

Lawrenceville Elementary School



Lawrenceville, NJ School Travel Plan September 2021

Prepared by Greater Mercer TMA



NEW JERSEY
Safe Routes to School



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INTRODUCTION

The New Jersey Safe Routes Program, supported by the New Jersey Department of Transportation, is a statewide initiative with a mission to partner with schools and communities to prioritize and implement opportunities for people to walk, bike, or travel by other wheeled devices. By focusing on improvements to support active travel by youth, we believe we can create conditions that are safe, healthy, equitable, and appealing for all.

Safe Routes for All provides safe and equitable access to active transportation for people of all ages and abilities from all backgrounds and neighborhoods in New Jersey.

Using the “Six E’s” of Safe Routes to School (Evaluation, Engineering, Education, Encouragement, Enforcement, Equity), Lawrence Township and its school district would like to increase the number of bicycle riders and walkers at these schools.

This school travel plan identifies background and context about the Lawrenceville Elementary School (LES) campus, observed pedestrian, cyclist, and traffic conditions, some recommended improvements, and an estimated timeline/cost breakdown.

Greater Mercer TMA (<http://gmtma.org/>) is a non-profit, public-private partnership dedicated to reducing traffic and improving mobility in and around Mercer and Ocean counties. GMTMA is committed to providing transportation choices that are good for commuters, business, community, and the environment.

PLACE DESCRIPTION

Lawrence Township

Lawrence Township is located in Mercer County, bordering Trenton to the northeast. As of the 2019 American Community Survey, its population is 32,614 people and it has a slightly lower density than the rest of the county, with the most prevalent housing type being single-family. Only 4 percent of households do not have access to a vehicle, compared to about 11 percent in the state and county, while nearly 60 percent have two or more vehicles.

Lawrence Township is traversed by three major roads: Interstate 295, which divides Lawrence into northern and southern halves, US Route 1, and US Route 206, which further divides the township into eastern and western portions. I-295 and US 206 effectively carve out a distinct area in the northwestern part of Lawrence Township, which is where Lawrenceville and Lawrenceville Elementary are located.

Lawrenceville is Census Designated Place of 3,949 people within Lawrence Township. Only 1.7 percent of households in Lawrenceville don’t have access to a vehicle, despite it being a much more densely-populated area than the rest of the township and county.

There are four other schools within two miles of Lawrenceville Elementary:

- The Lawrenceville School, an independent private school
- Lawrence Intermediate School, a public school serving 4th through 6th grades
- Benjamin Franklin Elementary School, a public school serving K-3rd
- Princeton Junior School, a private independent school serving PreK-5th grades

Perhaps due to the barriers created by the major roads, the sending area for LES is comprised mostly of streets that fall within a one mile radius of the school. For this reason, it is in the school district's best interest to make improvements to its pedestrian and bicycle network since even minor improvements could ameliorate traveling to school for a large number of students.

Lawrenceville Elementary School

Lawrenceville Elementary School (LES), located at 40 Craven Lane in Lawrenceville, serves students from preschool through third grade living within Lawrence Township. Total enrollment at the school is 319 students, and the breakdown by grade can be seen in Table 1¹.

Grade	Total	Percent
PreK	29	9%
K	77	24%
1st	52	16%
2nd	69	22%
3rd	71	22%
UG	21	7%
Total	319	100%

Table 1 Lawrenceville Elementary Students by Grade.

Furthermore, 21% of LES students are economically disadvantaged and nearly 23% of its student body has a disability. LES is also a minority-majority school, and the complete breakdown can be found in table 2.

Student Group	LES 2019-20
Economically Disadvantaged Students	21.0%
Students with Disabilities	22.6%
Racial and Ethnic Group	
White	45.7%
Hispanic	14.9%
Black or African American	10.1%
Asian	20.7%
Native Hawaiian or Pacific Islander	0.0%
American Indian or Alaska Native	0.3%
Two or More Races	8.2%

Table 2 Lawrenceville Elementary School Demographics. Source: The State of New Jersey, NJ School Performance Report, 2020.²

Lawrence Township was awarded the Gold level recognition in 2016 and 2019 for their Safe Routes to School programming.

¹ <https://elementaryschools.org/directory/nj/cities/lawrenceville/lawrenceville-elementary-school/340840003162/>

² <https://rc.doe.state.nj.us/district/detail/21/2580/demographics?lang=EN>

WORKING GROUPS AND PARTNERSHIPS

Organization	Role/Responsibility	Contact
Voorhees Transportation Center	Key Partner	Sean Meehan Project Manager smeehan@ejb.rutgers.edu
Greater Mercer Transportation Management Association	Key Partner	Lisa Serieyssl Safe Routes to School Coordinator lseryyssl@gmtma.org
Greater Mercer Transportation Management Association	Key Partner	Jacob Thompson Transportation Planning Associate jthompson@gmtma.org
Lawrence Township Municipal SRTS Champion	Municipal Partner	Brenda Kraemer Assistant Engineer bkraemer@lawrencetwp.com
Lawrence School District SRTS Champion	School Partner	Melissa Lockett Principal, Lawrence Elementary School MLockett@ltps.org

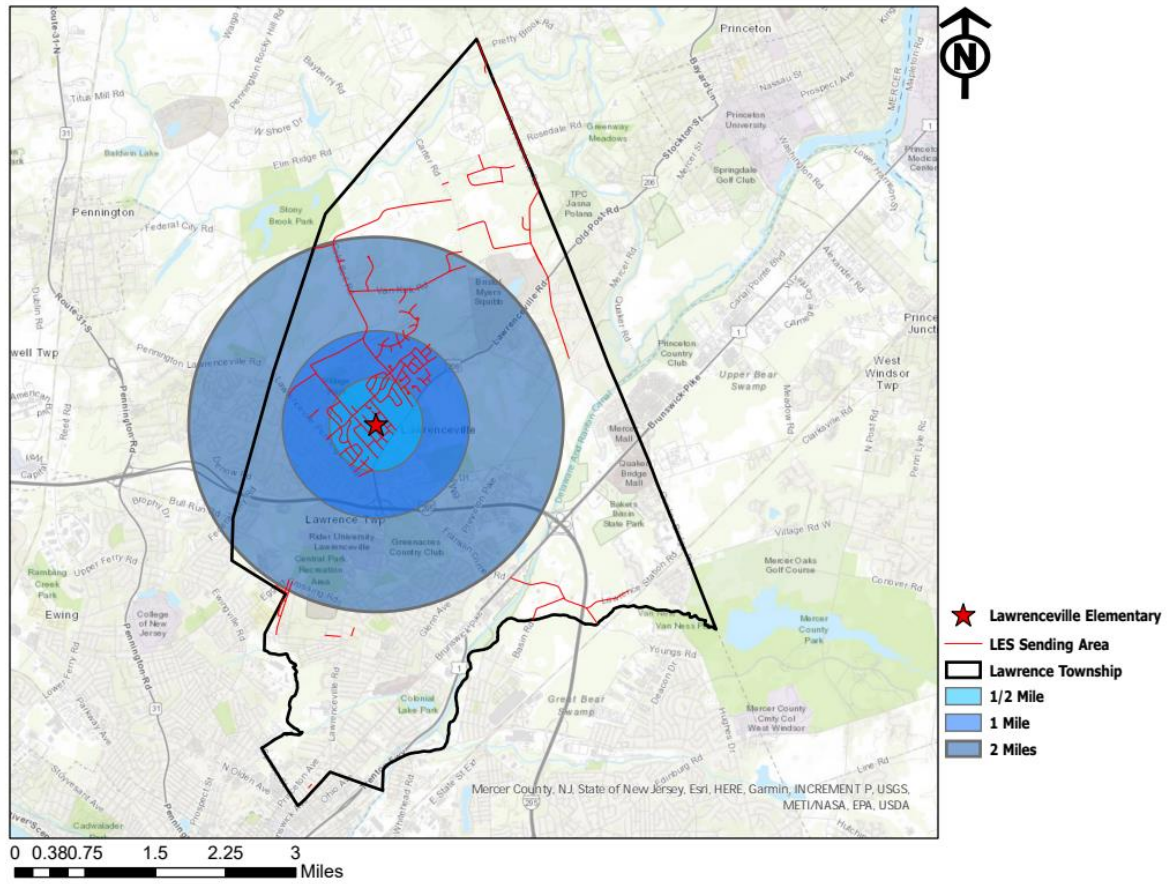
EXISTING CONDITIONS

Community Description

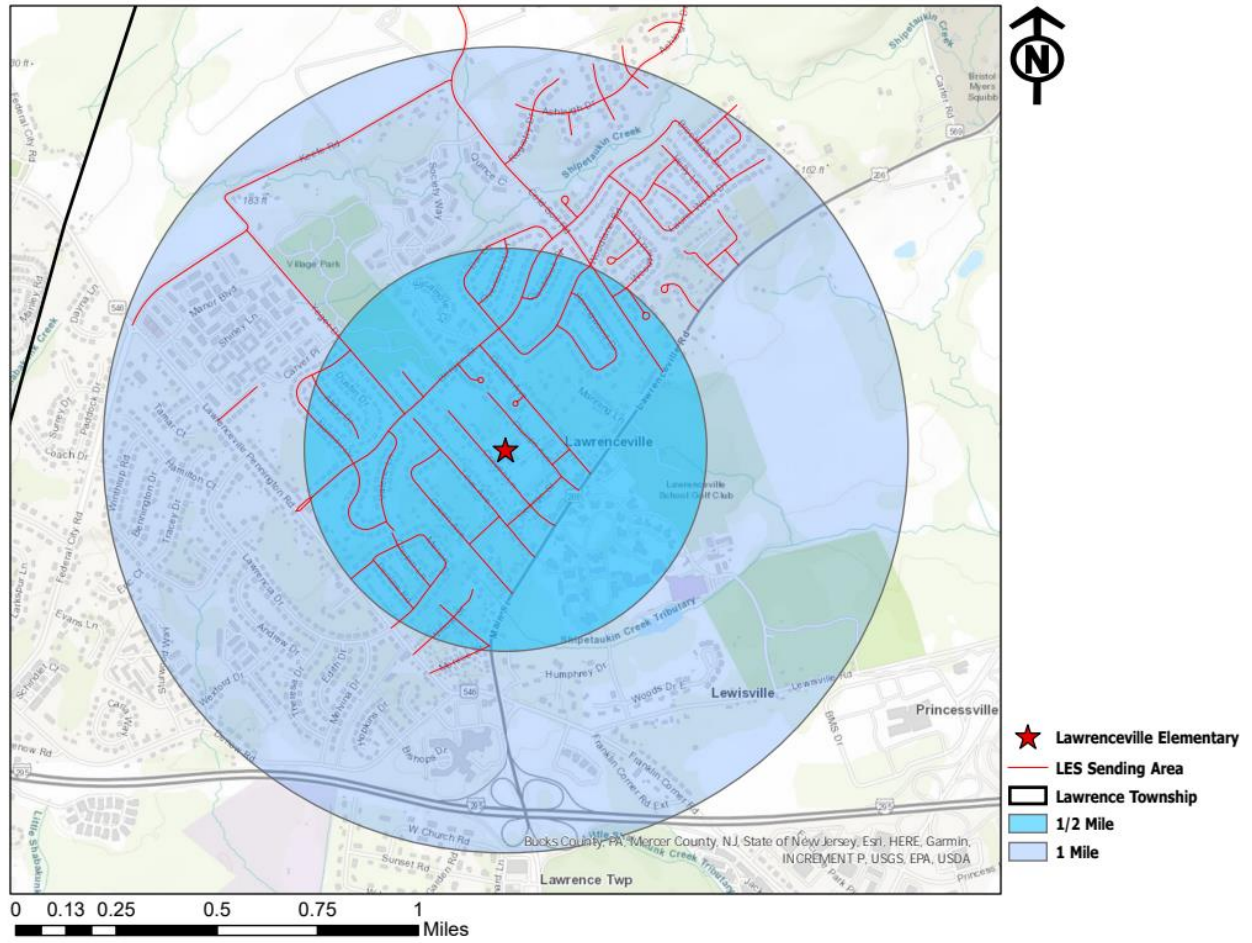
Lawrenceville is characterized by residential streets, mostly of medium density, and the presence of several parks and green spaces. Most of Lawrenceville's businesses, such as shops, restaurants, and the post office, are located along US 206, near LES, which can become a point of conflict with other traffic at arrival and dismissal.

By designating specific areas for pick-up, releasing walkers before anyone else, and keeping the buses in the Phillips Avenue parking lot at the back entrance of the school, the school administration has worked to minimize conflicts between various modes of transportation on school grounds.

Lawrenceville Elementary School Sending Area



Lawrenceville Elementary School Sending Area



Arrival and Dismissal

The school day is from 8:40am to 3:20pm, and parents are instructed to not let children arrive prior to 8:15am, as there is no supervision until then, and the school doors do not open until 8:35am. This long drop-off period allows for a staggered arrival for students and helps curb congestion along the main road in the mornings. Students who are not provided bus service may walk or ride their bicycles to school with written permission from their parents, and the students must wear a helmet and lock their bikes within the provided area. For students arriving and leaving by car, parents are only allowed to drop off and pick up in the parking lot, arriving from Craven Lane, which has been designated as the only area where non bus-riding students are dismissed. The school administration noted that along Craven Lane, while students walk in both directions at dismissal, most students walk south, towards US 206. Conversely, most of the foot traffic along Phillips Avenue is heading north.

At dismissal, there are no independent walkers below the 3rd grade, therefore they must be picked up by parents or can walk with siblings who are in the 3rd grade, with parental permission. For arrivals it is up to parents to decide how kids arrive to school.

Craven Lane is a dead-end street (for motor vehicle traffic), and it is prone to congestion at drop-off and pick-up. The congestion for pick-up is much worse than at drop-off, since all students are dismissed at the same time (except pre-k), whereas in the mornings there is a 30 minute window for parents to drop kids off before school starts.

Lawrenceville Elementary School has eight school buses in total, which are located in the Phillips Avenue parking lot, which the school has dedicated to buses in order to avoid conflict between walkers, bus riders, and students who drive with their parents. However, on occasion some parents will enter the rear parking lot to pick up their kids. Furthermore, as a result of the COVID-19 pandemic, there was a decrease in bus ridership and an increase in students being driven by their parents, not unlike nationwide trends in public transit ridership. By increasing the safety and quality of the sidewalk and walking and biking network, it is the school administration's hope to see an increase in walkers and bikers and a decrease in drivers.

Off Road Trail Access to LES

The Johnson Trolley Line (JTL) is a linear park along a decommissioned rail line, the northern portion of which is congruent with the Lawrence Hopewell Trail and runs approximately 1 mile from Lawrenceville Elementary to the area just south of I-295. Despite being relatively short, it is well-traveled by locals, whether for leisure, to run errands in the area, such as going to the post office, or for walking to school. During the walk audit, we noted that there was minimal signage alerting drivers or trail users to upcoming intersections between the JTL and cross streets. While locals may be aware of its presence, through traffic, delivery vehicles, or visitors to the area may not drive with as much caution. To address this problem, adding more signs alerting cars of the trail crossing, and adding signs on the trail to alert walkers and bikers of upcoming intersections would be a welcome safety improvement.

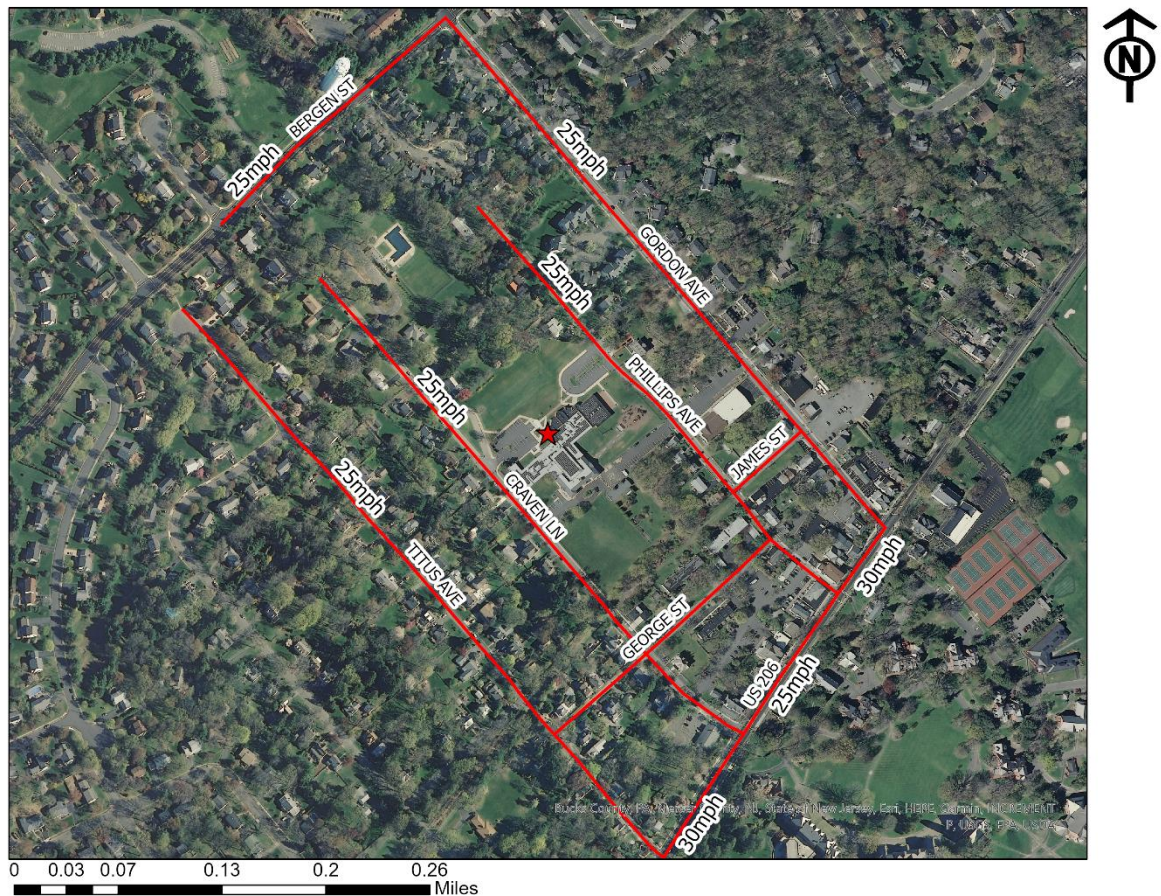
There is a southern portion of the JTL that stretches from Ewing Township to Rider University, which abuts I-295. There are ongoing discussions and studies for a bicycle and pedestrian overpass to connect the two segments, which would greatly increase the school's connectivity to the southern portion of the school district.

Walk Audit Findings

After identifying areas of interest and points of conflict within the vicinity of the school, representatives from Greater Mercer TMA met with the LES Principal and the Assistant Municipal Engineer of Lawrence Township, to conduct a walk audit of the immediate vicinity of the school grounds. The streets were chosen based on their knowledge of the routes students take before and after school, known problem areas, and any planned improvements in the area. Greater Mercer TMA returned for a second audit to study two streets not covered during the first visit.

The goal of the walk audit is to identify strengths and weaknesses of the existing infrastructure available to students to walk or bike to school and offer recommendations based on the findings. The streets audited over the course of two visits were Craven Lane, Titus Avenue, Phillips Avenue, Gordon Avenue, Bergen Street, and US Route 206 (also known as Lawrenceville Road or Main Street).

Lawrenceville Elementary School Walk Audit Streets



Strengths

Of the audited streets, Titus Avenue, Craven Lane, and Phillips Avenue are all dead end streets with speed limits of 25mph, which helps cut down on through traffic. Given the residential character of the streets and the fact that most traffic on side streets is local traffic, most drivers should be aware of the presence of the school and children in the area.

Craven Lane and Phillips Avenue do not allow on street parking, which permits good visibility for the entire length of the street and should minimize visual obstructions at intersections. However, this may encourage drivers to speed up, whether intentional or not.

Issues

Craven Lane, Titus Avenue, and Phillips Avenue are all nearly identical streets in terms of speed, layout, and car, bike, and pedestrian infrastructure. Bergen Street is a larger through-street, but still has some similar conditions as the other streets in the areas.

Gordon Street still has similar speed limits and residential characteristics but has a much steeper grade than the others and, since it is a through-street, drivers may not be as inclined as residents to drive slowly down the hill.

US 206 has unique issues since it is a high-volume US highway (~16,000 vehicles per day in 2009) which allows freight trucks and has a speed limit of 40mph until Titus Avenue, after which it lowers to 30mph. Right before intersecting Craven Lane, there is a school zone sign, which lowers the speed limit to 25mph if there are children are present.

The most common issues, which were similar on all audited streets were:

- No School Zone signs
- Disconnected sidewalks
- Lack of marked crosswalks
- ADA accessibility
- Poor signage alerting all users of Johnson Trolley Line intersections

The high speeds on US 206 and the lack of school zone signs in the area pose a threat to students crossing the busy intersections, despite the fact that there is a crossing guard at the intersection with Craven Lane. While the presence of a crossing guard can help students cross safely, it is not a sure way to slow traffic and avoid crashes. In fact, a crossing guard was hit by a car about two miles south on US 206 and Eggert Crossing Road, the location of Lawrence Intermediate School.

School Zone Signs

School Zone signs can be a useful tool to encourage drivers to slow down and be on alert for upcoming crosswalks or crossing guards in the area. These signs can be particularly important for cars turning down streets running parallel to Craven Lane, given the grade of the streets, the lack of sidewalks on several sections of the streets, and the lack of marked crosswalks at several intersections.

Flashing Beacons

A flashing yellow beacon would be an ideal type of sign to install before crosswalks on high-speed streets, since “they have been shown to decrease vehicle speeds an average of five to seven miles per hour in school zones” (MUTCD Traffic Control for School Zones).

A flashing beacon crosswalk is present at the intersection of Bergen Street and Craven Lane, which is a bicycle and pedestrian route to LES, and can also serve residents to get to the park across the street. A similar flashing beacon should be considered for the intersections of US 206 with Phillips Avenue, Craven Lane, and Titus Avenue. While the intersections along US 206 are marked and have in-street

crosswalk signs, the traffic volume and prevailing speed limit is higher than all other streets in the area, making it difficult for pedestrians to cross.

Pavement Markings

As an option for the smaller streets, particularly Craven Lane, Titus Avenue, and Phillips Avenue, pavement markings may be preferred to flashing beacons given the residential nature of the streets and due to the lower traffic volumes. A “School Zone” pavement marking urging drivers to slow down might work well in conjunction with other warning signs at crosswalks and would be a cost-effective solution.

ADA-Compliant Sidewalks

Several of the sidewalks in the area were found to not be ADA-compliant, either because of their width, unevenness, or because they lacked ramps. In some locations, while there were ADA-accessible ramps, they were in areas which were most likely flood prone and they were visibly cluttered with debris such as trash and large tree branches, which would hinder accessibility of users with mobility issues. The Township’s Engineering Department had already identified a few paths that were not ADA-compliant and have plans to bring them up to code.



Figure 1 Uneven crosswalk level leads to debris being collected on ADA bump pad.

Bicycle Infrastructure

Currently, there are no bike lanes or sharrows on any of the streets audited. Bergen Street is the widest of all the streets audited and has shoulders on both sides of approximately 3 feet. The only indications of bicyclist activity in the audited area is on Bergen Street and include a share the road sign near the intersection of Gordon Street, a bike and pedestrian crossing sign in advance of Village Park and a flashing beacon sign at the Bergen Street and Craven Lane intersection, which has a sign indicating bike and pedestrian crossing.

There is only one uncovered bike rack on the school campus, located in front of the main entrance and can fit about six bicycles.

2014 US 206 Crossing Study

In 2014, Greater Mercer TMA conducted a study of US 206 in Lawrence Township and provided recommendations for seven different intersections, among which was the intersection with Craven Lane. The recommendations for this intersection were a raised pedestrian crossing (est. \$13,520 in 2014), and a countdown pedestrian signal. It is still believed that these recommendations would contribute to a markedly safer intersection for pedestrians crossing and for the crossing guard, if one were still to be present.

Travel Tallies

As was the case for 2020, travel tallies are not required at this time due to the ongoing COVID-19 pandemic, but they will be needed in the event the school is selected for the grant.

Barriers

One potentially large barrier in sidewalk improvements in the area is that in Lawrence Township the provision and maintenance of sidewalks falls on the property owner. This most likely contributes to the disconnected sidewalk network in the area around the school and why many are in a state of disrepair or obstructed by overgrowing vegetation. The poorly maintained sidewalks are an inconvenience and deterrent to walking to all users but are a barrier for students with disabilities.

INFRASTRUCTURE RECOMMENDATIONS

Craven Lane

Presently, there are no explicit “School Zone” signs anywhere on Craven Lane. While drivers should always be attentive, indicating the presence of a school nearby and children walking in the area could help slow traffic down on the road. This could be in the form of pavement markings, especially as a short-term, cost-effective tool, or including “School Zone” signs to add to existing speed limit signs on Craven Lane and other streets in the vicinity, especially cross streets. By warning traffic of the school zone, all other recommendations for Craven Lane could be rendered even more effective at creating a safer environment for all road users.

While there is a marked crosswalk, and a pedestrian warning sign on Craven Lane, the Johnson Trolley Line (JTL) crossing can appear very sudden to inattentive drivers. Increasing the visibility of the JTL intersection could encourage cars to prepare to stop for bike and pedestrian traffic. This is especially true for traffic heading towards US 206, since there is a downhill grade when leaving the school. Speed humps or a raised crosswalk could encourage traffic to slow and stop for pedestrians crossing.



Figure 2 Incomplete sidewalks on Craven Lane; warning sign for hidden intersection of the Johnson Trolley Line.

The intersection of Craven Lane and George Street was the site of a crash a few years ago between a car and a student after school. With no sidewalks on most of the western side of Craven Lane, this intersection likely sees a majority of the walkers heading towards US 206 and other side streets, or, as in

the case of the crash victim, students who live at the bottom of Craven Lane. Adding marked crosswalks at the George Street intersection would facilitate moving pedestrians during arrival and dismissal. Marked crosswalks increase visibility and catch drivers' attention, and a flashing beacon would further increase pedestrian safety, especially during inclement weather or the darker winter months.

Finally, adding sidewalks to the western side of the road would increase the overall connectivity for all pedestrians and bikers, as well as provide more mobility opportunities for students with mobility impairments. In addition to adding sidewalks, several segments are in need of repair as there are damaged and uneven sidewalks along several existing sidewalks, presenting difficulties for users of all abilities. Ensuring any new or repaired sidewalks are at least 5 feet wide would increase equitability and walkability for all users.

Phillips Avenue

During the first audit, school officials indicated that most foot traffic along Phillips Avenue is headed north of the school, however there are no sidewalks on the western side, closest to the school. The sidewalk starts on the eastern side, about 50 feet north of the school's parking lot. There are also no marked crosswalks on the street. While Phillips Avenue is a dead end street for vehicle traffic, there is a pedestrian path that connects to a cul-de-sac on Stonerise Drive, which effectively links walkers exiting via Phillips Avenue to Bergen Street.



Figure 3 Johnson Trolley Line (JTL) ends on Phillips Avenue (left) without warning and opens into street without a marked crosswalk; the sidewalk access near the end of JTL is extremely narrow between a utility pole and overgrown hedges (right).

Phillips Avenue is well used by the students to walk to and from school and their presence should be indicated with school zone signage. The intersection of James Street, Phillips Avenue, and the terminus

of the JTL trail approximately 25 feet to the south of the intersection would benefit from marked crosswalks to improve safety. Improved sidewalk connectivity should also be considered.

Any sidewalk and intersection improvements should be accompanied by school zone signs or pavement markings on Phillips Avenue.

Gordon Avenue

The existing sidewalks on Gordon Avenue (between US 206 and Bergen Street) are in excellent condition and can provide good walkability to all users. Heading from Bergen Street toward US 206 the road slopes downhill and traffic calming measures (speed hump, rumble strips) help slow the potentially increasing vehicular speeds in the section of road closest to Bergen Street.



Figure 4 Gordon Avenue residents placed signs urging drivers to slow down before approaching the hill.

Absent on Gordon Avenue is a marked crosswalk at James Street, the only intersecting street along Gordon for students to use to access LES from Gordon Avenue. People riding the Lawrence Hopewell Trail are also directed to use James Street. A marked crosswalk at Bergen would increase driver

attentiveness to pedestrians at a location well used by students and the community. In addition, with no traffic calming measures at the bottom of the hill heading toward this location, there is the potential for drivers to gain speed very quickly. Additional traffic calming measures, such as a raised crosswalk should be considered.

Also present on Gordon Avenue is the entrance to a pedestrian walkway that connects Gordon Road to a residential housing development on Woodlane Road. This presence of the walkway encourages walking by providing a more direct walk to school. The entrance to the walkway is obscured from Gordon and it is recommended that signage be improved, and the walkway surface evaluated for any needed upgrades.

Bergen Street

The existing sidewalks are in good condition along Bergen Street, however there is no sidewalk between Gordon Avenue and the entrance to Village Park. There is a pedestrian actuated flashing beacon (RRFB) at the intersection with Craven Lane. This is a key crossing as it is a marked path on the Lawrence Hopewell Trail, and directly connects walkers and bicyclists to and from LES on Craven Lane. Adding the missing sidewalk segment on Bergen Street, between the Gordon Avenue intersection and Village Park, would improve safety by creating a continuous walking path from residential housing along the north side of Bergen Street. The sidewalk addition would make for a continuous connection to the entrance of the park and direct walkers to the RRFB for the crossing to Craven Lane to reach LES. A marked crosswalk for Gordon Street should be included with the installation of the missing sidewalk segment.



Figure 5 Where present, the sidewalks on Bergen Street are well-maintained. Sign warns of upcoming pedestrian and bike crossing at Craven Lane (left), and missing sidewalk headed towards Gordon Street (right).

Bergen Street has a posted speed limit of 25 mph and the annual average daily vehicle count in 2015 was of 1,661. The wide shoulders likely open the use of the shoulders to confident cyclists. The New

Jersey Department of Transportation's Complete Streets Guidebook indicates that a bicycle lane adjacent to a curb should be at least 5 feet wide and are recommended on streets with speed limits between 25 and 35mph. Given the wide width of the roadway, which we estimate to be around 40 feet, a bicycle facility could be considered. Depending on the actual road width, a buffer of at least 3 feet could also be considered as an additional safety measure.

Lawrenceville Road/US 206

The recommendations from GMTMA's 2014 study *Lawrence Township US 206 Crossing Recommendations* are still applicable to the current conditions of US 206. Specifically, a raised pedestrian refuge island at the intersection with Craven Lane would facilitate crossing the street when a crossing guard is not present by allowing pedestrians to cross one direction of traffic at a time. Pedestrian islands have been shown to reduce pedestrian crashes by 56%. and in addition to making the intersection safer for all pedestrians, it would also allow refuge for the crossing guard during crossing cycles.

The intersections with Phillips and Titus Avenues would especially benefit from pedestrian islands because while at Craven Lane there is a stop light, these two intersections only have marked crosswalks. In addition to raised pedestrian islands, a flashing beacon would make these intersections much safer for pedestrians.

Additionally, at the Titus Avenue crossing the curb ramp is lower than the paved roadway, making it particularly dangerous for individuals with limited mobility because:

1. The elevation difference between the ramp and roadway presents an obstacle for wheels or a tripping hazard
2. The depression accumulates debris, particularly during or following heavy rains, which can create additional hazards as well as minimizing the effectiveness of the bump pad for individuals with vision impairments

Titus Avenue

Titus Avenue is very similar to Phillips Avenue, in that it has little sidewalk infrastructure north of JTL, and the sidewalks that are present are at times disconnected, in disrepair, or encroached upon by overgrowing vegetation. It is unclear how heavy the foot traffic is along this route, but it is a sending street to LES and it connects to other neighborhoods served by LES, thus its sidewalk network should accommodate users of all abilities and facilitate safe travel to the school.

The crosswalks at Edgehill Avenue and George Street are unmarked and should receive similar treatments to other side street intersections in the school zone.



Figure 6 Uneven sidewalk on Titus Avenue with parked vehicle encroaching. This is a common sight on most streets parallel to Craven Lane.

NON-INFRASTRUCTURE RECOMMENDATIONS

The previous sections have been concerned with addressing the engineering aspect of safety. Education, Encouragement, and Evaluation will also improve safety and increase the number of students walking.

While infrastructure improvements are necessary and can lead to long-term structural changes in the environment, they take time and funding to complete, and these changes can also face many obstacles before even entering the design process. Therefore, it is important to dedicate the necessary time and effort into every aspect of Safe Routes to School because positive changes can also happen with non-infrastructure improvements.

Education

There is great potential in improving bike and pedestrian safety by educating students on some basic rules of the road and to familiarize them with some of the obstacles they may encounter on the streets. Local TMAs can provide bike and pedestrian safety presentations directly to students and/or parents, and they can provide other educational materials to the schools for distribution among staff, students, and parents.

Education Action	Responsibility	When?
Traffic safety educational materials for schools, students, parents, and other interested community members	GMTMA, NJSRTS, School District	Ongoing
In-class bicycle and pedestrian safety lessons/presentation	School District, GMTMA	Annually, semi-annually
Bike Rodeos	School District, GMTMA	Annually, semi-annually
Bookmark contest	School District, GMTMA	Annually

Table 3 Education activities.

Crossing Guard Safety Training should also be included to improve the safety of both the students and the crossing guard. Crossing guard training is offered through the NJ Safe Routes to School Resource Center.

Encouragement

There are several ways that schools and parents can encourage walking and biking to school, such as by promoting and facilitating walking school buses for students, participating in the national Walk to School Day, organizing a bike rodeo, or providing satellite bus services.

While these events can be planned at any time during the school year, promoting these events might be easier to do during New Jersey's Walk and Bike to School Month, which is in October, or during New Jersey's Walk and Bike to School Week in May

Evaluation

Greater Mercer TMA will be in discussion with participating organizations about implementation progress.

Some evaluation criteria we propose can come in the form of:

- A simple year-by-year comparison of school travel tallies
- Keeping track of the number of bus riders and students who arrive by car
- Counting the number of bikes parked at the school's bike rack
- Safety programs delivered
- Intersection counts

GOALS AND ACTIONS

This plan of action is intended to increase safety for students on their walk to and from school and when appropriate, encourage more students to walk. The tables below identify those actions, a responsible party for implementing them, a time frame, and a level of cost. Many actions identified as “short-term” and “low cost” can make a big difference in a shorter time frame and can be accomplished with the help of local partners. This “low-hanging fruit” can be prioritized for greater impact in a shorter period of time. However, traffic calming measures are key items to address allowing students more time to cross and greater visibility (larger driver field of vision at slow speeds).

Cost estimates are for planning purposes only – a professional engineer should prepare the actual estimates used for grant application. These estimates were prepared using the SRTS Implementation Cost sheet prepared in August 2020 to support the grant application process.

Street	Suggested improvement	Estimated Cost*
Craven Lane	School Zone Signs	
	Posts	\$150 - 450
	Pavement marking	\$32 - 80
Craven Lane & JTL	Speed bump	\$3,000 - 5,000
	Raised crosswalk	\$8,200
Craven Lane & George Street	Marked crosswalk	
	Standard	\$87
	Continental	\$360 - 900
	Flashing beacon	\$13,000
Phillips Avenue	School zone signs	
	Post	\$150 - 450
	Pavement marking	\$32 - 80 per sign
Phillips & JTL	Marked crosswalk	
	Standard	\$87
	Continental	\$360 - 900
Gordon Avenue	Marked crosswalk at James Street	
	Standard	\$87
	Continental	\$360 - 900
	Marked crosswalk at Bergen Street	
	Standard	\$87
	Continental	\$360 - 900
	Speed bumps at bottom of hill	\$3,000 - 5,000
	Raised crosswalk at James Street	\$8,200
	Signage for walkway to Woodland Road	\$150 - 450
Bergen Street	Bike Lanes on both side	\$8,500
US 206	Raised pedestrian refuge island at Craven Lane	\$7,500
	Raised pedestrian refuge island at Titus Avenue	\$7,500
	Raised pedestrian refuge island at Phillips Avenue	\$7,500
	Flashing Beacon at Titus Avenue	\$13,000
	Flashing Beacon at Phillips Avenue	\$13,000
	ADA pad/curb ramp maintenance	
Titus Avenue	Marked crosswalk at Edgehill Avenue	
	Standard	\$87
	Continental	\$360 - 900
	Marked crosswalk at George Street	
	Standard	\$87
	Continental	\$360 - 900

* = Estimates are based on the installation costs of private contractor bid.

Sidewalks - Concrete (4" thick, 5' wide)					
Street	Length	Square feet	Square yards	Unit Cost*	Estimated Cost
Craven Lane	1,600	8,000	889	\$108/ SY	\$96,000
Phillips Avenue	625	3,125	347	\$108/ SY	\$37,500
Bergen Street	450	2,250	250	\$108/ SY	\$27,000
Titus Avenue**	1,900	9,500	1,056	\$108/ SY	\$114,000

* = Estimates are based on the installation costs of private contractor bid.

** = Estimates for Titus Avenue are for only one side of the street.

Education			
Action	Responsibility	Time Frame	Cost
Educate students, family members, bus drivers and school employees about drop-off/ pick up zones. Make sure everyone knows the best way to keep students safe and to quickly dismiss students from school.	School, School District	Short Term / Ongoing	Low
Increase community outreach about the health benefits of walking and biking to school.	School, PTO	Short Term	Low
Conduct community wide outreach about Safe Routes to School actions such as walking and biking safety.	School, GMTMA	Short Term/ Ongoing	Low
Establish a program to encourage students to walk and/or bike to school. Examples: Golden Sneaker Award, Walking Wednesday, Walking School Bus, Bike Train	School, GMTMA	Short Term/ Ongoing	Low
Educate community and responsible parties about snow removal on sidewalks near schools.	Public Works	Short Term/ Ongoing	Low

Enforcement			
Action	Responsibility	Time Frame	Cost
Enforce speed limits (in general and specifically in school zones), pedestrians walking safely, drivers watching for pedestrians especially at times when students are going to/ from school.	Police	Ongoing	Low / Medium
Enforce motorist compliance with crossing guard instructions	Police	Ongoing	Low / Medium
Enforce parking laws.	Police	Ongoing	Low / Medium
Conduct structured crosswalk enforcement campaign.	Police	Ongoing	Low / Medium
Increase law enforcement presence seen in the vicinity Lawrenceville Elementary School.	Police	Ongoing	Low / Medium

Evaluation			
Action	Responsibility	Time Frame	Cost
Conduct periodic travel mode choice surveys (teacher tallies)	School	Annual	Low
Conduct bikeability audit of walking area	School, Township, GMTMA	Short Term	Low
Tour the areas with school, township and TMA personnel to identify areas for improvement	School, Township, GMTMA	Short Term	Low

CONCLUSION

The Lawrence School District has been a strong supporter of the Safe Routes to School program, with GMTMA regularly providing safety education classes at several schools in the district. In addition, Lawrence Township has expressed strong interest in adding infrastructure improvements within the LES catchment area that would improve safety for pedestrians and bicyclists.

Improvements at intersections with Route 206 or along Route 206 should also continue to be evaluated and coordinated with the New Jersey Department of Transportation.

With most students living within one mile of Lawrenceville Elementary School, and relatively compact residential development, the school is well-positioned to expand its walking and biking student body. Infrastructure improvements to address the issues detailed in this school travel plan, combined with safety programming will undoubtedly increase safety and encourage more parents to have their children travel to school by walking or biking.

APPENDIX A – PEDESTRIAN AND CYCLIST CRASHES IN THE AUDITED AREA

Date & Time	Crash Severity	Crash Type	Environmental Condition	Crash Location
8/17/2012 17:44	Possible Injury	Pedalcyclist	Clear	GEORGE ST
3/20/2021 10:25	Suspected Minor Injury	Pedestrian	Clear	BERGEN ST
9/13/2013 19:38	Possible Injury	Pedestrian	Clear	US 206
2/15/2013 19:01	Possible Injury	Pedestrian	Clear	GORDON AVE
5/5/2017 20:13	Suspected Minor Injury	Pedestrian	Clear	US 206

APPENDIX B – FHWA PROVEN SAFETY COUNTERMEASURES

The Federal Highway Administration is promoting safety through proven roadway design features.

For a full list, see: <https://safety.fhwa.dot.gov/provencountermeasures/>

The following local examples show bicycle and pedestrian safety features from the list of countermeasures and should be considered when analyzing traffic safety solutions.

Refuge Islands

Link: https://safety.fhwa.dot.gov/provencountermeasures/ped_medians/



- Reduces pedestrian crossing distance
- Greater pedestrian visibility
- Narrower lanes reduces driver speeding
- Flashing beacon alerts drivers
- Islands can be landscaped

Clarksville Rd, CR638, West Windsor NJ

Hybrid Pedestrian Beacon (HAWK Signal)

Link:

https://safety.fhwa.dot.gov/provencountermeasures/ped_hybrid_beacon/



State Road 35, Seaside Heights NJ



- Pedestrians can cross midblock or uncontrolled intersections
- Pedestrians activate the signal
- Motorists stop completely

Road Diet

Link: https://safety.fhwa.dot.gov/provencountermeasures/road_diets/



West Windsor, NJ



- Reconfigure four general travel lanes:
 - Two general travel
 - Center turn lane
 - Bike lanes

DISCLAIMER

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