



Nansemond Parkway Elementary School Walkabout Report

Introduction

On December 7, 2018, stakeholders at Nansemond Parkway Elementary School (NPES) in Suffolk, Virginia met to examine the walking and bicycling networks around the school and identify potential improvements that would make walking and biking to school safer and more convenient. The meeting was the result of a “Walkabout Mini-Grant” application that was submitted to the Virginia Department of Transportation (VDOT) by Carl Jackson, an NPES parent. The VDOT Safe Routes to School Program (SRTS) chose NPES from among several applicants due to the proximity of students (108 within 1 mile) and existing infrastructure. Participation in this Walkabout shows the stakeholder’s support for improving the walking and bicycling environment and increasing the number of students safely walking and bicycling to school. This report is intended to serve as a resource for the school to aid in accomplishing those goals.

The stakeholders participating in the walkabout included Jennifer Conner, Principal of NPES; Kristine Esmalla, parent; Carl Jackson, parent; Ray Hunt, VDOT Planning representative and Suffolk resident; Mary Kate Spaulding, parent and teacher; Sergeant AD Sparks, Suffolk Police Department; Terry Napier, Suffolk Public Schools Director of Facilities and Planning and John Littlefield, Suffolk Public Schools IT Department.

The two-hour meeting included an observation of school dismissal and a discussion of the challenges and concerns of the NPES community.



Figure 1. Nansemond Parkway Elementary School

Background

Nansemond Parkway Elementary School (NPES) was constructed in a rural part of the City of Suffolk in 1978. At that time, Nansemond Parkway was a two-lane rural arterial highway with a speed limit of 55 MPH and was owned and maintained by the Commonwealth of Virginia. There were no requirements to install closed drainage, curb and gutter, sidewalks or other pedestrian infrastructure currently required as part of an urban road design, and the closest residential neighborhood would have been several miles away.

Over the last 30 years, the City of Suffolk has experienced tremendous growth. Most has occurred in North Suffolk and around the Downtown area - two areas identified in the City’s 2035 Comprehensive Plan as the Northern and Central Growth Areas, respectively. While NPES is located within the City’s Rural Conservation Use District, which is intended to conserve the city’s rural areas for agricultural and low-density uses, it sits just outside of the Northern Growth Area.



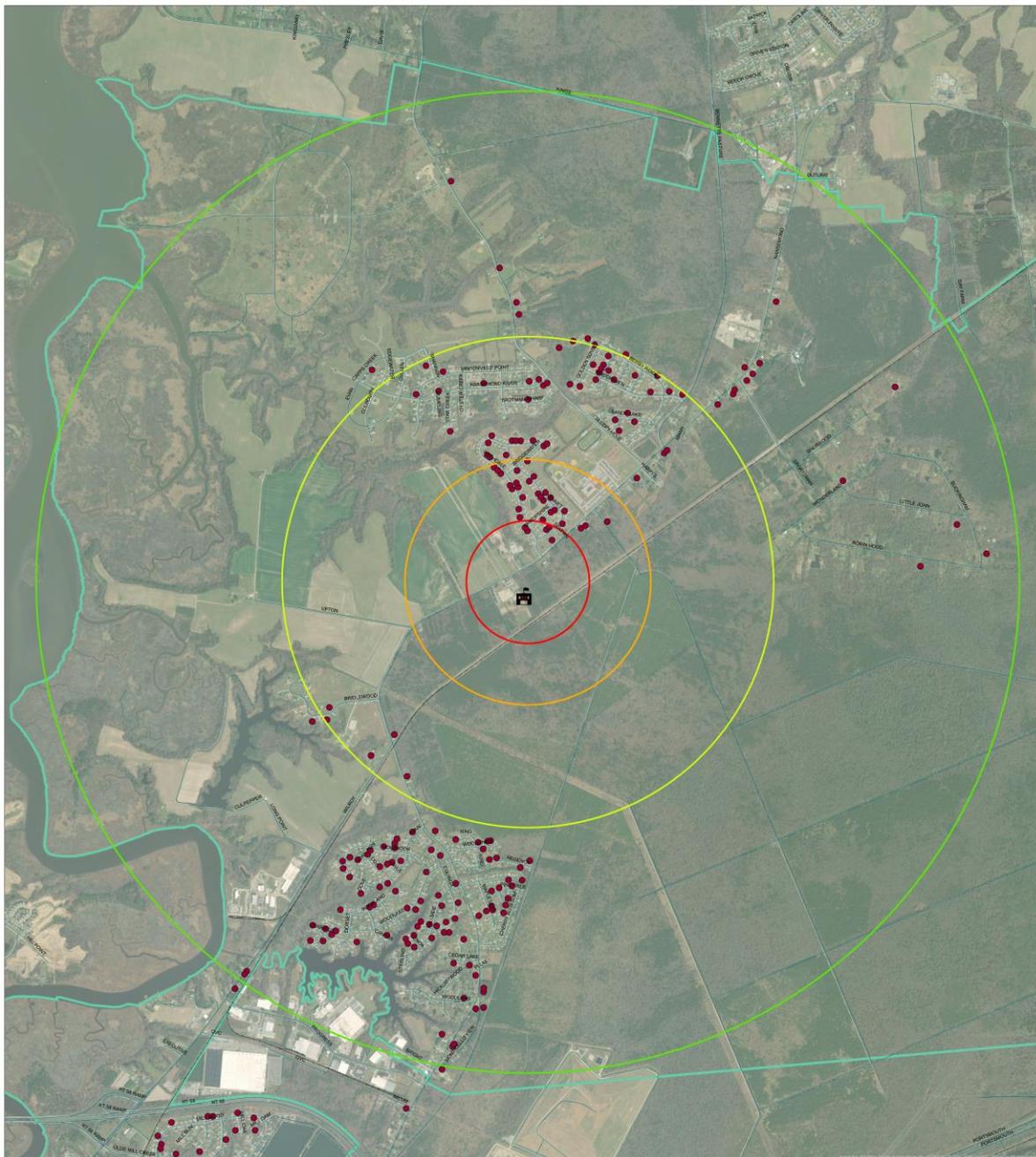
Development that has occurred to the north, including the Mansfield Farm subdivision and Nansemond River High School, is located inside of the City's Northern Growth Area.

Existing Conditions

School Location and Demographics

NPES is located at 3012 Nansemond Parkway, Suffolk, Virginia 23434. NPES is a public school with approximately 497 students in grades pre-K through 5. Fifty percent of the students are African American, thirty-five percent white, six percent Hispanic and six percent American Indian. It is a Title 1 school where fifty percent of the student population is categorized as economically disadvantaged.

About fifty percent of the student population lives within a one-mile radius of the school, with the other half within a two-mile radius. All students are bused or picked up by parents in their personal vehicles. Eight buses serve approximately 400 students, and 80-90 students are picked up by their parents every day though they are assigned to a bus. The principal knows of only two children who routinely walk to school; one with a parent, and the other with an older sibling.





TOOLE
DESIGN

Nansmond Parkway Elementary School

Walkabout
Suffolk, VA

Legend

- Nansmond Parkway Elementary
- 0.25 Miles
- 0.5 Miles
- 1 Mile
- 2 Miles
- Student Locations
- Railroads
- Streets
- Nansmond School Zone

0 0.25 0.5 Miles

N

Date: 12/6/2018

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Figure 2. Nansmond Parkway Elementary School Enrollment Boundary



Pedestrian and Bicycle Infrastructure

The school is located approximately six miles northeast of downtown Suffolk on Nansemond Parkway, a two-lane road with intermittent right turn and center turn lanes into small residential developments in a mostly rural landscape. The speed limit is 45 mph. A “school zone speed limit when flashing” sign reduces the posted speed limit to 35 mph directly in front of NPES during arrival and dismissal. Nansemond River High School is located approximately ¼ mile northeast from NPES on Nansemond Parkway. There is a signalized intersection in front of the high school. A signalized intersection also exists approximately 0.9 miles southwest of NPES at Wilroy Road (Rt. 642) and parallel railroad tracks.

There are no bicycle facilities within two miles of NPES School, and no bike racks at NPES. There are internal sidewalks within all the residential developments (Mansfield Farm, Woodlake North and Woodland at Nansemond) from which the majority of the enrollment of Nansemond Elementary is drawn. Some of the families who attend NPES live in developments that have natural physical boundaries, such as creeks and rivers, which limit walking and bicycling access to the school. The City of Suffolk does have plans to extend the Suffolk Seaboard Coastline Trail from Chesapeake to Suffolk, and an alignment that connects the school and the neighborhoods to the north along Nansemond Parkway is a design option that would also benefit the schools along this road.

Other than sidewalk along Nansemond River High School and the Mansfield Farm development, there are no sidewalks or shoulder along Nansemond Parkway. There are no crosswalks within two miles of NPES, including none at the signalized intersection in front of Nansemond River High School.

There is a walking path that connects Sleepy Hole Road to Bridgewater Court in Mansfield Farm. This path provides an opportunity for a connection to the multi-use trails surrounding Sandy Lake in the Woodland at Nansemond development. There are approximately thirty families who live in this development. If a sidewalk gap of 160 feet could be filled on Sleepy Hole Road and a crosswalk added to access the path into Mansfield Farm, it would reduce the walking distance to NPES by ½ mile and make the walk from the Woodlands at Nansemond subdivision to NPES less than one mile. See Figure 3 below.



Figure 3. Paved path connection at Sleepy Hole Road to Bridgewater Court

The most needed sidewalk connection to NPES occurs at the edge of the Mansfield Farm development. There is a sidewalk that runs adjacent to Nansemond Parkway along the Mansfield Farm development which ends at a small culvert at the edge of the development. See Figures 4 and 5.



Figure 4. Sidewalk terminus from Mansfield Farm looking west



Figure 5. Sidewalk terminus of sidewalk at Mansfield Court looking east

The distance between this gap and the NPES driveway is about 900 feet. In general, the roadside conditions would accommodate a sidewalk, though the edge of the right-of-way would need to be identified.



Figures 6 and 7. View of roadside conditions looking east across from NPES



Figure 8. View of roadside conditions looking west towards entrance to NPES

Walkabout Summary

After a brief meeting to review existing dismissal procedures and hear community concerns, the Walkabout Team observed dismissal. One group observed the dismissal process for the bus students, and another observed the parent vehicle pick up. Four buses service the school from a separate bus loop on the west side of the school building. Parents pick up their children from the front entrance.

Dismissal Overview

Students leaving by bus were dismissed at the final bell at 3:45 PM. Teachers and assistants walked the bus riders to their assigned bus and the entire process was completed in 10 minutes. The process was orderly and controlled. No issues of concern were observed. We did learn that buses in Suffolk are often running late, particularly in the morning, so providing additional options for bicycling and walking options could improve attendance and tardiness rates at the school.



Figure 9. Nansemond Elementary dismissal



Figure 10. Nansemond Elementary pedestrians

Students leaving by car are allowed to be picked up prior to 3:30 PM if the parents enter and collect them from inside the school. On the day of the observation, parents began arriving at approximately 3:15 PM and parked in the lot or queued up waiting for a parking space to open up. Some parents parked in undesignated spots and left their car to collect their student. The students were dismissed from the front of the school and escorted by a parent or guardian to their car. The limited parking adds to the long vehicle queue that snakes through the parking lot as parents exit the lot.

One student left the school on foot with a parent, and another left the school on foot unescorted. Both indicated that they live in the Mansfield Farm development. The afternoon dismissal queues and parking lot were cleared by 3:50 PM.

During the pre-walkabout meeting, some parents expressed support for more measures that would improve walking access to the school. One parent at the meeting has been advocating for improved walking access to the school for many years, and he routinely walks his child to and from school every day, crossing Nansemond Parkway. However, for the other parents in attendance, there was concern for any unsignalized crossing of Nansemond Parkway due to vehicle speeds and volumes.

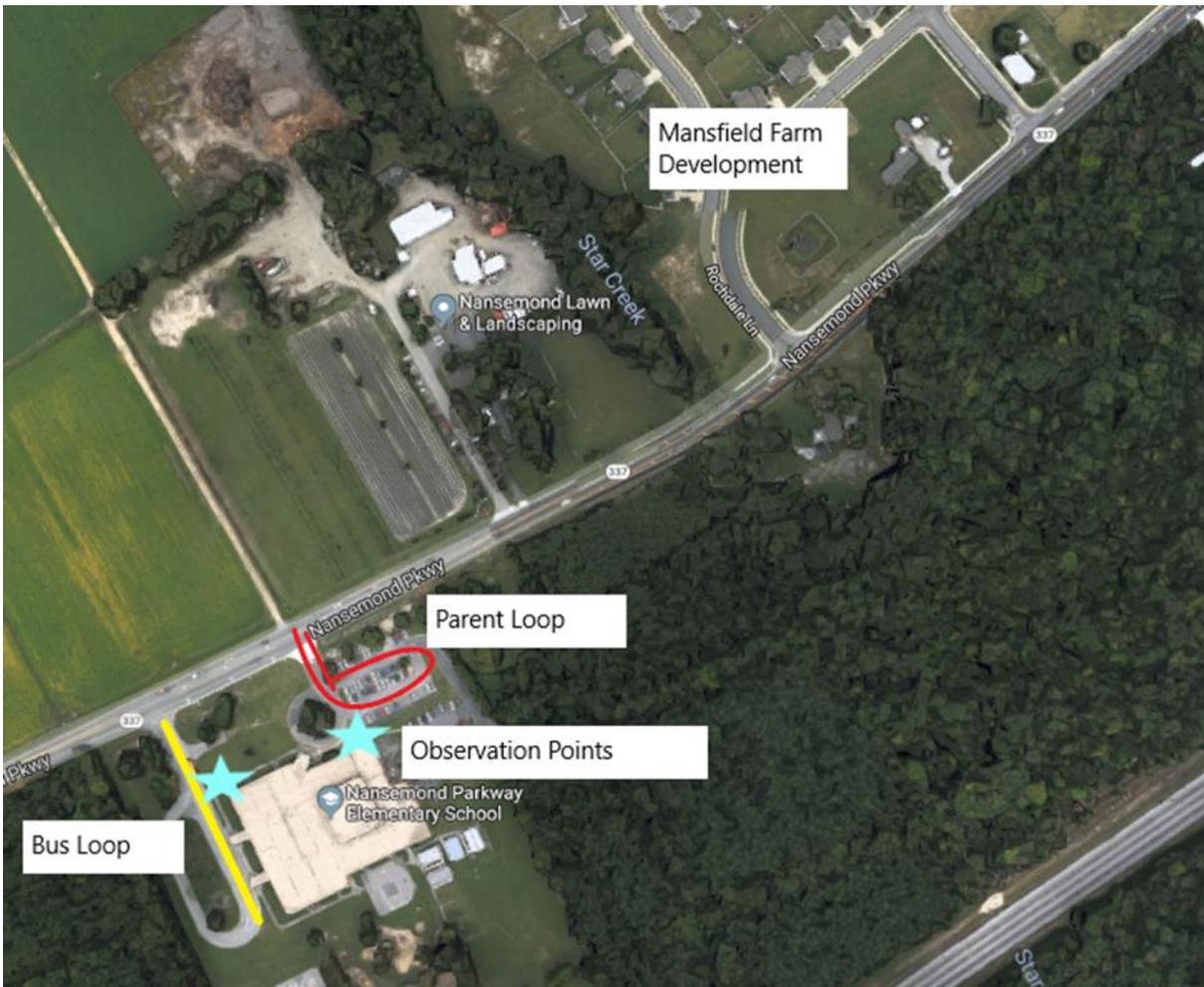


Figure 11. Key circulation and observation points at Nansmond Elementary dismissal



Figure 12. Nansemond Elementary dismissal motor vehicle pick up queue



Figure 13. Nansemond Elementary dismissal motor vehicle pick up



Figure 14. Nansemond Elementary dismissal motor vehicle pick up queue



Figure 15. Nansemond Elementary dismissal bus riders



Team observations included the following:

- Most students walked with parents to their parked or standing cars in the school’s parking lot.
- There are no marked crosswalks on Nansemond Parkway, which has two dedicated left and right turn lanes (one for the bus loop and one for the driveway and parking lot at the school).
- The team did not observe any significant queuing issues for cars waiting to turn into the school. However, we did observe many drivers waiting to turn left onto Nansemond Parkway creating backups that snaked all the way through the parking lot and back onto Nansemond Parkway.

Prior to the dismissal observation, the team walked east on Nansemond Parkway to get a sense of walking conditions towards the high school. The group’s observations and recommendations are presented below.

Key Barriers and Issues

The key barriers and issues identified by the Walkabout Team 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 A.

- **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**—Issues include missing, insufficient, or faded crosswalk markings, long pedestrian crossing distances, and relatively high motor vehicle speeds and volumes.
- **Poorly defined School Zone and inoperable flashers**— See Figure 16. Traveling east on Nansemond Parkway there is an S1-1 “School” sign and a “Next 1 Mile” plaque just before the entrance to Mansfield Road. This sign is located approximately 680 feet before the entrance to NPES. Immediately across from Mansfield Road is a standard R2-1 “Speed Limit 45 mph”, followed by an S5-1 “School Speed Limit 35mph When Flashing” sign assembly approximately 300 feet from the bus entrance of the school. An S5-2 “End School Zone” sign is located approximately 2000 feet from the S1-1 sign, and 500 feet after the entrance of the school.

The flashing lights of the S5-1 “School Speed Limit 35mph When Flashing” sign did not appear to be working. The S1-1 sign is not one mile from the S5-2 “End School Zone” sign assembly. This signage gives conflicting messages to motor vehicle drivers and should be verified, updated, and standardized.



Figure 16. Location of school zone related signage along Nansemond Parkway traveling east

Westbound traffic on Nansemond Parkway encounters S5-1 “School Speed Limit 35mph When Flashing” paired with an S1-1 school sign at Rochdale Drive. The signage is solar powered, yet also never flashed during the observation.

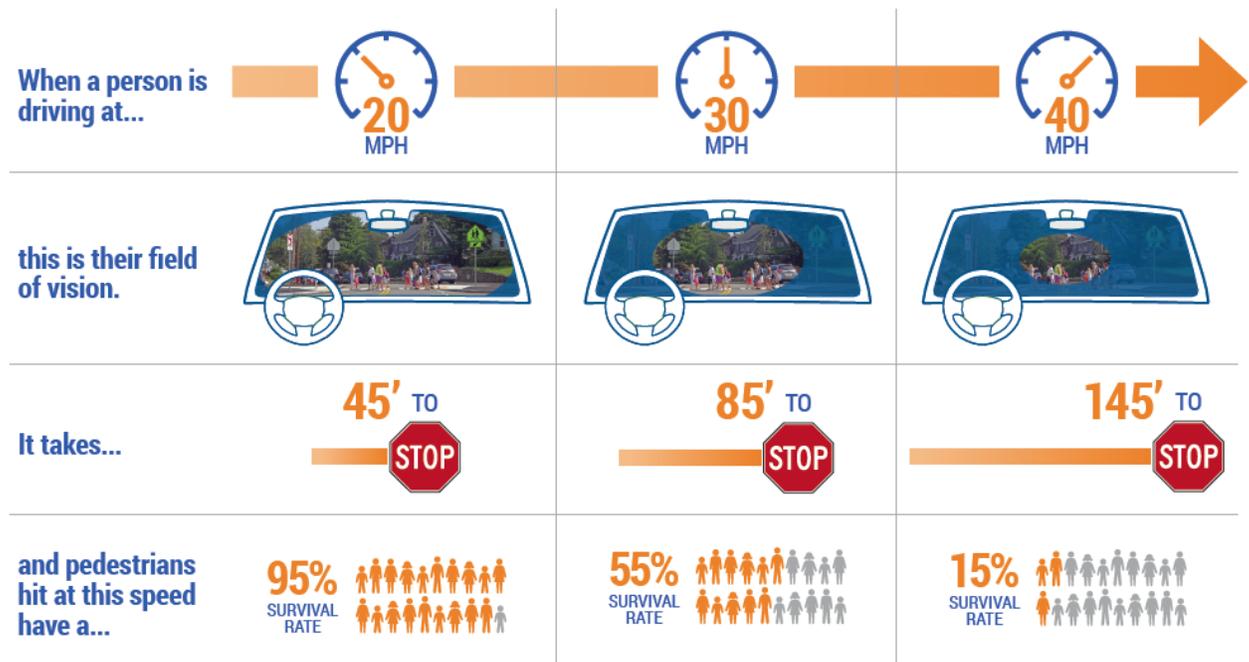


Figure 17. Location of school zone related signage on Nansemond Parkway traveling west



- **School Zone Speed Limit unsafe for pedestrians.**

The speed limit on Nansemond Parkway creates unsafe conditions for anyone attempting to cross at the school. As noted above, the posted speed limit is 35 mph only when the school zone sign is flashing, and the proximity of the 45 mph sign to the lowered school zone signage is confusing and sends conflicting messages to drivers. The infographic below illustrates the differences in field of vision, stopping distances, and survival rates for pedestrians when cars are operated at 20, 30 and 40 mph.



Virginia Safe Routes to School. Zone In, Not Out.



Figure 18. Vehicle speeds and pedestrian survival rates infographic

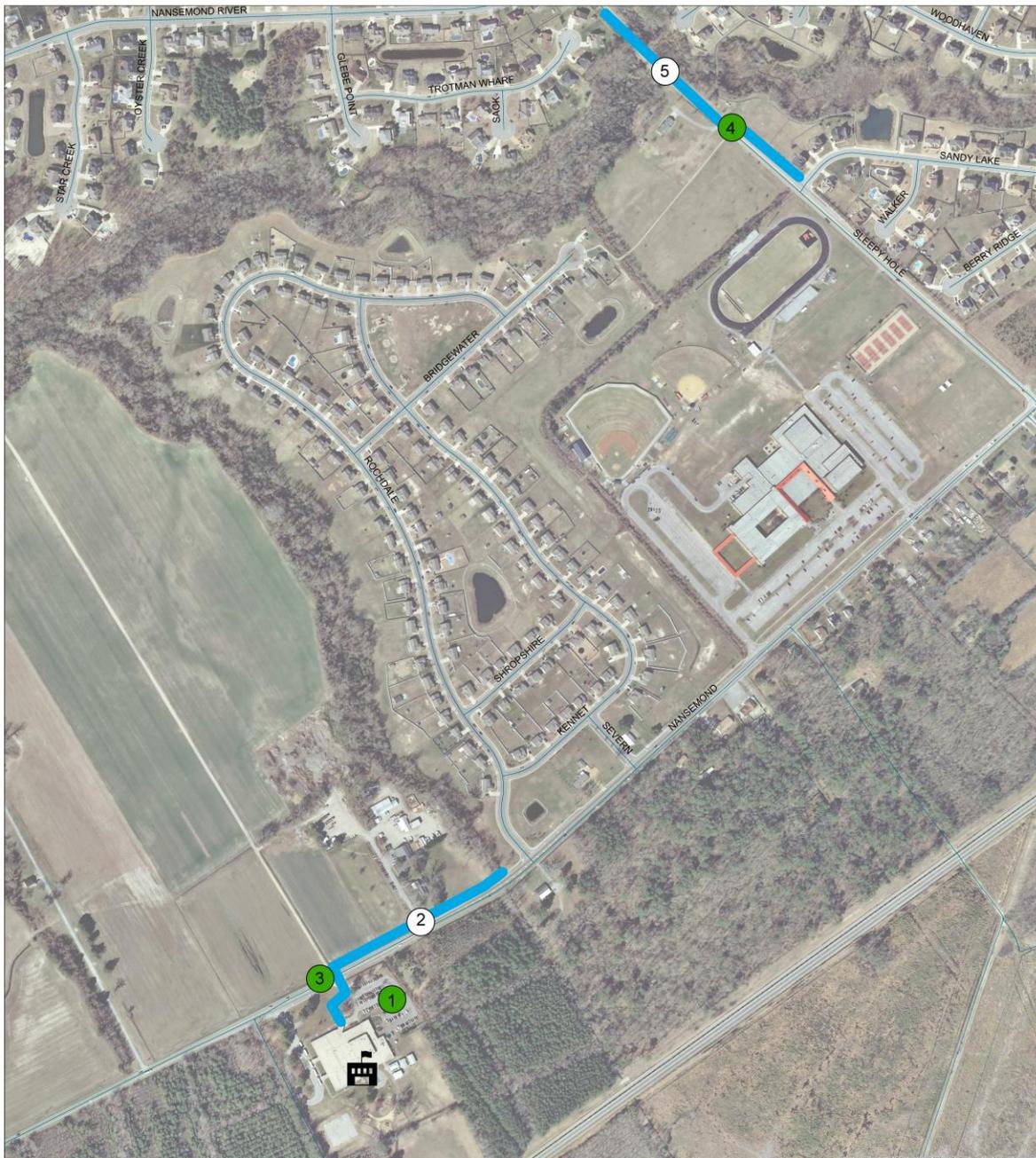


Conclusion

The issues listed above currently prevent most students from walking or biking to school. The recommendations in the next section address these issues, and over time they may help lower transportation costs and reduce congestion as adjacent land is developed. Suffolk Public Schools states as a strategic goal in their transportation budget, "To insure (sic) transportation for every eligible student living in the City of Suffolk." Suffolk Public Schools spends \$7.5 million on buses and maintenance to achieve this goal each year.

Infrastructure (Engineering) Recommendations

Infrastructure recommendations for NPES are shown in Figure 19 below and detailed in the tables on following pages. A glossary of engineering terms is provided in Appendix C and key VDOT policies supporting the recommendations are highlighted in Appendix D.



TOOLE
DESIGN

Nansemond Parkway Elementary School

Walkabout
Suffolk, VA

Legend

- Nansemond Elementary School
- Point Recommendation
- Line Recommendation
- Railroads
- Streets



0 0.05 0.1 Miles

Date: 3/1/2019

User: selsamra Path: \\lca-file01\50000\5265.3 and 5265.4 VDOT SRTS\Mini-grants\Walkabout Mini-grants\Nansemond Elementary School\Maps\Nansemond_Recommendations Map-UPDATED.mxd

Figure 19: Infrastructure Recommendations Map



Nansemond Parkway at Elementary School			
Map ID	Issue	Recommendation	Timeframe
1	No Bicycle Parking. Nansemond Parkway Elementary School does not currently have any bicycle parking. A bicycle rack should be installed at a convenient location near the Main Entrance to enable students who ride their bikes to lock them up securely.	<ul style="list-style-type: none"> • Install bike racks. 	Short
2	Missing Sidewalk. Sidewalk on north side of Nansemond Parkway ends around ¼ mile from Nansemond Elementary limiting the pedestrian access for students who live in the adjacent housing developments.	<ul style="list-style-type: none"> • Extend sidewalk with a grass buffer on the north side of Nansemond Parkway from Rochdale Lane to connect to the elementary school. 	Medium
3	Vehicle Speeds. Despite the school speed zone signage that indicates a speed limit of drive 35 mph when flashing during arrival and dismissal times instead of 45 mph, we never saw the lights flash. Speeding along this stretch seems to be an issue and it makes crossing Nansemond Parkway unsafe.	<ul style="list-style-type: none"> • Replace S1-1 sign assembly at all locations along Nansemond Parkway with S5-1 School Speed Limit sign and flashing lights. • Consider lowering speed in front of school to 25 mph. 	Medium
3	No marked crosswalk at school entrance. Students that reside in Mansfield Farm development lack a safe crossing across Nansemond Parkway.	<ul style="list-style-type: none"> • Install high visibility crosswalk across Nansemond Parkway to school entrance. • Add median refuge to the west side of the driveway as part of the crosswalk, removing a short section of the westbound left turn lane. • Install MUTCD pedestrian crossing signs Rectangular Rapid Flashing Beacons (MUTCD IA-21) at both sides of crossing on Nansemond Parkway. • Construct sidewalk through school grounds west of main entrance loop. 	Medium
3	Difficult Crossing. Vehicle speeds may render this crossing difficult even with marked crossing.	<ul style="list-style-type: none"> • Identify if signal or hybrid beacon warrants are met to signalize the school driveway intersection. 	Long

Timeframe: Short – within 2 years | Medium – between 2 and 5 years | Long – more than 5 years | Ongoing – as appropriate based on other work



Sleepy Hole Road			
Map ID	Issue	Recommendation	Timeframe
4	Difficult Crossing. Students that reside in Woodlands of Nansemond development lack a safe crossing across Sleepy Hole Road.	<ul style="list-style-type: none"> • Install a midblock crossing across Sleepy Hole and install sidewalk to connect Woodlands of Nansemond development to sidewalk behind Nansemond High School. • Install MUTCD pedestrian crossing signs Rectangular Rapid Flashing Beacons (MUTCD IA-21) at both sides of crossing. 	Medium
5	Missing Sidewalk. Incomplete sidewalk at Sleep Hole is a gap in the pedestrian network	<ul style="list-style-type: none"> • Extend sidewalk to provide connection to developments on both sides of Sleepy Hole Road. 	Medium

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.¹

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 Nansemond Parkway 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.

¹ 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 sending out flyers requesting parent volunteers and establishing a meet up location in Mansfield Farm development for students to meet and walk together. 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 an easy walking distance from the school:

- Bridgewater Court to Kenner Drive and Rochdale Lane
- Rochdale Lane and Kenner Drive to Nansemond Elementary School

For additional information on walking school buses and bicycle trains, see the following Virginia SRTS Program resource: http://www.virginiadot.org/programs/resources/safeRouteResources/5Es/VDOT_SRTS_-_Walking_School_Bus_and_Bike_Train_Webinar.pdf

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. Nansemond Parkway Elementary School does not currently have any bicycle parking. A bicycle rack should be installed at a convenient location near the Main Entrance 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 Suffolk Police Department Conduct Periodic Speed on Nansemond Parkway. Drivers appear to routinely exceed the speed limit on Nansemond Parkway, which is 35 mph in front of the school. Enforcement is particularly needed at the beginning of the school year when good driver habits are established.

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

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



Evaluation

Start 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. For more information about Student Tally Week go to the Virginia SRTS Program website.

http://www.viriniadot.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
Jennifer Conner	Principal, Nansemond Parkway Elementary
Kristine Esmalla	Parent
Ray Hunt	Virginia Department of Transportation, Office of Planning; Suffolk resident
Carl Jackson	Parent
John Littlefield	Suffolk Public Schools Office of Information Technology
Terry Napier	Suffolk Public Schools Office of Facilities
Mary Spaulding	Parent, Teacher Nansemond Parkway Elementary
Sgt AD Sparks	Suffolk Police Department
Gina Arlotto	VA SRTS Local Technical Assistance Coordinator, Senior Planner, Toole Design
Siba El-Samra	Landscape Designer, Toole Design

B. Road Information Table

Street Name	Speed limit (mph)	Road Width	No. of travel lanes in each direction	AADT ²	Road Classification ³	Network Connectivity
Nansemond Parkway (49 th Street to VA 165/Little Creek Road)	35	62'	2 with center turn lane	13,000	Minor Arterial	North-south segment from Bennett Pasture Road to Wilroy Road route. Located along the east side of the Nansemond river with connection to the City of Suffolk.
Sleepy Hole Road (from Nansemond Parkway to Sandy Lake Drive)	35	35'	1 lane	n/a		West segment from Nansemond Parkway before intersection with Kings Highway Route 125.

² Average Annual Daily Traffic (AADT) counts from VDOT, http://www.virginiadot.org/info/resources/Traffic_2017/AADT_133_Suffolk_2017.pdf

³ 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 School Zone Speed Limit Standards

In order to increase or decrease a 25 mph statutory SZSL established under § 46.2-873, Virginia Code Section § 46.2-878 requires, just as for other statutory limits, that (1) an engineering study be conducted (2) that such increased or decreased statutory speed limits (on highways maintained by the commonwealth) be prescribed in writing by the Commissioner of Highways and (3) that such writings be kept on file in VDOT's Central Office.

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, 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.

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