

Chickahominy Middle School Walkabout Report

Introduction

On October 18, 2021, stakeholders at Chickahominy Middle School in Mechanicsville, Virginia met to discuss conditions for walking and bicycling to school and identify potential projects to be included in a future infrastructure grant application. Stakeholders also discussed future developments in the neighborhood that will impact access to the middle school, as well as the adjacent elementary and high schools. Their participation in a VDOT Safe Routes to School (SRTS) Walkabout shows their support for improving the walking and bicycling environment and increasing the number of students safely walking and bicycling to school.



Figure 1 The entrance of Chickahominy Middle School.

and Atlee High dismissal. After dismissal, the full team visited key intersections along Atlee Station Road to discuss travel conditions. The two Virginia SRTS Program staff members made additional field observations after the walkabout meeting ended.

Meeting participants included the principal of Chickahominy Middle School, a parent, a teacher, members of the Hanover County school board and board of supervisors, a representative Bike/Walk Hanover, Virginia Safe Routes to School Program staff members, and representatives from the Virginia Department of Transportation. The names of the Walkabout Team members are listed in Appendix A.

Data Collection

Pedestrian and bicycle conditions were observed before, during, and after dismissal on October 18. An advance team of two Virginia SRTS Program staff members and two VDOT representatives observed conditions at and near the school before dismissal. The full walkabout team observed conditions during Chickahominy

Existing Conditions

School Location and Demographics

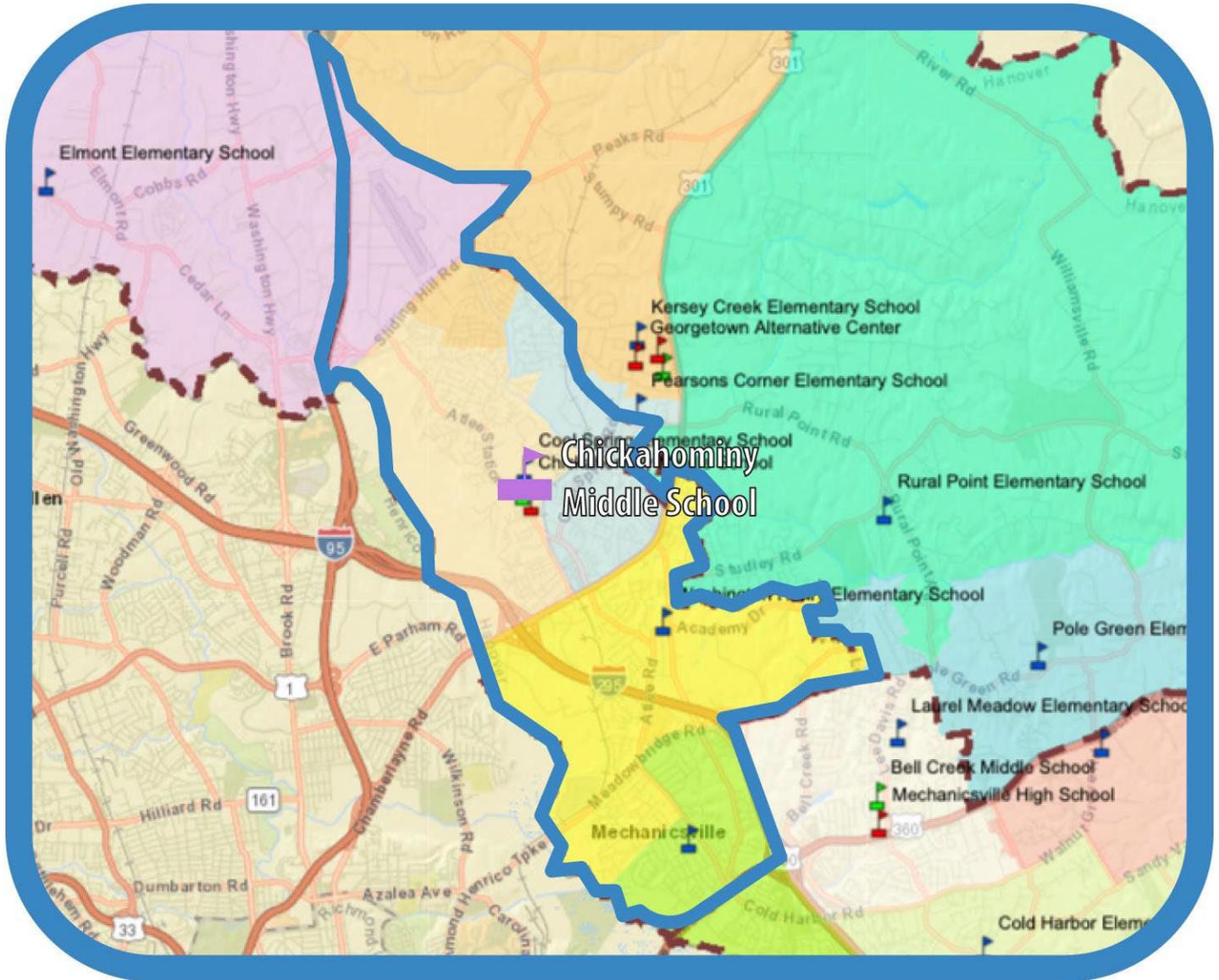


Figure 2 Chickahominy Middle School catchment area.

Chickahominy Middle School is located at 9450 Atlee Station Road in Mechanicsville, Virginia. It serves 1,073 students. The school is near the center of its attendance boundary in a largely residential area. Adjacent to the school is Cool Spring Elementary School, serving approximately 700 students, and Atlee High School, serving approximately 1,650 students.

Chickahominy Middle School opened in 1989 and is open five days a week for in-person instruction. The walkabout team witnessed roughly 30 students walking or bicycling home from the school's north entrance and another 30 at the intersection of Atlee Station Road and Halifax Green Drive, nearly all of whom did so unescorted. Due to an ongoing bus driver shortage, school buses run in multiple shifts, causing students to arrive late or wait after school. Combined with the pandemic this has resulted in more walking and bicycling, as well as more families driving their children to school.

The combined elementary, middle, and high school campuses are located at the intersection of a local collector street and an arterial road in a still-developing suburban community, as shown in Figure 2 **Error! Reference source not found.** A newly constructed overpass on Atlee Station Road is the primary walking route for students coming from the Rutland neighborhood south of the school. The overpass has sidewalks on one side, and the walkabout team observed middle and high school students using it.



Figure 3 The recently constructed overpass on Atlee Road.

Context and Future Development

Chickahominy Middle School is part of a larger "community school" campus that also contains Cool Spring Elementary School, Atlee High School, and recreational facilities associated with all three schools, which are also used by the public. All three schools feed into one another, meaning students could attend school here from kindergarten to high school graduation. Community members consider the complex a destination both for school activities and local gatherings.

The school is in a fast-growing section of Hanover County, which has resulted in significant change around the school. As shown in Figure 4 Figure 2, there are several new housing developments in various stages of construction nearby, including Summerduck Farm, Taylor Farm, and Giles, which is directly across Atlee Station Road from Chickahominy. A new entrance for Giles is currently under construction, which will turn the middle school's main driveway on Atlee Station Road into a four-way intersection.

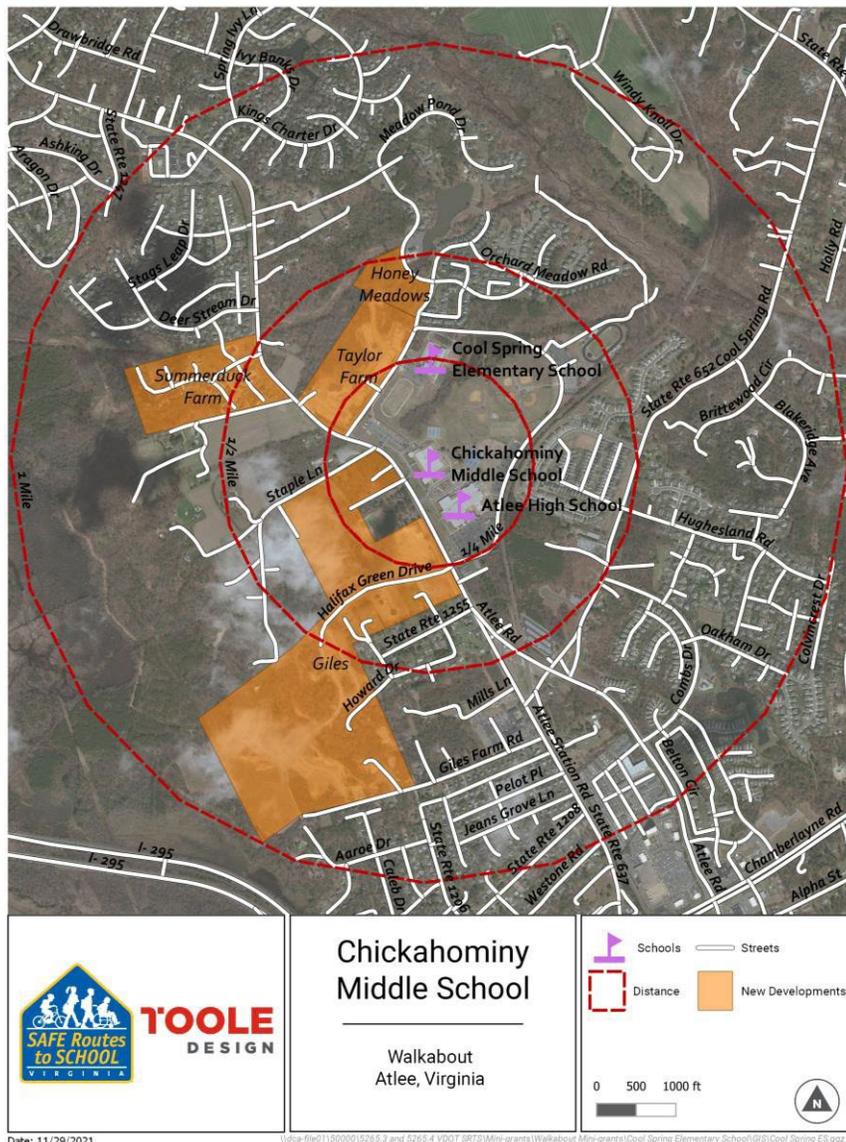


Figure 4 Map of Chickahominy Middle School location and surrounding area

sidewalks are not continuous, especially between developments, and often switch from one side of the street to the other side of the street without provision of safe pedestrian crossings.

Additionally, there has been significant roadway construction in the area. A new overpass for Atlee Station Road was built just south of the three schools, crossing the railroad tracks and connecting the schools to the Rutland neighborhood and the local YMCA. Students from Chickahominy use the overpass to walk home or walk to the YMCA. North of the schools, a new traffic signal has been installed at Atlee Station Road and Honey Meadows Road, while planning has begun to widen Atlee Station Road between the overpass and Kings Charter Drive from one through lane in each direction with turn lanes to two through lanes in each direction with turn lanes from the overpass north.

New housing construction in the area is an opportunity to encourage new families and students to walk and bicycle to school. In fact, a sign advertising Giles directly across from Atlee High School reads "Walk to Schools." There is a supportive culture for walking and bicycling in this community and broad support for more walking and bicycling facilities. However, community members expressed frustration about getting the investments in active transportation they want and need. A key complaint is that

Bicycle and Pedestrian Infrastructure

There are on-campus sidewalks that connect Chickahominy and Atlee High but no sidewalks on the school side of Atlee Station Road or Honey Meadows Road. Chickahominy has two well-used bike racks at its side entrance, and a third has been ordered. In 2019, the school constructed a driveway with adjacent sidewalk to connect the parking lot to Honey Meadows Road. During dismissal, student walkers used the sidewalk, while those on bicycles were directed to bike across the grass to reach Honey Meadows Road. There is one marked crosswalk from the school across Honey Meadows next to the driveway, and another at Atlee Station Road and Honey Meadows.

Around the school, the active transportation network is incomplete. Hanover County requires new developments to provide sidewalks, crosswalks, and intersection controls, but they are often uncoordinated and may not be required until a project's completion. As a result, some areas have high-quality paths and sidewalks that may stop at the edge of the subdivision, then resume across the street in front of another development. The lone on-street bicycle facility in the area is along Atlee Station Road between Westone Road and Halifax Green Drive, while some newly constructed sidewalks are wide enough to serve as shared-use paths.

There are few crosswalks and traffic signals are spaced far apart. The two closest traffic signals to Chickahominy, at Atlee Station Road and Honey Meadows Road and at Atlee Station Road and Atlee Road, are 3,400 feet apart, requiring students to cross Atlee Station Road at unsignalized intersections. Pedestrian crossing flags were observed at the intersection of Atlee Road and Hollycroft Court south of the overpass, which has a marked speed limit of 45 miles per hour. These flags are meant for people to carry while crossing the street so they will be more visible, and suggest that they were placed at this location because this intersection is unsafe for pedestrians. A traffic signal is planned at the intersection of Atlee Station Road and Halifax Green Drive but may not be installed until Giles is completed. The development will also provide a new sidewalk on the west side of Atlee Station Road between the high school and Honey Meadows Road, but the sidewalk will have a roughly 200-foot gap where three existing properties extend to the road, precluding any right-of-way for a sidewalk.

Where sidewalks or crosswalks are missing, the school has established preferred routes for students to use. Until recently, students would cross Atlee Station Road near Old House Lane where the sidewalk adjacent to the Summerduck Farm subdivision ended and another sidewalk picked up across the street outside Taylor Farm. An adjacent property owner did not want students waiting in her driveway to cross the street and made an agreement with



Figure 5 A "staging area" for students who walk and bike to and from school

the school that students would walk across the grass within VDOT's right-of-way to the signal at Honey Meadows Road and cross there instead. It is unclear whether students are following this direction.

Walkabout Summary

After a brief meeting with the principal and Walkabout applicant to review existing dismissal procedures and community concerns, Virginia SRTS staff walked around the school campus to observe dismissal preparations and students' release from both the front and the side of the school. SRTS staff used these observations to facilitate discussion of school dismissal, key issues, and potential opportunities at the meeting.

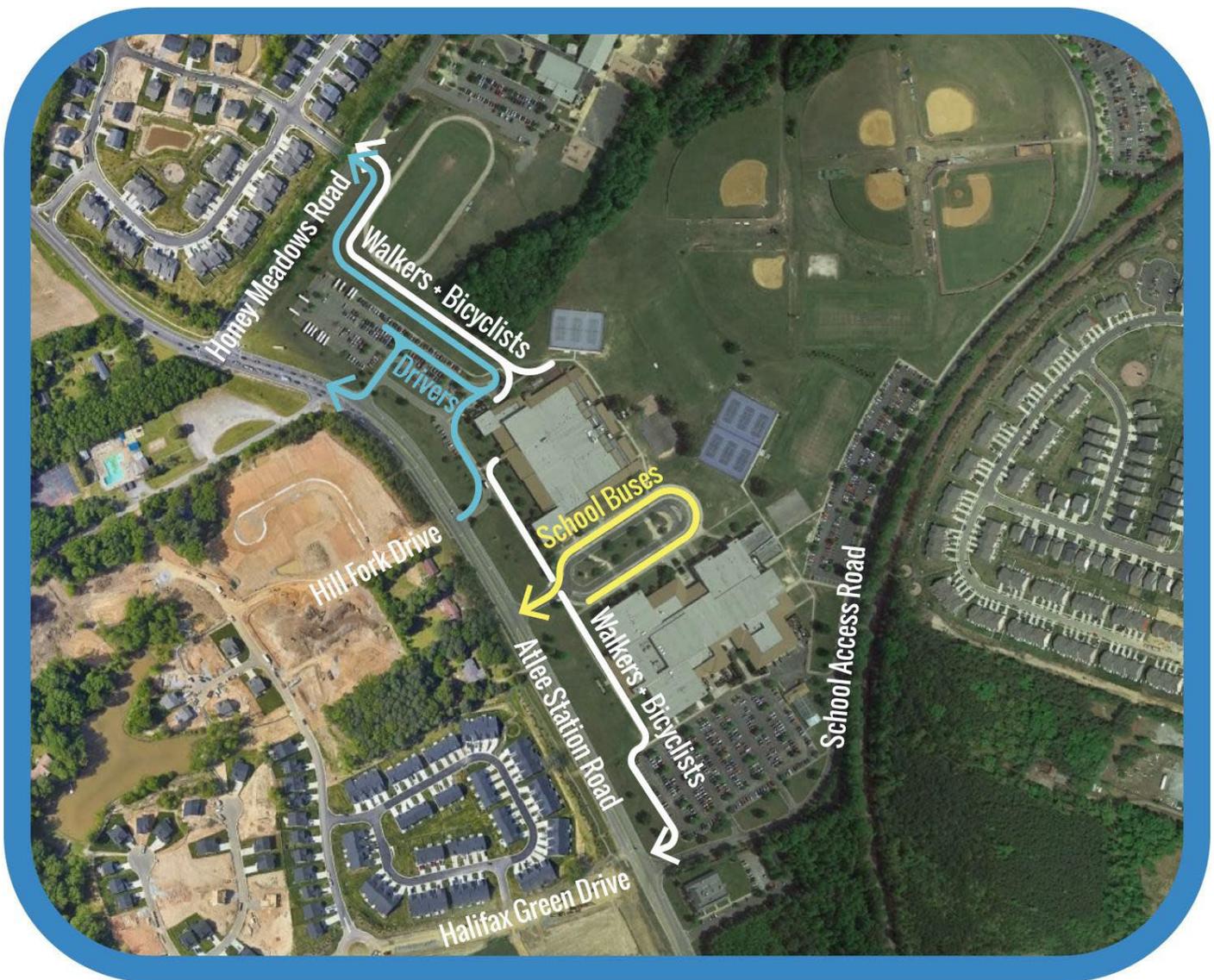


Figure 6 Diagram of dismissal at Chickahominy Middle School



Figure 7 Principal Beckett observes students biking home during dismissal.

Dismissal Overview

Both Chickahominy Middle School and Atlee High School end their school days at 3:45 pm. Dismissal at Chickahominy begins at 3:42 pm. Walkers and bikers are dismissed first from the side of the school by the bike rack, with students on foot directed to the sidewalk leading to Honey Meadows Road and those on bikes directed to ride in the grass. No guardians were observed meeting their children to walk or bike home.

The principal and staff members direct students as they leave and stop car traffic to let them cross the access road. A crossing guard is stationed outside Atlee High School, at the intersection of Atlee Station Road and Halifax Green Drive, to direct traffic and assist students crossing the street. There are no crosswalks or traffic controls at the intersection, and

the crossing guard stands in a traffic lane to stop cars and allow students to cross. Two videos of students crossing this intersection can be seen [here](#) and [here](#).

At 3:45 pm, students riding in cars are dismissed. As shown in Figure 6, drivers enter the school campus through the main entrance on Atlee Station Road and form two queues, one along the curb in front of the side door, and another through the parking lot. Students either walk to the curb or out to the parking lot. From there, drivers can either turn right from the lot to Atlee Station Road, or follow the driveway to Honey Meadows Road, where they can turn left on Atlee Station Road at the light. The pick-up line began forming around 3 pm, and by 3:45 had backed up onto Atlee Station Road. Likewise, a queue of cars waiting to turn had formed at the school exit on Honey Meadows Road.

At 3:55, students riding the bus are dismissed to allow drivers to clear out of the area before the buses leave. The bus loop is located on the opposite side of the school between Chickahominy and Atlee, as middle and high school students ride together. By 4 pm, most students walking, biking, or riding in a car have left. Each bus does two runs due to the driver shortage – one to neighborhoods closer to the school and again to neighborhoods farther away. Students were spotted waiting for their bus as late as 4:15.

Additionally, drivers were observed parking along the northbound side of Atlee Station Road to pick up students from both Chickahominy and Atlee, which is not part of either school's dismissal process. Once students were picked up, drivers would then make a U-turn across Atlee Station Road before proceeding southbound. This maneuver is dangerous not only for these individuals, but for all other traffic on Atlee Station Road, including people walking, bicycling, or riding in cars.



Crash Data

Between January 2018 and October 2021, there were 24 crashes within a half-mile radius of Chickahominy Middle School. Sixteen occurred during school hours, of which two resulted in an injury. Eight of these crashes involved teenage drivers and two involved drivers over age 65. A teenage driver was injured speeding on the school access road in 2018, but this occurred at 1:15 am, outside of school hours. Distracted driving was reported as a contributing factor in five crashes and speed was reported as a contributing factor in one crash. Speed and distraction are often underreported as contributing factors due to lack of evidence.

Key Issues and Barriers

The key barriers and issues identified by the Walkabout Team and Virginia SRTS Program staff are listed below. Location specific issues and recommendations are listed on the following pages. For additional information regarding key roadways mentioned in this barriers and issues discussion, including speed limits and annual average daily traffic (AADT), see Appendix B.

- The intersection of Atlee Station Road and Halifax Green Drive is the primary crossing for students coming from the south and from the Giles development but has no crosswalks or traffic control. A crossing guard is stationed in the center of this intersection to direct traffic and help students cross the street, but there are significant concerns about safety due to motor vehicle speeds on Atlee Station Road (speed limit 45 mph, 25 mph in school zone when flashers are operating), the number of teenage drivers, the cognitive challenge experienced by the crossing guard to direct traffic from four directions at once while crossing students, and the lack of marked crosswalks, traffic controls, and other infrastructure to support safe crossings.
- The Giles subdivision will have a new entrance (not open yet) at Atlee Station Road and Hill Fork Drive, across from the entrance for Chickahominy Middle School, but no traffic controls or crossings have been proposed.
- Sidewalks along Atlee Station Road stop and start on opposite sides of the street, forcing students to cross multiple times to go to and from school.
- North of the school, the sidewalk along Atlee Station Road ends at Summerduck Farm, then starts up again across the street in front of the Taylor Farm development. There is no marked crosswalk and visibility is a concern due to the speed of traffic and a curve in the road directly north of where students cross.
- South of the overpass, there are marked crosswalks but no signalized crossings. Students must cross here to access the YMCA and walk to school.
- The proposed widening of Atlee Station Road could provide much-needed sidewalks and paths but could exacerbate existing problems by encouraging higher motor vehicle volumes and speeds and increasing pedestrian crossing distances.

A map of the infrastructure recommendations for Chickahominy Middle School is provided in Figure 9. This map is followed by information detailing the issues and recommendations, with photos of existing conditions at each location.

A glossary of engineering terms is provided in

D. Glossary of Infrastructure Terms and key state policies supporting the recommendations are highlighted in

E. Key Policies Supporting Recommendations.

Recommendations

Study Corridor: Atlee Station Road/Atlee Road

Issue: Lack of pedestrian facilities

Atlee Station Road is a major collector road that is signed for 45 mph and carries about 11,000 vehicles per day. It has recently been rebuilt between Honey Meadows Drive and a newly constructed overpass at Atlee Road. Its section varies from three to five lanes wide at various points in the corridor, with one through lane in each direction and right- and left-turn lanes at different locations. At the overpass over the train tracks at the south end of the study area, Atlee Station Road becomes Atlee Road, a major collector road also signed for 45 mph and carrying about 8,100 vehicles per day. East of Cool Spring Road, Atlee Road has four vehicle travel lanes (two in each direction), left and/or right turn lanes at significant intersections, and a median.



Figure 8 Atlee Station Road

Recently built subdivisions along the road have included new sidewalks, including Summerduck Farm, Giles, and Rutland Center on the west side of Atlee Station, and Taylor Farm on the east side of Atlee Station. As a result, students are forced to cross the street multiple times to walk to school or walk along the shoulder where the sidewalk is missing. Plans to complete sidewalks on the west side of Atlee Station are complicated by opposition from property owners, including three properties directly across from Chickahominy.

There are only two signalized intersections along the corridor, at Atlee Station Road and Honey Meadows Road and at Atlee Station Road and Atlee Road, where a new overpass over the railroad tracks has been built. Otherwise, students must cross at unsignalized intersections, including a heavily used crossing between Atlee High School and the Giles development at Halifax Green Drive. Meanwhile, drivers were observed picking up students along Atlee Station Road then making U-turns in the middle of the block. VDOT traffic counts show that school arrival and dismissal are the busiest times of day for vehicle traffic along Atlee Station Road. The developer of Giles has agreed to install a traffic signal here but is not obligated to do so until the development has been completed.

Long-term plans call for widening Atlee Station Road between Halifax Green Drive and Kings Charter Drive from two through lanes to four through lanes. Hanover County has reserved the right-of-way and included the project in its Comprehensive Plan. The project is currently intended to include pedestrian and bicycle accommodations including sidewalks and wider lanes (for bicycling on the shoulder) or dedicated bike lanes. A process to develop a 10% design is about to get underway, but no public meetings have been scheduled.

Some community members feel that widening Atlee Station is an acceptable compromise to get the pedestrian and bicycle investments they desire. However, the project could come with significant trade-offs for people walking, bicycling, and driving, and could discourage parents from allowing their children to walk and bicycle to school. Although the project would likely be accompanied by pedestrian and bicycle infrastructure improvements, it may not improve conditions for pedestrians and bicyclists as much as anticipated. A wider road means pedestrians and bicyclists must cross more motor vehicle travel lanes and be in the roadway for longer, increasing their exposure to a crash, particularly at locations where there is no traffic control. A wider road would also facilitate higher motor vehicle speeds and volumes, which could increase the potential for crashes, and put people at a greater risk of severe injuries or death if one occurs. Additionally, while a wider road may alleviate traffic congestion in the near-term, road widenings are often not an effective long-term traffic mitigation strategy due to the phenomenon of “induced demand.”¹

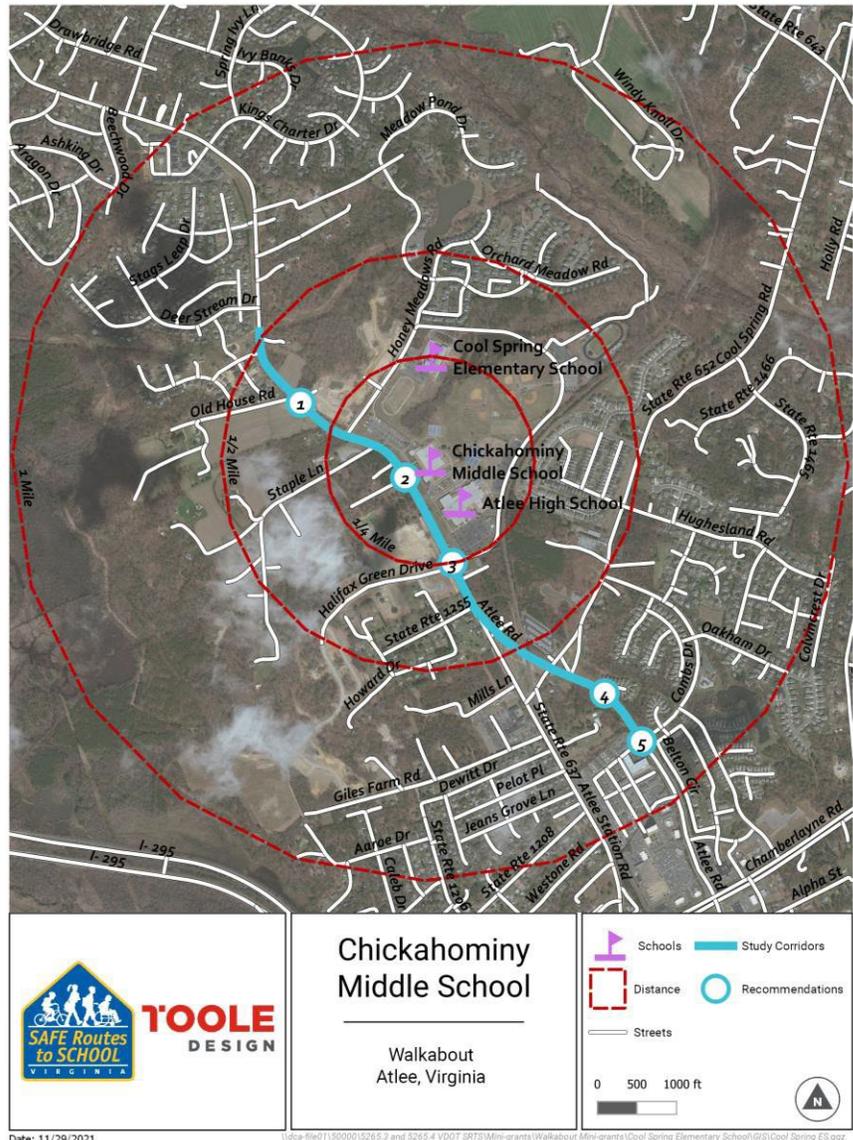


Figure 9 Map of recommendations

¹ See [Traffic Jam? Blame 'Induced Demand.' - Bloomberg](#) for an explanation of induced demand.



One short-term solution that can improve pedestrian and bicycle safety is to build a shared use path along the frontage of Chickahominy and Atlee High. Hanover County Public Schools owns this land and would not have to coordinate with other property owners. Another is to review the dismissal procedures at both Chickahominy and Atlee, to give drivers an alternative to picking up students on Atlee Station Road. This may include creating a new pick-up location or redesigning the route of the pick-up line.

In the long term, another alternative to widening Atlee Station Road could be installing a roundabout at Atlee Station Road and Honey Meadows Road, which could reduce congestion while calming traffic and reducing potential conflicts between drivers or between drivers, pedestrians, and bicyclists. This could be a temporary roundabout similar to others that have been installed in Virginia and is discussed in greater detail in following sections.

Short-Term Recommendations (1 to 3 years)

- Construct a shared use path for walking and bicycling along Atlee Station Road and Honey Meadows Road along the entire frontage of the school property. It should be a minimum of 10 ft. wide to accommodate pedestrians, joggers, and people using assistive mobility devices.
- Update county and development plans for proposed sidewalks along Atlee Station Road to a shared use path. It should be a minimum of 10 feet wide to accommodate pedestrians, joggers, and people using mobility devices.
- Explore opportunities to improve the dismissal process, including alternative pick up locations or changing the route of the pick-up line.

See **Safe Behaviors** on p. 200 for short-term recommendations addressing speed awareness and enforcement along the study corridor.

Long-Term Recommendations (4 to 7 years)

- Conduct a traffic study to evaluate existing and future needs along Atlee Station Road, including alternatives to widening Atlee Station Road that can address vehicle congestion and improve pedestrian and bicycle safety. This could involve building a landscaped median in the existing footprint with turn lanes or installing a roundabout at Honey Meadows Road.
- Provide pedestrian-scaled lighting along Atlee Station Road and at any crossings to ensure adequate levels in low-light conditions. Proper lighting levels are important for students as they improve visibility while crossing intersections and provide a more comfortable and secure experience on trails and sidewalks.
- Study building additional sidewalks on the east side of Atlee Road between Hollycroft Court and the Halifax Green Drive; the west side of Atlee Road between Hollycroft Court and Combs Drive, and along the west side of Atlee Station Road between Honey Meadows Road and Summerduck Farm.
- Investigate opportunities to create mid-block crossings, such as at the shared driveway between Chickahominy Middle School and Atlee High School. These locations should always include pedestrian refuge islands for people to wait while crossing.

Policy Recommendations

- Ensure that sidewalks in new developments connect to sidewalks on adjacent property to create a complete network.
- Ensure that planning approvals require developers to complete sidewalks and other critical transportation safety infrastructure before the development is occupied by residents.
- Require new developments to provide internal connections to adjacent parcels, which will give local traffic alternatives to using Atlee Station Road.
- Improve community outreach to ensure that concerns about traffic safety are heard and addressed.

Map ID 1: Atlee Station Road at Carsten Lane (Summerduck Farm)

Issue: Lack of safe pedestrian crossings

Many students walking or biking to school cross here, as the sidewalk on the west side of Atlee Station Road ends and picks up again on the east side. The sidewalks were each completed as part of two recent developments, Summerduck Farm and Taylor Farm. There is no marked sidewalk or traffic control here, and during the walkabout an adult was seen waiting for a gap in traffic to run across the street. Until recently, students on the west side of the street stood at the end of Old House Road (a private drive) while waiting to cross. The property owner complained to the school that students were blocking the private drive, and the school agreed to have students instead walk along the grass within VDOT's right of way to the signal at Honey Meadows Road.



Figure 10 Crossing against the light on Atlee Station Road near Carsten Drive

One challenge to creating a safe crossing here is that the intersection of Atlee Station Road and Carsten Lane is roughly 100 feet south of the sidewalk gap. A crosswalk could be installed between the ends of the existing sidewalks, but it would be offset from the intersection. To be ADA compliant, this crossing would need to have a separate curb ramp from the driveway, which would require a culvert to traverse the drainage ditch north of the driveway.

The sidewalk on the west side could be extended south to Carsten Lane but would involve additional construction and potential acquisition of right of way. This report recommends installing a crosswalk between the ends of the existing sidewalks with a rectangular rapid flashing beacon (RRFB), which would alert drivers to the presence of pedestrians and encourage them to stop. In the long term, the sidewalks on the west side of Atlee Station Road may be completed as



part of future development or road reconstruction, at which time a crosswalk can be relocated to the intersection of Atlee Station Road and Carsten Lane.

A second challenge is the configuration of the intersection itself, as the Carsten Lane approach has a wide turning radius which encourages speeding. When a crosswalk is installed here, curb extensions should be placed at each corner to both reduce the crossing distance and slow drivers while they turn, which will require removing the existing splitter island. If Atlee Station Road is widened, consider installing a pedestrian refuge island on Atlee Station at the intersection to give people a place to wait while crossing the street. This refuge island could be configured to physically prohibit left turns from southbound Atlee Station Road onto Carsten Lane, just as the splitter island appears to do now.

Short-Term Recommendations (1 to 3 years)

- Install a high-visibility crosswalk on the west side of Old House Road. Extend sidewalks on either side of street to crossing, add curb ramps, and install culvert in drainage ditch on west side of street.
- Install an RRFB at the crosswalk.
- Investigate grant opportunities to extend the sidewalk on Atlee Station Road to Carsten Lane and relocate the crosswalk to Carsten Lane.

Long-Term Recommendations (5 to 7 years)

- Complete the sidewalk along the west side of Atlee Station Road.
- Reconfigure this intersection to reduce curb radii and remove median island.
- Install high-visibility crosswalks and curb ramps at all legs of the intersection.
- Install a pedestrian refuge island for people crossing Atlee Station Road.

Map ID 2: Atlee Station Road at Hill Fork Drive/Chickahominy Middle School.

Issue: Lack of safe pedestrian crossings

This intersection is directly in front of Chickahominy Middle School and connects the school driveway, where vehicles enter for pick-up and drop-off, to Hill Fork Drive, a new street within the Giles development that as of this writing had not opened yet. When completed, this intersection will allow for traffic movements in all directions but will not have a traffic signal. Additionally, there are no sidewalks on any leg of this intersection, though curb ramps have been constructed on the west side of Atlee Station Road. At the southwest corner of this intersection are three property owners not part of Giles who have all expressed opposition to a sidewalk in front of their properties, and community leaders say there is no right-of-way available to continue the sidewalk without shifting the road to the east.

This intersection will likely become a primary access for students walking from Giles to Chickahominy, as it will be the most direct path for students living in this portion of the development. Additionally, if a sidewalk cannot be constructed south of this intersection on the west side, students will have to cross here to reach Atlee High School and areas to the south. Providing a safe place to cross here is imperative. It is unclear if sidewalks are planned for Hill Fork Drive, but if not, a "walking lane" could be striped along the street once it is transferred from the developer to the County.

Another consideration is to reverse the direction of the Chickahominy Middle School pick-up line, which currently enters from Atlee Station Road at Hill Fork Drive and exits on Honey Meadows Road at Hollythorne Lane. Instead, drivers could enter from Honey Meadows Road and exit at Atlee Station Road. This could provide considerably more queuing space for parents on the school property without backing up into Atlee Station Road, though it would require a traffic signal at Atlee Station Road and Hill Fork Drive to allow drivers to exit and turn left.

Short-Term Recommendations (1 to 3 years)

- Install a high-visibility crosswalk and curb ramps on the north, west, and east legs of the intersection. A crosswalk on the south side may not be feasible until sidewalks are completed.
- Construct a sidewalk along the east side of Atlee Station Road in front of Chickahominy.
- Stripe a “walking lane” along the north side of Hill Fork Drive.
- Investigate grant opportunities to construct a sidewalk along the west side of Atlee Station Road.
- Investigate the possibility of reversing the direction of the pick-up line.

Long-Term Recommendations (4 to 7 years)

- Pursue the construction of a sidewalk along the north side of Hill Fork Drive.
- Pursue the construction of a sidewalk along the west side of Atlee Station Road from the terminus of the existing sidewalk north of Halifax Green Drive to Hill Fork Drive.

Map ID 3: Atlee Station Road at Halifax Green Drive/School Access Road

Issue: Lack of pedestrian or bicycle infrastructure

This intersection is the main access point for Chickahominy Middle School and Atlee High School for students arriving from the south, as well as students living in Giles, which has one of its two entrances here. It is where students on foot cross Atlee Station Road to reach both schools, as well as all car traffic headed to Atlee High School. There is no traffic signal here nor crosswalks. There is a sidewalk on the south side of Halifax Green Drive and on the west side of Atlee Station in front of Giles, which connects to the sidewalk on the Atlee Station Road overpass. During dismissal, a crossing guard stands in the middle of the intersection directing traffic, which backs up in both directions along Atlee Station.



Figure 11 Hill Fork Drive, which as of October 2021 was not open, will connect to Atlee Station Road across from Chickahominy Middle School.



Figure 12 During dismissal, the crossing guard stands in the middle of Atlee Station Road at Halifax Green Drive to stop traffic, and students rush to cross the road. The intersection has no crosswalks or traffic controls.

Plans for Giles call for a traffic signal when the development is completed, but it may wait until the proposed road widening occurs. Nonetheless, the intersection's size means that students have a long crossing distance. When they arrive on the school side of the street, there is nowhere to walk. If Atlee Station Road is widened to four lanes, students will have an even greater distance to cross, and likely more and faster vehicle traffic to contend with.

Permanent intersection improvements are costly, and coupled with the wait for a traffic signal, could require a lot of money and time to implement. In the meantime, this report recommends installing a roundabout using temporary materials. Roundabouts have been shown to discourage speeding, reduce traffic collisions, and more efficiently move vehicle traffic, even with one lane in each direction. Roundabouts typically also include medians at each approach that can double as pedestrian refuges, both for people crossing the street and in this case for the crossing guard.

A roundabout currently exists on Honey Meadows Drive, and an example of a temporary roundabout can be found in Fairfax County, where VDOT installed one at the intersection of Ravensworth Road and Jayhawk Street. One consideration for a roundabout at this location is that the current practice of parents picking up on Atlee Station Road very close to Halifax Green Drive could create back-ups that extend through the roundabout. This practice would need to be eliminated by for the roundabout to function well from a traffic flow perspective. See **Safe Behaviors** on p. 200 for recommendations on arrival and dismissal procedures.



Figure 13 Modular temporary roundabout in Fairfax County

Short-Term Recommendations (1 to 3 years)

- Install a temporary roundabout and approaches at the intersection.
- Install high-visibility crosswalks at all four legs of the roundabout.
- Construct curb ramps at all four corners with detectable warning surfaces.

Map ID 4: Atlee Station Road at Hollycroft Court

Issue: Lack of safe pedestrian crossings

At this intersection, the sidewalk on the west side of Atlee Road ends and picks up on the east side, requiring students going home or visiting the YMCA to cross here. There is only one crosswalk across Atlee Road, and it is uncontrolled. Flags have been provided for people crossing the road, which is signed for 45 mph.

Short-Term Recommendations

- Stripe a high-visibility crosswalk across Atlee Road and Hollycroft Court.
- Using vertical delineators, reduce the curb radii at each corner and extend the median to create a refuge island.

Long-Term Recommendations

- Complete the sidewalk along the west side of Atlee Road between Hollycroft Court and Rutland Center Boulevard.



Figure 14 Flags for people crossing at the intersection of Honey Meadows Road and the school access road

Map ID 5: Atlee Road at Rutland Center Boulevard/Combs Drive

Issue: Lack of safe walking and bicycling facilities, lack of safe pedestrian crossings

This intersection is used by students who either live in Rutland and are walking home from school or are visiting the Atlee Station Family YMCA. To reach the YMCA, students must walk along the east side of Atlee Road and cross here. There is no traffic signal here, and there are no crosswalks across Rutland Center Boulevard/Combs Drive or on the south leg of Atlee Road.

This location could be appropriate for a pedestrian hybrid beacon (PHB), which would alert drivers to the presence of pedestrians and encourage them to stop. In the long term, the sidewalks on the west side of Atlee Road may be completed as part of future development or road reconstruction.



Figure 15 Students and families use desire path along Honey Meadows Road

Short-Term Recommendations

- Install a high-visibility crosswalk and curb ramps on the west and east legs of the intersection. A crosswalk on the south side may not be feasible until sidewalks are completed.
- Study the feasibility of a PHB at the intersection.

Long-Term Recommendations

- Complete the sidewalk along the west side of Atlee Road.
- Install a PHB and study the feasibility of a traffic signal at this intersection.



Previous Recommendations

In May 2021, Virginia SRTS held a walkabout at Cool Spring Elementary School, adjacent to Chickahominy, and provided recommendations for pedestrian and bicycle safety that are also relevant to Chickahominy, particularly as they relate to Honey Meadows Road and the School Access Road. That walkabout report also included recommendations for Atlee Station Road, which align with those included in this report. A summary of previous recommendations is below.

Atlee Station Road and Honey Meadows Road

Short-Term Recommendations (1 to 3 years)

- Install high-visibility crosswalks and curb ramps on all three legs of the intersection.

Honey Meadows Road and Hollythorne Lane/Chickahominy MS Driveway

Short-Term Recommendations (1 to 3 years)

- Install high-visibility crosswalks on all four legs of the intersection.
- Install curb ramps on the south leg of the intersection where they are missing now.
- Replace the painted median on the north approach to Hollythorne Lane with a curbed median and pedestrian refuge. Place in-street pedestrian crossing signs to alert drivers of the pedestrian refuge.

Long-Term Recommendations (4 to 7 years)

- Consider removing left-turn lane at south approach to Hollythorne Lane and replacing with a pedestrian refuge.

School Access Road

Short-Term Recommendations (1 to 3 years)

- Extend the sidewalks along the Cool Spring Elementary bus loop to the access road.
- Install signage (W16-1P) to indicate to drivers that they must share the road with pedestrians and bicyclists.
- Install advisory bike lanes or shoulders to alert drivers that bicyclists may be present on the road.

Long-Term Recommendations (4 to 7 years)

- Construct a sidewalk on the south side of the access road connecting to the Cool Spring Elementary bus loop. At the bridge, this would reduce the width of the drive aisle to make room for a sidewalk.
- Provide a high-visibility crosswalk where the access road sidewalk crosses the bus loop.
- Provide pedestrian-scaled street lighting to ensure adequate levels in low-light conditions. Proper lighting levels are important for students walking in the early mornings and during inclement weather.



Atlee Station Road

Short-Term Recommendations (1 to 3 years)

- Construct a shared use path for walking and bicycling along Atlee Station Road on school property between the access road and Honey Meadows Road. It should be a minimum of 10 ft. wide to accommodate pedestrians, joggers, and people using assistive mobility devices.
- Update county and development plans for proposed sidewalks along Atlee Station Road to a shared use path. It should be a minimum of 10 ft. wide to accommodate pedestrians, joggers, and people using assistive mobility devices.

Long-Term Recommendations (4 to 7 years)

- Upgrade sidewalks on the west side of Atlee Station Road to a shared-use path.
- Provide pedestrian-scaled lighting along Atlee Station Road and at any crossings to ensure adequate levels in low-light conditions. Proper lighting levels are important for students walking in the early mornings and during inclement weather.

Programmatic Recommendations

SRTS programmatic recommendations are designed to work in conjunction with each other and the infrastructure recommendations to encourage more students to walk and bicycle to school and instill safe walking, bicycling and driving practices. The recommendations are organized according to the [Virginia SRTS Building Blocks](#): Equitable and Sustainable Program, Welcoming Campuses, Safe Behaviors, Supportive Culture. .

Equitable & Sustainable Program

Begin conducting Student Travel Tallies to get baseline data for student travel patterns. In Virginia, schools across the state record how students are getting to school during Student Travel Tally Week. Student Travel Tally Week normally takes place on a week of the school's choosing in September or October. Student Travel Tally data can be used to assess progress toward increasing the number of students who walk and bike to school. For more information about Student Tally Week, go to the Virginia SRTS Program website.

http://www.virginiadot.org/programs/srts_student_travel_tally_week.asp

Administer Parent Surveys to collect information on parents' attitudes towards walking and bicycling and reasons why they may or may not allow their children to walk or bike to school, especially after recommended infrastructure changes are complete. Administering parent surveys at least every other year can help determine whether Safe Routes to School efforts are changing parents' attitudes towards walking and bicycling to school. For tips on administering Parent Surveys, see the Virginia SRTS Program's **Learn it. Do it. Live it!** tip sheet.

https://www.virginiadot.org/programs/resources/safe_routes/2016-2017/Resources/Parent_Survey_LDLv2.pdf



Safe Behaviors

Implement speed awareness and enforcement strategies to reduce motor vehicle speeds in the school zone. Yard signs, speed feedback devices, and photo enforcement can be used to encourage slow, cautious driving in the school zone. Photo enforcement has recently been enabled by the state of Virginia (See Appendix



E. Key Policies Supporting Recommendations). A school zone enforcement area could be implemented at Chickahominy to raise funds for improvements. Yard sign graphics and other school zone safety resources are available on the Virginia SRTS website: http://www.virginiadot.org/programs/srts_zone_in_not_out.asp

Coordinate with Atlee High School to communicate with parents about arrival and dismissal procedures and expectations using email, the school website, and other appropriate means. The communication should indicate that walking, bicycling, and taking the school bus are the preferred means for students to access the school and address problematic or unsafe driver behaviors, including pick-up and U-turning on Atlee Station Road. See Arrival and Dismissal in the Zone for additional ideas about how to adjust arrival and dismissal to support sustainable transportation and safety:

https://www.virginiadot.org/programs/resources/SRTS_2016/ZINO_Arrival_and_Dismissal_in_the_Zone.pdf

Provide parents and guardians with safe driving information. This information should stress the importance of driving safely in school zones and being alert for pedestrians and bicyclists during arrival and dismissal. Information can be distributed via email, newsletters, social media, and/or events like back-to-school nights, health and safety fairs, Walk to School Days, or virtual meetings. Several organizations offer free materials on their websites:

- The National Center for Safe Routes to School has a helpful list of “Driving Tips Around Schools: Keeping Children Safe.” http://apps.saferoutesinfo.org/lawenforcement/resources/driving_tips.cfm
- The Federal Highway Administration has an entire website devoted to reducing distracted driving, including information and free downloadable materials. <http://www.distraction.gov/content/take-action/downloads.html>
- The National Safety Council also has a page dedicated to distracted driving resources. Find it here <http://www.nsc.org/learn/NSC-Initiatives/Pages/distracted-driving-resources.aspx>
- The Virginia Safe Routes to School Program has a Zone In, Not Out school zone safety program which includes a safe driver pledge kit and yard signs. Resources are available on the Virginia SRTS website: http://www.virginiadot.org/programs/srts_zone_in_not_out.asp

Integrate pedestrian and bicycle safety education into the school curriculum. Pedestrian and bicycle safety education should occur in advance of major walk or bike to school events, so students are adequately prepared and have an opportunity to practice the skills they have learned. Two pedestrian safety resources are listed below, and both are free:

- The *Pedestrian Safer Journey* curriculum was developed by the Federal Highway Administration and features videos, quizzes and additional resources for educators teaching pedestrian safety. http://www.pedbikeinfo.org/pedsaferjourney/el_en.html
- *Bikeology* was developed by SHAPE America and the National Highway Traffic Safety Administration. The curriculum includes both knowledge-building lessons and on-the-bicycle lessons to becoming safe bicyclists. The program also provides a guide for parents to support safe bicycling at home. https://www.shapeamerica.org/publications/resources/teachingtools/qualitytype/bicycle_curriculum.aspx

Supportive Culture



Participate in International Walk to School Day. Walk to School Day is an excellent opportunity to get students walking, teach the benefits of an active lifestyle, and highlight walking and biking issues. Even if students can't walk to school, a Walk AT School event can help establish a walking culture. Resources to help plan Walk to School Day are available on the Virginia SRTS Program website. http://www.virginiadot.org/programs/srts_all_website_resources.asp

Establish a frequent walker program. Frequent walker programs encourage students to walk by offering incentives to students who walk frequently or by establishing a competition between classes. A simple record keeping system must be created to track student walking. The Virginia SRTS Program provides a punch card template that can be used for this purpose. http://www.virginiadot.org/programs/srts_marketing_toolkit.asp

Establish a bike library for both middle and high school students. A bike library allows students to temporarily check out a bicycle. Students who do not have a personal bicycle or cannot safely ride their bicycle to school would benefit from a bike library. To create a bike library, the school system should purchase durable bikes that require minimal maintenance and can be adjusted for size. Students can use their student ID or a library card-like system to check out a bike; the system should track usage and record the location of the bikes. A waiver may be necessary to protect the school system from liability. To ensure accessibility for all, the program should be free to students. For examples of local bike libraries, refer to the following links. <https://smcl.org/blogs/post/bike-to-your-library-day-book-a-bike/>
<https://letsmovelibraries.org/wp-content/uploads/2018/05/Book-A-Bike-Chapter.pdf>
<https://www.playcore.com/news/case-study-rural-virginia-community-rediscovers-the-joy-of-bike-riding>

Appendices

A. Walkabout Participants

Name	Organization
Mark Beckett	Principal, Chickahominy Middle School
Ric Hertless	Teacher, Chickahominy Middle School
Amanda Kronenberg	Parent, Chickahominy Middle School
John Wheeler	Principal, Atlee High School
Bob Hundley	Hanover County School Board
Angela Kelly-Wiecek	Hanover County Board of Supervisors
Garry Whelan	Bike/Walk Hanover
Katherine Graham	VA SRTS Coordinator, VDOT
Dan Reed	VA SRTS Local Technical Assistance Coordinator, Toole Design
Jim Elliott	VA SRTS Local Technical Assistance Coordinator, Toole Design

B. Road Information Table



Street Name	Posted Speed Limit (mph)	Approximate Road Width	No. of travel lanes in each direction	AADT ²	Road Classification ³
School Access Road	Not Posted	25 ft	1	Not Available	Local
Atlee Road	45	60 ft	2	8,100	Major Collector

C. Planning-Level Cost Estimates

Item	Unit	Low Estimate	High Estimate
Crosswalk	Each	\$20,000	\$30,000
5-foot sidewalk	Per mile	\$313,000	\$1,013,000
10-foot shared use path	Per mile	\$1,120,000	\$1,800,000
Rectangular Rapid Flashing Beacon	Each	\$4,500	\$52,000
Pedestrian Hybrid Beacon	Each	\$21,000	\$128,000
Temporary roundabout	Each		\$175,000
Curb extension or median extension (using vertical delineators)	Per corner	\$2,000	\$20,000

D. Glossary of Infrastructure Terms

The following infrastructure treatments can be used to improve the bicycle and pedestrian environment around Chickahominy Middle School. Location-specific recommendations are referenced under the section, Infrastructure (Engineering) Recommendations

Crosswalks

Marked crosswalks highlight the portion of the right-of-way where motorists can expect pedestrians to cross and designate a stopping or yielding location. They also indicate to pedestrians the optimal or preferred locations to cross the street. At midblock or other uncontrolled locations, crosswalks should use a high-visibility pavement marking pattern and be accompanied with pedestrian crossing signs that meet current Manual on Uniform Traffic Control Devices (MUTCD) standards. In addition, crosswalks can be raised on a speed table to be level with the sidewalk. This

² Average Annual Daily Traffic (AADT) counts from 2020 VDOT Daily Traffic Volume Estimates, <https://www.virginiaroads.org/datasets/traffic-volume>

³ Road classification from VDOT, http://www.virginiadot.org/projects/fxn_class/maps.asp



design helps slow drivers, increase pedestrian visibility and make it easier for pedestrians with mobility limitations to cross the street.

Curb Ramps

Curb ramps provide access between the sidewalk and roadway for people using wheelchairs, strollers, and bicycles. Curb ramps must be installed at all intersections and midblock locations where pedestrian crossings exist, as mandated by the 1990 Americans with Disabilities Act. In most cases, a separate curb ramp for each crosswalk at an intersection should be provided rather than a single ramp at the corner for both crosswalks. Current guidelines for curb ramp designs are included in the Public Right-of-Way Accessibility Guidelines, Chapter R3: Technical Requirements.

(<http://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way/proposed-rights-of-way-guidelines/chapter-r3-technical-requirements>)

Crossing Islands

Crossing islands are raised median islands placed in the center of the street at intersection approaches or midblock. They allow pedestrians to cross one direction of traffic at a time by enabling them to stop partway across the street and wait for an adequate gap in traffic before crossing the second half of the street. They can reduce crashes between vehicles and pedestrians at uncontrolled crossing locations on higher volume multi-lane roadways where gaps are difficult to find, particularly for slower pedestrians, e.g. disabled, older pedestrians, and children. The application would need to be studied before implementing crossing islands on state roads.

High-Visibility Crosswalks

While standard crosswalks use transverse lines (two parallel lines), high-visibility crosswalks also use bar-pairs, ladders, longitudinal lines, or zebra patterns to improve detection of the crosswalk.

In-Street Pedestrian Crossing Signs

In-street pedestrian crossing signs placed in the roadway at pedestrian crossing locations warn drivers and encourage yielding.

Manual on Uniform Traffic Control Devices (MUTCD)

This document produced by the Federal Highway Administration specifies the standards that traffic signals, signs, and roadway markings must adhere to including shapes, colors, fonts, and placement. The *2011 Virginia Supplement to the MUTCD* contains standards and guidance specific to Virginia.

Pedestrian Lighting

Lighting should be provided near transit stops, commercial areas, or other locations where night-time or pre-dawn pedestrian activity is likely. Pedestrian-scale lighting such as street lamps helps illuminate the sidewalk and improves pedestrian safety and security.

Public Right-of-Way Accessibility Guidelines (PROWAG)



The United States Access Board produces guidelines to ensure all pedestrians have equal access to sidewalks and streets, including crosswalks, curb ramps, street furnishings, pedestrian signals, parking, and other components of public rights-of-way.

School Speed Limit Signs

School speed limit signs alert drivers that they are entering a school zone and need to prepare to yield to students that may be crossing the street. School speed limits vary based on local laws and typically range from 15 to 25 mph. School speed limit signs with lights that flash (flashing beacons) during arrival and dismissal times can be more effective on busy streets, however, all school speed limit zones require occasional police enforcement to ensure driver compliance. Refer to the Manual on Uniform Traffic Control Devices (MUTCD) for more guidance.

Sidewalks

Sidewalks provide pedestrians and younger bicyclists a safe place to travel that is separate from motor vehicles. It is important to provide a continuous sidewalk route, connected with high-visibility crosswalks so that pedestrians are not forced to share travel space with motor vehicles. All sidewalks should meet ADA guidelines for width and cross-slope and include curb ramps that meet ADA guidelines at street crossings.

Traffic Calming

Traffic calming measures are designed to improve safety for motorists, pedestrians and bicyclists, usually by altering the physical design of the roadway to reduce motor vehicle speeds. Common traffic calming measures include speed tables, curb extensions, chicanes, and neighborhood roundabouts.



E. Key Policies Supporting Recommendations

VDOT Crosswalk Policy VDOT IIM-TE-384.04

VDOT's crosswalk policy states that potential advantages of marked crosswalks include:

- Providing a visible reminder to motorists that pedestrians may be present.
- Directing pedestrians to the location of the recommended crossing path.
- Reducing the likelihood that drivers will encroach the intersection or block pedestrian traffic when stopping for a STOP or YIELD sign
- Designating the location of approved school crossings or crossings along recommend school routes

For marked crosswalks at stop-controlled intersections, relevant criteria are provided in Section 5.2 of the policy, including:

- The crossing is part of a walking route approximately ¼ mile or less between a residential development of moderate or heavy density and a school or recreational area,

For marked crosswalks at uncontrolled intersections, relevant criteria are provided in Section 5.3 of the policy, including:

- The crossing is on a direct route between significant pedestrian generator(s) and attractor(s), where engineering judgment determines that the crosswalk would likely see a minimum of 20 pedestrians/bicyclists using the crosswalk in an hour. That threshold may be reduced to 10 pedestrians per hour if the crossing is expected to be used by a high number of vulnerable pedestrians (pedestrians who are disabled, age 65 and over, or age 15 and under), or if the reduced volume is met for three consecutive hours.
- The location is 300 feet or more from another marked crosswalk across the same road.
- Drivers will have an unrestricted view of the entire length of the crosswalk, including the waiting areas at either end of the crosswalk.
 - 25mph = 155 feet on level grade
 - 35 mph = 250 feet on level grade
- The required engineering study determines that the introduction of a marked crosswalk will not produce an unacceptable safety hazard.

HB 1442 Photo speed monitoring devices; civil penalty.

Summary as enacted with Governor's recommendation

Photo speed monitoring devices; civil penalty. Authorizes state and local law-enforcement agencies to operate photo speed monitoring devices, defined in the bill, in or around school crossing zones and highway work zones for the purpose of recording images of vehicles that are traveling at speeds of at least 10 miles per hour above the posted school crossing zone or highway work zone speed limit within such school crossing zone or highway work zone when such zone is indicated by conspicuously placed signs displaying the maximum speed limit and that such photo speed

⁴ http://www.virginiadot.org/business/resources/IIM/TE-384_Ped_Xing_Accommodations_Unsignalized_Locs.pdf



monitoring devices are used in the area. The bill provides that the operator of a vehicle shall be liable for a monetary civil penalty, not to exceed \$100, if such vehicle is found to be traveling at speeds of at least 10 miles per hour above the posted highway work zone or school crossing zone speed limit by the photo speed monitoring device. The bill provides that if the summons for a violation is issued by mail, the violation shall not be reported on the driver's operating record or to the driver's insurance agency, but if the violation is personally issued by an officer at the time of the violation, such violation shall be part of the driver's record and used for insurance purposes. The bill provides that the civil penalty will be paid to the locality in which the violation occurred if the summons is issued by a local law-enforcement officer and paid to the Literary Fund if the summons is issued by a law-enforcement officer employed by the Department of State Police. This bill incorporates HB 621 and HB 1721.

[Click here for link to full text of enacted bill.](#)