

MEMORANDUM

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DATE: March 6, 2020

TO: Joe Pospisil, Montgomery County Department of Transportation

FROM: Michael Guiliano, STV Incorporated

SUBJECT: Safe Routes to School – School Walking Area Analysis

LOCATION: Dr. Martin Luther King Jr Middle School

Overview

The study area for this analysis includes the walking area for Dr. Martin Luther King Jr Middle School, which was provided by Montgomery County Department of Transportation (MCDOT) and is shown in **Figure 1**. Dr. Martin Luther King Jr Middle School is located on Wisteria Drive and vehicular access is provided for both on-site parent and bus loops from this roadway. It had a projected enrollment of 797 students for the 2018/2019 school year and 425 eligible riders. The walking area for Dr. Martin Luther King Jr Middle School includes two other area schools, Lake Seneca Elementary School and Waters Landing Elementary School. Lake Seneca Elementary School is located on Wanegarden Drive and vehicular access is provided for both on-site parent and bus loops from this roadway. It had a projected enrollment of 530 students for the 2018/2019 school year and 256 eligible riders. Waters Landing Elementary School is located on Waters Landing Drive and vehicular access is provided for bus loops from this roadway. Vehicular access for on-site parent drop off is on Locbury Drive. It had a projected enrollment of 672 students for the 2018/2019 school year and 423 eligible riders. Approximately two-thirds of the walking area for Dr. Martin Luther King Jr Middle School has sidewalk and/or trails, which includes the walking area for the two elementary schools.

Dr. Martin Luther King Jr Middle School fronts Wisteria Drive, a primary residential roadway that runs in the east-west direction. Students walking to Dr. Martin Luther King Jr Middle School can access the site from the south side by using the sidewalk along Wisteria Drive. It should be noted that most of the sidewalk present within the walking area is not on county-maintained property or roadways, thus limiting where crosswalks or ADA ramps can be installed as part of this project. There are paths connecting the neighborhoods on the north side of Wisteria Drive to the school property on the east and west sides. There are bicycle lanes in both the east- and westbound direction on Wisteria Drive from Wanegarden Drive ending just before Father Hurley Boulevard. Outside of the school crossing signs, there are no additional traffic calming measures surrounding the school.

Lake Seneca Elementary School fronts Wanegarden Drive, a local roadway that runs in the east-west direction. Students walking to Lake Seneca Elementary School can access the site from the west side by using the sidewalk along Wanegarden Drive and from the east along paths to the school. Outside of the school crossing signs, there are no traffic calming measures surrounding the school.

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Waters Landing Elementary school fronts Waters Landing Drive, a local roadway that runs in the east-west direction. Students walking to Waters Landing Elementary School can access the site from the west and the south using the sidewalks along Waters Landing Drive or Locbury Drive. Students also cut through the playing field from the southwest neighborhoods and from the west near the basketball courts. Outside of the school crossing signs, there are no traffic calming measures surrounding the school.

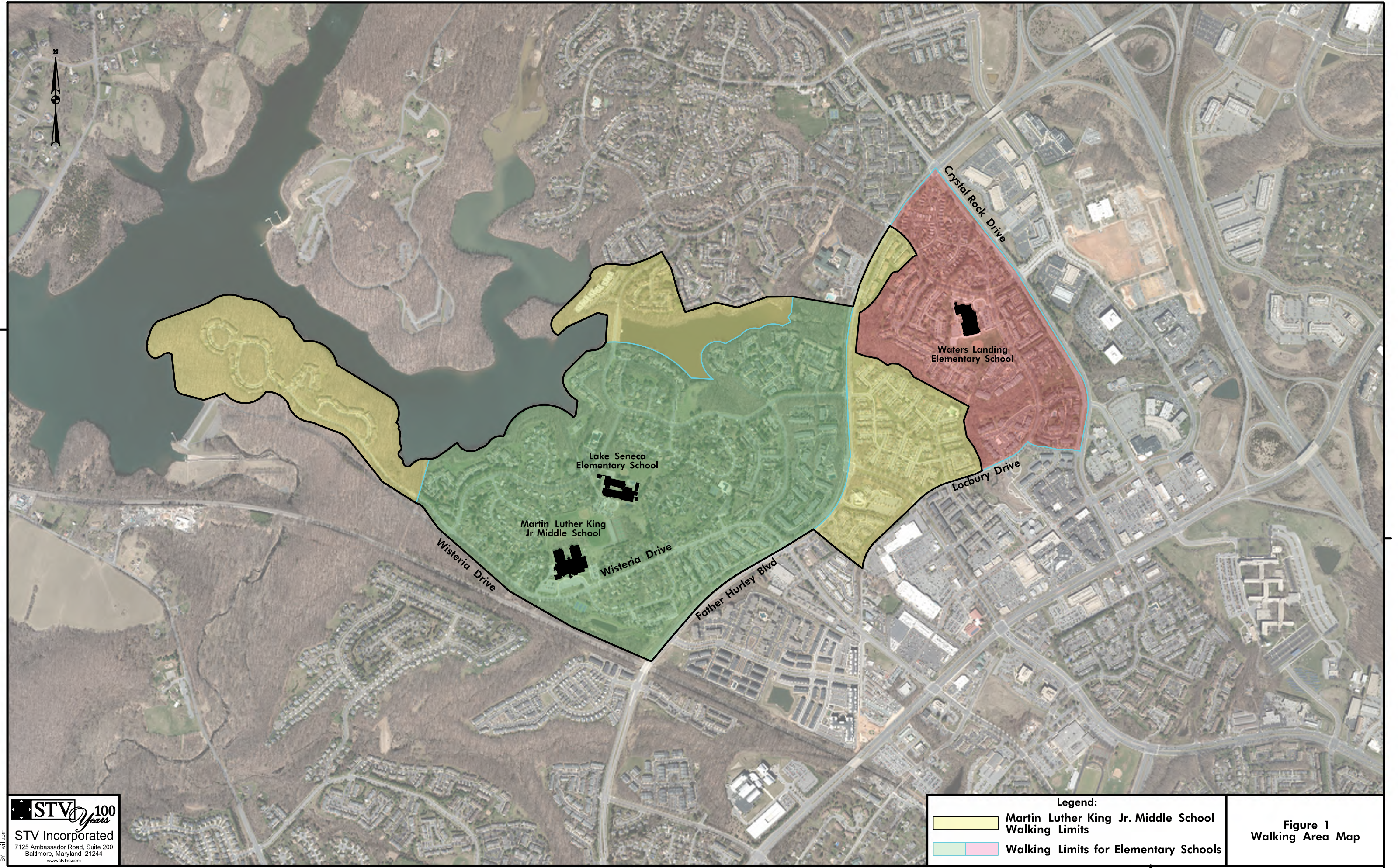
Walking Route Analysis

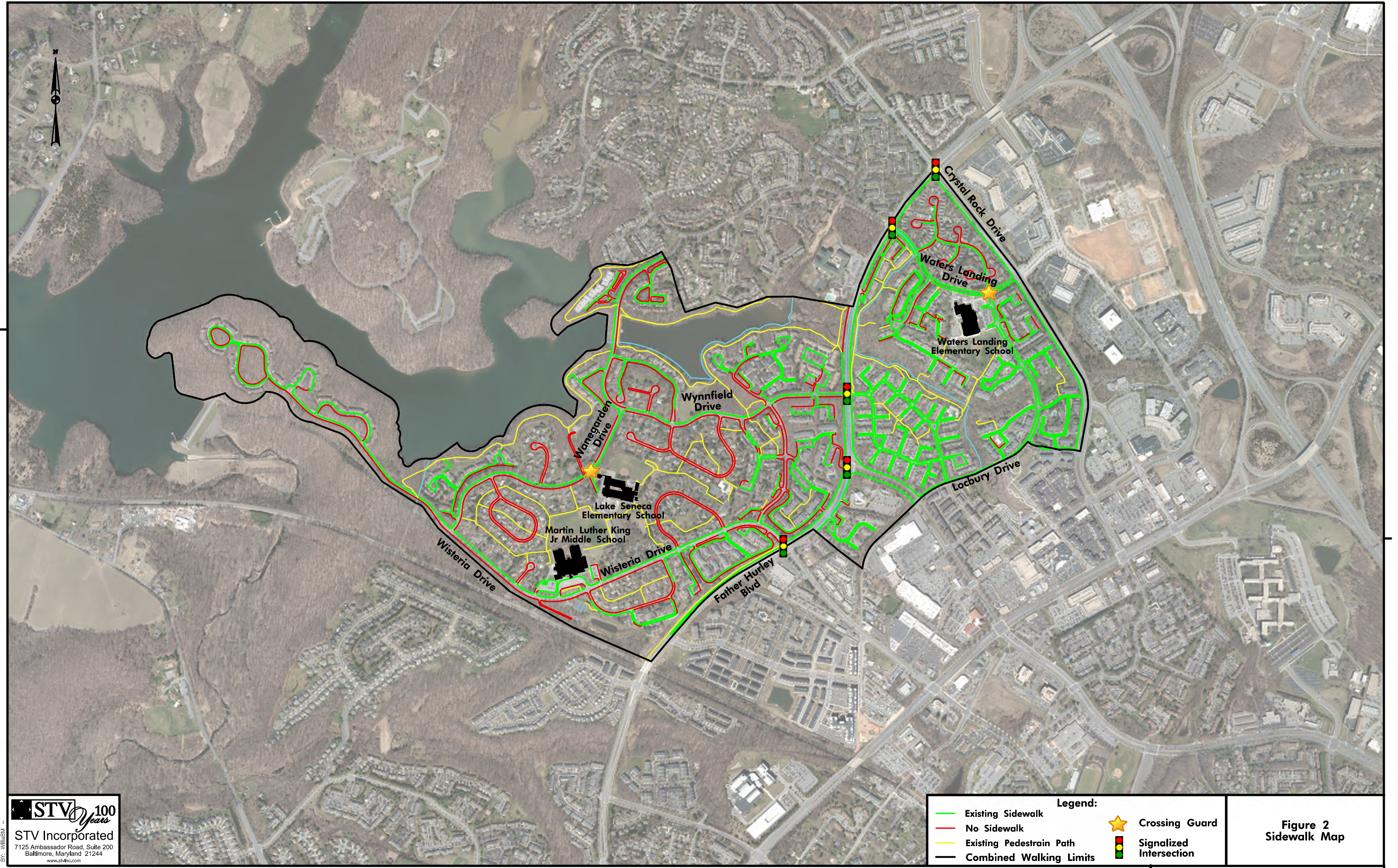
Although the roadway that fronts Dr. Martin Luther King Jr Middle School has sidewalk, there is no sidewalk along several streets to the north and south of the school. Several of these streets that do not have sidewalk would likely have low volumes of local traffic, given that they are located in a residential neighborhood. In addition, there are many walking trails connecting the neighborhoods to the existing sidewalk facilities. Assuming students would not go out of the way to utilize a sidewalk along Wanegarden Drive or Wynnfield Drive to Wisteria Drive, all of which have sidewalks on at least one side, students walking from the north of the school would need to utilize the walking paths within the neighborhood.

Although most of the roadways within the walking area boundary of Lake Seneca Elementary School have sidewalk on at least one side of the street, there is no sidewalk that connects the school to the neighborhoods to the southeast. However, there are many walking trails connecting the neighborhoods to Lake Seneca Elementary School. Several of the streets that do not have sidewalk would likely have low volumes of local traffic given that they are located in a residential neighborhood. Walnutwood Lane and Winterspoon Lane do not have sidewalks. Assuming students walking from the south and east side of the walking area would not go out of their way to utilize the sidewalks on Wynnfield Drive, Wanegarden Drive, or Wisteria Drive, they would need to navigate to the trails within each neighborhood to access the school sidewalks.

Although most of the roadways within the walking area boundary of Waters Landing Elementary School have sidewalk on at least one side of the street, there is no sidewalk along Alderleaf Terrace to the north of Alderleaf Drive. All of these streets to the northeast would likely have low volumes of local traffic, given that they are located in a residential neighborhood. Other main roadways that students would utilize to access the school include Locbury Drive and Waters Landing Drive, and these roadways have sidewalks on both sides of the street.

The location of sidewalks within the Dr. Martin Luther King Jr Middle School and walking area is shown in **Figure 2**.





Legend:	
— Existing Sidewalk	★ Crossing Guard
— No Sidewalk	● ● ● Signalized Intersection
— Existing Pedestrian Path	
 Combined Walking Limits	

Figure 2
Sidewalk Map

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Arrival/Dismissal Observations

Observations for arrival and dismissal periods were conducted for each of the schools and reference points identified in the observations below are shown on **Figures 3-5**, respectively.

Dr. Martin Luther King, Jr. MS

Conducted on 5/29/19 7:30 AM – 8:30 AM (Arrival) & 2:30 PM – 3:30 PM (Dismissal)

- Students were observed accessing the south entrance of the school and the east entrance near the stairwell adjacent to the staff and visitor parking during the arrival period. Additionally, during the dismissal period, the south side entrance near the bike rack was utilized.
- The majority of walkers approached the school from the east on the north side of Wisteria Drive. It should be noted that this is the only side of the roadway that has sidewalk. Some of the students also utilized the Ride On bus stops on the north and south side of Wisteria Drive. Nearly triple the number of students utilized the Ride On buses during the dismissal period than the arrival period. There were approximately three students who arrived at the school via Teakwood Lane; however, no students used Teakwood Lane during the dismissal period. It should be noted that Teakwood Lane does not have sidewalks that connect to Wisteria Drive, so students walked on either the grass or the roadway. Another sparsely used path during the arrival period was the paved path from the tennis courts east of the school between Dr. Martin Luther King, Jr. MS and Lake Seneca ES; however, this path was used heavily at 2:55 PM. This may have been a physical education class. A few students utilized the sidewalk on the north side of Wisteria Drive and walked west towards Webster Court.
- During the dismissal period, students walked over the grass from the bike rack near the south entrance to either the Ride On bus stop or the south side of the staff and visitor parking.
- Some motorists utilized the staff and visitor parking area to drop off and pick up the students; however, a majority of the drop offs occurred at the designated parent loop. There were no delays on Wisteria Drive during the arrival period; however, the road was impacted slightly on the east side of the school and heavily on the west side during the dismissal period. Furthermore, the loop in the staff and visitor parking area had a long queue as motorists waited at the stop sign to exit the school area. School security set up cones and stood guard at the bus loop preventing motorists from entering; however, prior to the security guard arriving, motorists utilized the bus loop as a drop off area. This also occurred after the security guard left at 8:15 AM. The sign posted stating “BUSES ONLY 7:00AM – 4:30 PM SCHOOL DAYS” was disregarded by motorists.
- The crosswalks along Wisteria Drive, the bus loop, and the staff and visitor parking lots did not cause a slowdown in traffic during either the arrival or dismissal times. There were no crossing guards at any of the crosswalks.
- Prior to dismissal, a few vehicles parked on both the north and south sides of Wisteria Drive near the entrance of the visitor and staff parking to wait for the students.



Lake Seneca
Elementary School

Martin Luther King Jr.
Middle School

Webster Court

Wisteria Drive

LEGEND

- Staff and Visitor Parking
- Bus Loop
- Parent Loop
- Bus Stop
- Bike Rack

Figure 3
MLK JR Middle School

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Lake Seneca Elementary School

Conducted on 5/29/19 8:15 AM – 9:15 AM (Arrival) & 2:45 PM – 3:45 PM (Dismissal)

- Students were observed accessing the two south side entrances from Wanegarden Drive and the walking paths east of the school.
- The majority of walkers approached the school from the west on sidewalks located on the north side of Wanegarden Drive and from the trails located east of the school. It should be noted that there is no sidewalk on the south side of Wanegarden Drive west of the school. Motorists utilized the parking lot near the school entrance to drop off students in addition to parking and walking the students to the entrance. This caused delays for traffic and pedestrians, as the faculty could not park and waited for the motorists to leave the parking lot, as the parent loop and staff parking lot appear to be shared. The crosswalk between the bus loops and the parent loop did not have a crossing guard present during the arrival or dismissal periods, though it should be noted that this crosswalk is internal and is part of Montgomery County Public Schools property. The motorists also parked on Wanegarden Drive near the crosswalk on both the north and south sides of the road to walk the students to the school entrance. This caused the traffic to slow down on Wanegarden Drive heavily.
- There was a crossing guard present at the crosswalk located at the school entrance on Wanegarden Drive during 8:45-9:00 AM and 3:15-3:45 PM. The crossing guard slowed traffic slightly and did not cause long delays. The parking lot for the Churchill Village South Community Center, north of Wanegarden Drive, was also used by parents to walk the students to the school. There is no indication of whether or not temporary parking is allowed during pick up and drop up hours.
- A majority of motorists used the parking lot on the school grounds to drop off and pick up the students; however, some motorists used the bus loop during both the arrival and dismissal period. Students waited in the median between the bus loop and the parking lot for the motorists to arrive.
- Several signs within the school site were damaged or in poor shape.
- Per conversation with one of the crossing guards: It was expressed to the observation team that normally vehicles traveling westbound on Wanegarden Drive have sufficient room to pass vehicles turning left into the school. However, the crossing guard mentioned that vehicles tend to park on the north side of Wanegarden Drive to the east of the school entrance. This prevents vehicles to pass through when there is a queue of vehicles waiting to turn left. This causes very long queues many days and a recommendation of prohibiting vehicles from stopping / parking during school hours could reduce this issue.

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Waters Landing Elementary School

Conducted on 6/4/19 8:40 AM – 9:40 AM (Arrival) & 3:10 – 4:10 PM (Dismissal)

- Students were observed entering the school via the two east side entrances near the east parking lot.
- The majority of walkers approached the school from the west on the sidewalks on the south side of Waters Landing Drive as well as south of the school on both sides of Locbury Drive. Few students were seen approaching the school from the southwest of the school cutting across the playing field as well as from the west near the basketball courts. Motorists utilized the bus loop prior to the first bus arriving to drop off the students, disregarding the three posted signs stating “BUSES ONLY 8:30-9:30 AM 3:00-4:00 PM SCHOOL DAYS.” Motorists also dropped off the students near the entrance of the bus loop where there is a sign stating “NO STOPPING SCHOOL DAYS 8:30 AM – 4:15 PM.” Students also utilized the Ride On bus stops on the north side of the school. The students that arrived from northeast of the school walked over the grass in between the Ride On bus stop and the student drop off loop but did not cross traffic within the student drop off loop.
- The crossing guard present at the intersection of Waters Landing Drive and Locbury Drive was mainly used to direct traffic, as there were a minimal number of students crossing the intersection.
- During the arrival period, the drop off loop queue extended into both Locbury Drive and Waters Landing Drive. The motorists did not linger once the student was dropped off and some motorists dropped off the students prior to the drop off zone within the loop and on the surrounding street sidewalks when the traffic was stopped due to the queue. A few motorists traveling southbound on Locbury Drive overtook the waiting traffic by driving between the northbound and southbound traffic. The traffic within the loop no longer affected the surrounding roads at 9:25 AM as the queue was contained within the loop.
- The students used the same sidewalks when leaving the school area. Prior to the dismissal bell, which rang at 3:50 PM, motorists parked on the south side of Waters Landing Drive from the intersection of Waters Landing Drive and Locbury Drive to west of the school. A few motorists also parked along the west side of Locbury Drive from the intersection of Waters Landing Drive and Locbury Drive to shortly south the school, ignoring the “No Stopping Any Time Except Buses” signs. The student drop off loop was full prior to the motorists parking along the roadways. There are several no stopping signs along the roadways; however, the motorists disregarded them. Few motorists also parked in the bus loop to wait for the students. The queue for the pick up loop was cleared off the roadways at 4:00 PM. The pick up loop cleared out at 4:05 PM. At 4:10 PM there were five buses remaining and motorists occasionally entered the pick up loop. The parking lot was still approximately 80% full at this time. The last bus left, and the last student was picked up at 4:15 PM.

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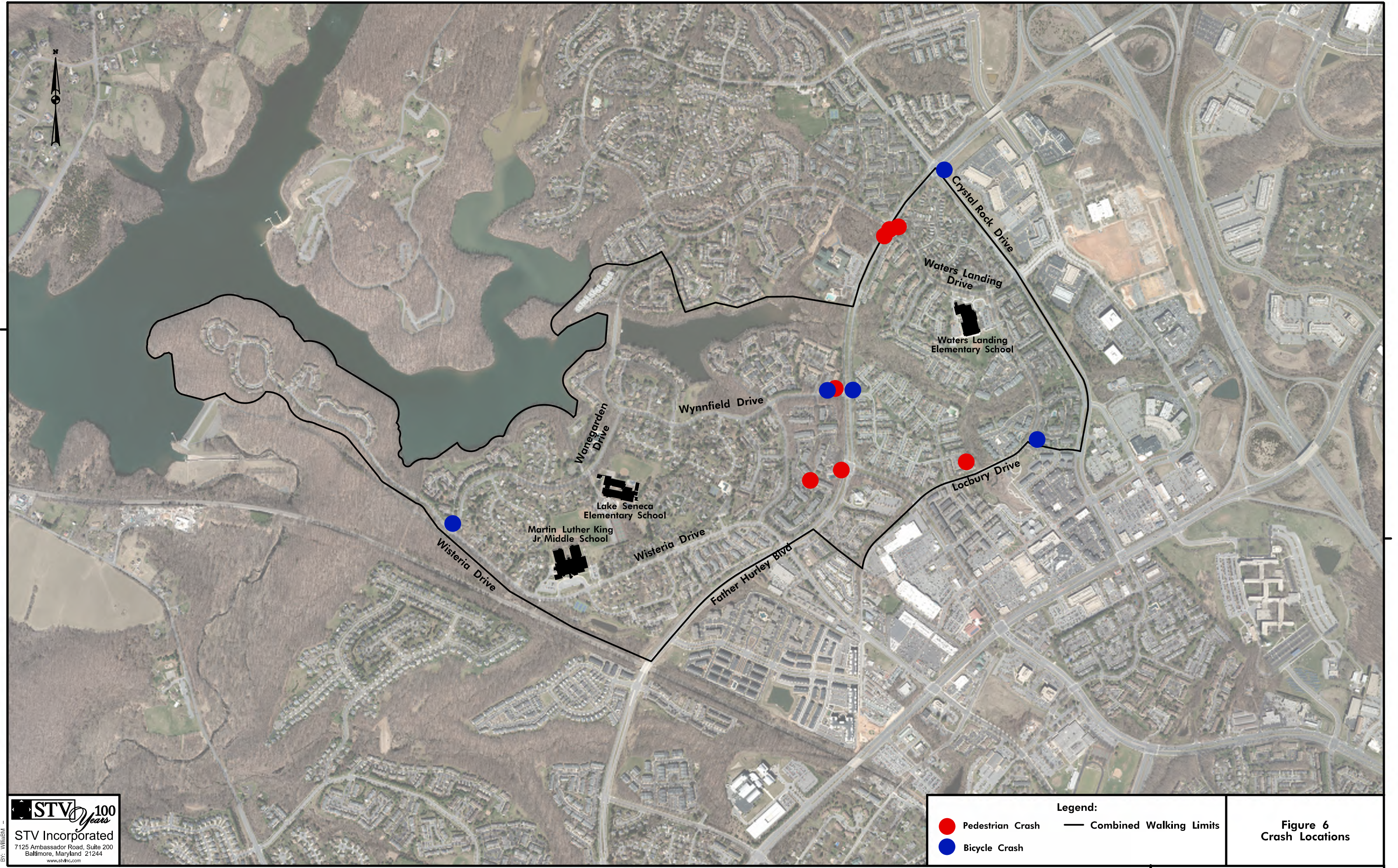
Safety & Operational Issues

Besides the gaps in the sidewalk network, there are some other safety issues within the study area. There is a ramp located where there is no protected crosswalk along Locbury Drive across from the Waters Landing Elementary School student drop off loop. Since there is a crosswalk both the north and south of this location, this ramp should be removed which could prevent unprotected crossing. There are also faded crosswalks around all three schools which limit the visibility for drivers and pedestrians. There are also some locations in the neighborhood where the concrete slabs near the schools make an uneven walking surface that should be repaired, particularly along the west side of Locbury Drive.

Between January 2015 and December 2018 there were 12 reported crashes involving pedestrians or bicyclists within the walking areas of the three schools. The locations of these crashes are shown in **Figure 6**. Three crashes were reported during the time that students would be walking to or from school. One injury crash occurred at the intersection of Wisteria Drive and Wanegarden Drive where the driver was at fault, one injury crash was on Wynnfield Drive near Father Hurley Boulevard where fault is unknown, and one property damage crash occurred at the intersection of Rexmore Drive and Locbury Drive where the non-motorist was at fault.

Recommendations

A number of improvements are recommended for the Dr. Martin Luther King Jr Middle School walking area to improve safety for pedestrians. Some of these improvements include, as previously noted, the removal of a sidewalk ramp which could prevent unprotected crossing. Other pavement marking improvements include restriping crosswalks on Locbury Drive and Wanegarden Drive to improve visibility and providing advance warnings of pedestrian crossing on Wisteria Drive and Wanegarden Drive. It is also recommended that ADA complaint ramps with detectable warning surfaces be constructed at several intersections. Another improvement includes restriping the intersection of Locbury Drive and Lake Seneca driveway entrance to include a westbound left turn lane. A complete list of recommended improvements is provided in **Table 1** and shown in **Figure 7**. Concept plans for particular improvements are also attached to this study.



Legend:	
● Pedestrian Crash	● Bicycle Crash
 Combined Walking Limits	

Figure 6
Crash Locations

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Legend:

- Proposed Crosswalk Locations (Short Term)
- Proposed Short Term Projects:
 - 1- Install Advance Pedestrian Signs
 - 2- Install Advance Pedestrian Signs
 - 3- Install Advance Pedestrian Signs
- Proposed ADA Ramp Improvements (Intermediate)
- Proposed Long Term Projects:
 - 1- Install RRFBs
 - 2- Install RRFBs
 - 3- Install RRFBs
 - 4- Install Crosswalk
 - 5- Restripe Westbound Approach to include a Left Turn Lane
- Other:
 - 1- Remove Ramp (Intermediate)
- Proposed Sidewalk Locations (Long Term)

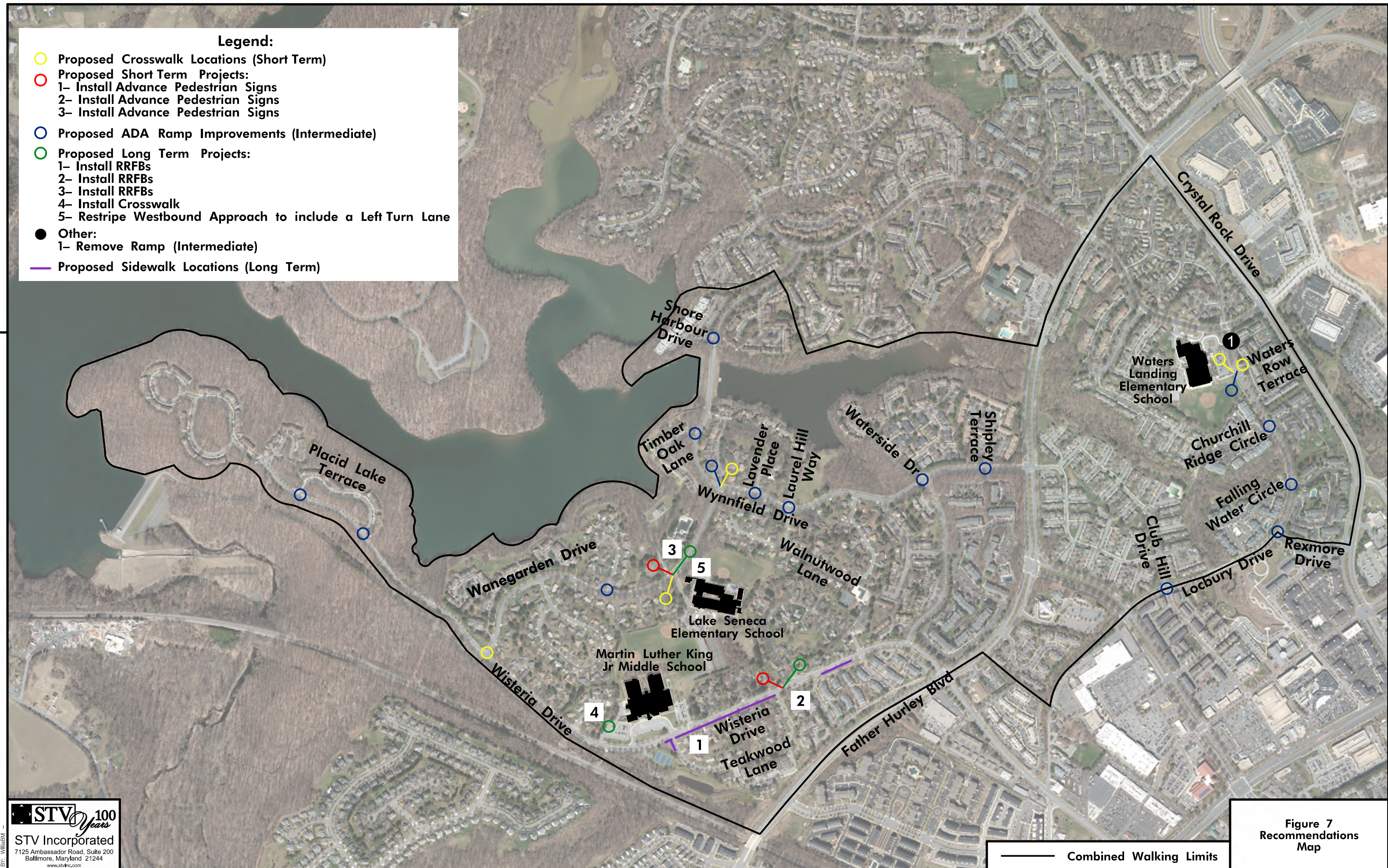


Figure 7
Recommendations
Map

— Combined Walking Limits

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Table 1 – Recommended Improvements

Map ID	Location	Issue	Recommendation	Timeframe*
1	Wisteria Drive, east of Dr. Martin Luther King Jr. Middle School bus loop entrance/Teakwood Lane (west driveway)	Lack of advance warning signage for midblock crossing on Wisteria Drive	Install advance school crossing signs (S1-1) with AHEAD plaques (W16-9P) to warn motorists of the upcoming uncontrolled midblock crosswalk.	Short
2	Wisteria Drive, east of Teakwood Lane (east driveway)	Lack of advance warning signage for midblock crossing on Wisteria Drive	Install advance pedestrian crossing signs (S1-1) with AHEAD plaques (W16-9P) to warn motorists of the upcoming uncontrolled midblock crosswalk.	Short
3	Wanegarden Drive and Lake Seneca Elementary School Entrance	Lack of advance warning signage for crossing on Wanegarden Drive	Install advance pedestrian crossing signs (S1-1) with AHEAD plaques (W16-9P) to warn motorists of the upcoming uncontrolled midblock crosswalk.	Short
Yellow Circle	Wanegarden Drive and Wisteria Drive	The crosswalk on the north leg of Wanegarden Drive at Wisteria Drive is difficult to see	Install high visibility crosswalk on Wanegarden Drive to improve visibility.	Short
Yellow Circle	Wanegarden Drive and Wynnfield Drive	The crosswalks on the east and south legs are difficult to see	Restripe the crosswalks on the east and south legs of the intersection.	Short
Yellow Circle	Wanegarden Drive and Lake Seneca Elementary School Entrance	The crosswalks on the east and south legs of Wanegarden Drive at Lake Seneca Elementary School Entrance are difficult to see	Restripe the crosswalks on east and south legs of the intersection.	Short
Yellow Circle	Locbury Drive and Waters Landing Elementary School Entrance	The crosswalks on the west and south legs of the intersection are difficult to see	Restripe the crosswalks on the west and south legs of the intersection.	Short
Yellow Circle	Locbury Drive and Waters Landing Elementary School Entrance	Lack of crosswalk on the east leg of the intersection across Waters Row Terrace	Work with the Waters Row Terrace community to install high visibility crosswalk on Locbury Drive to improve visibility	Short
Blue Circle	Wisteria Drive and Placid Lake Terrace (west entrance)	Non-ADA Ramp	Work with the community to construct ADA compliant ramp with detectable warning surface for all applicable corners of this intersection.	Intermediate
Blue Circle	Wisteria Drive and Placid Lake Terrace (east entrance)	Non-ADA Ramp	Work with the community to construct ADA compliant ramp with detectable warning surface for all applicable corners of this intersection.	Intermediate

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Map ID	Location	Issue	Recommendation	Timeframe*
Blue Circle	Wynnfield Drive and Shipley Terrace	Non-ADA Ramp	Work with the community to construct ADA compliant ramp with detectable warning surface for all applicable corners of this intersection. The median nose on the north leg of the intersection should also be pulled back so that the walking path across Shipley Terrace is not blocked.	Intermediate
Blue Circle	Wynnfield Drive and Lavender Place	Non-ADA Ramp	Construct ADA compliant ramp with detectable warning surface for all applicable corners of this intersection.	Intermediate
Blue Circle	Wynnfield Drive and Waterside Drive	Non-ADA Ramp	Work with the community to construct ADA compliant ramp with detectable warning surface for all applicable corners of this intersection.	Intermediate
Blue Circle	Wynnfield Drive and Shore Harbour Drive	Non-ADA Ramp	Work with the community to construct ADA compliant ramp with detectable warning surface for all applicable corners of this intersection.	Intermediate
Blue Circle	Wynnfield Drive and Timber Oak Lane	Non-ADA Ramp	Work with the community to construct ADA compliant ramp with detectable warning surface for all applicable corners of this intersection.	Intermediate
Blue Circle	Wynnfield Drive and Wanegarden Drive	Non-ADA Ramp	Construct ADA compliant ramp with detectable warning surface for all applicable corners of this intersection.	Intermediate
Blue Circle	Wynnfield Drive and Laurel Hill Way/Walnutwood Lane	Non-ADA Ramp	Construct ADA compliant ramp with detectable warning surface for all applicable corners of this intersection.	Intermediate
Blue Circle	Locbury Drive and Club Hill Drive	Non-ADA Ramp	Construct ADA compliant ramp with detectable warning surface for all applicable corners of this intersection.	Intermediate
Blue Circle	Locbury Drive and Rexmore Drive	Non-ADA Ramp	Construct ADA compliant ramp with detectable warning surface for all applicable corners of this intersection.	Intermediate

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Map ID	Location	Issue	Recommendation	Timeframe*
Blue Circle	Locbury Drive and Falling Water Circle	Non-ADA Ramp	Work with the community to construct ADA compliant ramp with detectable warning surface for all applicable corners of this intersection. The median on the east leg of the intersection should either be removed or relocated so that the walking path across Falling Water Circle is not blocked.	Intermediate
Blue Circle	Locbury Drive and Churchill Ridge Circle	Non-ADA Ramp	Work with the community to construct ADA compliant ramp with detectable warning surface for all applicable corners of this intersection.	Intermediate
Blue Circle	Locbury Drive and Waters Row Terrace	Non-ADA Ramp, no ramps present for the crosswalk on the south leg	Construct ADA compliant ramp with detectable warning surface for all applicable corners of this intersection.	Intermediate
Blue Circle	Wanegarden Drive and Wanegarden Court	Non-ADA Ramp	Construct ADA compliant ramp with detectable warning surface for all applicable corners of this intersection.	Intermediate
Black Circle #1	Locbury Drive and Waters Landing Elementary School (student drop off loop)	Non-compliant Ramp	Work with community to remove the non-compliant ramp on the east side of Locbury Drive across from the Waters Landing Elementary School student drop off loop.	Intermediate
Purple Line	Wisteria Drive and Teakwood Lane (west driveway) on southwest corner of intersection	No Sidewalk	Sidewalk installed on subject segment would provide protection for walkers and tie into existing sidewalk and crosswalk network.	Long
Purple Line	Wisteria Drive between Teakwood Lane (west driveway) and Teakwood Lane (east driveway)	No Sidewalk	Sidewalk installed on the northern have of the block would provide protection for walkers and tie into existing sidewalk and crosswalk network.	Long
Purple Line	Wisteria Drive between Demetrias Way and Larentia Drive	No Sidewalk	Sidewalk installed on subject segment would provide protection for walkers and tie into existing sidewalk and crosswalk network.	Long
1	Wisteria Drive, east of Teakwood Lane (west driveway)	An uncontrolled crosswalk is installed across Wisteria Drive	Consider installing rectangular rapid flashing beacons or bumpouts to potentially improve safety for pedestrians crossing Wisteria Drive.	Long

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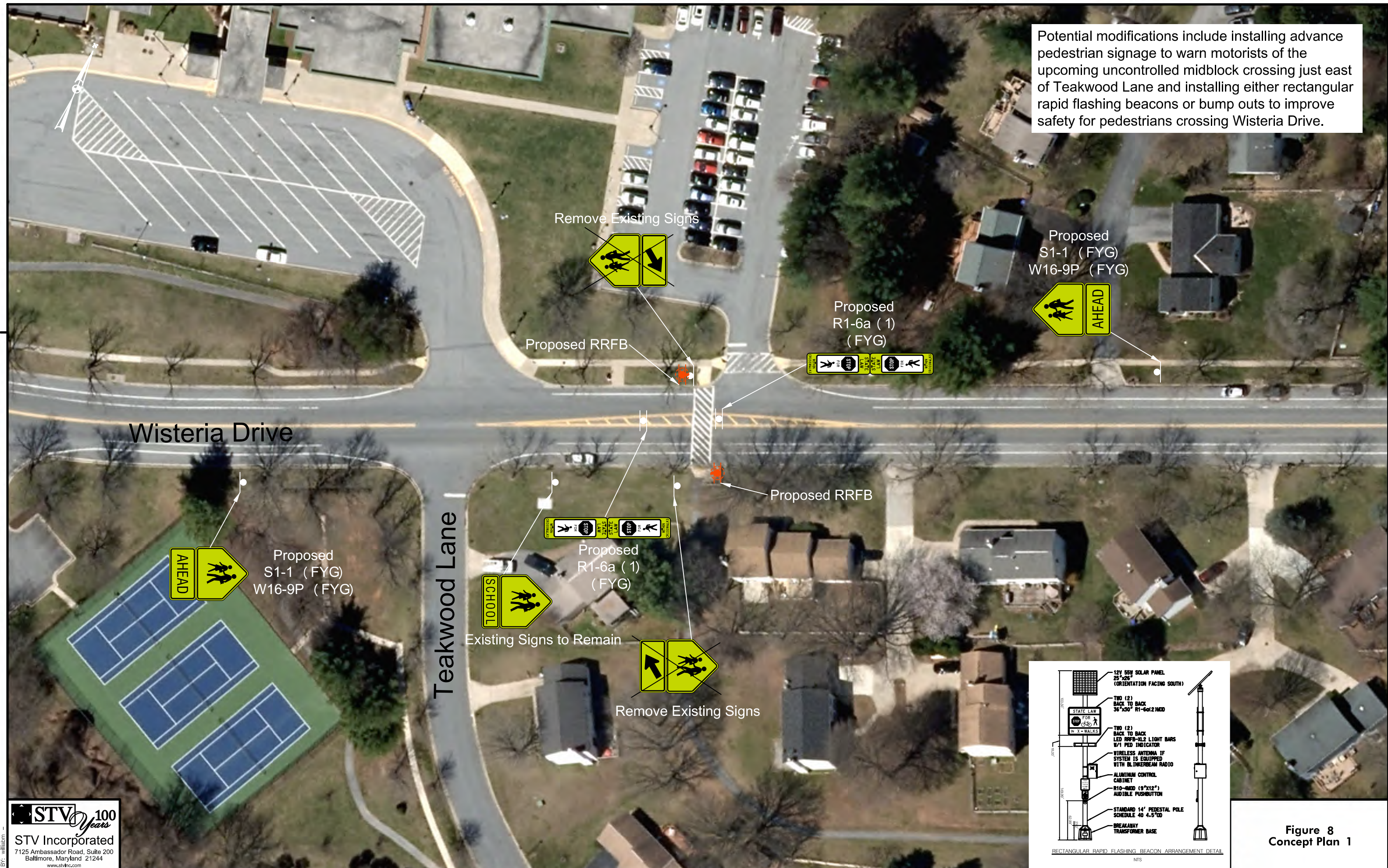
Map ID	Location	Issue	Recommendation	Timeframe*
2	Wisteria Drive, east of Teakwood Lane (east driveway)	An uncontrolled crosswalk is installed across Wisteria Drive	Consider installing rectangular rapid flashing beacons or bumpouts to potentially improve safety for pedestrians crossing Wisteria Drive.	Long
4	Dr. Martin Luther King Jr. Middle School parent loop	Lack of crosswalk at north side of parent loop	Work with MCPS to install high visibility crosswalk on north side of parent loop to encourage students to cross the access road at one marked location and minimize potential conflicts with traffic.	Long
5	Wanegarden Drive at Lake Seneca Elementary School Driveway	Westbound left turn vehicles queued causes backup	Consider re-striping intersection markings to include a westbound left turn lane to potentially improve intersection operations.	Long

Timeframe:

Short - MCDOT DTEO has direct control over contractor or work can be done in house. Minimal or no community involvement necessary.

Intermediate - MCDOT DTEO to work through other agency, such as MCDOT DTE, and their contractors. Timeframe dependent on other agencies schedule. May require community input.

Long - Will require community involvement, such as a public hearing, and/or designated CIP funding.



Potential modifications include installing advance pedestrian signage to warn motorists of the upcoming uncontrolled midblock crossing just east of Teakwood Lane and installing either rectangular rapid flashing beacons or bump outs to improve safety for pedestrians crossing Wisteria Drive.

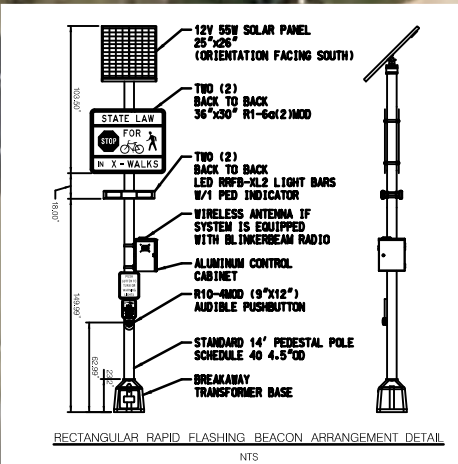


Figure 8
Concept Plan 1

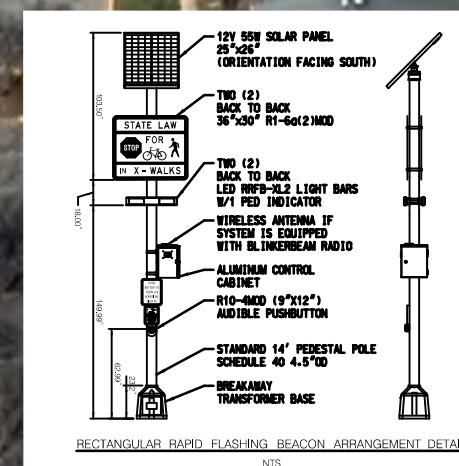


Figure 9
Concept Plan 2



Potential modifications include installing advance pedestrian signage to warn motorists of the upcoming uncontrolled school crossing on the east leg of Wanegarden Drive at the Lake Seneca ES Entrance.

Proposed
S1-1 (FYG)
W16-9P (FYG)

Existing Signs to Remain

Wanegarden Drive

Proposed
S1-1 (FYG)
W16-9P (FYG)

Lake Seneca ES Entrance

Existing Signs to Remain

Figure 10
Concept Plan 3

Potential modifications include restriping the intersection to include a westbound left turn only lane to potentially reduce congestion and long queues along Wanegarden Drive. This modification would require a portion of the on-street parking along the south side of Wanegarden Drive to be removed.

Wanegarden Drive

Lake Seneca ES Entrance

Figure 11
Concept Plan 4