

Chimborazo Elementary School Walkabout Report

A COMMUNITY-
BASED SAFE
ROUTES TO
SCHOOL
INFRASTRUCTURE
ASSESSMENT

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INTRODUCTION

On May 3rd, 2017, stakeholders of Chimborazo Elementary School (CES) gathered to conduct a Safe Routes to School (SRTS) walkabout study of the school and surrounding environs to identify infrastructure, safety and behavioral barriers to students walking and biking to school. The results of that assessment, including additional research and analysis, potential recommendations and next steps, are the contents of this report.

Safe Routes to School (SRTS) is a federally-funded, locally-administered program with the purpose to:

1. Encourage all children, including those with disabilities, to walk and bicycle to school;
2. Make bicycling and walking to school safe and appealing to promote healthy and active lifestyles; and
3. Facilitate the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of schools.¹

SRTS program structures incorporate the “Six E’s” to focus program activities: evaluation, engineering, education, encouragement, enforcement and equity. Evaluation refers to the data the program collects on student travel methods and parent perceptions to establish baselines by which to measure impact. Engineering refers to infrastructure assessments and solutions, while education and encouragement focus on the promotion of biking and walking to school and other “soft” programmatic activities. Enforcement occurs through agencies, particularly the school system and police departments setting forth policies for safety and enforcing them around schools.



Lastly equity signifies the need to approach this program with the understanding that many in our communities face barriers caused by systemic discrimination, inequality, and disinvestment due to social, political and economic imbalances, and asks what can be done to address these barriers.²

Figure 1: The current SRTS Coordinator accompanies students to school in the East End. Source: Tara Fitzpatrick.

¹ Virginia Department of Transportation, “Safe Routes to School,” Available: http://www.virginiadot.org/programs/ted_Rt2_school_pro.asp, Accessed: 25 May 2017.

² National Partnership for Safe Routes to School, “The 6 E’s,” Available: <http://www.saferoutespartnership.org/healthy-communities/101/6Es>, Accessed 5 June 2017.

SRTS programs exist out of a concern for children's safety and physical health. In the past 40 years, the rate of students who walk or bike to school has steadily declined: in 1969, about 50 percent of kids aged 5 to 14 walked to school; today that number is less than 15 percent.³

Along with that trend, overall rates of physical activity among children have also dropped, with 23 percent of children getting no physical activity in their free time.⁴ At the same time, rates of obesity and obesity-related diseases within the school-age children population are soaring: about 25

million or 33 percent of all US children and adolescents are overweight, obese or at risk of becoming either.⁵ While lack of physical activity is not the sole cause of overweight and obesity among children, it is a strong contributing factor, along with nutritional, mental health, socioeconomic, cultural, environmental and genetic factors.^{6,7}

In addition to physical activity, other health outcomes related to motorized transportation impact children and the communities in which they live, learn and play: asthma rates and complications due to motor vehicle pollution; injuries and fatalities from vehicular accidents; issues of access to healthcare, health food and economic opportunities; the cost burden of transportation, among others.



Figure 2: Parents and caretakers walk students to Ginter Park Elementary.
Source: Tara Fitzpatrick.

³ National Partnership for Safe Routes to School, "Safe Routes to School 101," Available: <http://www.saferoutespartnership.org/healthy-communities/101/about> Accessed: 2 May 2017.

⁴ National Partnership for Safe Routes to School, "Quick Facts and Stats," Available: <http://www.saferoutespartnership.org/healthy-communities/101/facts>, Accessed: 1 June 2017.

⁵ National Partnership for Safe Routes to School, "Quick Facts and Stats," Available: <http://www.saferoutespartnership.org/healthy-communities/101/facts> Accessed: 1 June 2017.

⁶ The World Health Organization, "Global Strategy on Diet, Physical Activity and Health: What are the Causes? Reasons for children and adolescents to become obese," 2017, Available: http://www.who.int/dietphysicalactivity/childhood_why/en/, Accessed: 1 June 2017.

⁷ Virginia Performs, "Obesity," Updated 26 April 2016, Available: <http://vaperforms.virginia.gov/indicators/healthfamily/obesity.php>, Accessed: 1 June 2017.

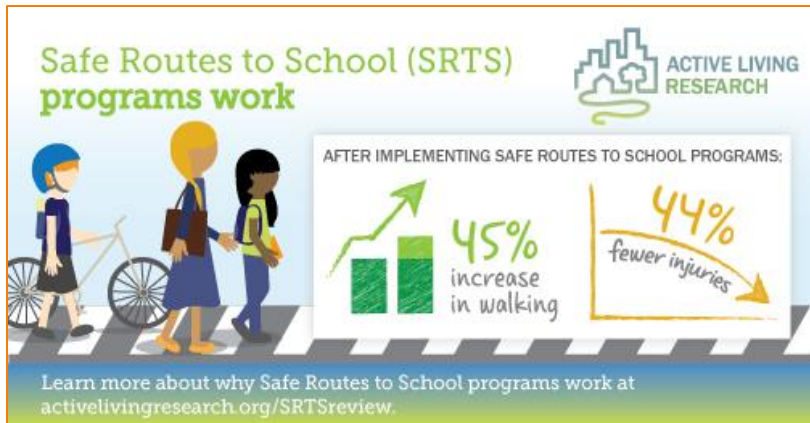


Figure 4: Research shows that SRTS programs result in more physical activity and increased safety¹

SRTS programs present an opportunity to organize communities and aggregate resources to address these negative health trends and to generate environmental and community benefits. “Walking one mile to and from school each day is two-thirds of the recommended sixty minutes of physical activity a day for children. Also, children who walk to school have higher levels of physical activity throughout the day,”

according to the National Partnership for Safe Routes to School.⁸ Adding or improving walking and biking infrastructure improves safety and can reduce accidents.⁹ Increasing pedestrian and bike traffic improves air quality and facilitates community interactions and community economic development. These benefits have a multiplier effect in that they result in healthcare and transportation cost reductions for families, the community and the surrounding jurisdictions.

Various organizations are able to apply for SRTS funding, which in Virginia is administered through the Virginia Department of Transportation. In Richmond, the nonprofit organization Fit4Kids started an SRTS program in 2015 through an SRTS non-infrastructure grant from VDOT. This grant funded a part-time coordinator to implement the program in five public Title I schools: Chimborazo, Fairfield Court, Ginter Park, Jeb Stuart and Woodville elementary schools. Fit4Kids has reapplied for the grant each year since 2015 for the same schools. For AY 2018, three additional schools were added: Munford, Oak Grove and Holton elementary schools. The program is not active in any Richmond middle or high schools.

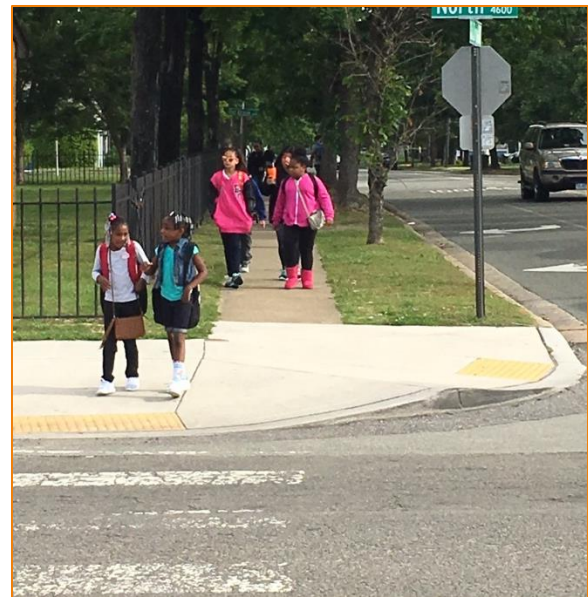


Figure 3: Students walking to school in Richmond, VA. Source: Tara Fitzpatrick

⁸ National Partnership for Safe Routes to School, “Quick Facts and Stats,” Available: <http://www.saferoutespartnership.org/healthy-communities/101/facts>, Accessed: 1 June 2017.

⁹ These improvements also tend to raise property values- the gentrification paradox does not go unnoticed.

In Richmond, the rates of students who walk or bike are unknown,¹⁰ but the school system provides busing services to over 15,000 out of more than 25,000 students.¹¹ Furthermore, in FY2015, RPS spent almost \$12 million on student transportation, or about \$800 per student.¹²

Encouraging walking and biking to school (or using other non-motorized transport or public transportation) would reduce the cost burden of busing on the school system, potentially allowing for additional funds to go towards actual educational programming. Because the physical infrastructure and/or public transportation is already in existence, students walking and biking to school would not add new costs to the city.

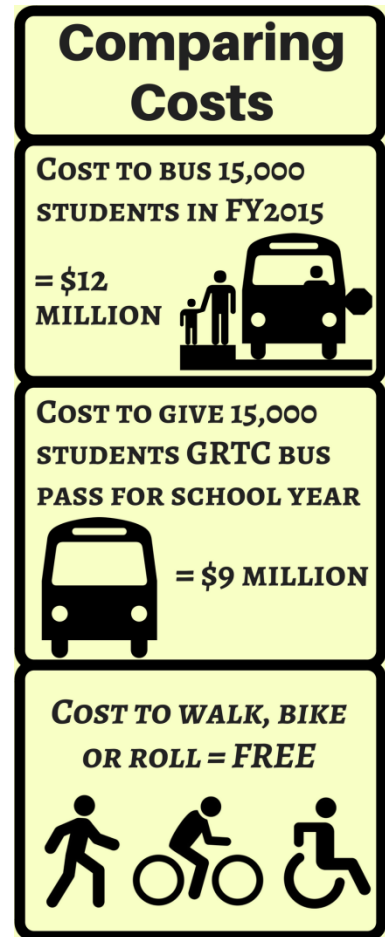
Out of the student population, more than half are elementary school students (12,624, K-5). Reaching students at an early age to form healthy habits is critical, and SRTS activities offer this opportunity. The potential for SRTS program impact is great, and would reach beyond the students to their families, school staff and community members with lasting effects.

EXISTING CONDITIONS

SCHOOL LOCATION & PEDESTRIAN INFRASTRUCTURE

Chimborazo Elementary School is located in Church Hill, a neighborhood with a long history of demonstrable resilience to overcome challenges as the community fabric has been threatened. Many long-time residents remain dedicated and seek to retain historical and cultural aspects of the community as it undergoes gentrification. Road and sidewalk conditions vary, though overall the existing foundation provides the basic elements needed for walking. A gridded pattern of roads surrounds the school for several blocks, yielding mostly straight sidewalks and roads with unobstructed views. The school is one block back from a growing Main Street type corridor on Broad Street.

Most of the school district that feeds CES is on a high plain above the Shockoe Bottom area, which yields flat terrain for students walking and biking to school. However, toward the southeastern side the topography slopes down to Stony Run Road, which would impact students walking or biking from the southeast area of the school zone. Students from this area would also



¹⁰ Student travel surveys are part of the SRTS program but response rates have been low.

¹¹ Taylor, Michelle, RPS Department of Pupil Transportation, email to author 20 June 2017.

¹² Richmond Public Schools, "School Board Approved Budget for FY2016-2017," 32. Available: <http://web.richmond.k12.va.us/Portals/0/assets/BudgetReporting/pdfs/SCHOOL%20BOARD%20APPROVED%20FY17%20BUDGET%202016-02-08-4.pdf>, Accessed 11 August 2017.

have to pass by or through Powhatan, Gillies Creek and/or Chimborazo Park(s), which speaks to the need for safety and security along all points of a student's walking route.

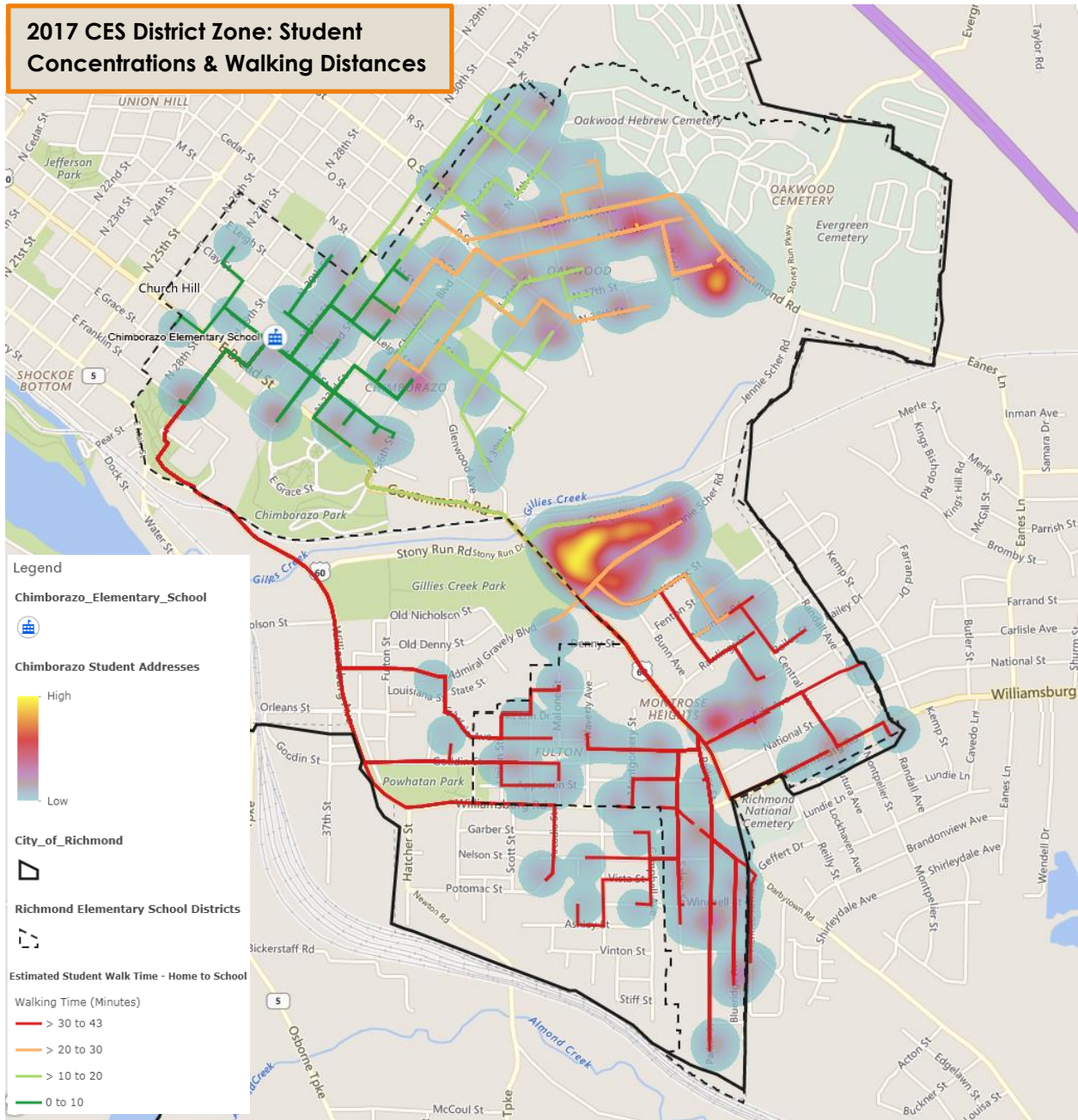


Figure 5: Chimborazo Elementary School District Boundary: 2017 Areas of High and Low Student Concentrations & Walking Distance to School¹³

¹³ Data from ESRI, City of Richmond, VDOT. To hide the specific location of student homes, the “heat map” display method was used.

CES serves almost 500 students in grades K-5. According to the above map of the currently enrolled students as of May 2, 2017, students are spread throughout the southeast, east and northeast areas of the school zone. The heat map coloring conceals the actual addresses of students but allows for their location density to be shown. A handful of students live within three blocks west of the school. From Broad Street on the southwest and Richmond Road on the northeast, students are evenly distributed, with some concentration at the apartment complexes near Richmond Road that are just over a mile from CES. The RPS busing policy sets forth that students living outside of a one-mile distance to schools have access to bus services, so students living in this area receive busing service.¹⁴ To the south, student locations extend to Williamsburg Road, with a high concentration in apartment complexes at Government Road and Jennie Scher Road. Students in this location also have bus service.

According to the mapping analysis, 149 students, or about 30 percent of the total student population, live within one mile of the school. If these students were to walk, they would reach the school within 30 minutes or less, depending on their walking speed.

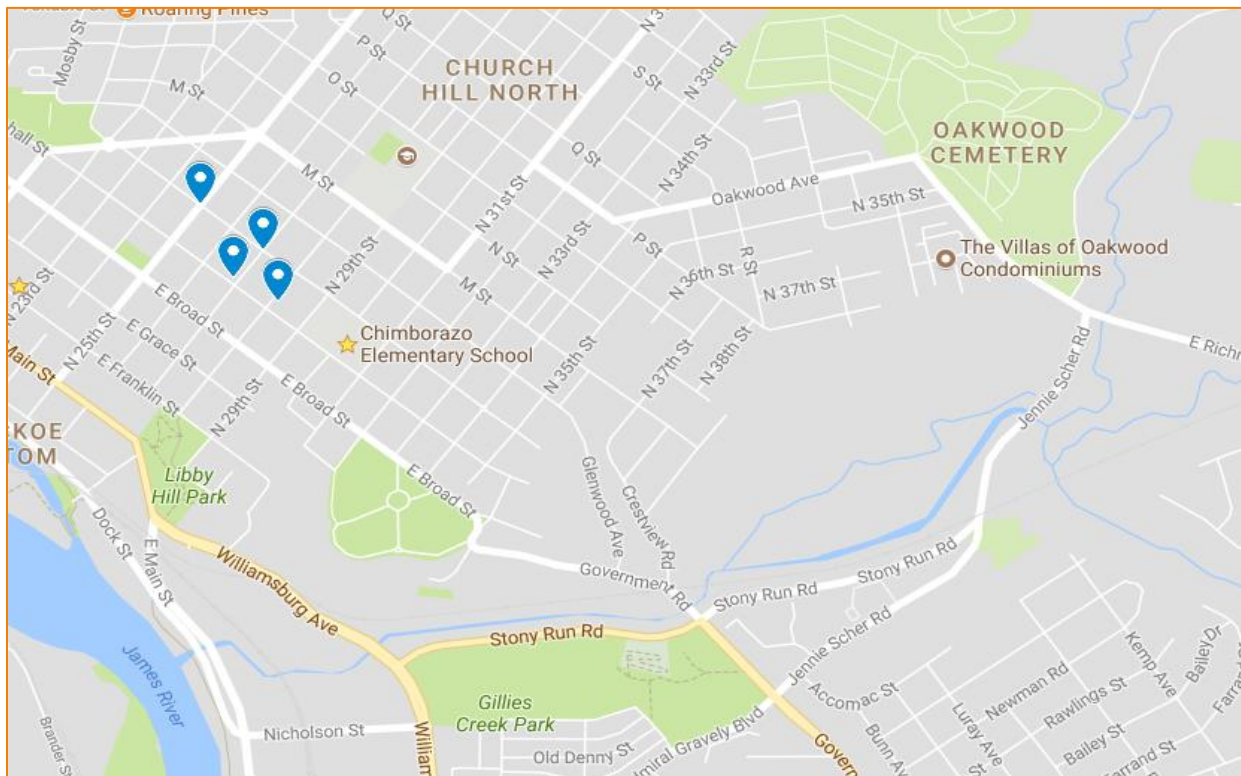


Figure 6: Location of Sidewalk Improvement Projects in the CES School District

¹⁴ RPS busing policy states that elementary students living one mile or less from their school do not receive bus service. For middle and high school students, the distance is 1.5 miles. Available: <https://www.rvaschools.net/Page/1280> Accessed 26 April 2017.

DPW is planning to start sidewalk improvement projects in summer or fall of 2017 in the Chimborazo school district:

- ✚ 400 N 27th Street
- ✚ 2500 Clay Street
- ✚ 2700 Clay Street
- ✚ 2800 E. Marshall Street.

Other sidewalk projects in the vicinity are planned for the following locations:

- ✚ 2400 Fairmount
- ✚ 1800 T Street
- ✚ 1300 N. 23rd Street
- ✚ 1541 Mechanicsville Turnpike.

BIKE INFRASTRUCTURE

The sidewalk and road conditions described above also provide a similarly adequate foundation for biking: the streets are wide and not crowded and the sidewalks are available, if needed. However, safer biking occurs when dedicated, buffered bike lanes are present and the bikers use bike lanes and not the sidewalks. No roads near CES have dedicated bike lanes. The city is planning bike lane projects in the area, but only three. DPW plans to add bike lanes to Williamsburg Avenue and Brook Road in 2017. Additionally, 29th Street will undergo a redesign process beginning in 2017 to incorporate a bike corridor.¹⁵ DPW would like to add a bike lane to Government Road that would extend up to Chimborazo Park. However the current conditions of the street do not allow for it: a structural repair of a crack caused by the hill shifting is necessary before the bike lane can be added and this repair has not been funded.¹⁶

¹⁵ "The Church Hill/29th Street Bike – Walk Blvd project will improve bicycle and pedestrian mobility and safety along the entire length of N. 29th Street through the entire Church Hill community and neighborhoods to the north. The project limits are from Libby Hill Park at the south, and N. 25th Street to the north, site of the Fairfield Court public housing complex and Armstrong High School, which also has a bicycle skills park on its campus. This results in a project that extends 29 blocks (2 miles) and will provide a bike corridor that provides access to many destinations while also tying into the developing bike infrastructure network, such as the Virginia Capital Trail which the terminus of this project overlooks at Libby Hill Terrace. This project was identified as a needed connection in the east end of the City. The grid street network does not lend itself to adding separate bike infrastructure due to street widths, however the plan recognized the need for a safe and efficient corridor that enabled and enhanced bike transportation and access." (2, 29th Street Ordinance) Costs City \$130,000 in matching funds to \$520,000 Federal Transportation Alternative Funds. Adopted February 2017.

¹⁶ Hemboldt, Jakob, Pedestrian, Bicycle and Trails Coordinator, DPW, Transportation Engineering, City of Richmond, VA email 23 May 2017 to author.

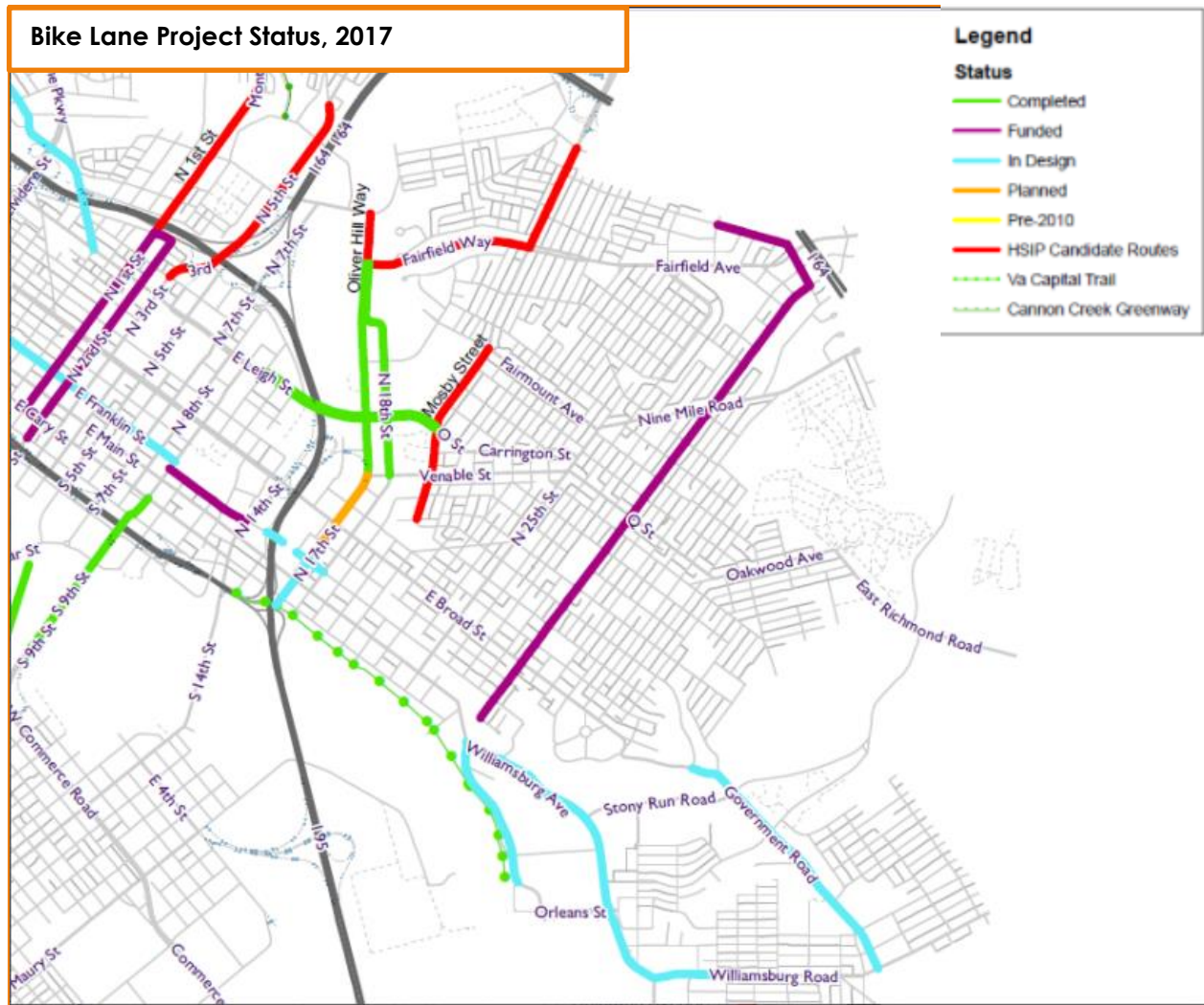


Figure 7: Existing, funded and proposed bike lane projects in the East End, 2017¹⁷

CURRENT STUDENT TRAVEL MODES

Students travel to and from CES using the following modes:

1. Parent or bus drop off
2. Walking
3. GRTC bus then walking; or
4. Biking.

The majority of students come by bus or car. It is unknown how many students walk or bike to school, but in this study, observers counted about 30 students arriving on foot. This represents

¹⁷ Bryan, Alix, "State of Richmond bike infrastructure and proposed projects," WTVR CBS 6, Available: <http://wtvr.com/2017/03/20/state-of-richmond-bike-infrastructure-and-proposed-projects/> Accessed: 23 May 2017.

about six percent of the total student population. According to the Virginia Department of Education, CES has 78 students with disabilities, and thus, potentially is affected by the Americans with Disabilities Act (ADA).¹⁸ The entire community also benefits from ADA compliance. ADA compliance standards address design aspects of sidewalks and other infrastructure such as surface materials, slope, width, curb ramps, driveway crossings and tree placement for users with physical, visual, hearing or other impairments.¹⁹

HEALTH CONDITIONS

The programmatic and infrastructural elements of SRTS, as mentioned above, all have an impact on children's health outcomes, as well as the outcomes of the community at large. Current conditions indicate the severity of health problems in Richmond as a whole. SRTS programs can play a major role in reducing the severity of these issues and preventing them from worsening.

OVERWEIGHT & OBESITY

Rates of overweight and obesity are indicators of physical health, in addition to being predictors of many other diseases and conditions. Exact childhood overweight and obesity rates for children are unknown in Richmond, but the rate of obesity among 10 to 17 year olds in Virginia was about 30 percent in 2011, compared to the national average of 29.6 percent and the lowest in Colorado of 21.3 percent.²⁰

Additionally, in 2012, 14.2 percent of children of 2-4 years of age enrolled in federally funded health and nutrition programs were obese in Richmond.²¹ In 2014, this number was up to 20 percent. And among the same group of young children, almost 20 percent were overweight. This means about 40 percent of low-income 2-4 year olds were overweight or obese even prior to starting school in 2014.

Also, according to the 2013 Richmond City Youth Risk Behavior Survey, 16.5 percent of *high school* students in Richmond are obese. Presumably, a similar percentage would be overweight.

¹⁸ Virginia Department of Education, "2016-2017 Fall Membership by Division: Richmond City," Available:

http://bi.vita.virginia.gov/doe_bi/rdPage.aspx?rdReport=Main&subRptName=Fallmembership
Accessed: 8 June 2017.

¹⁹ U.S. Department of Transportation Federal Highway Administration, "Accessible Sidewalks and Street Crossings — an informational guide," Available:

http://www.bikewalk.org/pdfs/sopada_fhwa.pdf, Accessed: 5 June 2017.

²⁰ Virginia Performs, "Obesity," Updated 26 April 2016, Available:

<http://vaperforms.virginia.gov/indicators/healthfamily/obesity.php>, Accessed: 1 June 2017.

²¹ US Department of Agriculture- Food Environment Atlas 2012, BeHealthyRVA, "Low-Income Preschool Obesity," Available:

<http://www.behealthyva.org/index.php?module=indicators&controller=index&action=view&indicatorId=302&localeTypeId=2>, Accessed 2 August 2017.

Lastly, adult obesity rates are stark: the Virginia Department of Health's aggregated Behavioral Risk Factor Surveillance System (BRFSS) data revealed that Richmond's overall adult overweight or obesity rate in 2014 was about 65 percent.²² BRFSS data also showed clearly the racial health disparities that exist in Richmond, with an obesity rate of 23.6 percent among white residents and 36.7 percent among black residents.

ASTHMA

The Urban Institute described Richmond as a city “consistently rated with the most harmful environments for children with asthma.”²³ Child rates of asthma are unknown for Richmond. However, among Richmond *middle and high school* students, self-reported rates of asthma are almost 30 percent, according to the 2015 Youth Risk Behavior Survey.²⁴

HEALTH OPPORTUNITY INDEX

The Virginia Department of Health (VDH) has developed, through its Office of Health Equity, a Health Opportunity Index (HOI) by which to study the social determinants of health for the state of Virginia. VDH defines the social determinants of health as “the social, economic, educational, demographic and environmental factors that relate to a community's well-being.”²⁵

The HOI score is a measure of living a long and health life, on a five-point scale from very low to very high. The factors included within the score speak to the reasons why place matters when it comes to health- the factors are direct contributors to a community's or community member's wellbeing.

CES is located in a census tract (51760020800) designated by VDH as having a HOI score of average. Adjacent tracts are low or very low in score.²⁶ These scores indicate a high need for comprehensive health interventions to address the social determinants of health.

²² http://www.vdh.virginia.gov/content/uploads/sites/68/2017/01/2014OBESITYS-OvereighObese_Districts.pdf

²³ Urban Institute, “Asthma in Low Income Communities,” Available: <http://www.societyhealth.vcu.edu/media/society-health/pdf/HousingReDev-Practices-Asthma-4.1.15.pdf>, Accessed 5 June 2017.

²⁴ Virginia Department of Health, Youth Behavior Risk Survey 2015, Received by email to Dona Huang, Richmond City Health District from Danielle Henderson, VDH, 5 June 2017.

²⁵ Office of Health Equity, Virginia Department of Health, “Health Opportunity Index ‘HOI,’” Available: <http://www.vdh.virginia.gov/health-equity/virginia-health-opportunity-index-hoi/> Accessed 5 June 2017.

²⁶ Office of Health Equity, Virginia Department of Health, “Health Opportunity Index: Health Districts,” Available: <https://www.vdh.virginia.gov/omhhe/hoi/dashboards/health-districts>, Accessed 25 May 2017.

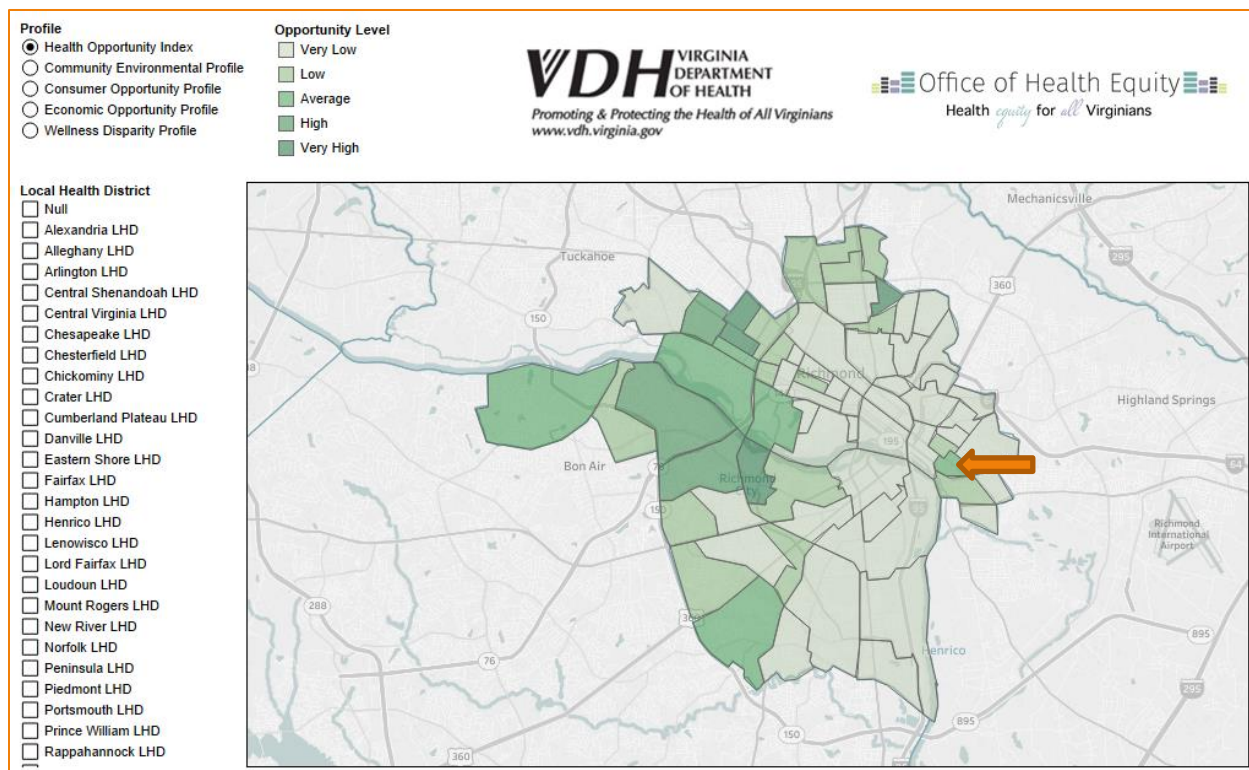


Figure 8: Health Opportunity Index score, Richmond City census tracts

The index is reported at both the census tract and also county/independent city level in the form of a descriptive score. The score is based on an aggregation of over 30 variables that affect health outcomes compiled into 13 indicators and four profiles.²⁷

The four profiles that make up the HOI are as follows:

1. **COMMUNITY ENVIRONMENT OPPORTUNITY**- aggregates indicators of the natural, social and built environment, including walkability and air pollution measures. CES is in a census tract with “very high” community environment opportunity and surrounding tracts are “very high” or “average” ratings.²⁸
2. **CONSUMER OPPORTUNITY**- includes measures of affordability, education, food accessibility and material deprivation. CES is in a census tract with “very high” consumer

²⁷ Office of Health Equity, Virginia Department of Health, “Definitions,” Available: <https://www.vdh.virginia.gov/omhhe/hoi/what-is-the-hoi/definitions>

²⁸ Office of Health Equity, Virginia Department of Health, “Health Opportunity Index: Community Environment Profile,” Available: <https://www.vdh.virginia.gov/omhhe/hoi/community-environmental-profile>, Accessed 25 May 2017.

opportunity, but is surrounded by census tracts to the east and southeast with “very low” consumer opportunity ratings.²⁹

3. **ECONOMIC OPPORTUNITY**- compiles three measures of access to employment, income inequality, and job participation. The census tracts in the CES school zone have scores ranging from very low to very high, with most areas being rated as average.³⁰
4. **WELLNESS DISPARITY**- these indicators evaluate whether residents have access to primary care services and the ability to pay for that care, and how much residents may be segregated according to racial and ethnic backgrounds. The CES school zone includes census tracts with very low, low, average and very high scores of wellness disparity.³¹

YOUTH WELL-BEING INDEX

The Virginia Department of Health also developed a Youth Well-being Index to assess the opportunity that youth in Virginia have to live a long and healthy life. The YWBI incorporates indicators of crime, family stability, housing, population density, enrollment in Pre-K programs, access to primary care, access to psychiatrists and the presence of child poverty. The YWBI for the CES census tract is low, with surrounding tracts being very low, on a quintile scale from very low to very high.

Separating the indicators of the YWBI shows that education followed closely by crime, housing, family stability and poverty are the major inhibitors of children’s well-being in the CES school zone.³² These are all factors that intersect with the Safe Routes to School program mission. However, the types and timing of crime need to be analyzed further to understand fully the direct effects on students going to and from school.

WALKABOUT SUMMARY

CES walkabout study participants gathered before morning arrival (school doors open at 8:45a and most students who travel by foot or bus arrive time before then). In addition to school and Parent Teacher Association (PTA) members, representatives from Richmond Public Schools (RPS), Richmond Police Department (RPD), Richmond City Health District (RCHD), Fit4Kids, Peter Paul

²⁹ Office of Health Equity, Virginia Department of Health, “Health Opportunity Index: Consumer Opportunity Profile,” Available: <https://www.vdh.virginia.gov/omhhe/hoi/consumer-opportunity-profile>, Accessed 25 May 2017.

³⁰ Office of Health Equity, Virginia Department of Health, “Health Opportunity Index: Economic Opportunity Profile,” Available: <https://www.vdh.virginia.gov/omhhe/hoi/economic-opportunity-profile>, Accessed 30 May 2017.

³¹ Office of Health Equity, Virginia Department of Health, “Health Opportunity Index: Wellness Disparity Profile,” Available: <https://www.vdh.virginia.gov/omhhe/hoi/wellness-disparity-profile>, Accessed 30 May 2017.

³² Office of Health Equity, Virginia Department of Health, “Youth Well-being Index,” Available: <https://www.vdh.virginia.gov/omhhe/hoi/youth-well-being-index>, Accessed 10 August 2017.

Development Center, Department of Public Works (DPW) and Virginia Department of Transportation (VDOT) also participated. This group provided a mix of user experience and technical expertise on infrastructure, safety and walking/biking issues.

Those invited but unable to attend included District 7 School Board and District 6 City Council members, the RPS Chief Operating Officer, the RPS Lead Parent Involvement and Community Liaison, representatives from the Church Hill Association, CHAT, and Friends of Chimborazo Park, the CES CIS Coordinator, the Better Housing Coalition, BikeWalk RVA and the SRTS Local Technical Assistance Coordinator. The school principal was on site and in support of the walkabout but could not participate directly.

Walkabout participants divided into four teams to make observations at each of the four corners of the block the school occupies. Each team received a set of documents and a map to use to record infrastructure, safety and traffic issues that present barriers to children biking and walking to school.

The observation teams stood at each corner of the school block and one team also covered the entrance of the school on East Marshall. While the designated parent drop-off is in the side parking lot, unofficial parent drop-off occurs in the front of the school: our teams observed drop-off in both locations. Buses let off students behind the school at a designated point on East Clay Street, across from the Clay Street Market. Most students walking or biking approached from the northeast, east and southeast, where the majority of students in the school district live.

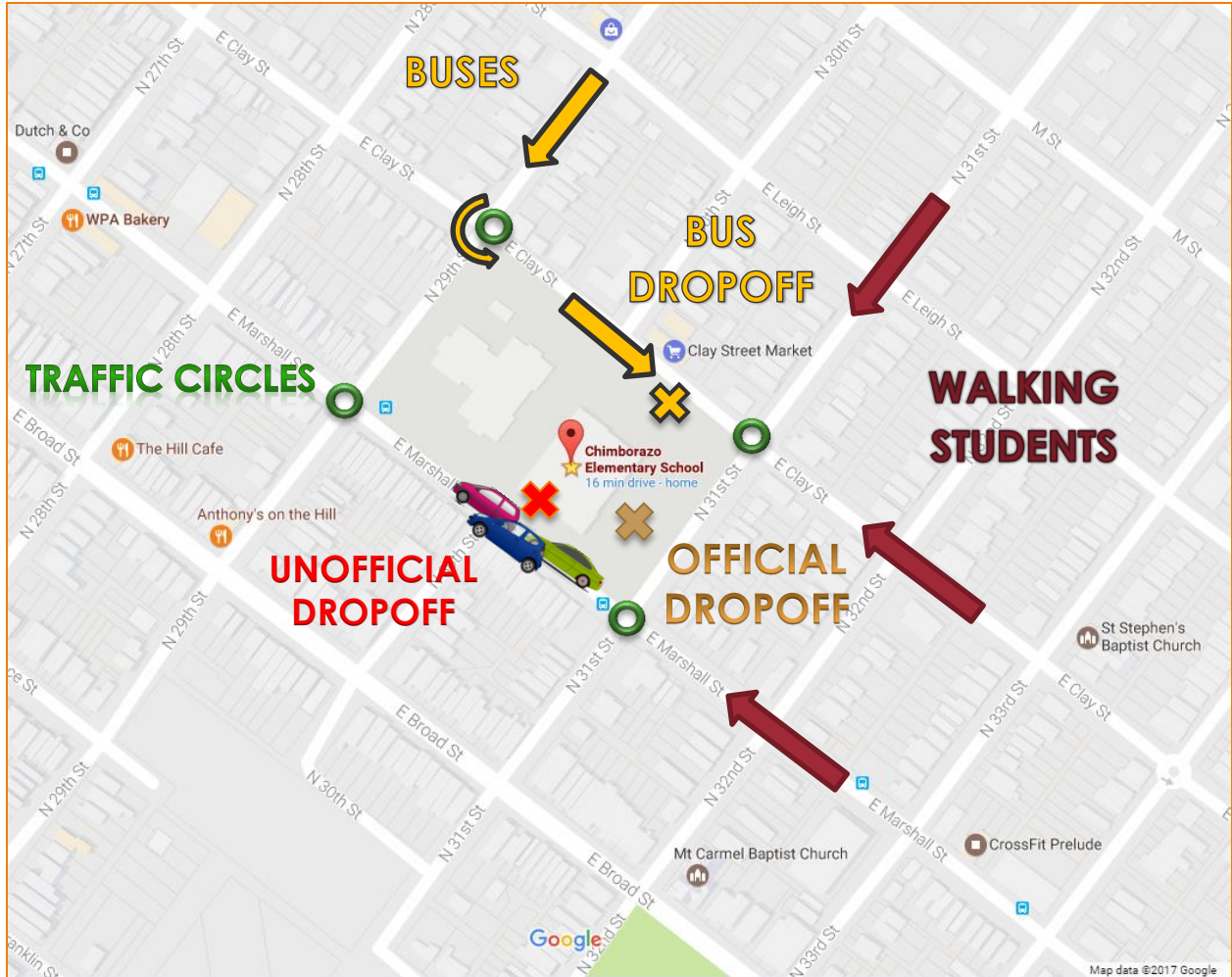


Figure 9: Chimborazo Elementary School, Source: Google Maps.

KEY OBSERVATIONS

Issues observed by Team 1 at North 31st and East Clay are described in the attached report from Travis Bridewell of DPW (see PDF).

Issues observed and recorded by the other three walkabout study teams are the following:

- ✚ Driver behaviors
 - Speeding/driving too fast
 - Distracted driving
 - Failure to yield to pedestrians
 - Confusion at traffic circles
 - Failure to stop for buses, passing illegally
 - Illegal U-turns
- ✚ Blocked visibility at exit of school parking lot at N. 31st and Marshall due to high bushes in school raingarden- drivers cannot see pedestrians
- ✚ Lack of school zone identification

- ✦ Traffic disruption and unsafe crossings in unofficial drop off zone in front of school
- ✦ Bike racks in poor condition and location susceptible to theft
- ✦ Lack of crossing guard(s)
- ✦ Clay Street Market clientele congregate on school property after school hours
- ✦ Problematic intersections at traffic circles.

After the walkabout study, participants reconvened in the school cafeteria to discuss their findings. Additionally, 11 participants took walkability surveys, responses to which confirm the walkabout study results for CES. Respondents indicated they have enough room to walk, but most encountered problems with the walking paths, mostly in the form of broken and cracked sidewalks followed by interruptions in sidewalk paths. Regarding ease of street crossings, most respondents had problems with crossing, primarily due to drivers failing to yield and blocked views of traffic due to plants, trees and parked cars. All respondents pegged drivers as a source of hazard, for speeding, failure to yield to pedestrians and hazardous behavior at traffic circles. Despite these concerns, most respondents found their walk to be pleasant, due to the nature of the neighborhood. The average score of walkability was 18 out of 30 points, meaning the neighborhood is “okay, but it needs work.”³³

A similar survey to assess bikeability was given to participants whose children bike at CES, which was only three of the participants. They rated the infrastructure high, except for the traffic circles. What problems existed were due to driver behavior, such as speeding. The average score was 21 out of 30 points, meaning community bikeability is good but has potential opportunities for improvement.³⁴

RECOMMENDATIONS

Because SRTS as a program has been in existence for several decades across the country and the world, a broad range of potential solutions exist to address problems and issues observed during SRTS walkabout studies. Solutions also range from low to high cost, short to long term and behavioral to infrastructural. A selected solution’s success depends on the solution being tailored to local conditions and local capacity for implementation and maintenance/enforcement of the solution.

SCHOOL SPECIFIC ISSUES (OBSERVED)

In the DPW report, Mr. Bridewell has listed recommendations for potential solutions to the observed problems from the traffic engineering perspective. As indicated in the report, DPW is

³³ US DOT FHA, US DOT NHTSA, US EPA, National Center for Safe Routes to School, Pedestrian and Bicycle Information Center, “Walkability Checklist,” Available: <http://www.saferoutesinfo.org/sites/default/files/walkabilitychecklist.pdf>, Accessed: 27 April 2017.

³⁴ US DOT FHA, US DOT NHTSA, Pedestrian and Bicycle Information Center, “Bikeability Checklist,” Available: http://www.saferoutesinfo.org/sites/default/files/resources/Bikeability_Checklist.pdf, Accessed: 27 April 2017.

responsible for problems in the public right of way, RPS is responsible for those on school property and RPD is responsible for much of the enforcement. To be acted upon, these recommendations must be reviewed by the different agencies and budgeted for in the next budgeting cycle. The budget for FY2017 has already been determined and is underway. For FY2018, the budgeting process begins in October 2017.

The following recommendations list the problem to be addressed, options to consider and responsible entities along with a timeline for expected implementation.

- ✚ Address unsafe driver behaviors, primarily speeding and incorrect usage of traffic circles
 - Increase enforcement of traffic rules (short-term)
 - RPD
 - Conduct traffic circle education and outreach to drivers (short-term)
 - RPD with DPW
 - SRTS coordinator
 - Redesign or improve signage and education efforts for use of traffic circles (long-term)
 - DPW
 - Design and install additional traffic calming methods, such as speed tables or chokers at intersections (long-term)
 - DPW
 - Community (see box below)
- ✚ Change or cut back landscaping in the school raingarden (short-term)
 - RPS
- ✚ Improve school zone identification by adding signage, pavement markings (short-term)
 - DPW
 - RPS
 - Community (see box below)
- ✚ Address problems with school drop off in front of school
 - See DPW report recommendations
 - Hire and utilize crossing guard(s) (short to long-term)
 - CES/RPS
 - SRTS Coordinator
 - Community (see box below)
 - Close through traffic on East Marshall during arrival and dismissal from 31st to 29th, only allowing cars that enter on 29th and exit the school parking lot to pass (medium-term)
 - RPS
 - RPD
 - DPW
 - Redesign school site for improved traffic flow (long-term)
 - RPS
 - DPW
- ✚ Move bike rack to safer location in front of school; install new bike rack (short-term)
 - SRTS Coordinator
 - DPW Bike and Pedestrian Coordinator

- ✚ Prevent unauthorized visitors from congregating on school property
 - Partner with East Clay Market proprietor and neighborhood business association to reach clientele that loiter
 - RPD

EDUCATIONAL/ENCOURAGEMENT SCHOOL SPECIFIC ISSUES

- ✚ Clarify arrival and dismissal procedures
 - Create educational campaign using flyers in “Tuesday Folders,” social media, and light enforcement with information “citations” for those who violate procedures
 - CES, RPD, SRTS Coordinator
- ✚ Low participation rates for biking and walking to school
 - Provide incentives for administrators and teachers to walk or bike to school and provide behavioral examples
 - CES, SRTS Coordinator
 - Increase presence in community at community events to promote SRTS
 - SRTS Coordinator, RCHD
- ✚ Low community representation in PTA/parent and caretaker organization
 - Hold meetings at different locations and times in community, such as at community development corporations, other community-based organizations and churches/faith-based institutions, where childcare can be provided. Also, consider hosting conference calls and/or video calls to allow caretakers offsite to participate
 - Host community events outside of the school in partnership with other community-based organizations
 - Request churches and neighborhood organizations to send representative for the parents and caretakers in their organizations
 - Continue existing outreach- use social media, text blasts, flyers and church bulletin inserts to request parent involvement
 - Invite non-parents or parents/caretakers of former students to participate
 - Invite older siblings of elementary students to become involved in PTA/SRTS activities

DISTRICT LEVEL RECOMMENDATIONS

Certain policy recommendations could be tested at Chimborazo then implemented on a district-wide basis:

- ✚ **Develop a Crossing Guard program that allows both hired and volunteer crossing guards to serve schools.** Currently RPD hires and trains crossing guards on a paid basis. Shifting the crossing guard program back to RPS and also changing it to allow volunteers to serve may help meet the deficits of crossing guards that exist.
 - RPS
 - RCHD
 - RPD

✚ **Develop a district wide travel plan to bring SRTS to all schools and integrate pedestrian and biking safety education into curricula.** A district wide SRTS travel plan would bring SRTS programs and projects to all Richmond schools, and improve the distribution of equity of benefits. This plan also would ensure the use of standard methodologies for expanding, implementing and managing SRTS across the district. SRTS is currently active in eight elementary schools; RPS manages 39 schools: 26 elementary, eight middle and five high schools.³⁵

- RPS
- RCHD
- Fit4Kids
- VDOT
- DPW

✚ **Lower speed limits in school zones to 15 mph and improve enforcement, considering speed cameras where necessary.** Most pedestrians will survive being hit by a vehicle at 15 mph, with minor injuries. The current school zone speed limit is 25 mph which is not safe: most accidents involving pedestrians and cars driving at 20 mph cause serious injury, and almost half are fatal. Drivers who speed in school zones risk causing fatalities: 90 percent of pedestrian accidents at 40 mph result in death.³⁶

- DPW
- RPS
- RPD

✚ **Create a district level SRTS working group as part of the Complete Streets guidelines development group.** Complete Streets guidelines promote multi-modal transportation and the consideration of all users of streets when planning and building city infrastructure projects. Model guidelines include specific sections for Safe Routes to School programs. A working group specific to SRTS will ensure accurate reflection of SRTS issues within the guidelines. Richmond City Council passed an ordinance to create Complete Streets guidelines for Richmond in fall 2014, with the directive to develop the guidelines within a year after the passage. To date, the city has not developed the guidelines due to funding shortages.

- DPW
- RCHD
- SRTS Coordinator

³⁵ Richmond Public Schools, "About RPS," Available: <https://www.rvaschools.net/domain/6>, Accessed 14 June 2017.

³⁶ Safe Routes Partnership, "Slowing Down for Kids: New Law Allows Local Government to Lower Speed Limit in School Zones to 15 Mph," Available: http://www.saferoutespartnership.org/sites/default/files/pdf/SLOWING_DOWN_FOR_KIDS_AB321.pdf, Accessed 14 June 2017.

TACTICAL URBANISM

ACROSS THE COUNTRY, COMMUNITY MEMBERS AND ORGANIZATIONS ARE RECOGNIZING THE NEED FOR SAFE STREETS FOR PEDESTRIANS AND BIKERS, ESPECIALLY IN AREAS SURROUNDING SCHOOLS. THE MOST SIGNIFICANT SAFETY CONCERN FOR WALKING AND BIKING COMMUTERS FACE IS THE THREAT THAT CARS POSE WHEN THEY SPEED OR MAKE ERRATIC MANEUVERS. TO THIS END, MANY SIMPLE AND COST-EFFECTIVE STRATEGIES HAVE BEEN DEvised AND IMPLEMENTED TO ENCOURAGE CARS TO SLOW DOWN, OR TO ADAPT A MORE CAUTIOUS DRIVING STYLE.



Some of the innovative designs entail widening pedestrian walking or cycling spaces and narrowing car lanes. **In Paso Robles, California** they tested a pop-up design in which hay bales and traffic cones were used as barriers to section off a pedestrian walking lane on a main car thoroughfare; pinwheels were added to the top for extra visibility. As a result pedestrians could safely walk along the road as there was no preexisting sidewalk.³⁷

In Providence, Rhode Island one community member took it upon himself to purchase a set of \$1 toilet plungers to place along the perimeters of the city's bike lanes. Reflective tape was wrapped around the handles. The community member felt compelled to take this step as cars often veered into bike lanes despite road markings that delineated the area was intended for cyclists. The mayor of the city called it a creative way to draw attention to an important solution and is now contemplating a more permanent fix such as flower beds or flexible posts.³⁸

In Houston, Texas advocates from various community organizations, with the support of the local police and a city council member reimagined some of their streets using traffic cones, chalk and tape. Using the aforementioned materials they altered the street's layout by creating a roundabout, a median barrier and narrower streets. The interventions were designed to not only calm traffic, but increase driver awareness. Although many of the changes had to be taken back up, the tape remained on the road and subtly slowed drivers for weeks – giving credence to the belief that even the simplest tactical interventions can change driver behavior.³⁹

³⁷ Access Publishing, "Pop-up hay bale bike lane tested on Creston Road," Paso Robles Daily News, 12 May 2017, Available: <https://pasoroblesdailynews.com/pop-hay-bale-bike-lane-tested-creston-road/71105/>, Accessed 6 June 2017.

³⁸ Miller, Stephen, "Providence Will Keep DIY Plungers in Place to Prevent Cars From Clogging Bike Lane," StreetsBlogUSA, 12 May 2017, Available: <http://usa.streetsblog.org/2017/05/12/providence-will-keep-diy-plungers-in-place-to-prevent-cars-from-clogging-bike-lane/>, Accessed 6 June 2017.



In particular it is imperative that drivers are cautious in school areas as children often are distracted and not always familiar with pedestrian safety etiquette. **Bilquist Elementary School in Milwaukie, Oregon** recognized this challenge and devised a system to encourage cautious driving in the area. A squad of volunteer crossing guards comprised of the school's custodian and students coordinate traffic calming every morning. The custodian supervises two students who use neon flags and other tools

to slow and stop cars while students cross the streets. In addition, a police motorcyclist is on patrol in the area. The school has found that combination of the police patrol and crossing guards is ideal because it covers all areas of safety. Not only does the volunteer crossing guard program calm the traffic around the school, but it also teaches students important safety, leadership skills and commitment.⁴⁰

CONCLUSION & NEXT STEPS

This report will form the basis of an action plan for the 2018 academic year, which will include steps for how to move forward on the recommendations. Various actors and stakeholders, including the SRTS Coordinator, CES PTA and RCHD will be able to use the action plan to guide their efforts around SRTS issues. Additionally, DPW will use this report to inform transportation project grant applications based on the recommendations contained herein. Additional grant funding may be sought through RCHD and other organizations involved.

Safe Routes to School programs cover many issues at the heart of child and community health and well-being. However, a formalized program is not necessary to address these issues. This report clarified and confirmed the community's perspective of barriers present in their community to children walking and biking safely to school, showing that a community's intuition is to be trusted. Additionally, some community members are already working on these issues as part of their regular lives and interests. Because developing and implementing solutions to these issues will take more effort than the current SRTS program can provide, continuing to leverage existing community expertise and efforts and collaborate closely is a must for all agencies and actors seeking to solve these problems.

³⁹ Miller, Stephen, "Urban Designers Take a Do-It-Yourself Approach to Taming Houston's Extra-Wide Streets," StreetsBlogUSA, 12 May 2017, Available: <http://usa.streetsblog.org/2017/06/01/urban-designers-take-a-do-it-yourself-approach-to-taming-houstons-extra-wide-streets/>, Accessed 6 June 2017.

⁴⁰ Espinoza, Ambar, "School zones: Clackamas community works to protect kids at crosswalks," Metro News, 1 June 2017, Available: <http://www.oregonmetro.gov/news/school-zones-clackamas-community-works-protect-kids-crosswalks>, Accessed 6 June 2017.

PHOTOS



Figure 10: CES faces East Marshall, a wide and straight street that facilitates speeding



Figure 11: Students crossing East Marshall in front of school



Figure 12: Student exiting from car at dropoff in front of school, causing traffic congestion and dangerous crossing conditions



Figure 13: High bushes that block view as cars exit drop off in school parking lot, endangering pedestrians



Figure 14: Cars blocking crosswalk during student dropoff in front of school



Figure 15: Potholes in crosswalk with worn down paint