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Norview Elementary School Field Observation Report

Contents

Introduction

This report summarizes existing conditions for students walking and bicycling to Norview Elementary School and provides recommendations for improving those conditions and encouraging more student walking and bicycling. The summary of existing conditions was developed based on:

- Student Travel Tally and Parent Survey data collected by Norview Elementary School.
- A teleconference on January 29, 2016, that included Virginia SRTS program staff, the school principal, one of the school's three crossing guards, and an officer from the Norfolk Police Department.
- Observation of school dismissal on February 29, 2016, by Virginia SRTS program staff.
- Observation of school arrival on March 1, 2016, by Virginia SRTS program staff, VDOT staff, and local SRTS coordinators from school division across Virginia, including Norfolk, Virginia SRTS program staff.

The school arrival observations on March 1 were part of a day-long training for local SRTS coordinators at the Norview Community Center, in which the Norview principal also participated.

Arrival Observation Participants

Name	Organization
Rob Williams	SRTS Coordinator, Virginia Department of Transportation
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Wendy Phelps	Local Technical Assistance Coordinator (LTAC), Coastal Region
Jim Elliott	Local Technical Assistance Coordinator (LTAC), Piedmont Region

School location

Norview Elementary School is part of Norfolk Public Schools. The school is located at 6401 Chesapeake Boulevard, Norfolk, VA 23513, just inside the Interstate 64 (I-64). The school's attendance boundary is generally defined by I-64 to the north and east, Norview Avenue to the south, and Wayne Creek and one of its tributaries to the west. Students living more than one mile from school are eligible for school bus service. See Figure 1.

Norview Elementary School is next to the Norview Community Center, which Norview students use for physical education classes. The school is within one block of Norview High School (to the north) and Norview Middle School (to the south). Nearby neighborhoods include Coronado to the northwest, Sewell's Gardens to the west, Norfolk Gardens and Norview to the southwest, and Wellington Oaks/East Norview to the east.

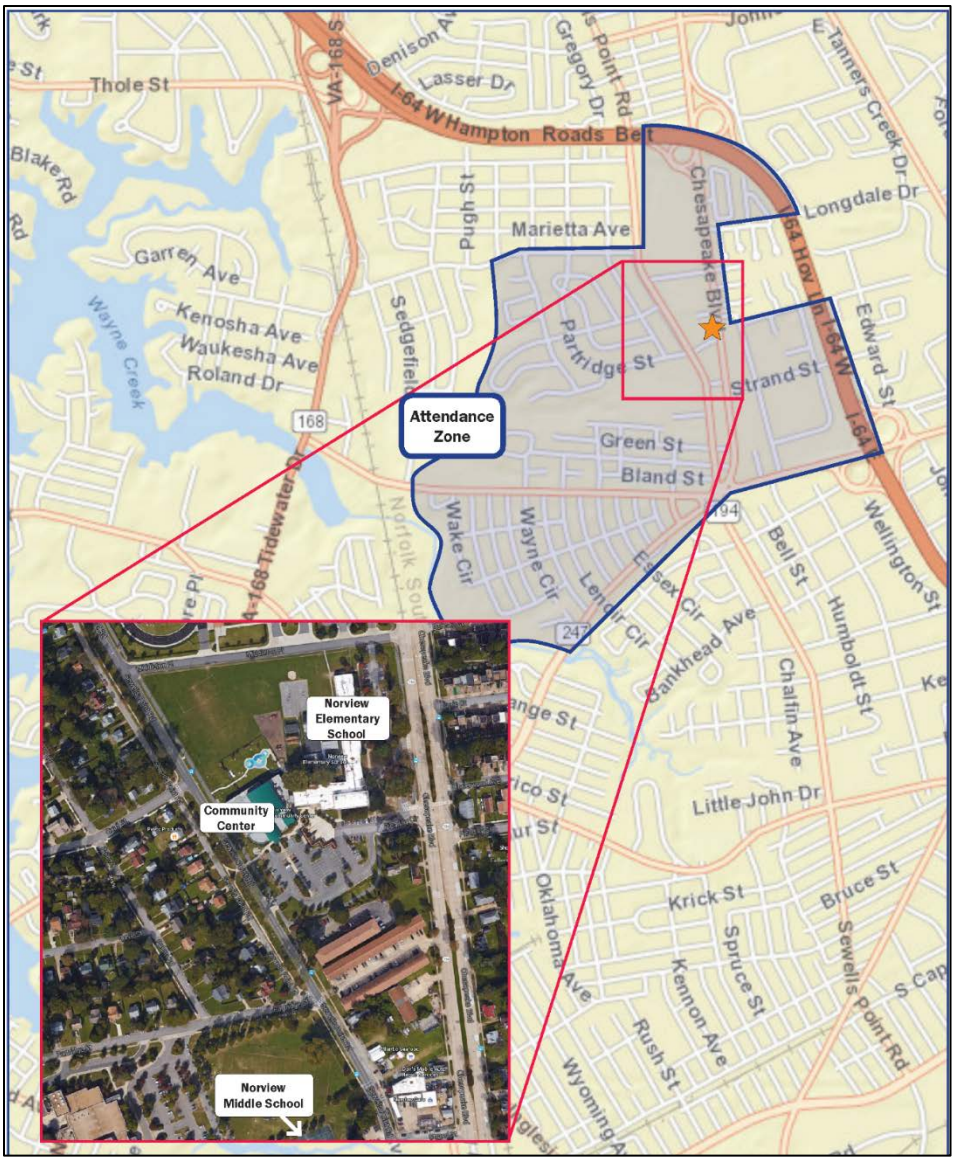

Figure 1: Norview Elementary School Campus Location and Attendance Boundary

Existing Conditions

Norview Elementary School serves a community with a majority low income African-American population. The school has a relatively high rate of student walkers and significant potential for encouraging more walking and bicycling. However, despite shared use paths close to the school and sidewalks on many streets, students face barriers to walking and bicycling to school. The most significant of these barriers is Chesapeake Boulevard, a six-lane road with a 40 mph speed limit and no signalized crossings for a two-mile stretch that includes the school. Students at nearby Norview High School and Norview Middle School are also impacted by this barrier, as are users of Norview Community Center, which is located adjacent Norview Elementary.

Barriers to walking and bicycling also exist on the Norview Elementary School campus. These barriers include drivers who frequently block the parking lot crosswalk during arrival and dismissal times, a lack of secure, conveniently located bicycle parking, and concerns about inappropriate behavior by middle school students loitering in the field behind Norview Elementary School after middle school dismissal, which includes occasional fights.

Existing conditions that affect walking and bicycling to Norview Elementary School are described in greater detail in the sections below.

Neighborhood Demographics

The neighborhoods around the school are majority Non-Hispanic African-American and include a relatively high population of residents with incomes below the poverty line (up to 23 percent in the Census Tract south of the school).[1] The percentage of households with no vehicle is also relatively high (up to 11.3 percent in the Census Tract including East Norview/Wellington Oaks).[2] Approximately 80 percent of Norview Elementary School students are eligible for free and reduced lunch.

Key Roads

The following table provides information on streets and sidewalks surrounding the school.

Street	Speed limit	Road Width[1]	No. of lanes in each direction	Sidewalk width and continuity[2]
Chesapeake Boulevard (SR 194) (between I-64 (I-64) and Norview Avenue)	45 mph, 25 mph school zone	90 feet	3 plus left turn pockets	Continuous sidewalks both sides, 10’ wide shared use path along Norview HS and Norview ES frontage, 5’ wide elsewhere
Sewell’s Point Road (between I-64 (I-64) and Norview Avenue)	25 mph	20-33 feet	1	Continuous sidewalks both sides, 10’ wide shared use path along Norview HS, Norview ES, and Norview Community Center frontage, 5’ wide elsewhere
Middleton Place (between Sewell’s Point Road and Chesapeake Boulevard)	25 mph	26 feet	1	Continuous 6’ wide sidewalk on north side

1. Road width measurements are approximate and represent a general cross section.
2. Sidewalk widths are approximate.

[1] American Community Survey 2010-2014.
[2] American Community Survey 2010-2013.

Existing Pedestrian and Bicycle Infrastructure

Existing pedestrian and bicycle infrastructure near Norview Elementary School is shown in Figure 2. Generally speaking, within ½ mile of Norview Elementary School there are continuous sidewalks on both sides of the street on Chesapeake Boulevard and Sewell's Point Road, as well is in the Wellington Oaks/East Norview neighborhoods east of the school and in the Coronado neighborhood to the northeast. The neighborhoods south of Phillpotts Road, including Sewell's Gardens and Norfolk Gardens, have less complete sidewalk coverage.

There are several marked crosswalks across Sewell's Point Road in the vicinity of the school, and two marked crosswalks on Chesapeake Boulevard at Middleton Place and Picadilly Circle; however, with the exception of the signalized crossing about .4 miles to the north at the intersection of Sewell's Point Road and Widgeon Road, these crosswalks are not supported by signalized or stop control. In fact, the nearest signalized intersection on Chesapeake Boulevard is at the Five Points intersection where Chesapeake Boulevard, Norview Avenue, and Sewell's Point Road intersect, about a half-mile to the south.

Bicycle infrastructure within the within ½ mile of the school includes a system of shared use paths that form a loop around Norview Elementary School, Norview Community Center, and Norview High School. Many neighborhood streets in the vicinity of the school also provide relatively comfortable conditions for bicycling. There is also a comb-style bicycle rack in the courtyard at the back of Norview Elementary School.

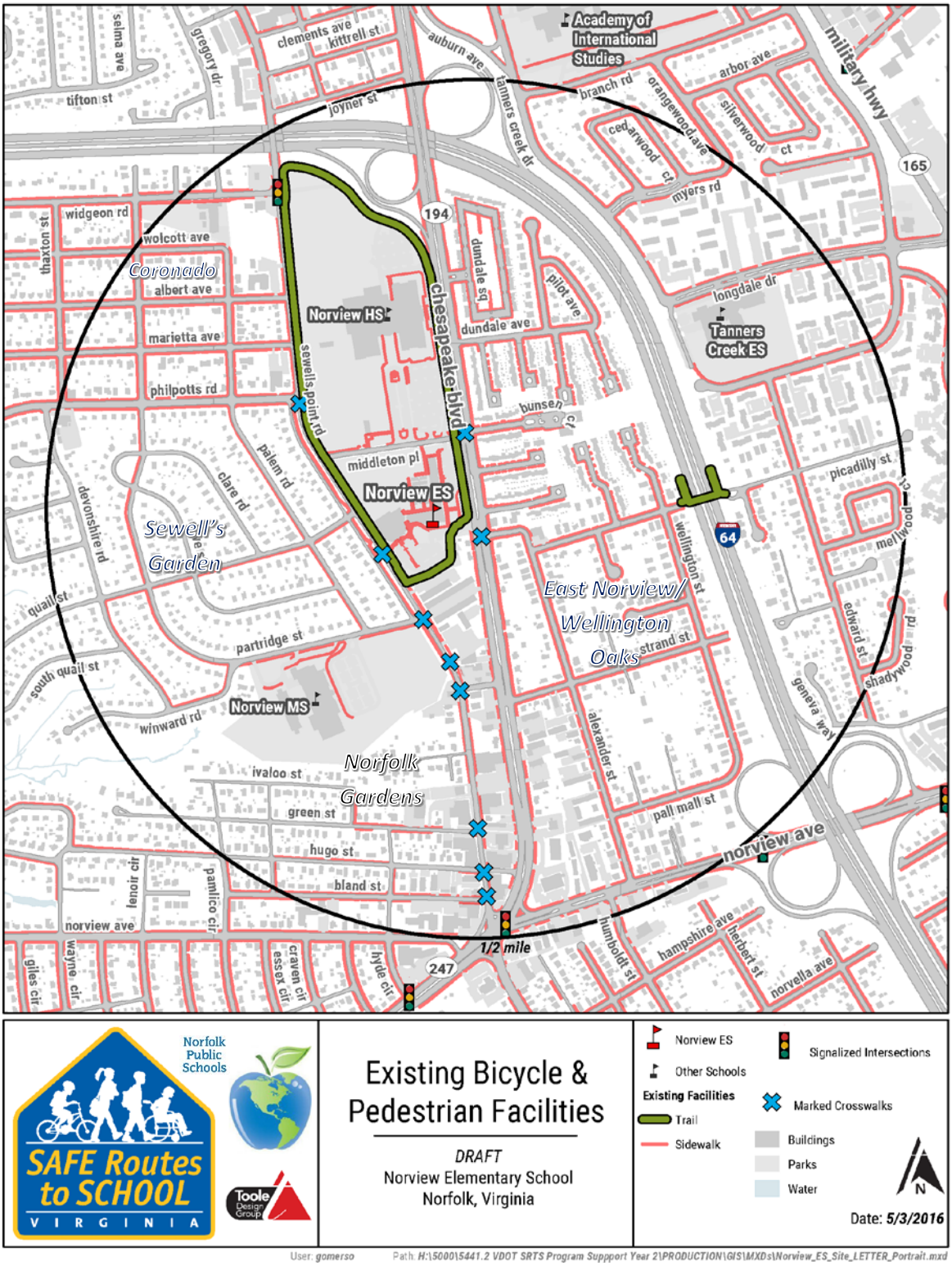

Figure 2: Existing Pedestrian and Bicycle Infrastructure

Travel Modes

Norview Elementary School serves approximately 500 students in grades K through 5. According to Parent Survey results from April 2015 and Student Travel Tally results from October 2015, approximately 29-34 percent of these students regularly walk to school and less than 0.5 percent of students bicycle (Figure 3). Of the parents who responded to the Parent Survey, 75 percent reported living with one mile of school. An analysis of student address locations revealed that 81 percent of the addresses were one mile or less network distance from the school, suggesting the potential for increased walking and bicycling.

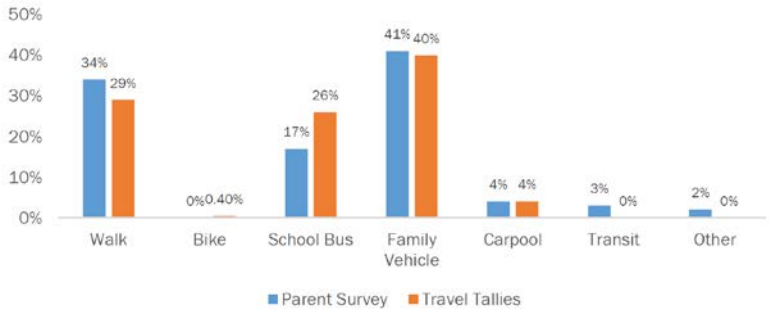

Figure 3: Mode to School as reported in April 2015 Parent Survey and October 2015 Student Tally

Policies and Procedures for Arrival and Dismissal

The following policies and procedures affect students walking and bicycling to Norview Elementary School.

Norview Elementary School Policies and Procedures

Two crossing guards are posted at the intersection of Chesapeake Boulevard and Picadilly Circle to assist students crossing Chesapeake Boulevard, and one crossing guard is posted at the mid-block crossing west of the Norview Community Center to assist students crossing Sewell's Point Road. The crossing guards posted at Chesapeake Boulevard and Picadilly Circle turn on the school zone speed limit flashing beacons when their duty starts and off when their duty ends.

A school resource officer is usually present during dismissal, and an officer from the Norfolk Police Department visits the school monthly to enforce the speed limit on Chesapeake Boulevard.

Norfolk Public Schools Policies and Procedures

According to the Policies and Regulations of the School Board of the City of Norfolk, Virginia, "Free transportation to and from school shall be made available to elementary school students who live more than approximately one (1) mile from the school to which assigned… and to any student whose walking route to and from school is considered to be hazardous as determined by the superintendent of schools or his designee."

Summary of Key Observations

Pedestrian/Bicycle Circulation

- **Norview Elementary has a relatively high percentage of students who currently walk to school.**
  Based on Student Tally and Parent Survey results from 2015, 28-35 percent of students walk to and from school, while less than 1 percent bicycle.
- **Walking is most common within ½ mile of school.**
  See Figure 4.
- **Students who live within one mile of school are more likely to be driven to school than students who live further out.**
  See Figure 4.
- **Student walkers are currently concentrated in the East Norview/Wellington Oaks neighborhood.**
  See Figure 5.

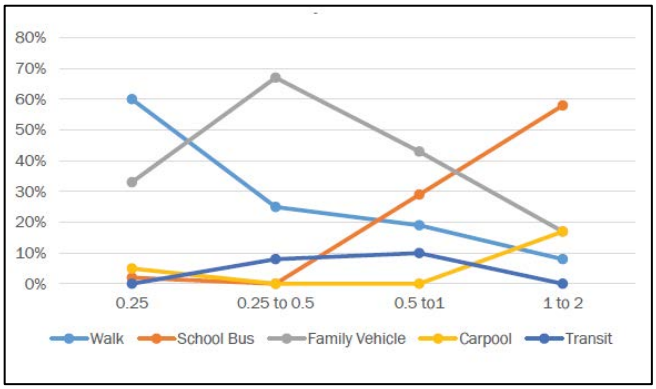

Figure 4: Norview Elementary School Student Mode to School by Distance (April 2015 Parent Survey)

- **The intersection of Chesapeake Boulevard and Picadilly Circle is the primary crossing location for Norview students.**
  Approximately 50 students and 10-15 parents were observed crossing at this location during arrival on March 1.
- **Student pedestrians also cross Chesapeake Boulevard at the intersection of Chesapeake Boulevard and Middleton Place.**
  Approximately 20 student pedestrians were observed crossing Chesapeake Boulevard at this location during arrival on March 1. Most students who passed through this intersection appeared to come from apartment complexes on the east side of Chesapeake Boulevard, presenting an opportunity for creating walking school buses from those complexes.
- **Fewer walkers than might be expected come from the Sewell's Garden neighborhood west of Norview Elementary**, suggesting the potential to increase walking from this neighborhood. During dismissal, only 3 pedestrians were observed crossing at the mid-block crossing on Sewell's Point Road adjacent the Norview Community Center. During arrival, 8 pedestrians were observed crossing at this location.

Location-Specific Issues and Key Concerns

On Campus

- **Unclear pavement markings and signage related to drop-off pick-up and parking.**
  An existing pavement marking on the north side of the parking lot crossway says, "No Parking/School Use Only." This marking is next to a sign that says, "[redacted] PARKING [redacted]. [redacted] STUDENT DROP-OFF OR PICK-UP," which is duplicated on the opposite side of the Picadilly Circle. The blacked out wording is still partly visible on the sign. (Figure 9)
- **Drivers block parking lot crosswalk during drop-off/pick-up.**
  This is the crosswalk connecting the shared use path on the south side of the Norview Community Center parking lot to the front of Norview Elementary. (Figure 10)
- **Drivers parking in adjacent parking space forced to back into parking lot crosswalk.**
  The parking lot crosswalk angles behind this space in such a way that it is impossible for a driver to back out of it without also backing into the crosswalk. (Figure 11)

- **Students often do not use the parking lot crosswalk.**
  Partly owing to the conditions described above, students often cross Picadilly Circle at locations other than the crosswalk.

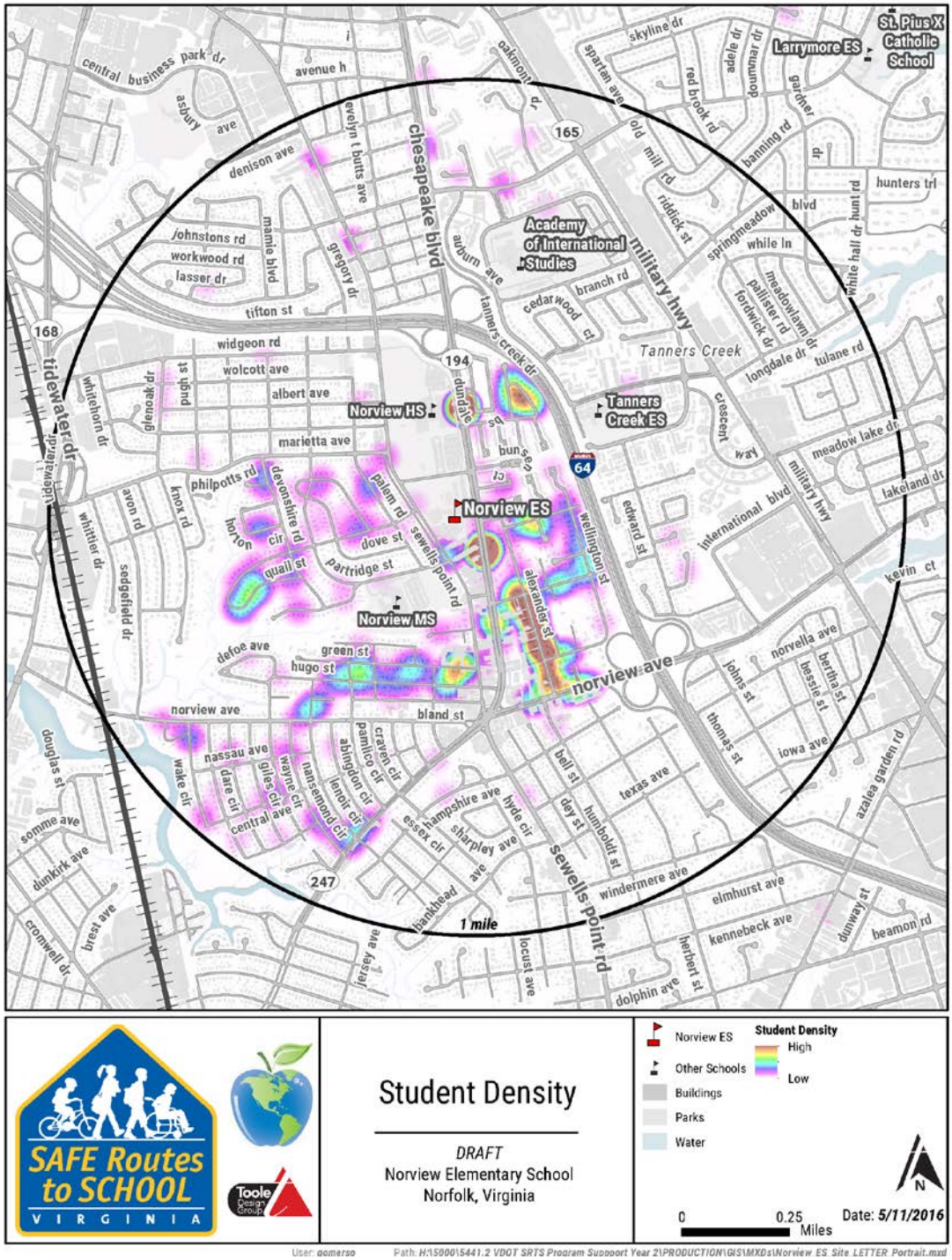

Figure 5: Student Density near Norview Elementary School

- **During arrival and dismissal staff are assigned to duties other than managing procedures.** As a result, students and family members arriving and departing by various modes negotiate the congestion on their own.
- **Inconvenient bicycle rack location.**
  Students must bring their bicycles through school building in order to access the bicycle rack. The rack has been placed in this location due to concerns about bicycle theft.

Chesapeake Boulevard

- **High motor vehicle speeds and volumes.**
  During observations on February 29 and March 1, some drivers appeared to exceed the 25 mph school zone speed limit, which is in effect when the school zone speed limit flashers are flashing during school arrival and dismissal times. At times when the school zone speed limit flashers are not flashing, the speed limit is 40 mph within the school zone. Figure 6 shows how the chances of a pedestrian fatality increase with motor vehicle speed for crashes involving a pedestrian and a motor vehicle. Average daily traffic volumes on Chesapeake Boulevard near Norview Elementary School are approximately 18,700.

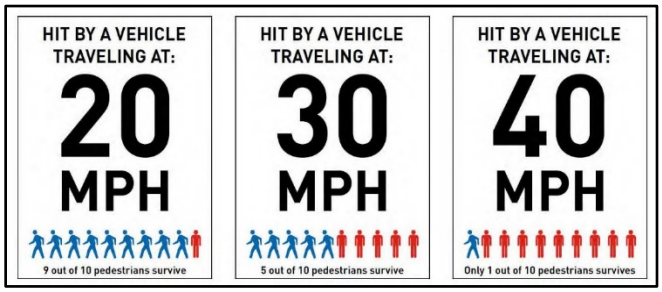

Figure 6: Chance of Pedestrian Fatality if Hit by Motor Vehicle at Various Speeds (Image credit: Seattle Vision

- **Wide roadway cross-section.**
  Chesapeake Boulevard is 90 feet wide with three motor vehicle travel lanes in each direction plus left-turn pockets and a narrow median. This cross-section supports higher motor vehicle speeds and results in longer crossing distances for pedestrians, which increases their exposure to traffic compared to roads with fewer travel lanes. (Figure 12 and Figure 13)
- **Lack of Protected Crossing Opportunities.**
  Outside of school arrival and dismissal times, Chesapeake Boulevard can be challenging to cross, since there are no signalized or stop-controlled pedestrian crossings between Johnston's Road, north of the I-64, and Norview Avenue, a distance of approximately **2 miles**. Yet, there is existent and latent demand for pedestrians to cross Chesapeake Boulevard near Norview Elementary, such as to attend before or after school activities at Norview Elementary, Norview High, Norview Middle, or to access Norview Community Center. (Figure 13)

Chesapeake Boulevard and Picadilly Circle

- **Difficult pedestrian crossing.**
  This intersection appears unsafe for pedestrians to cross, particularly outside of arrival and dismissal hours, when no crossing guards are present and school zone safety speed limit is not in effect. Contributing factors include the width of Chesapeake Boulevard (90 feet, including three lanes in each direction with a narrow median and left-turn pockets), the lack of a pedestrian refuge island (although there is a narrow landscaped median), the complexity of the intersection (five approaches, skewed geometry), relatively high motor speeds and volumes, inconsistent motor vehicle yielding, including when crossing guards are present, and motor vehicles that stop too close to the crosswalk making it difficult for pedestrians and drivers to see each other. Additional concerns include faded crosswalks (all legs), the double crosswalk across the bus loop exit, and school crossing signage that is placed too far in advance of the crossing (approximately 60 feet away from the crosswalk on the east side).

- **Crossing guard safety**.
  The crossing guards posted at Chesapeake Boulevard and Picadilly Circle are responsible for crossing student pedestrians and for creating gaps in traffic to enable left turns to and from Picadilly Circle. They do an admirable job and are much appreciated by the school community. Nevertheless, their work at this intersection raises broader safety concerns due to the relatively high motor vehicle speeds and volumes and inconsistent motor vehicle yielding on Chesapeake Boulevard, as well as the overall complexity of the intersection. The safety of the crossing guard located on the west side of the intersection is of particular concern, since she manages traffic coming from 6 different directions, including southbound through traffic on Chesapeake, traffic turning right and left from Chesapeake Boulevard onto Picadilly Circle, traffic turning right and left from Picadilly Circle onto Chesapeake Boulevard, and buses exiting the bus loop. This guard also manages pedestrians crossing from 2 directions, including across Chesapeake Boulevard and across Picadilly Circle. It can be challenging for the guard to maintain awareness of all of these potential movements at the same time and she must often turn her back to oncoming traffic in order to perform her duties. This guard also does not have a convenient, curb-separated place to stand when she is not in the middle of the roadway crossing pedestrians. Instead, she stands in the roadway near the curb, where she is in the pathway of right-turning traffic from Chesapeake Boulevard onto Picadilly Circle. (Figure 14)

Chesapeake Boulevard and Middleton Place

- **Students crossing Chesapeake Boulevard at uncontrolled location.**
  This intersection is uncontrolled for traffic on Chesapeake Boulevard and not supported by a crossing guard. Approximately 20 students were observed crossing Chesapeake Boulevard at this location on March 1, unaccompanied by an adult. Those that were accompanied by an adult crossed with the crossing guards at Picadilly Circle. (Figure 15)

East Norview/Wellington Oaks Neighborhood

- **Missing curb ramps.**
  Curb ramps are missing at several intersections in the East Norview/Wellington Oaks neighborhood, including at the following intersections:
  - Picadilly Street and Alexander Street (northeast and southeast corners)
  - Alexander Street and Strand Street (southeast and southwest corners) (Figure 16)
  - Strand Street and Wellington Street (southeast and southwest corners)
  - Wellington Street and Picadilly Street (northeast, southeast, and southwest corners)
- **Missing sidewalk.**
  There is a short segment of missing sidewalk on the north side of Strand Street (Figure 17)
- **Sidewalk obstructions and safety concerns.**
  In addition to the missing sidewalk, there are also several locations in the East Norview/Wellington Oaks neighborhood where obstacles block the sidewalk or where there are safety concerns near the sidewalk. These locations include:
  - West side of Alexander Street between Picadilly Street and Strand Street (sidewalk heave/vertical discontinuity)
  - West side of Wellington Street between Strand Street and Picadilly Street (electrical box tipped over in sidewalk buffer area with exposed wires)
  - East side of Wellington Street between Strand Street and Picadilly Street (hanging wire)

- Multiple locations where vegetation blocks the sidewalk (Figure 18)

Sewell's Point Road

- **Discontinuous and deteriorating sidewalk.**
  The sidewalk along the east side of Sewell's Point Road (the school side) is about 6 feet wide and generally buffered from the adjacent roadway. However, as it passes along several automobile repair shops just north of Strand Street, the sidewalk becomes indistinguishable from the parking lots. While the west-side sidewalk does not have this type of interruption for pedestrians, it is narrower and immediately adjacent to the roadway, making it impractical for student pedestrian use. (Figure 19)
- **Curb ramps missing/not ADA compliant.**
  Locations include:
  - Sewell's Point Road and Partridge Street where there are either inadequate curb ramps or non-compliant curb ramps. (
  - Sewell's Point Road at the tennis courts: The crosswalk at the northern end of the tennis courts lacks curb ramps. The 'receiving' side on the east is into a gravel shoulder. The crosswalk at the southern end of the tennis courts is stripped diagonally with the 'receiving' side on the east in a driveway. (Figure 20)
- **Faded Crosswalks**
  - Across Norview Community Center driveway. (Figure 21)

Sewell's Garden

- **Missing sidewalks.**
  Few streets in the Sewell's Garden neighborhood have sidewalks on both sides. Most connecting streets have sidewalks on one side, while some minor streets do not have any sidewalks. The sidewalks are generally in good condition, but there are places where trees and shrubs from the adjacent properties obstruct the walkway.
- **ADA Accessibility.**
  Wide curb radii prohibit the use of two perpendicular curb ramps at intersections, instead resulting in one diagonal curb ramp that directs users into the middle of the intersection. The curb ramps on newly constructed sidewalks are marked with truncated domes to assist pedestrians with visual impairments.
- **Difficult pedestrian crossing at Winward Road and Partridge Street.**
  Eastbound traffic on Winward Road can merge right onto Partridge Street without reducing speed due to a wide turning radius and no stop control at Partridge Street. The wide turning radius also increases the crossing distance for pedestrians walking along Partridge Street and crossing Windward Road. To illustrate, Winward Road is less than 30 feet across, but the wide corner at Partridge Street makes the crossing almost 70 feet long. (Figure 22)

Middleton Place

- **Missing sidewalk.**
  There is no sidewalk on the south side of Middleton Place between Sewell's Point Road and Chesapeake Boulevard. Middleton Place is adjacent to the Norview High School property to the north and the Norview Elementary and Community Center properties to the south. There is an obvious goat path along this segment, which could also be used by as a drop-off location for Norview Elementary (Figure 23).

Recommendations

The recommendations in this section are intended to improve conditions for walking and bicycling to Norview Elementary School and encourage more walking and bicycling.

High Priority Location-Specific Recommendations

School Campus

A combination of infrastructure and programmatic recommendation are provided here to address the safety concerns on the school campus:

Infrastructure	*Accompanying programmatic and operational*
Install bicycle rack at a convenient location near the elementary school main entrance. "Inverted U" style racks are recommended to enable secure locking. There are several options for locating the racks. One is to utilize existing motor vehicle parking spaces as rack space. Devoting the parking spaces next to the parking lot crosswalk for this purpose would also address the issue of drivers using those spaces being forced to reverse into the crosswalk.	**Educate students and parents on how to properly lock a bicycle.** This should be done following bicycle rack installation and every year thereafter. It should be supported by a bicycle lock giveaway program aimed at providing secure U locks to students who do not already own them. The Virginia SRTS Program's QuickStart Mini-grant might be a good funding source for these locks.

Infrastructure	*Accompanying programmatic and operational*
Replace signage to clarify messaging about where drop-off/pick-up and parking are allowed/prohibited.	**Update information provided to parents about arrival/dismissal** to address all modes, including walking and biking, and to provide more explicit direction to parents regarding where to drop-off/pick-up. Communicate these procedures multiple times, through a variety of media, throughout the year (e.g., in the parent handbook, at Back to School Night, in the school newsletter, on school website, etc.). **Provide staff support to reinforce arrival and dismissal procedures.** At a minimum, station one staff member at the parking lot crosswalk to remind drivers not to obstruct the crosswalk during drop-off/pick-up and to encourage students to cross at the crosswalk rather than at other locations in the parking lot. **Consider adjusting drop-off/pick-up process** to encourage drop-off/pick-up in the location shown in Figure 6 or on the south side Middleton Place. Note that facilitating drop-off at the parking lot location may require reconfiguring the parking lot or converting some of the parking lanes/aisles to one-way. **Collaborate with parents and Norview Middle School leadership to better manage middle school students after middle school dismissal.** For example, it may be possible to provide additional adult supervision and/or scheduled activities between middle school dismissal and elementary school dismissal for middle school students responsible for picking up elementary school siblings.
Reorient parking lot crosswalk and add curb extensions to shorten the pedestrian crossing, discourage drivers from parking in the crosswalk, and enable drivers parked next to the crosswalk to reverse without backing into the crosswalk.	**Assumes revised pick-up/drop-off** at location shown in Figure 6 or on the south side Middleton Place.

Chesapeake Boulevard

To reduce motor vehicle speeds, pedestrian exposure, and crossing distance:

Infrastructure	*Accompanying programmatic and operational*
Implement a road diet and buffered bike lanes, as recommended in the City of Norfolk Bicycle and Pedestrian Strategic Plan.	**None**
Reduce the posted speed limit on Chesapeake Boulevard to 25 MPH.	• **Conduct a traffic study** The purpose is to determine the degree to which drivers are currently exceeding the speed limit. • **Enforce the speed limit more frequently** The purpose is to reduce the incidence of motor vehicle speeding.

Chesapeake Boulevard and Picadilly Circle

To promote motor vehicle yielding, improve pedestrian crossing conditions, and address concerns about crossing guard safety, the following infrastructure changes are recommended:

- **Install Pedestrian Hybrid Beacon** for Chesapeake Boulevard crossing. See Figure 6 for an example if a Pedestrian Hybrid Beacon.
- **Add curb extension** into Picadilly Circle from northwest corner to provide crossing guard with a place to stand and reduce pedestrian exposure. Adding this curb extension will also enable consolidation of the crosswalks across the bus loop exit.
- **Add curb extension** into Picadilly Circle from northwest corner to provide crossing guard with a place to stand and reduce pedestrian exposure. Adding this curb extension will also enable consolidation of the crosswalks across the bus loop exit.
- **Install advance stop bars on Chesapeake Boulevard**
  Placing the advance stop bars 20-50 feet from the crosswalk will prevent the multiple-threat condition, where a car stopped too close to the crosswalk obstructs sightlines between crossing pedestrians and on-coming vehicles.
- **Create pedestrian refuge**
  The refuge should be at least six feet wide in the Chesapeake Boulevard median. Creating this refuge may require narrowing motor vehicle lanes.
- **Re-mark existing crosswalks**

Figure 7: Example of Pedestrian Hybrid Beacon in Arlington, Virginia

Using high visibility crosswalk markings will alert motorists to potential presence of pedestrians and show pedestrians where to cross.

- **Create pedestrian refuge**
  The refuge should be at least six feet wide. Creating this refuge may require narrowing motor vehicle lanes.
- **Reconfigure bus loop to exit onto Chesapeake Boulevard**
  The purpose of this recommendation is to shorten the crosswalk across Chesapeake Boulevard and to reduce the number of motor vehicle movements at the Chesapeake Boulevard/Picadilly Circle intersection. Note that this recommendation will require buses to turn right on Chesapeake Boulevard. Northbound buses will need to travel around the block via Strand Street and Sewell's Point Road.

A rough concept for this design of this intersection is shown in Figure 8.

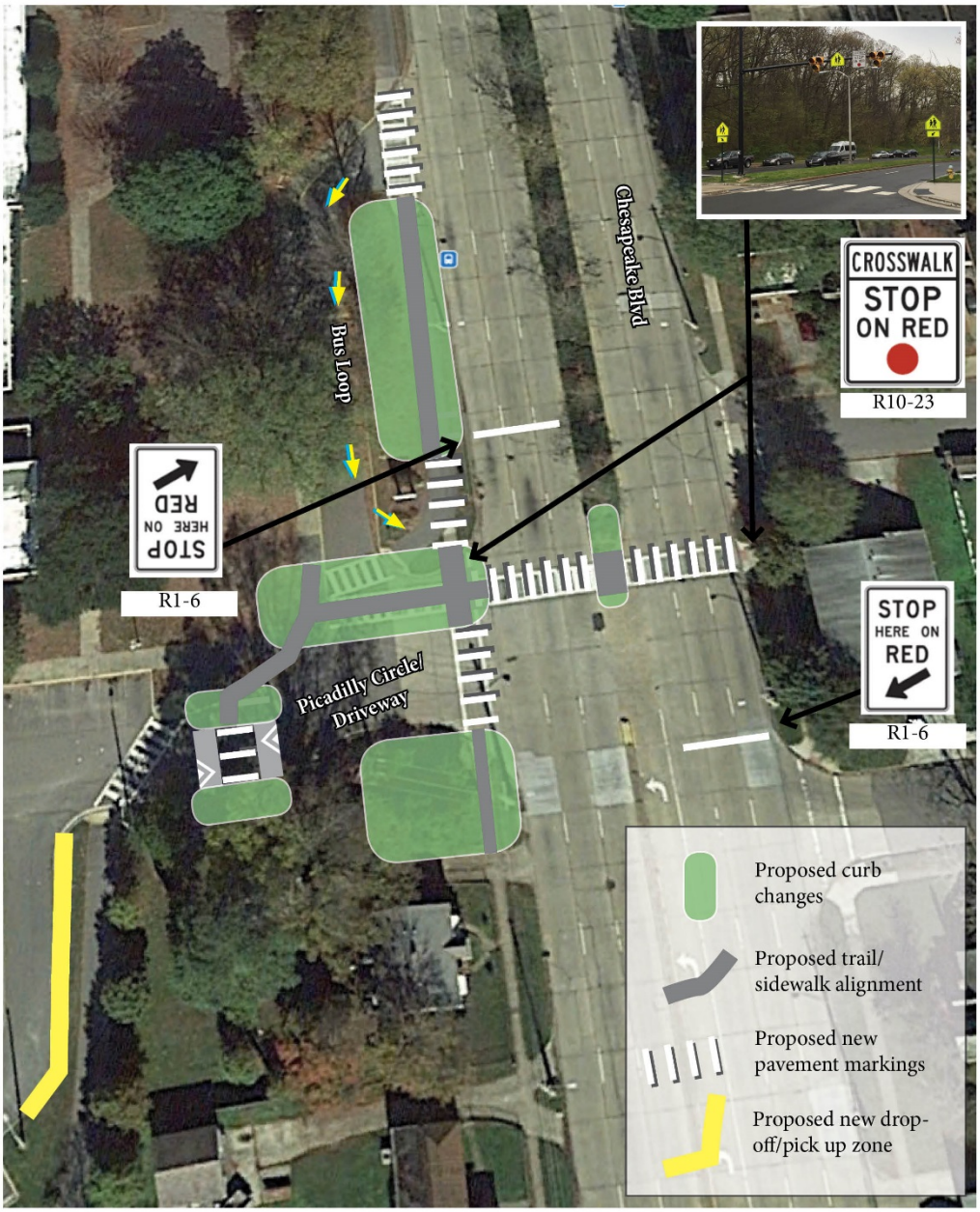

Figure 8: Concept for Recommended Improvements on Campus and at the Picadilly Circle/Chesapeake Road intersection.

Middleton Place

To improve pedestrian access and create a potential drop-off/pick-up:

Infrastructure	Accompanying programmatic and operational
Construct sidewalk A sidewalk on the south side of Middleton Place will connect to sidewalks on Chesapeake Boulevard and Sewell's Point Road. Ideally the sidewalk will be at least eight feet wide.	**Encourage use for drop-off/pick up.** Once the sidewalk is complete, the school could encourage parents to use Middleton Place as a drop-off/pick-up location, especially parents accessing the school from the west via Sewell's Point Road. Drop-off/pick-up on the north side of Middleton Place should be discouraged, since students dropped on the north side would need to cross Middleton Place on their way to/from school. An eight-foot wide on the south side of Middleton Place could also be used for bus drop-off/pick-up.

Lower Priority Location Specific Recommendations

East Norview/Wellington Oaks

- **Conduct a comprehensive walk audit** with residents of the neighborhood to determine locations where sidewalks are missing or poorly maintained, curb ramps are missing or non-compliant, and sidewalk obstructions and safety concerns are present.
- **Add missing sidewalks** and maintain existing sidewalks.
- **Add missing curb ramps** and upgrade curb ramps where they currently do not meet ADA guidelines.
- **Address sidewalk obstructions and safety concerns** and encourage neighbors to contribute to maintaining obstruction-free sidewalks through all seasons.

Sewell's Point Road

- **Provide continuous sidewalk on east side** by continuing sidewalk across automobile repair shop parking lots.
- **Add missing curb ramps** and upgrade curb ramps where they currently do not meet ADA guidelines.
- **Restripe crosswalk** across Community Center driveway.

Sewell's Garden

- **Reduce turning radius** on the southeast corner of Winward Road and Partridge Street. In the short term this can be accomplished with paint and bollards, although long term the curb should be rebuilt to reduce the speed of turning vehicles and reduce the pedestrian crossing distance.
- **Stripe crosswalks** at major intersections in the Sewell's Garden neighborhood. Priority locations should include:
    - All intersections along Quail Street.
    - The intersection of Winward Road and Partridge Street.
    - The intersection of Palem Road and Partridge Street.
    - All locations where the frontage road along Sewell's Point Road crosses neighborhood streets.

Programmatic Recommendations

The programmatic recommendations provided below are designed to work in conjunction with the location-specific recommendations provided above to encourage 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.[3]

Education

- **Provide pedestrian safety education**
  This education should be offered each year to all students. Pedestrian safety education should occur in advance of major walk 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 of which 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
- **Provide bicycle safety education to older students**
  This education should target students in grades 2-5 and may be offered as a bicycle rodeo with activities to help students 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.
    - *Bikeology* is a free, model bike curriculum aligned with National Standards for K-12 Physical Education. The curriculum was developed through a collaboration between the American Alliance for Health, Physical Education, Recreation and Dance (AAPHERD) and the National Highway Traffic Safety Administration (NHTSA). http://www.walkbiketoschool.org/node/50466
    - Additional bike safety resources can be found on the WalkBiketoSchool.Org website at: http://www.walkbiketoschool.org/keep-going/bike-safety
- **Include walking and bicycling information in school in communications to parents**
  Inform parents that Norview 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**
  The materials should 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. There are several organizations that have free materials available 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

[3] 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. Resources to help plan Walk to School Day are available on the Virginia SRTS Program website.
- **Establish a walking school bus program**
  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. **A walking school bus might be particularly helpful if operated from/to the Dundale Square Apartments on Chesapeake Boulevard to discourage students from crossing Chesapeake Boulevard at Middleton Place.** See the Virginia SRTS Program's webinar on walking school buses and bicycle trains.
  https://www.dropbox.com/s/7kz0q0yxc6o3g9k/VDOT%20SRTS%20-%20Walking%20School%20Bus%20and%20Bike%20Train%20Webinar.pdf?dl=0
  http://www.virginiadot.org/programs/srsm_srts_all_website_resources.asp
- **Establish a park and walk location**
  Park and walk programs create a way for students who might otherwise walk to school to do so for a short distance. Park and walk programs also help reduce the number of family motor vehicles at the school during arrival and dismissal. The small parking lot at the intersection of Sewells Point Road, Chesapeake Boulevard, and Norview Avenue may be a convenient place to establish a park and walk meeting location.The weekly park and walk program at Simonsdale Elementary School in Portsmouth is a local example of a successful park and walk program.
- **Establish a frequent walker/biker program**
  Frequent walker/biker programs encourage students to walk and bike by offering incentives to students who walk and bike frequently or by establishing a competition between classes. To accommodate students who cannot walk or bike to school, the school could make laps around the school track as a way to fulfill the frequent walker/biker criteria. The Virginia SRTS Program provides a punch card template that can be used to track student walking and biking as part of frequent walker/biker template. http://www.virginiadot.org/programs/srsm_marketing_toolkit.asp

Enforcement

- **Address concerns about crime/personal security**
  Community efforts, such as neighborhood watch, and additional collaboration with the Norfolk Police Department can be effective in addressing these concerns.
- **Establish a driver pledge program**
  Encourage parents and community members to sign a pledge that they will abide by traffic laws, avoid distracted driving, drive at a safe speed, and safely share the road with pedestrians and bicyclists.

Evaluation

- **Collect Student Travel Tallies Annually**
  Regular tallies are an easy way to assess progress toward increasing walking and bicycling rates. In Virginia, schools across the state record how students are getting to school during Student Travel Tally Week every fall. 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
- **Collect Parent Surveys Annually**

Learning from parents about their attitudes towards walking and bicycling and reasons why they may or may not allow their children to walk or bike to school is another indicator of program progress. 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/nl274z0liqe9w5t/Parent%20Survey_LDLv2.pdf?dl=0

Field Observation Photographs

Field observation participants took photographs to document the field observations. The following are a sample of these photos. All of the field observation photographs are available at: https://drive.google.com/a/virginiasrts.org/folderview?id=0B8O5iRglFBnPemZqNTNmaGRuY3M&usp=sharing.

Figure 9: Confusing signage on Norview Elementary campus. In the background, cars block crosswalk and students cross through parking lot.

Figure 10: Cars block parking lot crosswalk.

Figure 11: The parking space next to the parking lot crosswalk is situated in such a way that drivers using this space must back up into the parking lot crosswalk.

Figure 12: The crosswalk across Chesapeake Boulevard and the bus loop exit is approximately 150 feet long.

Figure 13: On Chesapeake Boulevard, there are no pedestrian crossings supported by a traffic signal or STOP sign for a two-mile stretch that includes Norview Elementary.

Figure 14: Crossing guard stands in roadway as car turns off of Chesapeake Boulevard.

Figure 15: Students cross Chesapeake Boulevard at Middleton Place.

Figure 16: Missing curb ramp at Alexander Street and Strand Street in East Norview/Wellington Oaks

Figure 17: Missing sidewalk segment on Strand Street between Alexander Street and Wellington Street

Figure 18: Tree blocks sidewalk in Picadilly Street in East Norview/Wellington Oaks

Figure 19: The sidewalk on the east side of Sewell's Point Road disappears as it passes an automobile repair shop, where the sidewalk space is used as part of the parking lot.

Figure 20: At Sewell's Point Road and Strand Street, the crosswalk on the north side lacks curb ramps while the crosswalk on the south side connects to a driveway On the east side.

Figure 21: Faded marked crosswalk at Norview Community Center driveway exit

Figure 22: Long pedestrian crossing at Windward Road and Partridge Street

Figure 23: Student being dropped off on Middleton Place

Glossary of Infrastructure (Engineering) Treatments

The following infrastructure treatments can be used to improve the bicycle and pedestrian environment around Norview Elementary School. Location-specific recommendations are referenced under the section, Norview Elementary School 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-boaRoadgov/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

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

Pedestrian Signals

Pedestrian signal heads indicate to pedestrians when they should cross a street. The use of WALK/DON'T WALK pedestrian indications at signal locations is particularly important when signal timing is complex (e.g., there is a dedicated left- or right-turn signal for motorists) and at established school zone crossings. For wide streets, countdown signals that indicate the remaining amount of time pedestrians have to cross the street should be present.

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 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.

Pedestrian Hybrid Beacon

A pedestrian hybrid beacon is a traffic signal used to stop road or highway traffic and allow pedestrians to cross safely. When a full traffic signal is not warranted, these signals may be used to facilitate a traffic stop when pedestrians are present and need to cross the road.