Learn it. Do it. Live it!

Gordon Barbour Elementary School Walkabout Report

Introduction

On April 12, 2019, stakeholders at Gordon Barbour Elementary School (GBES) in Gordonsville, 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 came about through a Walkabout Mini-Grant application that was submitted to the Virginia Department of Transportation (VDOT) by Joe Costello, a Regional Planner with the Rappahannock-Rapidan Regional Commission. The VDOT Safe Routes to School Program (SRTS) chose GBES from among several applicants due to the proximity of students to the school (133 within 1 mile), and notable gaps in the 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 Nick Sodano, GBES Principal; Joe Costello, Rappahannock-Rapidan Regional Commission; Liz Samra, Gordonsville Town Council; Daman Irby, parent; Doug Arnold, Orange County Public Schools (OCPS); Carol Couch, Orange County School Board; Bob Coiner, Mayor of Gordonsville; Jennifer Mauller, parent; Jim Bradley, Gordonsville Town Council; Melissa Martin, parent; Debbie Kendall, Gordonsville Town Manager; Cpl. G.D. Arrington Gordonsville Police Department; Bill Berry, Assistant Superintendent OCPS; Vincent Seal, Town of Gordonsville; Justin Sarver OCPS Transportation Director.

Figure 1. Gordon Barbour Elementary School

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

Background

Gordon Barbour Elementary School was originally constructed in Gordonsville in 1965. Additions were added to accommodate the growing student population in 1975 and 1978. The school is scheduled for a renovation as well as some new construction to consolidate other buildings located on campus, including a Head Start program which serves children from birth to age five.

Existing Conditions

School Location and Demographics

GBES is located at 500 W Baker Street in Gordonsville, Virginia. The school property is a large parcel equivalent to a full city block. OCPS owns nearly all of the adjacent structures on the block, except for one house located at the corner of W Gordon and Wright Street. The adjacent structures on the block are former single-family homes, and currently house their Head Start and other school departments. The new construction is expected to consolidate these programs into the main school building addition. The front entrance of GBES is located on W Baker Street, with a side entrance for bus riders and a bus loop located off N High Street.

A large shopping area with a grocery store and a dollar store are located on W Gordon directly across the street from the school property. Railroad tracks are located two blocks south of the school near the intersection of W King and N High Streets.

Figure 2. Aerial view of Gordon Barbour Elementary School and vicinity

GBES is a public school with approximately 328 students in grades pre-K through 5. Another 85 students attend the Head Start program housed on the property. Sixty-eight percent of the students are white, fourteen percent are black, six percent are Latino, and twelve percent are two or more races. GBES is a Title 1 school where fifty-nine percent of the student population is categorized as economically disadvantaged.

About thirty-two percent of the student population lives within a one-mile radius of the school, and sixty-eight percent live within a two-mile radius. Approximately eleven students regularly walk to school every day, and five buses serve approximately 250 students. Around 60 students are routinely dropped off and picked up by their parents in a vehicle every day.

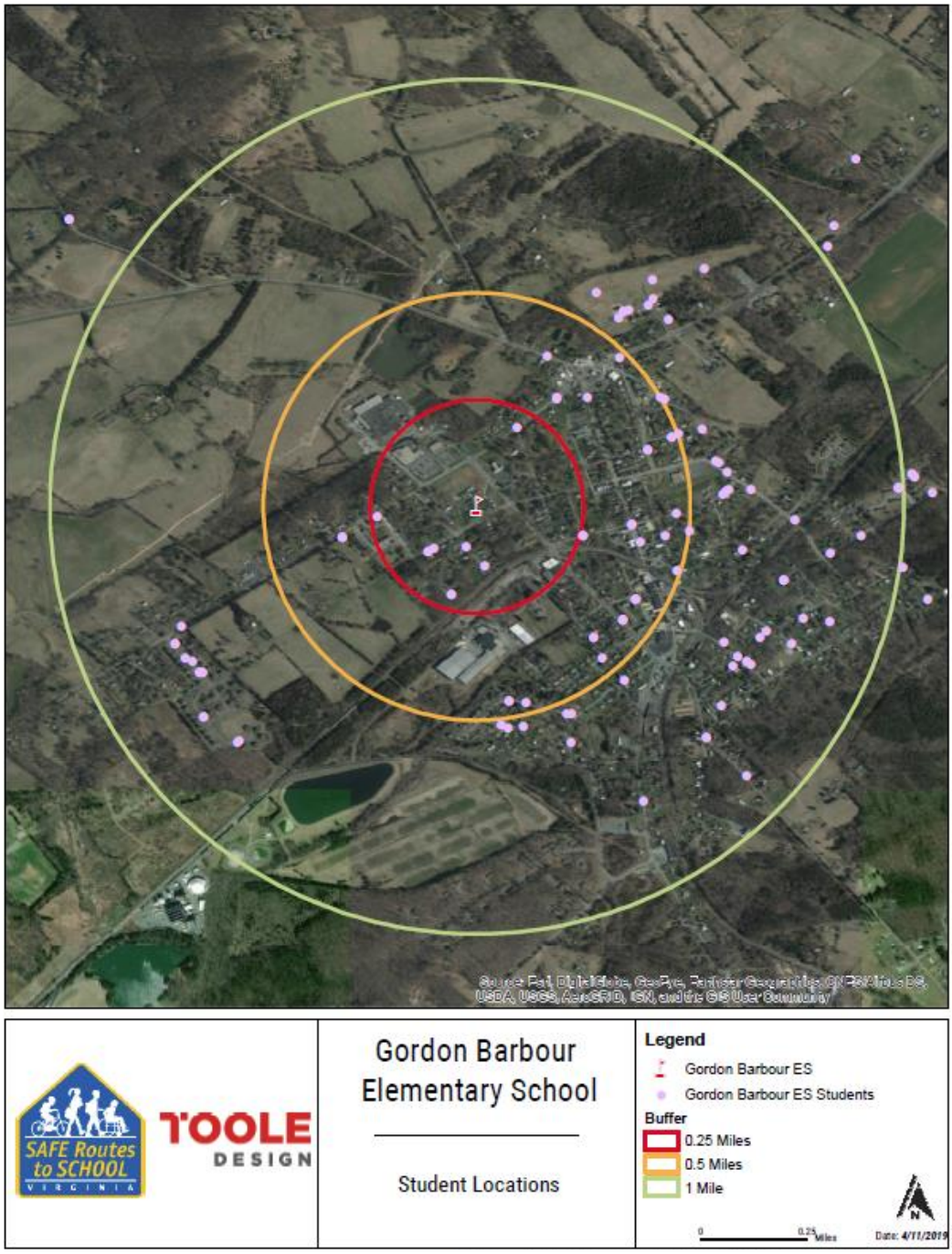

Figure 3. Gordon Barbour Elementary School Student Locations

Pedestrian and Bicycle Infrastructure

The school is located less than a half mile from the center of downtown Gordonsville. The school property is bounded by W Gordon Avenue, N High Street, W Baker Street and Wright Street. N High Street is designated a truck route. Speed limits are 35 mph on W Gordon Street, 25- 30 mph on W Baker Street, and 25 mph on Wright Street. Traffic traveling south from W Gordon Avenue on N High Street have a S5-1 "School Speed Limit 25 mph When Flashing" sign assembly immediately followed by a 30 mph speed limit sign. Traffic traveling north on N High Street encounter a standard R2-1 "Speed Limit 25 mph" after they cross W Baker Street and the crosswalk located there.

Figure 4. Walkers at Gordon Barbour Elementary School

There is considerable wide frontage on N High Street which provides ample setback from the designated truck route. There is a sidewalk along the N High Street frontage from the bus turn entrance to W Baker but there is a gap in sidewalk infrastructure on this side of the street, from the W Gordon Avenue and N High Street intersection. A complete sidewalk is located on the east side of N High Street along the church property and continues to the crosswalk at W Baker Street. There is a sidewalk in front of the school on W Baker Street, from N High Street to Wright Street. There are no other sidewalks located around the school on any of the adjacent streets.

There are no bike racks at the school. There are no bike lanes or trails within at least two miles of the school. However, the Gordonsville street network is primarily a grid system with low volumes and low speeds on those streets. For the most part, potential bicyclists could avoid the highway and access the school via bike from their homes on relatively comfortable streets and sidewalks.

Tracks for a branch railway line run south of the school, about one block away, and is the reason for hazard busing routes for students who live south of the tracks. Gordon Barbour is also a designated bus stop for Orange County High School students.

Team observations during school dismissal included the following:

- Most students were dismissed and led through the front entrance by their classroom teacher. The principal was stationed at the end of the sidewalk.

Figures 5 and 6. Car rider dismissal at Gordon Barbour Elementary School

- As parents in cars moved up in the queue, the principal or teacher would call the student and walk the student to the car and assist with opening the door and getting the student into the car.
- Students who are designated bus riders are dismissed via the east entrance. There is a dedicated bus loop entrance on N High Street which is completely separated from the parent pickup and walker dismissal location which is at the main (south) entrance.

Figure 7. Bus loop at Gordon Barbour Elementary School

- A crossing guard is stationed at the crosswalk at N High Street and W Baker Street at arrival and dismissal. The guard assists with the car queue which sometimes extends across N High Street to the other side of W Baker Street. Figures 7 and 8 below show the conditions at the intersection where he serves, and the very close proximity of the trucks that pass through this intersection throughout the day.

Figure 8 and 9. Crossing guard at Gordon Barbour Elementary School

Figure 10. Crossing guard and car queue at Gordon Barbour Elementary School

- The team observed a few families crossing mid-block in front of the school to load their vehicle from the street side.

Figure 11. Parent loading on the south side of W Baker Street

- The dismissal process is orderly and moved fairly quickly. Students were cleared from the school building within 15 minutes.

Prior to the dismissal observation, the team toured the vicinity of the school to get a sense of walking conditions. The team's observations and recommendations are presented in the next section.

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 around the school, as indicated in the Pedestrian and Bicycle Infrastructure section above.

- **Difficult Crossings**—Issues include missing, insufficient, or faded crosswalk markings and relatively high motor vehicle speeds and volumes.

- **Heavy truck traffic on High Street**— N High Street is a designated truck route from W Gordon Avenue (Rt. 231) past the school. While the setback from the road on this side of the school is significant, the student walkers and bicyclists do have to cross N High Street at W Baker. A crossing guard is stationed at this intersection at arrival and dismissal, but the traffic volumes and speeds are still an issue.

- **Variable 25 – 30 mph School Zone Speed Limit**—The posted speed limit on N High Street is 30 mph unless the an S5-1 "School Speed Limit 25 mph When Flashing" is in operation. A 30 mph speed limit creates unsafe conditions for anyone attempting to cross at the N. High and W. Baker crosswalk.

Figure 12. Speed limit signs on N High Street

The speed limit on N. High Street is 25 mph only when the school zone sign is flashing, and the proximity of the 30 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.

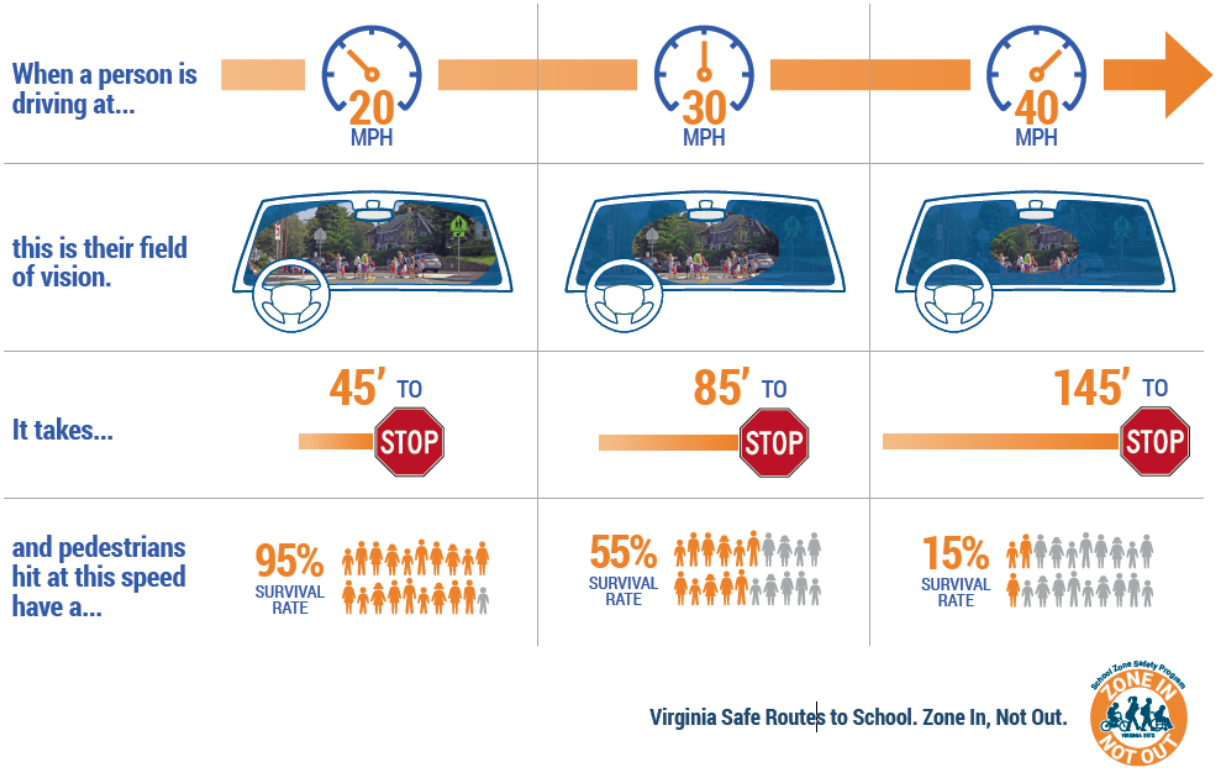

Figure 13. Vehicle speed and pedestrian survival rate infographic

Conclusion

The issues listed above discourage many parents from allowing their students to walk or bike to school. The recommendations in the next section seek to address these issues. Implementing these recommendations for infrastructure improvements will improve the safety and walking conditions for students and the residents of Gordonsville. Figures 14 and 15, captured from Google Street View, depict other residents who will benefit from improved pedestrian infrastructure.

Figure 14. Pedestrian with vision-impairment at W Gordon Avenue and Wright Street

Figure 15. Pedestrian with groceries walking south on Wright Street at W Baker Street

Infrastructure (Engineering) Recommendations

Infrastructure recommendations for GBES are shown in Figure 16 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.

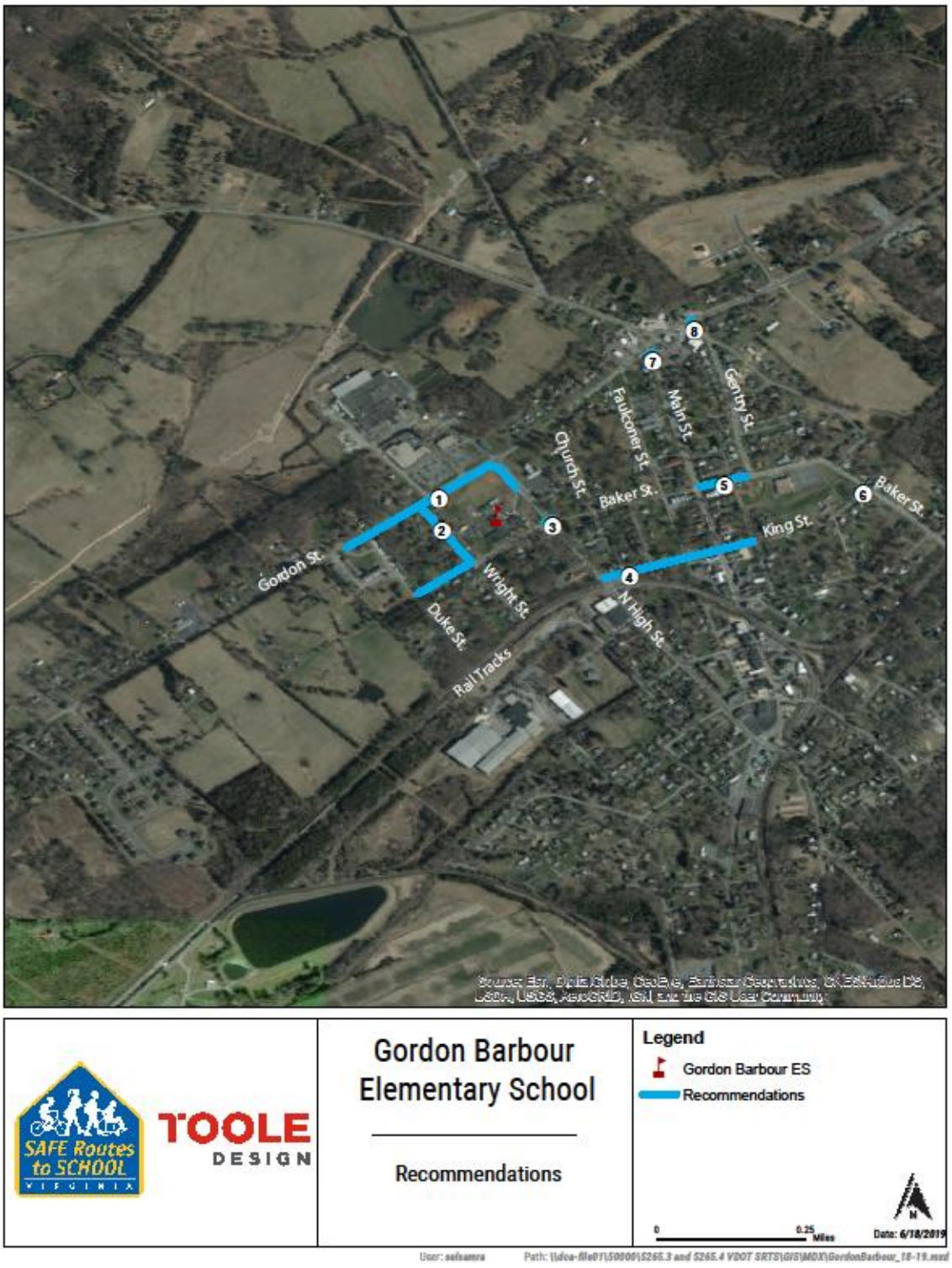

Figure 16: Infrastructure Recommendations Map

Map ID	Issue	Recommendation	Timeframe
	Gordon Barbour Elementary School		
1	**Missing Sidewalk.** The sidewalk on the south side of W Gordon Ave ends at N High St and the sidewalk on the west side of N High Street ends at the school driveway.	• Install 5-ft wide sidewalk approximately 1,300 ft long on south side of Gordon Ave from High St to housing development at Duke St. • Install 5-ft wide sidewalk approximately 300 ft long on the west side of N High Street from Gordon Ave to the terminus of the existing sidewalk across from the church. • Consider extending sidewalk to Gates Dr.	Medium Short Long
2	**Missing Sidewalk.** There is no sidewalk on the west side of the school along Wright St.	• Install 5-ft wide sidewalk, approximately 600 ft long, along east side of Wright St.	Medium
3	**Difficult Crossing.** Since High St is a designated truck route, there is a high volume of trucks approaching the school crosswalk at High St and Baker St, often at high speed.	• Install W-11 crossing warning signs on each direction. • Install rapid flashing beacons for the uncontrolled crossing on High St if need is confirmed by a study. • Consider adding a pedestrian refuge island on High St to calm traffic and shorten the crossing distance. • Consider lowering speed on High St to 25 mph 24 hours a day.	Short Medium
4	**Narrow and Poor Condition Sidewalk.** Children walking to school from High St via King St use a narrow sidewalk in poor conditions on King St.	• Trim shrubbery and trees obstructing the sidewalk. • Widen existing sidewalk to 5-ft wide approximately 1,200 ft long with ADA accommodations at all intersections.	Short Medium
5	**Crosswalks in Poor Condition.** Faded paint of crosswalks compromises their visibility to vehicles especially given the high pedestrian and vehicular traffic (9500 AADT). **Narrow and Poor Condition Sidewalk.** Sidewalk on north side of Baker St on the east leg of the intersection is less than 4 ft wide and is obstructed by overgrown vegetation **Non-ADA Compliant Curb Ramps.**	• Trim vegetation obstructing the sidewalk. • Reinstall high visibility crosswalks. • Install ADA-compliant curb ramps on all four corners of the intersection of Baker St and Main St. • Install rapid flashing beacons for the uncontrolled crossing on Main St if need is confirmed by a study. • Widen sidewalk to 5-ft on Baker St between Main St and Weaver St.	Short Medium

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

Map ID	Issue	Recommendation	Timeframe
6	**Missing Crosswalks and Curb Ramps; Narrow and Poor Condition Sidewalk.** Sidewalk on north side of King St is less than 4 ft wide and is obstructed by overgrown vegetation.	• Trim vegetation obstructing the sidewalk. • Install two high visibility crosswalks. • Install two ADA-compliant curb ramps at the intersection. • Install rapid flashing beacons for the uncontrolled crossing on Baker St if need is confirmed by a study.	Short Medium
7	**Missing Crosswalk and Curb Ramps.** There are no marked crosswalks or curb ramps along W Gordon Ave at Main St.	• Install curb ramps, a larger pedestrian refuge and crosswalk across Main St and the right-turn bypass lane from West Gordon Ave. • When VDOT undertakes the redesign of the traffic circle into a modern roundabout, it should include full sidewalks and ADA-compliant pedestrian accommodations as indicated here, VDOT Innovative Intersections and Interchanges.	Medium Long
8	**Faded Crosswalk Markings.** Crosswalk not visible enough for high traffic (11,000 AADT) location with remote bus stop for Orange County Public Schools across this street. Gordon Avenue is also a walking route for students attending Gordon-Barbour who live in housing development at Coniston Manor Dr.	• Reinstall crosswalk markings • Install rapid flashing beacons for the uncontrolled crossing if need is confirmed by a study. • Consider widening crosswalks to further enhance visibility. • Consider adding a pedestrian median refuge island.	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.
- 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 Gordon Barbour 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 such as Gordonsville Fire House 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:

- E. Baker Street from Cadmus Drive to Gordon Barbour Elementary School
- Commerce Street to Market Street to Weaver Street to E. Baker Street to Gordon Barbour Elementary School
- E. Baker Street and East Street while south of the railroad tracks would capture a good number of students who live south of East Street. This particular rail line is a branch line and depending on the frequency of the trains that use it, may be a route option even though a walking school bus would have to cross it. There is a good sidewalk connection the entire way along East Baker. For more information on schools near railroad tracks and how to traverse them safely, please see this link for http://www.saferoutesnj.org/wp-content/uploads/2014/11/SZDG-Chapter-11.pdf

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. Gordon-Barbour 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 from the Safe Routes to School National Partnership. https://www.saferoutespartnership.org/sites/default/files/pdf/BikeParkingTipSheet-web.pdf

Enforcement

Request that the Gordonsville Police Department Police Department conduct periodic speed enforcement on N. High Street. Trucks and some car drivers appeared to exceed the speed limit on N. High Street when traveling north to W Gordon Avenue, which is 25 mph in front of the school while the sign is flashing. This did not appear to be as much of an issue for cars and truck traveling south from W Gordon thanks to the sharp 90 degree turn onto N High Street. Enforcement is particularly needed at the beginning of the school year when more children and families are navigating a new route to school, and when good driver habits are established.

Implement the Zone In, Not Out school zone safety program at Gordon-Barbour Elementary. This program is aimed at increasing driver awareness of pedestrian and bicycle safety issues in school. 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.virginiadot.org/programs/srsm_student_travel_tally_week.asp

Administer Parent Surveys to collect information on parents' attitudes towards walking and bicycling and reasons why they may or may not allow their children to walk or bike to school. Administering parent surveys at least once a year can help determine whether Safe Routes to School efforts are changing parents' attitudes towards walking and bicycling to school. For tips on administering Parent Surveys, see the Virginia SRTS Program's **Learn it. Do it. Live it!** tip sheet. https://www.dropbox.com/s/nl274zoliqe9w5t/Parent%20Survey_LDLv2.pdf?dl=0

APPENDICES

A. Walkabout Participants

Name	Organization
Doug Arnold	Orange County Public Schools
Cpt. G.D. Arrington	Gordonsville Police Department
Bill Berry	Asst. Superintendent, Orange County Public Schools
Jim Bradley	Gordonsville Town Council
Bob Coiner	Mayor, Town of Gordonsville
Joe Costello	Rappahannock Rapidan Regional Commission
Carol Couch	Orange County Public Schools
Daman Irby	Parent
Debbie Kendall	Gordonsville Town Manager
Melissa Martin	Parent
Jennifer Mauller	Parent
Liz Samra	Gordonsville Town Council
Justin Sarver	Transportation Coordinator, Orange County Public Schools
Vincent Seal	Town of Gordonsville
Nick Sodano	Principal, Gordon Barbour Elementary School
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
N. High Street (from W Gordon US 231 to Martinsburg Avenue US 15)	30	40'	2	3,500	Major Collector	North-South truck route with connection from W Gordon Rt 231 to Martinsburg Avenue, US 15
W. Gordon Avenue (from Gates Drive to US 15, US 33 Gordonsville Circle)	35	44'	2	5,500	Minor Arterial	East-West segment before traffic circle with Kings Highway Route 125.

[2] Average Annual Daily Traffic (AADT) counts from VDOT, http://vdot.maps.arcgis.com/home/webmap/viewer.html?useExisting=1&layers=a8da35dd9ce54993b25f64487c3717ec

[3] Road classification from VDOT http://www.arcgis.com/home/webmap/viewer.html?webmap=3eca6c9adb6649c988d98734f85baddb

C. Glossary of Infrastructure (Engineering) Terms

The following infrastructure treatments can be used to improve the bicycle and pedestrian environment around Gordon Barbour 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-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.

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.
    - 25 mph = 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