DISTRICTWIDE TRAFFIC OPERATIONS STUDIES

FM NO. 250093-1-32-03

TWO NO. 25

SAFE ROUTES TO SCHOOL

FINAL REPORT

Prepared for:

Florida Department of Transportation

District 6

Prepared by:

Reynolds, Smith and Hills, Inc.

JULY 12, 2007

DISTRICTWIDE TRAFFIC OPERATIONS STUDIES

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C O N T E N T S

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DISTRICTWIDE TRAFFIC OPERATIONS STUDIES

FM NO. 250093-1-32-03

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SAFE ROUTES TO SCHOOL

CARIBBEAN ELEMENTARY SCHOOL

FINAL REPORT

Prepared for:

Florida Department of Transportation

District 6

Prepared by:

Reynolds, Smith and Hills, Inc.

July 12, 2007

Safe Routes to School (SRTS)
Pilot Project

Financial Project No.: 25009313203
Task Work Order No.: 25

FINAL REPORT
for
Caribbean Elementary School

Prepared for:

Florida Department of Transportation

District 6

Prepared by:

REYNOLDS, SMITH & HILLS, INC.

July 11, 2007

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1. INTRODUCTION

Safe Routes to School (SRTS) is a federally funded program that was authorized in August 2005 by Section 1404 of the federal transportation act, SAFETEA-LU (the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users). The program targets children in grades K-8 and was developed to meet the following objectives:

1. To enable and encourage children, including those with disabilities, to walk and bicycle to school

2. To make bicycling and walking to school a safer and more appealing transportation alternative, thereby encouraging a healthy and active lifestyle from an early age, and

3. To facilitate the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of schools.

Florida's SRTS program is managed through the Florida Department of Transportation (FDOT). In accordance with the program guidelines, the FDOT awards projects for SRTS funding following a district-wide competitive application process. The FDOT District 6 Office in consultation with Miami-Dade County Metropolitan Planning Organization (MPO), Miami-Dade County School Board and Miami-Dade Public Works Department identified Caribbean Elementary School as a prospective candidate for SRTS funding. RS&H was retained by the District to assist in identifying infrastructure improvement needs and preparing the required application forms for the SRTS program. This report was prepared in support of the application for funding proposed infrastructure improvements at Caribbean Elementary School for the SRTS program.

2. PROJECT SCHOOL DATA

The following information pertains to the project school.

Name: Caribbean Elementary

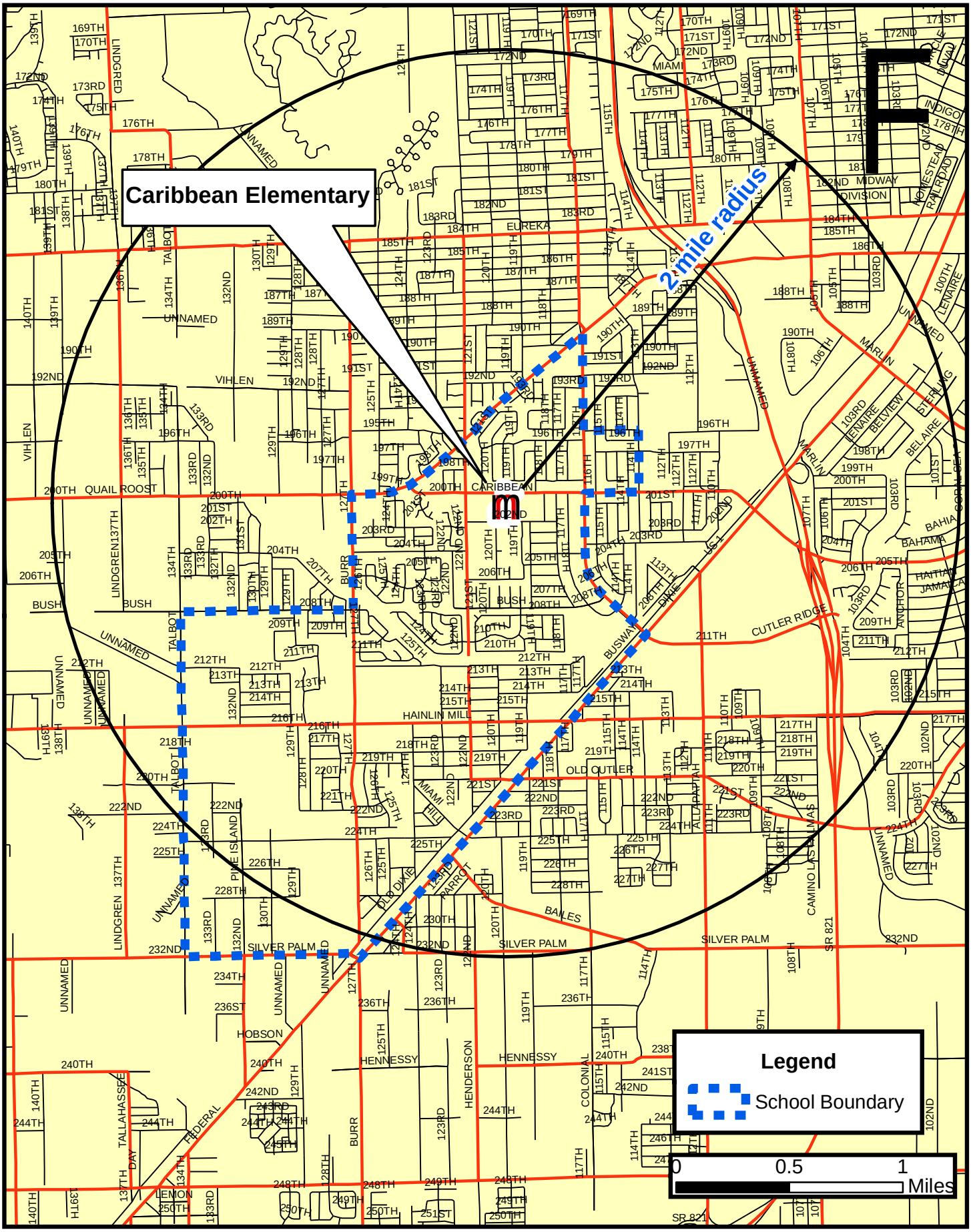
Address: 11990 SW 200th Street, Miami, Fl 33177 (Figure 1 shows project location map)

Enrollment: 898 students (School year 2006 to 2007)

School Attendance Boundary: Attendance boundary is shown in Figure 1.

Estimated mode split for transportation to/from school (based on interviews with school officials):

- Walk/Ride = 40%
- Private Car = 50%
- Buses = 10%



RS&H		Caribbean Elementary 11990 SW 200 Street Miami, Fl. 33177	Location Map	Figure 1

3. CRASH HISTORY

Pedestrian and bicycle crashes reported throughout Miami-Dade County for the period 2002 through 2004 were obtained from the MPO. A GIS analysis was conducted using the crash data to identify pedestrian and bicycle crashes that were reported within the limits of the school attendance boundary (or 2 mile radius). The analysis identified fatal crashes, injury crashes and juvenile crashes. Appendix A shows plots of the crashes reported within the project limits. The crash data is summarized in Table 1.

The recommended SRTS for Caribbean Elementary are presented in Section 5 of the report. Table 2 contains crash details for pedestrian/bicycle collisions that were reported along the recommended SRTS. As shown in Table 2, SW 200 Street experienced a relatively high number of pedestrian crashes during the 3-year study period – five pedestrian crashes were reported including two juvenile crashes. A detailed research of the individual police crash reports would be required to identify probable causal factors for these pedestrian crashes and what, if any, specific engineering countermeasures may be considered to reduce these crashes. This research is beyond the limited scope of this SRTS project. Notwithstanding, based on the field reviews that were conducted for this study recommended improvements were developed to address roadway and traffic deficiencies that would enhance overall safety conditions for pedestrian and bicycle traffic using the proposed safe routes.

Table 1
Summary of Pedestrian and Bicycle Crashes
Caribbean Elementary

Road Name	Segment		2002 Ped & Bike Crashes						2003 Ped & Bike Crashes						2004 Ped & Bike Crashes					
			Juveniles[1]		Others[2]		Total		Juveniles[1]		Others[2]		Total		Juveniles[1]		Others[2]		Total	
	From	To	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries
US 1	SW 211 Street	SW 232 Street	0	2	1	1	1	3	0	0	0	2	0	2	0	0	1	5	1	5
SW 216 Street	SW 134 Avenue	US 1	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0
SW 120 Avenue	Old Cutler	SW 212 Street	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0
SW 122 Avenue	Old Cutler	SW 195 Street	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1
SW 200 Street	SW 114 Avenue	SW 127 Avenue	0	1	0	1	0	2	0	0	0	0	0	0	0	1	0	3	0	4
SW 117 Court	SW 200 Street	SW 208 Street	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
SW 123 Court	SW 206 Street	SW 209 Street	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
SW 210 Street	SW 123 Avenue	SW 119 Avenue	0	0	0	1	0	1	0	0	0	2	0	2	0	0	0	0	0	0
SW 209 Street	SW 119 Avenue	SW 120 Avenue	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0
SW 204 Street	SW 122 Avenue	SW 127 Avenue	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
SW 127 Avenue	SW 200 Street	US 1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
SW 117 Avenue	SW 190 Street	US 1	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	2	0	2
SW 232 Street	SW 127 Avenue	SW 134 Avenue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
SW 114 Avenue	SW 200 Street	SW 196 Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
SW 119 Place	SW 200 Street	SW 194 Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total			**0**	**4**	**1**	**9**	**1**	**13**	**0**	**0**	**0**	**10**	**0**	**10**	**0**	**1**	**1**	**14**	**1**	**15**

Note: 1. Juveniles= children between the ages of 5-13 years
2. Others= children and adults greater than the age of 13 years

Table 2
Summary of Crashes Reported on Proposed Safe Routes
Caribbean Elementary, 2002-2004

CRASH DETAILS							
Safe Route	**Case Number**	**Date of Crash**	**Day of Week**	**Time**	**Pedestrian Age**	**Injury/Fatality**	**Location of Crash**
SW 200 Street (From SW 123 Drive to SW 114 Court)	705029750	04/21/02	Sat	3:12 PM	35	Injury	SW 118 Avenue
	720466130	11/27/02	Tue	9:50 PM	10	Injury	SW 114 Avenue
	756409380	12/10/04	Thu	6:23 PM	39	Injury	SW 117 Avenue
	756409160	11/23/04	Mon	6:17 AM	27	Injury	SW 120 Avenue
	720196110	04/26/04	Sun	3:50 PM	8	Injury	SW 122 Avenue
SW 204 Street (From SW 127 Avenue to SW 122 Avenue)	705612230	01/27/03	Sun	6:02 AM	42	Injury	SW 122 Court
SW 119 Place (From SW 200 Street to SW 196 Terrace)	732889890	07/13/04	Mon	11:26 PM	40	Injury	SW 196 Terrace
SW 122 Avenue (From SW 220 Street to SW 200 Street)	738649700	05/25/04	Mon	4:00 PM	18	Injury	SW 204 Street
	705018480	04/15/02	Sun	5:30 PM	40	Injury	SW 206 Street

Note: Juvenile crashes are highlighted in gray.

4. DEVELOPMENT OF SRTS

SRTS for Caribbean Elementary School were developed based on guidelines contained in the Safe Routes to School, Procedure Manual developed by Miami-Dade County, MPO September 2005. Several additional reference sources also provided guidance in developing safe routes for the project school. Notable among these were:

- National Center for Safe Routes to School: http://www.saferouteroutesinfo.org/
- Federal Highway Safe Routes to School: http://safety.fhwa.dot.gov/saferoutes/

Preliminary SRTS were initially developed for the project school based on reviews of several engineering factors. These included:

- School attendance boundary
- Aerial photographs
- Land use data (see Appendix B)
- Frequency/severity of juvenile pedestrian and bicycle crashes
- Roadway characteristics (sidewalks, medians, buffers, etc.)
- Speed limits
- Traffic volumes
- Location of traffic control devices
- Driveway density
- Location of canals and railroad crossings

Meetings were subsequently held with the school principal and other key staff members to further develop and refine the proposed SR2S. Input was also gained from the Patent Teachers Association (PTA) and the project steering committee that included representatives from the MPO, the School Board and the Public Works Department.

5. RECOMMENDED SRTS

Following the process described in Section 4, the recommended SRTS was developed for Caribbean Elementary School. The map on the following page shows the recommended SRTS. Table 3 shows pertinent roadway and traffic characteristics for the road segments along the recommended SRTS.

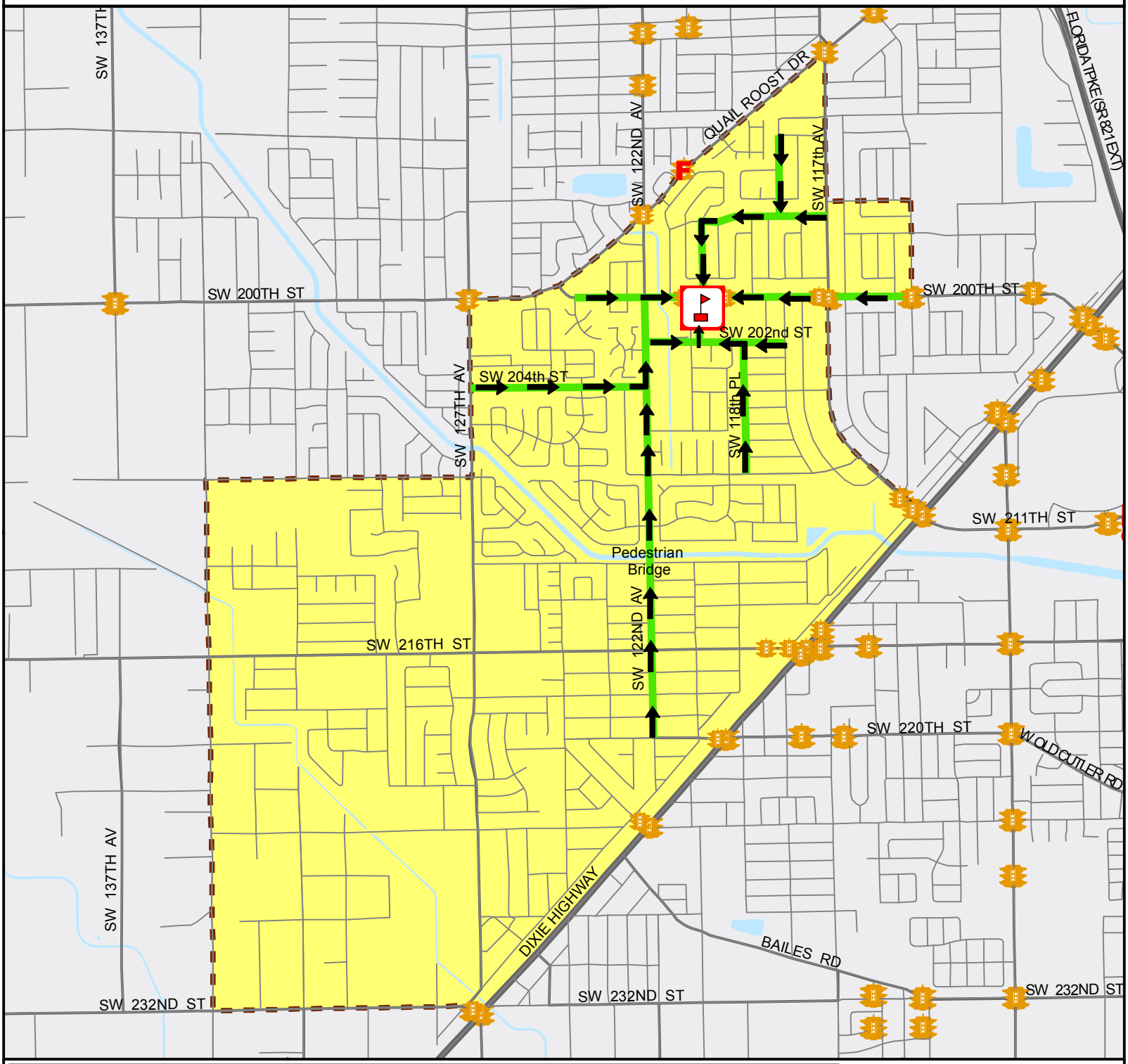
6. FIELD REVIEW

Field reviews for Caribbean Elementary School were conducted on March 3, 2007. The primary deficiencies that were identified along the proposed safe routes were missing sidewalks and crosswalks, inadequate guardrails for canals and a missing pedestrian bridge over the canal in the southern portion of the attendance boundary. A comprehensive list of the deficiencies observed can be found in Appendix C.

CARIBBEAN ELEMENTARY SCHOOL

11990 SW 200th Street, Miami 33177

SAFE ROUTES TO SCHOOL



LEGEND

- School
- Safe Routes
- Streets
- Highways
- Railroad
- Attendance Boundary
- Parks
- Water
- Traffic Signals
- Fire
- Police

0 1,400 2,800 Feet

N

MIAMI-DADE COUNTY

Miami-Dade County Public Schools

MIAMI-DADE MPO Metropolitan Planning Organization

Table 3
Caribbean Elementary
Exisiting Roadway and Traffic Characterisitcs for SRTS Segments

Road	Segment		Facility Type	Speed Limit	AADT[1]	Ped & Bike Crashes[2]
	From	To				
SW 118th Avenue	SW 192nd Street	SW 196th Terrace	City Local Street	35 mph	Low	0
SW 196th Terrace	Colonial Drive	SW 119th Place	City Local Street	35 mph	Low	0
SW 119th Place	SW 196th Terrace	SW 200th Street	City Local Street	35 mph	Low	1
SW 200th Street	SW 114th Avenue	SW 123rd Drive	City Local Street	35 mph	Moderate	6
SW 202nd Street	SW 118th Avenue	SW 122nd Avenue	City Local Street	35 mph	Low	0
SW 204th Street	SW 127th Avenue	SW 122nd Avenue	City Local Street	35 mph	Low	1
SW 118th Place	SW 208th Street	SW 202nd Street	City Local Street	35 mph	Low	0
SW 122nd Avenue	SW 220th Street	SW 200th Street	City Local Street	35 mph	Low	2

Notes:

1. For road segments where AADT data was not readily available, traffic volume is assessed as light, moderate or heavy based on fields observed conditions.
2. Total pedestrian and bicycle crashes for 2002 - 2004

7. RECOMMENDED IMPROVEMENTS AND COST ESTIMATES

Based on the field reviews that were conducted along the SRTS (Section 5), recommended infrastructure improvements were developed to encourage and enhance safety for children walking or bicycling to/from school. The recommended infrastructure improvements were limited to eligible projects specified in Florida's SRTS Application Guidelines. Table 4 shows a listing of recommended infrastructure improvement projects along the safe route segments. Table 4 also includes cost estimates for the improvements. The cost estimates were developed based on FDOT's average unit cost rates for projects implemented in District 6 region. The total cost for infrastructure improvements was estimated at $457,632.44. This includes installing a new pedestrian bridge across the canal on SW 122nd Avenue. The cost of the pedestrian bridge was estimated at approximately $170,000.

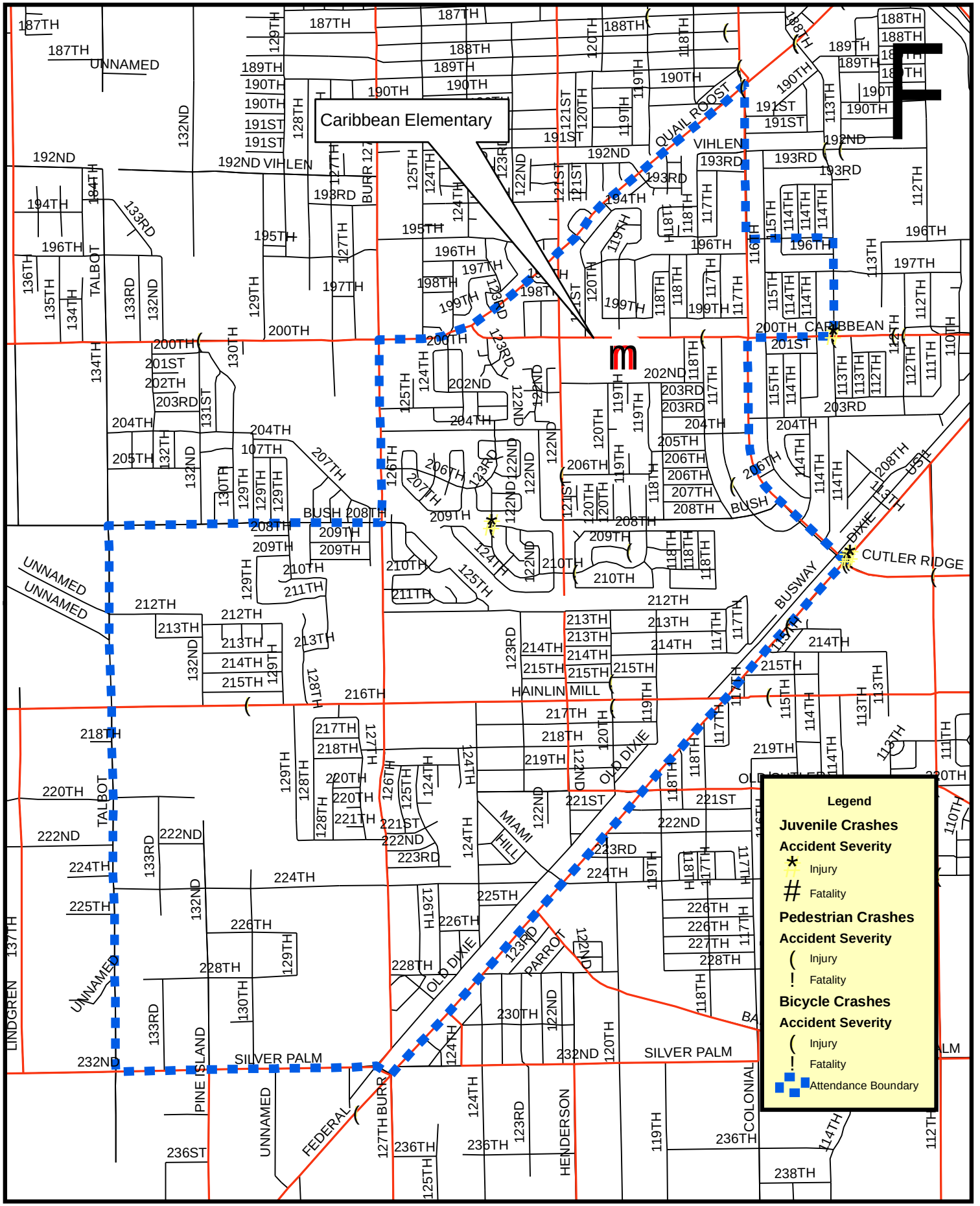
Table 4
Caribbean Elementary School
Cost Estimate for Recommended Improvementes

Road Segment	Recommended Improvements	Length (ft)	Unit Cost	Unit	Total
SW 200 Street (From SW 123 Drive To SW 114 Court)	- Install crosswalk at SW 121 Avenue - north side	80	$2.00	ft	$160.00
	- Install crosswalk at SW 122 Court - north and south sides	160	$2.00	ft	$320.00
	- Install 4" sidewalk along SW 200 Street between SW 122 Avenue and SW 122 Court	116	$49.70	sy	$3,843.47
	- Install 6" sidewalk along SW 200 Street between SW 122 Avenue and SW 122 Court	20	$79.59	sy	$1,061.20
	- Install crosswalk at SW 116 Avenue - north and south sides	140	$2.00	ft	$280.00
	- Install crosswalk at SW 114 Court - north and south sides	160	$2.00	ft	$320.00
	- Install 4" sidewalk extension at SW 114 Court - north and south sides	50	$49.70	sy	$1,656.67
	- Install crosswalk at SW 119 Place and SW 118 Place - north side	160	$2.00	ft	$320.00
	- Install 8' Fence adjacent to canal - north and south side	125	$14.82	ft	$1,852.50
	- Install flourescent yellow green pedestrian signs	4	$244.41	ea	$977.64
SW 119 Place (From SW 200 Street To SW 196 Terrace)	- Install 4" sidewalk extension at SW 199 Street and SW 196 Terrace - east and west sides	20	$49.70	sy	$662.67
	- Install crosswalk at SW 118 Place and SW 118 Court - south side	140	$2.00	ft	$280.00
	- Install 4" sidewalk extension at SW 118 Place and SW 118 Court - south side	38	$49.70	sy	$1,259.07
	- Install crosswalk at SW 117 Court	70	$2.00	ft	$140.00
	- Install 4" sidewalk extension at SW 117 Court	20	$49.70	sy	$662.67
SW 118 Avenue (From SW 196 Terrace To SW 192 Street)	- Install crosswalk at SW 194 Terrace - west side	70	$2.00	ft	$140.00
	- Install 4" sidewalk extension at SW 194 Terrace - west side	20	$49.70	sy	$662.67
	- Install crosswalk at SW 196 Street	140	$2.00	ft	$280.00
	- Install 4" sidewalk extension at SW 196 Street	40	$49.70	sy	$1,325.33
SW 122 Avenue (From SW 220 Street To SW 200 Street)	- Install 4" sidewalk at SW 200 Street - west side	150	$49.70	sy	$4,970.00
	- Install 6" sidewalk at SW 200 Street - west side	50	$79.59	sy	$2,653.00
	- Install crosswalk at SW 206 Street and SW 207 Street - east side	210	$2.00	ft	$420.00
	- Install crosswalk at SW 208 Street and SW 210 Street - east and west sides	280	$2.00	ft	$560.00
	- Install 13.5' wide pedestrian bridge over the canal to use SW 122 Avenue	115	$110.00	sf	$170,775.00
	- Install crosswalk between SW 212 Street and SW 220 Street	560	$2.00	ft	$1,120.00
	- Install 4" sidewalk between SW 212 Street and SW 220 Street	2460	$49.70	sy	$81,508.00
	- Install 6" sidewalk between SW 212 Street and SW 220 Street	80	$79.59	sy	$4,244.80
	- Install crosswalk at SW 214 Lane - west side	70	$2.00	ft	$140.00
	- Install crosswalk at SW 217 Street - east side	140	$2.00	ft	$280.00
	- Install crosswalk at SW 218 Street and SW 219 Street - east side	280	$2.00	ft	$560.00
SW 204 Street (From SW 127 Avenue To SW 122 Avenue)	- Install crosswalk at SW 122 Court - south side	80	$2.00	ft	$160.00
	- Install 4" sidewalk at SW 122 Court - west side	150	$49.70	sy	$4,970.00
	- Install 6" sidewalk at SW 122 Court - west side	50	$79.59	sy	$2,653.00
	- Install crosswalk at SW 123 Avenue - north and south sides	160	$2.00	ft	$320.00
	- Install 4" sidewalk extension at SW 123 Avenue - north and south sides	48	$49.70	ft	$2,385.60
	- Install 4" sidewalk between SW 127 Avenue and SW 123 Avenue (approx. 630)	540	$49.70	sy	$17,892.00
	- Install 6" sidewalk between SW 127 Avenue and SW 123 Avenue (approx. 630)	90	$79.59	sy	$4,775.40
SW 202 Street (From SW 122 Avenue To SW 118 Place)	- Install crosswalk at SW 120 Avenue - south side	70	$2.00	ft	$140.00
	- Install crosswalk at SW 118 Court - north side	80	$2.00	ft	$160.00
	- Install flourescent yellow green pedestrian signs	4	$244.41	ea	$977.64
SW 118 Place (From SW 208 Street To SW 202 Street)	- Install crosswalk at SW 203 Street, SW 203 Terrace and SW 204 Street - east side	240	$2.00	ft	$480.00
	- Install 4" sidewalk extensions at SW 203 Street, SW 203 Terrace, SW 204 Street - east side	60	$49.70	ft	$2,982.00
	- Install crosswalk at SW 206 Street, SW 206 Terrace, and SW 207 Street - east side	220	$2.00	ft	$440.00
	- Install 4" sidewalk extensions at SW 206 Street, SW 206 Terrace, and SW 207 Street - east side	60	$49.70	ft	$2,982.00
	- Install crosswalk at SW 205 Street - east and west sides	70	$2.00	ft	$140.00
	- Install 4" sidewalk extensions at SW 205 Street - east and west sides	40	$49.70	ft	$1,988.00
Prelimiary Total Cost					$326,880.31
Contingencies (20%)					$65,376.06
Mobilization (10%)					$32,688.03
Maintence of Traffic (10%)					$32,688.03
Grand Total Cost					$457,632.44

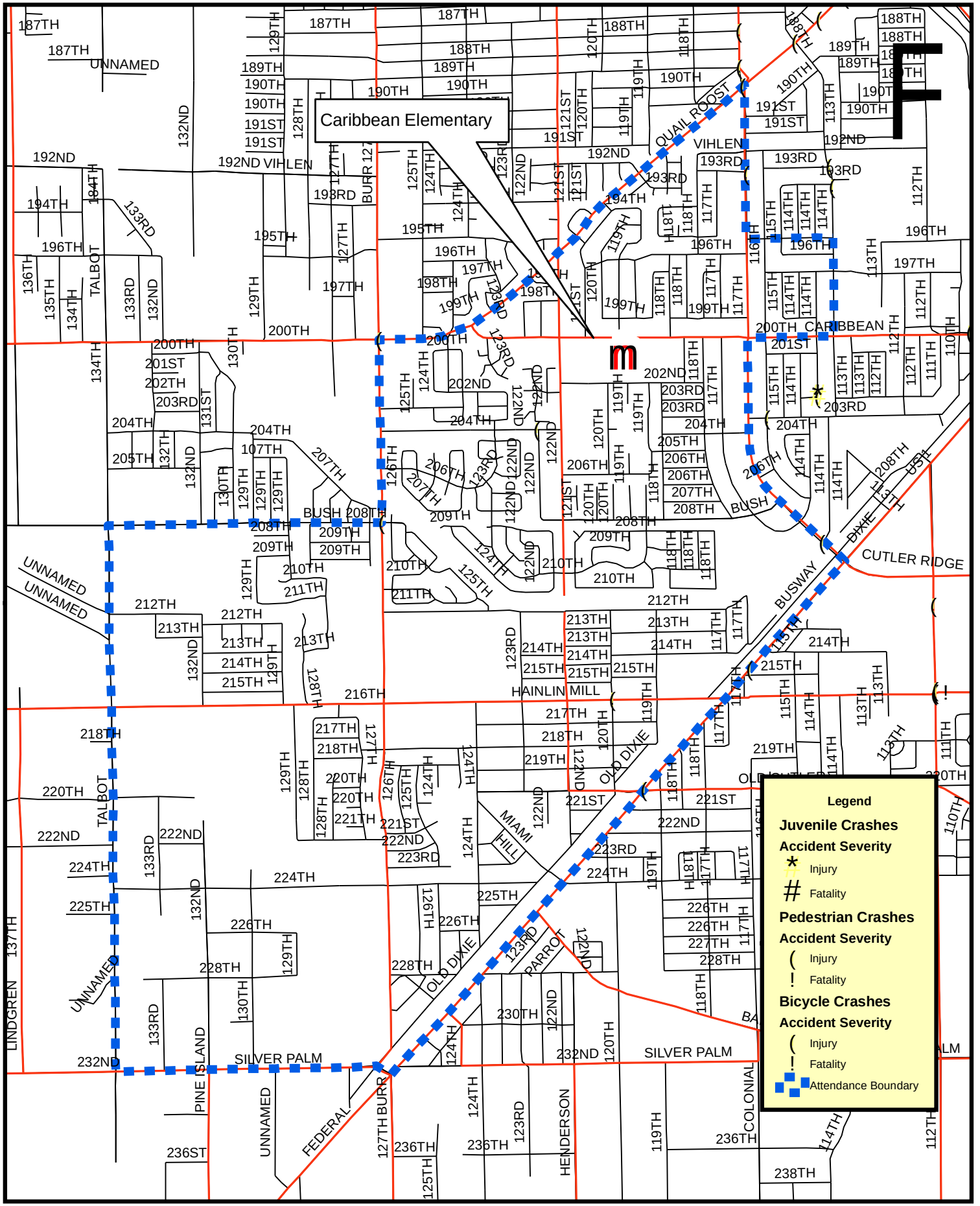
LIST OF APPENDICES

APPENDIX A

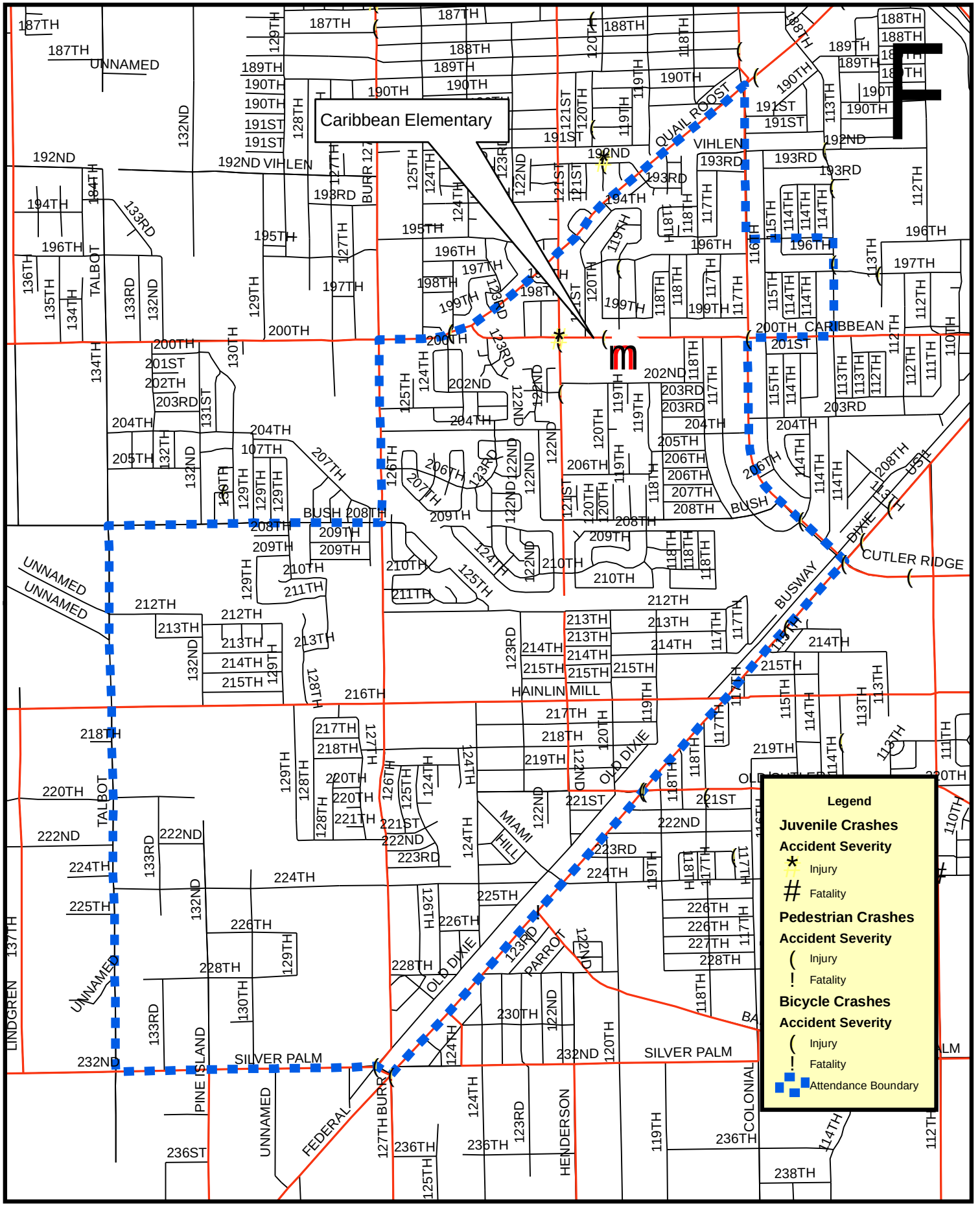
Maps of Pedestrian and Bicycle Crashes



RS&H		Pedestrian and Bicycle Crashes Caribbean Elementary	2002	Appendix A



RS&H		Pedestrian and Bicycle Crashes Caribbean Elementary	2003	Appendix A

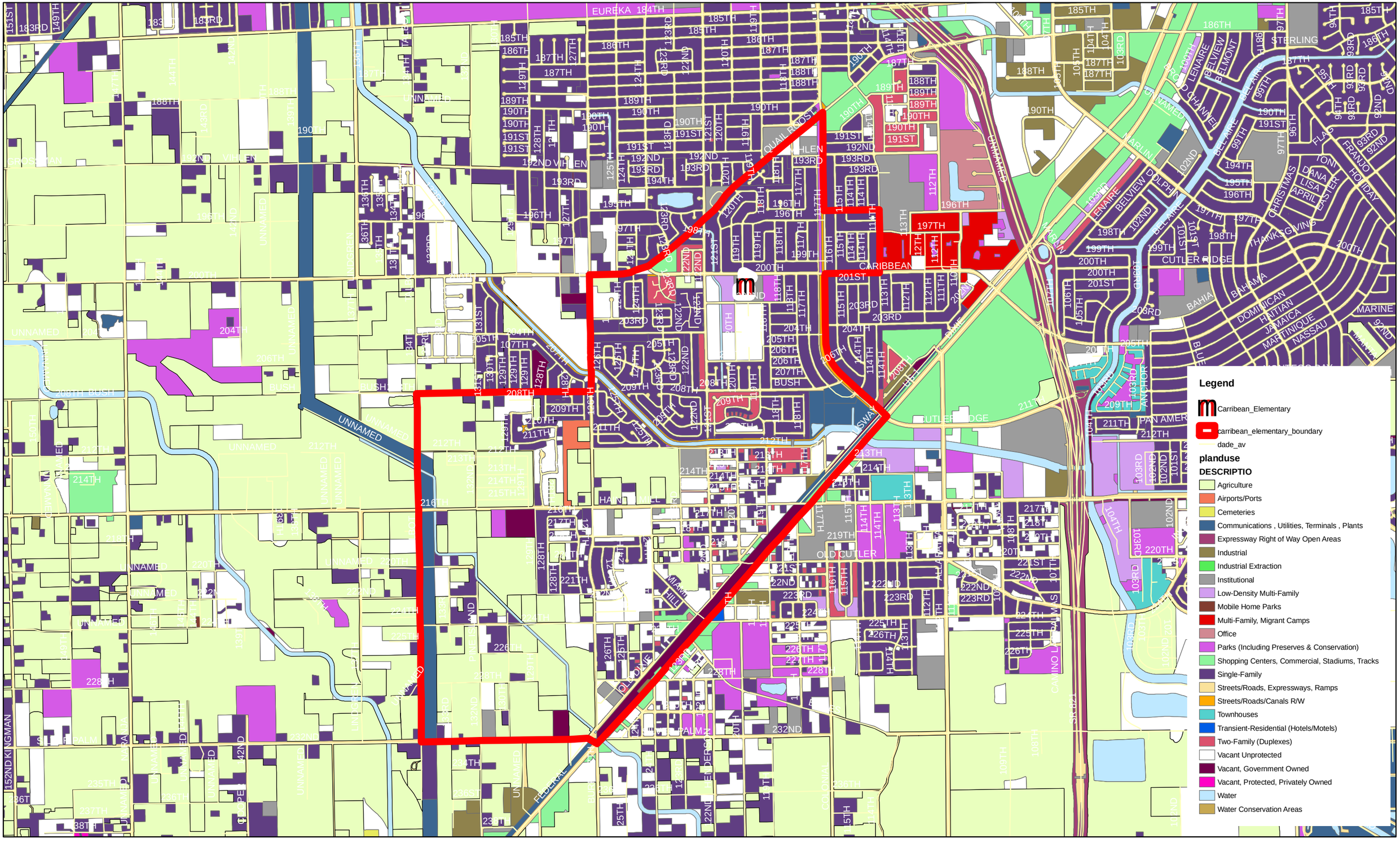


RS&H		Pedestrian and Bicycle Crashes Caribbean Elementary	2004	Appendix A

APPENDIX B

Land Use Map

Carribean Elementary



APPENDIX C
Existing Route Deficiencies

SAFE ROUTE TO SCHOOL PROJECT

Caribbean Elementary

11990 SW 200 Street, Miami, Florida 33177

Improvements Needed

From the field:

Route- SW 200 Street (From SW 123 Drive to SW 114 Court)

- At SW 121 Avenue crosswalk is needed on the north side.
- There is missing crosswalk at SW 122 Court on the north and south side.
- At SW 200 Street between SW 122 Avenue and SW 122 Court is missing sidewalk (Approximately 136 feet).
- At SW 116 Avenue there is crosswalk missing on the north and south side.
- There is crosswalk and sidewalk connection missing on the north and south side of SW 114 Court.
- At SW 119 Place and SW 118 place there is crosswalk missing on the north side.
- At the canal the guardrail needs maintenance and a chain linked fence should be installed (Approximately 50 feet on the south side and 75 feet on the north side).

Route- SW 119 Place (From SW 200 Street to SW 196 Terrace)

- At SW 199 Street and SW 196 Terrace there is sidewalk connection missing on the east and west side.
- At SW 118 place and SW 118 Court sidewalk connection and the crosswalk are missing on the south side.
- At SW 117 Court, sidewalk connection and crosswalk are missing.

Route- SW 118 Avenue (From SW 196 Terrace to SW 192 Street)

- There is crosswalk and sidewalk connection missing at SW 194 Terrace on the west side.
- At SW 196 Street, sidewalk connection and crosswalk are missing.

Route- SW 122 Avenue (From SW 220 Street to SW 200 Street)

- At SW 200 Street there is sidewalk missing on the west side (Approximately 150 feet).
- At SW 206 Street and SW 207 Street there is crosswalk missing on the east side.
- At SW 208 Street and SW 210 Street there is crosswalk missing on the east and west side.
- A pedestrian bridge needs to be installed over the canal to enable students to be able to use SW 122 Avenue.
- From SW 212 Street to SW 220 Street there is sidewalk and crosswalk missing.
- At SW 214 Lane there is crosswalk missing on the west side.
- At SW 217 Street there is crosswalk missing on the east side.
- At SW 218 Street and SW 219 Street there is crosswalk missing on the east side.

- Between SW 216 Street and SW 220 Street there is sidewalk and crosswalk missing.

Route- SW 204 Street (From SW 127 Avenue to SW 122 Avenue)

- At SW 122 Court there is crosswalk missing on the south side. There is also approximately 150 feet of sidewalk missing on the west side.
- At SW 123 Avenue there is sidewalk connection and crosswalk missing on the north and south side.
- There are 630 feet of sidewalk missing from SW 127 Avenue to SW 123 Avenue.

Route- SW 202 Street (From SW 122 Avenue to SW 118 Place)

- At SW 120 Avenue there is crosswalk missing on the south side.
- There is crosswalk missing on the north side of SW 118 Court.

Route- SW 118 Place (From SW 208 Street to SW 202 Street)

- At SW 203 Street, SW 203 Terrace, SW 204 Street, SW 206 Street, SW 206 Terrace, and SW 207 Street there is crosswalk and sidewalk connection missing on the east side.
- At SW 205 Street there is sidewalk connection and crosswalk missing on the east and west side.

From the meeting:

- At SW 122 Avenue and SW 202 Street there are no crosswalks for students to cross SW 122 Avenue. There is a crosswalk and crossing guard for students wanting to cross SW 202 Street traveling in the north/south direction but not in the east/west direction.
- Homes located south of the canal use the Dade county Public School transportation system. Students do not cross the canal to go to school.
- The principal stated that SW 202 Street which is the back entrance of the school is used to pick up and drop off the students. There is a lot of pedestrian activity and there are no pedestrian features such as flashers or crosswalks.
- At SW 204 Street (on the south side) there is no way for students to cross at the corner of SW 204 Street and SW 122 Avenue. SW 204 Street has a speeding problem between SW 127 Avenue and SW 122 Avenue.
- SW 122 Avenue from the canal to SW 200 Street has no traffic signals. There is a four way stop located at SW 207 Street.
- On SW 202 Street there are bulb outs located in the back entrance of the school that causes driver confusion. They would like for that to be removed.
- The principal also mentioned that there was a street located just in the back of the schools that students have used but they do not encourage it. It was noted in the field that the street is closed and there are no through vehicles. This would not be a good location for students to walk through.

DISTRICTWIDE TRAFFIC OPERATIONS STUDIES

FM NO. 250093-1-32-03

TWO NO. 25

SAFE ROUTES TO SCHOOL

HENRY M. FLAGLER ELEMENTARY SCHOOL

FINAL REPORT

Prepared for:

Florida Department of Transportation

District 6

Prepared by:

RS&H

Reynolds, Smith and Hills, Inc.

July 12, 2007

Safe Routes to School (SRTS)
Pilot Project

Financial Project No.: 25009313203
Task Work Order No.: 25

FINAL REPORT
for
Henry M. Flagler Elementary School

Prepared for:

Florida Department of Transportation

District 6

Prepared by:

REYNOLDS, SMITH & HILLS, INC.

July 11, 2007

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1. INTRODUCTION

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1. To enable and encourage children, including those with disabilities, to walk and bicycle to school

2. To make bicycling and walking to school a safer and more appealing transportation alternative, thereby encouraging a healthy and active lifestyle from an early age, and

3. To facilitate the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of schools.

Florida's SRTS program is managed through the Florida Department of Transportation (FDOT). In accordance with the program guidelines, the FDOT awards projects for SRTS funding following a district-wide competitive application process. The FDOT District 6 Office in consultation with Miami-Dade County Metropolitan Planning Organization (MPO), Miami-Dade County School Board and Miami-Dade Public Works Department identified Henry M. Flagler Elementary School as a prospective candidate for SRTS funding. RS&H was retained by the District to assist in identifying infrastructure improvement needs and preparing the required application forms for the SRTS program. This report was prepared in support of the application for funding proposed infrastructure improvements at Henry M. Flagler Elementary School for the SRTS program.

2. PROJECT SCHOOL DATA

The following information pertains to the project school.

Name: Henry M. Flagler Elementary

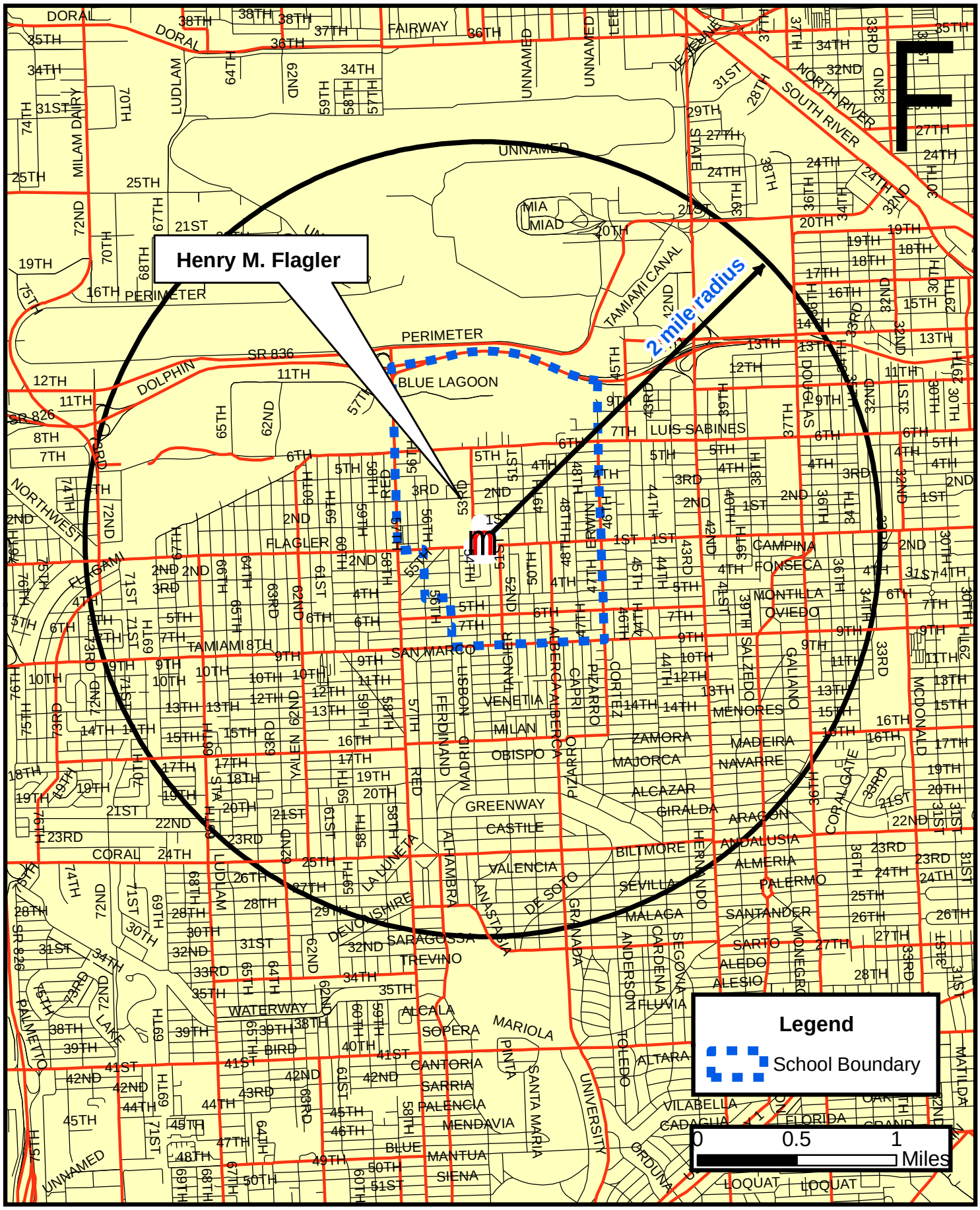
Address: 5222 NW 1st Street, Miami, Fl 33126 (Figure 1 shows project location map)

Enrollment: 827 students (School year 2006 to 2007)

School Attendance Boundary: Attendance boundary is shown in Figure 1.

Estimated mode split for transportation to/from school (based on interviews with school officials):

- Walk/Ride = 20%
- Private Car = 70%
- Buses = 10%



RS&H		Henry M. Flagler 5222 NW 1st Street Miami, Fl. 33126	Location Map	Figure 1

3. CRASH HISTORY

Pedestrian and bicycle crashes reported throughout Miami-Dade County for the period 2002 through 2004 were obtained from the MPO. A GIS analysis was conducted using the crash data to identify pedestrian and bicycle crashes that were reported within the limits of the school attendance boundary (or 2 mile radius). The analysis identified fatal crashes, injury crashes and juvenile crashes. Appendix A shows plots of the crashes reported within the project limits. The crash data is summarized in Table 1.

The recommended SRTS for Henry M. Flagler Elementary are presented in Section 5 of the report. Table 2 contains crash details for pedestrian/bicycle collisions that were reported along the recommended SRTS. As shown in Table 2, West Flagler Street experienced a relatively high number of pedestrian crashes during the 3-year study period – 15 pedestrian crashes (none involving juveniles) were reported including two fatalities. In discussions with staff from Henry M. Flagler Elementary, it was also brought to attention that this segment of West Flagler Street experienced a fatal crash in January 2006 that involved a student walking to school. A detailed research of the individual police crash reports would be required to identify probable causal factors for these pedestrian crashes and what, if any, specific engineering countermeasures may be considered to reduce these crashes. This research is beyond the limited scope of this SRTS project. Notwithstanding, based on the field reviews that were conducted for this study recommended improvements were developed to address roadway and traffic deficiencies that would enhance overall safety conditions for pedestrian and bicycle traffic using the proposed safe routes.

Table 1
Summary of Pedestrian and Bicycle Crashes
Henry M. Flagler

Road Name	Segment		2002 Ped & Bike Crashes						2003 Ped & Bike Crashes						2004 Ped & Bike Crashes					
			Juveniles[1]		Others[2]		Total		Juveniles[1]		Others[2]		Total		Juveniles[1]		Others[2]		Total	
	From	To	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries
SW 57 Avenue	SR 836	Flagler Street	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0
NW 7 Street	NW 57 Avenue	NW 47 Avenue	0	1	0	1	0	1	0	0	0	1	0	1	0	0	0	2	0	2
Flagler Street	NW 57 Avenue	NW 47 Avenue	0	0	1	3	1	3	0	0	0	2	0	2	0	0	1	2	1	2
NW 47 Avenue	SW 8 Street	NW 9 Street	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
NW 48 Avenue	Flagler Street	NW 6 Street	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
NW 53 Avenue	NW 7 Street	Flagler Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
SW 8 Street	SW 47 Avenue	SW 55 Avenue	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	3	0	3
Blue Lagoon Drive	NW 52 Avenue	NW 57 Avenue	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
NW 5 Street	NW 57 Avenue	NW 55 Avenue	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0
SW 49 Avenue	NW 6 Street	SW 8 Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
NW 48 Court	NW 6 Street	Flagler Street	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Total			**0**	**1**	**1**	**10**	**1**	**10**	**0**	**0**	**0**	**8**	**0**	**8**	**0**	**0**	**1**	**9**	**1**	**9**

Note: 1. Juveniles= children between the ages of 5-13 years

2. Others= children and adults greater than the age of 13 years

Table 2
Summary of Crashes Reported on Proposed Safe Routes
Henry M. Flagler Elementary, 2002-2004

CRASH DETAILS							
Safe Route	**Case Number**	**Date of Crash**	**Day of Week**	**Time**	**Pedestrian Age**	**Injury/Fatality**	**Location of Crash**
NW 7 Street (From NW 47 Avenue to NW 57 Avenue)	705325670	10/02/02	Tue	6:45 PM	16	Injury	NW 47 Avenue
	705972850	05/01/02	Tue	2:05 PM	69	Injury	NW 55 Avenue
	705318360	05/18/02	Fri	12:00 PM	12	Injury	NW 56 Avenue
	705455330	03/06/02	Tue	3:40 PM	71	Injury	NW 57 Avenue
	705452850	05/06/03	Mon	2:45 PM	69	Injury	NW 47 Avenue
	738961590	03/24/04	Tue	12:05 PM	78	Injury	NW 57 Avenue
Flagler Street (From NW 47 Avenue to NW 57 Avenue)	743003910	11/15/02	Thu	2:40 PM	53	Injury	NW 57 Avenue
	705989200	03/13/02	Tue	4:05 PM	55	Injury	NW 55 Court
	705996050	01/30/02	Tue	12:38 PM	49	Injury	NW 52 Avenue
	721390100	04/08/02	Sun	9:40 PM	39	Fatality	NW 51 Avenue
	734125870	09/24/02	Mon	8:26 AM	80	Injury	NW 48 Court
	733694240	04/17/02	Tue	unknown	69	Injury	NW 48 Avenue
	705950430	04/09/02	Mon	12:05 AM	41	Injury	NW 47 Avenue
	738268250	08/28/03	Wed	unknown	28	Injury	NW 51 Avenue
	743041160	11/12/03	Tue	11:55 AM	55	Injury	NW 53 Avenue
	738264630	10/22/03	Tue	6:20 PM	51	Injury	NW 55 Avenue
	743955020	03/04/04	Wed	9:00 PM	55	Injury	NW 57 Avenue
	723881460	08/02/04	Sun	12:00 AM	60	Injury	5340 Flagler Street
	738972240	06/15/04	Mon	3:30 PM	52	Injury	NW 53 Avenue
	738972500	03/09/04	Mon	7:14 PM	53	Injury	NW 48 Place
	723733950	12/04/04	Fri	7:12 AM	71	Fatality	NW 47 Court
NW 53 Avenue (From NW 7 Street to Flagler Street)	743072210	04/18/04	Sat	6:15 PM	18	Injury	NW 1 Street

Note: Juvenile crashes are highlighted in gray.

4. DEVELOPMENT OF SRTS

SRTS for Henry M. Flagler Elementary School were developed based on guidelines contained in the Safe Routes to School, Procedure Manual developed by Miami-Dade County, MPO September 2005. Several additional reference sources also provided guidance in developing safe routes for the project school. Notable among these were:

- National Center for Safe Routes to School: http://www.saferouteroutesinfo.org/
- Federal Highway Safe Routes to School: http://safety.fhwa.dot.gov/saferoutes/

Preliminary SRTS were initially developed for the project school based on reviews of several engineering factors. These included:

- School attendance boundary
- Aerial photographs
- Land use data (see Appendix B)
- Frequency/severity of juvenile pedestrian and bicycle crashes
- Roadway characteristics (sidewalks, medians, buffers, etc.)
- Speed limits
- Traffic volumes
- Location of traffic control devices
- Driveway density
- Location of canals and railroad crossings

Meetings were subsequently held with the school principal and other key staff members to further develop and refine the proposed SR2S. Input was also gained from the Patent Teachers Association (PTA) and the project steering committee that included representatives from the MPO, the School Board and the Public Works Department.

5. RECOMMENDED SRTS

Following the process described in Section 4, the recommended SRTS was developed for Henry M. Flagler Elementary School. The map on the following page shows the recommended SRTS. Table 3 shows pertinent roadway and traffic characteristics for the road segments along the recommended SRTS.

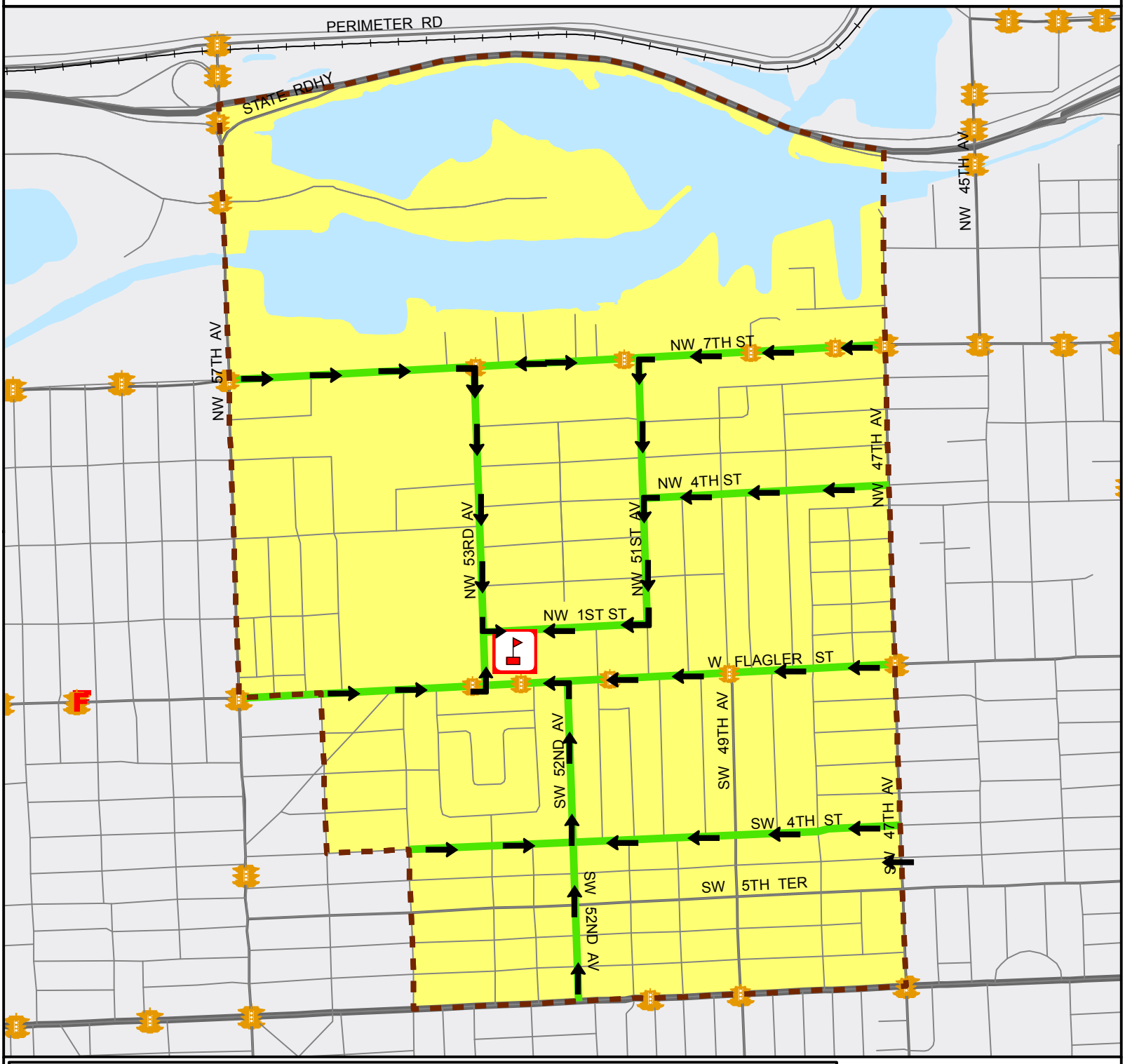
6. FIELD REVIEW

Field reviews for Henry M. Flagler Elementary School were conducted on March 8, 2007. The primary deficiencies that were identified along the proposed safe routes were missing sidewalks and crosswalks, inadequate signage and missing school zone flashers on NW 1st Street. A comprehensive list of the deficiencies observed can be found in Appendix C.

HENRY M. FLAGLER ELEMENTARY SCHOOL

5222 NW 1st Street, Miami 33126

SAFE ROUTES TO SCHOOL



LEGEND

- Safe Routes
- School
- Streets
- Highways
- Railroad
- Attendance Boundary
- Parks
- Water
- Traffic Signals
- Fire
- Police

0 750 1,500 Feet

N

MIAMI-DADE COUNTY

Miami-Dade County Public Schools

MIAMI-DADE MPO Metropolitan Planning Organization

Table 3
Henry M. Flagler Elementary
Exisiting Roadway and Traffic Characterisitcs for SRTS Segments

Road	Segment		Facility Type	Speed Limit	AADT[1]	Ped & Bike Crashes[2]
	From	To				
NW 7th Street	NW 57th Avenue	NW 47th Avenue	City Collector	40 mph	Moderate	5
NW 53rd Avenue	NW 7th Street	W Flagler Street	City Local Street	35 mph	Low	1
NW 51st Avenue	NW 7th Street	NW 1st Street	City Local Street	35 mph	Low	0
NW 4th Street	NW 51st Avenue	NW 47th Avenue	City Local Street	35 mph	Low	0
NW 1st Street	NW 53rd Avenue	NW 51st Avenue	City Local Street	35 mph	Low	0
W Flagler Street	NW 57th Avenue	NW 47th Avenue	State Road (Minor Arterial)	40 mph	39,000	9
SW 52nd Avenue	SW 8th Street	W Flagler Street	City Local Street	35 mph	Low	0
SW 4th Street	SW 47th Avenue	SW 55th Avenue	City Local Street	35 mph	Low	0

Notes:

1. For road segments where AADT data was not readily available, traffic volume is assessed as light, moderate or heavy based on fields observed conditions.
2. Total pedestrian and bicycle crashes for 2002 - 2004

7. RECOMMENDED IMPROVEMENTS AND COST ESTIMATES

Based on the field reviews that were conducted along the SRTS (Section 5), recommended infrastructure improvements were developed to encourage and enhance safety for children walking or bicycling to/from school. The recommended infrastructure improvements were limited to eligible projects specified in Florida's SRTS Application Guidelines. Table 4 shows a listing of recommended infrastructure improvement projects along the safe route segments. Table 4 also includes cost estimates for the improvements. The cost estimates were developed based on FDOT's average unit cost rates for projects implemented in District 6 region. The total cost for infrastructure improvements was estimated at $80,104.71.

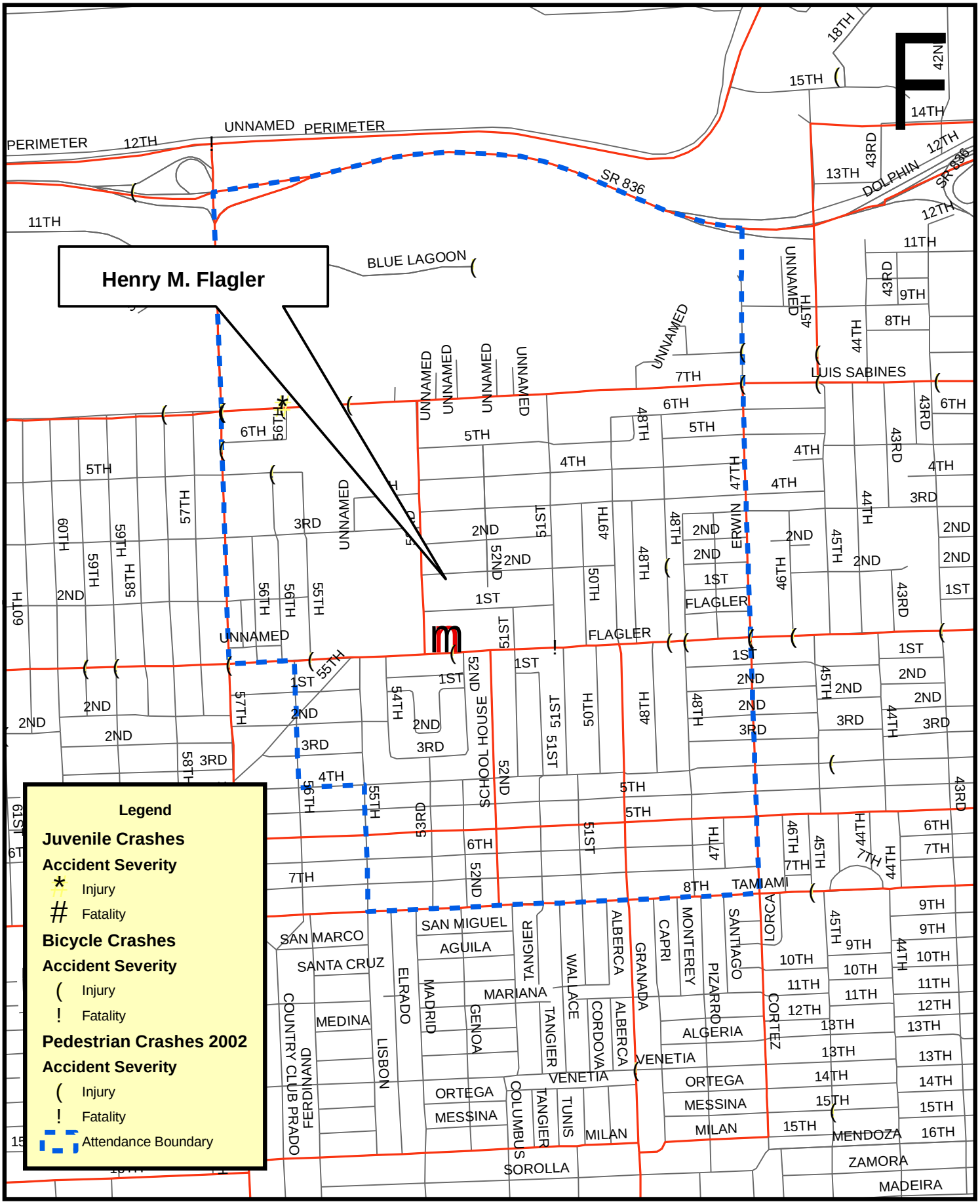
Table 4
Henry M. Flagler Elementary
SRTS Infrastructure Improvements

Road Segment	Recommended Improvements	Length (ft)	Unit Cost	Unit	Total
NW 7 Street (From NE 47 Avenue to NW 57 Avenue)	- Install crosswalk at NW 51 Avenue - south and east sides	100	$2.00	ft	$200.00
	- Install crosswalk at NW 53 Avenue - north and south sides	100	$2.00	ft	$200.00
	- Install crosswalk at NW 56 Avenue - north and south sides	45	$2.00	ft	$90.00
NW 53 Avenue (From NW 7 Street To W Flagler Street)	- Install 4" sidewalk along NW 53 Avenue between NW 7 Street and NW 4 Terrace	498	$49.70	sy	$16,500.40
	- Install 6" sidewalk along NW 53 Avenue between NW 7 Street and NW 4 Terrace	50	$79.59	sy	$2,653.00
	- Install 4" sidewalk extension at NW 5 Street - east side	20	$49.70	sy	$662.67
	- Install 4" sidewalk along NW 53 Avenue between NW 7 Street and NW 5 Street	270	$49.70	sy	$8,946.00
	- Install 6" sidewalk along NW 53 Avenue between NW 7 Street and NW 5 Street	60	$79.59	sy	$3,183.60
	- Install crosswalk at NW 5 Street - east side	32	$2.00	ft	$64.00
	- Install crosswalk at NW 4 Terrace - east side	24	$2.00	ft	$48.00
	- Install 4" sidewalk extension at NW 4 Terrace - east side	20	$49.70	sy	$662.67
	- Install crosswalk at NW 4 Street - east and west sides	60	$2.00	ft	$120.00
	- Install 4" sidewalk extension at NW 4 Street - east side	20	$49.70	sy	$662.67
	- Install 4" sidewalk extension at NW 3 Street - west side	20	$49.70	sy	$662.67
	- Install 4" sidewalk extension at NW 2 Terrace - east side	20	$49.70	sy	$662.67
	- Install 4" sidewalk extension at NW 2 Street - east side	20	$49.70	sy	$662.67
	- Install 4" sidewalk extension at NW 1 Street - east side	20	$49.70	sy	$662.67
NW 1 Street (From NW 53 Avenue To NW 51 Avenue)	- Install 4" sidewalk extension at NW 51 Place - south side	20	$49.70	sy	$662.67
	- Install school zone flashers	1	$2,400.00	ea	$2,400.00
	- Install One Way signage	2	$244.41	ea	$488.82
	- Install flourescent yellow green pedestrian sign	4	$244.41	ea	$977.64
NW 51 Avenue (From NW 7 Street To NW 1 Street)	- Install 4" sidewalk extension at NW 5 Street - east and west sides	40	$49.70	sy	$1,325.33
	- Install 4" sidewalk along NW 51 Avenue between NW 5 Street and NW 5 Terrace	50	$49.70	sy	$1,656.67
	- Install 6" sidewalk along NW 51 Avenue between NW 5 Street and NW 5 Terrace	0	$79.59	sy	$0.00
	- Install 4" sidewalk extension at NW 4 Terrace - east and west sides	40	$49.70	sy	$1,325.33
	- Install 4" sidewalk extension at NW 4 Street - east and west sides	40	$49.70	sy	$1,325.33
	- Install 4" sidewalk extension at NW 2 Terrace - west side	20	$49.70	sy	$662.67
	- Install 4" sidewalk extension at NW 2 Street - east and west sides	40	$49.70	sy	$1,325.33
NW 4 Street (From NW 47 Avenue To NW 51 Avenue)	- Install 4" sidewalk extension at NW 48 Court - north and south sides	30	$49.70	sy	$994.00
	- Install crosswalk at NW 48 Court - north and south sides	65	$2.00	ft	$130.00
	- Install 4" sidewalk extension at NW 48 Place -south side	15	$49.70	sy	$497.00
	- Install crosswalk at NW 48 Place - south side	20	$2.00	ft	$40.00
	- Install 4" sidewalk extension at NW 49 Avenue -north and south sides	45	$49.70	sy	$1,491.00
	- Install crosswalk at NW 49 Avenue - north and south sides	60	$2.00	ft	$120.00
	- Install 4" sidewalk extension at NW 50 Avenue -south side	20	$49.70	sy	$662.67
	- Install crosswalk at NW 50 Avenue - south side	25	$2.00	ft	$50.00
	- Install 4" sidewalk extension at NW 51 Avenue -north and south sides	40	$49.70	sy	$1,325.33
	- Install crosswalk at NW 51 Avenue - north and south sides	60	$2.00	ft	$120.00
W Flagler Street (From NW 47 Avenue To NW 57 Avenue)	- Install crosswalk at NW 53 Avenue - north and east sides	110	$2.00	ft	$220.00
	- Install crosswalk at NW 52 Court - south side	55	$2.00	ft	$110.00
	- Install crosswalk at NW 52 Avenue - south side	55	$2.00	ft	$110.00
	- Install crosswalk at NW 51 Place - north and south sides	80	$2.00	ft	$160.00
	- Install pedestrian countdown signals	8	$1,428.51	ea	$11,428.08
	- Install flourescent yellow green pedestrian sign	4	$244.41	ea	$977.64

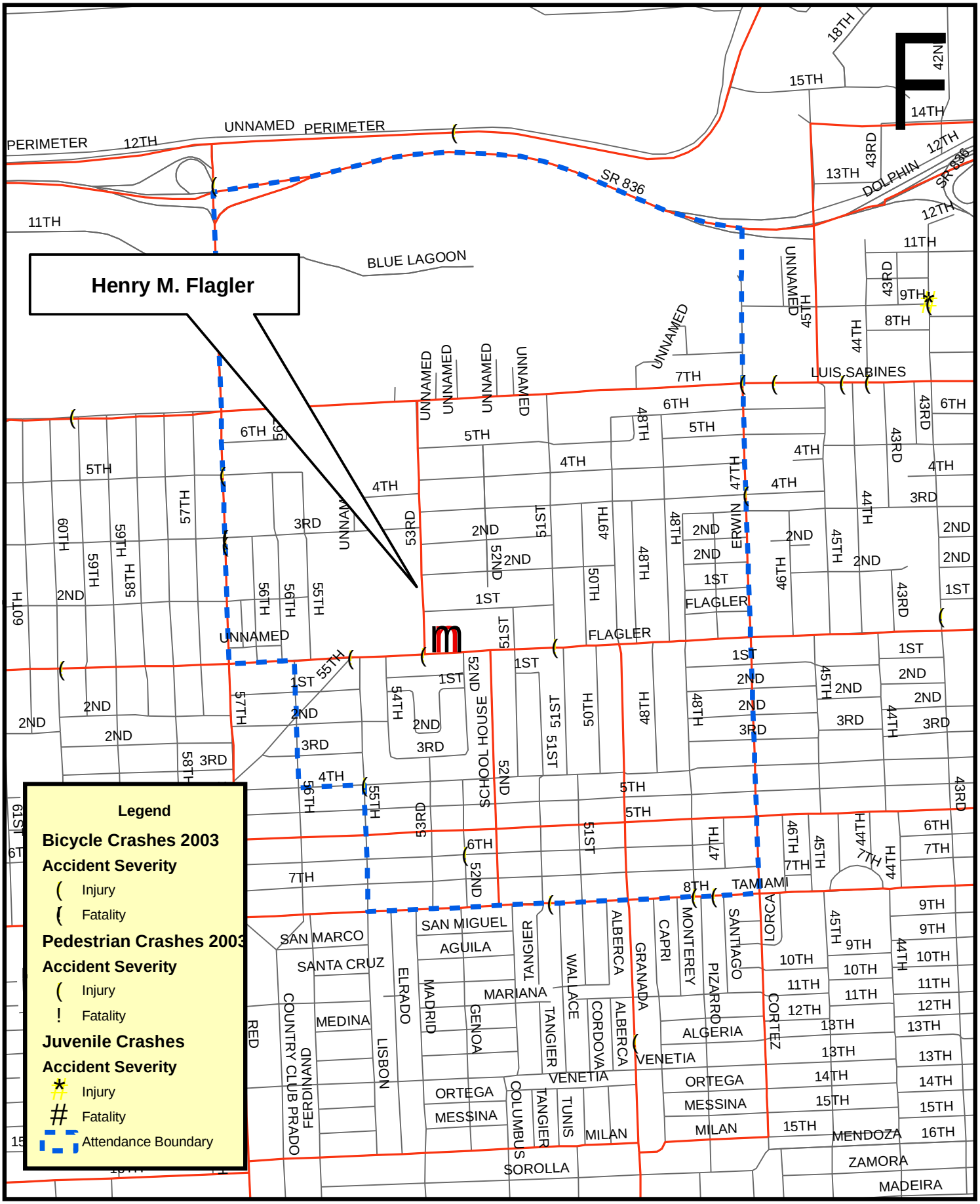
LIST OF APPENDICES

APPENDIX A

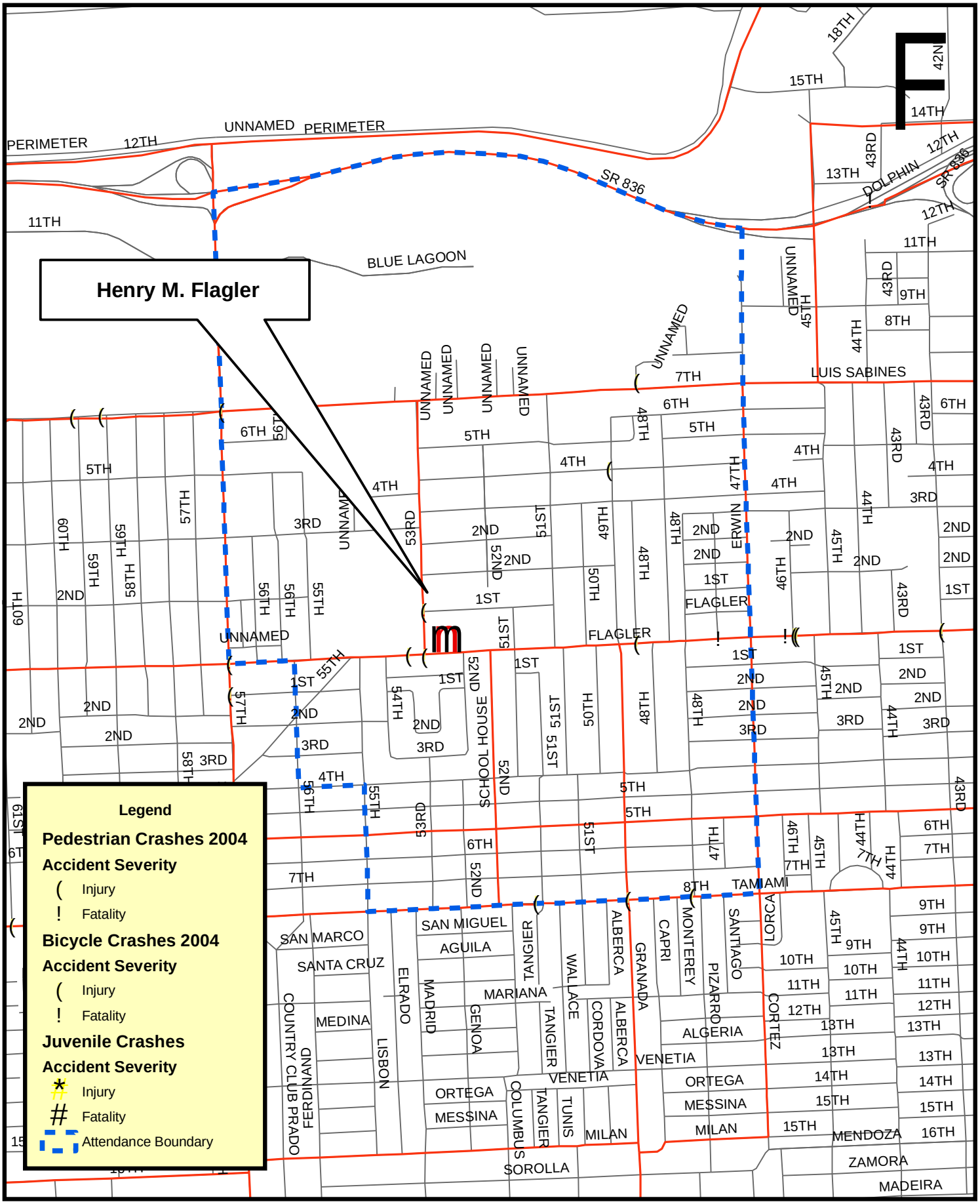
Maps of Pedestrian and Bicycle Crashes



RS&H		Pedestrian and Bicycle Crashes Henry M. Flagler Elementary	2002	Appendix A



RS&H		Pedestrian and Bicycle Crashes Henry M. Flagler Elementary	2003	Appendix A

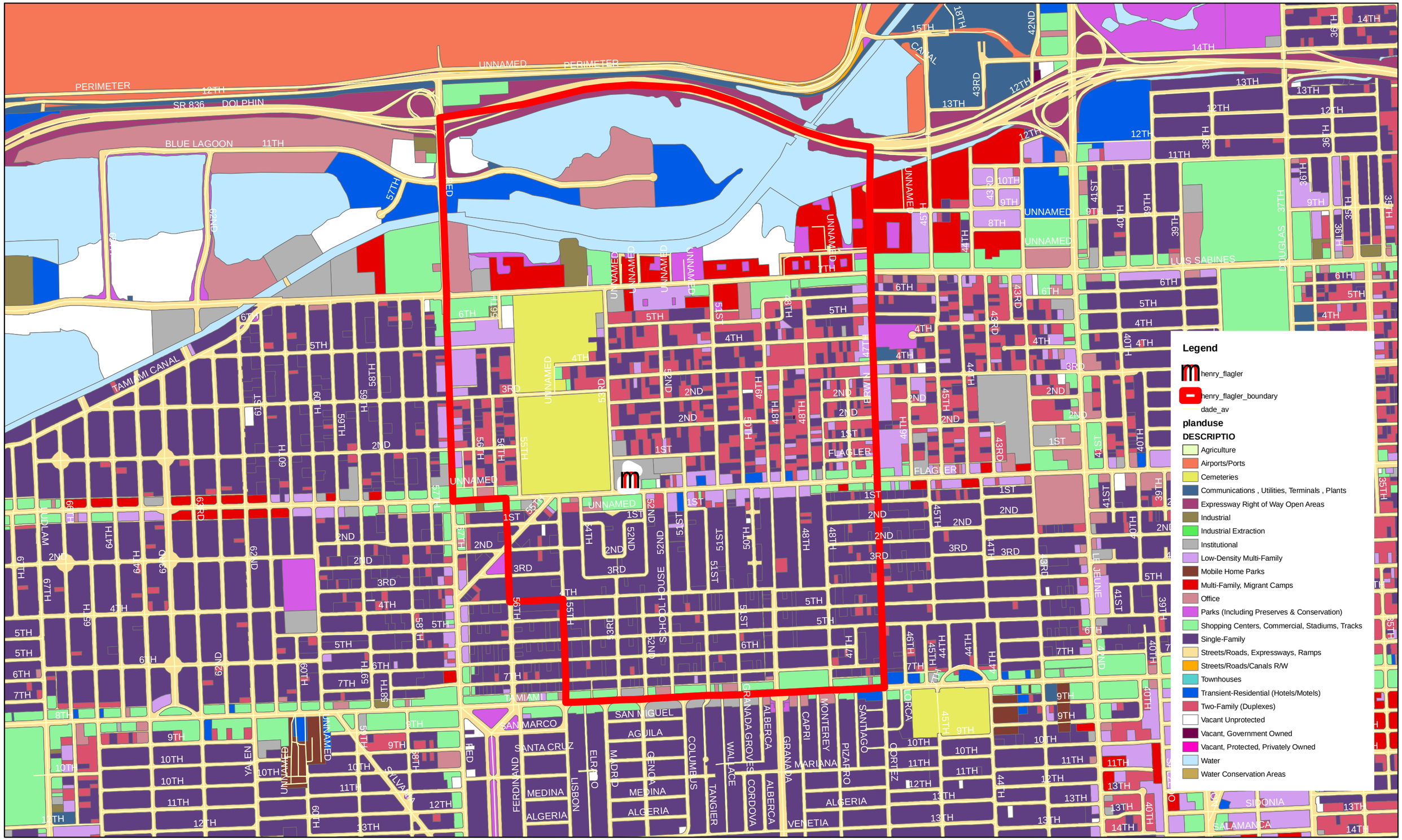


RS&H		Pedestrian and Bicycle Crashes Henry M. Flagler Elementary	2004	Appendix A

APPENDIX B

Land Use Map

Henry M. Flagler



APPENDIX C
Existing Route Deficiencies

SAFE ROUTE TO SCHOOL PROJECT

Henry M. Flagler Elementary

5222 NW 1st Street, Miami, Florida 33126

Required Improvements

From field review:

Route- NW 7th Street (From NW 47 Avenue to NW 57 Avenue)

- Sidewalk obstructed on the northside of NW 7th Street 350 ft. from NW 47th Avenue by telephone cabinet and light pole.
- Dropped curb on the northside of NW 7th Street 185 ft. from NW 47th Avenue.
- Pedestrian crosswalk missing on the north side of NW 7th Street at NW 51st Avenue.
- Pedestrian crosswalk missing on the north side of NW 7th Street at NW 53rd Avenue.
- Pedestrian crosswalk missing on the north side of NW 7th Street at NW 56th Avenue.

Route- NW 53rd Avenue (From NW 7th Street to W Flagler Street)

- 393 feet of sidewalk missing on the west side of NW 53rd Avenue between NW 7th Street and NW 5th Street.
- 155 feet of sidewalk missing on the east side of NW 53rd Avenue between NW 7th Street and NW 5th Street.
- Sidewalk extension need on all four corners of NW 5th Street.
- 330 feet of sidewalk missing on the west side of NW 53rd Avenue between NW 5th Street and NW 4th Terrace.
- Pedestrian crosswalk missing on the eastside of NW 53rd Avenue at NW 5th Street.
- Pedestrian crosswalk missing on the eastside of NW 53rd Avenue at NW 4th Terrace.
- Sidewalk extensions needed on all four corners of NW 4th Terrace.
- Pedestrian crosswalk missing on both east and west side of NW 53rd Avenue at NW 4th Street.
- Sidewalk extensions needed on all four corners of NW 4th Street.
- Sidewalk extensions needed on all four corners of NW 3rd Street.
- Sidewalk extensions needed on all four corners of NW 2nd Terrace.
- Sidewalk extensions needed on all four corners of NW 2nd Street.
- Sidewalk extensions needed on all four corners of NW 1st Street.

Route- NW 1st Street (From NW 53rd Avenue to NW 51st Avenue)

- 30 feet of sidewalk needs repairing in front of school's bus drop-off.
- 40 feet of sidewalk needs repairing in front of church adjacent to school.
- Sidewalk extensions needed on both east and west side o f NW 51st Place.

- School Zone Flashers missing on NW 1st Street.

Route- NW 51 Avenue (From NW 7 Street to NW 1 Street)

- Sidewalk extensions needed on all four corners of NW 5th Street.
- 50 feet of sidewalk missing on the east side of NW 51st Avenue 150 ft. south of NW 5 St.
- Sidewalk extensions needed on all four corners of NW 4th Terrace.
- Sidewalk extensions needed on all four corners of NW 4th Street.
- 12 feet of sidewalk need repair 110 ft north of Flagler St.
- Sidewalk extensions needed on the west side of NW 2nd Terrace.
- Sidewalk extensions needed on all four corners of NW 2nd Street.

Route- NW 4 Street (From NW 47 Avenue to NW 51 Avenue)

- Sidewalk extensions needed on the south side and northwest corner of NW 48th Court.
- Pedestrian crosswalk missing at NW 48th Court.
- Sidewalk extensions needed on the south side and northwest corner of NW 48th Place.
- Pedestrian crosswalk missing at NW 48th Place.
- Sidewalk extensions needed on all four corners of NW 49th Avenue.
- Pedestrian crosswalk missing at NW 49th Avenue.
- Sidewalk extensions needed on all four corners of NW 50th Avenue.
- Pedestrian crosswalk missing at NW 50th Avenue.
- Sidewalk extensions needed on all four corners of NW 51st Avenue.
- Pedestrian crosswalk missing at NW 51st Avenue.

Route- Flagler Street (From NW 47 Avenue to NW 51 Avenue)

- Replace existing crosswalks with high emphasis crosswalks.

Route- NW 52 Avenue (From Flagler Street to SW 8 Street)

- Sidewalk extensions needed on all four corners of SW 4th Street.
- Pedestrian crosswalk missing at SW 4th Street.
- Sidewalk extensions needed on all four corners of SW 5th Street.
- Pedestrian crosswalk missing at SW 5th Street.
- Sidewalk extensions needed on all four corners of SW 5th Terrace.
- Pedestrian crosswalk missing at SW 5th Terrace.
- Sidewalk extensions needed on all four corners of SW 6th Street.
- Pedestrian crosswalk missing at SW 6th Street.
- Sidewalk extensions needed on all four corners of SW 7th Street.
- Pedestrian crosswalk missing at SW 7th Street.

Route- SW 4 Street (From SW 47 Avenue to SW 55 Avenue)

- Sidewalk extensions needed on all four corners of SW 48th Avenue.
- Pedestrian crosswalk missing at SW 48th Avenue.
- Sidewalk extensions needed on on the west side of SW 48 Court.
- Pedestrian crosswalk missing at SW 48th Court.
- Sidewalk extensions needed on all four corners of SW 49th Avenue.
- Pedestrian crosswalk missing at SW 49th Avenue.
- Sidewalk extensions needed on all four corners of SW 50th Avenue.
- Pedestrian crosswalk missing at SW 50th Avenue.
- Sidewalk extensions needed on all four corners of SW 51st Avenue.
- Pedestrian crosswalk missing at SW 51st Avenue.
- 20 feet of sidewalk need repair 30 ft east of SW 51 Ave. on the south side of SW 4th Street.
- Sidewalk extensions needed on all four corners of SW 51st Court.
- Pedestrian crosswalk missing at SW 51st Court.
- Sidewalk extensions needed on north side of SW 4th Street at SW 51st Place.
- Pedestrian crosswalk missing at SW 51st Place.
- Sidewalk extensions needed on all four corners of SW 52nd Avenue.
- Pedestrian crosswalk missing at SW 52nd Avenue.
- Sidewalk extensions needed on the south side of S W 4th Street at SW 52nd Court.
- Pedestrian crosswalk missing at SW 52nd Court.
- Sidewalk extensions needed on all four corners of SW 53rd Avenue.
- Pedestrian crosswalk missing at SW 53rd Avenue.
- Sidewalk extensions needed on all four corners of SW 55th Avenue.
- Pedestrian crosswalk missing at SW 55th Avenue.
- Sidewalk extensions needed on all four corners of SW 56th Avenue.
- Pedestrian crosswalk missing at SW 56th Avenue.

Improvements from Meeting:

- One of the main concerns that the principal stated was that NW 1 Street is a one way street during certain hours of the day. She would like NW 1 Street to be a one-way street all day to avoid driver confusion.
- We were also informed about improvements done in front of the school such as the pick/drop off area. Currently the sidewalk does not seem ADA compliant. May need to be widened at the end of the driveway.
- They would also like to see the crosswalk at midblock between SW 52 Avenue and SW 53 Avenue to be moved to the intersection of Flagler Street and 53 Avenue. Students are crossing at that intersection instead of using the crosswalk.
- There was a fatality reported at this school. It occurred on January 3, 2006 at the midblock crosswalk between SW 53 Avenue and SW 52 Avenue. When this accident occurred there was a petition made by the parents to install a pedestrian bridge over Flagler Street.

- The principal would also like to know how long and at what time the flashers are running on Flagler Street. They would like for the flashers to be on from 7:15 to 8:45 AM.
- Signage needs to be added on NW 1 Street such as school signs and one way street signs.

DISTRICTWIDE TRAFFIC OPERATIONS STUDIES

FM NO. 250093-1-32-03

TWO NO. 25

SAFE ROUTES TO SCHOOL

LUDLAM ELEMENTARY SCHOOL

FINAL REPORT

Prepared for:

Florida Department of Transportation

District 6

Prepared by:

Reynolds, Smith and Hills, Inc.

JULY 12, 2007

Safe Routes to School (SRTS)
Pilot Project

Financial Project No.: 25009313203
Task Work Order No.: 25

FINAL REPORT
for
Ludlam Elementary School

Prepared for:

Florida Department of Transportation

District 6

Prepared by:

REYNOLDS, SMITH & HILLS, INC.

July 11, 2007

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1. INTRODUCTION

Safe Routes to School (SRTS) is a federally funded program that was authorized in August 2005 by Section 1404 of the federal transportation act, SAFETEA-LU (the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users). The program targets children in grades K-8 and was developed to meet the following objectives:

1. To enable and encourage children, including those with disabilities, to walk and bicycle to school

2. To make bicycling and walking to school a safer and more appealing transportation alternative, thereby encouraging a healthy and active lifestyle from an early age, and

3. To facilitate the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of schools.

Florida's SRTS program is managed through the Florida Department of Transportation (FDOT). In accordance with the program guidelines, the FDOT awards projects for SRTS funding following a district-wide competitive application process. The FDOT District 6 Office in consultation with Miami-Dade County Metropolitan Planning Organization (MPO), Miami-Dade County School Board and Miami-Dade Public Works Department identified Ludlam Elementary School as a prospective candidate for SRTS funding. RS&H was retained by the District to assist in identifying infrastructure improvement needs and preparing the required application forms for the SRTS program. This report was prepared in support of the application for funding proposed infrastructure improvements at Ludlam Elementary School for the SRTS program.

2. PROJECT SCHOOL DATA

The following information pertains to the project school.

Name: Ludlam Elementary

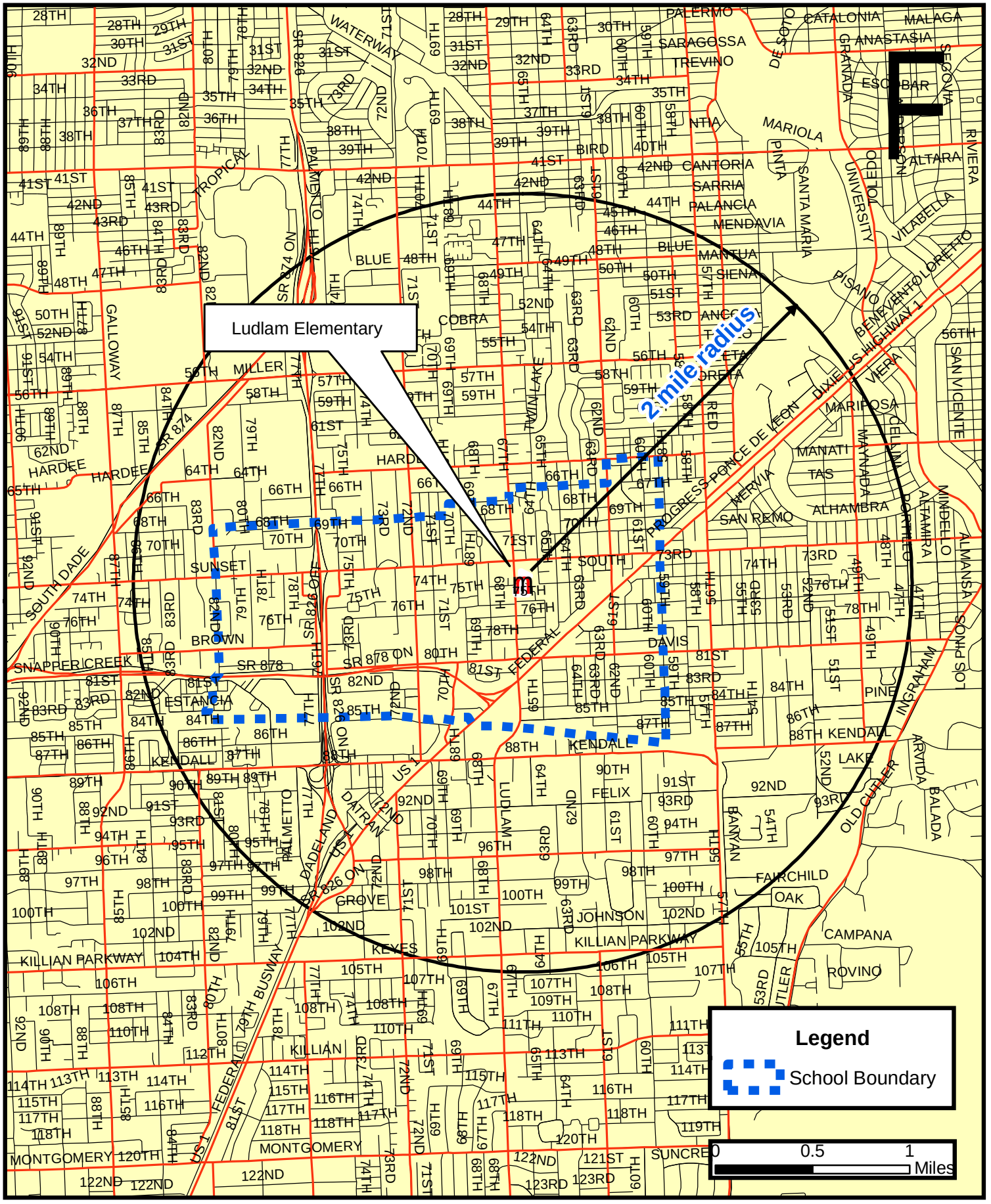
Address: 6639 SW 74th Street, Miami, Fl 33143 (Figure 1 shows project location map)

Enrollment: 562 students (School year 2006 to 2007)

School Attendance Boundary: Attendance boundary is shown in Figure 1.

Estimated mode split for transportation to/from school (based on interviews with school officials):

- Walk/Ride = 4%
- Private Car = 78%
- Buses = 18%



RS&H		Ludlam Elementary 6639 SW 74 Street South Miami, Florida 33143	Location Map	Figure 1

3. CRASH HISTORY

Pedestrian and bicycle crashes reported throughout Miami-Dade County for the period 2002 through 2004 were obtained from the MPO. A GIS analysis was conducted using the crash data to identify pedestrian and bicycle crashes that were reported within the limits of the school attendance boundary (or 2 mile radius). The analysis identified fatal crashes, injury crashes and juvenile crashes. Appendix A shows plots of the crashes reported within the project limits. The crash data is summarized in Table 1.

The recommended SRTS for Ludlam Elementary are presented in Section 5 of the report. Table 2 contains crash details for pedestrian/bicycle collisions that were reported along the recommended SRTS. As shown in Table 2, SW 67 Avenue experienced five pedestrian crashes (none involving juveniles) during the 3-year study period. A detailed research of the individual police crash reports would be required to identify probable causal factors for these pedestrian crashes and what, if any, specific engineering countermeasures may be considered to reduce these crashes. This research is beyond the limited scope of this SRTS project. Notwithstanding, based on the field reviews that were conducted for this study recommended improvements were developed to address roadway and traffic deficiencies that would enhance overall safety conditions for pedestrian and bicycle traffic using the proposed safe routes.

Table 1
Summary of Pedestrian and Bicycle Crashes
Ludlam Elementary

Road Name	Segment		2002 Ped & Bike Crashes						2003 Ped & Bike Crashes						2004 Ped & Bike Crashes					
			Juveniles[1]		Others[2]		Total		Juveniles[1]		Others[2]		Total		Juveniles[1]		Others[2]		Total	
	From	To	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries
Sunset Drive/SW 72 Street	SW 82 Avenue	SW 59 Avenue	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1
Ludlam Avenue/SW 67 Avenue	SW 66 Street	SW 85 Street	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	1	0	1
US 1/South Dixie Highway	SW 59 Avenue	SW 68 Avenue	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
SW 80 Street	SW 59 Avenue	SW 82 Avenue	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2	0	2
SW 68 Street	SW 59 Avenue	SW 64 Street	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
SW 72 Avenue	SW 68 Street	SW 85 Street	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
SW 82 Street	SW 72 Avenue	SW 76 Avenue	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1
Total			**0**	**0**	**0**	**7**	**0**	**7**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**5**	**0**	**5**

Note: 1. Juveniles= children between the ages of 5-13 years

2. Others= children and adults greater than the age of 13 years

Table 2
Summary of Crashes Reported on Proposed Safe Routes
Ludlam Elementary, 2002-2004

CRASH DETAILS							
Safe Route	**Case Number**	**Date of Crash**	**Day of Week**	**Time**	**Pedestrian Age**	**Injury/Fatality**	**Location of Crash**
SW 72 Street (From SW 62 Avenue to SW 72 Avenue)	703426180	08/26/02	Sun	2:15 PM	26	Injury	6180 SW 72 Street
SW 67 Avenue (From SW 62 Street to SW 80 Street)	703431140	08/28/02	Tue	6:40 PM	27	Injury	SW 78 Terrace
	721919200	11/12/03	Tue	9:35 AM	31	Injury	SW 81 Street
	732871640	08/24/04	Mon	1:30 PM	30	Injury	SW 72 Street
	721916780	12/16/04	Wed	1:12 PM	52	Injury	S. Dixie Highway

Note: Juvenile crashes are highlighted in gray.

4. DEVELOPMENT OF SRTS

SRTS for Ludlam Elementary School were developed based on guidelines contained in the Safe Routes to School, Procedure Manual developed by Miami-Dade County, MPO September 2005. Several additional reference sources also provided guidance in developing safe routes for the project school. Notable among these were:

- National Center for Safe Routes to School: http://www.saferouteroutesinfo.org/
- Federal Highway Safe Routes to School: http://safety.fhwa.dot.gov/saferoutes/

Preliminary SRTS were initially developed for the project school based on reviews of several engineering factors. These included:

- School attendance boundary
- Aerial photographs
- Land use data (see Appendix B)
- Frequency/severity of juvenile pedestrian and bicycle crashes
- Roadway characteristics (sidewalks, medians, buffers, etc.)
- Speed limits
- Traffic volumes
- Location of traffic control devices
- Driveway density
- Location of canals and railroad crossings

Meetings were subsequently held with the school principal and other key staff members to further develop and refine the proposed SR2S. Input was also gained from the Patent Teachers Association (PTA) and the project steering committee that included representatives from the MPO, the School Board and the Public Works Department.

5. RECOMMENDED SRTS

Following the process described in Section 4, the recommended SRTS was developed for Ludlam Elementary School. The map on the following page shows the recommended SRTS. Table 3 shows pertinent roadway and traffic characteristics for the road segments along the recommended SRTS.

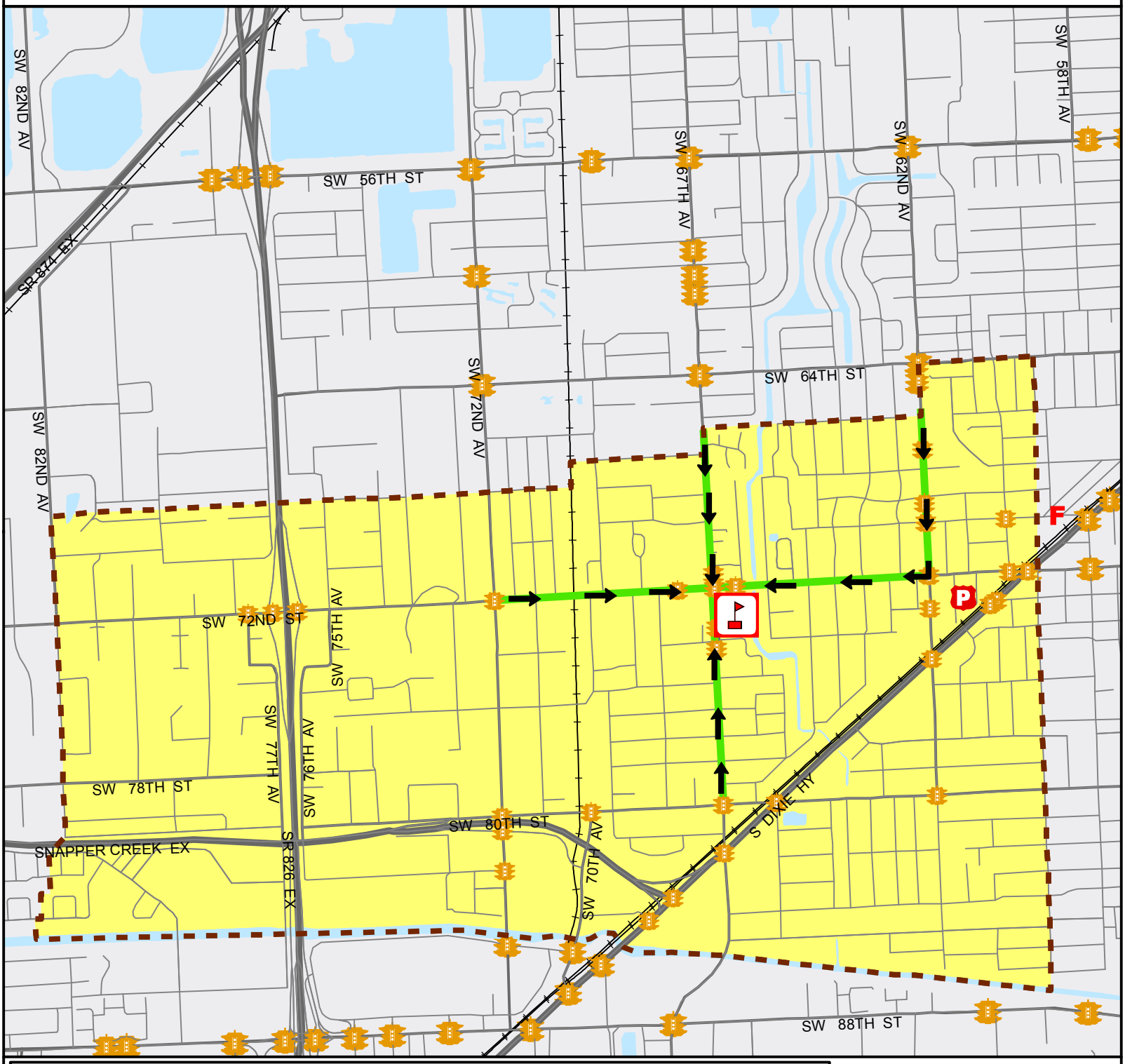
6. FIELD REVIEW

Field reviews for Ludlam Elementary School were conducted on March 13, 2007. The primary deficiencies that were identified along the proposed safe routes were missing sidewalks and crosswalks. A comprehensive list of the deficiencies observed can be found in Appendix C.

LUDLAM ELEMENTARY SCHOOL

6639 SW 74th Street, South Miami 33143

SAFE ROUTES TO SCHOOL



LEGEND

- School
- Safe Routes
- Streets
- Highways
- Railroad
- Attendance Boundary
- Parks
- Water
- Traffic Signals
- Fire
- Police

N

0 1,250 2,500

Feet

MIAMI-DADE COUNTY

Miami-Dade County Public Schools

MIAMI-DADE MPO Metropolitan Planning Organization

Table 3
Ludlam Elementary
Exisiting Roadway and Traffic Characterisitcs for SRTS Segments

Road	Segment		Facility Type	Speed Limit	AADT[1]	Ped & Bike Crashes[2]
	From	To				
SW 67th Avenue	SW 65th Terrace	SW 80th Street	City Collector	40 mph	Moderate	3
SW 62nd Avenue	SW 65th Terrace	SW 72nd Street	City Local Street	35 mph	Low	0
SW 72nd Street	SW 72nd Avenue	SW 62nd Avenue	State Road (Minor Arterial)	40 mph	Heavy	2

Notes:

1. For road segments where AADT data was not readily available, traffic volume is assessed as light, moderate or heavy based on fields observed conditions.
2. Total pedestrian and bicycle crashes for 2002 - 2004

7. RECOMMENDED IMPROVEMENTS AND COST ESTIMATES

Based on the field reviews that were conducted along the SRTS (Section 5), recommended infrastructure improvements were developed to encourage and enhance safety for children walking or bicycling to/from school. The recommended infrastructure improvements were limited to eligible projects specified in Florida's SRTS Application Guidelines. Table 4 shows a listing of recommended infrastructure improvement projects along the safe route segments. Table 4 also includes cost estimates for the improvements. The cost estimates were developed based on FDOT's average unit cost rates for projects implemented in District 6 region. The total cost for infrastructure improvements was estimated at $127,630.76.

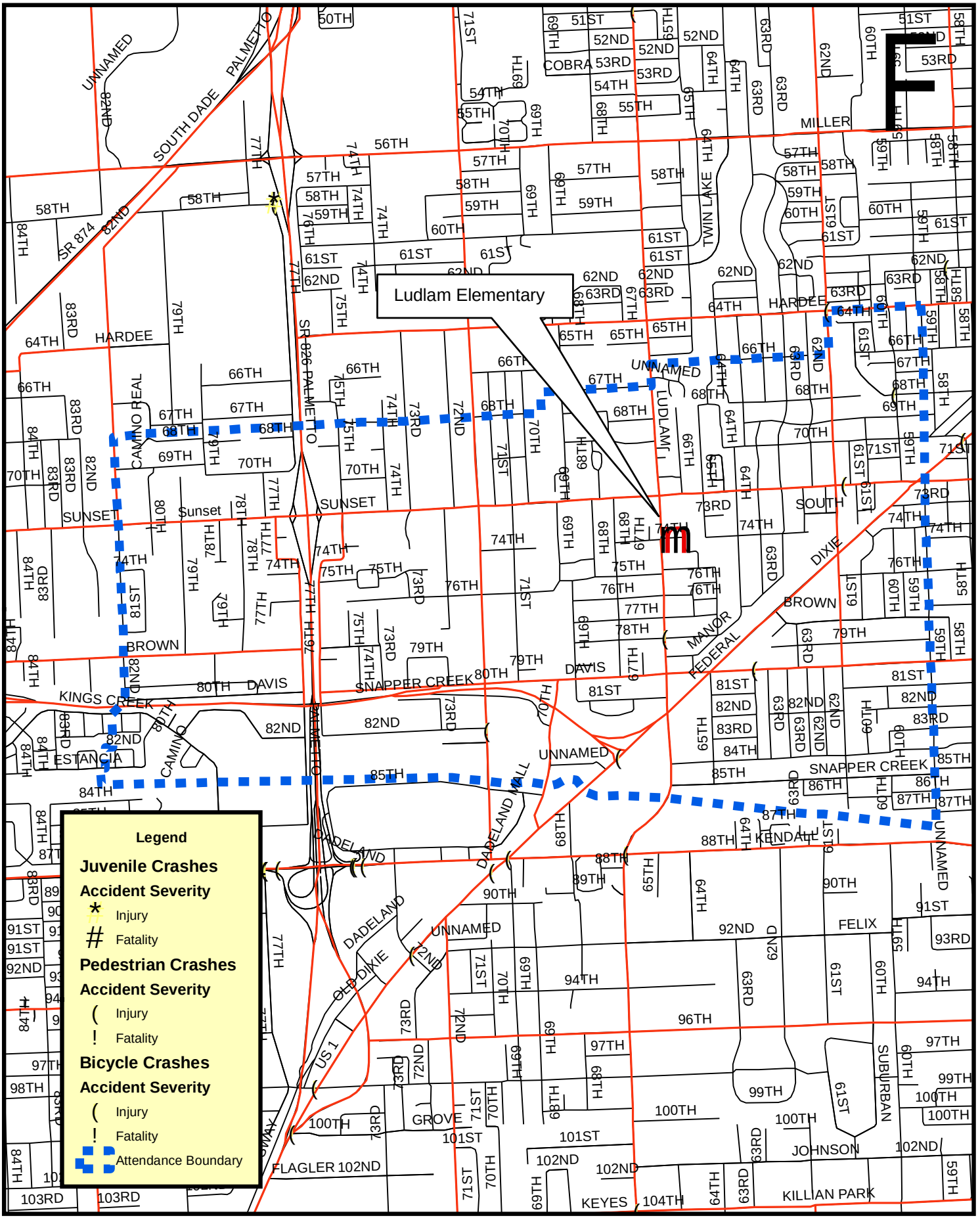
Table 4
Ludlam Elementary
SRTS Infrastructure Improvements

Road Segment	Recommended Improvements	Length (ft)	Unit Cost	Unit	Total
SW 67 Avenue (From SW 62 Street To SW 80 Street)	- Install crosswalk at SW 79 Street - east side	28	$2.00	ft	$56.00
	- Install crosswalk at SW 78 Terrace - east side	40	$2.00	ft	$80.00
	- Install crosswalk at SW 77 Terrace - east and west sides	80	$2.00	ft	$160.00
	- Install crosswalk at SW 76 Terrace - east side	35	$2.00	ft	$70.00
	- Install crosswalk at SW 75 Terrace - east side	40	$2.00	ft	$80.00
	- Install crosswalk at SW 67 Street - west side	40	$2.00	ft	$80.00
	- Install crosswalk at SW 68 Terrace - west side	25	$2.00	ft	$50.00
	- Install flourescent yellow green pedestrian signs	4	$244.41	ea	$977.64
SW 72 Street (From SW 72 Avenue To SW 62 Avenue)	- Install crosswalk at SW 65 Avenue - south side	45	$2.00	ft	$90.00
	- Install crosswalk at SW 64 Court - north side	45	$2.00	ft	$90.00
	- Install crosswalk at SW 63 Court - north side	70	$2.00	ft	$140.00
	- Install crosswalk at SW 63 Avenue - north and south sides	100	$2.00	ft	$200.00
	- Install 4" sidewalk extension at SW 64 Court - north side	40	$49.70	sy	$1,325.33
	- Install crosswalk at SW 65 Avenue - north and south sides	80	$2.00	ft	$160.00
	- Install 4" sidewalk extension at SW 65 Avenue - north and south sides	20	$49.70	sy	$662.67
	- Install crosswalk at SW 66 Avenue - north side	40	$2.00	ft	$80.00
	- Install 4" sidewalk extension at SW 65 Avenue - north side	35	$49.70	sy	$1,159.67
	- Install 4" sidewalk at SW 72 Street from SW 67 Avenue and SW 72 Avenue - north side	1830	$49.70	sy	$60,634.00
	- Install 6" sidewalk at SW 72 Street from SW 67 Avenue and SW 72 Avenue - north side	230	$79.59	sy	$12,203.80
	- Install crosswalk at SW 68 Court - north side	50	$2.00	ft	$100.00
	- Install crosswalk at SW 68 Avenue - south side	50	$2.00	ft	$100.00
	- Install crosswalk at SW 69 Avenue - south side	30	$2.00	ft	$60.00
	- Install crosswalk at SW 69 Court - south side	50	$2.00	ft	$100.00
	- Install crosswalk at SW 71 Avenue - south side	50	$2.00	ft	$100.00
	- Install flourescent yellow green pedestrian signs	4	$244.41	ea	$977.64
	- Install pedestrian countdown signal heads at SW 67 Avenue	8	$1,428.51	ea	$11,428.08
Prelimiary Total Cost					$91,164.83
Contingencies (20%)					$18,232.97
Mobilization (10%)					$9,116.48
Maintence of Traffic (10%)					$9,116.48
Grand Total Cost					$127,630.76

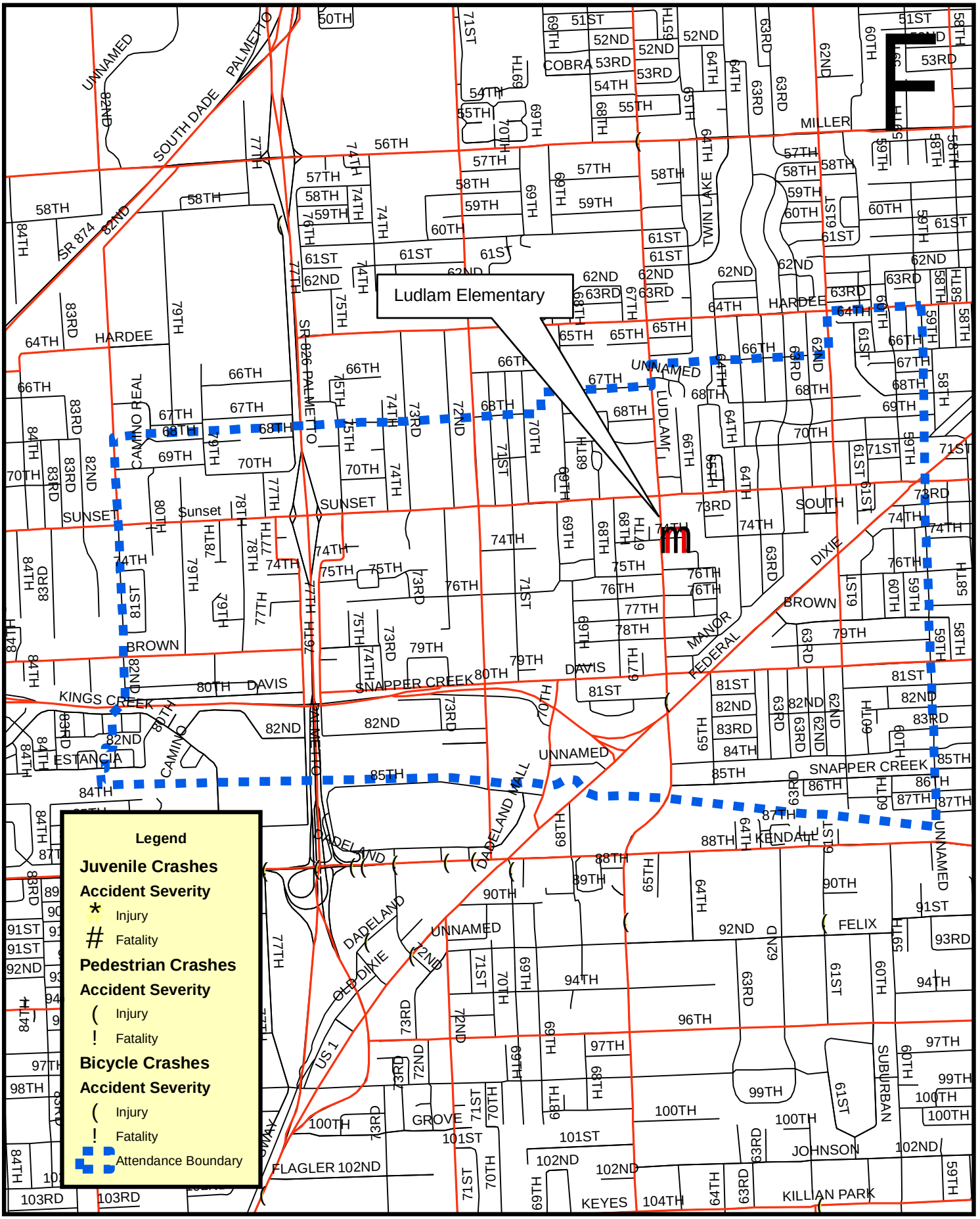
LIST OF APPENDICES

APPENDIX A

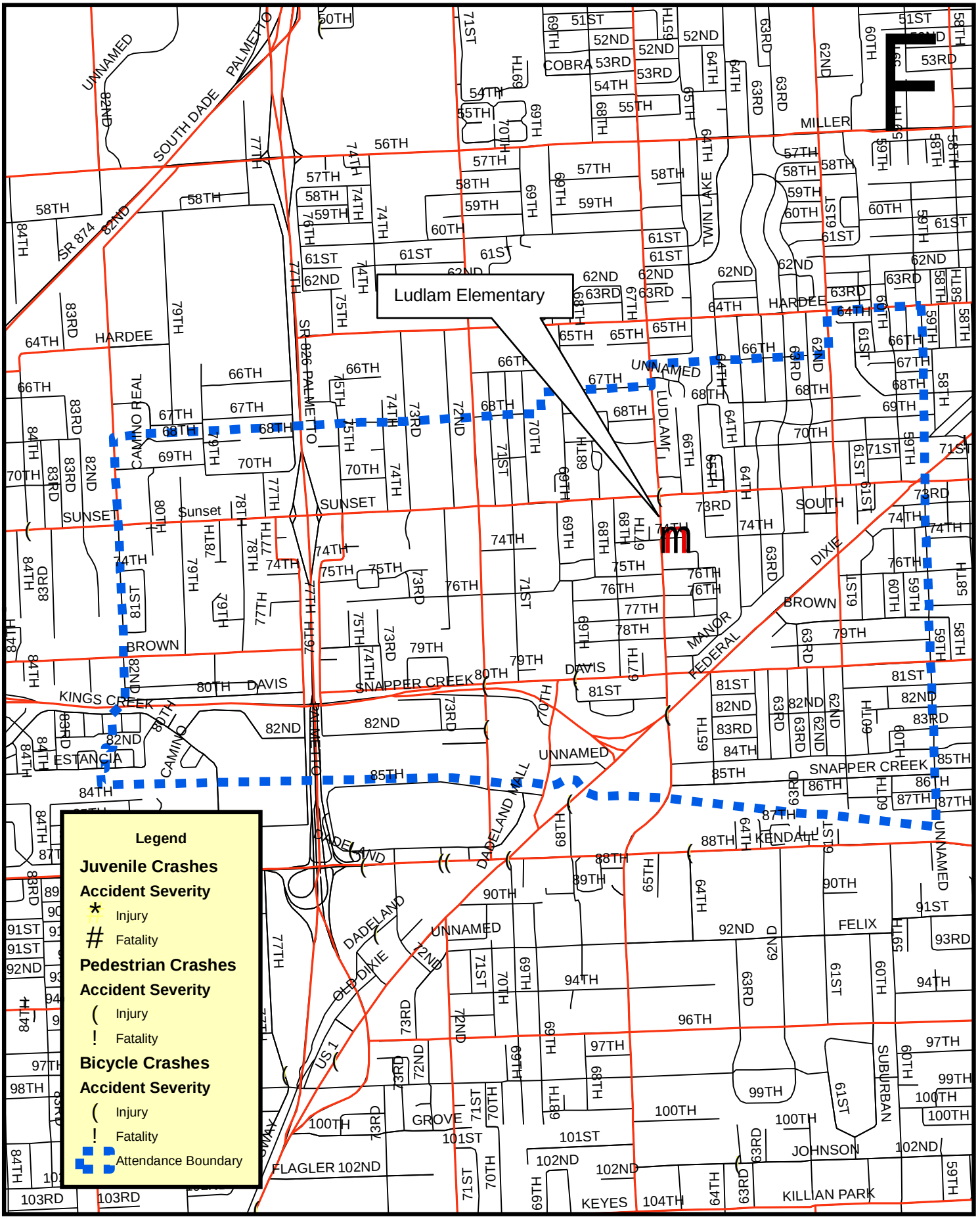
Maps of Pedestrian and Bicycle Crashes



RS&H		Pedestrian and Bicycle Crashes Ludlam Elementary	2002	Appendix A



RS&H		Pedestrian and Bicycle Crashes Ludlam Elementary	2003	Appendix A

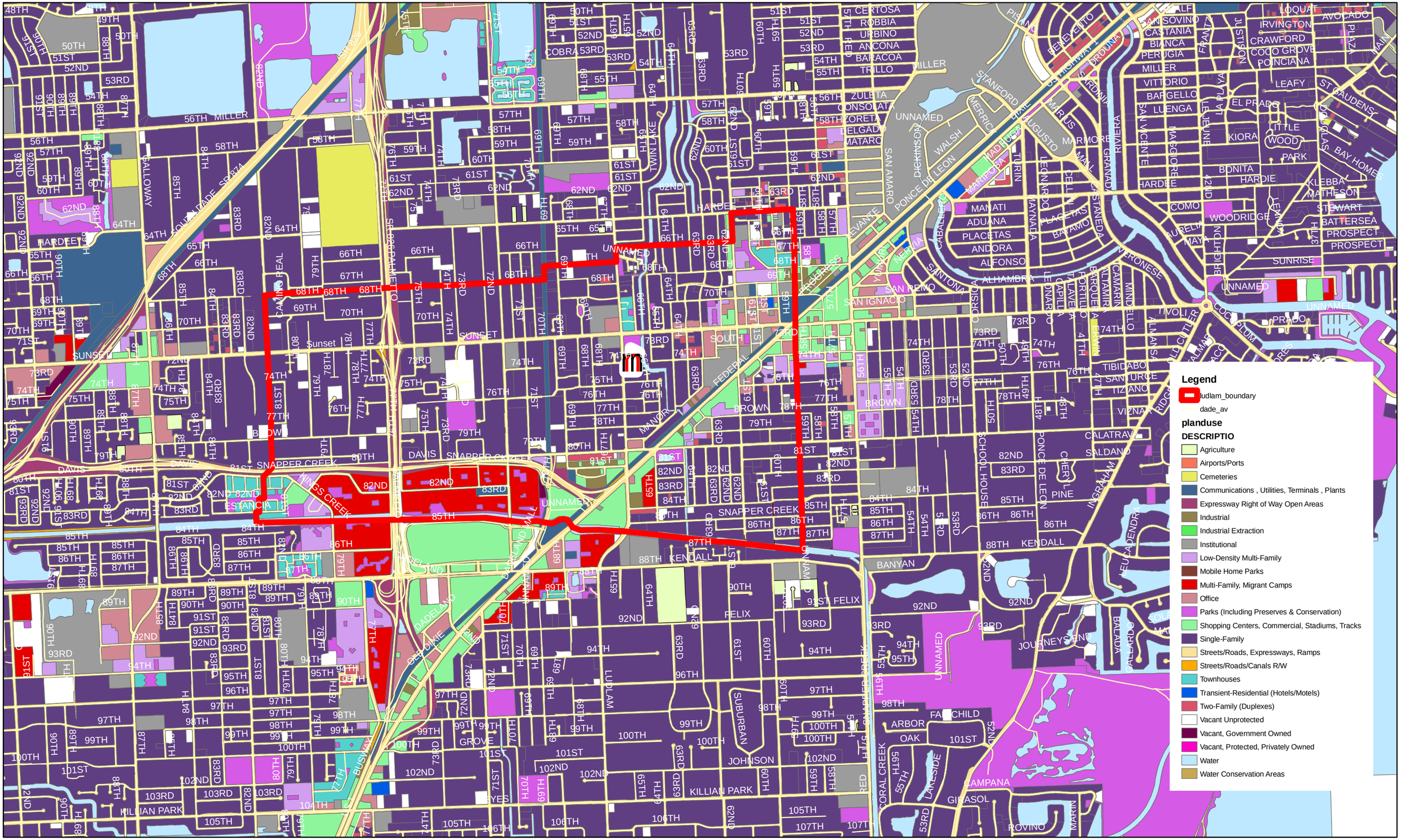


RS&H		Pedestrian and Bicycle Crashes Ludlam Elementary	2004	Appendix A

APPENDIX B

Land Use Map

Ludlam Elementary



APPENDIX C
Existing Route Deficiencies

SAFE ROUTE TO SCHOOL PROJECT

Ludlam Elementary

6639 SW 74 Street, South Miami, Fl 33143

Improvements Needed

From the Field:

Route- SW 67 Avenue (From SW 62 Street to SW 80 Street)

- There is crosswalk needed at SW 79 Street, SW 78 Terrace, SW 77 Terrace, SW 76 Terrace and SW 75 Terrace on the east side.
- Crosswalk is needed at SW 67 Terrace on the west side.
- Grass needs to be trimmed at the corner of SW 67 Terrace on the west side.
- At SW 68 Terrace, crosswalk is needed on the west side.

Route- SW 72 Street (From SW 72 Avenue to SW 62 Avenue)

- At SW 65 Avenue crosswalk is needed on the south side.
- There is crosswalk missing at SW 63 Avenue, SW 63 Court, and SW 64 Court on the north side.
- There is sidewalk connection missing at SW 64 Court.
- At SW 65 Avenue and SW 66 Avenue, crosswalk and sidewalk connection is needed.
- From 6767 to SW 72 Avenue there is sidewalk missing on the north side.
- At SW 71 Avenue, SW 69 Court, SW 69 Avenue, SW 68 Avenue, and SW 63 Avenue crosswalk is missing on the south side.

Route- SW 62 Avenue(From SW 64 Street to SW 72 Street)

- No improvements needed for this route.

From the Meeting:

- Students are being dropped off on SW 72 Street and SW 67 Avenue causing a safety concern for students crossing SW 72 Street.
- Crossing guard also stated that some students do no walk up to the crosswalk at SW 72 Street and SW 67 Avenue. They cross at mid block between SW 62 Avenue and SW 67 Avenue.
- The principal stated that kids have had their bikes stolen from school grounds. There is currently no bike racks for the students.
- The principal stated that security is a problem at their school. The front and side gates are open around the school and there is no supervision of who enters and exits the building.
- Signage needs to be added on SW 67 Avenue across the street from the school.

DISTRICTWIDE TRAFFIC OPERATIONS STUDIES

FM NO. 250093-1-32-03

TWO NO. 25

SAFE ROUTES TO SCHOOL

PINE VILLA ELEMENTARY SCHOOL

FINAL REPORT

Prepared for:

Florida Department of Transportation

District 6

Prepared by:

RS&H

Reynolds, Smith and Hills, Inc.

July 12, 2007

Safe Routes to School (SRTS)
Pilot Project

Financial Project No.: 25009313203
Task Work Order No.: 25

FINAL REPORT
for
Pine Villa Elementary School

Prepared for:

Florida Department of Transportation

District 6

Prepared by:

REYNOLDS, SMITH & HILLS, INC.

July 11, 2007

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1. INTRODUCTION

Safe Routes to School (SRTS) is a federally funded program that was authorized in August 2005 by Section 1404 of the federal transportation act, SAFETEA-LU (the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users). The program targets children in grades K-8 and was developed to meet the following objectives:

1. To enable and encourage children, including those with disabilities, to walk and bicycle to school

2. To make bicycling and walking to school a safer and more appealing transportation alternative, thereby encouraging a healthy and active lifestyle from an early age, and

3. To facilitate the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of schools.

Florida's SRTS program is managed through the Florida Department of Transportation (FDOT). In accordance with the program guidelines, the FDOT awards projects for SRTS funding following a district-wide competitive application process. The FDOT District 6 Office in consultation with Miami-Dade County Metropolitan Planning Organization (MPO), Miami-Dade County School Board and Miami-Dade Public Works Department identified Pine Villa Elementary School as a prospective candidate for SRTS funding. RS&H was retained by the District to assist in identifying infrastructure improvement needs and preparing the required application forms for the SRTS program. This report was prepared in support of the application for funding proposed infrastructure improvements at Pine Villa Elementary School for the SRTS program.

2. PROJECT SCHOOL DATA

The following information pertains to the project school.

Name: Pine Villa Elementary

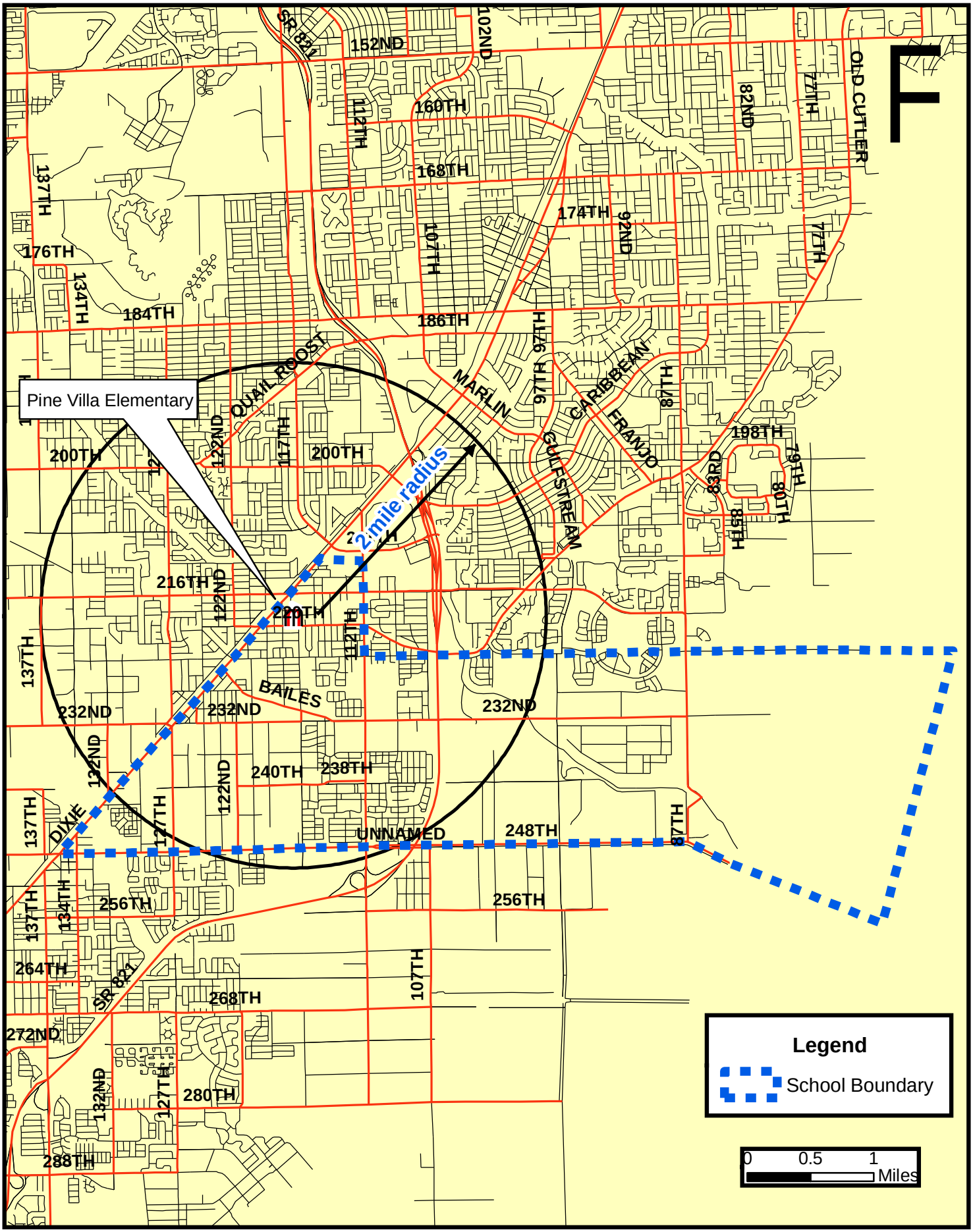
Address: 21799 SW 117th Court, Miami, Fl 33170 (Figure 1 shows project location map)

Enrollment: 824 students (School year 2006 to 2007)

School Attendance Boundary: Attendance boundary is shown in Figure 1.

Estimated mode split for transportation to/from school (based on interviews with school officials):

- Walk/Ride = 49%
- Private Car = 47%
- Buses = 4%



RS&H		Pine Villa Elementary 21799 SW 117 Court Miami, Fl. 33170	Location Map	Figure 1

3. CRASH HISTORY

Pedestrian and bicycle crashes reported throughout Miami-Dade County for the period 2002 through 2004 were obtained from the MPO. A GIS analysis was conducted using the crash data to identify pedestrian and bicycle crashes that were reported within the limits of the school attendance boundary (or 2 mile radius). The analysis identified fatal crashes, injury crashes and juvenile crashes. Appendix A shows plots of the crashes reported within the project limits. The crash data is summarized in Table 1.

The recommended SRTS for Pine Villa Elementary are presented in Section 5 of the report. Table 2 contains crash details for pedestrian/bicycle collisions that were reported along the recommended SRTS. As shown in Table 2, a relatively high number of pedestrian crashes were experienced along SW 220 Street – 5 pedestrian crashes were reported, none involving juveniles and no fatalities. A detailed research of the individual police crash reports would be required to identify probable causal factors for these pedestrian crashes and what, if any, specific engineering countermeasures may be considered to reduce these crashes. This research is beyond the limited scope of this SRTS project. Notwithstanding, based on the field reviews that were conducted for this study recommended improvements were developed to address roadway and traffic deficiencies that would enhance overall safety conditions for pedestrian and bicycle traffic using the proposed safe routes.

Table 1
Summary of Pedestrian and Bicycle Crashes
Pine Villa Elementary

Road Name	Segment		2002 Ped & Bike Crashes						2003 Ped & Bike Crashes						2004 Ped & Bike Crashes					
			Juveniles[1]		Others[2]		Total		Juveniles[1]		Others[2]		Total		Juveniles[1]		Others[2]		Total	
	From	To	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries
US 1	SW 211 Street	SW 248 Street	0	0	2	3	2	3	0	0	0	3	0	3	0	1	1	5	1	6
SW 224 Street	US 1	SW 112 Avenue	0	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0
SW 115 Court	SW 220 Street	SW 224 Street	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
SW 115 Avenue	SW 224 Street	SW 228 Street	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
SW 112 Avenue	SW 213 Street	SW 248 Street	0	0	0	2	0	2	0	0	0	2	0	2	1	0	0	0	1	0
SW 216 Street	US 1	SW 112 Avenue	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0
SW 114 Place	SW 47 Avenue	SW 55 Avenue	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0
SW 248 Street	US 1	Galloway	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	4	0	4
SW 232 Street	US 1	Galloway	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
SW 220 Street	US 1	SW 112 Avenue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
SW 117 Court	SW 223 Street	SW 224 Street	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
SW 114 Avenue	SW 216 Street	SW 224 Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total			**0**	**2**	**2**	**9**	**2**	**11**	**0**	**2**	**0**	**9**	**0**	**11**	**1**	**1**	**1**	**12**	**2**	**13**

Note: 1. Juveniles= children between the ages of 5-13 years
2. Others= children and adults greater than the age of 13 years

Table 2
Summary of Crashes Reported of Proposed Safe Routes
Pine Villa Elementary, 2002-2004

CRASH DETAILS							
Safe Route	**Case Number**	**Date of Crash**	**Day of Week**	**Time**	**Pedestrian Age**	**Injury/Fatality**	**Location of Crash**
SW 216 Street (From SW 112 Avenue to US 1)	705043220	05/16/02	Wed	3:50 PM	3	Injury	11605 SW 216 Street
	720466270	01/22/03	Tue	6:30 PM	22	Injury	SW 112 Avenue
SW 220 Street (From US 1 to SW 112 Avenue)	721799680	12/16/02	Sun	7:00 PM	58	Injury	SW 112 Avenue
	720525980	06/14/03	Fri	1:30 PM	49	Injury	US 1
	723487780	06/05/04	Fri	11:00 AM	23	Injury	US 1
	714897540	01/22/04	Wed	8:37 AM	40	Injury	US 1
	754892130	08/16/04	Sun	3:40 PM	49	Injury	SW 115 Avenue
SW 118 Avenue (From SW 216 Street to SW 220 Street)	720500970	12/05/04	Sat	5:14 AM	39	Injury	SW 220 Street

Note: Juvenile crashes are highlighted in gray.

4. DEVELOPMENT OF SRTS

SRTS for Pine Villa Elementary School were developed based on guidelines contained in the Safe Routes to School, Procedure Manual developed by Miami-Dade County, MPO September 2005. Several additional reference sources also provided guidance in developing safe routes for the project school. Notable among these were:

- National Center for Safe Routes to School: http://www.saferouteroutesinfo.org/
- Federal Highway Safe Routes to School: http://safety.fhwa.dot.gov/saferoutes/

Preliminary SRTS were initially developed for the project school based on reviews of several engineering factors. These included:

- School attendance boundary
- Aerial photographs
- Land use data (see Appendix B)
- Frequency/severity of juvenile pedestrian and bicycle crashes
- Roadway characteristics (sidewalks, medians, buffers, etc.)
- Speed limits
- Traffic volumes
- Location of traffic control devices
- Driveway density
- Location of canals and railroad crossings

Meetings were subsequently held with the school principal and other key staff members to further develop and refine the proposed SR2S. Input was also gained from the Patent Teachers Association (PTA) and the project steering committee that included representatives from the MPO, the School Board and the Public Works Department.

During the meeting with the school's administrative staff it was mentioned that due to the construction of two new elementary schools in the area the attendance boundary of Pine Villa Elementary would be changing for the start of the next school year. The proposed change in school attendance boundary was also confirmed by Miami-Dade County Public Schools. The SRTS was therefore developed to be consistent with the anticipated new school boundary.

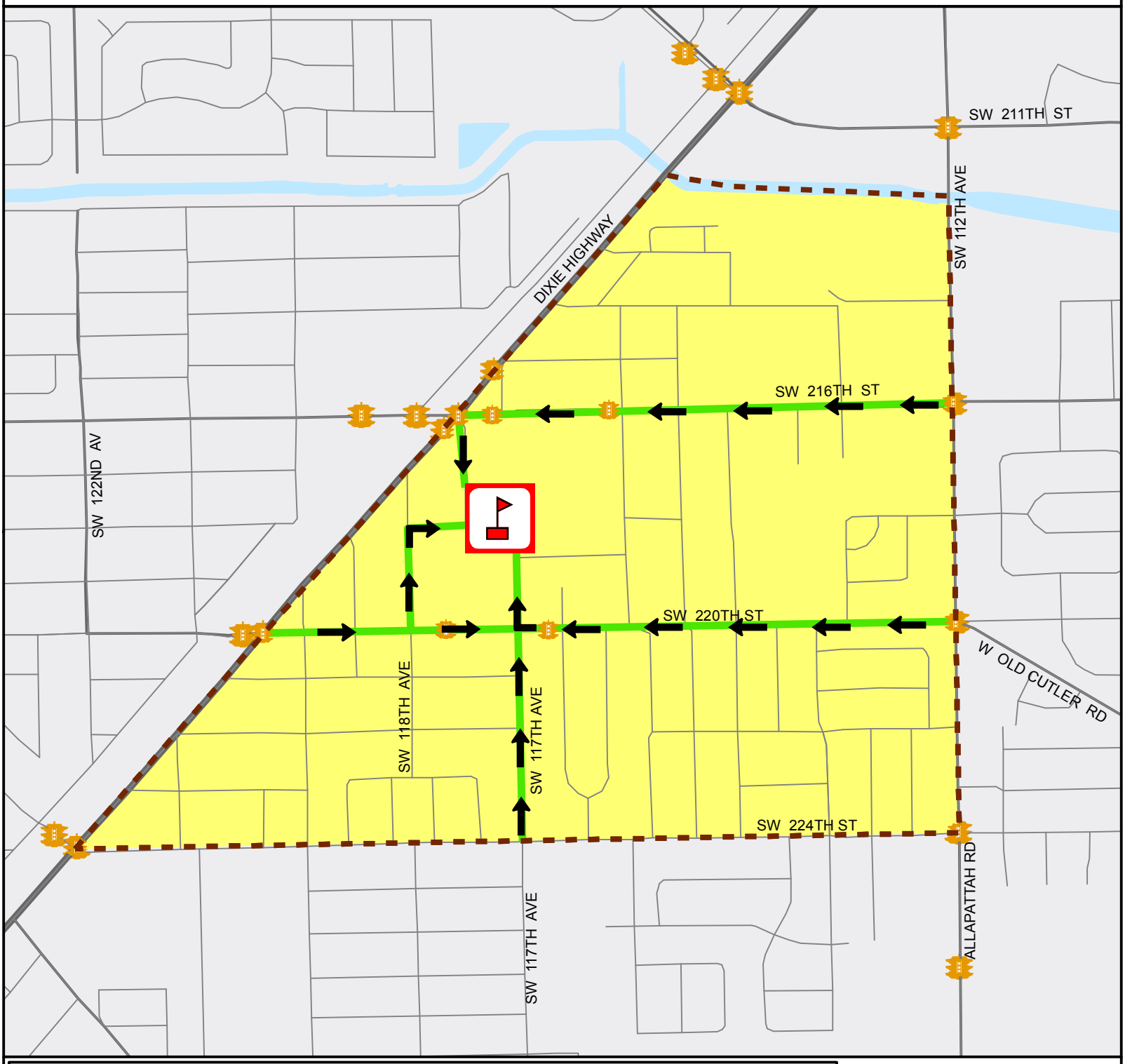
5. RECOMMENDED SRTS

Following the process described in Section 4, the recommended SRTS was developed for Pine Villa Elementary School. The map on the following page shows the recommended SRTS. Table 3 shows pertinent roadway and traffic characteristics for the road segments along the recommended SRTS. The attendance boundary shown in the SRTS map reflects the proposed new school boundary as of the 2007 – 2008 school year.

PINE VILLA ELEMENTARY SCHOOL

21799 SW 117th Court, Gould 33170

SAFE ROUTES TO SCHOOL



LEGEND

- School
- Safe Routes
- Streets
- Highways
- Railroad
- Attendance Boundary
- Parks
- Water
- Traffic Signals
- Fire
- Police

0 500 1,000 Feet

N

MIAMI-DADE COUNTY

Miami-Dade County Public Schools

MIAMI-DADE MPO Metropolitan Planning Organization

Table 3
Pine Villa Elementary
Exisiting Roadway and Traffic Characterisitcs for SRTS Segments

Road	Segment		Facility Type	Speed Limit	AADT[1]	Ped & Bike Crashes[2]
	From	To				
SW 216th Street	SW 112th Avenue	SW 117th Court	City Collector	35 mph	Moderate	2
SW 117th Court	SW 216th Street	SW 218th Street	City Local Street	35 mph	Low	1
SW 218th Street	SW 117th Court	SW 118th Avenue	City Local Street	35 mph	Low	0
SW 118th Avenue	SW 218th Street	SW 220th Street	City Local Street	35 mph	Low	0
SW 220th Street	US 1	SW 112th Avenue	City Local Street	35 mph	Low	2

Notes:

1. For road segments where AADT data was not readily available, traffic volume is assessed as light, moderate or heavy based on fields observed conditions.
2. Total pedestrian and bicycle crashes for 2002 - 2004

6. FIELD REVIEW

Field reviews for Pine Villa Elementary School were conducted on March 6, 2007. The primary deficiencies that were identified along the proposed safe routes were missing sidewalk, crosswalks, and school zone signage and flashers. A list of the comprehensive deficiencies observed can be found in Appendix C.

7. RECOMMENDED IMPROVEMENTS AND COST ESTIMATES

Based on the field reviews that were conducted along the SRTS (Section 5), recommended infrastructure improvements were developed to encourage and enhance safety for children walking or bicycling to/from school. The recommended infrastructure improvements were limited to eligible projects specified in Florida's SRTS Application Guidelines. Table 4 shows a listing of recommended infrastructure improvement projects along the safe route segments. Table 4 also includes cost estimates for the improvements. The cost estimates were developed based on FDOT's average unit cost rates for projects implemented in District 6 region. The total cost for infrastructure improvements was estimated at $104,052.50.

Table 4
Pine Villa Elementary
SRTS Infrastructure Improvements

Road Segment	Recommended Improvements	Length (ft)	Unit Cost	Unit	Total
SW 216 Street (From SW 112 Avenue To US 1)	- Install 4" sidewalk along SW 216 Street between SW 112 Avenue and SW 113 Avenue	485	$49.70	sy	$16,069.67
	- Install 6" sidewalk along SW 216 Street between SW 112 Avenue and SW 113 Avenue	74	$79.59	sy	$3,926.44
	- Install crosswalk at SW 113 Avenue - north side	44	$2.00	ft	$88.00
	- Install 4" sidewalk extension at SW 113 Avenue - north side	10	$49.70	sy	$331.33
	- Install flourescent yellow green pedestrian signs	4	$244.41	ea	$977.64
	- Install pedestrian countdown signal heads	2	$1,428.51	ea	$2,857.02
SW 220 Street (From US 1 To SW 112 Avenue)	- Install 4" sidewalk along SW 220 Street between SW 118 Avenue and SW 118 Court	300	$49.70	sy	$9,940.00
	- Install 6" sidewalk along SW 220 Street between SW 118 Avenue and SW 118 Court	18	$79.59	sy	$955.08
	- Install crosswalk at SW 116 Avenue - south side	55	$2.00	ft	$110.00
	- Install crosswalk at SW 115 Court - south side	55	$2.00	ft	$110.00
	- Install crosswalk at SW 115 Avenue - north and south sides	65	$2.00	ft	$130.00
	- Install crosswalk at SW 114 Court - south side	60	$2.00	ft	$120.00
	- Install crosswalk at SW 114 Avenue - south side	60	$2.00	ft	$120.00
	- Install crosswalk at SW 113 Place - south side	60	$2.00	ft	$120.00
	- Install crosswalk at SW 113 Court - south side	50	$2.00	ft	$100.00
	- Install crosswalk at SW 113 Avenue - north side	40	$2.00	ft	$80.00
SW 117 Avenue (From SW 224 Street To SW 219 Street)	- Install 4" sidewalk along SW 117 Avenue between SW 224 Street and SW 219 Street	355	$49.70	sy	$11,762.33
	- Install 6" sidewalk along SW 117 Avenue between SW 224 Street and SW 219 Street	40	$79.59	sy	$2,122.40
SW 118 Avenue (From SW 216 Street To SW 220 Street)	- Install 4" sidewalk at SW 118 Avenue between SW 216 Street to SW 220 Street - west side	535	$49.70	sy	$17,726.33
	- Install 6" sidewalk at SW 118 Avenue between SW 216 Street to SW 220 Street - west side	40	$79.59	sy	$2,122.40
	- Install crosswalk at SW 220 Street - north side	35	$2.00	ft	$70.00
	- Install crosswalk at SW 218 Street - south side	25	$2.00	ft	$50.00
	- Install school zone flashers	1	$2,400.00	ea	$2,400.00
	- Install flourescent yellow green pedestrian signs	4	$244.41	ea	$977.64
	- Install One Way signage	2	$244.41	ea	$488.82
SW 117 Court (From SW 216 Street To SW 218 Street)	- Install One Way signage	2	$244.41	ea	$488.82
	- Install crosswalk mid block 150' south of SW 216 Street	30	$2.00	ft	$60.00
Prelimiary Total Cost					$74,303.93
Contingencies (20%)					$14,860.79
Mobilization (10%)					$7,430.39
Maintence of Traffic (10%)					$7,430.39
Grand Total Cost					$104,025.50

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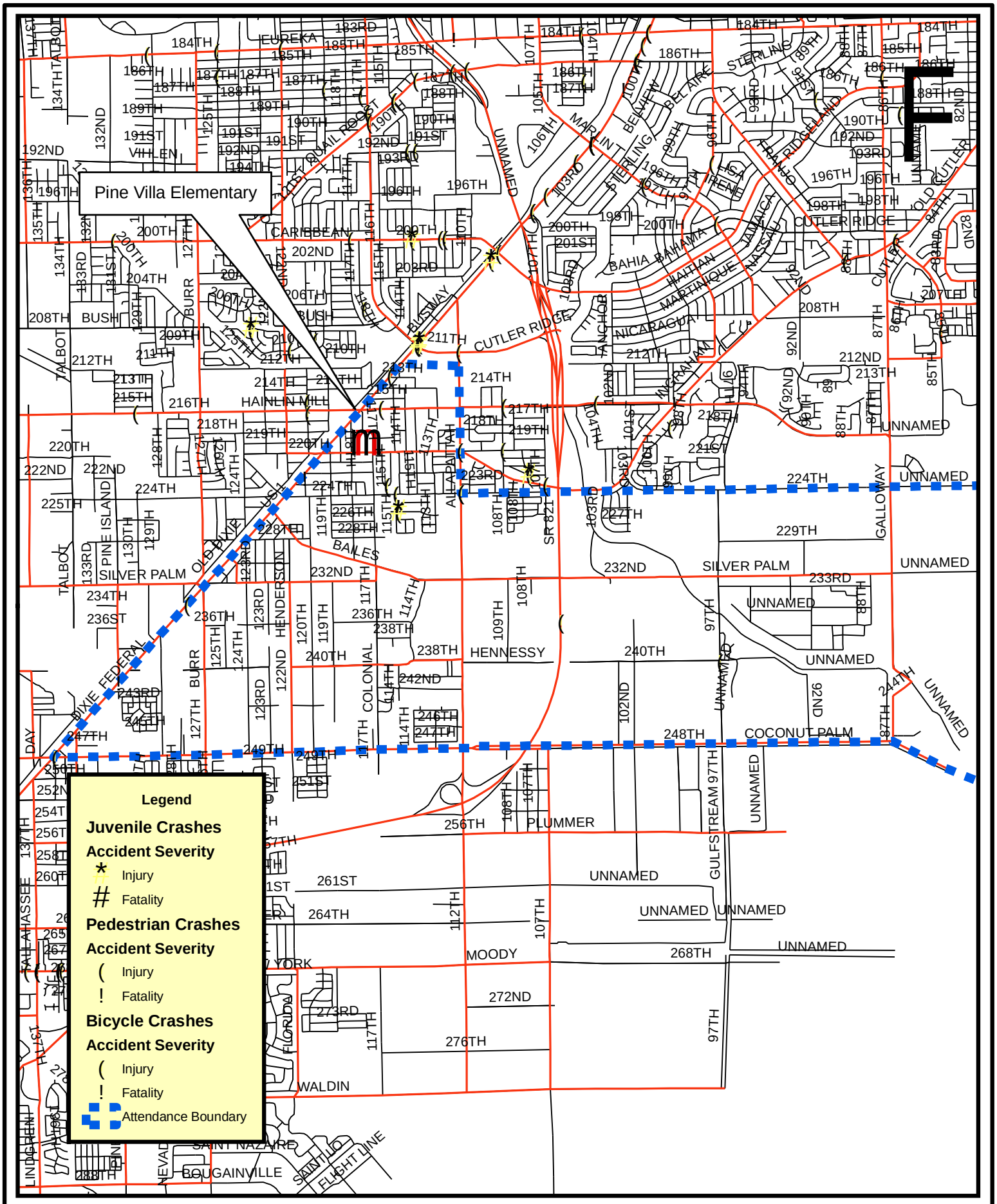
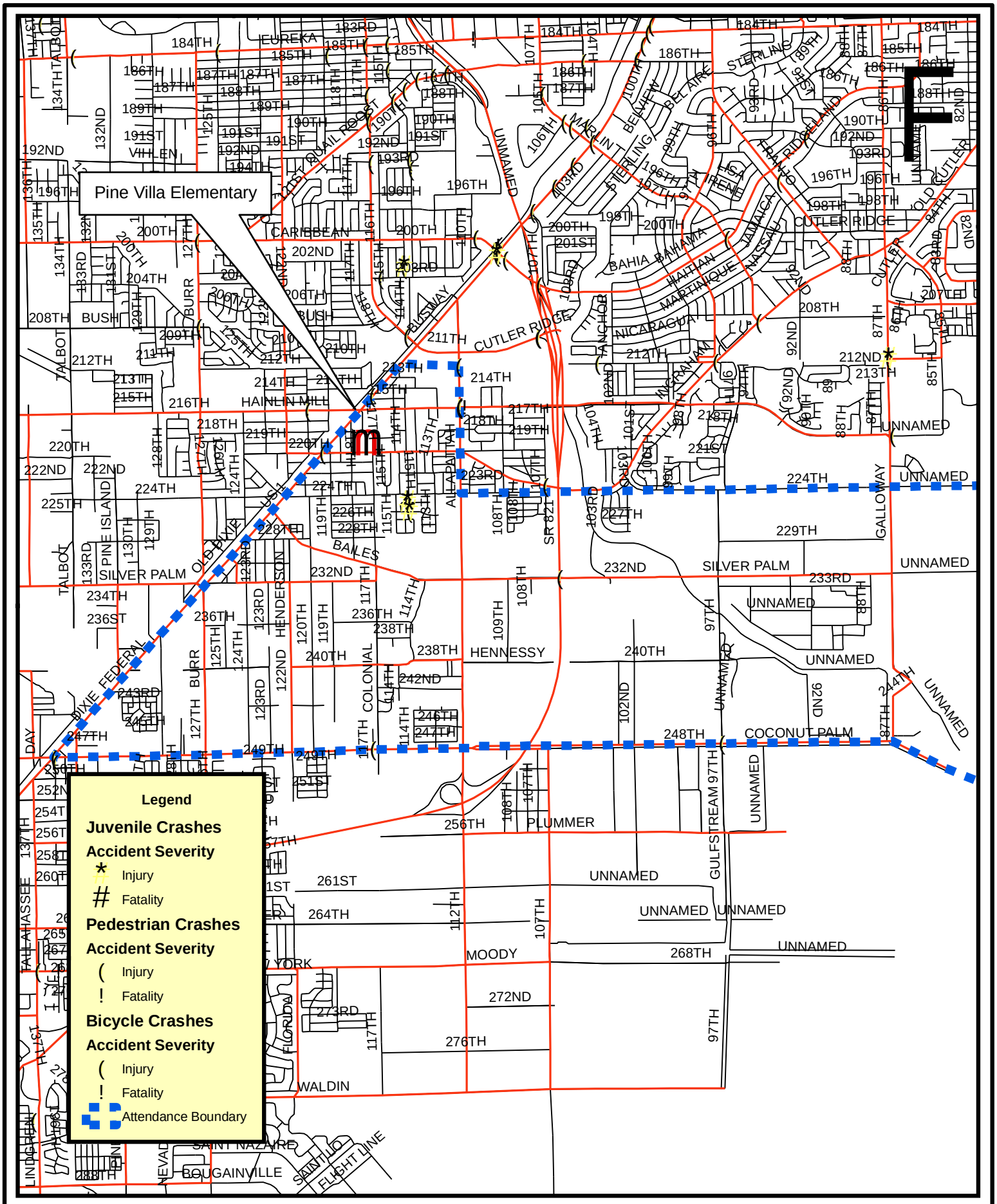
APPENDIX A

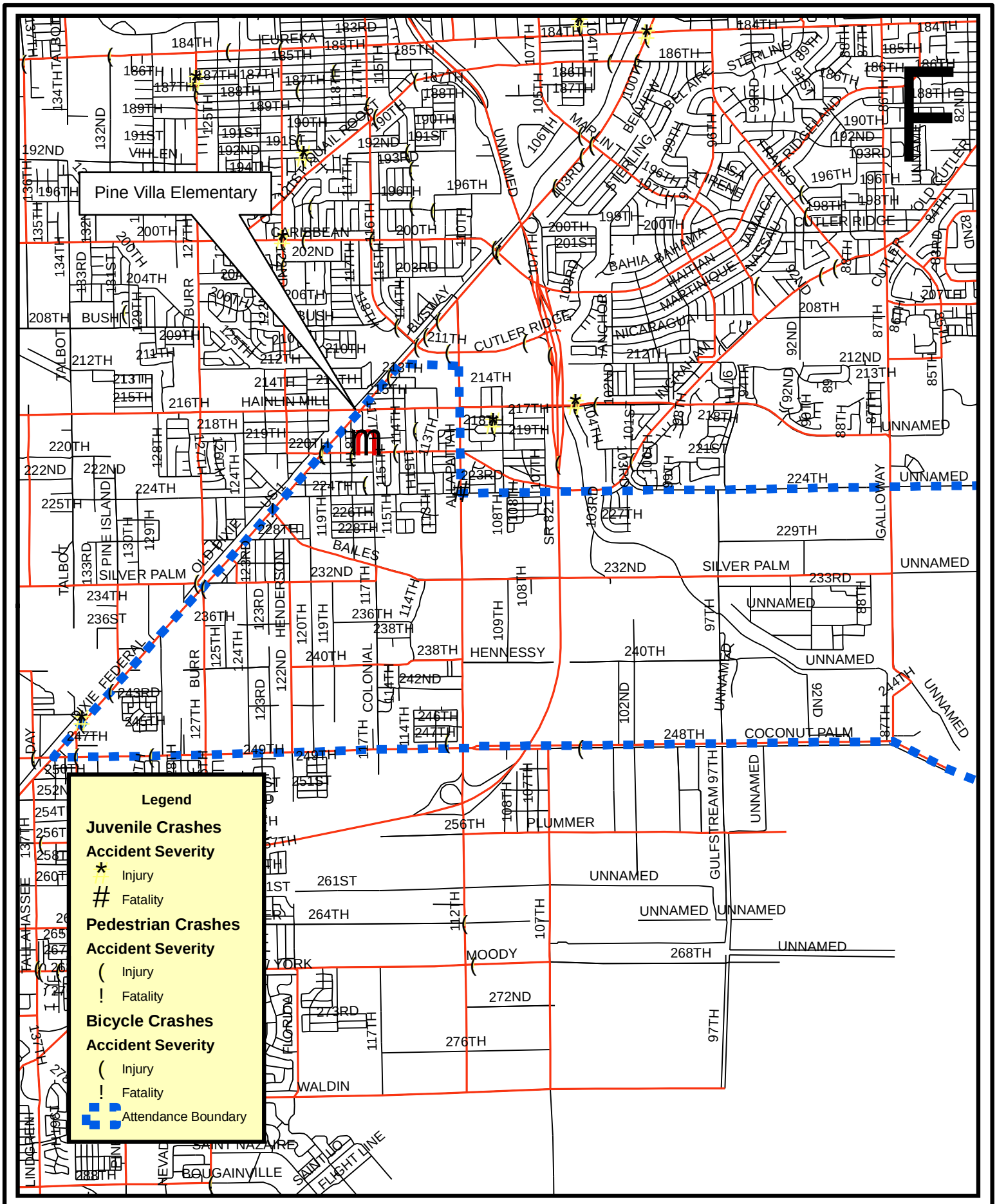
Maps of Pedestrian and Bicycle Crashes



RS&H		Pedestrian and Bicycle Crashes Pine Villa Elementary	2002	Appendix A



RS&H		Pedestrian and Bicycle Crashes Pine Villa Elementary	2003	Appendix A

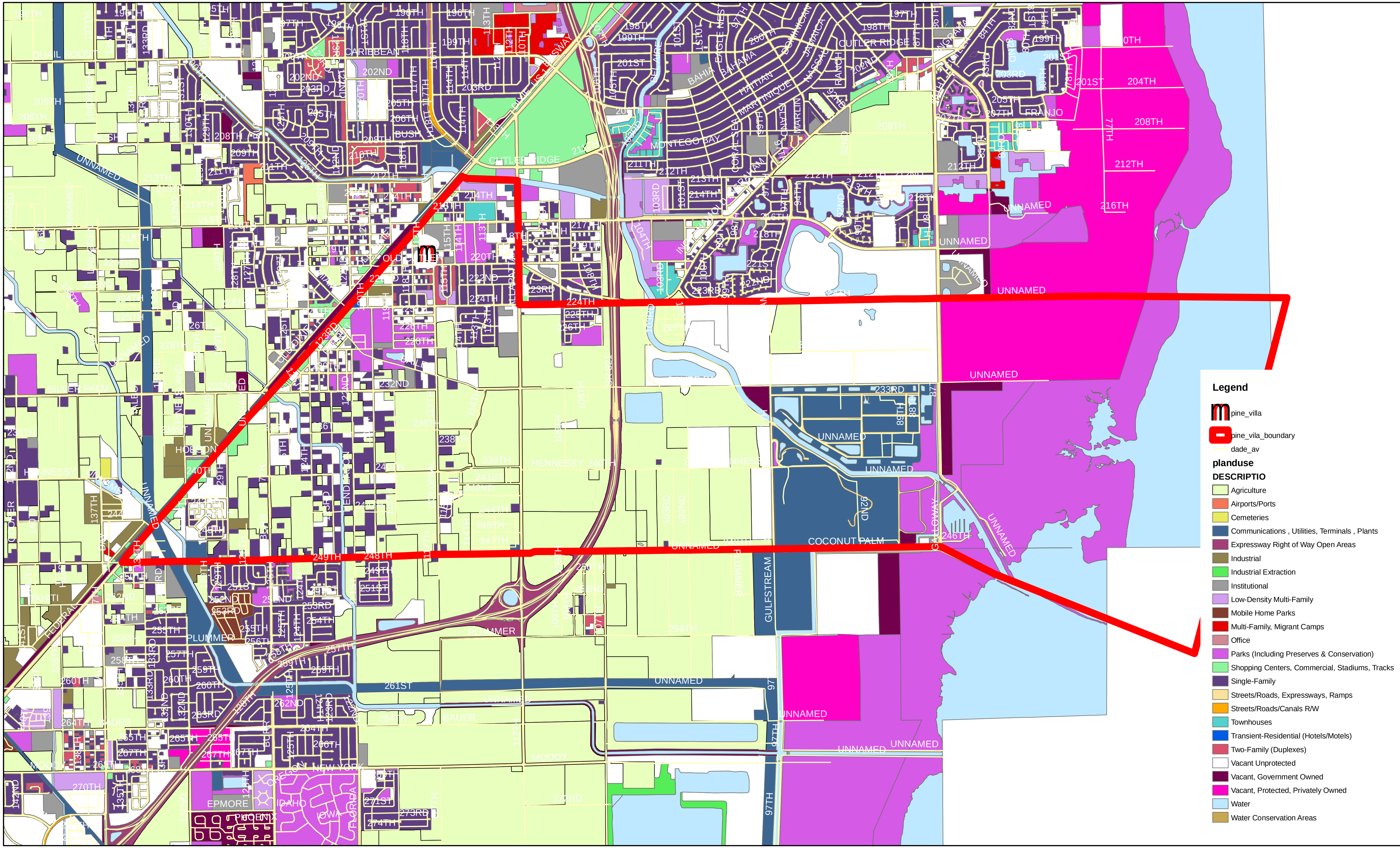


RS&H		Pedestrian and Bicycle Crashes Pine Villa Elementary	2004	Appendix A

APPENDIX B

Land Use Map

Pine Vila Elementary



APPENDIX C
Existing Route Deficiencies

SAFE ROUTE TO SCHOOL PROJECT

Pine Villa Elementary

21799 SW 117 Court, Gould, Florida 33170

Improvements Needed

From the Field:

Route-SW 216 Street (From SW 112 Avenue to US 1)

- From SW 112 Avenue traveling westbound there is sidewalk missing between SW 112 Avenue and SW 113 Avenue (Approximately 559 feet on the north side).
- There is crosswalk missing on SW 113 Avenue on the north side.
- Grass needs to be trimmed at SW 115 Avenue on the north side (Approximately 60 feet from the intersection).
- On the south side between SW 115 Avenue and the end of the faculty parking lot, sidewalk needs repair (Approximately 166 feet).

Route-SW 220 Street (From US 1 to SW 112 Avenue)

- At SW 118 Court to SW 118 Avenue there is sidewalk missing on the north side (Approximately 318 feet).
- Crosswalk is needed at SW 116 Avenue (south side), SW 115 Court (south side), and SW 115 Avenue (north and south side).
- SW 114 Avenue is missing crosswalk on the north and south side.
- At SW 114 Court, SW 113 place, and SW 113 Court is missing crosswalk on the south side.
- SW 113 Avenue is missing crosswalk on the north side.

Route- SW 117 Avenue (From SW 224 Street to SW 219 Street)

- Between SW 220 Street and SW 219 Street sidewalk is missing on the east side (Approximately 393 feet). Buses get dropped off on the west side.

Route- SW 118 Avenue (From SW 216 Street to SW 220 Street)

- There is crosswalk missing between SW 118 Avenue and SW 220 Street on the north side.
- Between SW 220 Street and SW 218 Street sidewalk is missing on the west side.
- Crosswalk is needed at SW 218 Street and SW 118 Avenue.

From the Meeting:

- One of the concerns that was stated in the meeting was that there are not enough one way sign on SW 117 Court creating driver confusion.
- At SW 118 Avenue there are not enough signs and there are no flashers on this road.

- The principal stated that there is a store located in the northwest corner from the school. Students cross SW 117 Court in the morning and afternoon and they recommend having a crosswalk installed at SW 117 Court for the students that are crossing to that store.
- There are students crossing the street at Mayes Middle School. But there is no crosswalk for them to use.

DISTRICTWIDE TRAFFIC OPERATIONS STUDIES

FM NO. 250093-1-32-03

TWO NO. 25

SAFE ROUTES TO SCHOOL

SOUTH POINTE ELEMENTARY SCHOOL

FINAL REPORT

Prepared for:

Florida Department of Transportation

District 6

Prepared by:

Reynolds, Smith and Hills, Inc.

July 12, 2007

Safe Routes to School (SRTS)
Pilot Project

Financial Project No.: 25009313203
Task Work Order No.: 25

FINAL REPORT
for
South Pointe Elementary School

Prepared for:

Florida Department of Transportation

District 6

Prepared by:

REYNOLDS, SMITH & HILLS, INC.

July 11, 2007

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1. INTRODUCTION

Safe Routes to School (SRTS) is a federally funded program that was authorized in August 2005 by Section 1404 of the federal transportation act, SAFETEA-LU (the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users). The program targets children in grades K-8 and was developed to meet the following objectives:

1. To enable and encourage children, including those with disabilities, to walk and bicycle to school

2. To make bicycling and walking to school a safer and more appealing transportation alternative, thereby encouraging a healthy and active lifestyle from an early age, and

3. To facilitate the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of schools.

Florida's SRTS program is managed through the Florida Department of Transportation (FDOT). In accordance with the program guidelines, the FDOT awards projects for SRTS funding following a district-wide competitive application process. The FDOT District 6 Office in consultation with Miami-Dade County Metropolitan Planning Organization (MPO), Miami-Dade County School Board and Miami-Dade Public Works Department identified South Pointe Elementary School as a prospective candidate for SRTS funding. RS&H was retained by the District to assist in identifying infrastructure improvement needs and preparing the required application forms for the SRTS program. This report was prepared in support of the application for funding proposed infrastructure improvements at South Pointe Elementary School for the SRTS program.

2. PROJECT SCHOOL DATA

The following information pertains to the project school.

Name: South Pointe Elementary

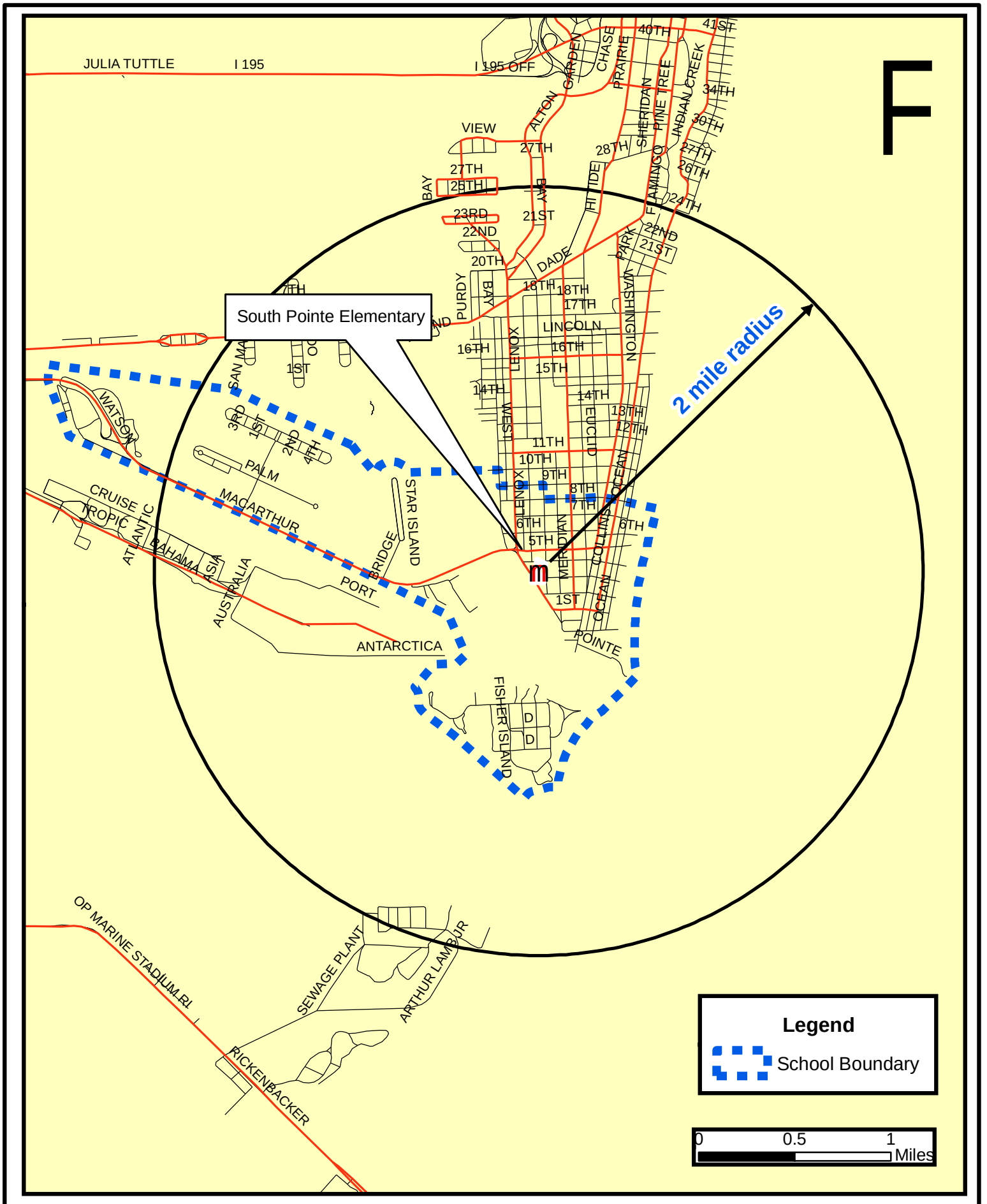
Address: 1050 4th Street, Miami Beach, Fl 33139 (Figure 1 shows project location map)

Enrollment: 506 students (School year 2006 to 2007)

School Attendance Boundary: Attendance boundary is shown in Figure 1.

Estimated mode split for transportation to/from school (based on interviews with school officials):

- Walk/Ride = 25%
- Private Car = 65%
- Buses = 10%



RS&H		South Pointe Elemetary 1050 Fourth Street Miami Beach, Florida 33139	Location Map	Figure 1

3. CRASH HISTORY

Pedestrian and bicycle crashes reported throughout Miami-Dade County for the period 2002 through 2004 were obtained from the MPO. A GIS analysis was conducted using the crash data to identify pedestrian and bicycle crashes that were reported within the limits of the school attendance boundary (or 2 mile radius). The analysis identified fatal crashes, injury crashes and juvenile crashes. Appendix A shows plots of the crashes reported within the project limits. The crash data is summarized in Table 1.

The recommended SRTS for South Point Elementary are presented in Section 5 of the report. Table 2 contains crash details for pedestrian/bicycle collisions that were reported along the recommended SRTS. As shown in Table 2, a relatively high number of pedestrian crashes were experienced along 5th Street –14 pedestrian crashes were reported during the 3-year study period and one involved a juvenile. A detailed research of the individual police crash reports would be required to identify probable causal factors for these pedestrian crashes and what, if any, specific engineering countermeasures may be considered to reduce these crashes. This research is beyond the limited scope of this SRTS project. Notwithstanding, based on the field reviews that were conducted for this study recommended improvements were developed to address roadway and traffic deficiencies that would enhance overall safety conditions for pedestrian and bicycle traffic using the proposed safe routes.

Table 1
Summary of Pedestrian and Bicycle Crashes
South Pointe Elementary

Road Name	Segment		2002 Ped & Bike Crashes						2003 Ped & Bike Crashes						2004 Ped & Bike Crashes					
			Juveniles[1]		Others[2]		Total		Juveniles[1]		Others[2]		Total		Juveniles[1]		Others[2]		Total	
	From	To	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries	Fatalities	Injuries
SW 5 Street	Ocean Drive	Alton Road	0	1	0	7	0	8	0	0	0	8	0	8	0	0	0	6	0	6
Collins Ave	8 Street	Biscayne	0	0	0	3	0	3	0	0	0	5	0	5	0	0	0	3	0	3
Ocean Ave	SW 8 Street	Biscayne	0	0	0	8	0	8	0	0	0	1	0	1	0	0	0	4	0	4
Alton Road	SW 8 Street	Biscayne	0	0	0	5	0	5	0	0	0	3	0	3	0	0	0	6	0	6
9 Street	West Ave	Michigan Ave	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Meridian Ave	8 Street	1 Street	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0
SW 8 Street	Michigan Ave	Ocean Drive	0	0	0	3	0	3	0	0	0	6	0	6	0	0	0	2	0	2
Euclid Ave	8 Street	2 Street	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	1	0	1
7 Street	Alton Road	Washing. Ave	0	0	0	1	0	1	0	0	0	2	0	2	0	0	0	1	0	1
Jefferson Ave	8 Street	2 Street	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2	0	2
Washing. Ave	8 Street	2 Street	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	3	0	3
West Avenue	9 Street	10 Street	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
Total			**0**	**1**	**0**	**30**	**0**	**31**	**0**	**0**	**0**	**31**	**0**	**31**	**0**	**0**	**0**	**28**	**0**	**28**

Note: 1. Juveniles= children between the ages of 5-13 years

2. Others= children and adults greater than the age of 13 years

Table 2
Summary of Crashes Reported on Proposed Safe Routes
South Pointe Elementary, 2002-2004

CRASH DETAILS							
Safe Route	**Case Number**	**Date of Crash**	**Day of Week**	**Time**	**Pedestrian Age**	**Injury/Fatality**	**Location of Crash**
5th Street (From Alton Road to Washington Avenue)	703338660	09/09/02	Sun	10:10 AM	38	Injury	Lenox Avenue
	703316480	03/30/02	Fri	3:00 PM	8	Injury	945 5th Street
	704164200	12/11/02	Tue	3:13 PM	41	Injury	Jefferson Avenue
	704172560	07/04/02	Wed	3:57 PM	29	Injury	Euclid Avenue
	703232280	12/04/02	Tue	1:00 PM	39	Injury	Washington Avenue
	703214070	12/10/03	Tue	10:55 AM	74	Injury	Alton Road
	705408970	04/17/03	Wed	11:20 PM	34	Injury	Jefferson Avenue
	703239380	08/06/03	Tue	12:30 PM	40	Injury	Jefferson Avenue
	703213050	01/01/03	Tue	4:32 PM	48	Injury	Meridian Avenue
	705438130	08/22/03	Thu	12:37 PM	77	Injury	Meridian Avenue
	703208410	03/09/03	Sat	9:43 PM	49	Injury	Meridian Avenue
	733366630	12/27/04	Sun	7:31 PM	58	Injury	Jefferson Avenue
	703389070	05/22/04	Fri	4:54 AM	22	Injury	Jefferson Avenue
	703215850	01/09/04	Thu	7:48 AM	62	Injury	Washington Avenue
Meridian Avenue (From 10 Street to 5 Street)	704172250	05/16/02	Wed	11:53 PM	53	Injury	6th Street
	721824280	08/30/02	Thu	12:05 PM	73	Injury	8th Street
West Avenue (From 10 Street to 6 Street)	703323210	07/03/02	Tue	10:52 PM	45	Injury	9th Street
	703360610	06/26/04	Fri	9:40 PM	28	Injury	10th Street
Alton Road (From 6 Street to 5 Street)	704169360	02/27/02	Tue	3:43 PM	64	Injury	6th Street
	703214070	12/10/03	Tue	10:55 AM	74	Injury	5th Street
	703211360	03/12/03	Tue	11:25 AM	36	Injury	6th Street

Note: Juvenile crashes are highlighted in gray.

4. DEVELOPMENT OF SRTS

SRTS for South Pointe Elementary School were developed based on guidelines contained in the Safe Routes to School, Procedure Manual developed by Miami-Dade County, MPO September 2005. Several additional reference sources also provided guidance in developing safe routes for the project school. Notable among these were:

- National Center for Safe Routes to School: http://www.saferouteroutesinfo.org/
- Federal Highway Safe Routes to School: http://safety.fhwa.dot.gov/saferoutes/

Preliminary SRTS were initially developed for the project school based on reviews of several engineering factors. These included:

- School attendance boundary
- Aerial photographs
- Land use data (see Appendix B)
- Frequency/severity of juvenile pedestrian and bicycle crashes
- Roadway characteristics (sidewalks, medians, buffers, etc.)
- Speed limits
- Traffic volumes
- Location of traffic control devices
- Driveway density
- Location of canals and railroad crossings

Meetings were subsequently held with the school principal and other key staff members to further develop and refine the proposed SR2S. Input was also gained from the Patent Teachers Association (PTA) and the project steering committee that included representatives from the MPO, the School Board and the Public Works Department.

5. RECOMMENDED SRTS

Following the process described in Section 4, the recommended SRTS was developed for South Pointe Elementary School. The map on the following page shows the recommended SRTS. Table 3 shows pertinent roadway and traffic characteristics for the road segments along the recommended SRTS.

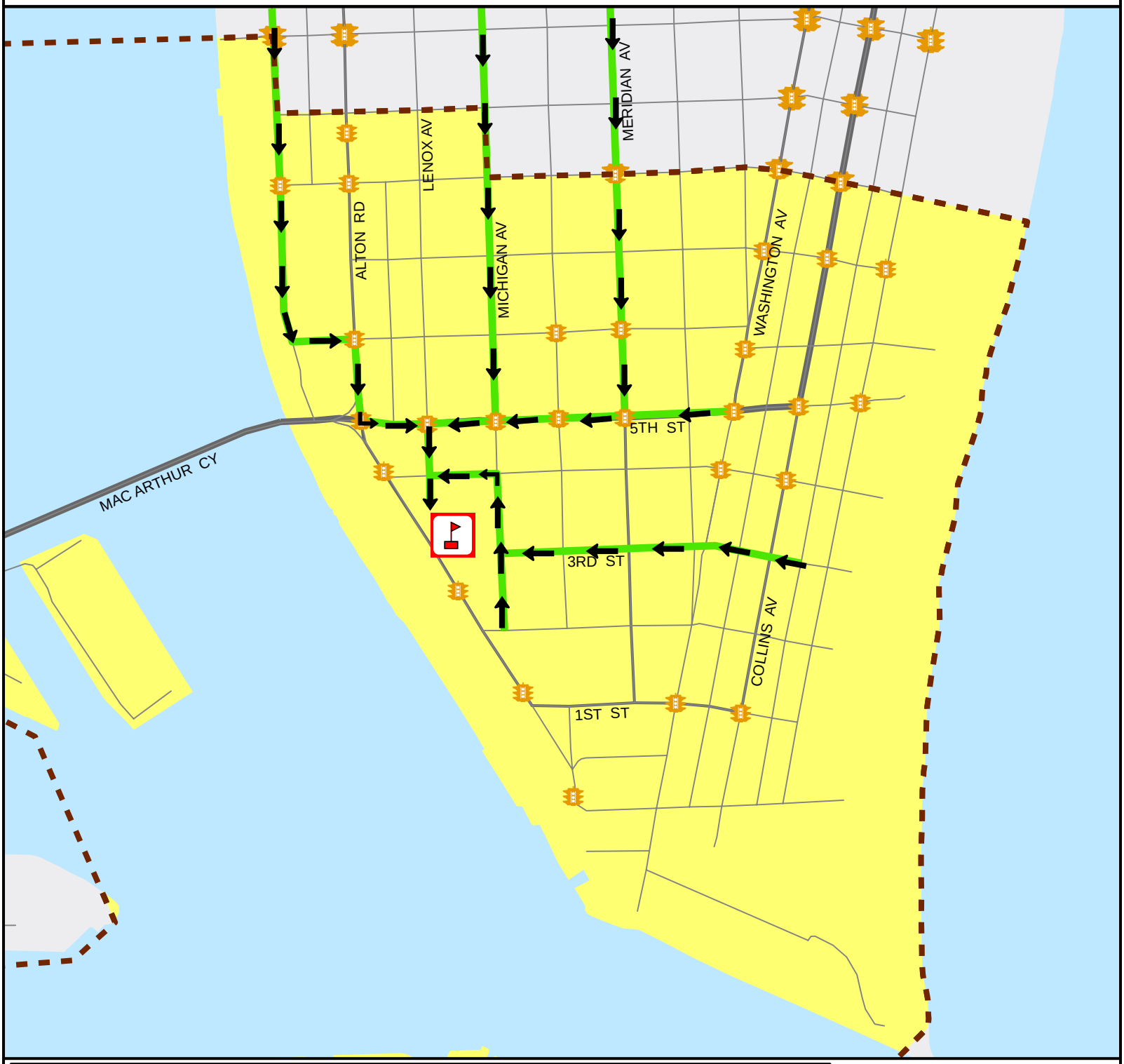
6. FIELD REVIEW

Field reviews for South Pointe Elementary School were conducted on April 19, 2007. The primary deficiencies that were identified along the proposed safe routes were missing crosswalks, and school zone signage and flashers. A list of the comprehensive deficiencies observed can be found in Appendix C.

SOUTH POINTE ELEMENTARY SCHOOL

1050 4th Street, Miami Beach 33139

SAFE ROUTES TO SCHOOL



LEGEND

- School
- Safe Routes
- Streets
- Highways
- Railroad
- Attendance Boundary
- Parks
- Water
- Traffic Signals
- Fire
- Police

0 500 1,000
Feet

N

MIAMI-DADE COUNTY

Miami-Dade County Public Schools

MIAMI-DADE MPO Metropolitan Planning Organization

Table 3
South Pointe Elementary
Exisiting Roadway and Traffic Characterisitcs for SRTS Segments

Road	Segment		Facility Type	Speed Limit	AADT[1]	Ped & Bike Crashes[2]
	From	To				
West Avenue	10th Street	6th Street	City Local Street	35 mph	Moderate	1
6th Street	West Avenue	Alton Road	City Local Street	35 mph	Moderate	0
Alton Road	6th Street	5th Street	State Road (Minor Arterial)	35 mph	17,500	14
Michigan Avenue	10th Street	5th Street	City Local Street	35 mph	Moderate	0
5th Street	Alton Road	Washington Avenue	State Road (Principal Arterial)	45 mph	81,500	22
Lenox Avenue	5th Street	4th Street	City Local Street	35 mph	Low	0
4th Street	Lenox Avenue	Michigan Avenue	City Local Street	35 mph	Low	0
Michigan Avenue	4th Street	2nd Street	City Local Street	35 mph	Low	0
3rd Street	Michigan Avenue	Ocean Court	City Local Street	35 mph	Low	0

Notes:

1. For road segments where AADT data was not readily available, traffic volume is assessed as light, moderate or heavy based on fields observed conditions.
2. Total pedestrian and bicycle crashes for 2002 - 2004

7. RECOMMENDED IMPROVEMENTS AND COST ESTIMATES

Based on the field reviews that were conducted along the SRTS (Section 5), recommended infrastructure improvements were developed to encourage and enhance safety for children walking or bicycling to/from school. The recommended infrastructure improvements were limited to eligible projects specified in Florida's SRTS Application Guidelines. Table 4 shows a listing of recommended infrastructure improvement projects along the safe route segments. Table 4 also includes cost estimates for the improvements. The cost estimates were developed based on FDOT's average unit cost rates for projects implemented in District 6 region. The total cost for infrastructure improvements was estimated at $38,656.02.

Table 4

South Pointe Elementary

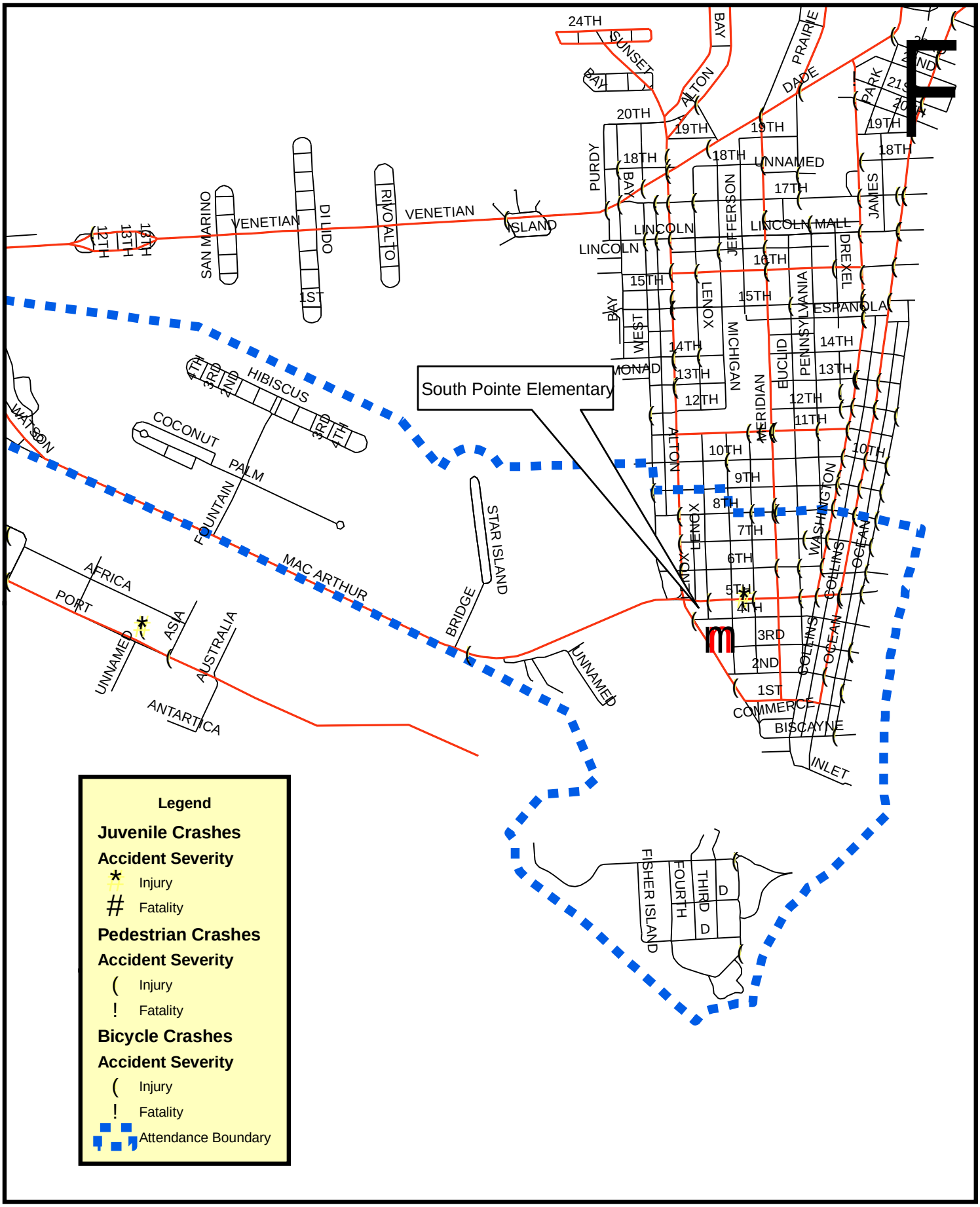
SRTS Infrastructure Improvements

Road Segment	Recommended Improvements	Length (ft)	Unit Cost	Unit	Total
West Avenue (From 10 Stree to 6 Street)	No Improvements required				$0.00
6 Street (From West Avenue To Alton Road)	No Improvements required				$0.00
Alton Road (From 6 Street To 5 Street)	- Install pedestrian countdown signal heads at 5 Street	4	$1,428.51	ea	$5,714.04
Michigan Avenue (From 10 Street To 5 Street)	- Install crosswalk at 6 Street - east and west sides	70	$2.00	ft	$140.00
	- Install pedestrian countdown signal heads at 5 Street	4	$1,428.51	ea	$5,714.04
Meridian Avenue (From 10 Street To 5 Street)	- Install pedestrian countdown signal heads at 5 Street	4	$1,428.51	ea	$5,714.04
5 Street (From Alton Road To Washington Avenue)	- Install flourescent yellow green pedestrian sign	4	$244.41	ea	$977.64
Lenox Avenue (From 5 Street To 4 Street)	- Install pedestrian countdown signal heads at 5 Street	4	$1,428.51	ea	$5,714.04
4 Street (From Lenox Avenue To Michigan Avenue)	- Install school zone flashers	1	$2,400.00	ea	$2,400.00
Michigan Avenue (From 4 Street To 2 Street)	- Upgrade crosswalk at 3 Street - north, south and east sides	130	$2.00	ft	$260.00
	- Install flourescent yellow green pedestrian sign	4	$244.41	ea	$977.64
3 Street (From Michigan Avenue To Ocean Court)	No Improvements required				$0.00
Prelimiary Total Cost					$27,611.44
Contingencies (20%)					$5,522.29
Mobilization (10%)					$2,761.14
Maintence of Traffic (10%)					$2,761.14
Grand Total Cost					$38,656.02

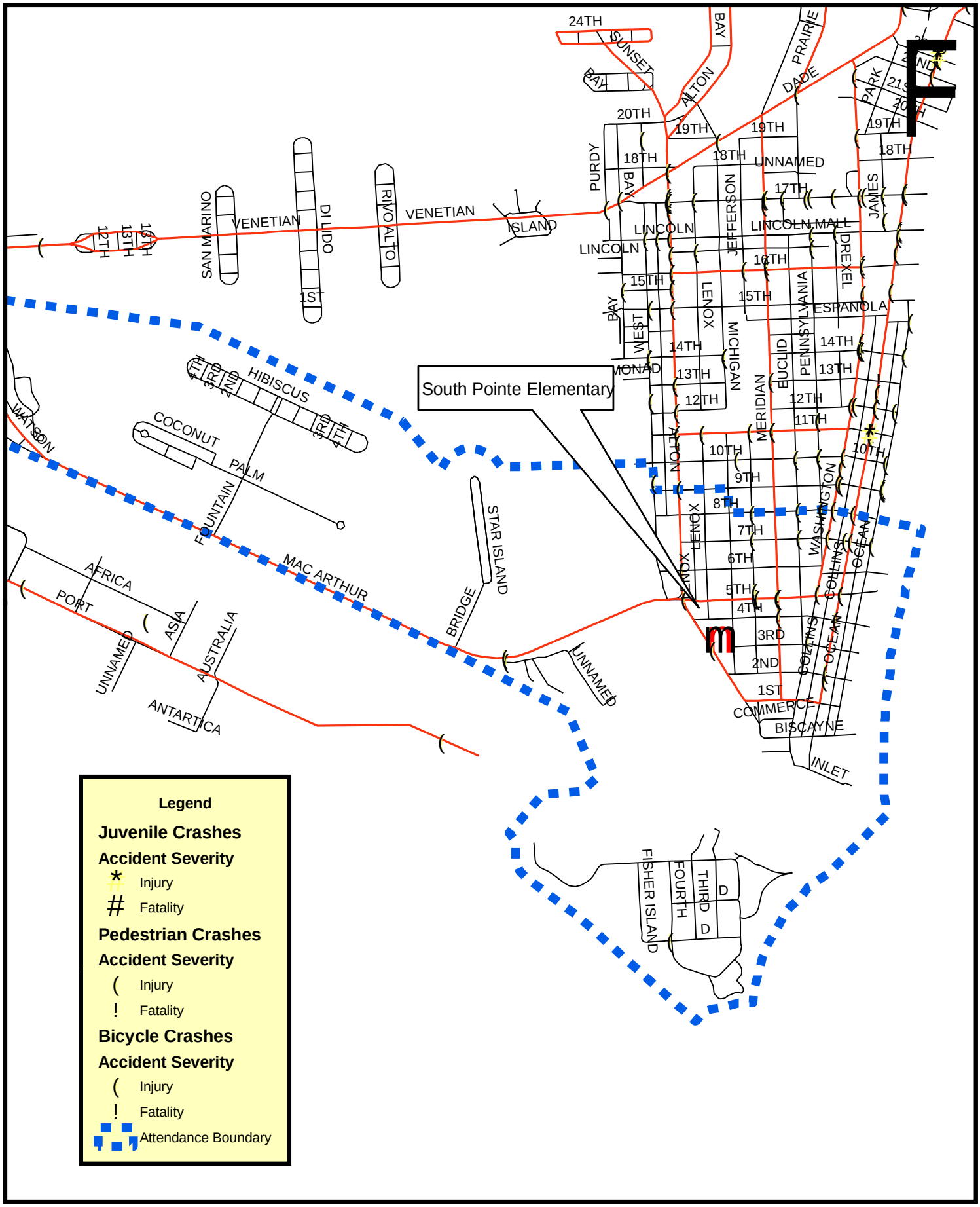
LIST OF APPENDICES

APPENDIX A

Maps of Pedestrian and Bicycle Crashes



RS&H		Pedestrian and Bicycle Crashes South Pointe Elementary	2002	Appendix A



Legend

Juvenile Crashes

Accident Severity

* Injury

\# Fatality

Pedestrian Crashes

Accident Severity

(Injury

! Fatality

Bicycle Crashes

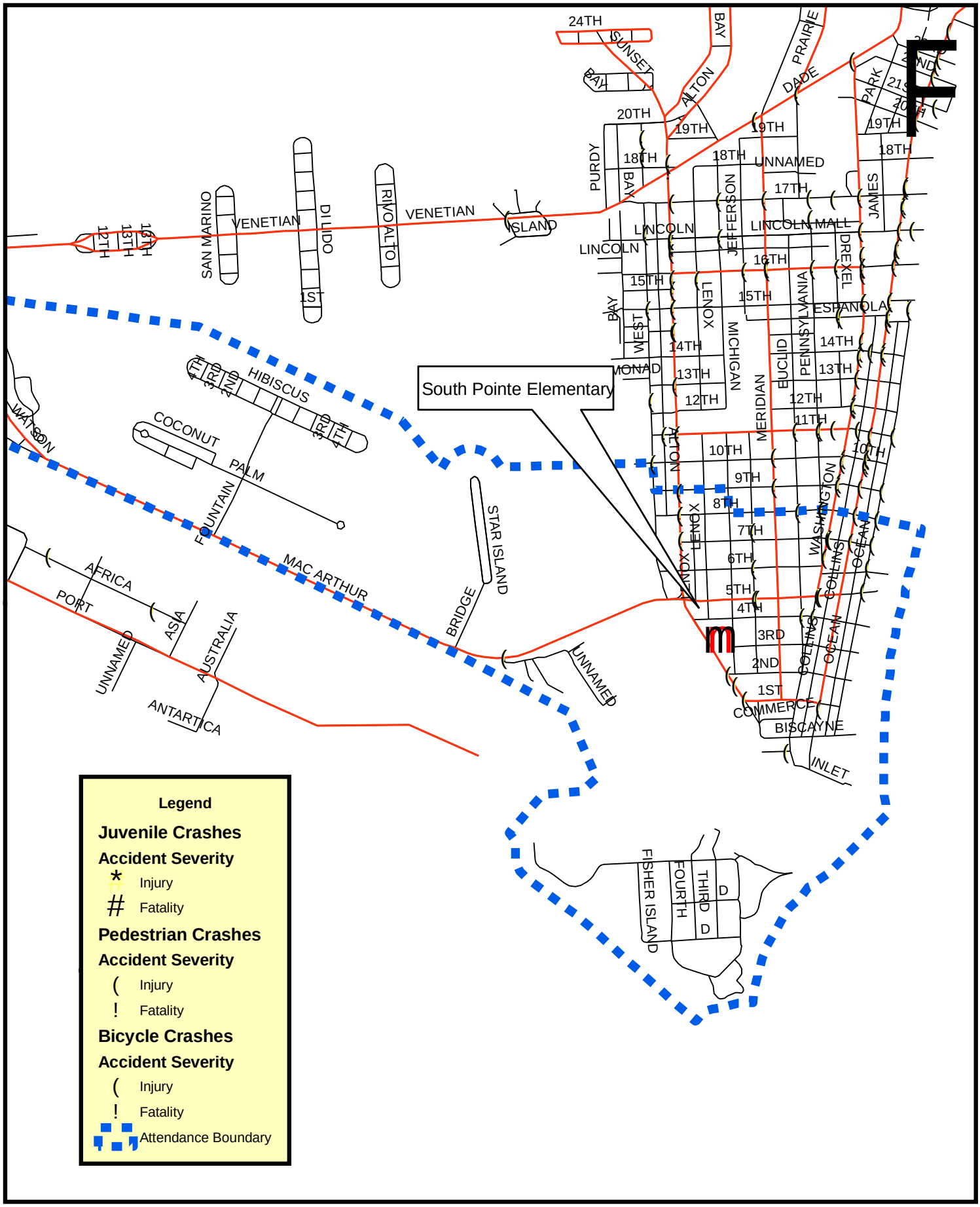
Accident Severity

(Injury

! Fatality

Attendance Boundary

RS&H		Pedestrian and Bicycle Crashes South Pointe Elementary	2003	Appendix A

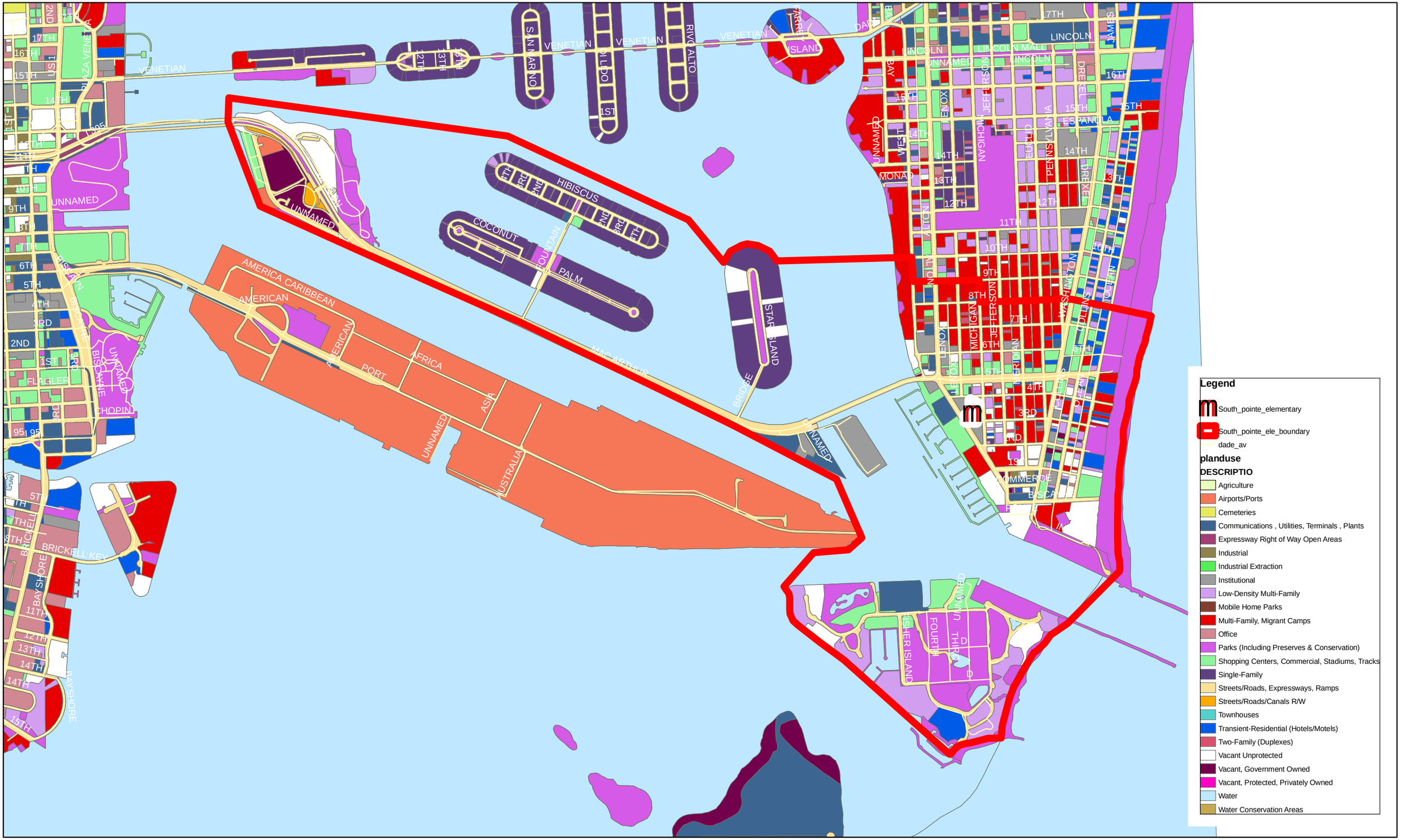


RS&H		Pedestrian and Bicycle Crashes South Pointe Elementary	2004	Appendix A

APPENDIX B

Land Use Map

South Pointe Elementary



APPENDIX C
Existing Route Deficiencies

SAFE ROUTE TO SCHOOL PROJECT

South Pointe Elementary
1050 Fourth Street, Miami FL 33139

Improvements Needed

From the Field:

Route- Michigan Avenue (From SW 5th St. to SW 10th St.)

- Install crosswalk at 6th Street- East and West sides.
- Install pedestrian countdown signal heads at 5th Street.
- Upgrade crosswalk at 3rd Street- north, south, and east sides.
- Install fluorescent yellow green pedestrian sign.

Route- Meridian Avenue (From SW 5th St. to SW 10th St.)

- Install pedestrian countdown signal heads at 5th Street.

Route- West Avenue (From SW 6th Street to 10th Street)

- No improvements needed for this route.

Route- 6th Street (From West Avenue to Alton Road)

- No improvements needed.

Route- Alton Road (From 5th Street to 6th Street)

- Install pedestrian countdown signal heads at 5 Street.

Route- 5th Street (From Alton Road to Washington Avenue)

- Install fluorescent yellow green pedestrian sign.

Route- Lenox Avenue (From 5th Street to 6th Street)

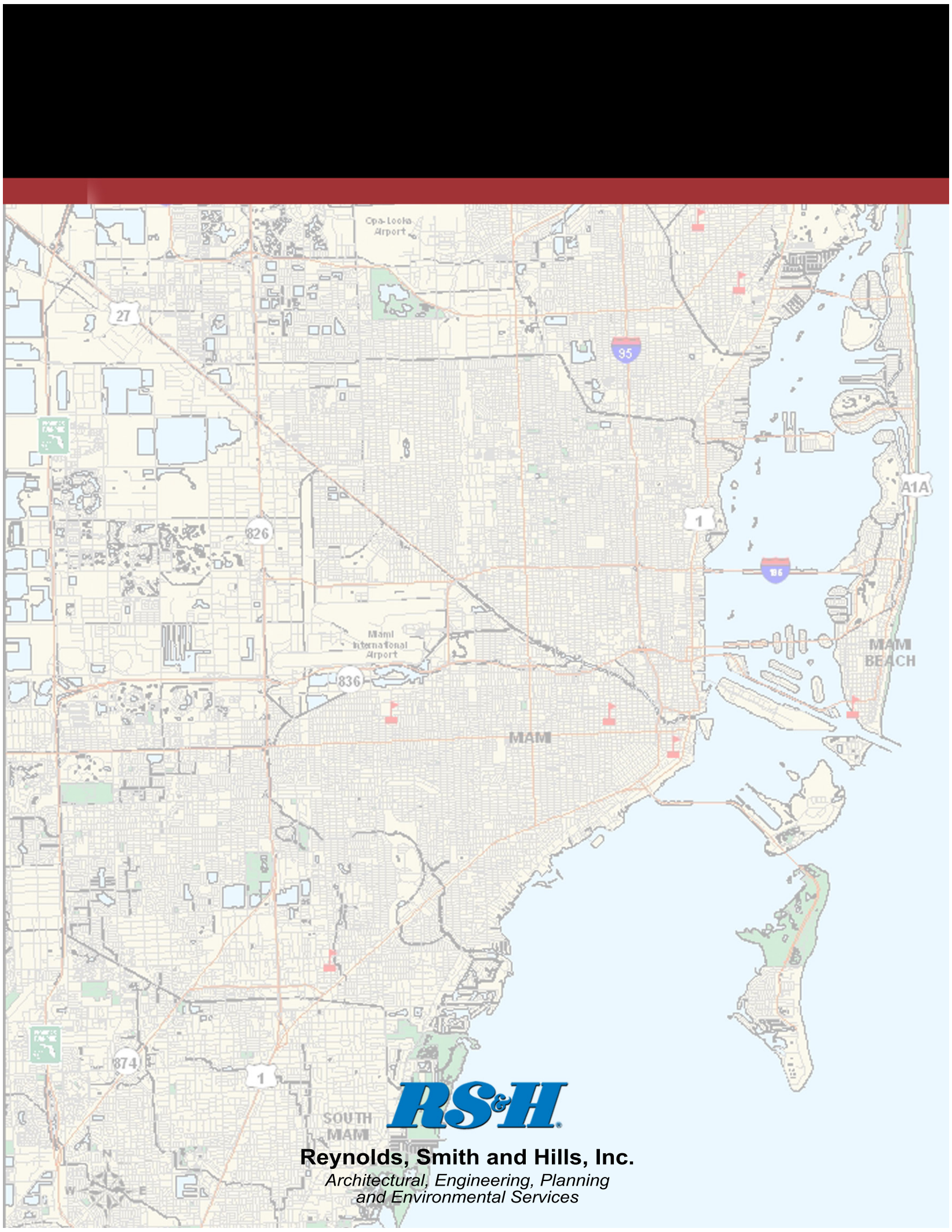
- Install pedestrian countdown signal heads at 5 Street.

Route- 4th Street (From Lenox Avenue to Michigan Avenue)

- Install school zone flashers.

Route- 3rd Street (From Michigan Avenue to Ocean Court)

- Install school zone flashers.


Opa-Locka Airport
27
95
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Miami International Airport
MIAMI BEACH
MIAMI
SOUTH MIAMI
RS&H
Reynolds, Smith and Hills, Inc.
Architectural, Engineering, Planning
and Environmental Services