept safe along the way. Operational tools can often be very low cost and easy to implement, although they may involve a greater outlay of staff resources, and new operational methods may take some time to gain acceptance.

7.5.19. Crossing Guards

Adult crossing guards are used to help create gaps in traffic at uncontrolled intersections, and to "platoon" children across the street at controlled intersections. The presence of a crossing guard in the roadway serves as an easily recognized indication to drivers that pedestrians are about to use the crosswalk and that all traffic must stop. When all traffic has stopped, the adult guard can allow the children to cross.

Adult crossing guards are normally assigned where official supervision of elementary school pedestrians is desirable while they cross a street on the suggested route to school. While the OMUTCD allows for Crossing Supervision by trained adults or trained student patrols, its locational guidance is limited to where an engineering study has shown that adequate gaps need to be created, and where authorized by law. The following guidelines are recommendations only and are not included in the 2005 OMUTCD supplement.

- At uncontrolled crossings, adult crossing guards are recommended where there is no alternate controlled crossing within 600 feet, and where traffic volumes exceed 350 vehicles (urban areas) or 300 vehicles (rural areas) during the two-hour school commute period.
- At stop sign-controlled crossings, adult crossing guards are recommended where traffic volumes exceed 500 vehicles during any hour of the school commute period.
- At signal-controlled crossings, adult crossing guards are recommended where the number of vehicular turning movements through the school crosswalk exceeds 300 per hour while school pedestrians are going to or from school.

7.5.20. School Safety Patrol

School Safety Patrols are comprised of students that have been trained to guide school pedestrians and assist existing traffic control devices, police officers, or adult crossing guards. School Safety Patrols may be used to direct and control children at crossings near schools where there is no need to create adequate gaps in traffic. They may also be used where adequate crossing gaps exist in vehicular flow at uncontrolled crossings where it is desirable to guide school pedestrians.

School Safety Patrols control children, not vehicles. Safety Patrols stop children behind the curb or edge of the roadway and allow them to cross only when there is an adequate gap in traffic. Safety Patrols should be established only by agreement between the governing board of the school district and local traffic law enforcement agencies. While the OMUTCD supplement provides only general guidance on when student School Safety Patrols should be considered, it provides specific guidance on general operating procedures to follow with respect to training, uniform and hand-held paddle style signage or flags. In the state of Ohio, student safety patrols are not authorized to stop traffic via a paddle stop sign.

7.5.21. Drop-Off/Pick-Up Instruction Flyer

At the beginning of the school year, the school should send home a flyer clearly identifying the "do's" and "don'ts" of the drop-off and pick-up procedure. The flyer should include a map of the school site and surrounding streets identifying the direction of travel, loading zones, parking locations, and parking restrictions to inform parents of proper procedures. These flyers should be re-sent to parents occasionally throughout the school year to remind them of these procedures.

7.5.22. Dedicated Bus Zones

Establishing separate areas for vehicular and bus traffic can help improve traffic flows in the pick-up/drop-off area. Conflicts often occur when private vehicles and buses arrive at the same time and in the same location. Separating traffic often necessitates establishing an off-street bus zone, dedicated solely to buses. Private vehicles should not be allowed to load/unload in the bus zone. Bus zones need to be large enough to accommodate all the buses that might be parking there at one time. Sometimes it is possible to stagger the arrival times of the buses, thus requiring less space. The zones must be clearly marked and there should be adequate sidewalk space for students to wait for the bus.

7.5.23. Parent Drop-Off/Pick-Up Operations

Creation of a parent drop-off/pick-up "loop" can help maximize capacity and safety and minimize delay in drop-off and pick-up operations. The loop can be either a dedicated lane just for pick-up/drop-off, or a portion of the larger parking lot that has been marked with cones to serve as the pick-up/drop-off loop. Regardless of the design, having staff or volunteers available to supervise the drop-off/pick-up will often play a large part in making the procedures successful. Having supervisors present can help to ensure that loading/unloading moves forward smoothly and efficiently, maximizing the space available with no bottlenecks.

Valet Drop-Off

Valet drop-off is a technique to improve traffic flow within the drop-off and pick-up loop by assisting students into and out of vehicles. A "valet" is present at the pick-up/drop-off area to open car doors and assist students into and out of arriving vehicles, improving the traffic flow. The valet system eliminates the need for parents to get out of the vehicle to open the door for a child and remove bags or other items. The valet system is typically staffed by school staff or parent volunteers, who can quickly and efficiently move children into and out of vehicles and hold onto backpacks, umbrellas and other items. Some schools use older grade students as valets, for example 5th or 6th graders help younger students. However, student volunteers must get out of class early to prepare for pick-up.

A supplement to the valet system is a nameplate in the vehicle window that identifies what student needs to be picked up. This allows the valet to find an inattentive student and bring them to the vehicle as the vehicle arrives.

Platooning Drop-Off/Pick-Up System

In a platooning system, all vehicles are unloaded/loaded simultaneously, then proceed to the exit. If a vehicle unloads or loads more efficiently than the vehicle in front of it, the rear vehicle must wait for the lead vehicle to finish the unloading/loading then follow it out of the loop. This tool is best used to control the parent inclination to always drop-off and pick-up the student directly in front of the school. Often times additional curb loading is available downstream of the school and is severely underutilized, creating excess congestion and delay prior to entering the lot. At least two monitors are needed to effectively operate the vehicle platoon – one at the loop entrance to direct the maximum number of vehicles into the lot for a single cycle, and a second to ensure that the lead vehicle proceeds to the front-most loading stall.

7.5.24. Walking School Bus/Bike Train

If parents are uncomfortable allowing their children to walk or bicycle alone to or from school, parent or neighborhood volunteers can escort a group of children walking or bicycling to school together in a "Walking School Bus" or "Bike Train." Children can be picked up at home along the route, or at designated staging areas. The parents offer a level of supervision and protection and the larger numbers allow the children to be more visible to traffic. Usually, one parent acts as the organizer, recruiting other parents, neighbors, seniors or community volunteers to walk or bicycle with the children. As in a carpool, the participants need to work out schedules and meeting places. Adults and children can wear safety vests or use other means to enhance visibility. Sometimes the adult pulls a wagon to carry the children's books and projects.

7.5.25. Park-and-Walk

In a Park-and-Walk system, parents are encouraged to park their vehicles, and then walk the remaining distance to school with their children, or drop-off and pick-up their children who then walk by themselves or with other children to and from school. Park-and-Walk locations are typically established two to four blocks from the school site. This approach helps to alleviate some of the traffic congestion in the immediate school zone, and also allows children to get a bit of exercise in on their way to school. As a first step, an appropriate location for the parking site needs to be identified. It may be possible to use a location on the school's back gate, where the parking location is adjacent to school property.

7.5.26. School Busing

School busing has been used for generations to safely and reliably deliver students to school who are outside of a reasonable walking distance. School busing can be very effective in reducing single-child vehicle trips and decreasing traffic around school sites. The benefits of longer-distance school busing should not be confused with short-distance "hazard" busing, where students who live very close to school (in some cases less than ½ mile) are bused because the walking route is considered unsafe.

School districts are required to provide special education transportation, but regular home-to-school busing is optional. A major challenge of implementing home-to-school busing is the cost, which can vary greatly depending on route distances, and whether parents are required to pay for the service.

When school buses are not available, public transit can be a good option for school transportation. Transit operators are usually open to providing some special school runs, provided that arrival/departure times can be coordinated with bell times and that there is a safe place for students to wait for the bus. The Federal Transit Act prohibits transit agencies from providing routes exclusively for school use, so the bus must be available to the general public as well as school children. Thus, commuters and students may ride the bus together.

The use of public transit is not without its challenges. Some parents have security concerns about mixing students and adults on the bus. Also, public transit drivers are not responsible for monitoring students, and students may disembark at any location. In addition, the routes are "fixed," meaning that the bus stops are not flexible, and parents may find that the stops are located too far from home.

7.5.27. Alternate Traffic Patterns

In some cases, implementing "alternate" traffic patterns near schools can improve traffic, and pedestrian/bicycle circulation adjacent to the school by maximizing the use of the existing roadway capacity. Some potential solutions for improving off-site traffic circulation may include establishing permanent or temporary one-way circulation on streets adjacent to the school, or using temporary cones to separate travel lanes or delineate on-street loading zones. Implementation of these tools should be undertaken only after review by a local traffic engineer.

7.5.28. Staggered Bell Times

Staggered bell times can help to disperse the traffic peak at schools with a large student population or when two or more schools are in close proximity to one another. Staggering school bell times creates a "spreading of the traffic peak" by breaking up the start and/or release time of students into groups of two or more. For a single school application, students' start and end time should be grouped by grade levels. The start times of these groups should be at least 15 minutes apart. This allows the vehicles from the first group to leave the school or be completely out of the area by the time the second group arrives. With multiple schools, staggering the bell times can be coordinated among two or more schools to ensure that significant levels of vehicles do not use competing transportation facilities simultaneously.

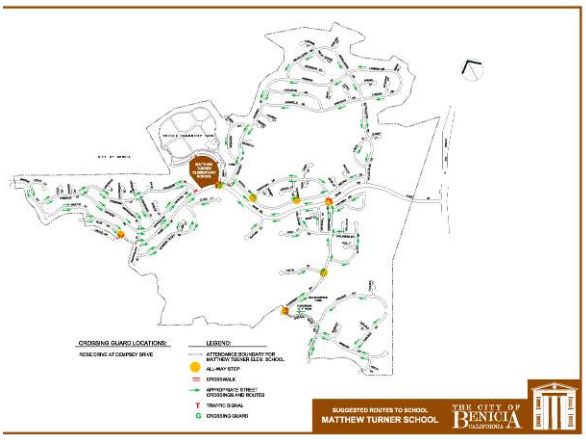
7.6. EDUCATION AND ENCOURAGEMENT TOOLS: TEACHING SAFETY AND PROMOTING AWARENESS

Education and Encouragement tools focus on teaching traffic, pedestrian and bicycle safety to parents and students, increasing public awareness of Safe Routes to School goals and benefits, and promoting changes in behavior to increase walking and bicycling. Educational activities teach children age-appropriate skills related to bicycling and walking, familiarizing students with the positive benefits of bicycling and walking, and foster greater attention by the community in general to the need to operate motor vehicles more safely, especially in school zones. Encouragement activities include a variety of special events and contests, outreach campaigns, presentations to school and community groups, and surveys of current practices and attitudes related to the school commute. A major objective of educational and encouragement tools is to increase the understanding by parents, school personnel, students, and the community of the health and safety concerns that can be addressed by successful SR2S programs.

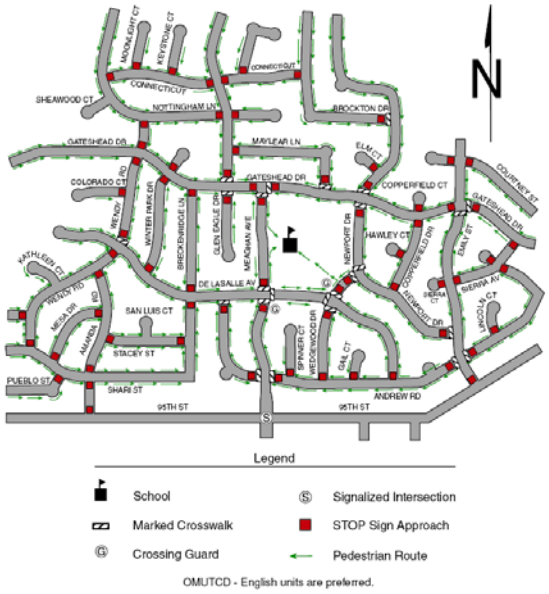
7.6.1. Suggested Route to School Maps

Suggested Route to School maps are one of the most cost-effective and tangible means available for encouraging school children to walk or bike to school. The purpose of the maps is to provide school officials, parents, and students with a tool to help plan the best walking and bicycling routes to and from school. The maps help to illustrate the safest walking, bicycling, and crossing locations by identifying traffic controls, crossing guard locations, and the presence of sidewalks, pathways, or bicycle facilities along routes leading to a given school. In addition to being used as a resource for parents and school staff in planning and

encouraging walking and bicycling to school, Suggested Route to School maps can serve as a tool for city staff to identify the location of needed transportation infrastructure improvements in school areas.



Local jurisdictions should consider assisting their school districts in developing and distributing suggested route to school maps to local schools. Maps can be handed out to parents at the beginning of each school year, posted prominently at each school in a location, and made available on the school's website. Other locations for posting or distributing the maps might include local libraries and neighborhood community centers. The OMUTCD supplement specifically sets forth guidance and recommends that each school should develop a "school route plan."



As part of the development of Suggested Routes maps, city staff should conduct field visits to inventory traffic controls, signage, crosswalks, and other physical conditions on streets surrounding the school. Factors that contribute to designating the "best" routes to a school include the presence of traffic controls, crosswalks, and or crossing guards at key crossing locations, and presence of sidewalks or bike lanes along street segments. In some cases, pedestrian paths or known off-street cut-throughs (such as a path leading to the back of a school) are noted as suggested routes. The suggested routes usually extend about one-half mile for elementary schools, and about one mile for junior high and high schools.

Liability concerns are sometimes cited by cities or school districts as reasons not to publish walking route maps. While no walking route will ever be completely free of pedestrian safety concerns, a well-defined walking route should provide the greatest physical separation between walking children and traffic, expose children to the lowest traffic speeds, and have the fewest roadway crossings. Local jurisdictions should follow these basic guidelines when identifying routes, should regularly review walking routes to ensure that traffic conditions have not changed, and should make engineering improvements as appropriate to improve safety along routes. These steps should ensure that local jurisdictions or schools do not have increased liability as a result of publishing walking routes.

A separate document from this Plan includes Project Description Sheets highlighting existing bicycle/pedestrian facilities and recommended improvements for 61 Miami Valley schools. Local jurisdictions and school districts could use these maps as a starting point for identifying the most suitable existing walking/bicycling routes, as well as potential measures for improving conditions for non-motorized users.

7.6.2. Walk and Bike to School Days

Walk and Bike to School Days are special events encouraging children to try walking or bicycling to school. The most well-known of these is International Walk to School Day, a major annual event that attracts millions of participants in over 30 countries in October. Additional walk and bike to school days can be held yearly, monthly, or even weekly, depending on the level of support and participation from children, parents, and school and local officials. Some schools organize more frequent days – such as weekly Walking/Wheeling Wednesdays or Walk and Roll Fridays – to give people an opportunity to enjoy the event on a regular basis. Parents and other volunteers accompany the children, and often there are designated staging areas along the route to school where different groups can gather and walk or bike together. The events should be promoted through press releases, articles in school newsletters, and posters and flyers for children to take home.

7.6.3. Classroom Lessons and Activities

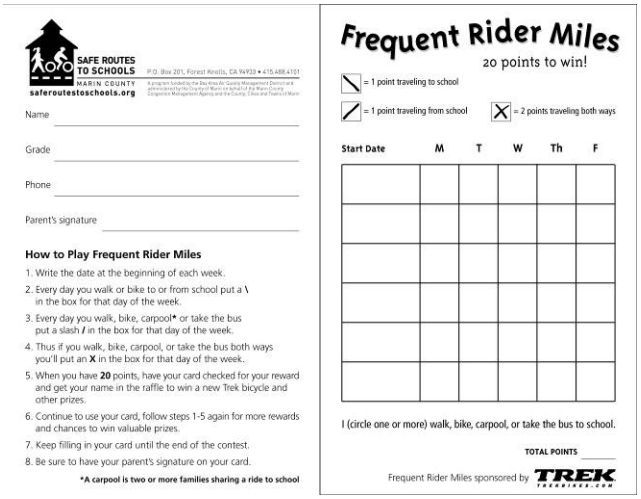
A variety of curricula and classroom activities are available to help teach children about walking, bicycling, health and traffic safety. These may include lessons given by a law enforcement officer or other trained professional, or simply as a lesson plan developed by teachers. Examples topics that lessons could cover might include: Safe Street Crossing; Helmet Safety; Rules of the Road for Bicycles; Health and Environmental Benefits of Walking and Biking; and Stranger Safety. Getting class time is difficult – and there is a growing movement to develop SR2S curricula that can be incorporated into regular math and problem solving lesson plans so that these activities do not take away from regular teaching time.

One example of this is the "Walk and Bike Across America" project, in which the students track the number of miles they each travel (walking or biking) to and from school on a daily basis and add the class miles together weekly to travel across a map of the United States. The students can conduct the activity as a class, or gather miles from the entire school (thus increasing the number of miles that they can travel). Along the way students "visit" locations such as national parks and historical monuments, learning lessons on history, culture and geography as they go.

7.6.4. Contests

Contests are activities that reward children by keeping track of the number of times they walk, bike, carpool, or take transit to school. Contests can be individual, classroom competition, or interschool competitions. Local businesses will often provide incentives and prizes. Two examples of contests include:

Frequent Rider Miles – Children are issued tally cards to keep track of "points" for each time they walk, bike, bus or carpool to or from school. When they earn a specified number of points they get a small prize and are entered in a raffle for a larger prize. At the end of the school year, there is a drawing for major prizes.


SAFE ROUTES TO SCHOOLS
MARIN COUNTY
saferoutestoschools.org

Name

Grade

Phone

Parent's signature

How to Play Frequent Rider Miles

1. Write the date at the beginning of each week.
2. Every day you walk or bike to or from school put a \ in the box for that day of the week.
3. Every day you walk, bike, carpool* or take the bus put a slash / in the box for that day of the week.
4. Thus if you walk, bike, carpool, or take the bus both ways you'll put an X in the box for that day of the week.
5. When you have **20** points, have your card checked for your reward and get your name in the raffle to win a new Trek bicycle and other prizes.
6. Continue to use your card, follow steps 1-5 again for more rewards and chances to win valuable prizes.
7. Keep filling in your card until the end of the contest.
8. Be sure to have your parent's signature on your card.

***A carpool is two or more families sharing a ride to school**

Frequent Rider Miles

20 points to win!

\ = 1 point traveling to school

/ = 1 point traveling from school

X = 2 points traveling both ways

Start Date	M	T	W	Th	F

I (circle one or more) walk, bike, carpool, or take the bus to school.

TOTAL POINTS

Frequent Rider Miles sponsored by TREK

Golden Sneaker Award – Each class keeps track of the number of times students walk, bike, carpool or take the bus to school and compiles these figures monthly. The class that has the most participation earns the Golden Sneaker Award. (The award is created by taking a sneaker and spray painting it gold.) The winning class usually gets an added treat like a pizza or ice cream party.

7.6.5. Safety Education

Pedestrian and bicycle safety education helps to ensure that each child has a knowledge of basic traffic safety rules. Pedestrian training is typically recommended for first- and second-graders, and teaches basic lessons such as "look left, right, and left again," "never walk with strangers," and "never run into the street to chase a ball or toy."

Bicycle safety training is normally appropriate beginning in third grade, and helps children understand that they have the same responsibilities as motorists to obey traffic laws. Child bicycle safety education is often conducted in the "bicycle rodeo" format, using various stations to teach children traffic safety and bicycle control. Most rodeos include a stop sign course which teaches children how to stop and look for oncoming traffic. Other stations teach balance, stopping, turning, and control. Rodeos also provide an opportunity to check children's bikes and instruct them on proper helmet use.

Although not a substitute for safety lessons conducted by trained instructors, many agencies including the American Automobile Association, the National Highway Traffic Safety Administration, and private companies produce informational brochures, flyers and activity books designed to teach students, parents, and drivers about safe walking, bicycling and traffic behavior. These books can be distributed with the weekly "backpack mail," or be handed out as part of a safety lesson. Schools or PTAs can also create original flyers unique to the school.

7.6.6. Banners and Signs

Banners and signs can be effective tools to remind motorists about traffic safety in school zones. Large banners can be hung over or along roadways near schools with readable letters cautioning traffic to slow down, stop at stop signs, or watch for children in crosswalks, using catchy phrases such as:

- Drive 25, Keep Kids Alive

- Give Our Kids a Brake

If there are active local residents, lawn signs can be placed on private property near schools and along the routes with similar messages. Signs and banners should be rotated or moved frequently so that they do not risk becoming "invisible" to motorists.

7.7. ENFORCEMENT TOOLS: ENSURING COMPLIANCE WITH TRAFFIC LAWS

Enforcement tools are aimed at ensuring compliance with traffic and parking laws in school zones. Through a variety of active and passive methods, enforcement activities help to reduce threats to the health and safety of children associated with activities such as speeding, failing to yield to pedestrians, illegal turns, illegal parking, and other violations. Enforcement strategies, in conjunction with education efforts, are intended to clearly demonstrate what is expected of motor vehicle operators and to make them accountable for the consequences of their actions. While enforcement tools logically center on police and other law enforcement, they also entail working with school officials, crossing guards, parents and volunteers. In addition to motor vehicle enforcement, these activities also focus on ensuring that students walking and bicycling to school comply with traffic laws.

7.7.1. Targeted Enforcement

Law enforcement agencies can increase the presence of police near schools or high-conflict areas in order to curb unlawful behavior. People tend to slow down and improve their driving behavior if they expect law enforcement to be present. These targeted enforcement activities can be effective but are labor intensive in that they require dedication of police officer resources in a single location. In addition, once the targeted enforcement period has ended and motorists realize that the police presence is gone, they may revert to speeding or driving unsafely.

7.7.2. Crosswalk Stings

In a crosswalk sting operation, the local police department targets motorists who fail to yield to pedestrians in a school crosswalk. A plain-clothes "decoy" police officer ventures into a crosswalk or crossing guard-monitored location, and motorists who do not yield are given a citation by a second officer stationed nearby. Typically a motorcycle officer issues the citations, hidden between nearby parked vehicles. The police department or school district may alert the media to crosswalk stings to increase public awareness of the issue of crosswalk safety, and news cameras may accompany the police officers to report on the sting.

7.7.3. School Parking Lot "Citations"

If on-site parking problems exist at a school, such as parents leaving vehicles unattended in loading zones, school staff may issue parking lot "citations" to educate parents about appropriate parking locations. These

"citations" are actually warnings designed to look like actual police tickets, intended to educate parents about how parking in improper zones can create safety hazards or disrupt traffic flow for other parents during the pick-up/drop-off period.

7.7.4. Neighborhood Speed Watch

In areas where potential speeding problems have been identified by residents, a Neighborhood Speed Watch can be used to warn motorists that they are exceeding the speed limit. A radar unit is loaned out to a designated neighborhood representative to record speed information about vehicles. The person operating the radar unit must record information, such as make, model, and license number of offending vehicles. This information is sent to the local law enforcement agency having jurisdiction at the location of the violations, and the department then sends a letter to the registered vehicle owner, informing them that the vehicle was seen on a specific street exceeding the legal speed limit. Letters are typically sent out to those driving at least 5 MPH over the speed limit. Although not a formal citation, the letter explains that local residents are concerned about safety for their families and encourages the motorist to drive within the speed limit.

7.7.5. Radar Trailers

Speed Radar Trailers can be used to reduce speeds and enforce speed limit violations in known speeding problem areas. In areas with speeding problems, police set up an unmanned trailer displaying the speed of approaching motorists along with a speed limit sign.

Radar trailers can be used as both an educational and enforcement tool. By itself, the unmanned trailer serves as effective education to motorists about their current speed in relation to the speed limit. As an alternative enforcement measure, the police department may choose to station an officer near the trailer to issue citations to motorists exceeding the speed limit. Because they can be easily moved, radar trailers are often brought to streets where local residents have complained about speeding problems. If frequently left in the same location without officer presence, motorists may learn that speeding in that location will not result in a citation and increase their speeds.

7.7.6. Speed Feedback Signs

A permanent speed radar sign can be used to display approaching vehicle speeds and speed limits on roadways approaching the school site. The unit is a fixed speed limit sign with built-in radar display unit operating similar to a Radar Trailer. In order to maximize effectiveness for school settings, the radar display unit should be set to only activate during school commute hours.

Roadways approaching the school site are the most appropriate location to display speeds, as opposed to streets along the school frontage that will likely have lower speeds due to pick-up/drop-off traffic.

7.8. RESOURCES: LINKS TO OTHER SR2S TOOLKITS AND GUIDEBOOKS

7.8.1. National Center for Safe Routes to School

The National Center for Safe Routes to School assists communities in enabling and encouraging children to safely walk and bike to school. The Center strives to equip Safe Routes to School programs with the knowledge and technical information to implement safe and successful strategies. The website includes links to an academy of National SR2S Instructors who lead trainings and provide assistance to local jurisdictions wishing to develop a SR2S program.

www.saferoutesinfo.org

7.8.2. Ohio DOT Safe Routes to School Program & Travel Plan Requirements

The Ohio Department of Transportation has set forth specific guidance for those schools that would like to develop a Safe Routes to School Travel Plan of their own. In order to qualify for plan or project funding from the State, the schools must have developed a plan performed by a qualified engineer prior to the funding being awarded.

http://www.dot.state.oh.us/SafeRoutes/School%20Travel%20Plan.htm

7.8.3. KidsWalk-to-School: A Guide to Promote Walking to School

This guide by the Centers for Disease Control and Prevention is a tool to help you develop a walk-to-school program that is appropriate for your neighborhood. It includes a checklist and step-by-step guidelines for creating a KidsWalk-to-School program such as a "walking school bus." Sample letters, surveys, forms, and an extensive list of resources are included.

www.cdc.gov/nccdphp/dnpa/kidswalk.htm

7.8.4. Pedestrian Safety Toolkit

This toolkit includes resource materials that states and communities can use to implement their pedestrian safety programs and achieve their goals. It contains a compilation of Federal agency pedestrian safety videos; an interactive CD-ROM of pedestrian resources with subject-to-subject cross referencing; a user manual explaining how to create effective pedestrian safety programs; a resource manual that references NHTSA, Federal Highway Administration and Federal Railroad Administration materials; and sample materials and information covering the basics for all who want to do pedestrian safety and advocacy.

www.nhtsa.dot.gov

7.8.5. Safe Routes to Schools Toolkit

This toolkit, developed by the Marin County Safe Routes To Schools project in California — in partnership with NHTSA and the California Department of Health Services — is designed to be used in initiating and

implementing a Safe Routes to Schools program. It includes examples of classroom activities, ideas for promotions, information on safe streets, resources, and forms to assist you along the way.

http://www.nhtsa.dot.gov/people/injury/pedbimot/bike/Safe-Routes-2002/toc.html

7.8.6. Safe Ways to School Toolkit

This toolkit details systematically how to create a Safe Ways To School program for your community. It provides an overview of the implementation process, and includes sample tools such as a student travel survey, parent survey, neighborhood site assessment, and implementation ideas. It also contains a video and sample materials, including handouts for students, parents, and schools.

http://www.dcp.ufl.edu/centers/trafficsafetyed/safeways.htm

7.8.7. Way to Go! Manual and Resource Kit

The "Way to Go! Manual and Resource Kit" can help parents, teachers, and student groups design and implement school-based, traffic-reduction programs in their communities. It includes ideas, strategies, information, and educational and curriculum resources. Other manuals available include: "Bike Smarts: A Handbook;" "RoadSenseKids: Passport to Safety (Teaching Guide for K-3);" and "Walking/Wheeling Challenge Map."

www.waytogo.icbc.bc.ca

7.8.8. National Strategies for Advancing Child Pedestrian Safety and National Strategies for Advancing Bicycle Safety

"National Strategies for Advancing Child Pedestrian Safety" details six strategies and action steps readily implemented by anyone interested in reducing pedestrian injuries among children, all while encouraging them to become more active and explore their environment on foot. "National Strategies for Advancing Bicycle Safety" is designed to be a roadmap for policy makers, safety specialists, educators, and the bicycling community to follow as they promote national, state and local efforts to increase safe bicycling. It includes goals, strategies, short- and long-term actions that can reduce injuries associated with bicycle riding.

http://www.nhtsa.dot.gov/people/injury/pedbimot/bike/bicycle_safety/

7.9. SCHOOL SITE AUDIT CHECKLIST FORM

The following pages provide a School Site Audit Checklist form that should be used as the basis for the walking/bicycling audits conducted by local school task forces. This form was modified from the Florida Safe Ways to School Toolkit, which is listed as a resource in the previous section.

Safe Routes to School Program

SCHOOL SITE AUDIT CHECKLIST

SCHOOL NAME:_____

SCHOOL DISTRICT:_____

INSTRUCTIONS

The following site audit should be conducted to help determine walking and bicycling conditions on/adjacent to school property. This audit will help the school to discover potential areas for design improvements and increased safety. Members of the School SR2S Task Force, the School Principal, and a traffic engineer from the local jurisdiction should observe conditions during drop-off and pick-up periods, and fill out the following audit form in order to see how students get to and from school. Audits should be conducted during periods of good weather if possible. Please take a map of the school and surrounding neighborhood with you on the audit for orientation and note-taking. Aerial photo maps can be helpful for identifying specific detailed locations, and can be downloaded from internet sources such as Google Earth (http://earth.google.com). Please take digital photos of any identified problem areas to accompany your notes.

Audit Date:_____ **Day:**_____ **Time:**_____

Weather Conditions:_____

Additional Notes about Audit Conditions:

1. Student Drop-Off and Pick-Up Areas

	YES	NO	N/A
a. Is an on-site parent drop-off/pick-up area provided?	☐	☐	☐
b. If the drop-off/pick-up area is on-site, is this loading area separated from the rest of the school parking lot?			
c. If pick-up/drop-off occurs on-street, is a marked loading zone provided along the curb?	☐	☐	☐
d. Do drop-off/pick-up areas, either on-site or on-street, provide sufficient space for vehicles to line up?	☐	☐	☐
e. Is a school staff person or other monitor present and visible during the drop-off/pick-up period to assist with loading/unloading?	☐	☐	☐
f. Does morning drop-off traffic move in an orderly fashion without congestion and backup?	☐	☐	☐
g. Does the afternoon pick-up line form in an orderly fashion, with vehicles waiting in designated areas, not double-parking, not blocking nearby residential driveways, etc.?	☐	☐	☐
h. Are drop-off/pick-up areas situated so that students exiting or entering cars have a designated pathway to/from school buildings (e.g. do not walk between parked vehicles)?	☐	☐	☐
i. Does drop-off/pick-up occur along a raised curb, so that pedestrians unload onto a sidewalk or walkway separate from vehicle traffic?	☐	☐	☐
j. Are there accessible curb ramps for wheelchair access?	☐	☐	☐
k. Are there posted vehicular signs (e.g., "No Parking," "Bus Only", etc)?	☐	☐	☐
l. Is the area adequately lighted?	☐	☐	☐
m. Is there excessive idling of vehicles and buses while they wait to pick up children?	☐	☐	☐

n. Please describe additional problems within the student drop-off area in the space provided below. Remember to take photos.

2. Bus Loading Zones

	YES	NO	N/A
a. Are bus driveways physically separated from pedestrian and bicycling routes by raised curbs or bollards?	☐	☐	☐
b. Are bus driveways physically separated from parent pick-up/drop-off areas?	☐	☐	☐
c. Are measures taken for safety of students needing to cross in front or behind the bus?	☐	☐	☐
d. Is traffic in the bus loading zone one-way?	☐	☐	☐
e. Does the bus zone meet the minimum width of 24' for drop-off/pull-out lanes?	☐	☐	☐
f. Is there a continuous curb and sidewalk adjacent to the drop-off/loading area leading into the school site?	☐	☐	☐
g. Is the bus loading/unloading zone lighted?	☐	☐	☐

h. Please describe additional problem areas regarding the bus loading zone in the space provided below. Remember to take photos.

3. Sidewalks and Bicycle Routes

	YES	NO	N/A
a. Are current pedestrian and bicycle routes separated from motor vehicles by the use of sidewalks or separated pathways?	☐	☐	☐
b. Are the bicycle routes designated by signage?	☐	☐	☐
c. Are marked bicycle lanes present?	☐	☐	☐
d. Is the bicycle lane network continuous and without gaps?	☐	☐	☐
e. Are children wearing bicycle helmets?	☐	☐	☐
f. Are sidewalks and bicycle paths regularly maintained (free of debris, cracks and holes)?	☐	☐	☐
g. Are the sidewalks continuous and without gaps?	☐	☐	☐
h. Are there accessible ramps for wheelchair access?	☐	☐	☐
i. Do the ramps have tactile warning strips or textured concrete?	☐	☐	☐
j. Are the sidewalks lighted?	☐	☐	☐
k. Are the sidewalks used regularly?	☐	☐	☐

l. Please describe additional problem areas regarding the school's sidewalk system and existing bicycle routes in the space provided below. Remember to take photos.

4. Adjacent Intersections (intersections near school property)

	YES	NO	N/A
a. Are there high volumes of automobile traffic?	☐	☐	☐
b. Are there high volumes of pedestrian traffic?	☐	☐	☐
c. Are there painted crosswalks for all crossing directions?	☐	☐	☐
d. Are there curb ramps located at all adjacent intersections?	☐	☐	☐
e. Is there appropriate vehicle signage?	☐	☐	☐
f. Is there traffic control, such as a stoplight or stop signs?	☐	☐	☐
g. Are there pedestrian walk signals?	☐	☐	☐
h. For mid-block crossing locations, are there adequate gaps in traffic to allow pedestrians to cross?	☐	☐	☐
i. Are pedestrians crossing in marked crosswalks, or are they using unmarked locations or jaywalking?	☐	☐	☐

j. Please describe additional problem areas regarding these intersections in the space provided below. Please identify specific intersections, and any problems associated with each. Remember to take photos.

5. Sight Distance (clear views between motorists and pedestrians)

	YES	NO	N/A
a. Are desirable sight distances (visibility is free of obstructions) provided at all intersections within the walking zone?	☐	☐	☐
b. Do parked or waiting cars block the vision of other motorists, bicyclists and pedestrians?	☐	☐	☐
c. Have the placement of fences, walls, dumpsters and the location of parking areas for service vehicles been carefully considered in view of sight distance requirements on the school site?	☐	☐	☐
d. Are there any barriers present that block the viewing of pedestrians and bicyclists (e.g., dumpsters, utility boxes, parking areas, ground mounted signage, building walls)?	☐	☐	☐
e. Is landscaping and vegetation trimmed clear of sidewalks and pathways, and not obstructing sight distance?	☐	☐	☐

f. Please describe additional problem areas that have sight distance obstructions in the space provided below. Remember to take photos.

6. Traffic Signs, Speed Control, Signals and Pavement Markings

	YES	NO	N/A
a. Are there School Zone signs, School Crossing signs, School Speed Limit signs, flashing beacons, and No Parking or No Standing signs?	☐	☐	☐
b. Are any high-visibility (fluorescent yellow-green) signs used in the school zone?	☐	☐	☐
c. Is there an effective school targeted program of traffic enforcement?	☐	☐	☐
d. Are there any school pavement markings located on roadways adjacent to or in the vicinity of the school grounds (e.g. "SLOW SCHOOL XING")?	☐	☐	☐
e. Are there currently traffic/speed control measures used in the area, such as speed humps?	☐	☐	☐

f. Please describe additional information regarding adjacent traffic signs, speed control, signals and pavement markings in the space provided below. Remember to take photos.

7. Other Barriers to Walking and Bicycling

Please use the space below to describe any additional problems or issues not identified in the checklist above. These may include policy barriers as well as infrastructure barriers. Be as specific as possible when describing a particular issue or location.