

**Volusia County
MPO**

June 2009



Blue Lake Elementary School

Bicycle and Pedestrian School Safety Review Study

Phase 3C



Volusia County MPO



Transportation
Planning

www.VolusiaCountyMPO.com

Hoke
Design, Inc.

School Summary

Blue Lake Elementary School is located along the west side of Blue Lake Avenue north of S.R. 44 in DeLand. Of the 615 students attending this school, 324 live within the designated walk zone area. During the 2008/2009 school year, approximately 100 students walked or rode bicycles to school. Only one student wore a helmet.

Blue Lake Elementary School is a Plus-One school and the school day is extended by one hour. DeLand High School students are dismissed prior to elementary school students and most travel routes are shared by all students simultaneously.

The sidewalk system within the walk zone is fairly complete, although many roads have a sidewalk along only one side. Several of the roadways crossed are heavily travelled, resulting in five crossing guard locations. There was one bicycle crash reported from data collected from 2005 to 2007.

This Study recommends an incentive program to educate and encourage students to cross at crossing guard locations.

Currently, there are no students living within the designated hazardous conditions area located east of Blue Lake.

There are two Priority Projects recommended for this school. The first project is a sidewalk on the west side of Hill Avenue from S.R. 44 to Voorhis Avenue. The second project is a sidewalk on the south side of S.R. 44 from Hill Avenue to Blue Lake Avenue.



Blue Lake Elementary School – Summary Sheet

School Address: 282 North Blue Lake Avenue
DeLand, Florida 32724

School Principal: Carol Thames
Phone: 386-822-4070
Email: cthames@volusia.k12.fl.us

School Representative: Kimberly McKinney, Assistant Principal
Phone: 386-822-4070
Email: kmckinney@volusia.k12.fl.us

Volusia County School District Representative: Saralee Morrissey, AICP
Phone: 386-947-8786, ext. 50772
Email: smorriss@volusia.k12.fl.us

Volusia County Public Works Traffic Engineering: Jon Cheney, P.E., Director
Phone: 386-736-5968 ext. 2709
Email: jcheney@co.volusia.fl.us

Crossing Guard Supervisor: Bea Leatherman
Phone: 386-943-7866
Email: bleatherman@vcso.us

City Representative: Belinda Collins, City of DeLand
Phone: 386-626-7012
Email: collinsb@DeLand.org

Volusia County MPO: Stephan Harris, Bicycle and Pedestrian Coordinator
Phone: 386-226-0422 ext. 34
Email: scharris@co.volusia.fl.us

Consultant Representative: Ginger Hoke, RLA, Hoke Design, Inc.
Phone: 407-923-6027
Email: ginger@hokedesign.com

Site Visit Observation Date: January 21, 2009 (unseasonably cold, clear)

Meeting Attendees:

- Kimberly McKinney
- Bea Leatherman
- Belinda Collins
- Stephan Harris
- Ginger Hoke

Number of Enrolled Students (2008/2009 data): 615

Estimated Number of Students Living in Walk Zone: 324

Number of Bicycle/Pedestrian Crash Events within the Existing Walk Zone (elementary age, during estimated school travel times, 2005-2007): 1 (See Appendix I)

Planned Road, Sidewalk, or other Improvements: The City of DeLand plans to construct a trail along Ohio Avenue and Garfield Avenue within the walk zone

Planned Stimulus Recovery Projects:

- Resurfacing of C.R. 4096/E. Minnesota Avenue – Amelia Avenue to N. Kepler Road
- Resurfacing of C.R. 4094/W. Minnesota Avenue – S.R. 15A/Spring Garden to S.R. 15/N. Woodland Boulevard
- Resurfacing of East Kentucky Avenue – S.R. 15-600/U.S. 17-92 (From Amelia Avenue) to Garfield Avenue

Planned Development in Walk Zone: Housing is planned on the east side of Blue Lake Avenue across from the school property

City use of GIS: Yes

Number of Students Transported (Designated as Hazardous): 0 students at this time. Due to a narrow bridge along Minnesota Avenue, there is a designated hazardous conditions area east of the northern tip of Blue Lake Drive to Kepler Road. See the yellow shaded area on the enclosed Bicycle and Pedestrian Master Plan.

Votran Route in Walk Zone: Yes (not near school)

Findings and Recommendations

Findings: On the observation day for this school, 26 students rode bicycles, scooters or Ripstiks.

To reduce the possibility of theft, school staff allows students to store skateboards, Ripstiks and scooters in the office area.

Recommendation: The central location of the bicycle racks reduces the potential for bicycle theft. Allowing the students to store their scooters and ripstiks at the office is a great idea, which encourages students to choose this form of transportation. If bicycle theft becomes an issue, the School District may wish to consider a fenced bicycle area.



Bicycle racks are centrally located



Skateboards, Ripstiks and scooters are stored in a school office

Finding: Accessible parking is provided at the student drop-off and pick-up parking area. The pavement markings are present but the accessible signage is missing.

Recommendation: Install accessible parking signage (see Appendix H).



Accessible parking signage is missing

Findings: The student drop-off and pick-up area is located off Wisconsin Avenue. Wisconsin Avenue is signed as a one-way (eastbound) road between Blue Lake Avenue and Miller Avenue during school arrival and dismissal times.

Motorists park along the north side of Wisconsin Avenue to avoid the car line. This results in additional pedestrian and motorist conflict as parents and students cross Wisconsin Avenue, maneuvering through the car line that extends onto Wisconsin Avenue. Some motorists were observed traveling in the wrong direction during school dismissal.

One "No Parking" sign is located on the north side of Wisconsin Avenue west of the drop-off area. There is also a "No Passing" sign. The existing "No Passing" sign is ignored by many motorists.

Recommendations: The City of DeLand should post "No Stopping or Parking" signs along the north side of Wisconsin Avenue and increase enforcement during school arrival and dismissal.



Wisconsin Avenue looking east toward the car line into the school



A motorist turns and travels in the wrong direction after student pick-up

Findings: Due to right of way restrictions and the location of large trees, there are no sidewalks on the west side of Hill Avenue from S.R. 44 to Voorhis Avenue. Elementary and High School students walk along the edge of the road on the west side of Hill Avenue south of S.R. 44. The roadway edge is narrow and most students share the road with vehicular traffic. The posted speed limit for this area of Hill Avenue is 30 mph.

Recommendations: Construct a minimum 5 foot wide sidewalk on the west side of Hill Avenue from S.R. 44 to Voorhis Avenue. If funds allow, extend this sidewalk to Beresford Avenue. As an interim measure, trim or remove vegetation blocking the walking area. The possibility of reducing the speed limit should



High school and elementary students walk south along Hill Avenue

also be reviewed. This project is recommended as a Priority Project and is further described at the end of this chapter.



Motorists wait for students to clear the road

Findings: There are no sidewalks along the east side of Hill Avenue from Plymouth Avenue to the southern end of the walk zone at Beresford Avenue. Additionally, there are no sidewalks along the north side of Wisconsin Avenue from Hill Avenue to Miller Road.

Crossing guards are located along Hill Avenue at the intersection of Wisconsin Avenue and at S.R. 44. Students living east of Hill Avenue and west of Blue Lake Avenue may walk along the east side of Hill Avenue right of way to travel to and from school. Students living north of Wisconsin Avenue may use the sidewalk along the west side of Hill Avenue and cross at various locations to reach the east side of the roadway. Two elementary students were observed crossing Hill Avenue at University Avenue. These students crossed Hill Avenue two times to use the existing sidewalk along the west side of Hill Avenue.



Students run home from school along University Avenue after crossing Hill Avenue

Students living north of Wisconsin Avenue may use the sidewalk along the west side of Hill Avenue and cross at various locations to reach the east side of the roadway. Two elementary students were observed crossing Hill Avenue at University Avenue. These students crossed Hill Avenue two times to use the existing sidewalk along the west side of Hill Avenue.

Recommendation: Construct a minimum 5 foot wide sidewalk on the east side of Hill Avenue from Crescent Parkway to Wisconsin Avenue. If possible, extend the sidewalk from Plymouth Avenue to Euclid Avenue.

Finding: There are no sidewalks along the south side of S.R. 44 east of Hill Avenue within the walk zone. Students living south of S.R. 44 may cross that road away from the crossing guards located at Hill Avenue and Blue Lake Avenue. Students may use the existing sidewalk along the north side of S.R. 44 between Miller Road and Blue Lake Avenue and cross S.R. 44 to reach destinations on the south side of S.R. 44.

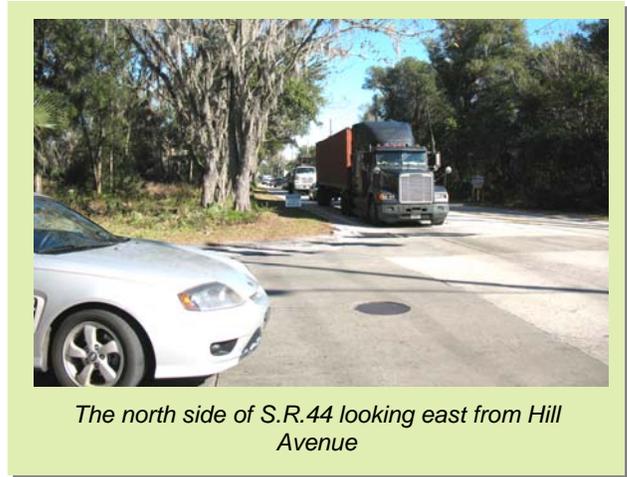
High School students were observed walking along the north side of S.R. 44 (without a sidewalk) and crossing that road near Pecan Street.



South side of S.R. 44 east of Hill Avenue

Recommendation: Construct a minimum 5' wide sidewalk along the south side of S.R. 44 from Hill Avenue to Blue Lake Avenue. Construction of this sidewalk may encourage students to cross with the guard at S.R. 44 and Hill Avenue. This project is recommended as a Priority Project and is further described at the end of this chapter.

Findings: There is no sidewalk along the north side of S.R. 44 between Hill Avenue and just beyond Miller Road. There is no crosswalk or pedestrian signal over Hill Avenue on the south side of S.R. 44. The crossing guard noted that some DeLand High School students cross this intersection and walk along the edge of S.R. 44.



The north side of S.R.44 looking east from Hill Avenue

Recommendations: Construct a minimum 5 foot wide sidewalk along the south side of S.R. 44 from Hill Avenue to just beyond Miller Road. The construction of this sidewalk should be considered only if the sidewalk on the south side of S.R. 44 is constructed. A sidewalk on the north side alone may encourage students to cross S.R. 44 at mid-block.

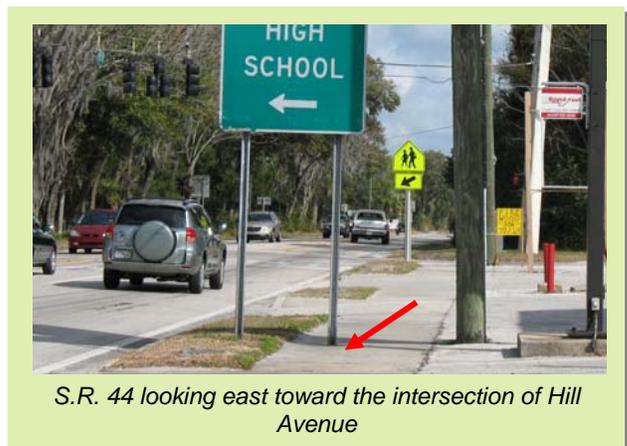
Findings: S.R. 44 is 38 feet wide with a painted outside lane line near the edge of the pavement. FDOT plans to resurface this section of roadway.



S.R. 44 looking east near Hill Avenue

Recommendation: Include bicycle lanes or wide painted shoulders to accommodate the many bicyclists in the area and to provide additional buffer for sidewalk users.

Finding: The directional sign post for the high school is partially located within the sidewalk area and creates an obstruction for sidewalk users.



S.R. 44 looking east toward the intersection of Hill Avenue

Finding: There are no sidewalks along the south side of Voorhis Avenue within the walk zone. There is an existing sidewalk along the north side of Voorhis Avenue from Blue Lake Avenue to Garfield Avenue. Students within the walk zone living south of Voorhis Avenue cross Voorhis Avenue at various locations to reach the sidewalk on the north side. The posted speed limit is 35 mph.

Recommendation: Construct a 5 foot wide sidewalk along the south side of Voorhis Avenue from Garfield Avenue to Blue Lake Avenue. Review the possibility of reducing the speed limit.



Voorhis Avenue looking west

Finding: There is a 2-way stop at the intersection of Hill Avenue and Voorhis Avenue, with through traffic on Voorhis Avenue. Students traveling along Hill Avenue cross Voorhis Avenue at various locations.

Recommendation: Volusia County should review the possibility of creating a 4-way stop condition at Voorhis Avenue with a crosswalk over Voorhis Avenue on the west side of the intersection. This would increase safety for students crossing Voorhis Avenue.



Voorhis Avenue looking east toward the intersection of Hill Avenue

Finding: A section of sidewalk is missing on the north side of Rich Avenue between Boston Avenue and Kentucky Avenue. This 384 foot long section of sidewalk is the only gap in the sidewalk that extends from Hill Avenue to U.S. Hwy. 17-92.

Recommendation: Construct a 5 foot wide concrete sidewalk on the north side of Rich Avenue between Boston Avenue and Kentucky Avenue.



The north side of Rich Avenue looking west from Boston Avenue

Finding: Double stop signs at the intersection of Massachusetts Avenue and Voorhis Avenue may lead motorists to believe that Massachusetts Avenue is a one-way road. Other intersections with double stop signs include the following:

- Voorhis Avenue & Blue Lake Drive
- Minnesota Avenue & Blue Lake Drive
- Voorhis Avenue & Boston Avenue

Recommendation: The possibility of a 4-way stop condition should be reviewed at the intersection of Voorhis Avenue and Massachusetts Avenue to reduce traffic speeds and allow safe crossing traffic intervals for students. Adhere to MUTCD standards for stop sign locations (see Appendix H).



Double stop signs are located at the intersection of Massachusetts Avenue & Voorhis Avenue

Finding: The short sidewalk section along the north side of S.R. 44 has been expanded to provide a waiting area for sidewalk users crossing Blue Lake Avenue or S.R. 44. The tight turning radius for westbound motorists turning right onto Blue Lake Avenue may result in vehicle encroachment into the waiting area.

Recommendation: A traffic engineer should review this area to determine the feasibility of using bollards, curbing, or crosswalk relocation to address safety concerns for sidewalk users.



Motorists may encroach into the sidewalk area at the intersection of Blue Lake Avenue and S.R. 44

Finding: The walk zone for Blue Lake Elementary School includes a hazardous conditions area located east of Blue Lake Avenue (shaded yellow on the Bicycle and Pedestrian Master Plan). A narrow bridge meets the criteria for hazardous walking conditions. At this time, no students live within the designated hazardous conditions area.

Recommendation: Future bridge improvements or replacement should include a sidewalk on both sides of Minnesota Avenue.



Minnesota Avenue looking east at the bridge, located west of Talmadge Gardens Road

Findings: Elementary and high school students cross S.R. 44 just west of the crossing guard location at Hill Avenue and S.R. 44. Some of these students appeared to be crossing to reach the Citgo convenience store. Other students crossed at this location as part of their travel home from school. Sight distance for motorists traveling east on S.R. 44 is reduced at this location by a change in elevation.

Recommendations: Educate students on how to cross major roadways at intersections using the assistance of the crossing guard or pedestrian signals. Provide a reward system at Blue Lake Elementary school to encourage students to cross with the crossing guard. The “Walk – n- Roll to School” punch card system may provide a good starting point. The guard should only punch cards for pedestrians and bicyclists (wearing helmets) who cross at the intersection.



An elementary age student crosses S.R. 44 away from the crossing guard at Hill Avenue



Students cross S.R. 44 at Hill Avenue with the crossing guard

Finding: There was one reported crash involving a six-year old bicyclist who rode through a stop sign on Howry Avenue and was struck by a southbound motorist on Massachusetts Avenue (See Appendix I).

Recommendation: Increase the frequency of bicycle and pedestrian education.

Master Plan

The following Bicycle and Pedestrian Master Plan specifies a network of sidewalks and trails that, if implemented, will greatly increase the convenience and safety of travel for pedestrians and bicyclists. A 24"x36" fold-out Bicycle and Pedestrian Master Plan is included as a deliverable with this Study.

The Master Plan includes the following information:

Existing Conditions:

- Existing Walk Zone area from School District GIS (shaded tan)
- Hazardous Transportation Zone from School District (shaded yellow)
- Student Home Locations from School District (dark blue dot)
- Existing Trails from County GIS and field review (solid green line)
- Existing Wide Sidewalk 6-8' from field review (solid blue line)
- Existing Sidewalks 3-5' from field review (solid red line)
- Existing Crossing Guard Locations from County GIS and field observations (green cross)
- Bicycle or Pedestrian Crash Event Locations from 2005-2007 from County GIS data, during estimated school travel times and involving an elementary age bicyclist or pedestrian (pink star)
- Existing Votran Routes (yellow lines along roadway centerline).

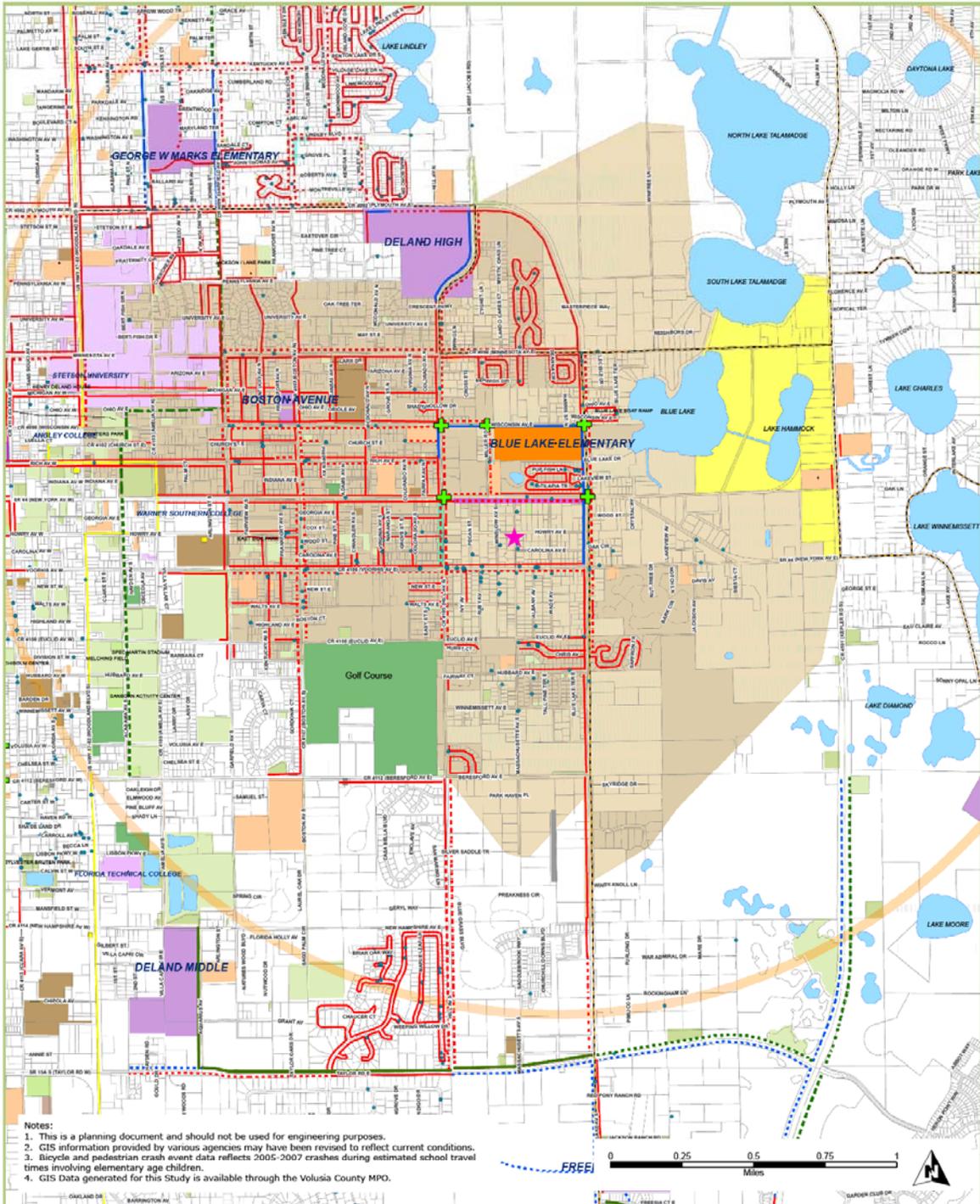
Planned Conditions:

- Planned trail (long dashed dark green line)
- Planned wide sidewalk (long dashed blue line)
- Planned sidewalk (long dashed red line)

Recommendations of this Study:

- Proposed Trails (dashed dark green line)
- Proposed Sidewalks 6-8' wide (dashed blue line)
- Proposed Sidewalks 5' (dashed red line)
- Blue Highlighted sidewalk is a recommended Priority Project
- Purple highlighted sidewalk is a recommended Priority Project

This Master Plan and supplemental information supplied within the Implementation Report are meant as a guideline for sidewalk and trail planning. The Master Plan is not an engineering document.



- Notes:
1. This is a planning document and should not be used for engineering purposes.
 2. GIS information provided by various agencies may have been revised to reflect current conditions.
 3. Bicycle and pedestrian crash event data reflects 2005-2007 crashes during estimated school travel times involving elementary age children.
 4. GIS Data generated for this Study is available through the Volusia County MPO.

Legend

<p>Trails/Sidewalks</p> <ul style="list-style-type: none"> Existing Sidewalk Planned Sidewalk Proposed Sidewalk Existing Wide Sidewalk Planned Wide Sidewalk Proposed Wide Sidewalk Existing Trail Planned Trail Proposed Trail Existing Unpaved Trail MPO Bicycle Route 	<p>Location Information</p> <ul style="list-style-type: none"> Student Home Location Crossing Guard Location Existing Transit Route (weekday) Bicycle/Pedestrian Crash <p>Recommended Priority Projects:</p> <ul style="list-style-type: none"> Hill Avenue Sidewalk (west side) S.R. 44 Sidewalk (south side) 	<p>Walk Zone Information</p> <ul style="list-style-type: none"> School Walk Zone Hazardous Condition Zone (Transported) 2 - Mile Radius 	<p>Property Identification</p> <ul style="list-style-type: none"> School Studied School Property - Public School Property - Private Utility Owned Property Church Owned Property Publicly Owned Property Park/ Conservation/ Golf City Jurisdiction
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Blue Lake Elementary School Bicycle and Pedestrian Master Plan

DeLand, Florida

FUNDING PROVIDED BY THE FLORIDA DEPARTMENT OF TRANSPORTATION DISTRICT FIVE

Hoke Design, Inc.
June 2009

Recommended Priority Project #1



Hill Avenue Sidewalk (west side)

School Served: Blue Lake Elementary School

Project Location: West side of Hill Avenue from S.R. 44 to Voorhis Avenue

Project Description: A minimum 5 foot wide sidewalk by 1320 linear feet

Findings: There are no sidewalks on the west side of Hill Avenue from S.R. 44 to Voorhis Avenue due to right of way restrictions and the location of trees within the right of way. Elementary and High School students walk along the edge of the road on the west side of Hill Avenue south of S.R. 44. The roadway edge is narrow and most students share the road with vehicular traffic. The posted speed limit for this area of Hill Avenue is 30 mph.

Recommendations: Construct a minimum 5 foot wide sidewalk on the west side of Hill Avenue from S.R. 44 to Voorhis Avenue. If funds allow, extend this sidewalk to Beresford Avenue. An arborist should review the health of the trees within the right of way to determine if they are in decline. As an interim measure, trim or remove vegetation that blocks the walking area. The possibility of reducing the speed limit should also be reviewed.

Maintaining Agency: Volusia County

Potential Constraints:

- Limited right-of-way
- Trees located within the right of way, especially near the intersection of S.R. 44
- Utilities within the right of way

Potential Opportunities:

- High sidewalk use by elementary and high school students
- Will extend the existing sidewalk located along Hill Avenue from Plymouth Avenue to S.R. 44



Hill Avenue looking south (from S.R. 44)



Students walk along the western side of Hill Avenue heading south



Students walk along the right of way along the west side of Hill Avenue south of S.R. 44

Estimated Project Cost (not including right of way costs, if applicable): \$122,000

Note: This Priority Project is highlighted in blue on the corresponding Bicycle and Pedestrian Master Plan.

Recommended Priority Project # 2



S.R. 44 Avenue Sidewalk (south side)

School Served: Blue Lake Elementary School

Project Location: South side of S.R. 44 from Hill Avenue to Blue Lake Avenue.

Project Description: A minimum 5 foot wide sidewalk .5 miles long.

Finding: There are no sidewalks along the south side of S.R. 44 east of Hill Avenue within the walk zone. Pedestrians and bicyclists use the paved shoulder or walk along the edge of the road.

High School students were observed walking along the north side of S.R. 44 (without a sidewalk) and crossing that road near Pecan Street to reach the south side. More often, students crossed S.R. 44 to walk along the south side of the road.

Recommendations: Construct a sidewalk along the south side of S.R. 44 from Hill Avenue to Blue Lake Avenue. Provide a connection to the pedestrian signal at the intersection. Repaint the crosswalks over Hill Avenue. This sidewalk will cross four roadways and 13 driveways.

Maintaining Agency: State of Florida

Potential Constraints: Possible constrained right of way, possible utilities or trees within the right of way.

Potential Opportunities: Construction of this sidewalk may encourage students to cross with a guard at S.R. 44 and Hill Avenue. Additionally, FDOT is studying the intersection of S.R. 44 and Hill Avenue.

Estimated Project Cost (not including right of way costs, if applicable): \$300,000

Note: This Priority Project is highlighted in pink on the corresponding Bicycle and Pedestrian Master Plan.



Pedestrians have worn a path in the grass along the south side of S.R. 44 east of Hill Avenue



The Hill Avenue crosswalk is faded at S.R. 44



High School students cross S.R. 44 east of Hill Avenue

