



Enhanced Walkabout Summary Report

Introduction

On September 25, 2013, ten participants met at Jackson Via Elementary School in Charlottesville, Virginia to evaluate the walking and bicycling network around the elementary school and to identify potential improvements that the school could qualify for a Transportation Alternative Program (TAP) grant. Participants included representation from Jackson Via Elementary School including the principal, assistant principal, and two parents. The parents are also active in the neighborhood association. There was also representation from the expected TAP grant sponsor, the City of Charlottesville with staff from the planning department and parks & recreation department.

The team met for approximately three hours, which included a 45-minute pre-meeting at a challenging intersection (Harris Road/ Jefferson Park Avenue and Camelia Drive) a 20-minute observation of the elementary school's dismissal procedure, a 45-minute walk around the school and the nearby streets, and a one-hour debrief to discuss findings and recommendations.

The team observed dismissal from the crossing adjacent to Welk Street on Harris Street closest to the school. At this vantage point it was easy to see which routes students were using to walk home from school. It was also helpful for watching the bus and parent pick-up process. All students are dismissed from the front entrance of the school. Students are dismissed using a staggered schedule and they are grouped by travel mode. Walkers are released first and most are escorted by a parent or authorized adult. Students walk both east and west along Harris Road to get home. Buses are dismissed from the driveway loop in front of the school and family vehicles use the narrow side parking lots to access the school. The list below summarizes the findings.

Walking Routes

Map Key	Route	Speed limit	Road Width ¹	No. lanes each direction	Sidewalk width and continuity, if present ¹
Route 1	Harris Road – eastbound to 5th Street				
	Harris Road	25 mph (15 mph during school arrival and dismissal times)	39'	1	4'
	5 th Street	45mph	70 ft.	2	
Route 2	Harris Road – westbound to Jefferson Park Avenue				
	Harris Road	25 mph (15 mph during school arrival and dismissal times)	39' (fluctuates)	1	
	Jefferson Park Avenue	25 mph	24'	1	4'
	Camelia Drive	25 mph	40'	1	5'

1. Street and sidewalk widths are approximate



Existing conditions

School location. Jackson Via Elementary School is located one block west of 5th Street. (State Route 631). The school has 333 students in grades K-4. The school is located in a neighborhood setting and as such over two-thirds of the students live within two miles. Approximately 100 students or one third of enrollment, live within one mile, which is considered to be a walkable distance for elementary school students. Approximately 25 students regularly walk to and from school in informal walking groups or walking school buses. This is only a quarter of the students who could walk when evaluating distance as the only factor. The team champion has gathered feedback from parents that indicate that if changes were made, many if not most of these students would be encouraged to walk to school.

Student travel to school mode, logistics and processes. Of the students that walk to school, most do so nearly every day. Of the students who do not walk, many of their parents have shown an interest in allowing their child to walk or bike to school if changes were made. Parents are mainly concerned about existing traffic volumes and speeds on Harris Road. Additionally a lack of adult supervision is a concern.

The front driveway loop is reserved for the exclusive use by school buses for both arrival and dismissal. Parking lots east and west of the school building are used for students arriving/departing via family motor vehicles. Because the parking lots are narrow and make three-point turns difficult, parents have started parking along Longwood Drive and retrieving their children from campus using a stairway from Longwood Drive to the parking lot on the west side of campus. Based on observation and comments from the walkabout team, this appears to be working well.

The dismissal sequence begins with bus riders, then walkers and students who ride home in family motor vehicles. A crossing guard assists students during arrival and dismissal at the crosswalk on Harris Road and the crossing adjacent to Welk Place. The crossing guard noted that about 25-35 students cross at this location daily to travel east or west on Harris Road. Most students traveling east use this intersection. Because of gaps in the sidewalk network on the north side of Harris Road, students traveling west along Harris Road do not cross at this location and instead cross unsupervised at intersections west of the school so they can stay on a separated facility for the whole journey home.

SRTS program support. Both the school community and the City of Charlottesville staff support students walking and biking to school where conditions are safe and comfortable. While there are gaps in the pedestrian and bicycle network within 2 miles of school, there are sidewalks and striped bike lanes along Harris Road. The City of Charlottesville has included funding in its 5-year capital budget to close the sidewalk gap on the north side of Harris Road to make walking to school more comfortable for students and reduce the number of times that students need to cross Harris Road.

The school and surrounding community are interested in making the neighborhood more bikable and walkable for people of all ages and abilities, including more designated on-road bicycle facilities. While walkabout participants observed several adult bicyclists on Harris Road and Jefferson Park Avenue during the walkabout, they



conveyed what they believe to be the community's sentiment that the lack of separated on-road facilities discourages families from riding to and from school together.

Jackson Via Elementary School has several activities that align with a formal safe routes to school program. Multiple parents trade off with walking students to and from school on a regular basis. Earlier in the summer of 2013 the City of Charlottesville (in partnership with the neighborhood) organized an open streets event called "Bike Walk Play JPA" on Jefferson Park Avenue, showcasing health, fitness, fun while "reclaiming" the busy neighborhood collector from motor vehicles. For the Saturday event, Jefferson Park Avenue was closed to motor vehicles during the morning and afternoon to encourage participants to walk, jog, run, bike, etc. along the street. Stationed activities include hula hooping, trash bowling, a bike pump and bike makeover stations. Jackson Via continued this enthusiasm by participating in the city-wide International Walk to School Day event in October. Other activities throughout the year such as Field Day and the Fun Run promote walking and biking as healthy and fun transportation choices. Finally, the physical education curriculum covers mountain biking safety. The school is interested in incorporating the National Highway Traffic Safety Administration's pedestrian safety curriculum into the broader physical education curriculum next year.

Walkabout Summary

Prior to the walkabout, key stakeholders met at the intersection of Harris Road/Jefferson Park Avenue and Camelia Drive to discuss crossing conditions at the intersection. The team observed several student walking groups travel south on Jefferson Park Avenue, then cross Harris Road on the east crossing because the sidewalk ends abruptly on the north side of Harris Road. The team discussed issues with sightlines, intersection geometry, and conflicts with turning vehicles at this location.

During the walkabout, the team walked along Harris Road. There is a four-foot wide continuous sidewalk on the south side of the street. On the north side the four-foot wide sidewalk is intermittent. Most of the cross streets have sidewalks on at least one side of the street. Generally three of the four legs of intersections along Harris Road are marked with parallel line crosswalks. Most intersections do not have curb ramps that meet Americans with Disabilities Act (ADA) design guidelines. Additionally, the flashing school sign beacons on Harris Road seem to be broken or programmed for improper times as they did not appear to be functioning properly during the dismissal period.

Key Barriers and Issues

Roadway Crossings on Harris Road

Because of gaps in the sidewalk network along the north side Harris Road, students that live north of the school must cross a relatively busy road at crossings away from the more comfortable crossing that is supported with a crossing guard adjacent to Welk Place. While many of the crosswalks are marked, they are generally marked with the parallel lines pattern, rather than the high visibility marking in the ladder style which is considered a best practice for school crosswalks. The number of curb ramps and their orientation does not meet ADA design guidelines in some locations. Intersections in areas with established homes typically have a single curb ramp



placed at the apex of the curb, instead of the preferred two ramps with tactile warning surfaces per corner oriented 90 degrees to the crosswalk. In locations where there is new development, these treatments are already in place. The areas that have established homes are where retrofitting will be needed.

Intersection: Harris Road/Jefferson Park Avenue and Camelia Drive

This is a three-way intersection, with stop signs on all approaches. Jefferson Park Avenue travels north-south, turning 90 degrees to become Harris Road. Camellia Drive approaches the intersection at the curve on an angle which creates poor sightlines for all three approaches. While the speed limits are set appropriately at 25 mph, motorists appear to approach the intersection at relatively high speeds. Concerns about existing traffic speeds, volumes, and poor sightlines at this intersection for all users at all approaches have been voiced by Jackson Via Elementary School parents.

Students traveling southbound on Jefferson Park Avenue typically cross Harris Road east of Camilla Drive. One reason for this is because Jefferson Park Avenue only has sidewalks on the east side of the road. This puts pedestrians on the northeast corner of Harris Road, rather than encouraging students to cross Camellia Drive on the west and south side (which is a road that experiences significantly lower traffic volumes). Second, the sidewalk gaps on the north side of Harris Road force students to use the eastern crossing, rather than staying on the north side of the road around the corner; meaning they need to cross here before the sidewalk ends mid-block.

There are challenges to using the eastern crossing. The first is that visibility for motorists traveling westbound on Harris Road and for pedestrians traveling southbound on Jefferson Park Avenue is poor. Due to vegetative overgrowth and the intersection geometry it is difficult for motorists to see pedestrians waiting to cross on the northeast corner. Motorists traveling westbound on Harris Road may also not see the stop sign at Camellia Drive or cars traveling southbound on Jefferson Park Avenue.

Sidewalk Network and Conditions

Jefferson Park Avenue and Harris Road are the main throughways in and out of the neighborhoods to Charlottesville and other regional destinations. During morning arrival times these roads are common routes for students and commuters. While Harris Road has a continuous sidewalk on the south side, students living along streets north of Harris Road need to cross at multiple points to get to and from school. The sidewalks along Harris Road are generally functioning as four-foot wide without a buffer. Sidewalks appear to be built wider and would be more comfortable if vegetative overgrowth is addressed. On the south side of Harris Road several utility poles and signs located in the sidewalks are permanent obstructions. These pinch points should be addressed to meet ADA design guidelines and to create a comfortable walking experience for all pedestrians. Some side streets that intersect with Harris Road do not have sidewalks on either side. These streets either loop back onto Harris Street or dead end, with limited pedestrian connectivity to other streets.

Bike Facilities on Harris Road

Harris Road has a designated bikeway, yet bicycle lanes are intermittent along Harris Road from Camelia Drive to 5th Street. As the road narrows and widens the bike lanes disappear and reappear. In some locations, bike lanes only



reappear on one side of the road. It appears that the lanes disappear because the roadway narrows and widens along the route. The intermittent bike lanes and changing road widths can be challenging for bicyclists to know where it is best to ride in the travel lane.

Signage and Pedestrian Visibility

Limited visibility of pedestrians at intersections and at crosswalks reduces pedestrian safety, especially that of students, who are typically smaller in stature than adults. The intersections near the school lack high visibility pavement markings which are considered best practice treatments near schools and along school walking routes.

Traffic Conditions on Harris Road

Harris Road is the main link between Jefferson Park Avenue and 5th Street, both of which connect traffic to major destinations in Charlottesville and major highways such as Interstate 64. The team noted that Harris Road experiences relatively high traffic volumes that do not appear to be travelling at the posted speed limit of 25 mph, and 15 mph during school arrival and dismissal times. Traffic speed enforcement has been implemented in the past, but motorists seem to revert back to higher speeds during the relatively long hiatus between enforcement efforts.

Recommendations

Community Prioritized Infrastructure. The Harris Road corridor project is chosen based on a strategy to complete or improve walking/biking infrastructure close to the school and approved by the walkabout team. Specific improvements include intersection improvements at Harrison Road/Jefferson Park Avenue and Camelia Drive; curb ramp improvements, high visibility pavement markings at various intersections, as well as new sidewalks and bicycle facilities along the length of the road.

Filling in the sidewalk gaps will help reduce the frequency at which students will need to cross Harris Road. Ideally students will be able to stay on their home's side of Harris Road until they approach the front of the school, where there is a midblock crossing that has a stationed crossing guard during both morning arrival and afternoon dismissal hours. Designated bicycle facilities can help to calm traffic by visually narrowing the roadway and reminding motorists to watch for non-motorized traffic along Harris Road. Multiple permanent obstructions are located within the sidewalk on the south side of Harris Road. These need to be addressed to meet ADA design guidance.

The most difficult crossing along Harris Road is at the intersection of Harris Road/Jefferson Park Avenue, and Camellia Drive. Moving the stop bar back further from the intersection for westbound traffic on Harris Road will stop traffic further away from the marked crossing so that pedestrian and motorists have more time to see each other before pedestrians attempt to cross. The stop sign is obstructed by vegetation. In addition to trimming the existing trees, adding a stop sign on the south side of Harris Road (visible to westbound traffic) will provide additional cues for motorists to stop at the intersection.



The turning radius on the southwest corner does little to slow the travel speed at which motorists turn onto Jefferson Park Avenue. Traffic calming elements such as curb extensions to reduce the turning radius will require motorists to make the turns at slower speeds. Curb extensions on the southwest corner will also reduce the crossing distance for students crossing Camelia Drive and make them more visible to motorists.

Most of the intersections with the side streets and Harris Road do not meet best practices for ADA access. This report recommends that each intersection include a minimum of three marked crosswalks (marking the north, east, and south crossings) and that they align two curb ramps on each corner. The slope and landing area for each curb ramp should meet recommended ADA design guidelines. Tactile warning surfaces should be installed in each curb ramp. The curb ramp placement and design at the intersection of Harris Road and Christa Court is a good nearby example of best practices for this pedestrian element.

Additional Infrastructure. Several additional infrastructure projects address concerns that were raised by the walkabout team, but were not identified as the community prioritized project.

- Jefferson Park Avenue
 - Install sidewalks on the west side of the street
 - Install shared lane markings (sharrows)
- Intersection of 5th Street SW (Ridge Street) and Harris Road
 - Conduct a study of the intersection to identify improvements for the comfort of all users
 - Consider closing or reconfiguring the slip lane onto Harris Road for southbound traffic on 5th Street SW
 - Consider implementing a protected left turning arrow for northbound traffic on 5th Street SW
 - Consider moving the south crossing back to make better use of the median as a possible pedestrian refuge
 - Expand landing /pedestrian queuing areas at the crossings
 - Extend access to push buttons at the south east and northwest crossings
 - Install curb ramps that meet ADA guidelines
 - Study signal timing to ensure that crossing time meets best practices
- 5th Street NW (Ridge Street) between Harris Road and Broadwood Drive
 - Upgrade existing sidewalks with wide, shared-use pathways
- Install sidewalks where there are gaps or on sides of the road where they are not present
 - Moseley Drive
 - Azalea Drive
 - Allen Drive
 - Willard Drive
- Possible trail connection between Moseley Drive and Longwood Drive
 - Investigate the possibility of creating an off-road, multi-use trail that would connect Moseley Drive and Longwood Drive
- Possible trail connection between Jefferson Park Avenue, Manila Street, and Woodland Drive
 - Investigate the possibility of creating an off-road, multi-use trail the would connect Jefferson Park Avenue, Manila Street, and Woodland Drive

Learn it. Do it. Live it!



Walkabout Photos

Walkabout participants took photographs to further supplement safe routes to school project recommendations. The following photos highlight portions of the walkabout. All of the walkabout photos are available at

<https://www.dropbox.com/sh/qbbc7y96vkho6oe/dXqyl4hMFG>



Harris Road looking west towards the school: Sidewalks are generally present on both sides of the street. Some gaps in the sidewalk are present for segments of the north side of Harris Street. Bike lanes are intermittent on both sides of the street.



Intersection of Harris Road and Longwood Drive, looking at the southern crossing: Crosswalks are present but best practices recommend a high visibility striping pattern such as the ladder style. The curb ramp is oriented diagonally into the intersection rather than directly opposite the curb ramp on the southwest corner. Tactile warning surfaces are present at some of the curb ramps.



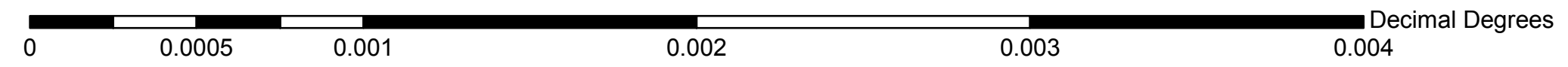
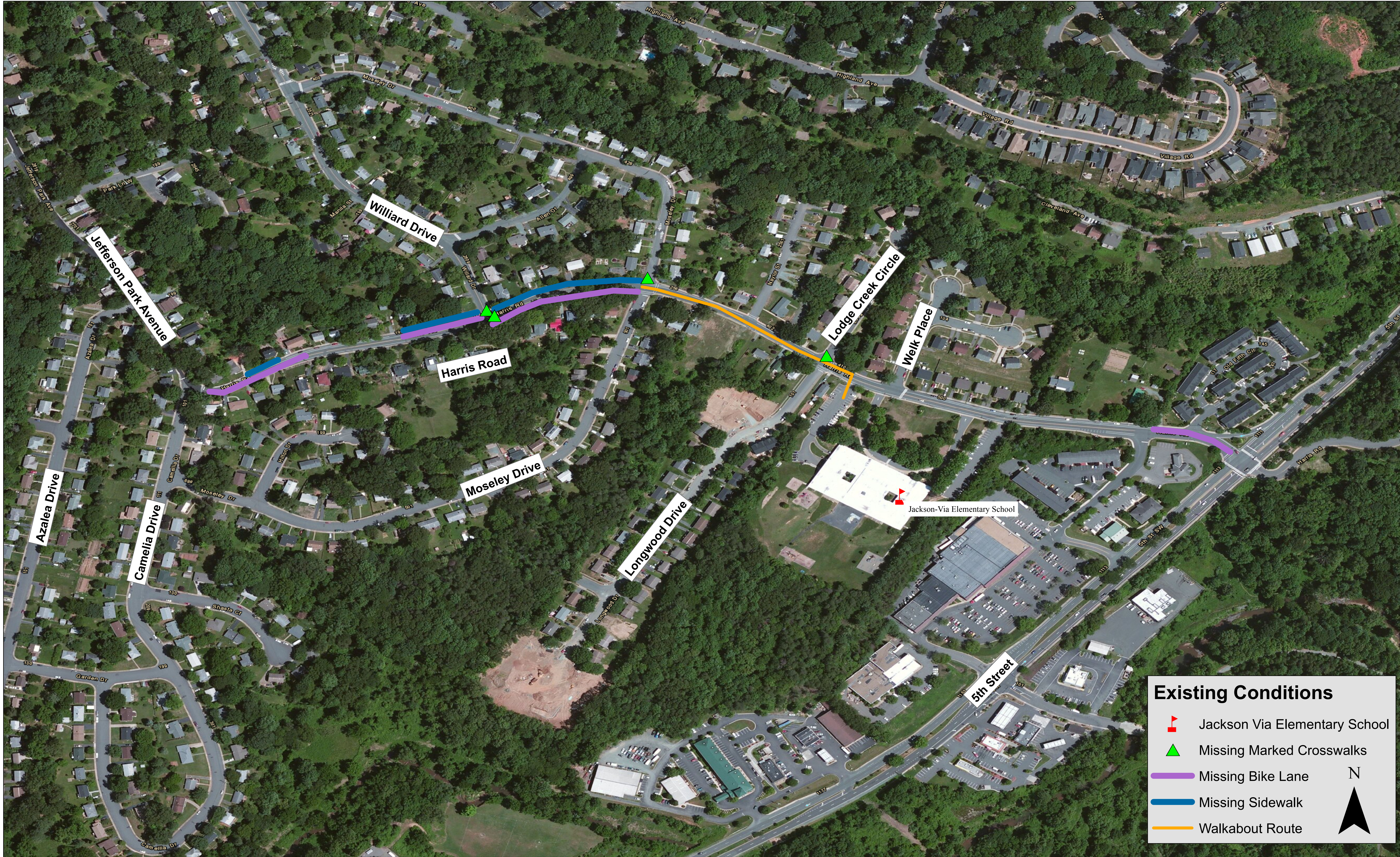
Harris Road looking east at Camellia Drive and Jackson Park Avenue: Vegetative overgrowth obstructs the stop sign for westbound traffic on Harris Ave. It also impedes sightlines for motorists on the westbound and southbound approaches of the intersection as well as for pedestrians queuing to on the northeast corner of the intersection.



Jefferson Park Avenue looking north: Sidewalks are only present on the east side of Jefferson Park Avenue. Existing sidewalks are relatively narrow at 4ft wide and they do not have a buffer. The team noted that parents will sometimes walk in the street alongside the sidewalk to be able to walk with two or more children at a time.


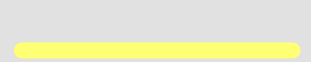


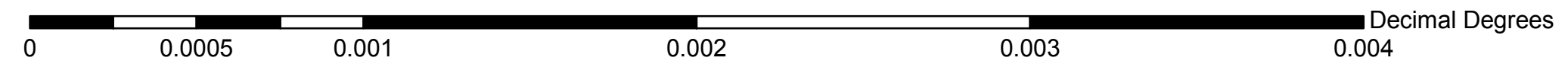
Jefferson Park Avenue (southbound) and Camellia Drive (northbound): There is a segment of sidewalk on the west side of Jefferson Park Avenue that extends from Camellia Drive. This sidewalk extends approximately 100ft from the intersection before it ends abruptly. The turning radius at the southwest corner is relative obtuse which allows cars to make turns onto Camellia Drive at relatively high speeds.





Recommendations

-  Jackson Via Elementary School
-  Harris Road Corridor



Enhanced Walkabout Infrastructure Projects

The following information will help answer some questions on the TAP application. If the TAP application sponsor is not a local government, it is highly recommend that the municipal engineer and project sponsor are consulted when applying to TAP projects. Additionally, since this project qualifies as a Safe Routes to School project it will be necessary to complete **Attachment B** of the TAP application. The application and attachment B request cost estimates; the cost estimates sited in the following table are for planning purposes only and all costs should be confirmed by the municipal engineer and local sponsor. The deadline for the TAP application is **November 1, 2013**.

5. Project description, including termini and scope, with a map

Pedestrian and bicycle improvements along Harris Road between 5th Street and Jefferson Park Avenue

- Pedestrian improvements
 - o Fill sidewalk gaps on the north side of Harris Road
 - o Retrofit existing pedestrian crossings along and across Harris Road so as to follow ADA design guidelines
 - o Increase sidewalk buffer on the south side of Harris Road in front of the school to increase capacity and to create a level surface that more closely adheres to ADA design guidelines
- Intersection with Harris Road/Jefferson Park Avenue and Camelia Drive
 - o Add a curb extension on the west side of Jefferson Park Avenue/Camelia Drive to shorten crossing distance for pedestrians and tighten curb radius in order to reduce turning speeds for motorists
 - o Add a stop sign on the south side of Harris (facing westbound motorists) to increase signage at the intersection
 - o Move the stop bar further back from the pedestrian crossing for westbound motorists on Harris Road
 - o Install a high visibility crosswalk pavement marking in the ladder style across Camelia Drive
- Bicycle improvements
 - o Create a continuous on-road bike facility for the corridor by filling in gaps with advisory bike lanes
- Project breakdown
 - o Approximately 1,195 linear feet of curbed sidewalk
 - o 18 curb ramp retrofit for ADA guidelines
 - o Approximately 72 linear feet of curb extension
 - o 9 new high visibility crosswalk pavement markings in the ladder style
 - o 1 stop bar relocation
 - o 21 locations to address existing obstructions in the sidewalk along Harris Road
 - o Approximately 2,029 linear feet of advisory bike lanes
 - o Three locations for new sign assemblies

8. Primary Category of Eligibility

- Infrastructure related improvement or system that will provide safe routes for non-drivers

9. Does this project qualify as a Safe Routes to School Project?

- Yes. This project is an eligible infrastructure activity and is located within a 1/4 mile of an elementary school

16. The use of federal transportation funds requires compliance with the Americans with Disabilities Act (ADA); describe how this project will meet these requirements

- New sidewalks will be 5' wide, per ADA design guidance
- Curb ramp retrofit design and installation will meet ADA design guidance and best practices

17. Project Constructability and Cost

- See attached cost breakdown for a detailed account of project component costs.
- Construction cost estimates were developed for the recommendations by identifying pay items and establishing rough quantities. Unit costs are based on 2012 dollars and were assigned based on historical cost data from state departments of transportation and other sources. Please note that the estimates do not include any costs for easement or Right-of-Way acquisition, utility relocation, or the cost for ongoing maintenance. The overall estimates are intended to be general and used for planning purposes. Construction costs will vary based on the ultimate project scope (i.e. potential combination of projects) and economic conditions at the time of construction.

24. Does this project support an existing or planned highway project?

- This project does not support an existing or planned highway project.

26. Does the project provide connections to existing regional trails or pedestrian/bicycle facilities? Does it provide a 'missing link' in the existing transportation network?

- Sidewalk connects to an existing walking route
- Bicycle improvements will fill gaps between existing bike lanes on the same street

27. Does the project provide bicycle/pedestrian facilities where none previously existed?

- New sidewalk provides pedestrian facilities where none previously exist
- New advisory bike lanes provide bicycle facilities where none previously existed
- The project location is near an elementary school and all proposed recommendations are located along an existing walking route

28. Which best describes the project's primary transportation function?

- Sidewalk provides alternate needs for transportation to and from school

29. Does this project add features/devices that will improve bicycle and pedestrian safety?

- Nine new high visibility pavement markings will address the visibility of existing crossings

- Moving the stop bar back at the intersection of Jefferson Park Avenue/Harris Road and Camelia Drive directing motorists to stop further back from the intersection to increase the visibility of pedestrians actively crossing and waiting to cross the east crossing of the intersection
- Two school pedestrian crossing signs increase the visibility of the marked crosswalk in front of the school

30. Does this project incorporate traffic calming design elements?

- Advisory bike lanes can be a traffic calming element
- Sidewalk can be a traffic calming element

31. Is this project in the localities local/regional transportation plan?

- No

40. Is this project part of a larger/multi-phased project?

- The sidewalk is part of the planned sidewalk project on the north of Harris Road

41. Has a master plan, feasibility and/or preliminary engineering studies been completed?

- No but this work will inform the upcoming Bicycle and Pedestrian Master Plan for the City of Charlottesville

Attachment B 5. Describe the barriers that currently prevent kids from walking/biking safely to school and how this project would mitigate or remove those barriers, especially for improving safety and encouraging more kids to walk and bike to school.

- Relatively high traffic volumes make it difficult to walk or bike to school where there are no separated facilities for pedestrians and bicyclists
- Relatively high traffic speed make it difficult to walk or bike to school where there are no separated facilities for student pedestrians and bicyclists
- Existing bike lanes are intermittent
- Existing sidewalks are intermittent on the north side of Harris Road, which requires students to cross Harris Road at multiple points along the walking routes to school
- Portions of sidewalks do not meet ADA design guidelines (pinch points, width)
- Some crossings do not follow ADA guidelines(lack tactile warning surface treatments, orientation, lack of curb ramps, insufficient landing space)
- Pedestrian crossing pavement markings could be more visible to motorists
- Poor sightlines for both motorists and pedestrians at the intersection of Harris Road/Jefferson Park Avenue and Camelia Drive make students and their parents reluctant to walk to school
 - o Vegetative overgrowth at this location obstructs the stop sign and students waiting to cross on the northeast corner of the intersection
 - o Relatively obtuse angles on the corners allow cars to make turns at relatively high speeds
- Pedestrian crossings across the school driveway do not meet ADA guidelines; slope is too steep towards the road

Location	Item	Quantity	Unit Cost	Item Cost
Harris Rd - JPA to Willard Dr	Sidewalk, linear feet, 1 side	343	\$30.00	\$10,290.00
Harris Rd - Willard Dr to Moseley Dr	Sidewalk, linear feet, 1 side, wall	460	\$200.00	\$92,000.00
Harris Rd, in front of school	Sidewalk, linear feet, 1 side	392	\$30.00	\$11,760.00
	subtotal	1195		\$114,050.00
Intersection of Harris Rd and Lodge Creek Cir NE corner	Curb ramp	2	\$2,500.00	\$5,000.00
Intersection of Harris Rd and Lodge Creek Cir SE corner	Curb ramp	1	\$2,500.00	\$2,500.00
Intersection of Harris Rd and Lodge Creek Cir SW corner	Curb ramp	1	\$2,500.00	\$2,500.00
Intersection of Harris and Naylor St NE corner	Curb ramp	1	\$2,500.00	\$2,500.00
Intersection of Harris and Naylor St NW corner	Curb ramp	1	\$2,500.00	\$2,500.00
Intersection of Harris and Mosley Dr, NW corner	Curb ramp	1	\$2,500.00	\$2,500.00
Intersection of Harris and Mosley Dr, NE corner	Curb ramp	2	\$2,500.00	\$5,000.00
Intersection of Harris and Mosley Dr, SW corner	Curb ramp	1	\$2,500.00	\$2,500.00
Intersection of Harris and Mosley Dr, SE corner	Curb ramp	2	\$2,500.00	\$5,000.00
Intersection of Harris and Willard Dr, NE corner	Curb ramp	1	\$2,500.00	\$2,500.00
Intersection of Harris and Willard Dr, NW corner	Curb ramp	1	\$2,500.00	\$2,500.00
Intersection of Jefferson Park Ave/Harris Rd and Camelia Drive, NE corner	Curb ramp	1	\$2,500.00	\$2,500.00

Location	Item	Quantity	Unit Cost	Item Cost
Intersection of Jefferson Park Ave/Harris Rd and Camelia Drive, SE corner	Curb ramp	2	\$2,500.00	\$5,000.00
Intersection of Jefferson Park Ave/Harris Rd and Camelia Drive, SW corner	Curb ramp	1	\$2,500.00	\$2,500.00
	subtotal	18		\$45,000.00
Intersection of Jefferson Park Ave/Harris Rd and Camelia Drive, SW corner	Curb extension, install new curb, linear ft	80	\$30.00	\$2,400.00
	Cub extension, pavement removal, cubic yards	26	\$25.00	\$650.00
	Curb extension, earthwork, cubic yards	32	\$25.00	\$800.00
	Curb, linear ft, remove, yards	80	\$3.00	\$240.00
Intersection of Harris Rd and Lodge Creek Cir, N crossing	Crosswalk Pavement Marking (high visibility ladder style)	1	600	\$600.00
Intersection of Harris Rd and Lodge Creek Cir, E crossing	Crosswalk Pavement Marking (high visibility ladder style)	1	600	\$600.00
Intersection of Harris Rd and Lodge Creek Cir, S crossing	Crosswalk Pavement Marking (high visibility ladder style)	1	600	\$600.00
Intersection of Harris Rd and Naylor St, N crossing	Crosswalk Pavement Marking (high visibility ladder style)	1	600	\$600.00
Intersection of Harris Rd and Moseley Dr, N crossing	Crosswalk Pavement Marking (high visibility ladder style)	1	600	\$600.00
Intersection of Harris Rd and Moseley Dr, E crossing	Crosswalk Pavement Marking (high visibility ladder style)	1	600	\$600.00
Intersection of Harris Rd and Moseley Dr,S crossing	Crosswalk Pavement Marking (high visibility ladder style)	1	600	\$600.00

Location	Item	Quantity	Unit Cost	Item Cost
Intersection of Harris Rd and Willard Dr, N crossing	Crosswalk Pavement Marking (high visibility ladder style)	1	600	\$600.00
Intersection of Jefferson Park Ave/Harris Rd and Camelia Dr, S crossing	Crosswalk Pavement Marking (high visibility ladder style)	1	600	\$600.00
	subtotal	9		\$5,400.00
Harris Rd - Camelia Dr to Willard Dr	Address utility conflicts in pedestrian path	5	\$1,000.00	\$5,000.00
Harris Rd - Willard Dr to Moseley Dr	Address utility conflicts in pedestrian path	2	\$1,000.00	\$2,000.00
Harris Rd - Moseley Dr to Lodge Creek Cir	Address utility conflicts in pedestrian path	5	\$1,000.00	\$5,000.00
Harris Rd - Lodge Creek Circle to 5th St	Address utility conflicts in pedestrian path	9	\$1,000.00	\$9,000.00
	subtotal	21		\$21,000.00
Harris Rd - Welk Pl to 5th St	Bike lane gap, both sides but not even, advisory bike lane?	348	\$5.00	\$1,740.00
Harris Rd - Camelia Ave to Christa Court	Bike lane gap, both sides	618	\$5.00	\$3,090.00
Harris Rd - Willard Dr to Lodge Creek Circle	Bike lane gap, advisory bike lane? Only missig on one side	1,063	\$5.00	\$5,315.00
	subtotal	2,029		\$10,145.00
Jefferson Park Ave - Harris Rd to Cleveland Ave	Shared lane marking (sharrow)	2,291	\$1.80	\$4,123.80
Connecting Jefferson Park Ave to Azalea St Dr and Porter Ave	Off-road trail	742	\$70.00	\$51,940.00
Intersection of Jefferson Park Ave/Harris Rd and Camelia Ave, E crossing	Install new crossing signs	2	\$250.00	\$500.00

Location	Item	Quantity	Unit Cost	Item Cost
Intersection of Jefferson Park Ave/Harris Rd and Camelia Ave, E crossing	Install new stop sign on S side of Harris	1	\$250.00	\$250.00
Mid-block crossing in front of school on Harris Rd for westbound traffic	Install new crossing signs	1	\$250.00	\$250.00
	subtotal	4		\$1,000.00

Intersection of Jefferson Park Ave/Harris Rd and Camelia Ave, E crossing	Re-stripe stop bar for westbound traffic	1	\$45.00	\$45.00
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Lump Sum Items	Lump Sum	Quantity	Unit Cost	Item Cost
Mobilization (10%)		1	25700	\$25,700
Maintenance and Protection of Traffic (10%)		1	25700	\$25,700
	Construction Subtotal		\$	308,194
	Contingency (20%)		\$	61,600
	Construction Total		\$	369,794
	Survey (10%)		\$	37,000
	Engineering/Design (16%)		\$	74,000
	TOTAL		\$	480,794

Construction cost estimates were developed for the recommendations by identifying pay items and establishing rough quantities. Unit costs are based on 2012 dollars and were assigned based on historical cost data from state departments of transportation and other sources. Please note that the estimates do not include any costs for easement or Right-of-Way acquisition, utility relocation, or the cost for ongoing maintenance. The overall estimates are intended to be general and used for planning purposes. Construction costs will vary based on the ultimate project scope (i.e. potential combination of projects) and economic conditions at the time of construction.