

**Volusia County  
MPO**

**November 2008**



# **Discovery Elementary School**

## **Bicycle and Pedestrian School Safety Review Study Phase 3B**



## **School Summary**

Discovery Elementary School is located in a densely populated area in the City of Deltona, and is centrally located within the designated walk zone.

Of the 830 students attending this school, 800 live within the designated walk zone area. During the 2007/2008 school year approximately 170 of these students walked or rode bicycles to school. Due to the high percentage of students living within the walk zone, only one bus serves this school.

Of the schools reviewed in this phase of the Study, Discovery Elementary School has the highest number of bicyclists. There were 72 bicycles located on campus during the day of observation. Many of these bicycles were in need of repair and students would benefit from volunteer organization assistance.

The school campus includes sidewalk access on the east and west side of the property frontage and works well to reduce pedestrian/bicycle conflict with vehicles.

At the time of this Study, there were four crossing guard locations serving Discovery Elementary School students. No reported bicycle or pedestrian crashes during estimated school travel times and involving elementary school age children have been reported within the walk zone during the last three years.

This Study recommends the construction of sidewalks along the north side of Hancock Drive and along the south side of Tivoli Drive.



**Figure 3.2.1**

## Discovery Elementary School – Summary Sheet

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**School Address:** 975 Abigail Drive  
Deltona, FL 32725

**School Principal:** Susie Williamson  
Phone: 386-575-4133  
Email: [lrwillia@volusia.k12.fl.us](mailto:lrwillia@volusia.k12.fl.us)

**Volusia County School District Representative:** Saralee Morrissey, AICP  
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**Volusia County Public Works Traffic Engineering:** Jon Cheney, P.E., Director  
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**Crossing Guard Supervisor:** Julyann Rivera  
Phone: 386-860-7030  
Email: [jrivera@vcso.us](mailto:jrivera@vcso.us)

**City Representatives:** Tom Burbank, Acting Planning and Development Services Director  
(Previous representative, Becky Mendez, is no longer with the City)  
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**Volusia County MPO:** Stephan Harris, Bicycle and Pedestrian Coordinator  
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Email: [scharris@co.volusia.fl.us](mailto:scharris@co.volusia.fl.us)

**Site Visit Observation Date:** May 14<sup>th</sup>, 2008 (weather: sunny, seasonal)

**Meeting Attendees:**

- Susie Williamson, School Principal
- Julyann Rivera, Crossing Guard Supervisor
- Scott McGrath, Deltona Principal Planner
- Stephan Harris, MPO Bicycle and Pedestrian Coordinator
- Ginger Hoke, Hoke Design, Inc.
- Meera Shenoy, Hoke Design, Inc.

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**Number of Enrolled Students (2008 data):** 830

**Estimated Number of Students Living in Walk Zone:** 800

**Number of School Buses:** 1

**Number of Aftercare Buses/Vans:** 6

**Estimated Number of Walkers/Bicycle Riders:** 150-200 (20-25 walk to YMCA)

**Number of Bicycles on Site:** 72

- 5/14/08 - 71 bicycles, one scooter

**Number of Bicycle Helmets:** 8

- 5/14/08 - 3 stored with bicycles and 5 carried by students

**Staggered Student Dismissal:** Kindergarteners and bus riders are released 10 minutes early

**Estimated Number of Students Attending Breakfast:** 350 (starts at 7:30 am)

**Number of Students for School Site Aftercare:** 125-140 (with permission, some students are allowed to walk or bicycle home after aftercare)

**Teachers Assisting in Arrival and Dismissal Safety:**

**Arrival:** 6

**Dismissal:** 8

**Title One School:** Yes (65%)

**Backpack Policy:** No policy; however, few students use backpacks. Many carry a plastic or canvas bag. 60-80 backpacks were donated to students at the beginning of the year. Students are often provided a second set of books.

**Summary of Principal Comments:**

- Principal feels that there is enough adult supervision on campus
- Requests a stop sign where the crushed shell parking lot exits onto Abigail Drive

**Crossing Guard Locations:**

- Hancock Drive and Abigail Drive
- Normandy Boulevard and Hancock Drive (2 guards)
- Normandy Boulevard and Troy Drive
- Troy Drive and Abigail Drive

**Summary of Crossing Guard Supervisor Comments:**

- Guards were concerned with student behavior – some students refuse to walk their bicycles through the crosswalk. One child has crossed without the guards multiple times
- Many crosswalks are faded and need to be repainted
- Few children wear helmets
- Guards are also concerned with the rate of motorist speed at arrival and dismissal

**Number of Bicycle and Pedestrian Crash Events within the Walk Zone (elementary age, during estimated school travel times, 2005-2007):** 0

**Planned Road, Sidewalk, or other Improvements:** The City of Deltona has an

ongoing sidewalk construction plan and budget.

**Planned Development in Walk Zone:** There are future plans to develop the property south of the school into a park

**Number of Students Transported Due to Hazardous or Unique Conditions:**  
None

**Votran Route in Walk Zone:** Yes, on Normandy Boulevard, possibly used by two students



## Findings and Recommendations

**Finding:** The bicycle and pedestrian facilities are separated from the roadway entrances. The eastern sidewalk facility is well-designed, allowing students to access the bicycle parking area without crossing traffic entering and exiting from the school.

**Recommendation:** When possible, future school campus designs or modifications should provide pedestrian access to avoid conflict with vehicular traffic.



*The existing sidewalk is separated from vehicular traffic*

**Finding:** Motorists often use the dirt surface parking area behind the school to drop off and pick up students. Due to the lack of a stop sign, motorists exiting this parking area may fail to stop at the sidewalk along Abagail Drive, reducing safety for students.

**Recommendations:** The school district and City of Deltona should review the possibility of adding a stop sign at this exit. If possible, construct a paved apron to reduce the need for sidewalk maintenance.



*The exit from the dirt parking area needs a stop sign and crosswalk*

**Finding:** Students congregate at the basketball courts and the cafeteria in the morning before the start of school. Both of these destinations are located to the far rear of the school, so motorists dropping off students in the morning prefer to stop at the back of the student drop-off line to reduce the distance their child walks.

This practice impacts the efficiency of the student drop off procedure, because only a few students leave their vehicles at one time.



*Vehicles stack up along Hancock Drive while they wait in line to turn onto Abagail Drive*

**Recommendation:** At this time, the school may wish to post an assistant at the preferred entrance point to block this entry and force students to use the entrance further to the north during morning arrival.

Future school designs should coordinate the primary destination point with the beginning of the student drop-off and pick-up line.



*Motorists prefer to drop off students closer to the cafeteria, reducing efficiency*

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**Finding:** Several bicycles parked at both of the bicycle racks showed signs of wear and students would benefit from general bicycle repair.

**Recommendations:** The following ideas may help to improve the condition of the bicycles and the safety of the students:

- New bicycle seats
- New tires
- Handlebar grips
- Lights
- Flashing safety lights
- Bicycle locks
- Bicycle tire pumps



*Many bicycles need new parts and repair*

If possible, an organization such as the Parent Teacher Association (PTA) or the Rotary Club should organize a bicycle repair workshop at the beginning of the school year to teach students how to maintain their bicycles and provide bicycle parts and helmets as needed.

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**Finding:** Large numbers of students bicycle to and from school and park their bicycles in one of two bicycle rack areas.

**Recommendation:** Though not critical, an overhead structure covering the bicycle parking areas would provide shade and protect the bicycles from the rain and sun.



*An overhead structure would serve the many students who ride bicycles*

**Finding:** Temporary chains block traffic from entering the access drive along the school building. This may create an obstacle for people who use the designated accessible parking spaces.

**Recommendation:** Flexible bollards, cones or the use of asphalt marking should be considered to allow full access for all people traveling from the accessible parking space to the building.



*Chains block the route for motorists using accessible parking*

**Finding:** The majority of the streets in the walk zone are well designed and include generous right of way to allow for the sidewalk to be set back from the roadway. Many sidewalks were constructed eight feet wide to serve groups of pedestrians and to allow for multiple users. This is especially helpful because most children ride their bicycles on the sidewalks.

The City of Deltona continues to be a leader in sidewalk construction, budgeting \$350,000 a year for that purpose. More recently constructed sidewalks are four feet wide.



*Students crowd the sidewalk at Abigail Drive and Hancock Drive*

**Recommendation:** Sidewalks should be a minimum of five feet wide. This Study includes a sidewalk master plan with recommended Priority Projects that may assist the City of Deltona with prioritization of sidewalk funding or assist with grant funding.

**Finding:** The concrete at the intersection of Abigail Drive and Hancock Drive encroaches into the roadway and may be perceived as a safe area to sidewalk users.

**Recommendation:** Stain/paint the concrete to increase the definition of the sidewalk area. Restripe the crosswalk to continue across the entire intersection width.



*Concrete in the roadway may be perceived as a safe area at the intersection of Abigail Drive with Hancock Drive*



**Finding:** There are few painted crosswalks at intersections within the walk zone. Some crosswalks are also faded.

**Recommendation:** The City should develop a maintenance schedule and budget for crosswalk markings within school walk zones.



*A crosswalk is needed at the school entrance road along Abigail Drive*

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**Finding:** School-related directional signage along roadways near the school may be confusing to motorists.

**Recommendation:** Review signage and traffic patterns near the school to determine whether they can be simplified and clarified. A sign on Alpine Drive is facing the wrong direction and needs to be turned.



*Signs along Abigail Drive may be confusing to motorists*

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**Finding:** There is a wide sidewalk along the south side and east side of Hancock Drive near Discovery Elementary School. Students living north and west of Hancock Drive likely cross Hancock Drive at various locations to reach the existing sidewalk. There is an existing section of sidewalk along the west side of Hancock Drive between the intersection of Abigail Drive and Normandy Boulevard.

**Recommendation:** Construct a sidewalk along the north and west side of Hancock Drive to fill in sidewalk gaps between Lombardy Drive and Roberts Boulevard. This project is a recommended Priority Project and is further described at the end of this chapter.



*Hancock Drive looking south near Lawrence Drive*

**Finding:** The intersection of 4<sup>th</sup> Avenue and 9<sup>th</sup> Street has a two-way stop with through traffic on 4<sup>th</sup> Avenue.

**Recommendation:** A traffic engineer should review this intersection for the possibility of a four-way stop condition to increase safety for students crossing 4<sup>th</sup> Avenue. Crosswalks should also be added.

Additionally, a sidewalk along the east side of 9<sup>th</sup> Street from Hager Street to Anderson Drive is recommended.



*9<sup>th</sup> Street looking north from the intersection of 4<sup>th</sup> Avenue*

**Finding:** The intersection of Normandy Boulevard and Deltona Boulevard was once a crossing guard location. Currently, the painted crosswalk and other roadway markings have faded and may be ambiguous to motorists, pedestrians and bicyclists. Students living north of Deltona Boulevard and west of Normandy Boulevard cross this intersection.

**Recommendation:** Repaint the crosswalks at this intersection and review signal timing to ensure students have sufficient time to cross Deltona Boulevard.



*Normandy Boulevard looking north at the intersection of Deltona Boulevard*

*Note: The repainting of crosswalks appears to have been completed near the end of this Study.*

**Finding:** Only 11% of the bicyclists appeared to be using helmets. This was the lowest percentage of students in Phase 3B of this Study.

**Recommendation:** Continue efforts to encourage helmet use. See previous suggestions in the "Best Practices" section of Phase 2 of this Study.



*Very few students wear helmets*

## 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 map is included as a deliverable with this Study.

The Bicycle and Pedestrian Master Plan includes the following information:

### Existing Conditions:

- Existing Walk Zone area from School District GIS (shaded tan)
- Courtesy Transportation Zone from School District, if applicable (shaded blue)
- Hazardous Transportation Zone from School District, if applicable (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 for existing to remain and yellow cross for existing to be closed)
- 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, if applicable (pink star).
- Existing Votran Routes and stops from Volusia County MPO (yellow lines along roadway centerline with yellow squares at bus stops).

### Planned Conditions:

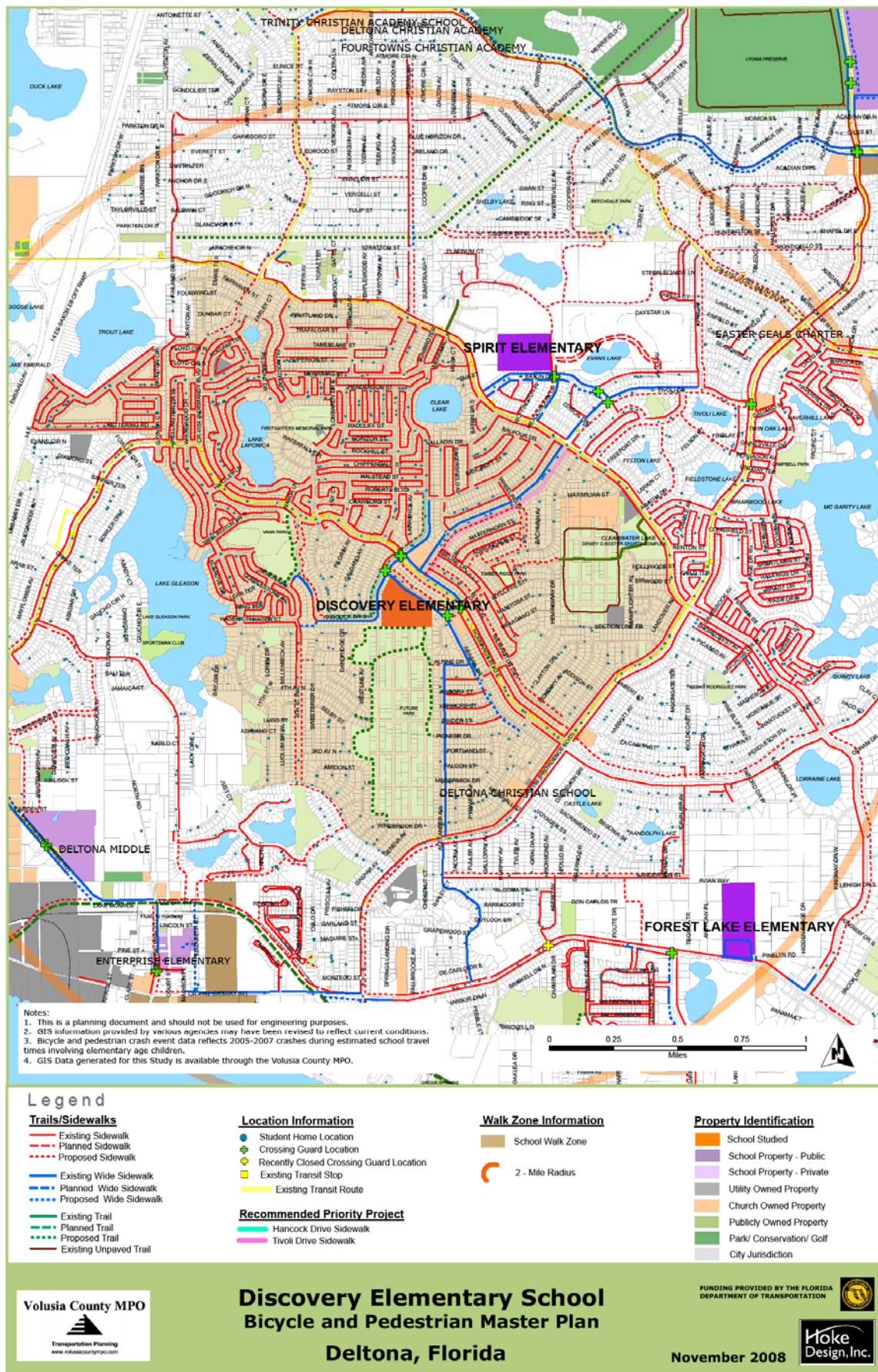
- Planned trail (long dashed dark green line)
- Planned wide sidewalk (long dashed blue line)
- Planned sidewalk (long dashed red line)

### Recommendations of this Study:

- Proposed Trails (dashed dark green line)
- Proposed Sidewalks 6-8' wide (dashed blue line)
- Proposed Sidewalks 5' (dashed red line)

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.





## Recommended Priority Project



### **Hancock Drive Sidewalk (north side)**

**Project Location:** The north side and west side of Hancock Drive from Lombardy Drive to Roberts Drive

**Project Description:** Minimum five foot wide concrete sidewalk

**Finding:** There is a wide sidewalk along the south side and east side of Hancock Drive near Discovery Elementary School. Students living north and west of Hancock Drive likely cross Hancock Drive at various locations to reach the existing sidewalk. There is an existing section of sidewalk along the west side of Hancock Drive between the intersection of Abigail Drive and Normandy Boulevard.

**Recommendations:** Construct a sidewalk along the north and west side of Hancock Drive to fill in sidewalk gaps between Lombardy Drive and Roberts Boulevard. Wider sidewalks should be constructed to accommodate the large number of sidewalk users.



*Hancock Drive looking north*

**School Served:** Discovery Elementary School

**Maintaining Agency:** City of Deltona

**Potential Constraints:** Minor drainage

**Potential opportunities:** Right of way appears to be available

**Estimated Project Cost (not including right of way costs, if applicable):**  
\$326,000

*Note: This project is highlighted blue on the corresponding Bicycle and Pedestrian Master Plan.*