

Chapter 6: Along the Street

This section describes the types of infrastructure that should be in place along school routes to make walking and bicycling to school safer.

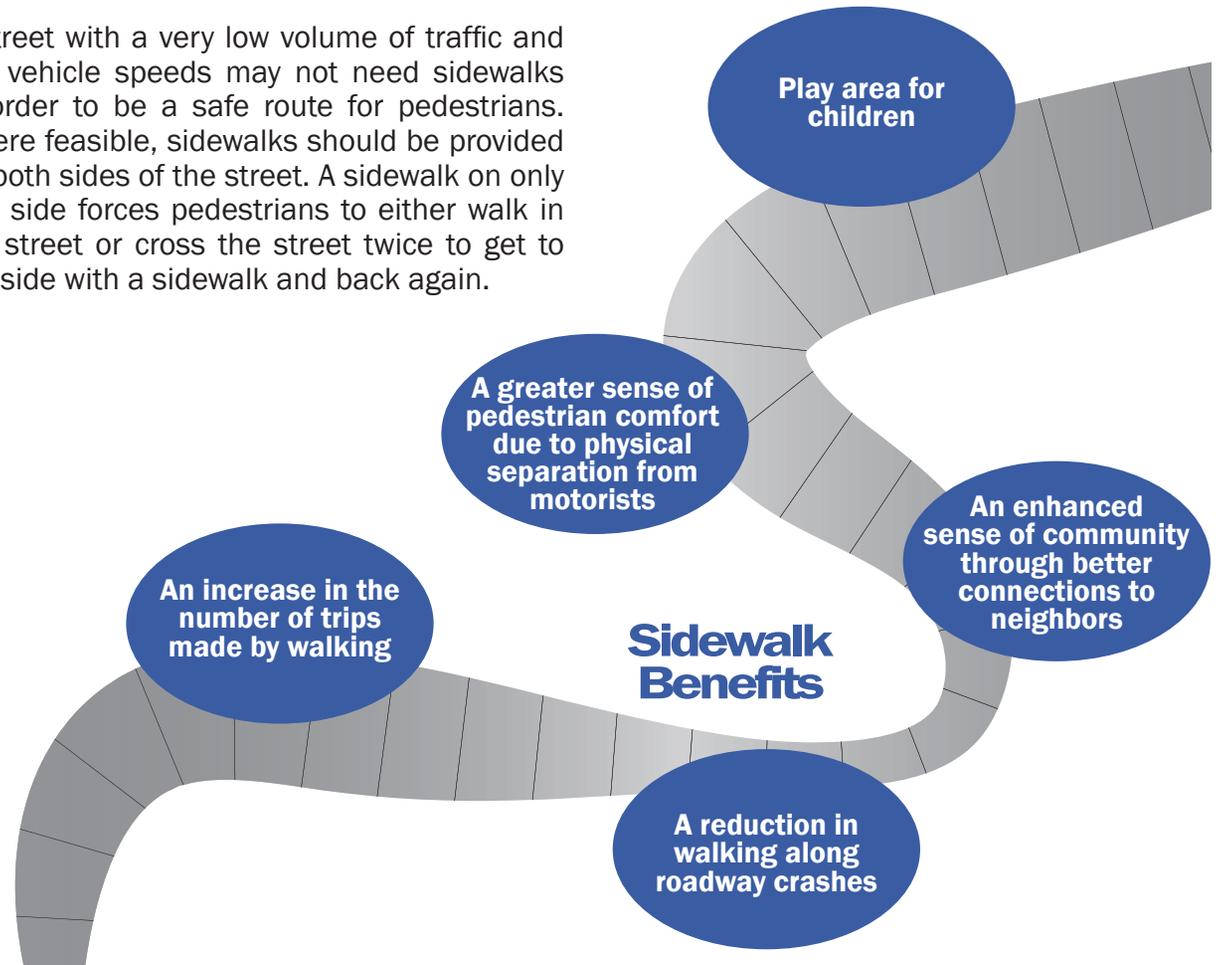


Sidewalks

In communities with sidewalks, it is often more convenient to choose walking as a transportation mode or a recreational activity. For children, sidewalks provide an essential environment for safe, independent mobility. In addition, sidewalks can provide a safe, communal play area for a variety of games and activities including drawing with chalk, playing hopscotch, and learning to bicycle or roller skate, among others.

Most sidewalks in New Jersey are constructed by landowners as part of the development process. They may also be built by a state, county, or local agency in connection with roadway construction or reconstruction or as an independent project. The State's Residential Site Improvement Standards (RSIS) set forth sidewalk requirements for residential development in the state. No comparable set of standards exists for non-residential developments. Streets that do not have sidewalks, particularly those on routes where children walk or bicycle to school, should be identified and assessed to determine if retrofitting these streets with sidewalks is appropriate. It is possible that

a street with a very low volume of traffic and low vehicle speeds may not need sidewalks in order to be a safe route for pedestrians. Where feasible, sidewalks should be provided on both sides of the street. A sidewalk on only one side forces pedestrians to either walk in the street or cross the street twice to get to the side with a sidewalk and back again.



Considerations for Sidewalks

Sidewalk Surface Types

Sidewalks can be surfaced with a variety of materials to accommodate varying budgets and contexts. While urban, suburban, and heavily used sidewalks are typically made of concrete, less expensive walkways may be constructed of asphalt, crushed stone, or other materials if they are properly maintained and accessible (usable by those with disabilities or those pushing carts or strollers). Concrete is more expensive than asphalt to install, but it lasts longer and requires less maintenance, which may make it a better value in the long run. Although brick pavers may appeal to some designers, they can require more maintenance and create a tripping hazard condition. Pavers may also pose a problem to pedestrians in wheelchairs if the bricks settle or become lifted. Safe sidewalk surfaces should be firm, stable, and slip-resistant.

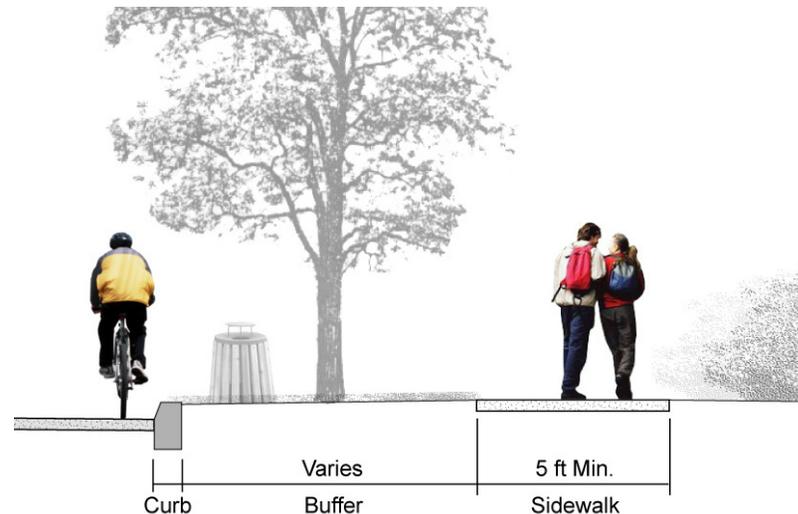


Examples of concrete, asphalt and brick paver sidewalks.

Sidewalk Width

The width of a sidewalk depends primarily on the number of pedestrians who are expected to use the sidewalk at a given time — high-use sidewalks should be wider than low-use sidewalks. Per the Federal Highway Administration's (FHWA) Recommended Guidelines/Priorities for Sidewalks and Walkways, a sidewalk width of five feet is needed for two adult pedestrians to comfortably walk side-by-side; all sidewalks should be constructed to be at least this width. Near parks, schools, and other major pedestrian generators sidewalks should be eight to ten feet wide.

Every attempt should be made to locate streetlights, utility poles, sign posts, fire hydrants, mail boxes, parking meters, bus benches, and other street furniture out of the sidewalk. When that is not possible, sidewalk furnishings and other obstructions should be located consistently so that there is a clear travel zone for pedestrians with vision impairments. A wider sidewalk should be provided to accommodate this line of obstructions.



Sidewalk cross section. Image: The RBA Group

Sidewalk Buffer Zones

Buffers between pedestrians and motor vehicle traffic are important to provide greater levels of comfort, security, and safety to pedestrians. In general, there are four types of sidewalk buffers:

1. Planting strip of grass and trees - This is the preferred buffer as it provides a more pleasant, shaded environment for walking.
2. Bicycle lane - Whether or not a planting strip is possible, a bicycle lane can provide or add to an acceptable buffer between pedestrians and motor vehicles.
3. Parked cars - Parking spaces, especially when parked vehicles are present, provide a great buffer between pedestrians and moving vehicles; however, parked cars also create a visual screen for motorists who are not looking for pedestrians that want to cross midblock.
4. Street furniture - Examples include benches, newspaper boxes, street lighting, and public art.



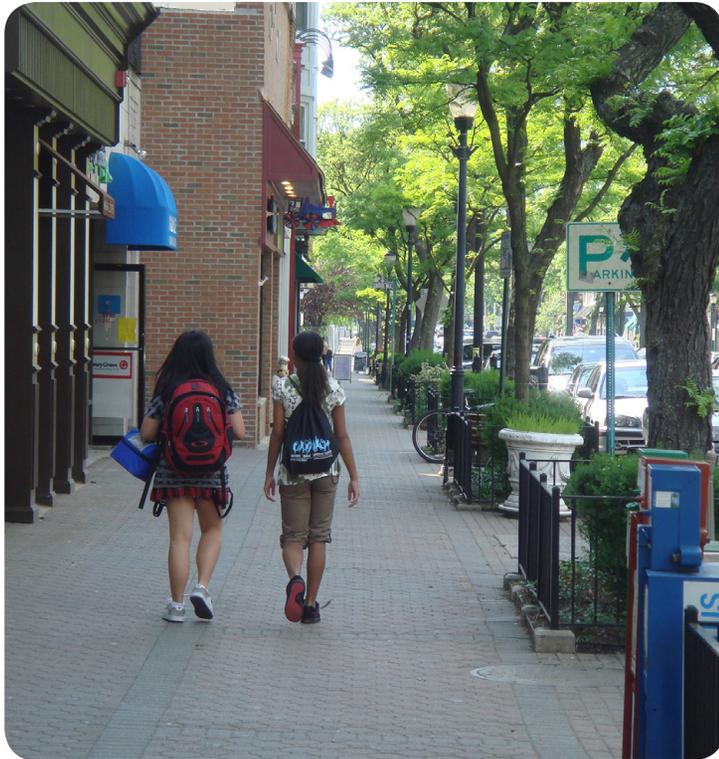
Sidewalk with a planting strip. Image: The RBA Group

If a sidewalk buffer does not exist, an effort should be made to provide a wider sidewalk. A wider sidewalk allows pedestrians to better avoid the splash zone (area subjected to spray from vehicles traveling through water). It also provides a snow storage area and a more comfortable separation between moving vehicles and pedestrians.

Guidelines for sidewalk buffers are available in the FHWA's Designing Sidewalks and Trails for Access (Section 4.1.2) at www.fhwa.dot.gov/environment/sidewalk2/sidewalks204.htm and AASHTO's Guide for the Planning, Design, and Operation of Pedestrian Facilities (Section 3.2.4).

Other Sidewalk Design Considerations

- The distance between the sidewalk surface and the bottom of signs placed in or right next to the sidewalk shall be at least seven feet to avoid injury to pedestrians.
- Bushes, trees, and other landscaping should be maintained to prevent encroachment into the sidewalk. Jurisdictions should adopt ordinances requiring local property owners to trim the landscaping along their frontage to maintain clear and unobstructed sidewalks.
- Per FHWA guidelines, guy wires and utility tie-downs should not be located in or across sidewalks at heights below seven feet. When placed adjacent to sidewalks or pedestrian walkways, the guy wires should be covered with a bright yellow (or other high-visibility) plastic guard to make the wire more visible to pedestrians. Guy wires of any color will not be visible to blind pedestrians and must not be located within the pedestrian route.



Girls walking in downtown Somerville. Image: Arterial

- Bus shelters should be located between the sidewalk and the street, or between the sidewalk and adjacent property, so that waiting passengers do not obstruct the flow of pedestrians along the sidewalk. Benches and other street furniture should be placed outside the walking paths to maintain the accessibility of the walkway and to provide good pedestrian service. In addition, curb ramps should be provided at bus stops because it is not always possible for the bus to pull close enough to the curb to deploy a lift.
- Street lighting improves pedestrian visibility and personal security and should be provided on school access routes. On streets with a large number of trees, street lighting scaled to pedestrians (low lights) illuminates the sidewalks even after the trees grow quite large. Street lighting improves safety by allowing pedestrians and motorists to see each other. It also contributes to aesthetics. Two-sided lighting should be considered along wide streets. Two-sided lighting consists of two light fixtures on one light pole. One fixture illuminates the roadway and the other illuminates the sidewalk or pedestrian realm. It is especially important to provide lighting at pedestrian crossings. Lighting can also be helpful along streets adjacent to the school grounds to minimize vandalism and improve security. While most school walking activity occurs during daylight hours, the morning school trip in the middle of winter often occurs during hours of darkness, and school activities often occur during nighttime hours.

On-Street Bicycle Facilities

Bicycling is an important way for children to travel to and from school. Bicycling can help students who live too far from school to walk comfortably to participate in active transportation. An important thing to remember is that the use of on-street facilities is more appropriate for older children who have sufficient bicycle handling skills and knowledge of bicycle and traffic safety rules than it is for young children just learning to ride.

A considerable amount of all bicycling occurs on the street system, and for children especially, most will occur in the streets near where they live. Children of all ages will bicycle to school if given the opportunity. When designating bicycle routes to encourage bicycling to school, all age groups should be targeted including elementary, middle, and high school students.



A bike train arriving at Thorton Creek Elementary School in Seattle, WA. Image: walkbikeschools.wordpress.com

Bicycle Lanes

Bicycle lanes provide a striped and stenciled lane for one-way bicycle travel on roadways. Bicycle lanes offer a comfortable space for older or more experienced children to ride. Typically, bicycle lanes are installed on roadways with higher traffic speeds and volumes than residential streets. Where the lane is directly serving a school, however, communities may elect to stripe bicycle lanes on low-traffic residential streets in order to provide an additional level of visibility for younger bicyclists. Per the Safe Routes to School Guide from the National Center for SRTS:

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



A newly striped bicycle lane on Diesterweg Street in Egg Harbor. Image: NJDOT

Shared Lane Markings

Shared Lane Markings (SLM) (sometimes known as “sharrows”) are placed in a travel lane to indicate that motorists and cyclists are sharing the road. Sharrows assist cyclists by helping them to position themselves in the appropriate part of the travel lane, away from the curb, or, where there is parking and opening of car doors. They also help motorists by alerting them that cyclists are likely to be using the lane with them. Shared lanes are different than a dedicated bike lane, which has a solid white line separating the car lane from the bike lane. Sharrows are used when the roadway width is insufficient for a dedicated lane.



Newly-installed “sharrow” in Hoboken.
Image: The RBA Group

According to the National Safe Routes to School Guide, SLMs should not be placed on roadways that have a speed limit above 35 mph and cannot be placed on road shoulders or in designated bicycle lanes. Information on Shared Lane Markings, including proper placement, can be found in Section 9C.07 of the 2009 Manual on Uniform Traffic Control Devices (MUTCD).

Paved Shoulders

Paved shoulders benefit both bicyclists and drivers. They provide a place for bicyclists to ride that is removed from the motor vehicle travel lane and reduce the likelihood of crashes from run-off-the-road motor vehicle crashes. Providing shoulders on existing roadways or including them in new roadway projects can also be justified by the safety benefit provided to drivers of motor vehicles. While pedestrians can walk along them, shoulders should not be considered a good substitute for sidewalks in urban areas. Per the FHWA’s Recommended Guidelines/Priorities for Sidewalks and Walkways, a five-foot wide shoulder is acceptable for bicyclists along low-volume rural highways. Greater width, up to eight to ten feet, is desirable along high-speed highways, particularly those with a large number of trucks. An edgeline should be marked to separate the shoulder from the roadway.



Burlington County has been striping 6-inch edge lines on shoulders along roadways with high bicyclist and pedestrian use, including this section of County Route 528 in a school zone in Bordentown Township.
Image: NJDOT

Multi-Use Paths

Multi-use paths, sometime known as shared-use paths, are parallel and adjacent to a roadway or on their own separated right of way and add to the connectivity of the pedestrian and bicycle network. Paths can sometimes connect neighborhoods directly with schools and thereby, shorten the distance children must walk or bicycle. However, paths must be designed properly, especially where they intersect roadways, to minimize the risk of pedestrian and bicyclist crashes. Guidelines for designing paths are available in the FHWA *Designing Sidewalks and Trails for Access Part 2* and in the American Association of State Highway and Transportation Officials' (AASHTO) *Guide for the Development of Bicycle Facilities, 2012 edition*.

Per AASHTO guidelines:

- The width of a multi-use path can range from 8 to 14 feet or more.
- Under most conditions, the recommended minimum width for a two-direction path designed for bicyclists and pedestrians is ten feet.
- When heavy pedestrian and bicycle traffic is expected, a path width of 12 to 14 feet is recommended.

According to the *Safe Routes to School Guide* from the National Center for SRTS:

- Abandoned rail lines and utility corridors often make excellent corridors for multi-use paths.
- Pavement for multi-use paths can be asphalt or concrete.
- Measures should be taken to keep motor vehicles off of the path, while maintaining access for maintenance vehicles.
- Agencies should monitor conditions along the path for maintenance and repair.



Students use a multi-use path to get to school in Chesterfield, NJ.
Images: NJDOT

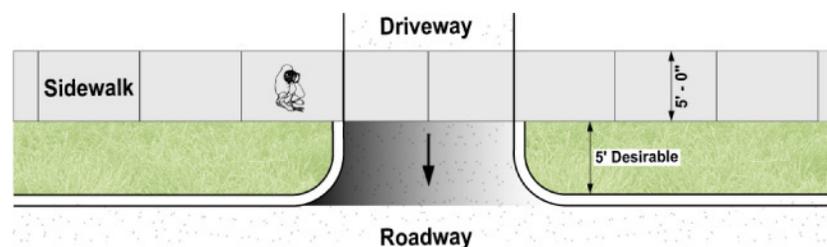


Driveways

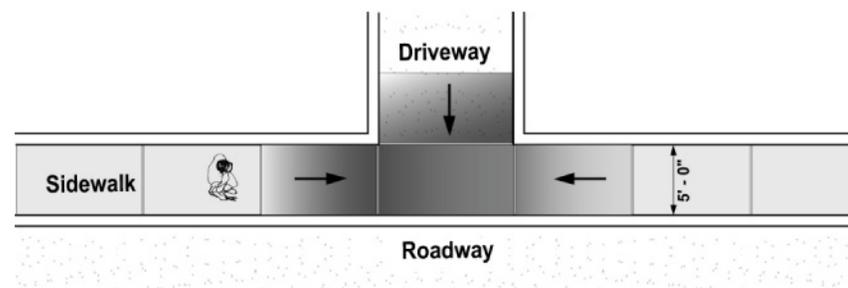
Designing driveway crossings for pedestrians can improve the walking environment, improve visibility and reduce conflicts between drivers and pedestrians. Reducing the number of driveways can make it easier for people with disabilities to access and walk on the sidewalk. Per the National Safe Routes to School Guide, the following principles should be applied to driveway design:

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

Ramps may be necessary for pedestrians to cross the street at intersections but the rest of the sidewalk network should be continuous and at one level. Providing a level, continuous sidewalk not only brings the sidewalk up to the standards of universal access for persons in wheelchairs or on crutches, but also changes driver behavior. The driver exiting or entering such a driveway is more aware that they are crossing a sidewalk, will proceed more slowly and is more likely to stop. Fewer driveways and narrower driveway crossings provide improved pedestrian safety, especially in busy commercial zones. School walking routes should keep busy driveway crossings to a minimum. If young students are required to cross a busy school driveway, an adult should be assigned to monitor or direct the students at the driveway.



Good example - sidewalk continues across driveway apron.
Image: The RBA Group



Bad example – driveway apron goes through the sidewalk.
Image: The RBA Group

Wayfinding along School Routes

Wayfinding signage and markings provide direction to students and parents and mark roads as preferred travel routes. Wayfinding could include paint markings designating preferred corridors by color or markers, such as the one pictured to the right, that designate safe travel routes. These markings and signs also increase visibility of walking routes among the community and encourage more children to walk or bike to school. This guide recommends wayfinding markings or signage to be placed on primary school travel corridors.



Fizzy the Dragon points the way for students on Walk and Bike to School Day in Chesterfield, NJ. Image: NJDOT



Pavement markings indicate the school walking route in Trenton. Image: VTC



The Richmond Liberty Trail utilizes a blue compass marker to point visitors to the next historical site. Volunteers used stencils to paint the icons. Image: www.visitrichmondva.com



Carson City, NV marks its "Kit Carson Trail," with a six-inch wide, blue skid-resistant surface line. Image: RVfor5.blogspot



The Windsor-Essex County, Canada Active and Safe Routes to School project provided signs for walking routes. Image: www.saferoutestoschool.ca/