August 2014

Safe Routes to School Audit Report
Lincoln High School

Leon County
Public Schools

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Acknowledgements

Renaissance Planning Group and Wendy Grey Land Use Planning, LLC would like to thank the following organizations for their input, guidance, and resources in developing this Safe Routes to School Audit report for Lincoln High School.

Capital Region Transportation Planning Agency (CRTPA)

Safe Routes to School (SRTS) National Partnership

Leon County Public Schools (LCS)

Florida Department of Transportation (FDOT)

Leon County Sheriff's Office (LCSO)

Prepared By:

RENAISSANCE PLANNING GROUP

WENDY GREY LAND USE PLANNING LLC

Chapter 1: Introduction

Project Purpose

The purpose of this Safe Routes to School (SRTS) audit report is to provide recommendations to improve student walking and bicycling rates to and from school. In addition, this report addresses other enhancements to improve the overall travel safety and convenience for students, parents and the school. Improvement recommendations are provided in the following categories: infrastructure, programs, and polices. This SRTS audit includes an array of considerations formulated from a range of research and analytical tools employed to better understand and comprehend the issues and concerns affecting current walking and bicycling rates of student to and from school. This report highlights a summary of students' school travel patterns through in-class student travel surveys, parent self-reported surveys, on-site meetings with school officials, and field reviews.

School Overview

Lincoln High School is located at 3838 Trojan Trail, Tallahassee, 32311 in Leon County, Florida. It is part of the Leon County Public Schools system. The school was established in 1975 following the closure of the Old Lincoln High School in 1970. The Old Lincoln High School was in use from 1869 to 1969. The school is named after a small section of Tallahassee that was once called Lincoln Heights, but was later destroyed and turned into Frenchtown. The school offers honors, Advanced Placement courses, as well as, vocational programs. In addition the school offers around 17 athletic groups and over 12 clubs. Regular school hours are from 7:30am to 1:50pm.

The number of students enrolled at the school, for the 2013 school year, was 1,993. The school has a current capacity for 2,253 students. The school includes grade levels 9th to 12th grade.

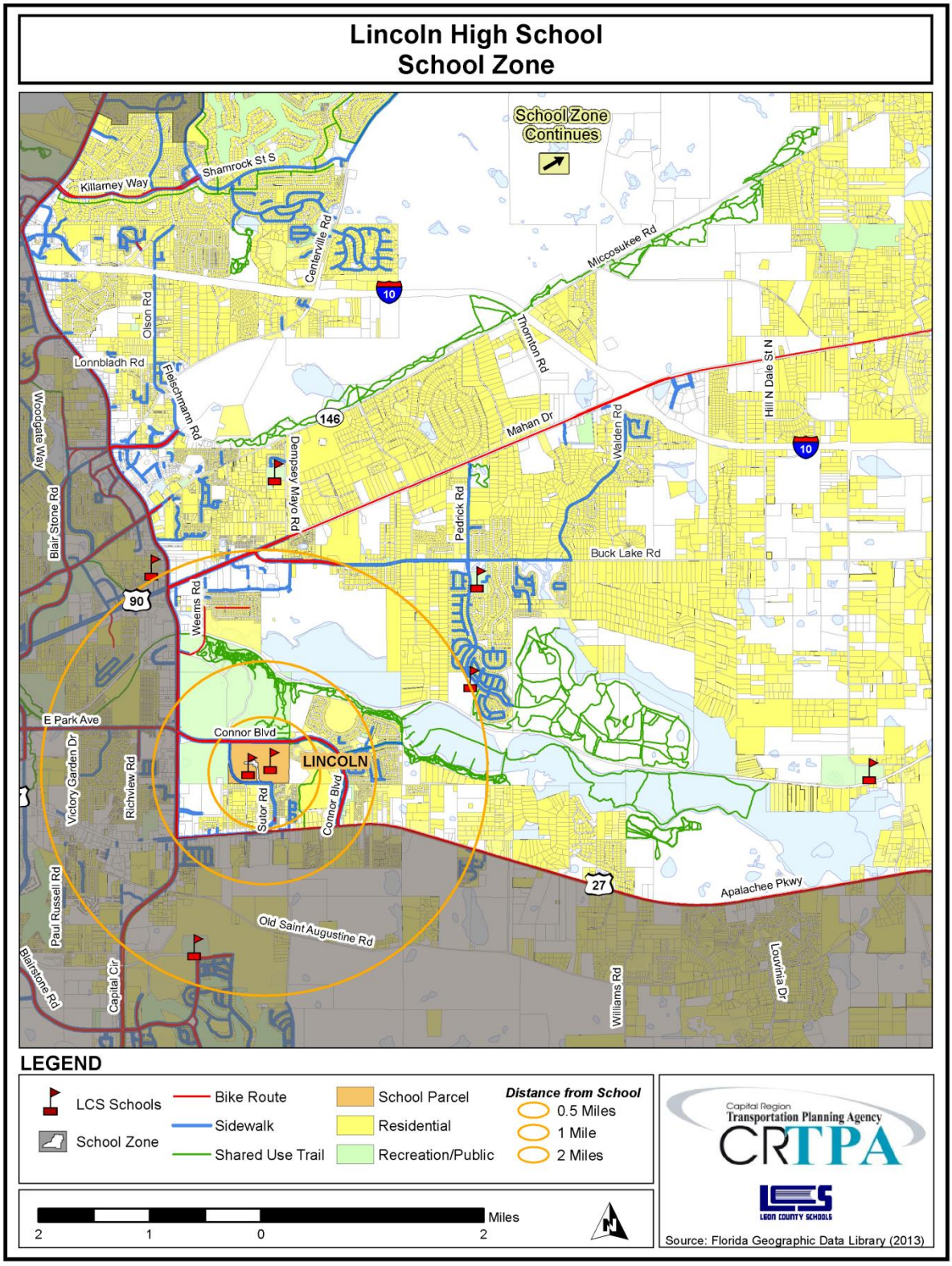
Students attending this school feed from Apalachee, Buck Lake, Chaires, Conley, Gilchrist, W.T. Moore, and Roberts Elementary Schools and Cobb, Fairview, Montford, Raa, and Swift Creek Middle Schools.

School Zone

The Lincoln High school zone, located in eastern Leon County, encompasses the neighborhoods of Copper Creek, Chase Ridge, Perkins, Avondale, Chaires, Eastgate, Killearn Estates, and Buck Lake Woods. Florida State University and Florida Agricultural & Mechanical University are approximately four miles west of the school zone. Land uses within the school zone are predominantly residential and recreational. The eastern portion of the school zone is part of unincorporated Leon County.

The Lincoln school zone includes four major roadways. Interstate-10 runs east to west and bisects the zone into north and south. Apalachee Parkway runs east to west and borders the zone to the south. Capital Circle Southeast runs north to south and borders the zone on the west. Mahan Drive runs slightly southwest to northeast through the center portion of the school zone. There are four Leon County schools within the Lincoln school zone including Apalachee Elementary on Trojan Trail, Swift Creek Middle School on Pedrick Road, Chaires Elementary School on Chaires Cross Road, and W.T. Moore Elementary School on Dempsey Mayo Road. Important recreational facilities within the school zone

include Tom Brown Park, Lafayette Heritage Trail Park, J.R. Alford Greenway, Chaires Community Park, and the Miccosukee Canopy Road Greenway. There are a variety of shared-use trails and bike routes that are important non-motorized shared-use transportation amenities that traverse throughout the school zone, connecting the school to downtown Tallahassee and surrounding neighborhoods.


Lincoln High School
School Zone
School Zone Continues
Killarney Way
Shamrock St S
Centerville Rd
Miccosukee Rd
Olson Rd
Lonnbladh Rd
Fleischmann Rd
Thornton Rd
Hill N Dale St N
Woodgate Way
Blair Stone Rd
Dempsey Mayo Rd
Mahan Dr
Walden Rd
Pedrick Rd
Buck Lake Rd
Weems Rd
E Park Ave
Connor Blvd
LINCOLN
Victory Garden Dr
Richview Rd
Sutor Rd
Paul Russell Rd
Old Saint Augustine Rd
Apalachee Pkwy
Blairstone Rd
Capital Cir
Williams Rd
Louvinia Dr
10
146
90
27
LEGEND
LCS Schools
School Zone
Bike Route
Sidewalk
Shared Use Trail
School Parcel
Residential
Recreation/Public
Distance from School
0.5 Miles
1 Mile
2 Miles
Miles
2 1 0 2
Capital Region Transportation Planning Agency
CRTPA
LEON COUNTY SCHOOLS
Source: Florida Geographic Data Library (2013)

Chapter 2: On-Site Meeting and Inventory

Date and Weather Conditions

The on-site inventory meeting was conducted on May 13, 2013 with temperatures in the mid 70 degrees Fahrenheit.

Highlights and Key Observations of On-Site Meeting

During this visit, Lincoln High School representatives provided insight about students' travel to and from school and discussed what was working, or not working well. The meeting began by discussing current policies, programs, and administration related to students' travel to and from school. Examples of safety education programs discussed include crossing guards and traffic education. Additionally, before- and after-school programs provided for students were discussed.

It was noted that flashing lights (i.e. school zone warning lights) are located along Trojan Trail as well as Sutor Road. School staff expressed a desire for a flashing light at the intersection of Conner Boulevard & the school access road, in the rear of the school. There are approximately 10-12 automobile accidents that occur at the intersection a year. All roads on campus, including some parking areas and roads surrounding campus, have speed humps. However, there is still an issue with students speeding on campus and spinning their wheels to, presumably, show-off to one another. It was also noted by school staff, that students have the option to leave campus for lunch; however, there are no lunch options within a walking distance of campus. So, students must drive if they want to eat off of campus.

Additionally, it was noted by school staff that the area south of the school near Sutor Road and Rock Brook Drive is a distressed neighborhood with relatively high crime rates and drug dealing. However, the magnitude of the problem waxes and wanes as it is a transient neighborhood.

Circulation

During a tour of the school, school representatives provided explanations of school circulation patterns as to where and how children were entering and exiting school grounds via walking or bicycle and arriving and departing by automobile or school bus.

While the school is located in a mix of fairly established residential neighborhoods, there are few students who walk or bicycle to school either due to the distance from their homes to school, since high school zones are so large in size, or because of the dignified "rite-of-passage" of being able to drive themselves to school. Walkers mostly come from south of the school, along Trojan Trail, from the Sutor Road/Rock Brook Drive neighborhoods. However, there is a great potential of walkers from the Piney Z neighborhood that could potentially use the rear school access road entrance. No students are known to commute by bicycle. Additionally, there are no bicycle racks available at the school.

The school bus drop-off and pick-up zone functions adequately to handle the amount of buses arriving and departing school daily. The zone for loading and unloading students is mostly covered, lessening the stress of inclement weather during school commuting hours. It was also noted that there is a Star Metro bus stop along Trojan Trail. However, only a limited number of students use public transit.

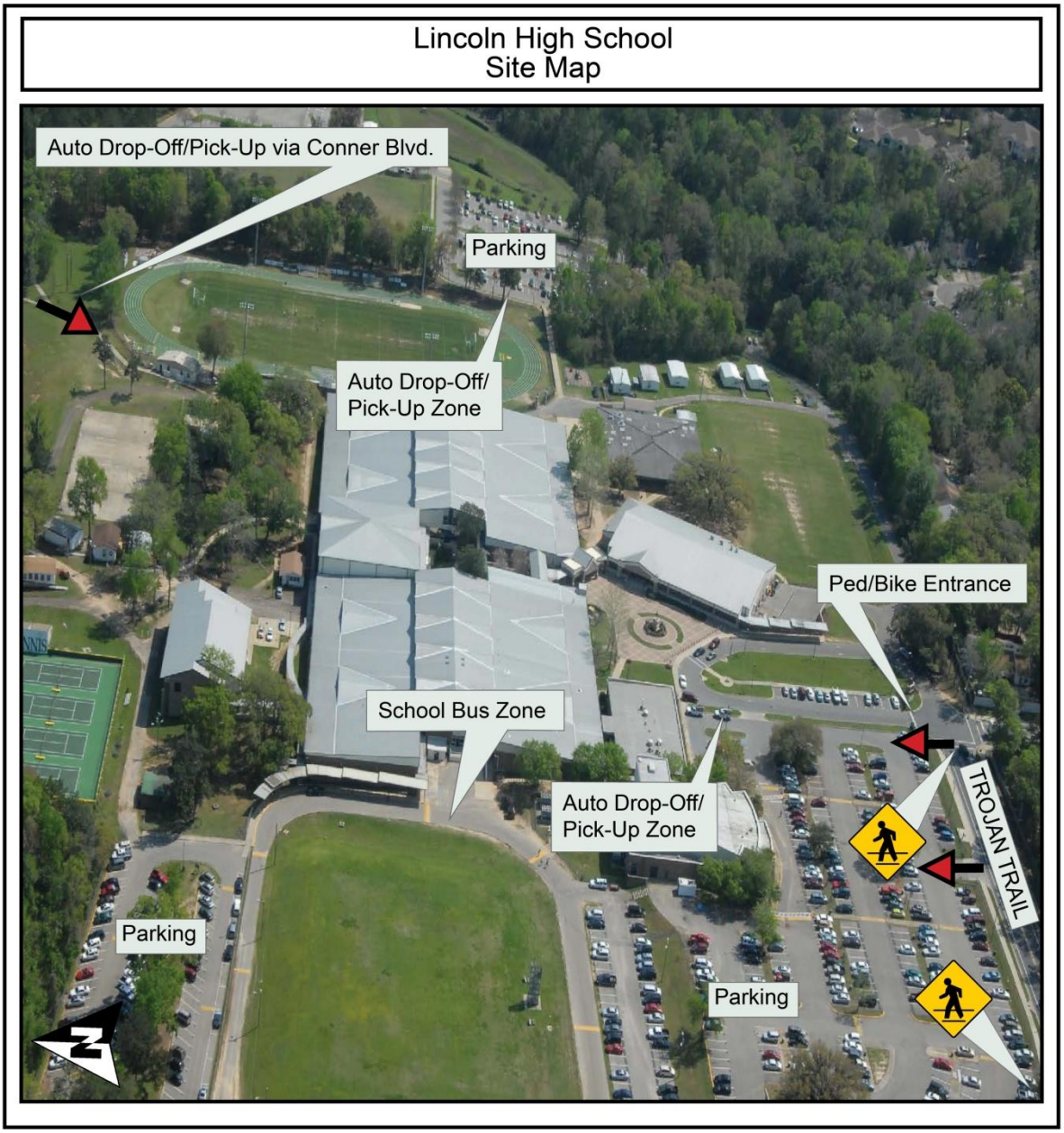
There are three, unsupervised, parent drop-off and pick-up zones throughout the campus that function adequately to accommodate the volume of automobiles entering and exiting the site. The zone located in front of the school is most heavily used. However, for the most part, a majority of the students drive themselves to school. There does not appear to be many students who carpool together to and from school.

Inventory Map

An aerial photograph showing Lincoln High School is located on the following page. As shown in the photo, the school fronts Trojan Trail. Students can access campus from this street as well as from Conner Boulevard, behind the school.

Standard width sidewalks are located along both sides of Trojan Trail. For the most part there are standard width sidewalks along both sides of Conner Boulevard. Additionally, there is a pedestrian overpass that crosses Conner Boulevard and connects the school to a multi-use trail that runs through Tom Brown Park (not pictured).

There are three automobile pick-up and drop-off zones located throughout the school. The first zone is located in front of the school's main entrance. Automobiles both enter and exit via Trojan Trail. Parking spaces are available here as well. The second zone is located in the rear of the school at Conner Boulevard. The third zone is located near the parking lot closest to the football field. Automobiles using this zone both enter and exit via Conner Boulevard. The bus zone is separately located along the side of the school along Apalachee Bend. Buses both enter and exit from separate driveways along Apalachee Bend. Additional parking spaces are located in this area as well.


Lincoln High School
Site Map
Auto Drop-Off/Pick-Up via Conner Blvd.
Parking
Auto Drop-Off/
Pick-Up Zone
Ped/Bike Entrance
School Bus Zone
Auto Drop-Off/
Pick-Up Zone
TROJAN TRAIL
Parking
Parking
N

Issues and Opportunities

School-specific issues, opportunities, and impediments concerning the SRTS program were discussed.

Geography and a teenage "rite-of-passage" appear to be the primary issues with students' ability to walk and bicycle to school. Since high school zones are so large in size, students often live more than two miles away from their school which can create a distance that is too long to walk or bicycle to school within a reasonable amount of time. Additionally, many students tend to enjoy being able to drive themselves to school since they have never been able to in the past and had to rely upon others. Many students also participate in after-school clubs and sports that require them to bring additional items from home. Thus, it may be harder to walk or bicycle with these extra items. These kind of external factors are often difficult to overcome, at least in the short term.

With what opportunities that do exist to increase walking and bicycling, including student safety, consideration should be given to Trojan Trail, Sutor Road, and Conner Boulevard. There is already an extensive use of traffic calming measures in place to reduce automobile speeds and increase awareness of students in the area, especially during school commuting times. However, additional bike/ped infrastructure such as filling in the gap between the main sidewalk on Conner Boulevard and the sidewalk leading to the pedestrian overpass bridge should be explored. Also, school-related and –supportive committees can be used to help educate parents on the opportunities and benefits to having students walk or bicycle to school, where such options are feasible.

These groups can also help get the word out to students regarding appropriate behavior and protocol in the school parking lot such as the importance of following speed limits and not driving recklessly. Furthermore, these groups could see if students would be interested in alternative forms of transportation such as carpooling to and from school or, at least carpooling during lunch time. Education and enforcement during the morning and afternoon commuting hours are critical.

Chapter 3: Student Travel Survey – Summary of Results

School administrators carried out a school-wide travel survey to evaluate the ways in which students from 9th to 12th Grade traveled to their school from home during a one week period. (A copy of the student travel survey can be found in **Appendix A**.)

Not surprisingly, the survey indicates that the vast majority of students at Lincoln High School – approximately seven out of nine students – arrived to school by car. Riding a school bus and walking to school ranked a distant second and third place at approximately 19 percent and three percent of students, respectively. Less than one percent each of the students surveyed reported biking or arriving to school by public bus. (A detailed description of the analysis by mode can be found in **Appendix B**.)

SUMMARY OF SCHOOL-WIDE RESULTS

	Walk	Bicycle	Automobile	School Bus	Public Bus
Average Overall	3 %	<1 %	78 %	19 %	<1 %

Chapter 4: Parent Survey – Summary of Results

School administrators carried out a school-wide survey to better understand the neighborhood safety issues and concerns of parents and the factors influencing their decision to allow their children to walk or bicycle to school. (A copy of the parent survey can be found in **Appendix C**.)

Parent survey results were counted and analyzed by grade level groupings of 9th through 12th Grade. (A detailed description of results for the parent surveys can be found in **Appendix D**.)

The surveys of students living within two miles from the school indicate that a greater percentage of Lincoln High School students arrive by car in the morning, while fewer return home by the same mode in the afternoon. The car-to-school average for a typical week is 65% in the morning and decreases to 49% in the afternoon. In the afternoon, there are greater percentages of students returning home by walking and school or public bus. Overall, close to one-fifth and one-quarter of students commutes to and from school by walking. The school bus-to-school average for a typical week is 16% in the morning and increases to 19% in the afternoon. The walk-to-school average for a typical week is 16% in the morning and increases to 27% in the afternoon. The public bus-to-school average for a typical week is 3% in the morning and increases to 5% in the afternoon. None of the students rode a bicycle or used an alternative commute mode in the morning or afternoon.

Neighborhood safety concerns for parents of high-school-aged (9th-12th) children include three main concerns including issues with crime, speeding vehicles, and transportation outside of the school zone. There were approximately five comments of concern regarding issues with crime. General concerns include known crime areas, gangs, and students smoking near school. Two locations where crime tends to be a problem are Rock Brook Drive and Sutor Court. Additionally, there were four comments of concern regarding issues with speeding vehicles. Specific locations where high-speed vehicles tend to be a problem are Conner Boulevard and Trojan Trail. Lastly, there were four comments of concern regarding transportation outside of the school zone. Concerns include reckless drivers, high traffic volumes on Trojan Trail, and the need for a traffic light at Heritage Park Boulevard & Conner Boulevard.

With regard to factors that might influence their decision to allow their child to walk or bike to school, survey responses indicate that factors such as better street lighting, enforcing speed limits, marking school speed zones with flashing signs, availability of crossing guards, more effective crossing guards, continuous separated bicycle/pedestrian pathways, and school speed zones a greater distance surrounding the school were agreed upon by parents from 9th-12th grade.

Chapter 5: Neighborhood Field Review

A neighborhood field review was conducted on April 9th, 2013. The review consisted of an assessment of accessibility, connectivity and safety along neighborhood roadways within proximity to Lincoln High School. On the day of the field review, the weather was overcast and temperatures were in the mid 70's Fahrenheit. Following the field review, a walk/bike shed area was delineated on a map within the school zone, surrounding the school. This chapter includes a Walk/Bike Shed section describing the approach to defining the area and an associated map for Lincoln High School.

Character of Neighborhood Area

Lincoln High is located in a mix of established and newer neighborhoods primarily comprised of higher density single family homes. Neighborhoods to the south of the school are walkable due to a sidewalk connection from the school. However, the neighborhood street pattern throughout the area includes mostly loops and cul-de-sacs that are not well-connected. Bike-ped infrastructure in the immediate area is mostly limited to major roadways in the school zone that have higher speed limits, making this area potentially an uncomfortable place to walk and bike. Just north of the school is Tom Brown Park that includes an expansive shared-use trail system. Additionally, a CSX railroad line runs east west just north of Tom Brown Park.

Major roadways in the school zone include:

- Interstate-10, a heavily traveled four lane, east-west roadway with a posted speed limit of 70mph.
- Capital Circle, a heavily traveled six lane, north-south roadway with a posted speed limit of between 40 and 45mph.
- Apalachee Parkway, an east-west four lane roadway with a 40-45mph speed limit that transitions to 50-55 mph just east of Connor Boulevard.

Crash Data

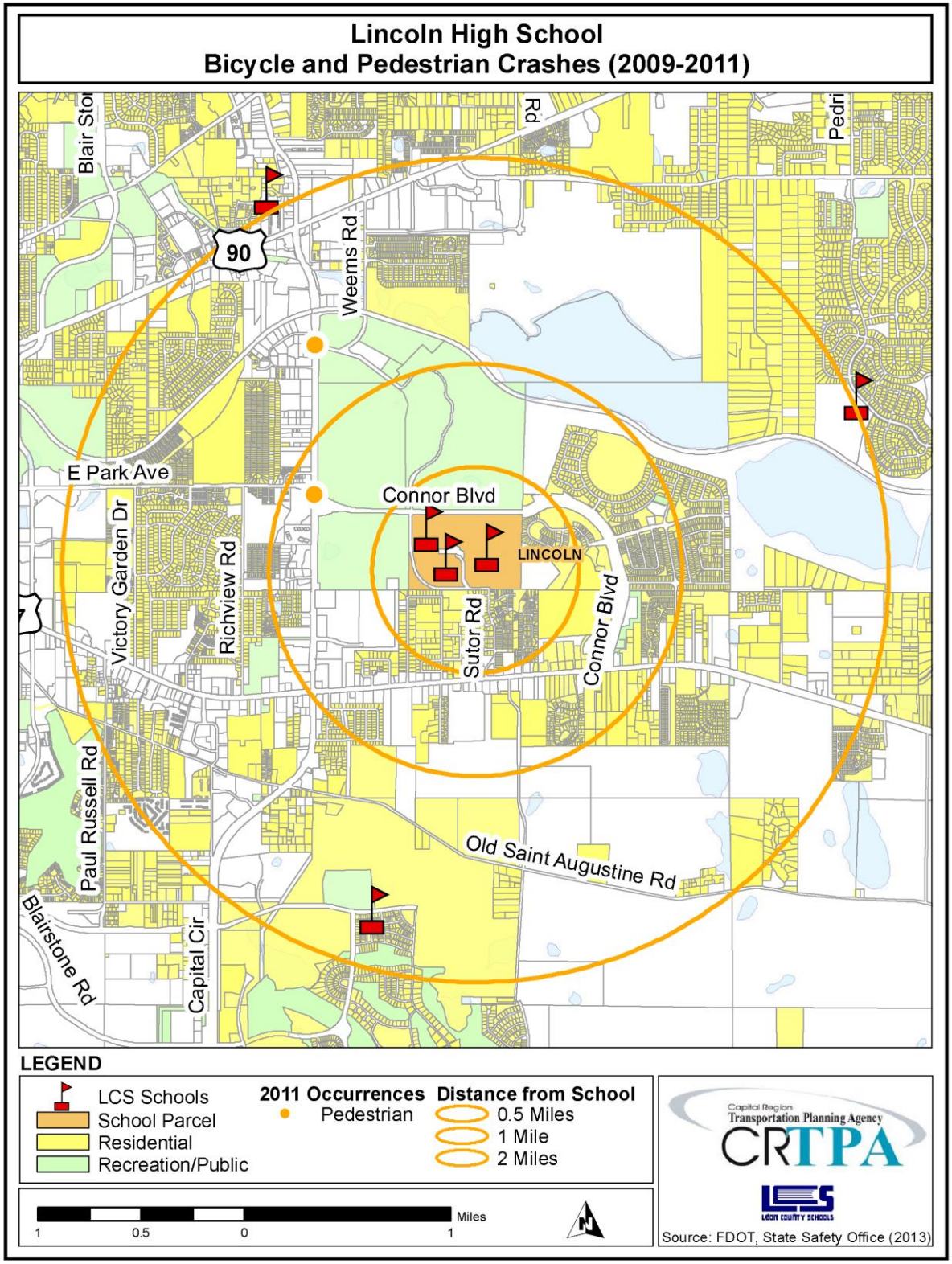
Crash data were collected from the Florida Department of Transportation's (FDOT) State Safety Office for years 2009-2011. Crashes reported include any crashes within Leon County and on any local and major roadways. The data were collected for a typical school year, August 15th to May 30th. Additionally, only bicycle and pedestrian crashes that occurred during typical school commute hours, 7:00am to 9:30am and 1:50pm to 4:20pm, and school days, Monday to Friday, were examined.

There was a total of one bicycle and two pedestrian crashes that occurred within the theoretical two-mile walk/bike radius of Lincoln High School. All crashes occurred during the morning hours and involved adults. Injuries were reported in all crashes.

All crashes occurred approximately ½ mile to 2 miles northwest of Lincoln High School. The street where crashes tend to be a problem is Capital Circle Southeast.

SUMMARY OF CRASH REPORTS (2009-2011)

Date	Time	Day	On Road	Nearest Intersection	Injury or Fatality?	Type of Crash	Person(s) Involved
08/25/11	7:30am	Thursday	Easterwood Dr.	Capital Circle SE	Injury	Pedestrian	Adult
10/10/11	7:50am	Monday	Capital Circle SE	Conner Blvd.	Injury	Pedestrian	Adult


Lincoln High School
Bicycle and Pedestrian Crashes (2009-2011)
Blair Stor
Rd
Pedri
90
Weems Rd
E Park Ave
Connor Blvd
LINCOLN
Victory Garden Dr
Richview Rd
Sutor Rd
Connor Blvd
Paul Russell Rd
Old Saint Augustine Rd
Blairstone Rd
Capital Cir
LEGEND
LCS Schools
School Parcel
Residential
Recreation/Public
2011 Occurrences
Pedestrian
Distance from School
0.5 Miles
1 Mile
2 Miles
Miles
1
0.5
0
1
N
Capital Region
Transportation Planning Agency
CRTPA
LEON COUNTY SCHOOLS
Source: FDOT, State Safety Office (2013)

Neighborhood Assessment

The immediate neighborhood layout surrounding Lincoln High School lends itself somewhat well to walkability. Sidewalks and bicycle lanes are available along main roads such as Connor Boulevard and Sutor Road. Additionally, crosswalks are abundant along roadways and in neighborhoods to the east of the school. However, street patterns are mostly loop-like, east of the school, and cul-de-sacs, south of the school, leaving few alternative route choices to access the school. Further away from Lincoln, outside of a half-mile radius of the school, land uses start to become more non-residential, especially in the area north of the school. Although the infrastructure reaches some neighborhoods further away, much of it is along the major roadways and, thus, poses safety concerns for students walking and bicycling. Project-specific recommendations can be found in the Findings and Recommendations chapter of this report.

Walk/Bike Shed

As mentioned previously, a walk/bike shed area was delineated on a map within the school zone, surrounding the school. The Lincoln High School walk/bike shed map is included on page 16.

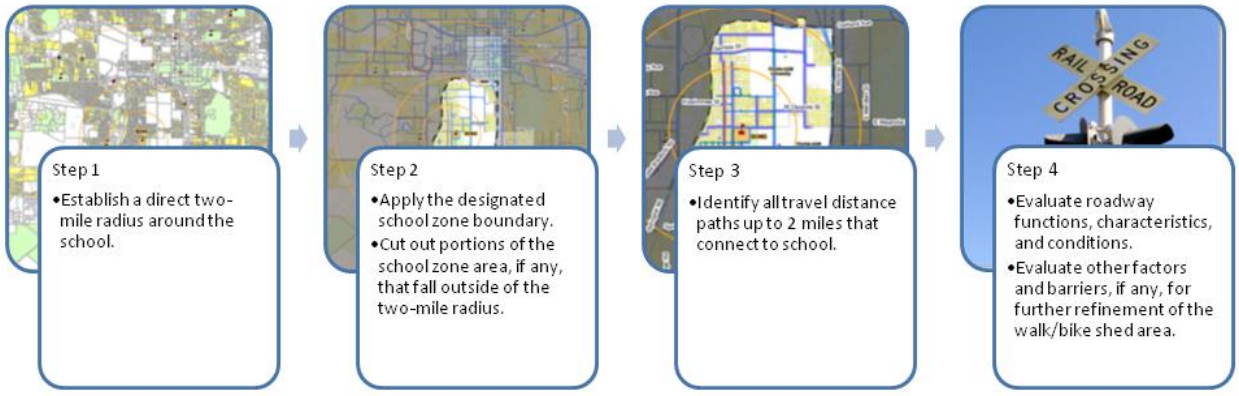
The walk/bike shed area and associated map are not meant to suggest that high school students of all ages, maturity level, and experience should commute to and/or from school within the area delineated. Certainly, all students are not expected to walk or bike to school from practically any distance. Students without the appropriate experience or maturity level will likewise be more limited in their accessibility to school. Therefore, the walk/bike shed map functions more as a guide for parents, school administrators and students to evaluate and identify areas potentially commutable and conducive to walking and bicycling to school. The final decision to walk or bicycle to school is still at the discretion of the parents.

The walk/bike shed for Lincoln High School extends south and east of the school. Apalachee Parkway with its four lanes of traffic and lack of pedestrian accommodations forms the southern limits of the walk/bike shed. The presence of a railroad line, about one-half mile north of Connor Boulevard, in combination with the few residential land uses to the north and east contribute to the northern and eastern limits of the walk/bike shed. Also, because there are few residential connections in the area west of Trojan Trail, it forms the western limits of the walk/bike shed.

It should be noted that certain improvement recommendations could potentially expand the potential walk/bike shed area, due to improved conditions for walking and bicycling.

Methodology

Many factors were evaluated to ultimately determine the limits of the walk/bike shed area. The general methodology for identifying the shed included the following steps:



Evaluating Roadways

Four types of safety hazards were evaluated pertaining to roadways. They include:

- Sidewalks along roadways
- Roadways without sidewalks
- Roadway crossing points
- Railroad crossing points (along roadways)

Primary hazard conditions include, but are not necessarily limited to factors such as:

- Sidewalk width (where present)
- Separation between the walking/bicycling space and the vehicular travel space
- Intersection control measures for crossing
- Number of rail tracks (for railroad crossings)
- Traffic volume
- Traffic speed
- Roadway geometry
- Length of a hazardous condition present

Multiple factors are no doubt present for each hazard. And no two factors or situations are the same. This makes evaluation as much of an art as a science. Nonetheless, there are certain conditions in and of themselves that are considered decisive limitations to students walking and/or bicycling to school. Such conditions where walking and/or bicycling are deemed hazardous include the following. It should be noted that only one condition from either table needs to be met for a situation to be deemed hazardous.

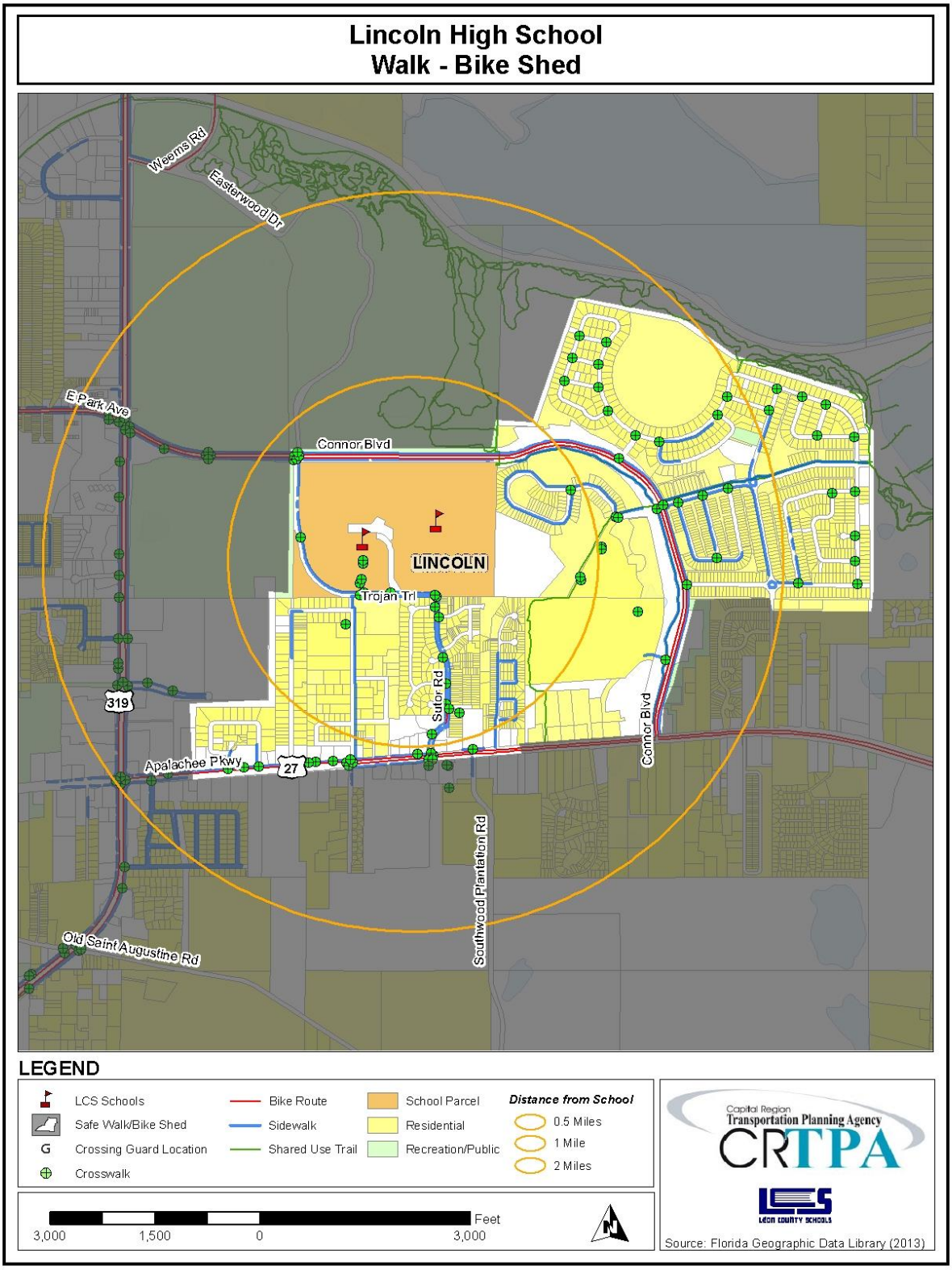
Travel Along Roadways				
Sidewalk Type	**Hazardous Conditions**			
	Type of Road	**Posted Speed Limit**	**Peak Hour Traffic**	**Length**
< 2' wide sidewalk OR without sidewalk	All roadways other than local, neighborhood streets	N/A	N/A	Exceeding 0.5 miles in length
</= 3' wide sidewalk OR </= 4' separation from traffic	More than 2 travel lanes	Greater than 35 mph	Greater than 2,000	Exceeding 1 mile in length
> 4' wide sidewalk AND >/= 4' separation from traffic	More than 4 travel lanes	Greater than 45 mph	Greater than 3,500	Exceeding 2 miles in length

Roadway Crossing Points				
Crosswalk Type	**Hazardous Conditions**			
	Type of Road	**Posted Speed Limit**	**Peak Hour Traffic**	**Length**
Unmarked Crosswalk	More than 2 travel lanes	Greater than 25 mph	Greater than 1,500	N/A
Unsignalized Crosswalk				
Marked Crosswalk	Greater than 4 travel lanes	Greater than 40 mph	Greater than 2,000	N/A
Signalized Crosswalk				

Evaluating Other Factors and Barriers

In addition to that identified above, information collected from the field review, anecdotal comments from parent surveys, discussions with school administrators and staff, and general research findings were applied to determine the ultimate walk/bike shed area commuting limits for the school. Such additional information evaluated included the following:

- Barriers such as water bodies and high-speed, restricted access highways
- Historic travel accident patterns
- Poor quality pedestrian infrastructure along routes
- Pathways of excessive length through nonresidential areas as well as excessive intersecting vehicular access drives


Lincoln High School
Walk - Bike Shed
Weems Rd
Easterwood Dr
E Park Ave
Connor Blvd
LINCOLN
Trojan Trl
Suter Rd
319
Apalachee Pkwy
27
Connor Blvd
Southwood Plantation Rd
Old Saint Augustine Rd
LEGEND
LCS Schools
Safe Walk/Bike Shed
Crossing Guard Location
Crosswalk
Bike Route
Sidewalk
Shared Use Trail
School Parcel
Residential
Recreation/Public
Distance from School
0.5 Miles
1 Mile
2 Miles
Feet
3,000
1,500
0
3,000
Capital Region Transportation Planning Agency
CRTPA
LEON COUNTY SCHOOLS
Source: Florida Geographic Data Library (2013)

Chapter 6: Findings and Recommendations

There are ample points of access for walkers and bicyclists onto the Lincoln High campus; and there are no issues to note concerning automobile and school bus access and circulation. As such there are few on-campus infrastructure-related recommendations for improvement. The surrounding neighborhoods are fairly well-connected to the school. And while there are many streets without sidewalks, most of these streets are internal residential subdivision streets with low-volume traffic. Most can be navigated by walkers and bicyclists with a fair amount of ease. However, there are some opportunities to improve walking and bicycling opportunities as well as safety throughout the surrounding neighborhoods. In addition, there are some limited policy and programmatic recommendations for the school's consideration.

Infrastructure Improvements

The following recommendations supplement the current walk/bike shed area as delineated on the map, addressing infrastructure needs and improvements that would enhance walking and bicycling safety and convenience to and from Lincoln High School. They include both on- and off-site improvements as follows:

Lincoln High School On- and Off-Site Recommendations

	Improvement: On-Site	Location	From	To	Geography	Direction	Length	Comments
A1	New Bicycle Rack	Trojan Trail	At Main School Entrance		West of the School Statue Plaza Area	N/A	N/A	
A2	Stripe Existing Crosswalk	Trojan Trail	At Student Drop-Off/Pick-Up Zone		Near the Main School Entrance	N/A	N/A	

	Improvement: Off-Site	Location	From	To	Geography	Direction	Length	Comments
B1	New Striped Crosswalk	Conner Boulevard	At School Access Drive		South side of Conner Boulevard	E-W	N/A	
B2	Install Flashing Warning Lights	Conner Boulevard	At "Lincoln HS Student Drop-Off/Pick-Up" signs		Eastbound and westbound along Conner Boulevard	N/A	N/A	
B3	New Sidewalk	School Access Drive	To Pedestrian Overpass Bridge		East side of School Access Drive	NE-SW	Approx. 40 feet	
B4	Remark Existing Crosswalks	Sutor Road	See Description		N/A	N-S	N/A	Crosswalk markings are faded.
B5	New Crosswalk	Sutor Road	At Aksarben Dive		East side of Sutor Road	NW-SE	N/A	
B6	New Sidewalk	Apalachee Parkway	Sutor Road	Just west of Southwood Plantation Road	North side of Apalachee Parkway	E-W	Approx. 454 feet	Would need to be constructed by FDOT
B7	New Sidewalk	Apalachee Parkway	Just east of Southwood Plantation Road	Copper Creek Drive	North side of Apalachee Parkway	E-W	Approx. 175 feet	Would need to be constructed by FDOT
B8	New Crosswalks at Roundabouts	Piney Z Plantation Road	At Planters Ridge Drive; At Heritage Park Boulevard		All four sides of roundabout	N/A	N/A	

The table, above, corresponds to an infrastructure recommendations map on the following page.

On-Site Recommendations

A1) Install a bicycle parking rack near the main school entrance, along Trojan Trail, just west of the Lincoln High School statue plaza. Currently, there are no bicycle racks available at the school. As such, there is no incentive for students to ride their bicycles since there is no secure place to store them during school hours.

A2) Stripe the existing crosswalk near the main school entrance along Trojan Trail, at the student drop-off/pick-up zone.

Off-Site Recommendations

B1) Mark a new striped crosswalk on the south side of the Conner Boulevard & School Access Drive.

B2) Install flashing warning lights along Conner Boulevard at both of the "Lincoln High School Student Drop-Off/Pick-Up" signs to make motorists more aware of a school in the area.

B3) Construct a new sidewalk, just east of the school access drive, to the pedestrian overpass bridge. There is a sidewalk that leads to the pedestrian overpass; however, during the on-site visit it was revealed that students are taking the more direct path to the overpass, as indicated by the worn path in the grass.

B4) Several of the existing crosswalks along Sutor Road need to be remarked. The crosswalks are faded and difficult to see. Crosswalks in need of remarking include:

- At Longstreet Drive
- At Rock Brook Drive
- At Hood Court
- At Pickett Circle
- At Rockbrook Court

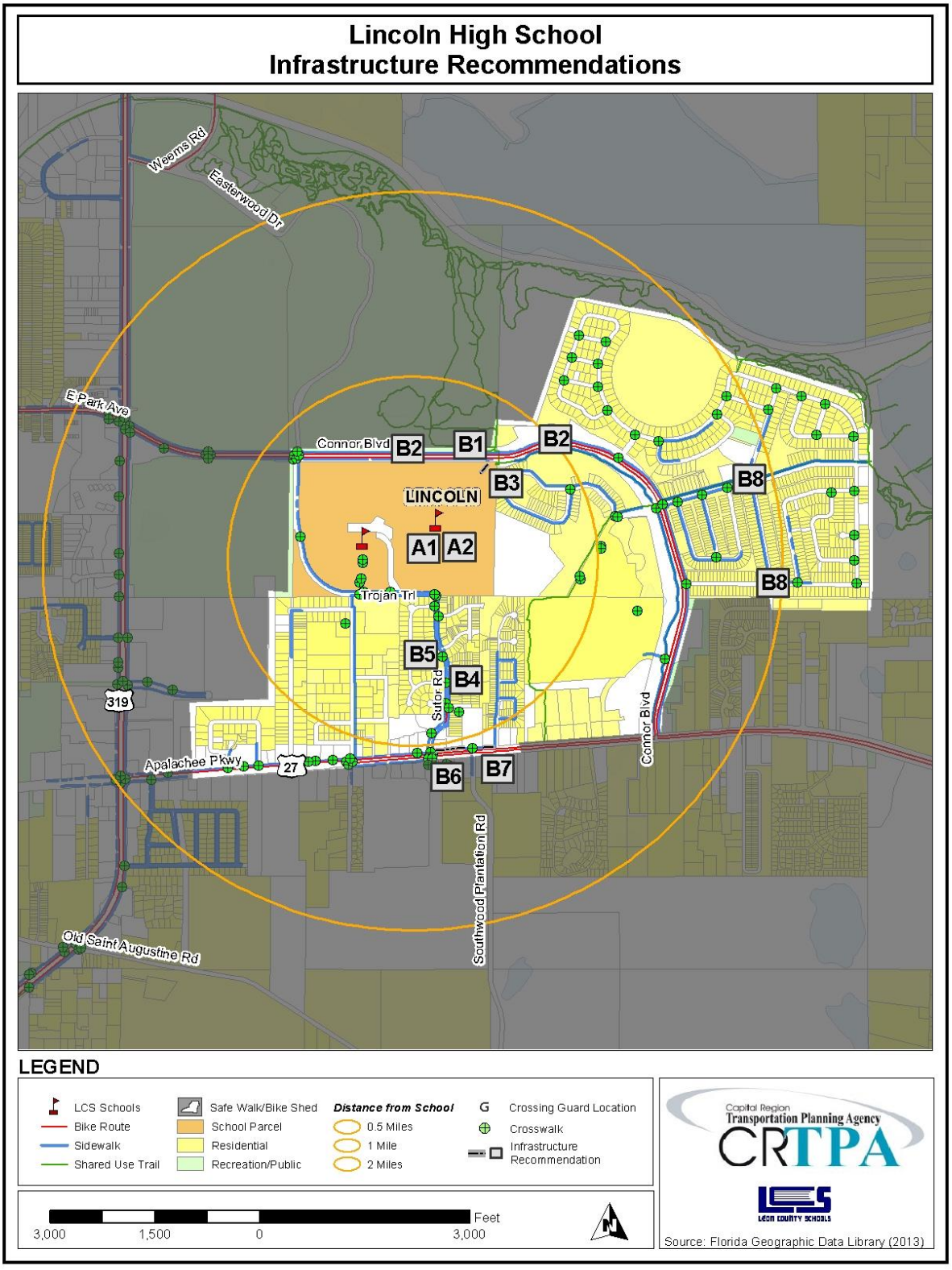
B5) Mark a new crosswalk at the east side of Sutor Road & Aksarben Drive.

B6) Construct a new sidewalk along Apalachee Parkway from Sutor Road to just west of Southwood Plantation Road.

B7) Construct a new sidewalk along Apalachee Parkway from just east of Southwood Plantation Road to Copper Creek Drive.

B8) Mark new crosswalks at the following roundabout locations in the Piney Z neighborhood:

- Piney Z Plantation Road & Planters Ridge Drive
- Piney Z Plantation Road & Heritage Park Boulevard


Lincoln High School
Infrastructure Recommendations
Weems Rd
Easterwood Dr
E Park Ave
Connor Blvd
B2
B1
B2
B3
B8
LINCOLN
A1
A2
B8
Trojan Trl
B5
B4
Sutor Rd
319
Connor Blvd
Apalachee Pkwy
27
B6
B7
Southwood Plantation Rd
Old Saint Augustine Rd
LEGEND
LCS Schools
Bike Route
Sidewalk
Shared Use Trail
Safe Walk/Bike Shed
School Parcel
Residential
Recreation/Public
Distance from School
0.5 Miles
1 Mile
2 Miles
Crossing Guard Location
Crosswalk
Infrastructure Recommendation
Feet
3,000
1,500
0
3,000
Capital Region Transportation Planning Agency
CRTPA
LEON COUNTY SCHOOLS
Source: Florida Geographic Data Library (2013)

Programs

C1) Walk and bicycle encouragement literature – Send home literature to parents, as well as make it available on the school website, about the benefits of walking and bicycling to school. Information and statistics from the National Safe Routes to School organization can be used to highlight health and safety benefits. The literature provided to parents should highlight some specific examples of how parents and the community can encourage safe walking and bicycling to school.

C2) Student Carpool – Send home literature to parents and students about the benefits of carpooling to and from school. Additionally, suggest that students who participate in the off-campus lunches carpool to and from their dining destinations, if possible.

Policies

D1) Bike check and security – **(In conjunction with On-Site Recommendations A1)** School policies to discourage theft and encourage bicycle riding could include having a school official or parent volunteer at the bike rack in the morning and afternoon to monitor students parking their bikes. The school should consider investing in basic, school-owned bike locks that can be applied when students check-in. By having locks available at school, students do not need to remember to bring one each day. Basic locks can be purchased fairly cheap.

D2) School-Specific Safe Routes Coordinator/Advisor – A school the size of Lincoln High School could benefit from having a safe routes coordinator to help accomplish projects, jumpstart programs and implement polices to improve and diversify student commuting options and increase student safety. This role would not require a fulltime staff commitment to safe routes-related issues and needs and, thus, could possibly be performed by an existing school administrator or staff member. The safe routes coordinator would also advocate for improvements and changes before the School Board and other various agencies with transportation and funding responsibilities throughout the County. In addition, the safe routes coordinator could be assigned with seeking out potential funding sources and completing grant applications.

D3) Discourage reckless driving on campus – School representatives expressed concerns about students driving recklessly on campus. This type of behavior can be dangerous to the student driver as well as students who may be walking and/or bicycling through the parking lots. One policy to discourage reckless driving could include the termination of off-campus lunch privileges for a certain period of time.

Planning-Level Cost Estimates

Planning-level cost estimates are included in the table, below. They are intended to be used as a guide. Specific, detailed cost estimates for individual projects will require closer assessment of project conditions and constructability at the time of improvement.

General Unit Cost Estimates[1]

Item	Assumptions	Unit	Average Unit Cost ($)
sidewalk	concrete sidewalk (5' wide)	linear foot	32
sidewalk	concrete sidewalk + curb (5' wide)	linear foot	150
shared-use path	multi-use trail – paved (at least 8' wide)	mile	481,140
shared-use path	multi-use trail – unpaved (at least 8' wide)	mile	121,390
pavement symbol	pedestrian crossing	Each	360
pavement symbol	shared lane/bicycle marking	each	180
pavement symbol	school crossing	each	470
paved shoulder	asphalt material	square foot	5.56
crosswalk	high visibility crosswalk (ladder or zebra striping)	each	2,540
crosswalk	standard parallel lines crosswalk	each	770
signage	bike route sign	each	160
signage	stop/yield sign	each	300
signage	no turn on red (standard metal sign)	each	220
signage	no turn on red (electronic sign)	each	3,200
signage	trail regulation sign	each	160
flashing beacon	standard beacon (system + labor/materials)	each	10,010
flashing beacon	rectangular rapid flashing beacon (system + labor/materials)	each	22,250
ped hybrid beacon	high intensity activated crosswalk (HAWK) signal	each	57,680
ped/bike detection	push button	each	350
signal	audible pedestrian signal	each	800
signal	countdown timer module	each	740

[1] Bushell, M. A., Poole, B. W., Zegeer, C. V., & Rodriuez, D. A. (2013). *Costs for Pedestrian and Bicyclist Infrastructure Improvements: A Resource for Researchers, Engineers, Planners, and the General Public.* Federal Highway Administration.

Chapter 7: Conclusion

While the neighborhood immediately surrounding Lincoln High School enjoys a somewhat well-connected roadway network consisting mostly of low-volume residential streets, it doesn't correlate to high walking and bicycling commuting rates for students. Overall, approximately three percent of students commute to and from school by walking, while few, if any, commute by bicycle. There appear to be two primary reasons. First, a sizeable cohort of students attending Lincoln High School lives far from the school, outside of a safe, reasonable walking and bicycling distance. The school zone expands northeast from the school all the way to the county line. The location of the school within the school zone does not provide much opportunity to those who live further northeast in the County. This is more of a system-wide transportation and geography issue outside the purview of this analysis. However, the issue could be further explored during any future school district boundary change considerations.

The second reason for low walking and bicycling rates to school was revealed from information garnered from the parent survey results as well as meetings with school representatives. Overall, when it comes to allowing their children to walk or bicycle to school, parents primarily expressed concerns with crime in the area as well as speeding vehicles. However, parents indicated that a variety of factors including better street lighting, enforcing speed limits, marking school speed zones with flashing signs, availability of crossing guards, more effective crossing guards, continuous separated bicycle/pedestrian pathways, and school speed zones a greater distance surrounding the school might influence their decision to allow their children to walk or bicycle to school.

For those students within a relatively safe walking and bicycling distance to school, opportunities to improve student walking and bicycling rates are rooted primarily in infrastructure recommendation improvements including but not limited to new sidewalks and improved crosswalks. Additionally, informational and educational programmatic solutions as well as policies that encourage bicycle commuting have been provided.

While Lincoln High School has a sizeable student population outside of a safe, reasonable walking and bicycling distance, due to the expansive size of the school zone, there are measures for which the school can take that will help to improve walking and bicycling safety and increase non-motorized commuting rates.

Appendices

Appendix A: Student Travel Survey

Leon County Schools

STUDENT TRAVEL SURVEY

NAME OF SCHOOL: _____

Dear Teacher:
Your help is needed to assist with a school-wide survey of how students travel to and from school each day. Beginning Monday, for each day of that week, please record the number of children in your class that came to school by school bus, city bus, car, bicycle, or by walking. Please send the results back to the office on this form, along with your name and class grade, and number of students present each day.

Please follow the script below to gather the information from your students. (The students should only be raising their hands for one mode of travel):

1) If you walked to school today, raise your hand.
2a) If you rode a bicycle to school today, raise your hand.
b) If you used a bicycle helmet today, raise your hand.
3a) If you came in a car, with either your parents or with someone else, raise your hand.
b) If you used your seat belt in a car today, raise your hand.
4) If you came by school bus, raise your hand.
5) If you came by city bus, raise your hand.

Day of Week	Number of Students						
	Question 1	Question 2a/b		Question 3a/b		Question 4	Question 5
Day 1							
Day 2							
Day 3							
Day 4							
Day 5							

TEACHER'S NAME: _____ GRADE: _____

DATE: _____ NUMBER OF STUDENTS IN CLASS TODAY:_____

Please complete and return this form to the principal's office FRIDAY. This information will allow us to better plan ways for our children to get to and from school each day.

Note to Principals:
Please reproduce and distribute this form to all homeroom or 1st period teachers at your school. It is important that **all classes are surveyed on the same day**. Project consultants will collect all survey forms the following week. THANK YOU.

Capital Region Transportation Planning Agency

Appendix B: Student Travel Survey – Detailed Analysis

The survey consisted of a one-page sheet with a script of questions for homeroom teachers to read to students as they took morning attendance. Surveys were conducted each morning during a typical week of the school year for a total of five straight days, Monday to Friday. The script prompted teachers to ask and record the number of children in their class that came to school by walking, bicycling, car, school bus, or city bus. The student travel survey was conducted in February, 2013. Fifty classrooms participated in the survey for a total of 997 student responses recorded. Student travel survey results were counted and analyzed for the school as a whole.

SUMMARY OF STUDENT TRAVEL SURVEY POPULATION

Total Number of Participating Classrooms	50
Total Students Surveyed (9^{th} – 12^{th})	997

Walking and Bicycling

Students were first asked if they walked to school. Then students were asked if they rode a bicycle to school. Students that rode their bike to school were further asked if they wore a bicycle helmet.

Walking and Bicycling School-Wide Travel Patterns

The school-wide student travel surveys indicate that the walk-to-school average for the week ranged from 3% to 3%, with an overall average of 3%. Overall, the bike-to-school average for the week ranged from <1% to <1%, with an overall average of less than one percent. Of the students that bike to school, an overall average of 29% wore a bicycle helmet. In total, the combined walk-bike average for the week ranged from 3% to 3%, with an overall average of 3%.

SUMMARY OF WALKING AND BICYCLE SCHOOL-WIDE TRAVEL PATTERNS

	Walk	**Bicycle**	**Helmet Use**	**Total Walk + Bike**
Average Overall	3 %	<1 %	29 %	3 %
Highest Day	3 %	<1 %	50 %	3 %
Lowest Day	3 %	<1 %	0 %	3 %

Buses and Automobile Drop-Off

Students were asked if they arrived to school by automobile, with either their parents or someone else. Students that arrived by automobile to school were further asked if they had wore their seat belt. Additionally, students were asked if they arrived to school by bus, including either Leon County School buses or Star Metro public transit buses.

Bus and Automobile School-Wide Travel Patterns

The school-wide student travel surveys indicate that the automobile-to-school average for the week ranged from 77% to 79%, with an overall average of 78%. Of the students that ride to school in an automobile, an overall average of 86% wore a seatbelt. Overall, the school bus-to-school average for the week ranged from 18% to 19%, with an overall average of 19%. The public bus-to-school average for the week ranged from <1% to 1%, with an overall average of less than one percent.

SUMMARY OF BUS AND AUTOMOBILE DROP-OFF SCHOOL-WIDE TRAVEL PATTERNS

	Automobile	Seat Belt	School Bus	Public Bus
Average Overall	78 %	86 %	19 %	<1 %
Highest Day	79 %	90 %	19 %	1 %
Lowest Day	77 %	84 %	18 %	<1 %

Appendix C: Parent Survey

Leon County Schools

PARENT SURVEY

Dear Parents: In an effort to improve traffic safety in and around our schools, we are looking for ways to reduce the amount and speed of cars, improve walking and bicycling conditions and encourage enforcement and safety education programs. Please help us by providing your opinions to the following questions. **The name of my child's school is**: _____.

1. Please provide the sex, age and grade of your child:

Sex: Male Female
Age: _____
Grade: _____

2. Approximately how far do you live from your child's school? *(circle closest answer):*

1. 1/2 mile or less
2. 1/2 mile to 1 mile
3. between 1 and 2 miles
4. over 2 miles

If you live over two miles from the school, please stop here and turn in your survey. Thank you for participating. If you live within two miles of the school, please help us by completing the questions on the following pages.

3. How does your child usually go to and from school: (*place a check on the appropriate line*)

	In the morning?	In the afternoon?
a. School bus	_____	_____
b. Car	_____	_____
c. Walk	_____	_____
d. Bicycle	_____	_____
e. City bus	_____	_____
f. Other (please explain)	_____	_____

4. Please identify specific safety problems of concern to you in your neighborhood or around your child's school *(i.e. broken sidewalks, crime areas, high-speed vehicles, etc.)* and indicate the street locations:

_____
_____
_____

Capital Region Transportation Planning Agency

Leon County Schools

5. Which of the following factors would influence your decision to allow your child to walk or bicycle to school. On a scale of 1 to 5 (1= not important to 5= very important), please rate each statement's importance as it applies to your child. If the statement does not apply, circle "NA".

I would allow my child to walk or bicycle to school more often if:	Not Important				Very Important	Not Applicable
a) Accompanied by other children	**1**	**2**	**3**	**4**	**5**	**NA**
b) Accompanied by myself or other parents	**1**	**2**	**3**	**4**	**5**	**NA**
c) Schools provided more walking and bicycling safety training for students	**1**	**2**	**3**	**4**	**5**	**NA**
d) Additional crossing guards were provided at busy intersections	**1**	**2**	**3**	**4**	**5**	**NA**
e) Crossing guards were more effective	**1**	**2**	**3**	**4**	**5**	**NA**
f) There were continuous sidewalks or bike paths from my neighborhood to school	**1**	**2**	**3**	**4**	**5**	**NA**
g) There were bicycle/pedestrian pathways separated from traffic from the neighborhood to the school	**1**	**2**	**3**	**4**	**5**	**NA**
h) We lived closer to school	**1**	**2**	**3**	**4**	**5**	**NA**
i) Speed limits were strictly enforced in school speed zones	**1**	**2**	**3**	**4**	**5**	**NA**
j) School speed zones were marked with flashing signs	**1**	**2**	**3**	**4**	**5**	**NA**
k) School speed zones were a greater distance surrounding school	**1**	**2**	**3**	**4**	**5**	**NA**
l) The school provided a secure place for storing bicycles	**1**	**2**	**3**	**4**	**5**	**NA**
m) There was a greater adult presence of parent volunteers or police officers along walk routes to school	**1**	**2**	**3**	**4**	**5**	**NA**
n) There was better street lighting along walk routes to school	**1**	**2**	**3**	**4**	**5**	**NA**
o) Please write below any additional factors that might influence you to let your child walk or bicycle to school more often:						

_____

_____

_____

_____

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Appendix D: Parent Survey – Detailed Analysis

The survey consisted of a one-page double-sided sheet of paper with five questions for parents to answer. Survey copies were sent home with students early in the week. They were instructed to deliver the survey to their parents (or guardians), asking them to complete the survey and send it back with their children by the end of the week.

Parents were first asked general demographic questions pertaining to the sex and age of their child, as well as grade level. Then, parents were asked approximately how far they lived from their child's school. Families living over two miles from school were instructed to return the survey without completing the remainder of questions pertaining to walking and bicycling to school. Those claiming to reside within two miles were asked, next, how their child typically gets to and from school (for morning and afternoon, respectively). Then, they were asked to identify any safety problems of concern in their neighborhood. Finally, parents were asked to consider a range of safety and convenience factors, and how each factor might influence their decision to allow their child to walk or bike to school.

The parent surveys were conducted during the winter/spring semester of 2013. There were 287 parent surveys returned. Of those, 37 (13%) claimed to reside within the theoretical two-mile walk/bike radius of the school.

SUMMARY OF PARENT SURVEY PARTICIPATION

Total Enrollment	1,993
Total Number of Parent Surveys	287
Total Number within 2 Miles	37
Percentage of Surveys within 2 Miles	13 %

Commuting to/from School

Parents were asked how their child usually traveled to and from school, in the morning and afternoon. Choices of travel modes included: school bus, car, walk, bicycle, public bus, and other (where they were asked to explain).

SUMMARY OF SCHOOL-WIDE COMMUTING RESULTS

Morning	Average Overall
Car	65 %
Walk	16 %
School Bus	16 %
Public Bus	3 %
Bicycle	0 %
Other	0 %
Afternoon	
Car	49 %
Walk	27 %
School Bus	19 %
Public Bus	5 %
Bicycle	0 %
Other	0 %

Neighborhood Safety Concerns

Parents were asked to identify specific safety problems of concern in their neighborhood or around their child's school including problems such as broken sidewalks, crime areas, high speed vehicles, etc.). They were also asked to indicate specific street locations, where possible. Parents provided answers anecdotally. Summaries of the top neighborhood safety concerns are provided.

SUMMARY OF TOP NEIGHBORHOOD SAFETY CONCERNS

Neighborhood Safety Concern	Number of Comments
Issues with Crime	5
Speeding Vehicles	4
Issues with Transportation Outside of School Zone	4

Factors Influencing Decisions to Allow Students to Walk or Bicycle to School

Parents were asked about 15 different factors related to their children walking or biking to school. Parents rated each statement's importance on a scale of 1 to 5 (1=Not Important to 5=Very Important), as it applied to their child, to determine what influenced their decision to allow their child to walk or bike to school. If statements did not apply, parents marked N/A (Not Applicable).

TOP RANKING INFLUENTIAL FACTORS FOR HIGH-SCHOOL-AGED CHILDREN

	SCALE	1	2	3	4	5	N/A
I would allow my child to walk or bicycle to school more often if:							
#1 There was better street lighting along walk routes to school		*4*	*2*	*4*	*5*	*10*	2
#2 Speed limits were strictly enforced in school speed zones		*5*	*2*	*2*	*7*	*9*	3
#2 School speed zones were marked with flashing signs		*3*	*3*	*3*	*6*	*9*	4
#2 Additional crossing guards were provided at busy intersections		*4*	*3*	*5*	*5*	*9*	3
#2 Crossing guards were more effective		*6*	*1*	*3*	*4*	*9*	4
#2 There were continuous sidewalks or bike paths from my neighborhood to school		*6*	*1*	*3*	*3*	*9*	5
#2 School speed zones were a greater distance surrounding school		*4*	*2*	*5*	*3*	*9*	4