

Triangle Elementary School Walkabout Report

Introduction

On May 30, 2018, stakeholders at Triangle Elementary School in Triangle, 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 included the principal, two PTO members from Triangle Elementary School, the Prince William County Public Schools Safe Routes to School Coordinator, a safety officer from Prince William County Public Schools, a district supervisor from the Potomac District of Prince William County, and representatives from the Virginia Department of Transportation. The names of the Walkabout Team members are listed in Appendix A. The two-hour meeting included an observation of school dismissal and a brief observation of conditions on Lions Field Road south of the school.



Figure 1: Walkabout Team on Lions Field Road with Triangle Elementary in Background

Existing Conditions

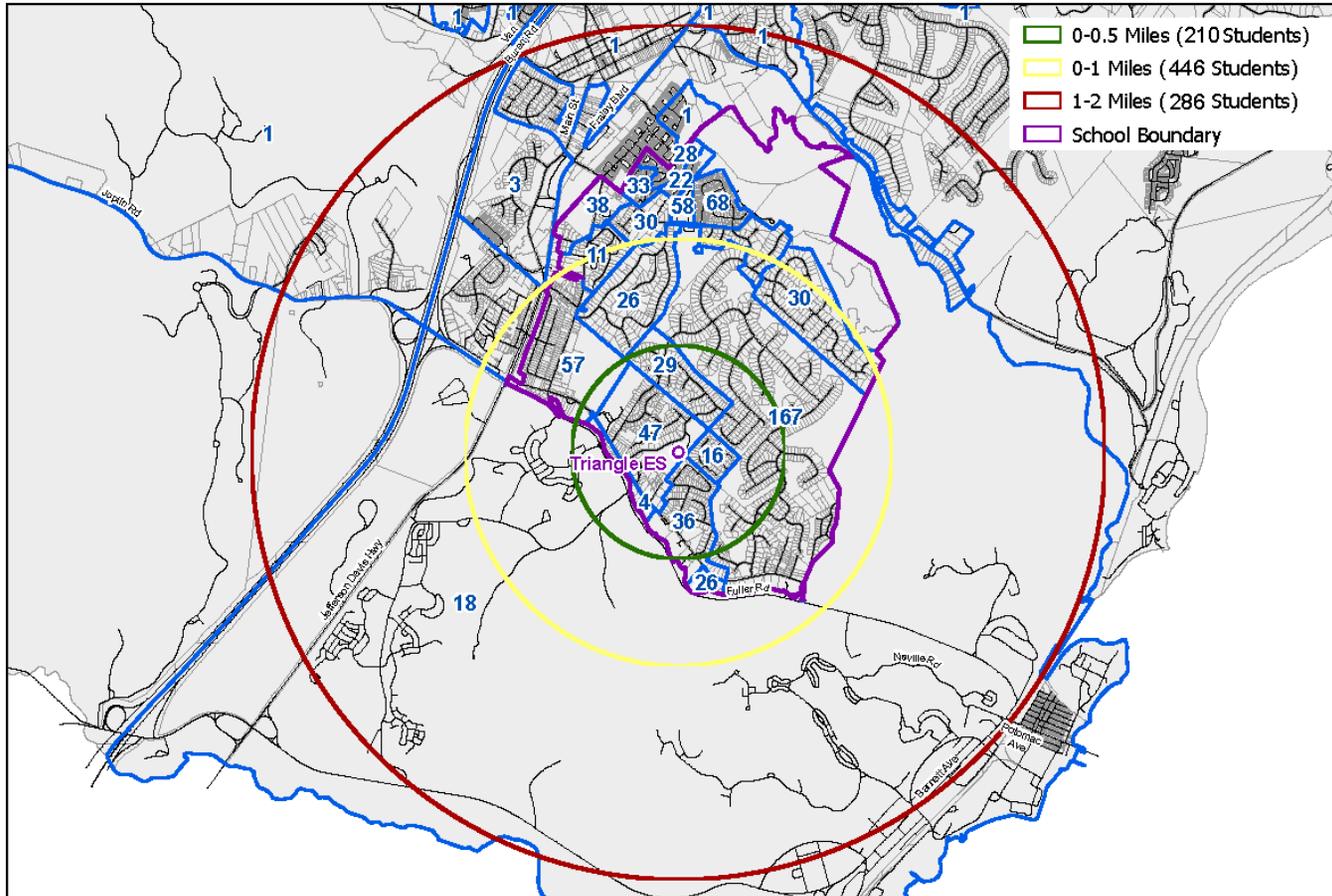
School Location and Demographics

Triangle Elementary School is located at 3615 Lions Field Road, Triangle, VA 22172. Triangle Elementary serves 786 students in grades Pre-K through 5 and is a Title 1 school. Its attendance zone includes much of the Town of Triangle and is bounded by Quantico Creek to the north and east, Jefferson Davis Highway to the west, and the Prince William County line to the south. Over 50 percent of the student population lives within a 1-mile circular buffer of the school (Figure 2), but only an estimated 3-5 percent currently walk and none bicycle, suggesting the potential for increasing walking and bicycling to school.



Triangle ES Student Distribution

2017-18 School Year



Data:
9_30_17_GeocodedStudents
ES17a, MS16a
Parcels (11/17)

Prepared by Robert Boyd, GIS Analyst I
Office of Facilities Services
Prince William County Public Schools
January 2018

Figure 2: Triangle Elementary School Students by Planning Zone



Pedestrian and Bicycle Infrastructure

The street network around the school is very disconnected, with many cul-de-sacs and few through streets. There are no off-street paths to make pedestrian and bicycle travel to the school more convenient. For example, someone living on Red Oak Lane within 100 feet of the school property would need to walk over one mile to get to the school along the shortest possible route and would not travel along a complete sidewalk network.

There are sidewalks on many streets within one mile of Triangle Elementary, but there are also notable gaps near the school, including:

- Lions Field Road between the school and Fuller Heights Road (no sidewalks)
- Lions Field Road between Highland Park Drive and Thomasson Crossing Drive (no sidewalk on north side)
- Thomasson Crossing Drive (incomplete sidewalk on the northeast side)
- Fuller Heights Road between Fuller Heights Park and the St. Francis of Assisi Catholic Church entrance driveway (no sidewalk on eastside)
- Fuller Heights Road between St. Francis of Assisi Catholic Church and Mockingbird Heights Road (no sidewalk on southwest side)

There are no bike lanes or shared use paths within 1-mile of Triangle Elementary, and the school does not have any bicycle racks.

Walkabout Summary

After a brief meeting to review existing dismissal procedures and community concerns, the Walkabout Team observed Triangle Elementary School's dismissal process from the intersection of Lions Field Road and Highland Park Drive.

Dismissal Overview

Triangle Elementary School dismisses walkers at 3:35 p.m. out of Entrance 2, which is the door closest to the intersection of Lions Field Road and Highland Park Drive. Two adults manage this process from within the building, and there is a crossing guard stationed at the intersection to assist students crossing Lions Field Road.

Bus and car riders are dismissed out of separate entrances at about the same time. There are 12 buses, which are loaded in two groups or "flights." In Prince William County, bus service is provided to elementary school students who live more than a mile from school as well as students who live closer but do not have a safe walking route. As applied to Triangle Elementary, the result of this policy is that the only students not provided with bus service are those living in the neighborhoods immediately west and north of the school.

Figure 3 shows the walkabout observation location and key elements related to arrival and dismissal circulation.

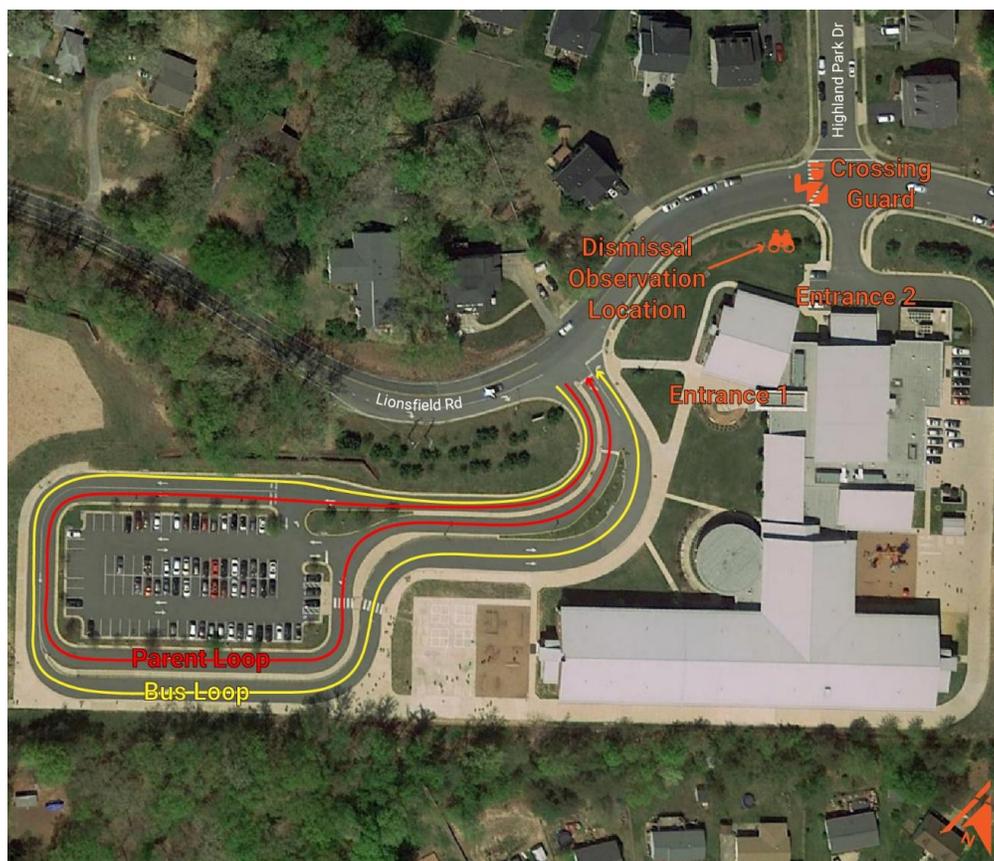


Figure 3: Triangle Elementary Site, Observation Location, and Key Elements of Arrival and Dismissal Circulation

Team observations included the following. See Appendix E for the referenced photographs.

- 30-40 students were released from Entrance 2, almost all of whom crossed Lions Field Road with the crossing guard at Highland Park Drive (Figure 6).
- Some students went to parked or standing cars, while others continued into the neighborhood west of the school.
- A standing car temporarily blocked the west side of the Lions Field Road crosswalk (Figure 7).
- Several other cars parked illegally on the west side of Lions Field Road south of Highland Park Drive.
- The crossing guard reported that illegally parked cars frequently blocked her view of northbound traffic on Lions Field Road. She also mentioned motor vehicle speeds and yielding behavior as safety concerns on Lions Field Road.
- The crossing guard places cones across the school's service entrance and parking area next to Entrance 2 to prevent parents from attempting to drop-off or pick-up there (Figure 8).



Following the dismissal observation, the Walkabout Team walked south on Lions Field Road to the end of the school property to get a sense of walking conditions on Lions Field Road between the school and Fuller Heights Road (Figure 9).

The group's observations and recommendations are presented below.

Key Barriers and Issues

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.



- **Missing Sidewalks**—The sidewalk network is incomplete and there are notable gaps near the school, as indicated in the Pedestrian and Bicycle Infrastructure section above.
- **Difficult Crossings**—Several of the pedestrian crossings near the school could be modified to improve pedestrian safety and comfort. Issues include missing, insufficient, or faded crosswalk markings; long pedestrian crossing distances; relatively high motor vehicle speeds and volumes; and site lines obstructed by parked or standing vehicles.
- **Poor Pedestrian Network Connectivity** – The street network is very disconnected and there are no off-street pathways to make pedestrian and bicycle travel to the school more convenient.
- **High or Inappropriate Motor Vehicle Speed**—Fuller Heights Road has a speed limit is of 35 mph in the school zone and there are concerns about inappropriate motor vehicle speed on Lions Field Road, where the speed limit is 25 mph.
- **Curb Ramps Not ADA Compliant** – Many curb ramps do not meet current ADA standards, often because they lack detectable warning surfaces.



Infrastructure (Engineering) Recommendations

A map of the infrastructure recommendations for Triangle Elementary School is provided in Figure 4 below. This map is followed by tables detailing the issues and recommendations at each location. A glossary of engineering terms is provided in Appendix C and key policies supporting the recommendations are highlighted in Appendix D.

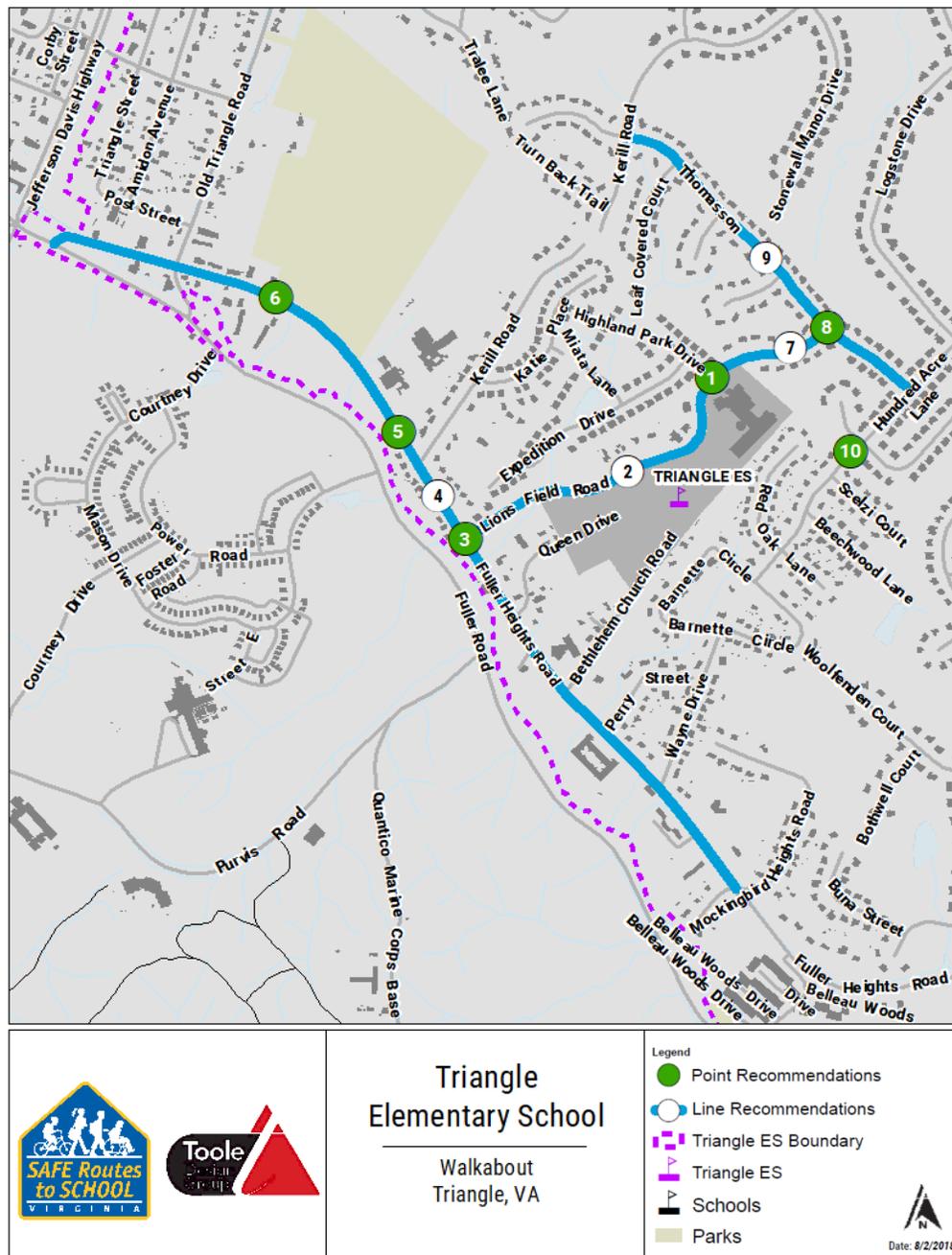


Figure 4: Infrastructure Recommendations Map



Lions Field Road at Highland Park Drive			
Map ID	Issue	Recommendation	Timeframe ¹
1	<p>Difficult crossing. Almost all students who currently walk to Triangle Elementary cross at this intersection, where a crossing guard is posted to assist them crossing the street. The crossing is relatively long (over 50 feet) and both the crossing guard and members of the Walkabout Team reported concerns about speeding and a lack of driver yielding. The crossing guard reported that illegally parked cars obstruct her view of oncoming traffic, and several cars were observed parking illegally on the northwest (non-school) side of Lions Field Road south of this intersection, with one standing car observed blocking the crosswalk. Members of the Walkabout Team reported that drivers also park cars illegally on the southeast (school) side of Lions Field Road during arrival, although illegal parking is more of an issue on the northwest (non-school) side. Signed NO PARKING zones have been established on both sides of the intersection south of this intersection.</p> <p>Figures 6,7,8,10, and 11 show existing conditions at this intersection.</p>	<p>In the short-term, add painted curb extensions with flex post delineators to prevent illegal parking on Lions Field Road and shorten the pedestrian crossing distance. Also, add an in-street pedestrian crossing sign (R1-6) to the crosswalk across Lions Field Road to encourage yielding. In the long-term, install permanent curb extensions and/or a raised crosswalk.</p>	Short, Long

¹ Timeframe:

Short – within 2 years

Medium – between 2 and 5 years

Long – More than 5 years

Ongoing – as appropriate based on other work



Lions Field Road between Fuller Heights Road and Triangle Elementary			
Map ID	Issue	Recommendation	Timeframe ²
2	<p>Missing Sidewalk. This segment of Lions Field Road is a critical link for pedestrian and bicycle access to Triangle Elementary. It is the only possible route that many students living near the school can take due to the disconnected nature of the street network. It has no sidewalk or shoulder, several blind curves, and steep drop-offs for drainage ditches in some locations. During observations, drivers appeared to exceed the 25 mph speed limit. A family with three young children was observed walking along the road to the playground at Triangle Elementary after school hours.</p> <p>Figures 12 and 13 show existing conditions along this segment.</p>	<p>Add a sidewalk or side path to the southeast side of Lions Field Road and consider reducing road speed to 20 mph in the school zone. The southeast side is preferred for several reasons:</p> <ul style="list-style-type: none"> • The school is on the southeast side • The drainage ditches are not as steep as on the northwest side. • There is limited space for a sidewalk due to homes placed fairly close to the roadway on the northwest side. <p>If the recommended sidewalk or path is installed, mark a high-visibility crosswalk across the drop-off/pick-up driveways where they intersect Lions Field Road to connect the sidewalk/path to the front of the school. Curb extensions and/or a median crossing island should be considered at the driveways to minimize pedestrian and bicycle crossing distances and encourage driver yielding.</p>	Medium

² Timeframe:

Short – within 2 years

Medium – between 2 and 5 years

Long – more than 5 years

Ongoing – as appropriate based on other work



Fuller Heights Road at Lions Field Road			
Map ID	Issue	Recommendation	Timeframe ³
3	<p>Difficult Crossing – This is the closest crossing of Fuller Heights Road to Triangle Elementary. If the path along Lions Field Road is constructed, demand for crossing at this location is likely to increase. The speed limit on Fuller Heights Road is currently 35 mph. There is a marked crosswalk on the east side of Fuller Heights Road across Lions Field Road. However, there are currently no marked crosswalks across Fuller Heights Road at this location.</p> <p>Figures 14 shows conditions at this intersection.</p>	Strip a high-visibility marked crosswalk across the southern leg of the Fuller Heights Crossing. Add rectangular rapid flashing beacon, appropriate pedestrian crossing signage, and ADA compliant curb ramps to support this crossing.	Medium

³ Timeframe:

Short – within 2 years

Medium – between 2 and 5 years

Long – more than 5 years

Ongoing – as appropriate based on other work



Fuller Heights Road between Fuller Road and Mockingbird Heights Road			
Map ID	Issue	Recommendation	Timeframe ⁴
4	<p>High Motor Vehicle Speeds and Missing Sidewalk – The speed limit on Fuller Heights Road is 35 mph. Research suggests that the odds of a pedestrian fatality resulting from a crash involving a pedestrian and a motor vehicle are nearly three times higher at 35 mph than at 25 mph for the average person.⁵ In November 2017, an adult pedestrian was killed while crossing Fuller Heights Road near St. Francis of Assisi Catholic Church. In addition, there are three apartment complexes (Virginian Apartments, Quantico Court Apartments, Quantico Terrace Apartments) and 16 single family homes on the southwest side of Fuller Heights Road along this segment. Triangle Elementary is on the east side of Fuller Heights Road, along with a number of other pedestrian destinations, including Fuller Heights Park, the St. Francis of Assisi School, and the Star Bethlehem Christian Academy. Existing marked crosswalks are uncontrolled, and the sidewalk is not continuous on both sides of the road, requiring a person walking along Fuller Heights Road to cross from side to side.</p> <p>Figures 14-19 show conditions along this segment.</p>	<p>In the medium term, reduce the speed limit along this segment to 25 mph. In the long-term provide continuous sidewalks with ADA compliant curb ramps at marked and unmarked crosswalk locations on both sides of the street.</p>	Short, 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 https://www.propublica.org/article/unsafe-at-many-speeds?utm_campaign=sprout&utm_medium=social&utm_source=twitter&utm_content=1464207000



Fuller Heights Road at the St. Francis of Assisi Catholic Church and School Entrance Drive			
Map ID	Issue	Recommendation	Timeframe ⁶
5	<p>Difficult Crossing - This is currently the closest marked crossing of Fuller Heights Road to Triangle Elementary. It is necessary for pedestrians walking on the west side of Fuller Heights Road who wish to walk on a sidewalk to cross at this location, because the sidewalk on the west side ends south of the crosswalk but continues on the east side of Fuller Heights Road. The existing crosswalk is not a high-visibility crosswalk. Pedestrian crossing signage is posted on both sides, but the sign on the east side lacks a downward pointing arrow.</p> <p>Figures 14-17 show conditions at this intersection.</p>	<p>Remark the crosswalk as a high-visibility crosswalk. Add rectangular rapid flashing beacon and downward pointing arrow (W16-7p) to the pedestrian crossing sign on the east side of the road.</p>	Medium

Fuller Heights Road at the Fuller Heights Park Entrance Drive			
Map ID	Issue	Recommendation	Timeframe
6	<p>Difficult Crossing – This crossing provides access between the Virginian Apartments and Fuller Heights Park. It is also an important crossing for pedestrians walking on the northeast side of Fuller Heights Road, who must cross to the southwest if they wish to continue on the sidewalk.</p> <p>Figures 18 and 19 show conditions at this intersection.</p>	<p>Install rectangular rapid flashing beacon. Consider curb radius reduction on northwest corner.</p>	Medium

⁶ Timeframe:

Short – within 2 years

Medium – between 2 and 5 years

Long – more than 5 years

Ongoing – as appropriate based on other work



Lions Field Road between Highland Park Drive and Thomasson Crossing Drive			
Map ID	Issue	Recommendation	Timeframe ⁷
7	<p>Missing Sidewalk. There is no sidewalk on the northwest side of the street. A student accessing the school from the north via Thomasson Crossing Drive and Lions Field Road must cross Lions Field Road at Thomasson Drive rather than at Highland Park, where there is a crossing guard.</p> <p>Figures 11 shows conditions along this segment.</p>	Construct a sidewalk on the northwest side of the street.	Long

Intersection of Lions Field Road and Thomasson Crossing Drive			
Map ID	Issue	Recommendation	Timeframe
8	<p>Difficult Crossing. The crossings at this intersection are relatively long (over 50 feet) and there are no marked crosswalks. Students accessing the school from the north must cross Lions Field Road at this intersection because there is no sidewalk on the northwest side of Lions Field Road between Thomasson Crossing Drive and Highland Park Drive.</p> <p>Figures 20 shows conditions along this segment.</p>	In the short-term, install marked crosswalks on all three legs of this intersection and update curb ramps to comply with ADA. In the long-term, consider curb extensions to reduce pedestrian crossing distance.	Short, Long

⁷ Timeframe:

Short – within 2 years

Medium – between 2 and 5 years

Long – more than 5 years

Ongoing – as appropriate based on other work



Thomasson Crossing Drive between Hundred Acre Lane and Kerill road			
Map ID	Issue	Recommendation	Timeframe ⁸
9	<p>Missing Sidewalk. There is a partial sidewalk on the northeast side of the street that connects to Hundred Acre Lane but stops approximately 200 feet short of Lions Field Road. There are 29 houses on the northeast side of Thomasson Crossing Drive along this segment. Installing a sidewalk along this segment would improve pedestrian access for the students who live in these houses.</p> <p>Figures 20 shows conditions along this segment.</p>	Complete the sidewalk on the northeast side of the street.	Long

Easement between White Oak Drive, Sapling Way, and Triangle Elementary			
Map ID	Issue	Recommendation	Timeframe
10	<p>Poor Pedestrian Network Connectivity – Pedestrian network connectivity in the neighborhood surrounding Triangle Elementary is poor. Students who live very close to the school geographically must nevertheless walk long distances to get to the school due to the way that the roadway network is laid out. There may be opportunities to improve the connectivity of the pedestrian network by taking advantage of easements between properties. One such easement connects the northern end of White Oak Drive to Sapling Way. Another such easement appears to be a utility maintenance road and connects Sapling Way to the school property.</p>	<p>In the short-term, work with the Prince William County to identify easements near Triangle Elementary that might be used to improve pedestrian and bicycle access to the school.</p> <p>In the medium-term, construct a pedestrian/bicycle path connection between the northern end of White Oak Drive and Sapling Way. Also construct a path connection between Sapling Way and the school property.</p>	Short, Medium

⁸ 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 each other and the infrastructure recommendations and 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.⁹

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 Highway Traffic Safety Administration. The curriculum emphasizes skills practice and includes take home tip sheets for parents in English and Spanish. <https://www.nhtsa.gov/pedestrian-safety/child-pedestrian-safety-curriculum>
- 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

Incorporate information on walking and bicycling to school in communication with parents. Inform parents that Triangle Elementary School supports walking and bicycling to school and educate parents about the academic and health benefits of walking and biking. Learn about their experiences walking and bicycling to school with their children and includes these in communication, as appropriate.

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>
- 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/srsm_srts_zone_in_not_out.asp.

⁹ The fifth E is Engineering, included in this report under Infrastructure Recommendations.



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 Fuller Heights Park for students who cannot walk from home. 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.

Help organize and support walking school buses. A walking school bus is a group of children walking to school with one or more adults. It can be as informal as two families taking turns walking their children to school or as structured as a planned route with meeting points, a timetable and a schedule of trained volunteers. Potential walking school bus routes based on the existing walk zone include:

- Stonewall Manor Drive/Kerill Road to Lionsfield Road/Highland Park Drive
- Hundred Acre Lane/Thomasson Crossing Drive to Lionsfield Road/Highland Park Drive
- Expedition Drive to Lionsfield Road/Highland Park Drive

For additional information on walking school buses and bicycle trains, see the following Virginia SRTS Program.

<https://www.dropbox.com/s/7kzoqoyxc6o3g9k/VDOT%2oSRTS%2o-%2oWalking%2oSchool%2oBus%2oand%2oBike%2oTrain%2oWebinar.pdf?dl=0>

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/srsm_marketing_toolkit.asp

Install bicycle parking. Triangle Elementary School does not currently have any bicycle parking. A bicycle rack should be installed at a convenient location near Entrance 1 to enable students who ride their bikes to lock them up securely. Guidance regarding bicycle rack selection and placement is provided in this tip sheet developed by the Safe Routes to School National Partnership. <https://www.saferoutespartnership.org/sites/default/files/pdf/BikeParkingTipSheet-web.pdf>

Enforcement

Request that the Prince William County Police Department Conduct Periodic Speed and Parking Enforcement on Lionsfield Road. Drivers often park illegally during arrival and pick up times, obstructing sight-lines at the Lionsfield Road/Highland Park Drive intersection. Drivers also appear to exceed the speed limit on Lionsfield Road, which is 25 mph. Enforcement is particularly needed at the beginning of the school year when driver habits are being established.

Implement the Zone In, Not Out school zone safety program on Lionsfield Road. This program is aimed at increasing driver awareness of pedestrian and bicycle safety issues in school zones, and might help address the illegal parking and speeding concerns on Lionsfield Road. Resources are available on the Virginia SRTS website:

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



Figure 5: Zone In, Not Out Signage Example

Evaluation

Continue 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 a week of the school's choosing each September and October. This data can be used to assess progress toward increasing the number of students who walk and bike to school. Student Travel Tallies have been conducted in October 2015, 2016, and 2017 for Triangle Elementary 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/nl274zoliqegw5t/Parent%20Survey_LDLv2.pdf?dl=0



Appendices

A. Walkabout Participants

Name	Organization
Laura Elliott	Principal, Triangle Elementary School
Michael Henretty	PTO, Triangle Elementary School
Melissa Morgan	PTO, Triangle Elementary School
Becky Short	Safe Routes to School Coordinator, Prince William County Public Schools
John Leonard	Risk Management Division, Prince William County Public Schools
Maureen Caddigan	Potomac District Supervisor, Prince William County
Cindy Engelhart	Bicycle Pedestrian Coordinator--NOVA District, Virginia Department of Transportation
Robert Williams	Safe Routes to School Coordinator, Virginia Department of Transportation
Jim Elliott	Senior Planner, Toole Design Group
Clea Baumhofer	Engineer, Toole Design Group

B. Road Information Table

Street Name	Speed limit (mph)	Road Width	No. of travel lanes in each direction	AADT ¹⁰	Road Classification ¹¹	Network Connectivity
Lions Field Road (Fuller Heights Road to Thomasson Crossing Drive)	25	23-33'	1	2,400	Local	Street on which school is located and the only road providing access to the school site.
Fuller Heights Road (Fuller Road to Mockingbird Heights Road)	35	22'	1	5,600-9,300	Major Collector	Primary east-west route in the Town of Triangle, VA.
Thomasson Crossing Drive (Hundred Acre Lane to Kerril Road)	25	33-34'	1	Unknown	Local	

¹⁰ Average Annual Daily Traffic (AADT) counts from VDOT, http://www.virginiadot.org/info/resources/Traffic_2017/AADT_076_PrinceWilliam_2017.pdf

¹¹ 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 Triangle 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.

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



D. Key Policies Supporting Recommendations

VDOT Crosswalk Policy VDOT IIM-TE-384.012

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, 389 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.

¹² http://www.virginiadot.org/business/resources/IIM/TE-384_Ped_Xing_Accommodations_Unsignalized_Locs.pdf

E. Walkabout Photographs

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



Figure 10: Lionsfield Road approaching Highland Park Drive from the south



Figure 11: Lions Field Road approaching Highland Park Drive from north



Figure 12: Woman and three children walk up Lions Field Road after school



Figure 13: View of Lions Field Road south of school. Note the lack of shoulder and poor sight lines



Figure 14: Intersection of Lionsfield Road and Fuller Heights Road (looking east)



Figure 15: Intersection of Fuller Heights Road and St. Francis of Assisi Catholic Church entrance drive (looking west)



Figure 16: Intersection of Fuller Heights Road and St. Francis of Assisi Catholic Church entrance driveway (looking east)



Figure 17: Intersection of Fuller Heights Road and St. Francis of Assisi Catholic Church entrance driveway (looking west)



Figure 18: Intersection of Fuller Heights Road and Fuller Heights Park entrance driveway (looking east)



Figure 19: Intersection of Fuller Heights Road and Fuller Heights Park entrance driveway (looking west)



Figure 20: Intersection of Lions Field Road and Thomasson Crossing Drive