02 Students, Caregivers, and Community Members

Schools are unique community anchors that generate predictable surges of activity during arrival, dismissal, and after-hours events. These patterns create complex safety and mobility challenges that require thoughtful planning and design. Because students, caregivers, staff, and community members all use school zones differently, accessibility and inclusivity must be central to school zone planning principles. This chapter outlines the needs of each user group and offers guiding principles for creating school environments that are safe, accessible, and welcoming for all.

Introduction

Schools occupy a unique and powerful place in our communities. Unlike most other civic buildings, they generate predictable surges of activity, drawing high concentrations of students and caregivers during morning arrival and afternoon dismissal. These peak periods create complex transportation and safety dynamics that require careful planning and design. Schools also function far beyond the traditional school day. Evenings and weekends often bring athletic events, performances, community meetings, and other activities, reinforcing the role of schools as multi-purpose community hubs.

Designing safe and accessible school zones therefore requires a clear understanding of the diverse characteristics and needs of the people who use them. Students of different ages and abilities, caregivers, staff members, and community members accessing shared facilities all experience school environments differently. Effective planning and design of school zones must also account for people with disabilities and mobility differences, ensuring that accessibility is treated as a foundational principle.

This chapter provides an overview of the key characteristics and needs of each group, identifies where those needs converge and diverge, and outlines guiding principles to inform the planning and design of safe, accessible, and welcoming school environments for all.



Schools serve all members of the community. Haviland Avenue Elementary School in Audubon, NJ. Image: Cross County Connection TMA

Note: This chapter references a greater number of citations than other chapters in this guide. For readability purposes, citations are listed in an endnotes section, rather than through footnotes.

Key Characteristics

This section describes key characteristics of students, caregivers, school staff members, and community members that are important to consider when planning and designing school zones, focusing on differences between these groups. These characteristics are summarized on page 22.

What to know about students in general?

Have Different Physical and Cognitive Needs than Adults.
Despite our best efforts, we tend to see things through our own physical and cognitive lens. As a result, when adults plan and design school zones they sometimes overlook or misconstrue the needs of students. They differ in their physical development, cognitive processing, risk perception, and lived experience.

Have Diverse Needs, Abilities, and Travel Behaviors.
Students are a highly diverse group. A first grader has very different capabilities and needs than a sixth grader, and both differ significantly from a high school senior. Students with disabilities, including autism spectrum disorder, vision disabilities, or mobility impairments, may experience the built environment in ways that are distinct both from adults and from their non-disabled peers.

More susceptible than adults to mistakes that can lead to crashes.
Students of all ages are more susceptible than adults to mistakes that lead to crashes. At the elementary school level, students lack full awareness of traffic dangers and have trouble multitasking and navigating complex traffic situations. Students at this age tend to think in simple rules, e.g., "If the light is green, I'm safe."[1] They often struggle to accurately judge motor vehicle speeds and identify safe gaps in traffic.[2] In addition, they may have difficulty coordinating cognitive and motor skills.[3] For instance, a child riding a bicycle may focus on balancing or maintaining a straight line and lack the cognitive capacity to attend simultaneously to traffic hazards or to a stop sign. They may also have a narrower field of vision due to still-developing peripheral vision processing, which can result in not seeing vehicles approaching from the side.[4] Additionally, due to their shorter stature, students may have difficulty seeing over obstructions like parked cars and may not notice oncoming vehicles.



Students and caregivers walk to school in Collingswood School District

Middle and high school students have more experience with traffic situations and have outgrown some of the cognitive and physical limitations of younger students; however, they may still face developmental and experiential limitations that affect their safety in traffic. Compared to adults, they have less experience navigating roadways as pedestrians or bicyclists, and a less developed prefrontal cortex, which affects their ability to regulate impulses and make good decisions.[5] National and state data consistently show that teens experience higher per-capita pedestrian and cyclist crash rates than adults, underscoring their heightened exposure and vulnerability on the roadway.[6, 7]

More vulnerable to crash forces than young and middle-aged adults.
Due to their size, students are more vulnerable to crash forces and experience more severe injuries in the event of higher-speed crashes than young or middle-aged adults. Their growing bodies make them more susceptible to impacts from all types of injuries, and students and adolescents often develop post-traumatic stress disorder after a crash.[8,9,10,11]

May use school zone outside traditional arrival and dismissal periods.
Students of all grade levels may arrive or depart outside the times when traffic flows are highest around the school and crossing guards and school staff members are present to support safe access. For example, many elementary school students attend before- or after-care programs at school due to caregiver work schedules, and many middle and high school students participate in before- and after-school sports, clubs, and other activities.



School bus in Parsippany Hills High School, Morris Plains, NJ

Health and long-term development affected by street design.
When streets feel unsafe for walking, bicycling, or taking transit, caregivers are more likely to drive students to school and other activities. This pattern can reduce daily physical activity and, over time, contribute to broader public health concerns. The percentage of U.S. students and adolescents (2-19 years) has nearly quadrupled in the last 50 years and currently stands at nearly 20% of U.S. students and adolescents (2-19 years).[12]

In addition, the ability to travel independently to school can play an important role in helping students mature, build confidence, and develop a sense of personal agency. Independent mobility is important for all students, including those with disabilities.[13]

May use streets and sidewalks for play and socializing.
For students of all ages, streets are more than a way of getting from point A to point B. For younger students, especially in residential neighborhoods, they may serve as spaces for outdoor play. For adolescents, who are sometimes excluded from playgrounds and other youth-oriented spaces, they may serve as important social environments. [14]

What to know about elementary school students?

Smaller than older students and adults.

Elementary school students are physically smaller than older students and adults, which makes them harder for drivers to see, particularly near larger vehicles or in areas with limited sightlines. Their smaller stature also means they are more vulnerable in the event of a crash and more likely to sustain severe or fatal injuries.

Slower than older students and young and middle-aged adults.

Elementary school students have slower perception–reaction times and slower walking speeds than older students and adults when walking with a caregiver.[15, 16] Perception-reaction time is the amount of time it takes a person to detect and recognize a stimulus (such as a WALK signal or gap in traffic) and then begin a physical response (such as beginning to cross). Because this process takes longer for younger students, they take more time to determine when it is safe to cross and to initiate movement. After entering the roadway, their slower walking speeds mean they also require more time to reach the opposite side.



Livingston Ave road diet before and after at New Brunswick Ciclovia. Image: VTC



Kids playing in the street during temporary street closure at New Brunswick Ciclovia. Image: VTC

Less predictable than older students and adults.
Elementary school students can be less predictable than older students and adults because their ability to recognize traffic hazards and control impulses is still developing. For example, a child may impulsively run into the street to retrieve a ball without looking for cars, making it more difficult for drivers to anticipate their actions.

Usually travel with caregivers but beginning to build independence.
Most elementary school students travel to school under the supervision of a caregiver or other adults. At the same time, they are beginning to build independence. As students grow, they gradually gain more freedom, often first by walking or bicycling to school with caregivers. Some five- to eight-year-old students can cross streets and cycle in environments where motor vehicle traffic is very low speed or infrequent.[17]



Tatem Elementary School after school.

What to know about middle school students?

Larger than young students but not yet adult-sized.
Physically, middle school students are larger than younger elementary school-aged students but are still generally smaller than adults, which can affect their visibility to drivers, particularly near larger vehicles.

Faster than young students but walk more slowly in groups.
Middle school students tend to walk more quickly than younger students and have faster perception–reaction times.[18] However, they may move more slowly when traveling in groups, which is common at this age.[19]

More predictable in some respects than young students but still less predictable than adults.
Compared with younger students, middle-school-aged youth are more likely to have received traffic safety education and gained sufficient experience to demonstrate more adult-like and consistent road-crossing judgment and timing, which can make them more predictable as pedestrians in certain situations. However, because their executive function is still developing, they are more likely than adults to take risks. Middle school students may also contend with new distractions, such as cell phone use or socializing with peers on the way to school, which may result in less predictable behavior.[20,21]

More likely than young students to travel independently.
Compared to elementary school students, middle school youth are more likely to travel to school independently or in groups of peers by walking, bicycling, or public transit. They may also travel further to school due to the larger size of middle school attendance areas.



Students walk and bike home at Collingswood Middle School.

What to know about high school students?

Close to adult size but brains still developing.

High school students are closer to adulthood in physical size and cognitive development than middle school students, but their brains, particularly executive function and risk assessment capacities, are still developing. Most are near adult height and walk at speeds comparable to adults. They have faster perception–reaction times than younger students. However, developmental factors continue to influence judgment, impulse control, and decision-making.

Many travel independently.

Many high school students travel independently to school by walking, bicycling, using transit, or driving. In addition, they may travel further to school due to the larger size of high school attendance areas and walk zones.[22]

Some are beginner drivers.

Some high school students drive to school. While access to a vehicle increases autonomy, it also introduces new risks. Teen drivers are more likely than experienced adult drivers to make mistakes that result in crashes due to limited driving experience, underdeveloped hazard perception skills, and still-maturing executive function. Risk-taking behaviors and peer influence can further increase crash risk.



Students cross the street at Collingswood High School.

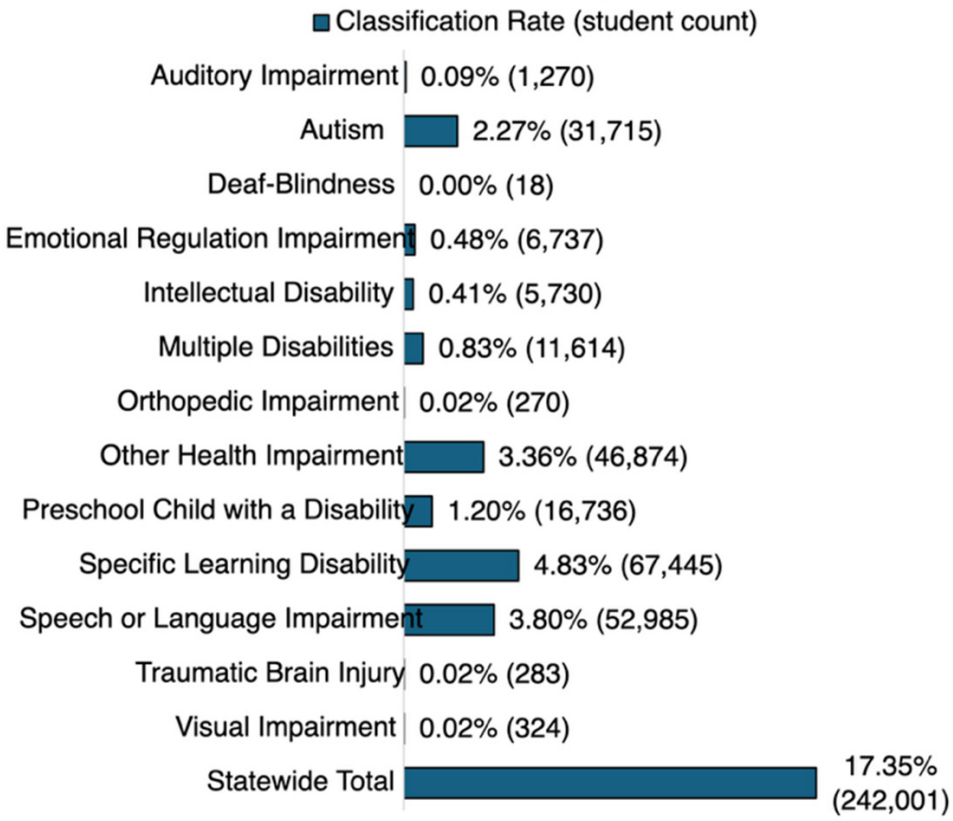
What to know about students with disabilities?

Part of every school community.
The federal Individuals with Disabilities Education Act (IDEA) requires that students with disabilities receive a free and appropriate public education in the least restrictive environment possible. This means most students with disabilities are educated alongside their non-disabled peers in general education schools. In New Jersey, more than one in six public school students (17.35%) have a disability under IDEA that adversely affects their academic performance, thus requiring an Individualized Education Program.[23]

Have diverse needs.
IDEA recognizes multiple disability categories, including autism spectrum disorder, deafness, hearing impairment, intellectual disability, specific learning disability, speech or language impairments, and visual impairments, including blindness. Students may also exhibit sensory processing differences. These conditions may influence how students perceive, interpret, and respond to elements of the built environment. For example, a student with autism spectrum disorder may experience sensory overload when walking adjacent to a busy roadway, particularly if the sidewalk or pathway they are on is not separated from traffic by a buffer area.

May be slower than non-disabled peers.
Students with disabilities may walk or roll more slowly than their non-disabled peers due to physical, sensory, cognitive, or fatigue-related factors that affect mobility, balance, coordination, endurance, or the need for adaptive equipment.

May be more likely to be adversely affected by uneven surfaces and changes in level than non-disabled peers.
Students with disabilities may use mobility aids, such as wheelchairs and crutches, which make it difficult or impossible for them to navigate across changes in level that to a non-disabled person may seem small, e.g., less than 1 inch. They may also be more likely to trip, slip, and fall due to balance and coordination issues, sensory impairments, and other reasons.



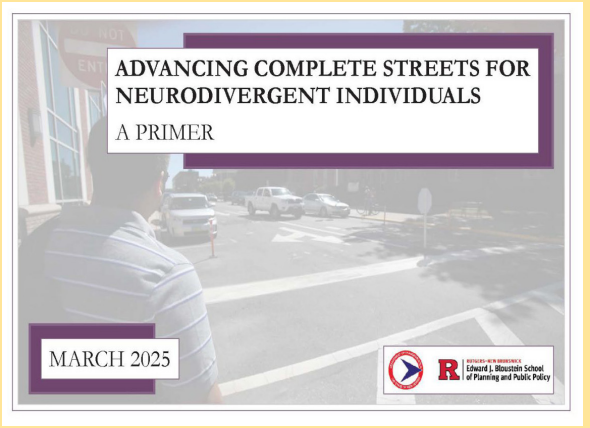
Statewide Classification Rate of Students with IEPs Aged 3–21, reported October 15, 2024. Image: New Jersey Department of Education.

May be more susceptible to mistakes than non-disabled peers.
Students with disabilities may be more susceptible to mistakes that result in a crash than their non-disabled peers. Some may have more difficulty identifying unsafe situations, judging vehicle speeds or gaps in traffic, or understanding complex traffic environments. Others may experience greater challenges coordinating movements. Students with visual or hearing impairments may be dependent on accessible signals, tactile cues, or clear wayfinding to navigate safely.

More likely than non-disabled peers to travel with a caregiver.
At all ages, students with disabilities are more likely than non-disabled students to travel to school with a caregiver or via specialized transportation. However, some may travel independently as pedestrians, cyclists, or transit riders if safe, accessible infrastructure is provided.[24]

COMPLETE STREETS AND INDIVIDUALS WITH DISABILITIES IN NEW JERSEY

Policy is evolving to better address the needs of individuals with disabilities in New Jersey, including students. In 2023, following years of advocacy and research, New Jersey enacted Senate Bill 147 (S-147), which requires the New Jersey Department of Transportation to update its Complete Streets policies, procedures, and design guidelines to provide safe access for all users, including individuals with autism spectrum disorder and intellectual and developmental disabilities. Prior to this update, the state's Complete Streets law referenced pedestrians, cyclists, and individuals with mobility disabilities but did not explicitly address the needs of people with cognitive and developmental disabilities. This legislative change reinforces the need for school zone planning guidance that incorporates accessibility, predictability, sensory considerations, and clear communication for students with a wide range of abilities.





What to know about caregivers?

Many students, especially younger students and students with disabilities, travel to school with a caregiver. Caregivers may include parents, grandparents, other relatives, older siblings, babysitters, or others responsible for escorting students.

May use a variety of modes to access school.

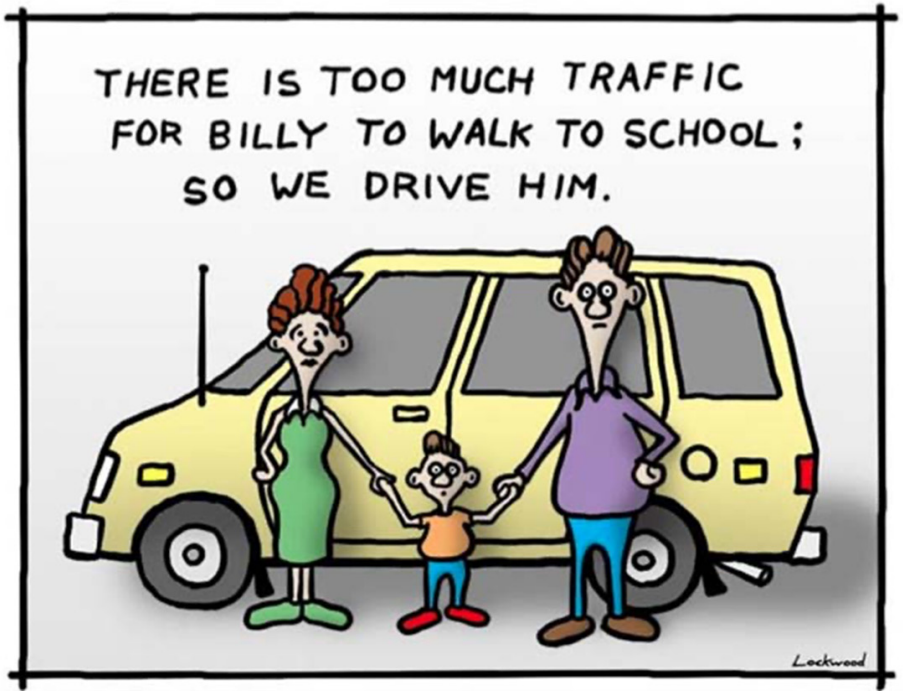
Caregivers travel to and from schools in a variety of ways, including walking, bicycling, taking transit, or driving. The modes they choose are influenced by many factors, including their abilities and preferences, travel distance, weather conditions, perceived safety and comfort, vehicle availability, work schedules, and the need to link multiple errands into a single trip.

Often arrive at school prior to dismissal.

Caregivers typically arrive before dismissal to be present when their student is released. The availability of comfortable places to wait can therefore affect their mode choice.

Their perceptions of safety affect student travel behavior.

When caregivers perceive streets as unsafe, they often choose to drive their student to school, even if they live close enough to walk or cycle independently and would otherwise be capable of doing so, which can result in more traffic near the school and exacerbate the perception that walking and bicycling are unsafe.



When caregivers of students who live close enough to walk or bicycle to school decide to drive them because of safety concerns, it can create a "vicious cycle" that exacerbates those concerns. Image: Ian Lockwood

What to know about school staff members?

Typically arrive before school arrival and leave after school dismissal.

School staff members typically arrive before most students to prepare for the day, coach sports teams, attend meetings, and help manage the arrival process. They often also stay after dismissal for similar reasons. As a result, their commutes to and from school often occur in low-light or dark conditions.

May use a variety of modes to access the school.

While many staff members are likely to live beyond a convenient walking or bicycling distance from school, some may live close enough to consider these modes if conditions are safe and comfortable. Others may be able to commute by transit. Staff members who choose to cycle may prefer cargo bikes, e-bikes, and other nontraditional cycle types that make it easier to carry school supplies and other materials.

What to know about community members

Often access schools outside school operating hours.

School buildings and grounds often function as community assets and are used for sports practices, recreational play, arts and cultural events such as concerts or theater performances, civic activities including public meetings and polling, summer school, and other programs. Many of these activities occur outside regular school hours, including evenings, weekends, and times of year when school is not in session.

May be any age or ability.

Community members who use school sites may be of any age or ability. The types of facilities available on a school campus can influence who is most likely to access it outside of school hours. For example, if a site includes a public playground, young students and their caregivers are likely to access the campus during these times. In some cases, adults may accompany students; in others, students may arrive independently.



Students crossing street in Parsippany Hills High School, Morris Plains, NJ

Summary of Key Characteristics for School Zone Planning and Design by Group

Group	Key Characteristics
Students in general 	• Not small adults. • Highly diverse. • More susceptible than adults to mistakes that can lead to crashes. • More vulnerable to crash forces than young and middle-aged adults. • May use school zone outside traditional arrival and dismissal periods. • Health and long-term development affected by street design. • May use streets and sidewalks for play and socializing.
Elementary School Students 	• Smaller than older students and adults. • Slower than older students and young and middle-aged adults. • Less predictable than older students and adults. • Usually travel with caregivers but beginning to build independence.
Middle School Students 	• Larger than young students but not yet adult-sized. • Faster than young students but walk more slowly in groups. • More predictable than young students but still engage in impulsive behavior. • More likely than young students to travel independently.
High School Students 	• Close to adult size but brains still developing. • Many travel independently. • Some are beginner drivers.

Group	Key Characteristics
Students with Disabilities 	• Part of every school community. • Have diverse needs. • May be slower than non-disabled peers. • May be more likely to be adversely affected by uneven surfaces and changes in level than non-disabled peers. • May be more likely than non-disabled peers to make mistakes that contribute to crashes. • More likely than non-disabled peers to travel with a caregiver.
Caregivers 	• May use a variety of modes to access school. • Often arrive at school prior to dismissal. • Their perceptions of safety affect student travel behavior.
School Staff Members 	• Typically arrive before school arrival and leave after school dismissal. • May use a variety of modes to access the school.
Community Members 	• Often access schools outside school operating hours. • May be any age or ability.

Cross-Cutting Needs

The process of planning and designing school zones requires navigating a range of constraints while balancing the needs of diverse groups. This section outlines cross-cutting needs that should inform school zone and campus design and identifies the school contexts (elementary, middle, and high school) in which these needs are most critical. Table 1 summarizes these needs by user group.

Low motor vehicle operating speeds

Low motor vehicle operating speeds (ideally 15-20 mph) are needed in all school contexts on streets adjacent to schools and along school pedestrian and bicyclist access routes to support driver reaction time and reduce the severity of crashes should they occur.[25] Extensive research demonstrates a direct relationship between vehicle speed and pedestrian injury severity and fatality risk.[26] This risk is elevated for students due to their limited experience navigating traffic and developmental factors that affect judgment, perception, and reaction time. Younger elementary and middle school students are particularly vulnerable because of their smaller stature, which makes them harder to see, and are more likely to sustain head and traumatic brain injuries.[27]

Enhanced visibility at intersections and crossings

Enhanced visibility at intersections and crossings is needed in all school contexts but particularly for elementary and middle school students, who are smaller and less visible to drivers. It is also critical for individuals with disabilities who use mobility aids, such as wheelchairs, which position them lower to the ground and make them harder for drivers to see. School zones that incorporate features such as raised crosswalks, curb extensions, and parking restrictions at intersection and crossing locations improve sightlines and make it easier for drivers to see and yield to students crossing the street.

Simple, clear pedestrian and cyclist crossings

Simple, clear pedestrian and bicyclist crossings are needed in all school contexts and are particularly important for elementary school students and students with disabilities, who may have difficulty determining where to position themselves in the roadway while crossing, dividing their attention among multiple tasks, judging gaps in traffic, or anticipating turning vehicles. Effective strategies include high-visibility marked crosswalks and bicycle lane continuation markings that clearly define where pedestrians and bicyclists should travel through an intersection; pedestrian refuge islands that allow users to focus



A parent with a child crosses the street. Image: VTC

on one direction of traffic at a time; accessible pedestrian signals that provide both audible and visual indications of when it is safe to cross; and restrictions on permissive motor vehicle turns to reduce conflicts and decision-making complexity.

More pedestrian crossing time

More pedestrian crossing time is particularly needed for elementary school students and caregivers, middle school students crossing in groups, students and adults with disabilities, and older adult caregivers and community members, who tend to walk more slowly. Signalized pedestrian crossing designs that provide more crossing time than the minimum required in the Manual on Uniform Traffic Control Devices (MUTCD) and Accessible Design Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG) can help avoid situations where individuals accessing the school are still in the crosswalk when the signal changes and opposing traffic is released. [28]

Continuous, physically separated pedestrian and bicycling facilities

Continuous, physically separated facilities are needed in all school contexts on streets where motor vehicle speeds exceed 10 mph to reduce the likelihood that students walking or bicycling will inadvertently enter the roadway, discourage motor vehicles from encroaching on pedestrian and bicycling space, and improve pedestrian and cyclist comfort. [29]

Accessible pedestrian and bicycling facilities

Accessible pedestrian and bicycling facilities that meet or exceed minimum accessibility standards in PROWAG and other national and state-level guidance are needed in all school contexts to accommodate students, staff members, and caregivers with disabilities. They are critical, particularly in the elementary school context, for caregivers who may push their child to school in a stroller.

Wider pedestrian and cyclist facilities

Pedestrian and bicyclist facilities, including sidewalks, pathways, bicycle lanes, and crosswalks--should be wide enough to comfortably accommodate expected volumes during peak arrival and dismissal times in all school contexts. Wider facilities are particularly needed on the school campus, on streets adjacent to schools, and along key pedestrian and cyclist access routes. Even where expected volumes are relatively low, facilities should be wide enough to enable caregivers to walk or cycle side-by-side with students and provide flexible space for informal play and social interaction.



Bicycle Parking in Verona. Image: VTC

Buffered sidewalks and pathways

Buffers are linear spaces between the sidewalk pedestrian through zone and adjacent motor vehicle or bicycle lanes. They are needed on pedestrian and bicyclist routes on arterial and collector roads in all school contexts to increase pedestrian safety and comfort and along local roads in elementary school contexts to address the tendency of young students to dart out unexpectedly into the roadway by providing extra room before they reach traffic.

Comfortable places to rest on school pedestrian and bicycling routes

Comfortable, well-placed seating areas are needed on school pedestrian and bicycling access routes to enable students and adults who tire more easily, such as younger students, students with disabilities, older adults, and pregnant women, to stop and catch their breath before proceeding on to school or home.

Comfortable places to wait on the school campus

Caregivers need comfortable, shaded places to wait on school campuses ahead of dismissal. When such places are absent, caregivers are more likely to drive, even if they live within a reasonable walking or bicycling distance, since cars provide protection from the sun and other weather conditions.

Bicycle parking spaces that can accommodate non-standard bicycles

Bicycle parking spaces that can accommodate non-standard bicycles are needed in all school contexts. Many families, students, and staff rely on bicycles that are larger or differently configured than standard two-wheel models. Examples include cargo bikes, trail-a-bikes, tricycles, and adaptive cycles. Larger bicycle parking spaces are particularly needed at the elementary school level, where caregivers are most likely to cycle with a child on or attached to their bicycle.

Safe routes to transit stops

Members of the school community who use transit to access the school need safe and comfortable pedestrian routes between their homes and transit stops and between transit stops and school entrances. Safe routes from transit stops are particularly important at the high school level, since high school students are more likely than younger students to be allowed to take transit. School staff members may also rely on transit to access the school.

Safe access outside traditional school arrival and dismissal times

All members of the school community need to be able to safely access school campuses outside traditional arrival and dismissal times, including in the evenings, on weekends, and at times when school is not in session. School zones must therefore be designed to support safe, comfortable travel even when crossing guards and staff are not present, and to ensure visibility and security in dark and low-light conditions.

Enhanced personal security

Personal security includes freedom from crime, assault, harassment, and profiling. Personal security is a top concern for caregivers of young students and students with disabilities, who may have a harder time identifying dangerous situations and may not know how to react if confronted. Personal security may also be a top concern among caregivers of students of color or with other differences that might make them more likely to be targeted. If caregivers perceive personal security risks on school pedestrian and bicycling routes, they are unlikely to allow their students to walk or cycle to school independently. Providing enhanced personal security requires a multi-pronged approach that includes community outreach, attention to infrastructure design, e.g., good lighting on walking and bicycling routes, and programmatic interventions.

Guiding Principles for School Zones

Considering the diverse user groups and needs described above, the following principles should guide school zone planning.

Design for students, caregivers, staff members, and communities

School zone and school site designs should respond to the characteristics and needs of the students at the school, their caregivers, school staff members, and the broader community.

Pursue an inclusive process

Students, caregivers, staff members, and community members should be engaged in the school zone planning process. Engagement is critical for understanding the diverse needs of these groups. Students can make an important contribution to understanding school zone needs, particularly at the elementary and middle school levels.

Promote safe speeds

Safe speeds are particularly needed along school routes and on streets adjacent to schools. School zones with speed limits of 20 mph or lower are recommended.

Design for multimodal access

School zones should encourage and enable safe walking and bicycling through provision of separated pedestrian and bicycling facilities and crossings. School zones are safer when students, caregivers, staff members, and community members choose to travel by walking, bicycling, school buses, or transit. Enabling and encouraging the use of non-car modes can also relieve traffic congestion at school arrival and dismissal times, which often coincide with peak commute times, and reduce the space dedicated to parking.

Design for 24/7/365 access

Schools serve many functions within a community. The school zone should be designed for safe access during all times and seasons. Designs should account for both peak and off-peak conditions.

Conclusion

School zones that prioritize safe, comfortable multimodal access for students, caregivers, staff, and the broader community can help prevent fatal and serious crashes, ease traffic congestion, promote healthy child development, better support families navigating daily routines, and enhance livability for all community members.



Students cross street in Parsippany Hills High School, Morris Plains, NJ

TIPS FOR INCLUSIVE SCHOOL ZONES

Who to engage:

- School administrators
- Teachers and paraprofessionals
- Caregivers
- Students
- People with disabilities
- Community members, e.g., community associations



Key questions:

- What types of facilities are located on the school site, e.g., classrooms, auditorium, gym, ballfields, playground?
- What types of people might need to access them?
- At what times of day, days of the week, months of the year?
- Where are people coming from?
- What routes and modes do they use?
- What safety and accessibility challenges do they face currently or what would need to change for them to walk, or bicycle, or use transit to access the school instead of driving?
- How might the area around the school (or the school itself) change in the future, e.g., due to new development or school re-purposing/expansion?
- What is needed to ensure safe access once those changes happen?

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22 Walk zones are areas where school bus service is not provided. Under New Jersey statute, school districts are required to provide transportation for elementary andmiddle school students who live more than two miles from their assigned school. For high school students, this threshold increases to 2.5 miles.
23 “2025 Special Education Public Reporting (IDEA Section 618).” New Jersey Department of Education, State of New Jersey, www.nj.gov/education/specialed/monitor/ideapublicdata/.
24 The term “cyclist” is used instead of “bicyclist” because “bicyclist” implies a person who rides a standard two-wheeled pedal cycle, whereas many people, includingchildren, older adults, and people with disabilities ride pedal cycles that are non-standard or have more than two wheels. “Cyclist” is therefore a more inclusive term.
25 Motor vehicle operating speeds are the speed which motor vehicles typically travel on a roadway. This speed may or may not correspond to posted speed limit. Evenlower operating speeds (10 mph) are needed in shared spaces, such as parking lot aisles, where pedestrians, cyclists, and motor vehicle drivers are likely to mix. .
26 Tefft, Brian C. “Impact Speed and a Pedestrian’s Risk of Severe Injury or Death.” Accident Analysis & Prevention, vol. 50, Jan. 2013, pp. 871–878. Elsevier, https://doi.org/10.1016/j.aap.2012.07.022.
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28 The MUTCD and PROWAG require the pedestrian clearance interval to be calculated based on a maximum pedestrian walking speed of 3.5 ft/s but allow for theclearance interval to be based on lower walking speeds. MUTCD Section 4I.06 specifically recommends that, “Where pedestrians who walk slower than 3.5 feet persecond, or pedestrians who use wheelchairs, routinely use the crosswalk, a walking speed of less than 3.5 feet per second should be considered in determining thepedestrian clearance time.”
29 In international practice, speeds of 15 kph/10 mph are recommended for shared spaces where pedestrians, cyclists, and motor vehicle drivers are expected to mix. See, for example, Furth, Peter G. Speed Management in the Netherlands. 20 May 2025, Northeastern University, https://bpb-us-e1.wpmucdn.com/sites.northeastern.edu/dist/e/618/files/2025/05/Speed-Management-in-Netherland.pdf. PDF