

Enon Elementary School Walkabout Report

Introduction

On November 1, 2016, stakeholders at Enon Elementary School in Chester, Virginia met to examine the walking and bicycling networks around the school and identify potential improvements to be included in a future Transportation Alternatives Program grant application. 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.

The stakeholders participating in the Walkabout school included administrators, parents, students, community bike and pedestrian safety advocates, and representatives from the Chesterfield County School Board, Chesterfield County Planning Department, Chesterfield County, Richmond Regional Transportation Planning Organization, Greater Richmond Fit4Kids, and the Virginia Safe Routes to School program. Names of the Walkabout team members are listed in Appendix A. The two-hour meeting included an observation of school dismissal and a brief walking tour of the streets around the school.



Figure 1 – Enon Elementary School
Image: Richmond Times Dispatch

Existing Conditions

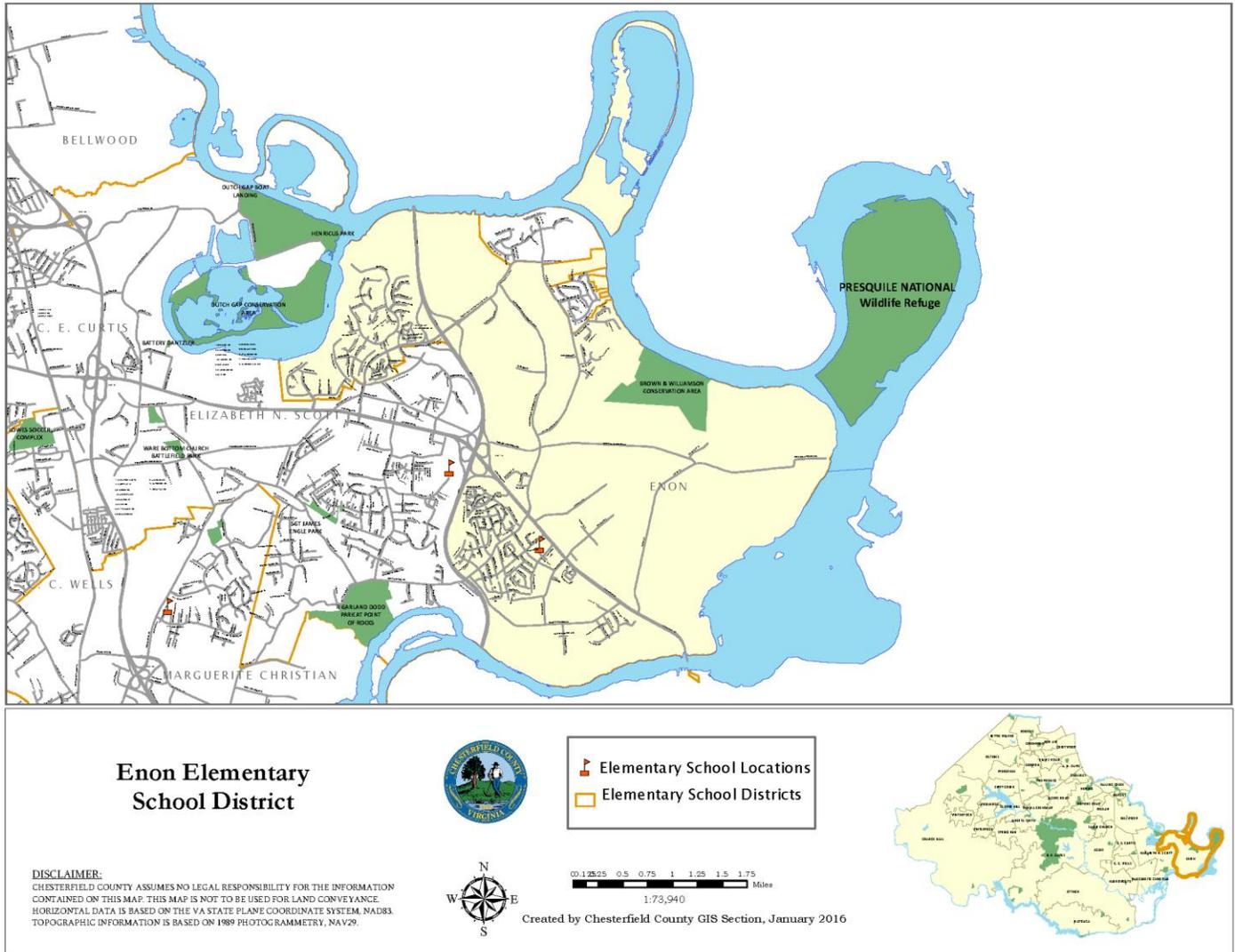
School Location

Enon Elementary School is located at 2001 E. Hundred Road, Chester, Virginia and is part of the Chesterfield County Public School system. The school is bordered by Walnut Drive to the north, Florence Avenue to the south, E. Hundred Road to the east, and Rivermont Road to the west. Its attendance zone is generally defined by I-295 to the west, the Appomattox River to the south, and the James River to the north and east (Figure 2). Almost all of the Enon Elementary students that live within the 1-mile radius reside to the west of E. Hundred Road. (Figure 3)

New School Building

Chesterfield County Public Schools plans to replace the existing Enon Elementary School building with a new school building by mid-2019. The July 2016 design changes the location of school bus drop-off and pick-up and parent drop-off and pick-up but does not include any significant improvements to pedestrian and bicycle access.

Figure 2: Enon Elementary School Attendance Zone
Map: Chesterfield County





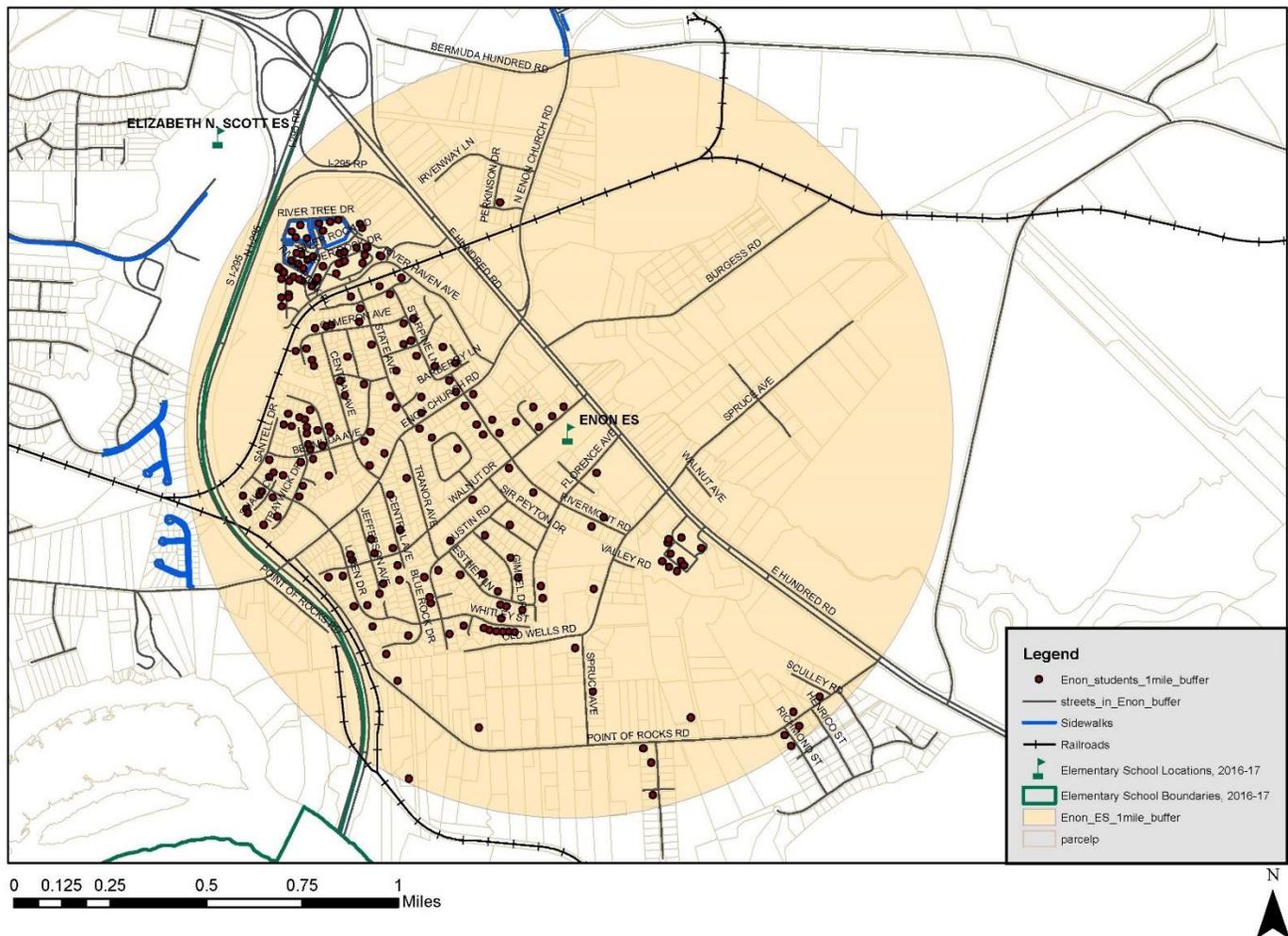
Enon Elementary Student Travel Modes

Enon Elementary serves 524 students in grades K through 5. More than 50 percent of children live within one mile of the elementary school¹. Less than 5 percent of students currently walk or bicycle regularly to school, suggesting the potential for increasing walking and bicycling to school.

Table 1: Distance by Number of Students

Distance	Number of Students(cumulative)
¼ mile	18
½ mile	75
1 mile	282
2 miles	302

Figure 3: Enon Elementary School- One Mile Buffer Area
Map: Chesterfield County



¹ GIS and Enon School Data.



Transportation and Land Use Network

Figure 3 shows roads and student addresses within a one-mile of Enon Elementary School. The area west of E. Hundred Road is primarily residential with a relatively dense neighborhood street network; however, it does not provide a comfortable environment for students to walk and bicycle to school because of the lack of walking and bicycling infrastructure. Providing this infrastructure along certain strategically located roadways could increase the number of students who walk and bicycle to school. Examples include Walnut Drive, which borders the school and serves as an east-west spine for the school neighborhood, and Rivermont Road, which also borders the school, provides a north-south connection through the school neighborhood, and connects to the north side of Enon Church Road.

Pedestrian Infrastructure

Within one mile of the Enon Church Elementary School, there is a short sidewalk on the south side of Walnut Drive adjacent school property and there are sidewalks in the Rivermont Crossing and Rivermont Station Developments north of Enon Church Road. The intersection at E. Hundred Road and Enon Church Road is signalized, but there are no marked crosswalks at that intersection or any other intersection within one mile of the school. See Figure 4.

Bicycle Infrastructure

There are no bike lanes or shared use paths within one mile of Enon Elementary School; however, there is a bicycle rack in the courtyard area at the back of the school.

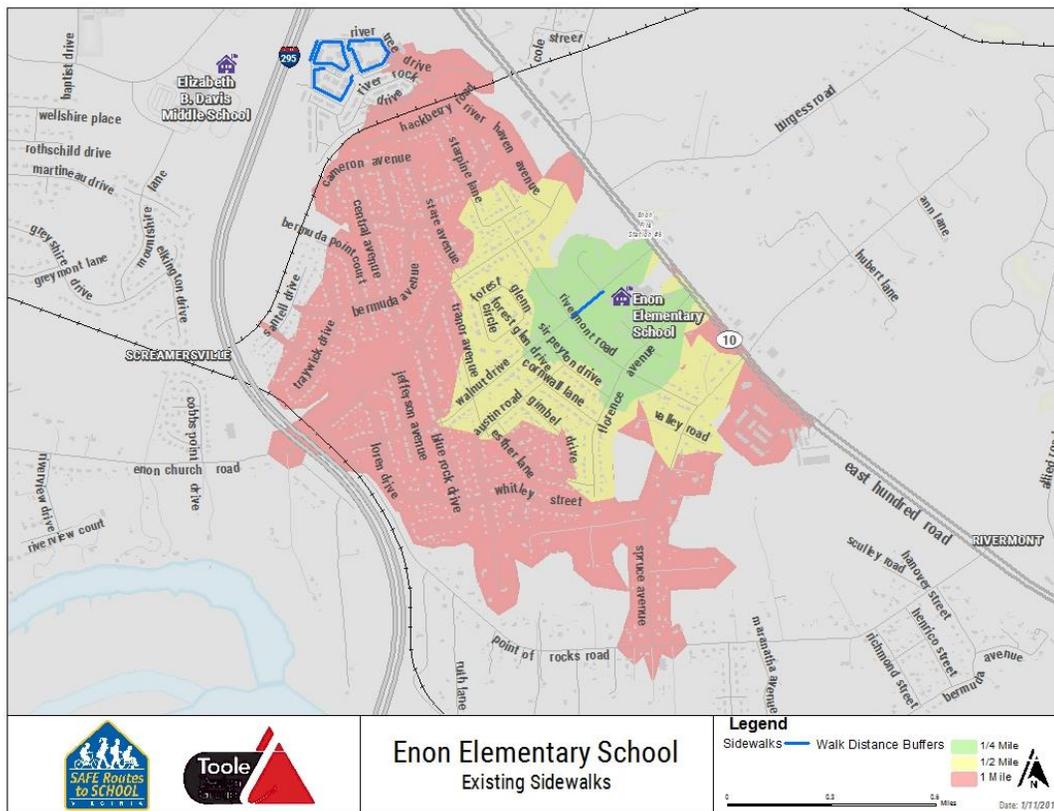


Figure 4: Enon Elementary Existing Sidewalks Map



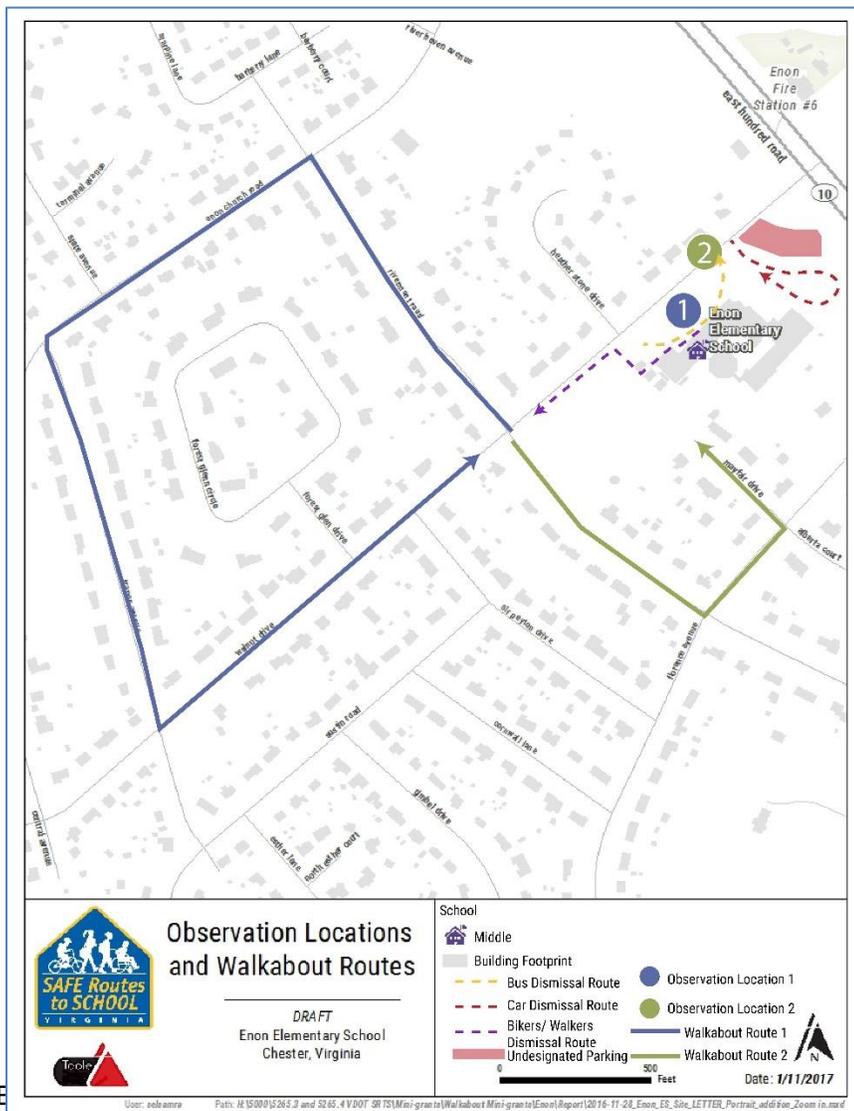
Walkabout Summary

Dismissal Observations

The Walkabout Team observed Enon Elementary School's dismissal process from two locations. Group 1 observed the parent pick up process, which takes place in the loop at the front of the school building (i.e., facing E. Hundred Road). Group 2 observed walkers, bikers, and bus riders exiting the school building toward Walnut Drive.

Students are dismissed at 3:40 p.m. starting with bus riders. Buses line up diagonally in the driveway between the bus entrance and the staff parking lot. Students disperse to their buses monitored by teachers and staff. Students leaving in family vehicles are released next. Parents queue in the loop at the front of the school. Many parents park in the school lot or in the green area next to the loop (see "undesignated parking" in Figure 5) and walk to the school building to meet their children. The school releases student walkers and bikers last (at approximately 3:55 p.m.) to ensure all buses and large vehicles have left the school premises. Walkers and bikers exit the school through the library toward Walnut Drive. There is no school crossing guard to assist students walking and bicycling from school.

Figure 5: Dismissal Observation Locations and Walkabout Routes





Issues noted by the walkabout team included:

Group 1

- Parking outside of designated parking spaces.
- Parents and students crossing at convenient, unmarked locations especially between parked cars.

Group 2

- Motorists speeding on Walnut Drive (posted speed limit is 35 MPH; the group used a radar gun to check speeds)

Following the dismissal observation, the groups conducted walking audits along two routes as shown in Figure 5. Their observations and recommendations are presented below. Reference photographs are provided in Appendix D.

Key Barriers and Issues

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

1. Walnut Drive (between E. Hundred Road and Loren Drive)

- **Motor vehicle speeds** – Using a speed radar gun, the team observed motorists traveling faster than the 25 MPH speed limit on Walnut Drive, including some motorists traveling faster than 35 MPH.
- **Lack of sidewalks** – The sidewalk on the south side of Walnut Drive does not extend along the entire school frontage or connect to E. Hundred Road. A goat trail on the south side of Walnut between parent loop entrance and E. Hundred Road is evidence of people continuing to walk beyond the sidewalk. In addition, there is no sidewalk on the north side of Walnut Drive. People who live or park on the north side of Walnut Drive must walk in the roadway.
- **Lack of marked crosswalks** – There are no marked crosswalks across Walnut Drive at mid-block or intersection locations along this segment. As a result, pedestrian crossing patterns are more difficult for motorists to anticipate and motorists are less likely to yield to crossing pedestrians. See Figures 7 and 8.

2. Intersection of Walnut Drive and Rivermont Road

- **Lack of marked crosswalks and stop bars** – There are no marked crosswalks at the intersection of Walnut Drive and Rivermont Road. The intersection is STOP-controlled for traffic on Rivermont Road; however, there are no STOP bar pavement markings to emphasize this control.
- **Difficult to find gaps in traffic and driver failure to yield** – During arrival times, which coincide with the morning rush hour, it can be difficult for pedestrians to find gaps in traffic when attempting to cross Walnut Drive. Motorists often do not yield for pedestrians attempting to cross at this location.



- **Lack of ADA ramps** – No ramp is provided for the sidewalk on the south side of Walnut Drive and there is no detectable warning (See Figure 9). Additionally, the edge of the sidewalk is slightly below the roadway pavement level at the intersection, creating 3-4 inch lip where the sidewalk connects with the roadway.
3. Rivermont Road (between Enon Church Road and Florence Avenue)
- **Lack of sidewalks** – There are no sidewalks on this segment of Rivermont Road. Deep drainage ditches make it difficult for pedestrians to walk anywhere other than the roadway. (See Figures 10 and 11).
4. Intersection of Rivermont Road and Enon Church Road
- **Motor vehicle speeds** – Using a speed radar gun, the team observed motorists often exceeding the 35 MPH speed limit on Enon Church Road, including some motorists traveling faster than 45 MPH. There are no traffic controls such as stop signs on Enon Church Road at this intersection.
 - **Poor visibility** – Enon Church Road slopes down midway between Rivermont Drive and E. Hundred Road, which restricts visibility between motorists and pedestrians at the intersection. Large trees at the corners also restrict sight lines.
 - **No marked crosswalks** - There are no marked crosswalks at this intersection. This in combination with the lack of traffic controls on Enon Church Road contributes to motorists being less likely to anticipate or yield to pedestrians crossing Enon Church Road at this intersection. (see Figure 13)



Infrastructure (Engineering) Recommendations

A map of the infrastructure recommendations for Enon Elementary School is provided in Figure 6 below. This map is followed by tables detailing the recommendations. Please refer Figures 3 and 4 above to understand how the recommendation locations relate to existing student addresses and network distance from school. A glossary of engineering terms is provided in Appendix C.

Figure 6: Infrastructure Recommendations Map



User: sdsamra Path: H:\5000\5265.3 and 5265.4 VDOT SRTS\Mini-grants\Walkabout Mini-grants\Enon\Report\2016-11-28_Enon_ES_Site_LETTER_Portrait_addition.mxd



Walnut Drive (between E. Hundred Road and west of Rivermont Road)		
Map ID	Issue Recommendation	Timeframe ²
1	Motor vehicle speeds –The existing S-1 school signs are faded, not reflective, and hidden by vegetation. Upgrade the S-1 signs to the yellow-green background color specified in the 2009 MUTCD to improve visibility and remove vegetation obstructing their visibility. It is also recommended to supplement the S-1 signs with a 25 MPH speed limit advisory plaques (W13-1P) to reinforce the operating speed within the school zone.	Short
1	Lack of sidewalks —In the short term, complete the sidewalk on the south side of Walnut Drive along the school frontage to Rivermont Road. In the medium to long term, consider installing sidewalk on the north side of Walnut Drive between Rivermont Road and E. Hundred Road. Building the sidewalk to E. Hundred would enable residents of the neighborhood and school children to walk to the corner store off the roadway.	Short, Medium to Long
1	Lack of marked crosswalks — Conduct an engineering study to determine whether a marked crosswalk can be installed across Walnut Drive at Heather Stone Drive. This crosswalk would be located within 450 feet from a potential crosswalk across Walnut Drive at Rivermont Road. It would provide the shortest and most likely crossing point for children and parents walking from the 17 residences on Heather Stone Drive as well as 5-10 residences on Walnut Drive. The crosswalk should provide an ADA-compliant connection between the sidewalk on the south side of Walnut Drive and a landing pad or sidewalk on the north side of Walnut Drive and include appropriate school crossing signage.	Short

² Timeframe:

Short – within 2 years

Medium – between 2 and 5 years

Long – More than 5 years

Ongoing – as appropriate based on other work



Intersection of Walnut Drive and Rivermont Road		
Map ID	Issue Recommendation	Timeframe
2	<p>Difficult to find gaps in traffic and driver failure to yield – Conduct an engineering study to determine if all-way stop control would be appropriate by adding stop control to the Walnut Drive approaches to Rivermont Road. Section 2B.04.09 of the MUTCD considers school walking routes a condition that would warrant additional stop control in the direction in conflict with pedestrian crossings.³ It is anticipated the crossing of Walnut Drive would have the largest number of students crossing due to the large number of students living within a mile of the school north of this intersection. If four-way stop control is not installed, Chesterfield County should consider other intersection treatments such as in-street school pedestrian crossing sign or a raised crosswalk to calm traffic and improve pedestrian safety at this location.</p>	Short
2	<p>Lack of marked crosswalks —Install a marked crosswalk across Rivermont Road and a marked crosswalk across Walnut Drive. The crosswalk locations should be coordinated with the recommended sidewalks on Walnut Drive and Rivermont Road. (See Map IDs 3 and 4 below). The crosswalks should include an ADA-compliant connection to the existing sidewalk on the south side of Walnut Drive, an ADA-compliant connection to landing pads on the opposite side of each marked crosswalk, and appropriate school crossing signage. This crosswalk would be in support of the school walking route, is within a quarter mile of the school, and is likely to have at least 10 children under age 15 crossing in one hour.</p>	Short

³ "Section 2B.04 Right-of-Way at Intersections," *Manual on Uniform Traffic Control Devices*. <http://mutcd.fhwa.dot.gov/hm/2009r1r2/part2/part2b.htm>



<u>Walnut Drive (between Rivermont Road and Loren Drive)</u>		
Map ID	Issue Recommendation	Timeframe ⁴
3	Lack of sidewalks – Install sidewalk on at least one side of Walnut Drive between Rivermont Road and Loren Drive (ideally both sides).	Medium to Long

<u>Rivermont Road (between Enon Church Road and Florence Avenue)</u>		
Map ID	Issue Recommendation	Timeframe ⁵
4	Lack of sidewalks – In the medium to long term, install sidewalk on at least one side of Rivermont Road between Enon Church Road and Florence Avenue (ideally both sides). Constructing sidewalk on the eastern side of Rivermont Road appears as though it may be less costly and disruptive.	Medium to Long

⁴ Timeframe:

- Short – within 2 years
- Medium – between 2 and 5 years
- Long – More than 5 years
- Ongoing – as appropriate based on other work

⁵ Timeframe:

- Short – within 2 years
- Medium – between 2 and 5 years
- Long – More than 5 years
- Ongoing – as appropriate based on other work



Intersection of Rivermont Road and Enon Church Road		
Map ID	Issue Recommendation	Timeframe
5	Motor vehicle speeds – Conduct an engineering study to determine whether a school zone speed of 25 mph can be established on the approaches to this intersection. Conduct an engineering study to determine whether speed feedback signs can be installed on the intersection approaches.	Medium
5	Poor visibility – Install pedestrian crossing warning signage at least 325 feet ahead of crossing to increase driver awareness of crossing pedestrians. ⁶	Medium
5	No marked crosswalks — Conduct an engineering study to determine whether a high visibility crosswalk can be marked across Enon Church Road at this intersection. This crosswalk would be in support of the school walking route, is within a quarter mile of the school, and is likely to have at least 10 children under age 15 crossing in one hour. If a marked crosswalk is justified, support with appropriate pedestrian crossing and pedestrian crossing warning signage.	Medium

Enon Church Road (between Rivermont Road and State Avenue)		
Map ID	Issue Recommendation	Timeframe ⁷
6	Lack of sidewalks – Construct sidewalk on the north side of Enon Church Road between Rivermont Road and State Avenue.	Medium to Long

⁶ “Section 2C.36 Advanced traffic Control Signs,” *Manual on Uniform Traffic Control Devices*.
<http://mutcd.fhwa.dot.gov/htm/2009/part2/part2c.htm#section2C36>

⁷ Timeframe:

Short – within 2 years

Medium – between 2 and 5 years

Long – More than 5 years

Ongoing – as appropriate based on other work



Programmatic Recommendations

SRTS programmatic recommendations are designed to work in conjunction with the infrastructure recommendations and each other to instill safe walking, bicycling and driving practices. The recommendations are organized according to the four “E’s” of Safe Routes to School: Education, Encouragement, Enforcement, and Evaluation.⁸

Education

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. Both are free:

- The *Child Pedestrian Safety Curriculum* was developed by the National High Traffic Safety Administration. The curriculum emphasizes skills practice and includes take home tip sheets for parents in English and Spanish. <http://www.nhtsa.gov/ChildPedestrianSafetyCurriculum>
- 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

Conduct a bicycle rodeo. Bicycle rodeos include activities designed to develop bicycle safety skills. Bicycle safety education is particularly important in advance of activities that encourage biking to school, such as National Bike to School Day held in early May each year.

Incorporate information on walking and bicycling to school in communications with parents. Inform parents that Enon Elementary School supports walking and bicycling to school and educate parents about the academic and health benefits of walking and biking.

Provide parents and guardians with safe driving information and materials that stress the importance of driving safely in school zones and being alert for pedestrians and bicyclists during arrival and dismissal. These materials can be provided during back-to-school nights, health and safety fairs, and Safe Routes to School events. 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>

⁸ The fifth E is Engineering, included in this report under Infrastructure Recommendations.



- 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>

Encouragement

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. Consider establishing a meet up location at the United Methodist Church for students who cannot walk from home. Alternatively, plan a Walk at School day using the school track. Resources to help plan Walk to School Day are available on the Virginia SRTS Program website. http://www.virginiadot.org/programs/srsm_srts_all_website_resources.asp.

Enforcement

Implement the Zone In Not Out school zone safety program. Resources are available on the Virginia SRTS website: http://www.virginiadot.org/programs/srsm_srts_zone_in_not_out.asp.

Work with the Chesterfield County Police Department to provide periodic speed enforcement on Walnut Drive and Enon Church Road during arrival and dismissal times.

Pursue crossing guard support at key intersections: Walnut Drive and Rivermont Road; and Rivermont Road and Enon Church Road.

Evaluation

Conduct 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 every September and October. This 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/srsm_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. Administering parent surveys at least once a 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.dropbox.com/s/nl274zoliqe9w5t/Parent%20Survey_LDLv2.pdf?dl=0



Appendices

A. Walkabout Participants

Name	Organization
Jennifer Hinson	Principal, Enon Elementary School
Ann Coker	PTO, Enon Elementary School
Mary Dunne Stewart	CEO, Greater Richmond Fit4Kids
Rachel Bulifant	Student Wellness Coordinator, Chesterfield County Public Schools
Phil Riggan	Transportation Planner, Richmond Regional Planning District Commission
Heather Barrar	Planner, Chesterfield County Department of Planning
Heather Glunt	P.E. Teacher, Chesterfield County Public Schools
Rusty Fairheart	Chief of Staff, Chesterfield County Public Schools
Carrie Coyner	School Board, Chesterfield County Public Schools
Mike Nannery	Assistant Director, Chesterfield County Department of Public Utilities
Marty Travis	SRTS Coordinator, Chesterfield County Public Schools
James Elliott	Planner, Toole Design Group
Kyle Lukacs	Planner, Toole Design Group
Siba El-Samra	Designer, Toole Design Group

B. Road Information Table

Street Name	Speed limit	Road Width [†]	No. of travel lanes in each direction	AADT ⁹	Road Classification ¹⁰ and Network Connectivity
Walnut Drive	25 mph	20 feet	1	1400-1800	Local; east-west connection between E. Hundred Road and Loren Drive
Florence Avenue	25 mph	18 feet	1	550-770	Local, east-west connection between E. Hundred Road and Esther Lane
Rivermont Road	25 mph	21 feet	1	190-550	Local; north-south connection between Spruce Avenue and Enon Church Road
Enon Church Road	35 mph	23 feet	1	3700	Minor Arterial; east-west connection between E. Hundred Road and Point of Rocks Road

⁹ Average Annual Daily Traffic (AADT) counts from VDOT, http://www.virginiadot.org/info/resources/Traffic_2015/AADT_020_Chesterfield_2015.pdf

¹⁰ Road classification from VDOT, http://www.virginiadot.org/projects/fxn_class/maps.asp



C. Glossary of Infrastructure (Engineering) Terms

The following infrastructure treatments can be used to improve the bicycle and pedestrian environment around James K. Polk Elementary 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 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.

Curb Extensions

Curb extensions extend the curb line into the roadway. They can improve the ability of pedestrians and motorists to see each other, reduce crossing distances (and thus exposure to traffic), provide additional pedestrian queuing space, and slow motor vehicle turning speeds.



In-Street Pedestrian Crossing Signs

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

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.

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 common measures include speed humps, curb extensions, chicanes, and neighborhood roundabouts.

D. Walkabout Photographs

The following photos were taken by Walkabout participants to document the Walkabout as well as supplement the report recommendations.



Figure 7

Student crossing Walnut Drive.



Figure 8

Student crossing Walnut Drive.



Figure 9

Intersection of Walnut Drive and Rivermont Road.
Note the drop in elevation between the road edge and the sidewalk.



Figure 10

Rivermont Road.



Figure 11

School zone markings on Rivermont Road.



Figure 12

Members of the walkabout team walking on Rivermont Road.



Figure 13

On Rivermont Road looking toward the intersection with Enon Church Road.