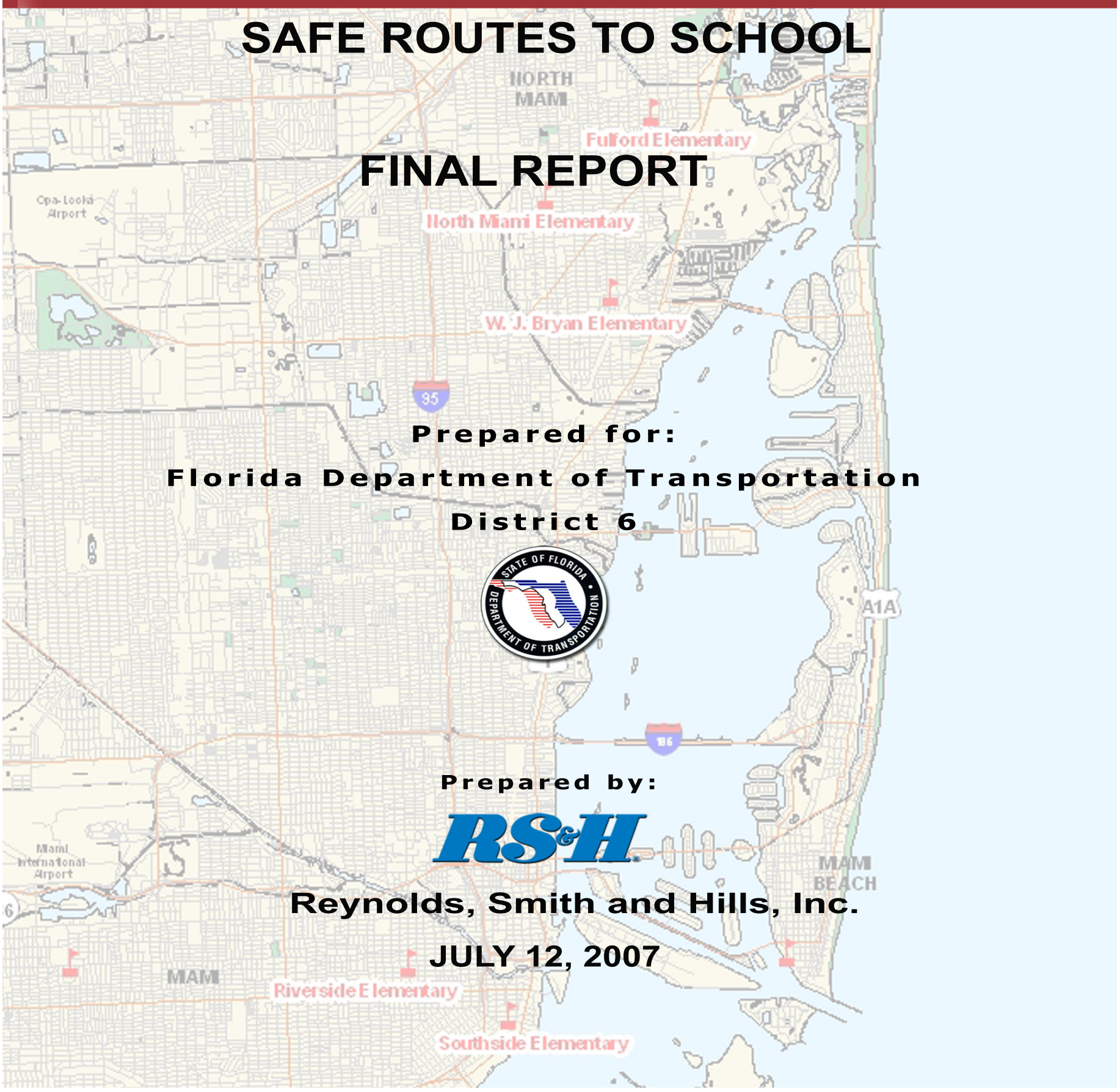
DISTRICTWIDE TRAFFIC OPERATIONS STUDIES

FM NO. 250093-1-32-03

TWO NO. 26

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

FM NO. 250093-1-32-03

TWO 26

SAFE ROUTES TO SCHOOL

C O N T E N T S

Prepared for

Prepared by

Safe Routes to School (SRTS)
Pilot Project

Financial Project No.: 25009313203
Task Work Order No.: 26

FINAL REPORT
for
Fulford Elementary School

Prepared for:

Florida Department of Transportation

District 6

Prepared by:

REYNOLDS, SMITH & HILLS, INC.

July 11, 2007

TABLE OF CONTENTS

LIST OF FIGURES

SECTION **PAGE**

LIST OF TABLES

SECTION **PAGE**

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 Fulford 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 Fulford Elementary School for the SRTS program.

2. PROJECT SCHOOL DATA

The following information pertains to the project school.

Name: Fulford Elementary

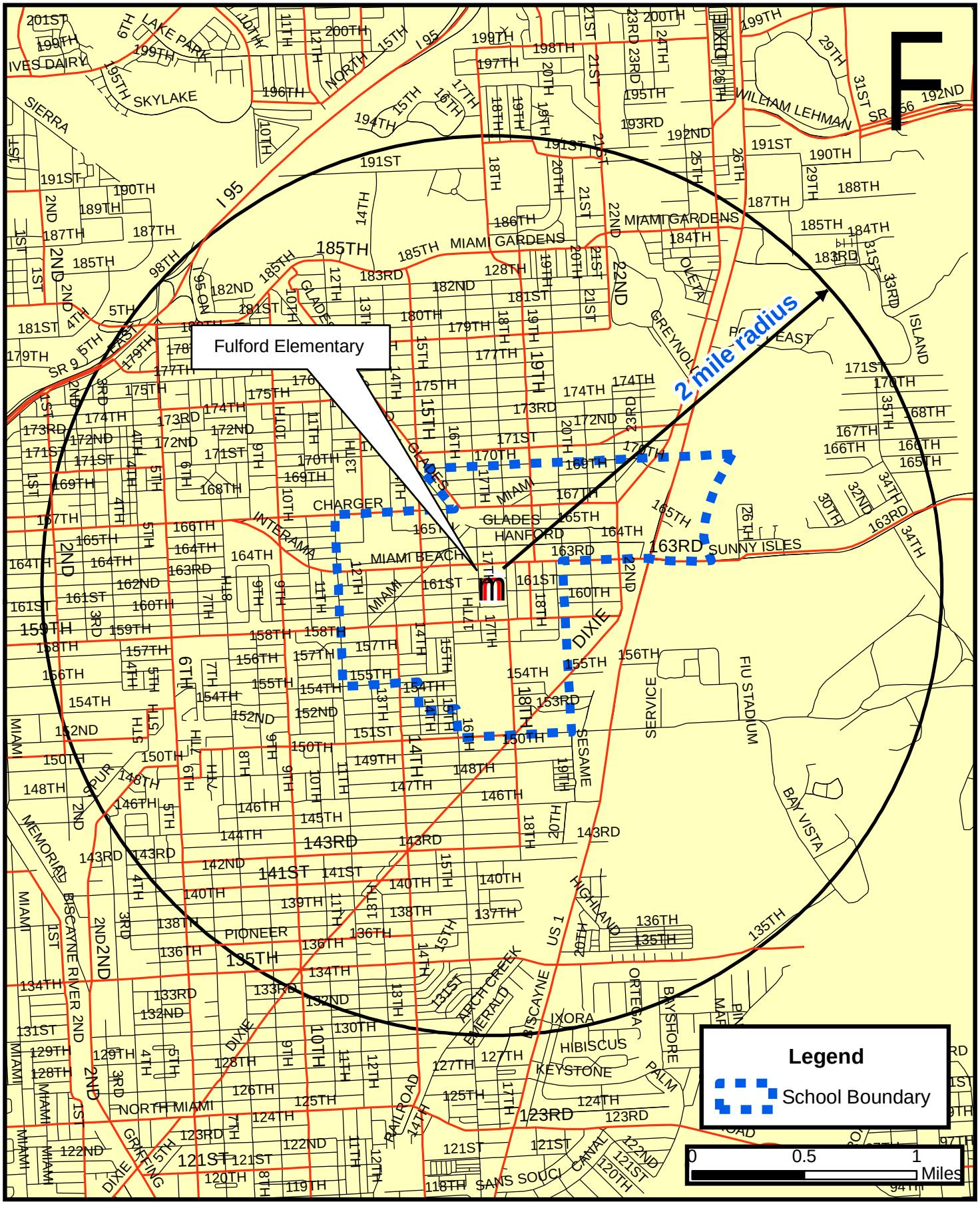
Address: 16140 NE 18th Street, North Miami Beach, Fl 33162 (Figure 1 shows project location map)

Enrollment: 687 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 = Not Available
- Private Car = Not Available
- Buses = Not Available



RS&H		Fulford Elementary School 16140 NE 18 Avenue North Miami Beach, Fl. 33162	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 Fulford 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, NE 19 Avenue experienced four pedestrian crashes (none involving juveniles) and NE 163 Street experienced one crash that 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.

4. DEVELOPMENT OF SRTS

SRTS for Fulford 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

Table 1
Summary of Pedestrian and Bicycle Crashes
Fulford 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
NE 12 Avenue	NE 155 Street	NE 167 Street	0	2	0	1	0	3	0	0	0	3	0	3	0	3	0	1	0	4
NE 14 Avenue	NE 163 Street	NE 155 Street	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1
NE 15 Avenue	NE 155 Street	NE 167 Street	0	0	0	1	0	1	0	1	0	0	0	1	0	0	0	2	0	2
NE 16 Avenue	NE 153 Street	NE 167 Street	0	0	0	1	0	1	0	0	0	2	0	2	0	0	0	1	0	1
NE 17 Avenue	NE 165 Street	NE 160 Street	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
NE 18 Avenue	NE 151 Street	NE 165 Street	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
NE 19 Avenue	NE 170 Street	NE 163 Street	0	0	0	2	0	2	0	0	0	2	0	2	0	0	0	2	0	2
NE 22 Avenue	NE 163 Street	NE 170 Street	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	4	0	4
NE 161 Street	NE 18 Avenue	NE 22 Avenue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
NE 164 Street	NE 15 Avenue	NE 22 Avenue	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
NE 166 Street	NE 20 Avenue	NE 17 Avenue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
NE 167 Street	Golden Glades	NE 22 Avenue	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1
NE 170 Street	Golden Glades	NE 23 Avenue	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
NE 163 Street	NE 12 Avenue	Biscayne Blvd	0	0	0	3	0	3	0	0	0	2	0	2	0	0	0	1	0	1
Total			**0**	**2**	**0**	**11**	**0**	**13**	**0**	**1**	**0**	**14**	**0**	**15**	**0**	**0**	**0**	**15**	**0**	**19**

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
Fulford Elementary, 2002-2004

CRASH DETAILS							
Safe Route	**Case Number**	**Date of Crash**	**Day of Week**	**Time**	**Pedestrian Age**	**Injury/Fatality**	**Location of Crash**
NE 19 Avenue (From NE 163 Street to NE 170 Street)	584562300	11/20/02	Tue	12:44 PM	17	Injury	NE 170 Street
	584519720	02/23/02	Fri	4:16 PM	51	Injury	NE 163 Street
	584567550	02/26/03	Tue	2:05 PM	20	Injury	NE 163 Street
	584589170	03/04/04	Wed	4:24 PM	15	Injury	NE 168 Street
NE 159 Street (From NE 14 Avenue to NE 18 Avenue)	584563590	12/12/02	Wed	12:34 PM	14	Injury	NE 12 Avenue
	584567450	02/25/03	Mon	5:30 PM	76	Injury	NE 14 Avenue
NE 16 Avenue (From NE 153 Street to NE 167 Street)	584550560	05/01/02	Tue	9:30 PM	42	Injury	NE 158 Street
	584586210	01/06/04	Mon	3:35 PM	20	Injury	16099 NE 16 Avenue
NE 163 Street (From NE 18 Avenue to NE 19 Avenue)	755891150	11/02/04	Mon	7:34 PM	8	Injury	NE 18 Avenue

Note: Juvenile crashes are highlighted in gray.

5. RECOMMENDED SRTS

Following the process described in Section 4, the recommended SRTS was developed for Fulford 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 Fulford Elementary School were conducted on May 25, 2007. The primary deficiencies that were identified along the proposed safe routes were missing sidewalk, crosswalks, school zone signage, and pedestrian heads. A list of the comprehensive deficiencies observed can be found in Appendix C.

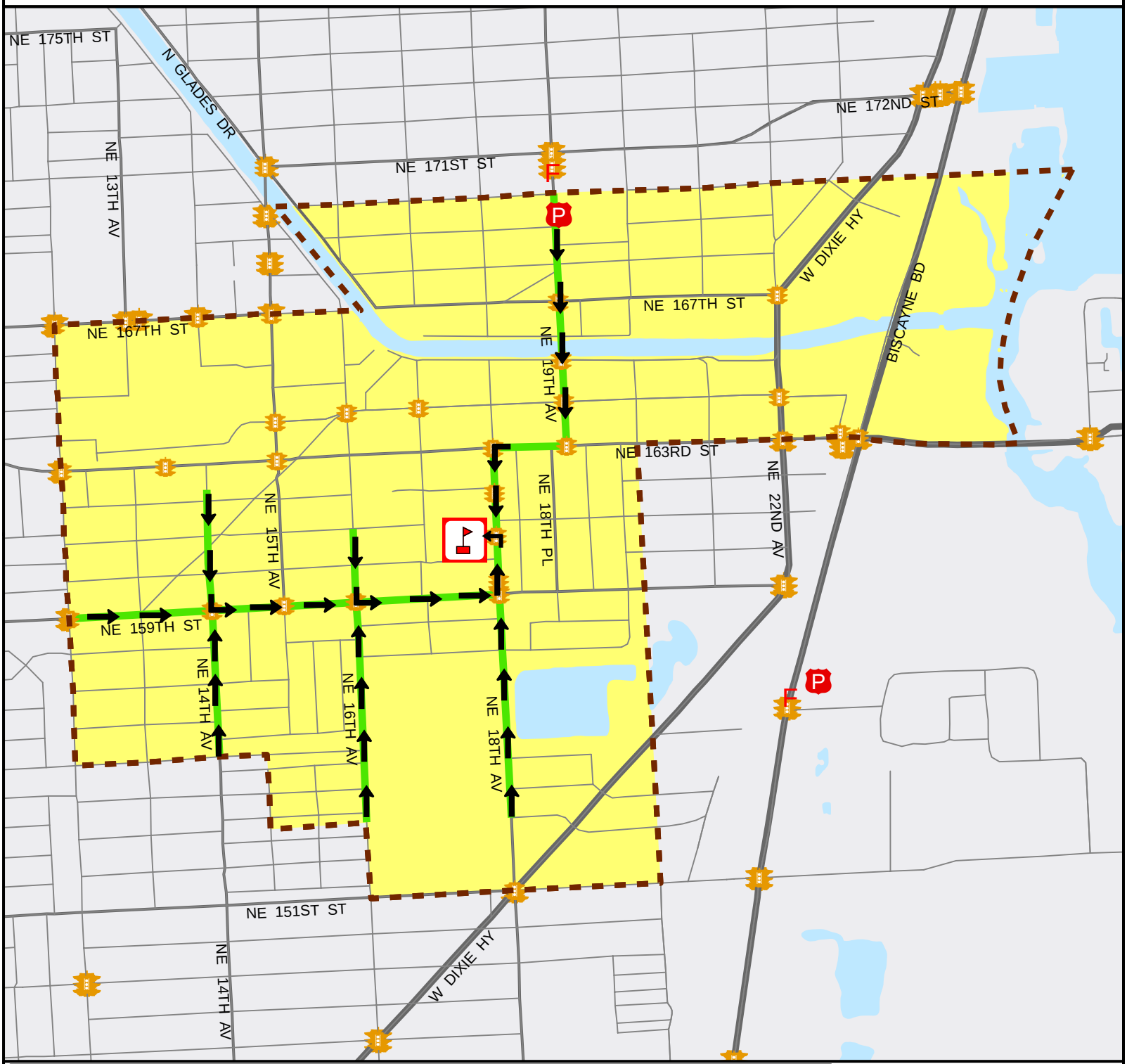
7. RECOMMENDED IMPROVEMENTS AND COST ESTIMATES

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 3 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 $72,721.66.

FULFORD ELEMENTARY SCHOOL

16140 NE 18th Avenue, North Miami Beach 33162

SAFE ROUTES TO SCHOOL



LEGEND

- School
- Safe Route
- Streets
- Highways
- Attendance Boundary
- Water
- Traffic Signals
- Fire
- Police

0 1,000 2,000 Feet

N

MIAMI-DADE COUNTY

Miami-Dade County Public Schools

MIAMI-DADE MPO Metropolitan Planning Organization

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

Road	Segment		Facility Type	Speed Limit	AADT[1]	Ped & Bike Crashes[2]
	From	To				
NE 19th Avenue	NE 163rd Street	NE 170th Street	City Collector	40 mph	Moderate	6
NE 18th Avenue	NE 159th Street	NE 163rd Street	City Local Street	35 mph	Low	1
NE 14th Avenue	NE 155th Street	NE 163rd Street	City Local Street	35 mph	Low	2
NE 16th Avenue	NE 153rd Street	NE 167th Street	City Local Street	35 mph	Low	4
NE 163rd Street	NE 18th Avenue	NE 19th Avenue	State Road (Minor Arterial)	40 mph	Moderate	6
NE 159th Street	NE 12th Avenue	NE 18th Avenue	City Collector	40 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

Table 4

Fulford Elementary School

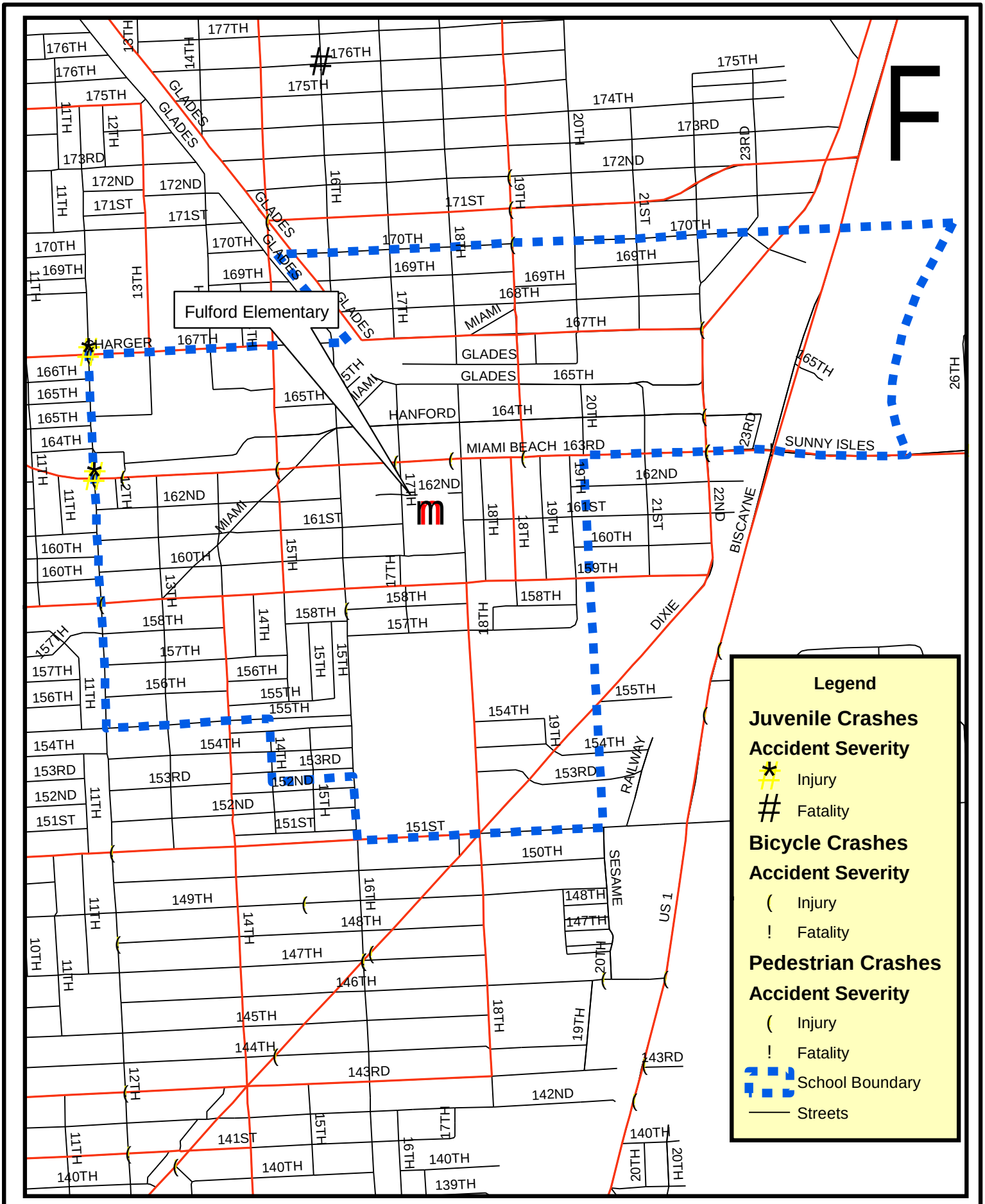
Cost Estimate for Recommended Improvementes

Road Segment	Recommended Improvements	Length (ft)	Unit Cost	Unit	Total
NE 19th Avenue (From NE 163rd Street To NE 170th Street)	- Install crosswalk at NE 170th Street - west side	40	$2.00	ft	$80.00
	- Install pedestrian countdown signals	8	$1,428.51	ea	$11,428.08
NE 18th Avenue (From NE 159 Street To NE 163 Street)	- Install crosswalk at NE 158th Street - west side	40	$2.00	ft	$53.33
	- Install crosswalk at NE 157th Terrace - west side and east side	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
NE 14th Avenue (From NE 163 StreetTo NE 155 Street)	- Install crosswalk at NE 160 Street - west side and east side	80	$2.00	ft	$160.00
	- Install crosswalk at Miami Drive - west side and east side	290	$2.00	ft	$386.67
NE 16 Avenue (From NE 153 Street To NE 167 Street)	- Install crosswalk at NE 158 Street - west side	40	$2.00	ft	$53.33
	- Install crosswalk at NE 157 Terrace - east side	45	$2.00	ft	$60.00
	- Install 4" sidewalk at NE 154 Terrace	650	$49.70	sy	$21,536.67
	- Install 4" sidewalk at NE 158 Street	66	$49.70	sy	$2,186.80
	- Install 6" sidewalk at NE 158 Street	24	$79.59	sy	$1,273.44
	- Install crosswalk at NE 160 Street - east side and west side	80	$2.00	ft	$2,160.00
Prelimiary Total Cost					$51,944.04
Contingencies (20%)					$10,388.81
Mobilization (10%)					$5,194.40
Maintence of Traffic (10%)					$5,194.40
Grand Total Cost					$72,721.66

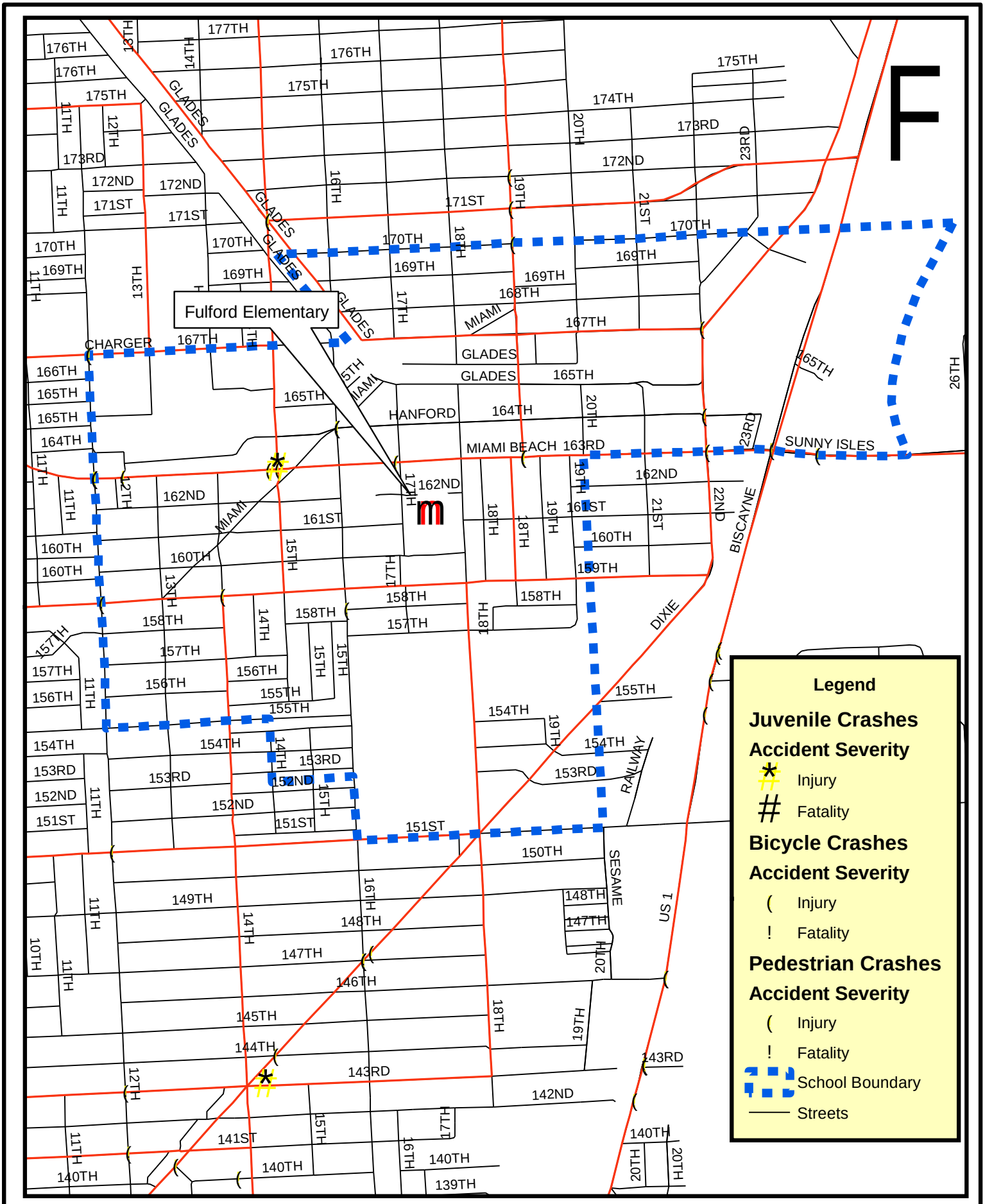
LIST OF APPENDICES

APPENDIX A

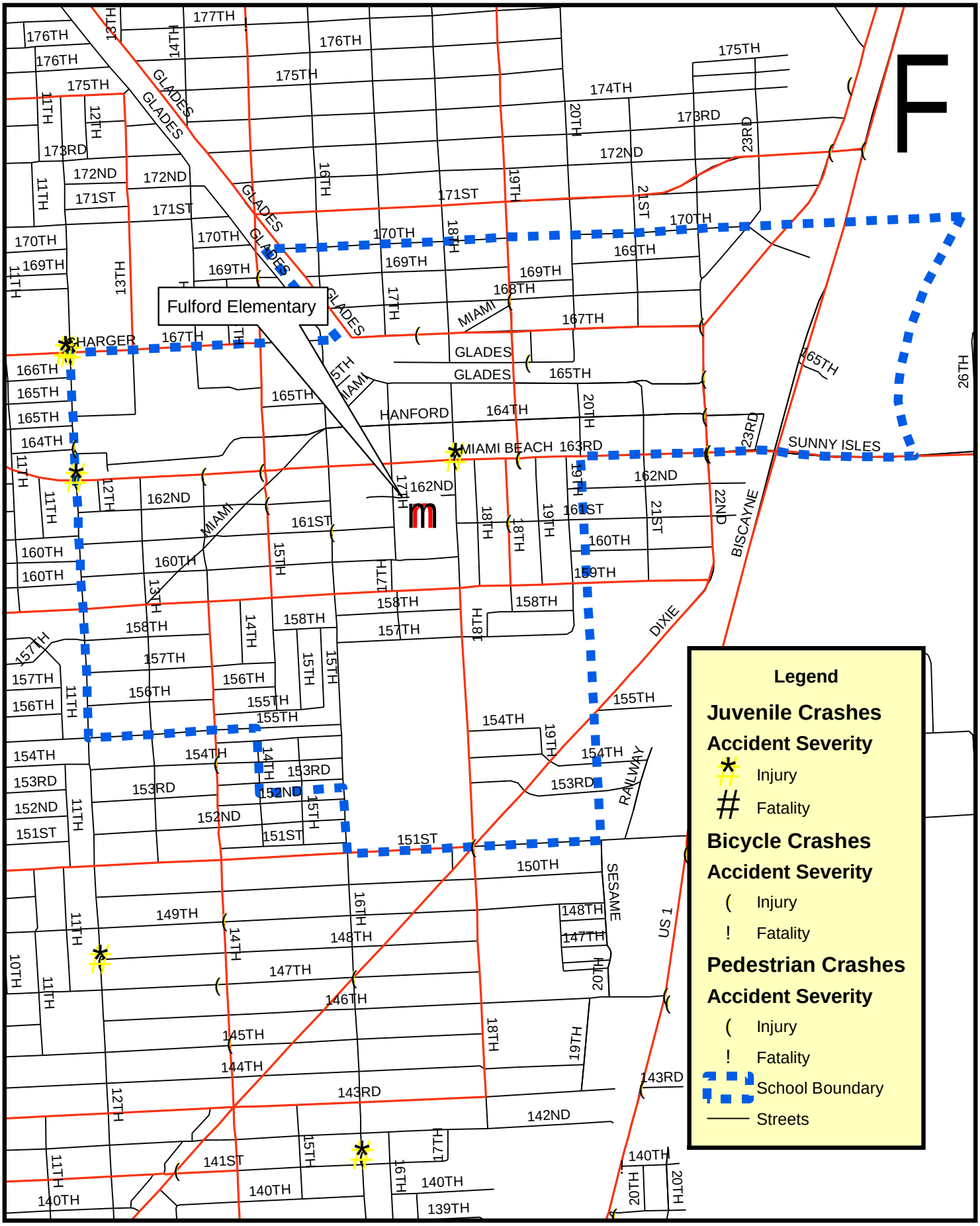
Maps of Pedestrian and Bicycle Crashes



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



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

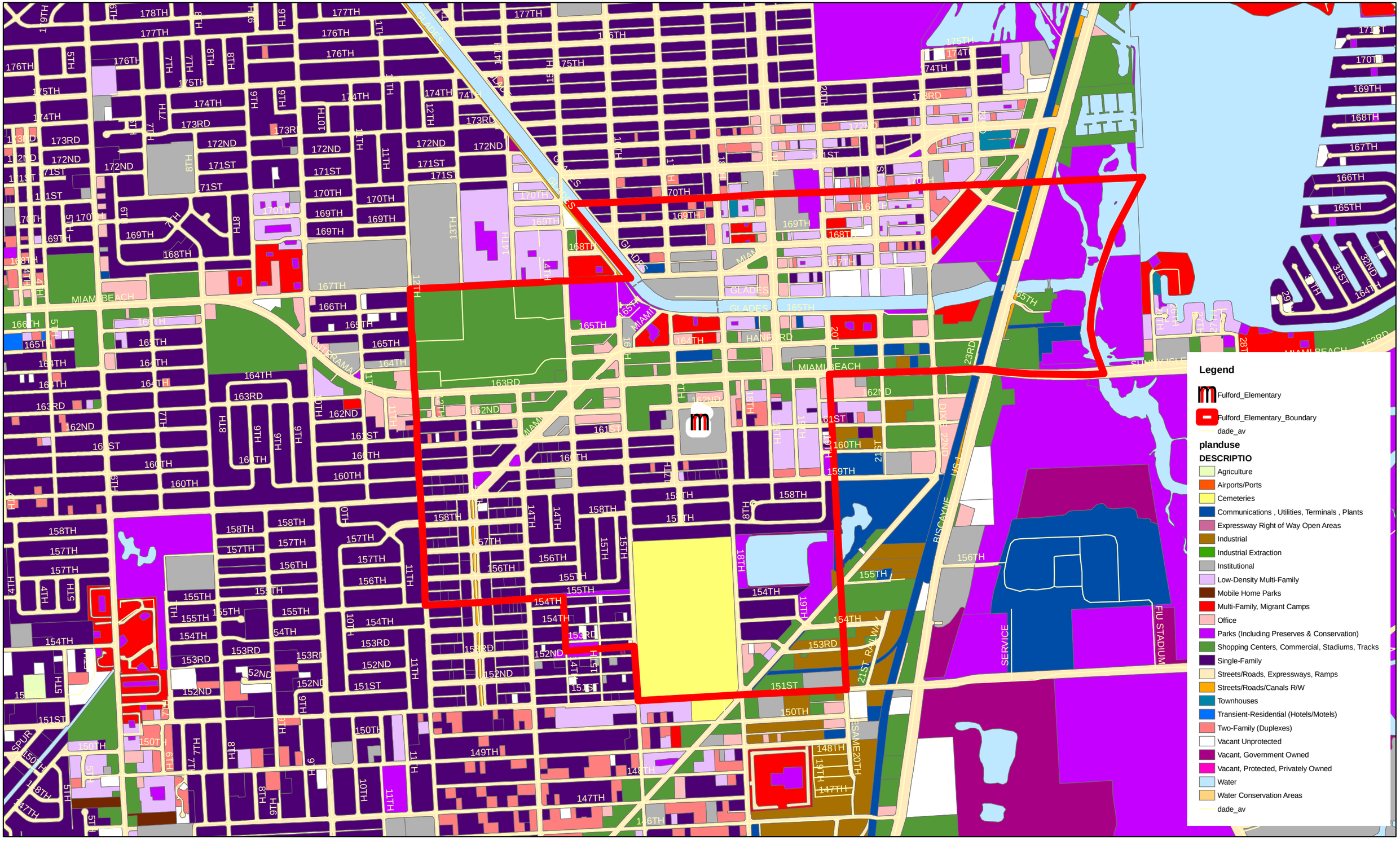


RS&H		Pedestrian and Bicycle Crashes Fulford Elementary	2004	Appendix A

APPENDIX B

Land Use Map

Fulford Elementary



APPENDIX C
Existing Route Deficiencies

SAFE ROUTE TO SCHOOL PROJECT

Fulford Elementary
16140 NE 18 Avenue, North Miami Beach, FL 33161

Improvements Needed

From the Field:
Route- NE 19 Avenue (From NE 163rd St. to NE 170th St.)

- At SW 170 Street crosswalks are needed on the west side.

Route- NE 163 Street (From US 1 to NE 12 Avenue)

- No improvements are needed.

Route- NE 18 Avenue (From NE 159 St. to NE 163 St.)

- At 158 Street crosswalk is needed on the west side.
- At 157 Terrace crosswalk needed east side and west side

Route- NE 159 Street (From NE 12 Ave. to NE 20 Ave.)

- No improvements.

Route- NE 14 Avenue (From NE 163 St. to NE 155 St.)

- At 160 Street crosswalk is needed on the east and west side.
- At Miami Drive crosswalk is needed on the east and west side.

Route- NE 16 Avenue (From NE 153 St. to NE 167 St.)

- At NE 158 Street crosswalk is needed on the west side.
- At NE 157 Terrace crosswalk is needed on the east side.
- At NE 154 Terrace sidewalk is missing(App ? feet)
- At NE 158 Street sidewalk is missing about two blocks south.
- At NE 160 Street crosswalk is needed on the west side and east side.

DISTRICTWIDE TRAFFIC OPERATIONS STUDIES

FM NO. 250093-1-32-03

TWO NO. 26

SAFE ROUTES TO SCHOOL

NORTH MIAMI 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.: 26

FINAL REPORT
for
North Miami Elementary School

Prepared for:

Florida Department of Transportation

District 6

Prepared by:

REYNOLDS, SMITH & HILLS, INC.

July 11, 2007

TABLE OF CONTENTS

LIST OF FIGURES

SECTION **PAGE**

LIST OF TABLES

SECTION **PAGE**

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 North Miami 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 North Miami Elementary School for the SRTS program.

2. PROJECT SCHOOL DATA

The following information pertains to the project school.

Name: North Miami Elementary

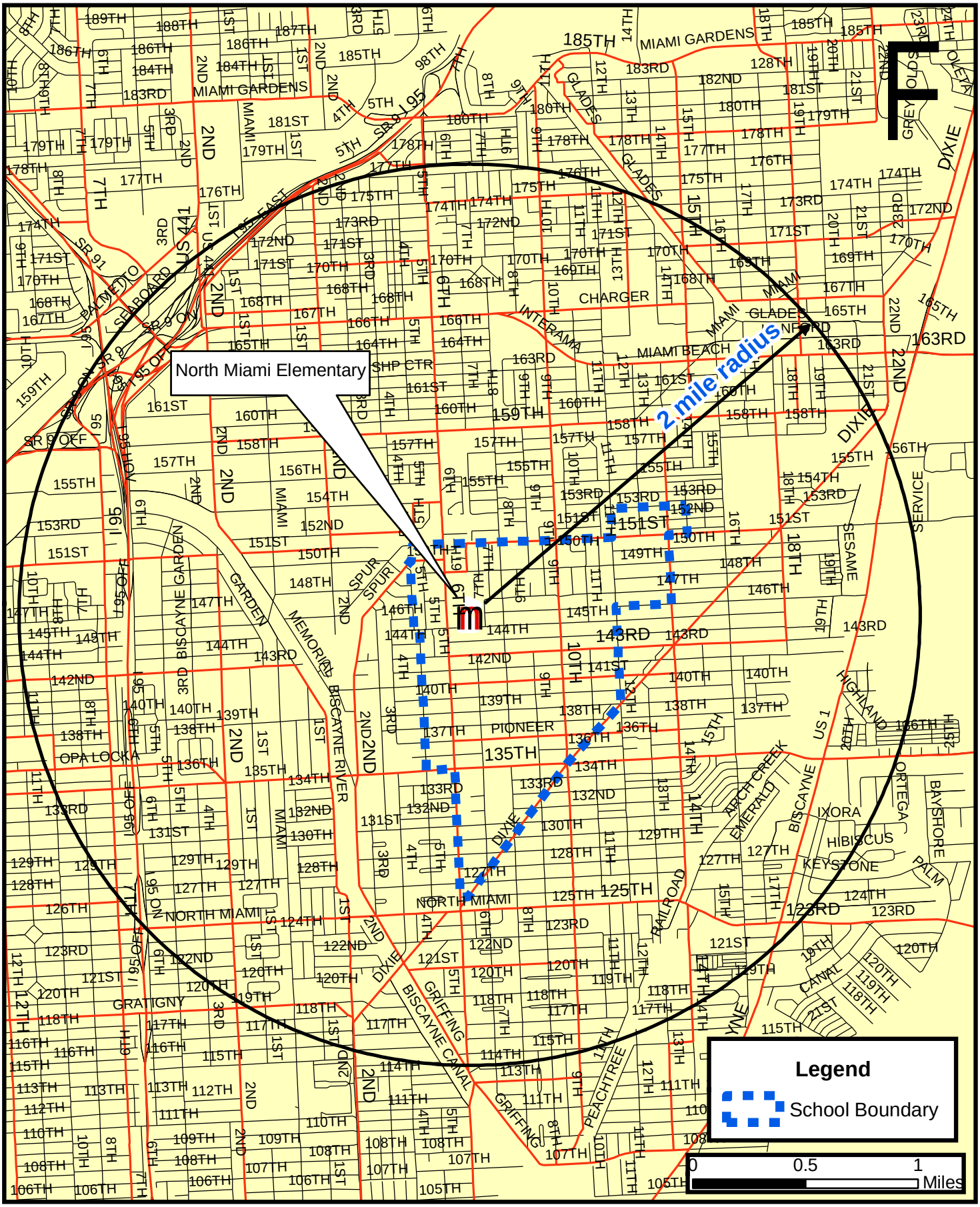
Address: 655 NE 145th Street, North Miami, Fl 33161 (Figure 1 shows project location map)

Enrollment: 924 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 = 60%
- Private Car = 38%
- Buses = 2%



RS&H		North Miami Elementary 655 NE 145 Street North Miami, Fl. 33161	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, NE 6 Avenue experienced a relatively high number of pedestrian crashes during the 3-year study period – 24 pedestrian crashes were reported including four 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
North Miami 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
NE 6 Avenue	NE 151 Street	NE 135 Street	0	2	1	8	1	10	0	4	0	6	0	10	0	2	0	8	0	10
NE 149 Street	NE 5 Avenue	NE 13 Avenue	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0
NE 10 Avenue	NE 151 Street	NE 135 Street	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0
NE 135 Street	NE 5 Avenue	NE 10 Avenue	0	0	0	2	0	2	0	1	0	2	0	3	0	0	0	3	0	3
NE 12 Avenue	NE 153 Street	NE 139 Street	0	0	0	5	0	5	0	1	0	0	0	1	0	1	0	0	0	1
NE 143 Street	NE 5 Avenue	NE 12 Avenue	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
NE 147 Street	NE 12 Avenue	NE 145 Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
NE 145 Street	NE 5 Avenue	NE 12 Avenue	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
NE 5 Avenue	NE 151 Street	NE 135 Street	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1
Total			**0**	**2**	**1**	**21**	**1**	**23**	**0**	**6**	**0**	**10**	**0**	**16**	**0**	**0**	**0**	**13**	**0**	**17**

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
North Miami Elementary, 2002-2004

CRASH DETAILS							
Safe Route	**Case Number**	**Date of Crash**	**Day of Week**	**Time**	**Pedestrian Age**	**Injury/Fatality**	**Location of Crash**
NE 6 Avenue (From NE 151 Street to NE 139 Street)	733768590	07/17/02	Tue	4:40 PM	30	Injury	NE 135 Street
	733762170	04/25/02	Wed	12:45 PM	18	Injury	NE 140 Street
	721491260	01/30/02	Tue	3:40 PM	10	Injury	NE 141 Street
	733751240	07/27/02	Fri	9:20 PM	14	Injury	14175 NE 6 Avenue
	721498540	03/15/02	Thu	6:35 PM	71	Injury	NE 142 Street
	733753200	06/29/02	Fri	11:15 PM	30	Injury	NE 143 Street
	733756900	07/16/02	Mon	3:00 PM	12	Injury	NE 145 Street
	720490770	03/16/02	Fri	7:15 PM	27	Injury	NE 147 Street
	712601950	11/16/02	Fri	2:13 PM	43	Injury	NE 149 Street
	720710380	08/30/02	Thu	4:02 PM	16	Injury	NE 150 Street
	721729980	07/15/02	Sun	10:35 PM	60	Injury	NE 150 Street
	705135400	04/01/03	Mon	10:49 AM	9	Injury	NE 150 Street
	705134880	10/19/03	Sat	10:52 AM	16	Injury	NE 150 Street
	705145410	06/13/03	Thu	7:50 AM	36	Injury	NE 149 Street
	732876360	12/14/03	Sat	12:15 PM	17	Injury	NE 147 Street
	733785320	01/17/03	Thu	6:57 AM	19	Injury	NE 145 Street
	733797810	06/25/03	Tue	7:05 AM	5	Injury	NE 144 Street
	733792050	07/11/03	Thu	7:45 AM	40	Injury	NE 141 Street
	721720130	12/09/04	Wed	5:50 AM	37	Injury	NE 150 Street
	720162680	02/27/04	Thu	1:57 PM	30	Injury	15001 NE 6 Avenue
	732855630	05/29/04	Fri	9:29 PM	29	Injury	NE 149 Street
	728633560	02/11/04	Tue	7:00 PM	33	Injury	NE 149 Street
	737789490	07/16/04	Thu	3:30 PM	10	Injury	NE 143 Street
	737776090	05/26/04	Tue	3:30 PM	24	Injury	NE 143 Street
NE 147 Street (From NE 12 Avenue to NE 145 Street)	737794830	03/25/04	Wed	6:55 PM	17	Injury	NE 8 Avenue
NE 143 Street (From NE 12 Avenue to NE 6 Avenue)	721491430	04/17/02	Tue	7:28 AM	61	Injury	NE 10 Avenue
	721488250	01/29/02	Mon	8:40 AM	16	Injury	NE 12 Avenue
NE 145 Street (From NE 12 Avenue to NE 6 Avenue)	737769450	05/26/04	Tue	2:19 PM	10	Injury	NE 6 Avenue

Note: Juvenile crashes are highlighted in gray.

4. DEVELOPMENT OF SRTS

SRTS for North Miami 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 a new elementary school in the area the attendance boundary of North Miami 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.

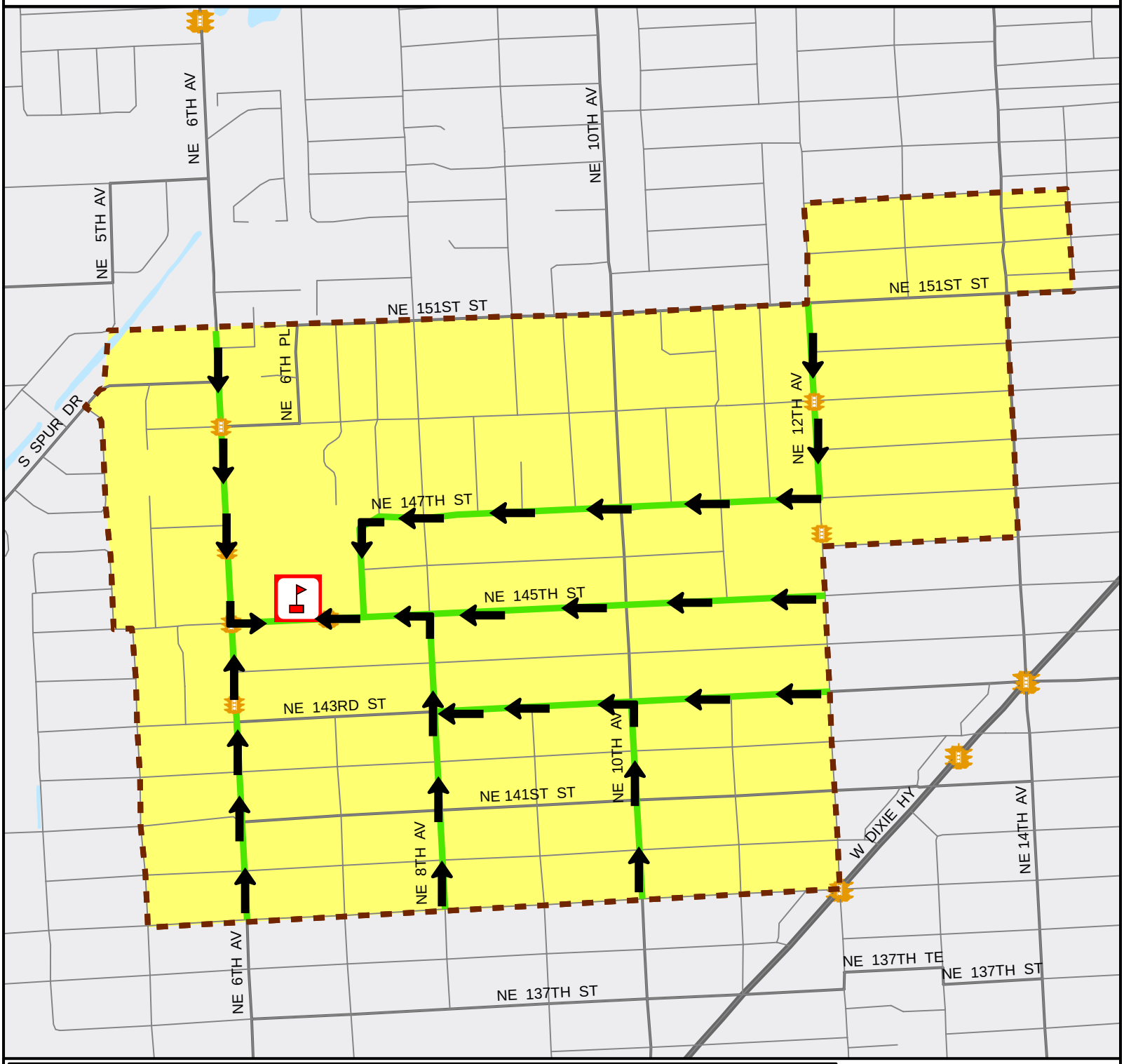
5. RECOMMENDED SRTS

Following the process described in Section 4, the recommended SRTS was developed for North Miami 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.

NORTH MIAMI ELEMENTARY SCHOOL

655 NE 145th Street, North Miami 33161

SAFE ROUTES TO SCHOOL



LEGEND

- School
- Safe Route
- Streets
- Highways
- Attendance Boundary
- Water
- Traffic Signals
- Fire
- Police

0 700 1,400 Feet

N

MIAMI-DADE COUNTY

Miami-Dade County Public Schools

MIAMI-DADE MPO Metropolitan Planning Organization

Table 3
North Miami Elementary
Exisiting Roadway and Traffic Characterisitcs for SRTS Segments

Road	Segment		Facility Type	Speed Limit	AADT[1]	Ped & Bike Crashes[2]
	From	To				
NE 6th Avenue	NE 151st Street	NE 139th Street	State Road (Minor Arterial)	40 mph	Moderate	31
NE 145th Street	NE 12th Avenue	NE 6th Avenue	City Local Street	35 mph	Low	1
NE 12th Avenue	NE 151st Street	NE 147th Street	City Collector	35 mph	Moderate	7
NE 147th Street	NE 12th Avenue	NE 145th Street	City Local Street	35 mph	Low	1
NE 8th Avenue	NE 139th Street	NE 145th Street	City Local Street	35 mph	Low	0
NE 143rd Street	NE 12th Avenue	NE 6th Avenue	City Local Street	35 mph	Low	1

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 North Miami Elementary School were conducted on May 25, 2007. The primary deficiencies that were identified along the proposed routes were missing sidewalk, crosswalks, and school zone signage. A list of the comprehensive deficiencies observed can be found in Appendix C.

7. RECOMMENDED IMPROVEMENTS AND COST ESTIMATES

Based on 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 $85,732.12.

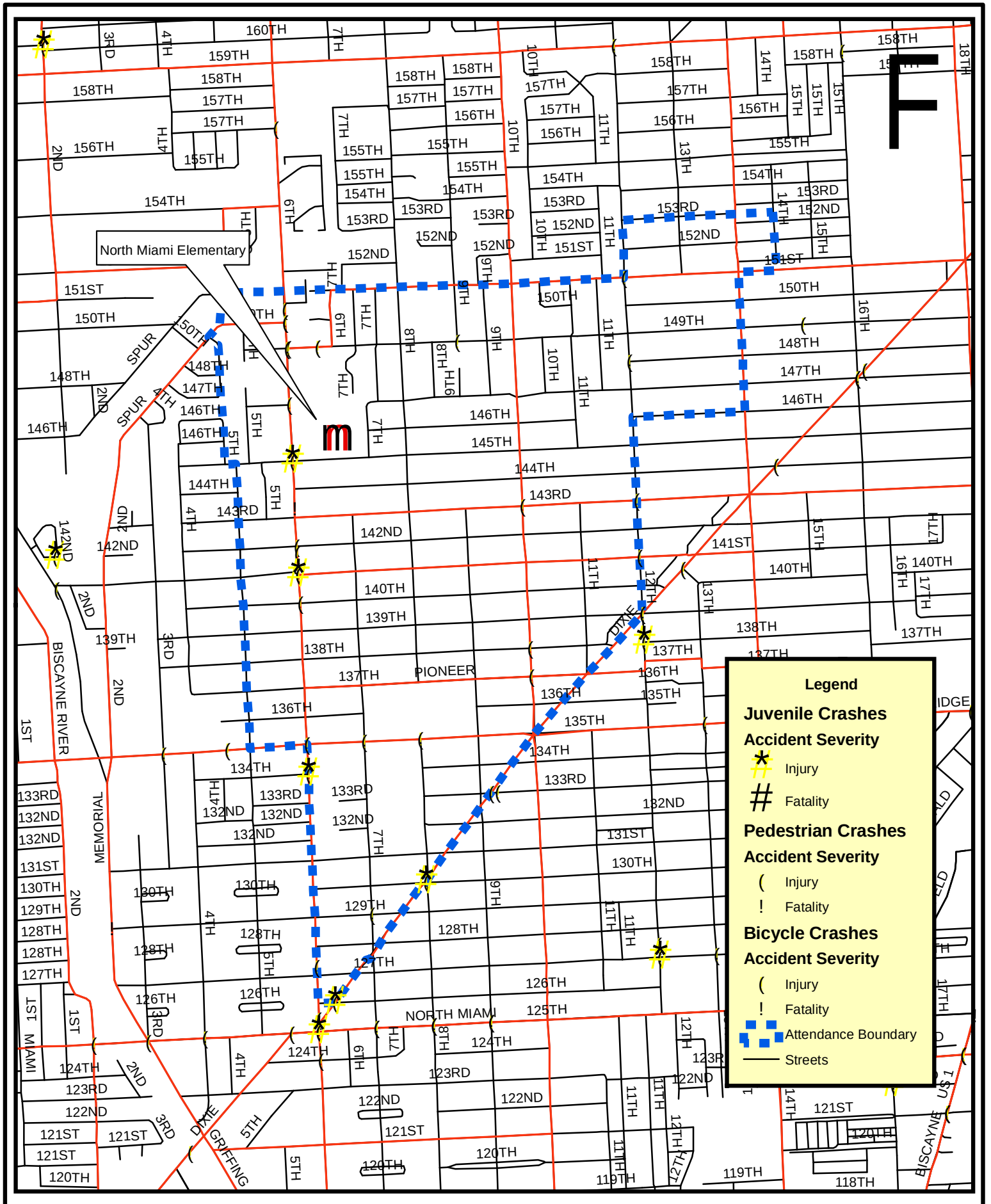
Table 4
North Miami Elementary School
SRTS Infrastructure Improvements

Road Segment	Recommended Improvements	Length (ft)	Unit Cost	Unit	Total
NE 6 Avenue (From NE 151 Street To NE 139 Street)	- Install crosswalk at NE 147 Street - west side	30	$2.00	ft	$60.00
	- Install pedestrian countdown signals	8	$1,428.51	ea	$11,428.08
	- Install flourescent yellow green pedestrian sign	4	$244.41	ea	$977.64
NE 145 Street (From NE 12 Avenue To NE 6 Avenue)	- Install 4" sidewalk extension at NE 8 Avenue - southwest corner	10	$49.70	sy	$331.33
	- Install crosswalk at NE 10 Avenue - north and south side	70	$2.00	ft	$140.00
	- Install crosswalk at NE 11 Avenue - north side	45	$2.00	ft	$60.00
	- Install flourescent yellow green pedestrian sign	4	$244.41	ea	$977.64
NE 12 Avenue (From NE 151 Street To NE 147 Street)	- Install crosswalk at NE 148 Street - east side	35	$2.00	ft	$70.00
	- Install sidewalk between NE 148 Street and NE 149 Street-east side	277	$49.70	sy	$9,177.93
NE 147 Street (From NE 12 Avenue To NE 145 Street)	- Install crosswalk at NE 11 Avenue - south side	60	$2.00	ft	$80.00
	- Install crosswalk at NE 10 Court - north side	36	$2.00	ft	$48.00
	- Install 4" sidewalk between NE 9 Avenue and NE 10 Avenue	314	$49.70	sy	$15,605.80
	- Install crosswalk at NE 9 Court - north side	32	$2.00	ft	$64.00
	- Install crosswalk at NE 8 Court - north side	38	$2.00	ft	$1,026.00
	- Install 4" sidewalk between NE 8 Avenue and NE 8 Court	230	$49.70	sy	$11,431.00
	- Install crosswalk at NE 8 Avenue - north and south side	46	$2.00	ft	$61.33
	- Install 4" sidewalk extension at NE 8 Avenue - north and south side	45	$49.70	sy	$1,491.00
	- Install 4" sidewalk extension at NE 7 Court - northwest corner	6	$49.70	sy	$298.20
	- Install crosswalk at NE 7 Court- north side	40	$2.00	ft	$80.00
NE 8 Avenue (From NE 139 Street To NE 145 Street)	- Install crosswalk at NE 139 Street- east and west side	80	$2.00	ft	$160.00
	- Install 4" sidewalk extension at NE 139 Street - northwest corner	10	$49.70	sy	$331.33
	- Install crosswalk at NE 140 Street- east and west side	62	$2.00	ft	$124.00
	- Install 4" sidewalk extension at NE 140 Street - northwest and southwest corner	20	$49.70	sy	$994.00
	- Install crosswalk at NE 141 Street- east and west side	72	$2.00	ft	$96.00
	- Install crosswalk at NE 142 Street- east and west side	80	$2.00	ft	$106.67
	- Install crosswalk at NE 143 Street- east and west side	80	$2.00	ft	$106.67
	- Install crosswalk at NE 144 Street- east and west side	85	$2.00	ft	$113.33
	- Install 4" sidewalk extension at NE 144 Street - northwest and southwest corner	25	$49.70	sy	$828.33
	- Install 4" sidewalk extension at NE 145 Street - southwest corner	10	$49.70	sy	$331.33
NE 143 Street (From NE 12 Avenue To NE 6 Avenue)	- Install crosswalk at NE 9 Avenue- south side	32	$2.00	ft	$64.00
	- Install crosswalk at NE 11 Avenue- south side	30	$2.00	ft	$60.00
	- Install crosswalk at NE 10 Avenue- south and north side	70	$2.00	ft	$140.00
	- Install 4" sidewalk extension at NE 10 Avenue- all four corners	88	$49.70	sy	$4,373.60
Prelimiary Total Cost					$61,237.23
Contingencies (20%)					$12,247.45
Mobilization (10%)					$6,123.72
Maintence of Traffic (10%)					$6,123.72
Grand Total Cost					$85,732.12

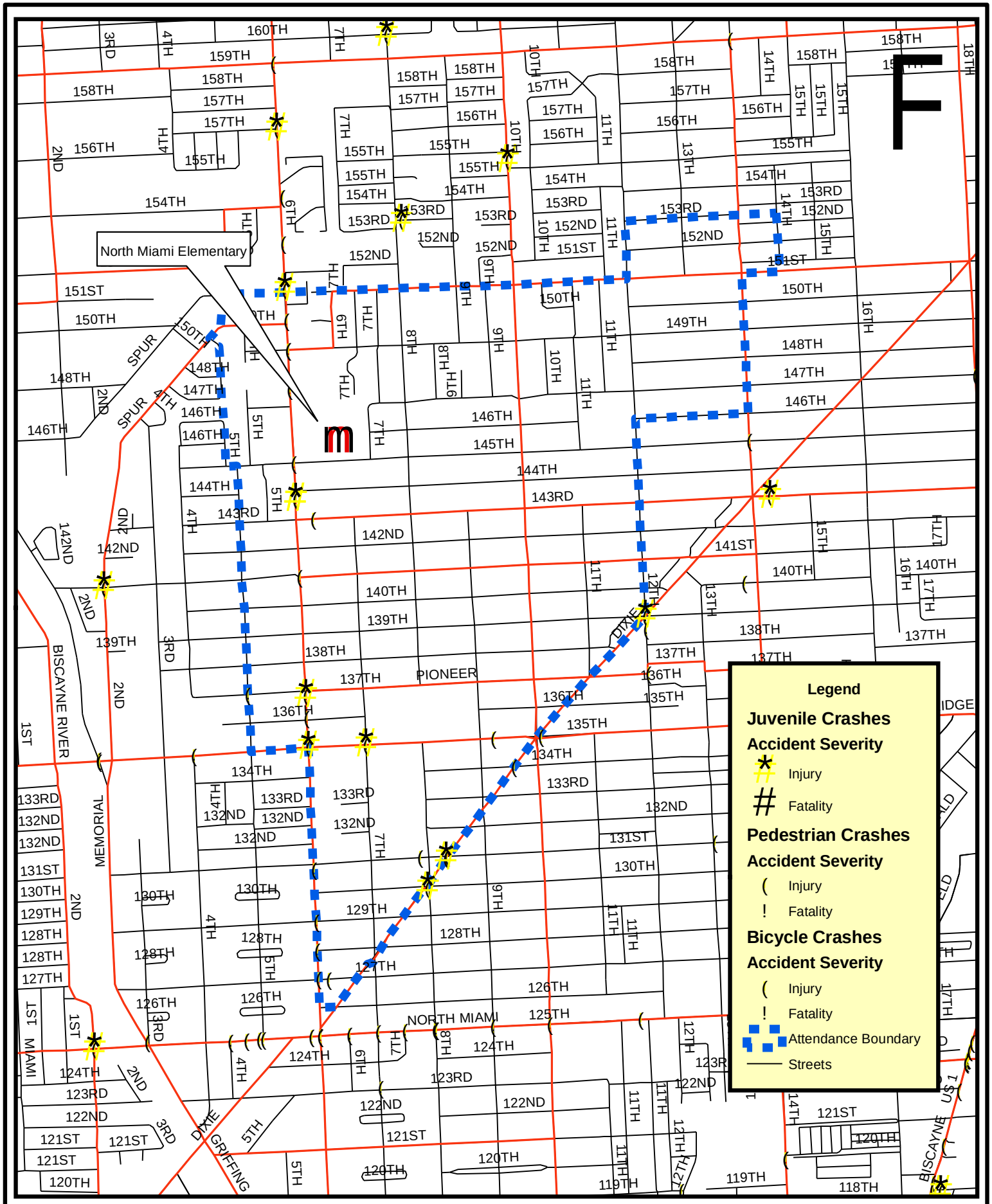
LIST OF APPENDICES

APPENDIX A

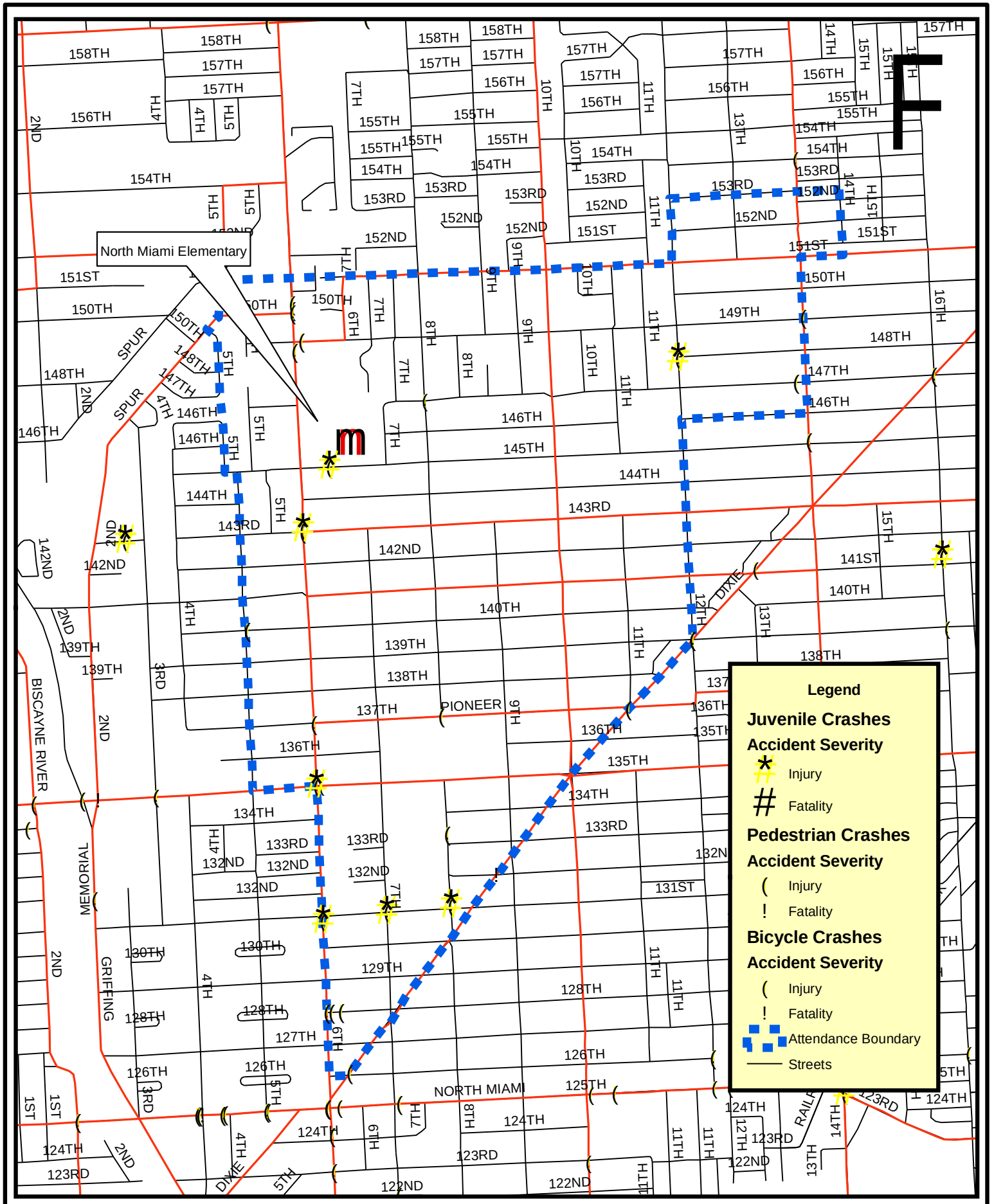
Maps of Pedestrian and Bicycle Crashes



RS&H		Pedestrian and Bicycle Crashes North Miami Elementary	2002	Appendix A



RS&H		Pedestrian and Bicycle Crashes North Miami Elementary	2003	Appendix A

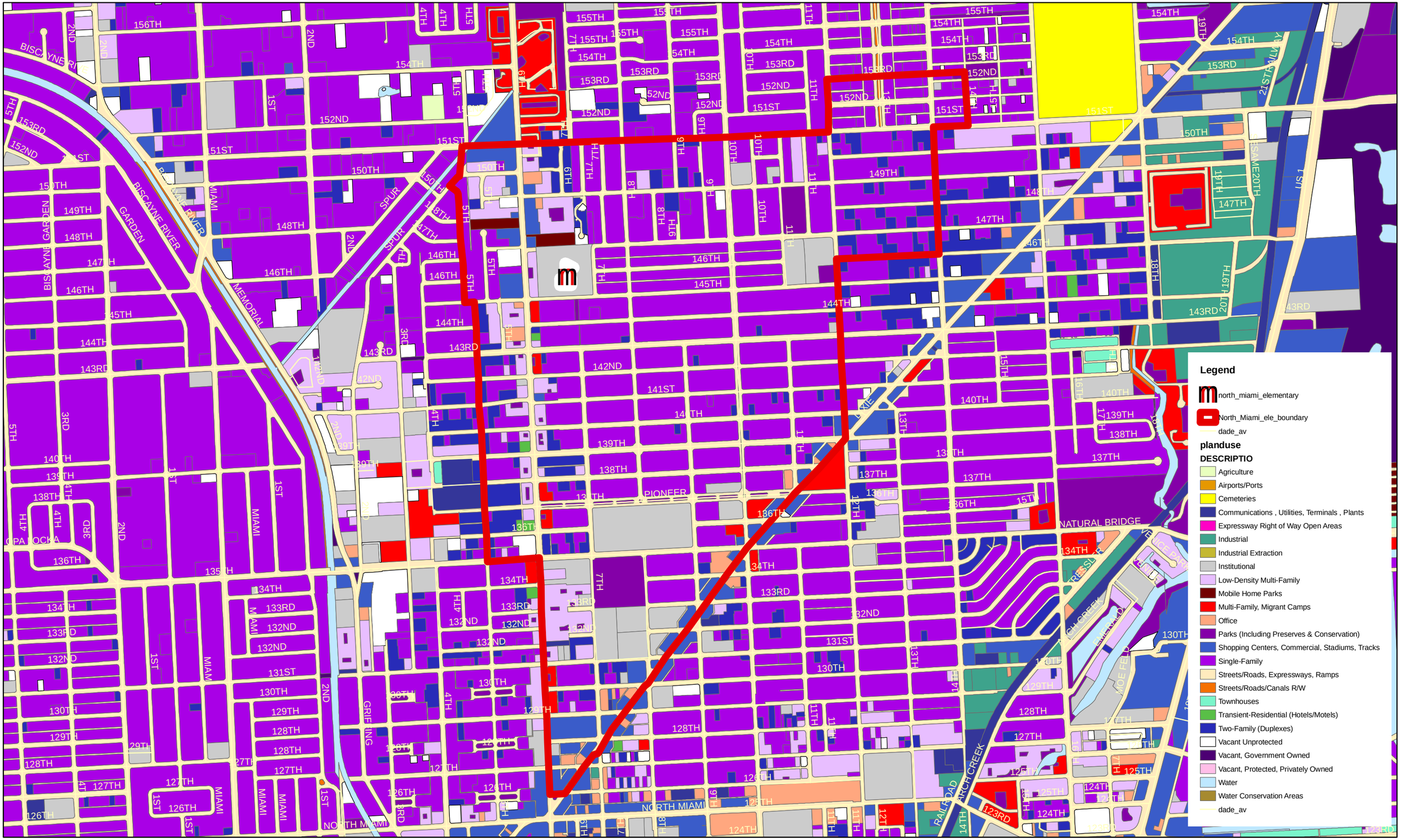


RS&H		Pedestrian and Bicycle Crashes North Miami Elementary	2004	Appendix A

APPENDIX B

Land Use Map

North Miami Elementary



APPENDIX C
Existing Route Deficiencies

SAFE ROUTE TO SCHOOL PROJECT

North Miami Elementary

655 NE 145 Street, North Miami, Fl. 33161

Improvements Needed

From the Field:

Route- NE 6 Avenue (From NE 139 St. to NE 151 St.)

- At NE 147 Street crosswalk is missing on the west side.

Route- NE 145 Street (From NE 6 Ave. to NE 12 Ave.)

- At 8 Avenue in the southwest corner sidewalk is needed.
- At 10 Avenue crosswalk is needed on the north and south leg.
- At 11 Avenue crosswalk is needed on the north side.

Route- NE 12 Avenue (From NE 147 St. to NE 151 St.)

- At NE 148 Street crosswalk is missing on the east side.
- From 148 Street to 149 Street sidewalk is missing on the east side.

Route- NE 147 Street (From NE 12 Ave. to NE 145 St.)

- At 11 Avenue crosswalk is needed on the south side.
- At 10 Court crosswalk is needed on the north side.
- From 9 Avenue to 10 Avenue sidewalk is missing.
- At NE 9 Court crosswalk needed on the north side.
- At NE 9 Avenue crosswalk is needed on the north side.
- At NE 8 Court crosswalk is needed on the north side.
- Between NE 8 Avenue and NE 8 Court sidewalk is missing.
- At 8 Avenue crosswalk and sidewalk extension is needed on the north side and south side.
- At NE 7th Court sidewalk extension is needed on the northwest corner and crosswalk is missing on the north side.

Route- NE 10 Avenue (From NE 139 Street to NE 143 Street)

- No improvements are needed.

Route- NE 8 Avenue (From NE 139 St. to NE 145 St.)

- At NE 139 Street crosswalk is needed on the east and west side and sidewalk extension needed on the northwest corner.

- At NE 140 Street crosswalk needed on the east and west side and sidewalk extension needed on the northwest and southwest corner.
- At NE 141 Street crosswalk needed on the east and west side and sidewalk extension needed on the northwest and southwest corner.
- At NE 142 Street crosswalk needed on the east and west side and sidewalk extension needed on the northwest and southwest corner.
- At NE 145 Street sidewalk extension is needed on the southwest corner.
- At NE 144 Street crosswalk is needed on the east and west side and sidewalk extension is needed on the southwest and northwest corner.
- At NE 143 Street crosswalk is needed on the east and west side and sidewalk extension is needed on the southwest and northwest corner.

Route- NE 143 Street (From NE 6 Avenue to NE 12 Avenue)

- At NE 9 Avenue crosswalk needed on the south side.
- At NE 11 Avenue crosswalk is needed on the south side.
- At NE 10 Avenue sidewalk extension is needed at all four corners and crosswalk is needed on the north and south side.

DISTRICTWIDE TRAFFIC OPERATIONS STUDIES

FM NO. 250093-1-32-03

TWO NO. 26

SAFE ROUTES TO SCHOOL

RIVERSIDE 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.: 26

FINAL REPORT
for
Riverside Elementary School

Prepared for:

Florida Department of Transportation

District 6

Prepared by:

REYNOLDS, SMITH & HILLS, INC.

July 11, 2007

TABLE OF CONTENTS

LIST OF FIGURES

SECTION **PAGE**

LIST OF TABLES

SECTION **PAGE**

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 Riverside 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 Riverside Elementary School for the SRTS program.

2. PROJECT SCHOOL DATA

The following information pertains to the project school.

Name: Riverside Elementary

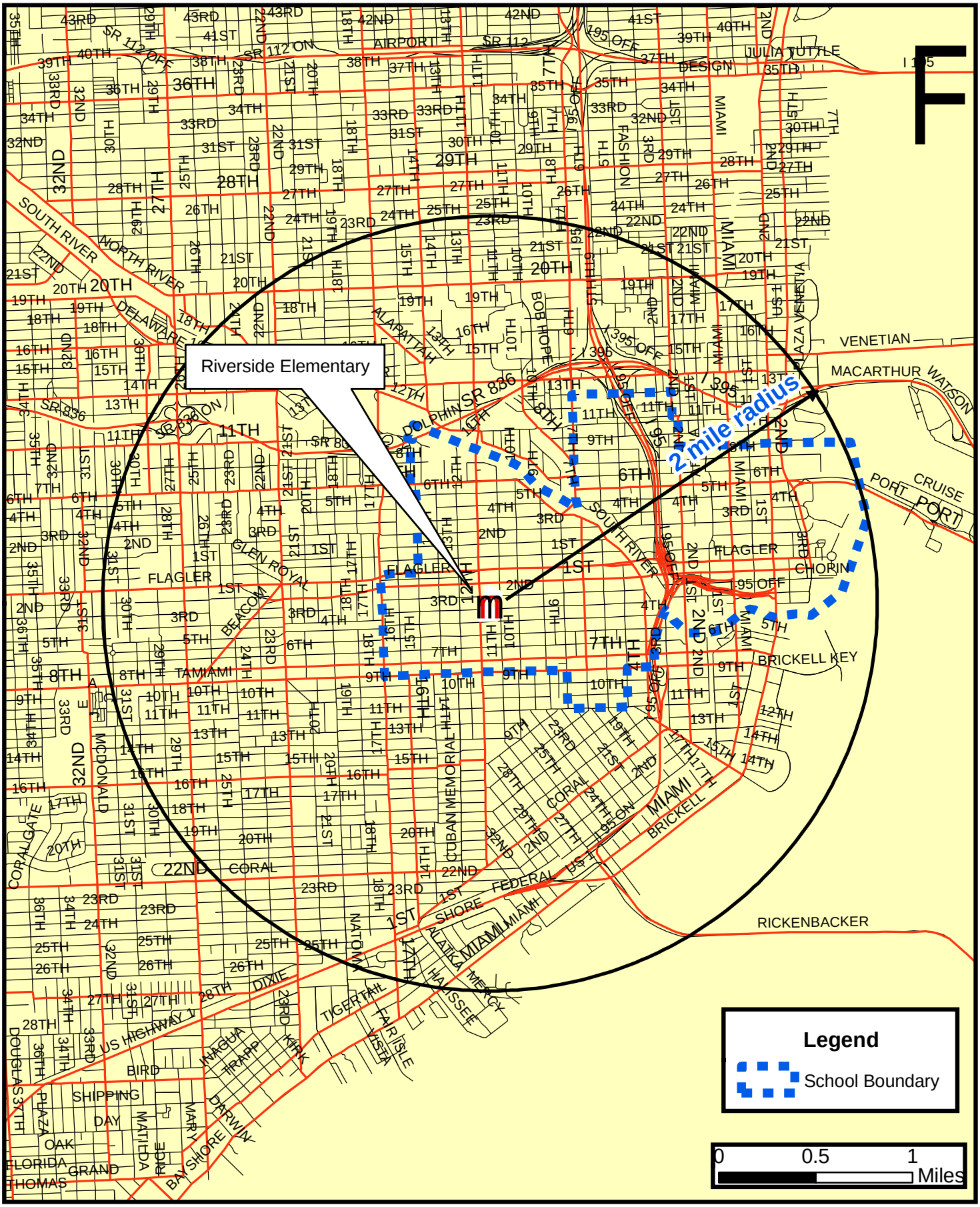
Address: 1190 SW 2nd Street, Miami, Fl 33130 (Figure 1 shows project location map)

Enrollment: 975 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 = Not Available
- Private Car = Not Available
- Buses = Not Available



RS&H		Riverside Elementary 1190 SW 2nd Street Miami, Fl. 33130	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 Riverside 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 reported along NW 13 Avenue (9 crashes with 1 fatality); NW 12 Avenue (11 crashes including 1 juvenile crash); and SW 8 Avenue (7 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.

4. DEVELOPMENT OF SRTS

SRTS for Riverside 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:

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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

Table 1
Summary of Pedestrian and Bicycle Crashes
Riverside 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 17 Avenue	Flagler Street	Sw 8 Street	0	0	0	5	0	5	0	0	0	8	0	8	0	0	0	5	0	5
SW 16 Avenue	SW 8 Street	Flagler Street	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	1	0	1
SW 15 Avenue	SW 8 Street	NW 7 Street	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	2	0	2
SW 14 Avenue	SW 8 Street	NW 7 Street	0	0	0	6	0	6	0	0	0	2	0	2	0	0	0	0	0	0
SW 13 Avenue	SW 8 Street	NW 7 Street	0	0	0	4	0	4	0	0	0	4	0	4	0	0	1	2	1	2
SW 12 Avenue	South River Dr	SW 8 Street	0	0	1	7	1	7	0	0	0	13	0	13	0	1	0	8	0	9
SW 11 Avenue	SW 8 Street	NW 7 Street	0	0	0	1	0	1	0	0	0	3	0	3	0	0	0	3	0	3
NW 10 Avenue	SW 8 Street	NW 7 Street	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	2	0	2
NW 9 Avenue	SW 8 Street	NW 5 Street	0	0	0	1	0	1	0	0	0	2	0	2	0	0	0	3	0	3
NW 8 Avenue	SW 8 Street	NW 4 Street	0	0	0	5	0	5	0	0	0	8	0	8	0	0	1	5	1	5
NW 7 Avenue	SW 11 Street	NW 13 Street	0	2	0	3	0	5	0	1	0	7	0	8	0	0	0	5	0	5
NW 6 Avenue	SW 11 Street	NW 9 Street	0	1	0	1	0	2	0	0	0	1	0	1	0	0	0	2	0	2
NW 5 Avenue	SW 8 Street	NW 13 Street	0	0	0	3	0	3	0	0	0	2	0	2	0	0	0	3	0	3
NW 4 Avenue	SW 8 Street	NW 9 Street	0	1	0	1	0	2	0	0	1	2	1	2	0	0	0	2	0	2
NW 3 Avenue	Flagler Street	NW 13 Street	0	0	0	2	0	2	0	0	0	2	0	2	0	1	0	3	0	4
NW 2 Avenue	SW 6 Street	NW 11 Street	0	0	0	5	0	5	0	0	0	1	0	1	0	0	0	3	0	3
NW 1 Avenue	Flagler Street	NW 9 Street	0	0	0	3	0	3	0	0	0	2	0	2	0	0	0	0	0	0
N. Miami Avenue	SW 4 Street	NW 9 Street	0	0	0	1	0	1	0	0	0	8	0	8	0	0	0	0	0	0
NE 1 Avenue	SW 4 Street	NW 9 Street	0	0	0	2	0	2	0	0	0	2	0	2	0	0	0	3	0	3
NE 2 Avenue	SW 4 Street	NW 9 Street	0	0	0	3	0	3	0	0	1	4	1	4	0	1	0	2	0	3
Biscayne Blvd	SW 3 Street	NW 6 Street	0	0	0	1	0	1	0	0	0	3	0	3	0	0	0	3	0	3
NE 3 Avenue	SW 4 Street	Flagler Street	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Flagler Street	Biscayne Blvd	NW 17 Avenue	0	0	0	3	0	3	0	0	0	2	0	2	0	0	0	4	0	4
SW 8 Street	I-95	NW 17 Avenue	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	3	0	3
SW 6 Street	NW 17 Avenue	NW 2 Avenue	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
SW 4 Street	NW 17 Avenue	NW 3 Avenue	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
SW 3 Street	SW 4 Avenue	NW 17 Avenue	0	0	0	1	0	1	0	0	0	0	0	0	0	2	0	0	0	2
NW 5 Street	SW 14 Avenue	Biscayne Blvd	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
SW 2 Street	NW 17 Avenue	Biscayne Blvd	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	1	0	1
SW 1 Street	Biscayne Blvd	NW 17 Avenue	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2	0	2
NW 1 Street	NW 15 Avenue	Biscayne Blvd	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	1
NW 2 Street	NW 15 Avenue	Biscayne Blvd	0	0	0	1	0	1	0	1	0	2	0	3	0	0	0	2	0	2
NW 4 Street	NW 15 Avenue	Biscayne Blvd	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	2	0	2
NW 6 Street	NW 15 Avenue	Biscayne Blvd	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1
NW 7 Street	NW 17 Avenue	Biscayne Blvd	0	0	0	0	0	0	0	0	0	2	0	2	0	1	0	0	0	1
NW 8 Street	NW 7 Avenue	Biscayne Blvd	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0
Total			**0**	**4**	**1**	**69**	**1**	**73**	**0**	**2**	**2**	**83**	**2**	**96**	**0**	**9**	**2**	**72**	**2**	**81**

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
Riverside Elementary, 2002-2004

Safe Route	Case Number	Date of Crash	Day of Week	Time	Pedestrian Age	Injury/Fatality	Location of Crash
SW 2 Street (From South River Dr. to NW 10 Avenue)	701871110	02/06/02	Tue	6:54 PM	94	Injury	SW 17 Avenue
	705331540	11/04/02	Sun	2:05 PM	6	Injury	SW 7 Avenue
	736706560	05/12/03	Sun	7:45 AM	UNK	Injury	SW 7 Avenue
SW 15 Avenue (From SW 2 Street to SW 7 Street)	736710200	03/29/03	Fri	8:50 AM	50	Injury	SW 7 Street
NW 13 Avenue (From NW 7 Street to SW 2 Street)	705955020	03/08/02	Thu	11:58 AM	86	Injury	Flagler Street
	733545050	04/22/02	Sun	11:10 AM	70	Injury	SW 1 Street
	738268910	09/01/03	Sun	4:40 PM	69	Injury	NW 7 Street
	743013110	09/28/03	Sat	12:40 AM	20	Injury	NW 3 Street
	723873090	11/11/03	Mon	1:30 PM	80	Injury	Flagler Street
	721387940	07/26/03	Fri	11:25 AM	73	Injury	Flagler Street
	743040640	10/06/03	Sun	12:26 PM	75	Injury	SW 1 Street
	742848470	11/05/04	Thu	6:05 AM	80	Fatality	NW 7 Street
	743192720	03/28/04	Sat	5:45 PM	38	Injury	Flagler Street
NW 10 Avenue (From NW 7 Street to SW 7 Street)	705974720	07/14/02	Sat	4:08 PM	UNK	Injury	SW 5 Street
	721397150	07/06/03	Sat	8:58 PM	48	Injury	Flagler Street
	738294160	06/08/04	Mon	11:00 AM	42	Injury	SW 7 Street
	743005660	02/16/04	Sun	UNK	UNK	Injury	NW 1 Street
NW 12 Avenue (From SW 8 Street to SW 2 Street)	733545140	06/11/02	Mon	2:27 PM	82	Injury	SW 8 Street
	705341200	12/11/02	Sat	2:01 AM	61	Injury	SW 3 Street
	743036670	08/02/03	Fri	11:05 PM	58	Injury	SW 3 Street
	743002430	03/18/03	Mon	7:05 AM	UNK	Injury	SW 5 Street
	733511390	01/21/03	Mon	8:15 AM	30	Injury	SW 7 Street
	723721640	07/09/03	Tue	4:25 PM	38	Injury	710 SW 12 Avenue
	723714940	11/07/03	Thu	6:50 PM	67	Injury	SW 8 Street
	743956260	06/21/04	Sun	8:35 PM	44	Injury	SW 3 Street
	738278920	07/04/04	Sat	6:25 PM	11	Injury	SW 5 Street
	738989370	03/18/04	Wed	6:00 PM	41	Injury	SW 6 Street
	755141060	10/06/04	Tue	12:48 PM	72	Injury	SW 8 Street
SW 8 Avenue (From SW 11 Street to SW 2 Street)	701895270	04/24/02	Tue	10:24 AM	70	Injury	SW 3 Street
	736743420	10/17/03	Thu	4:50 PM	41	Injury	SW 3 Street
	743907480	06/21/03	Fri	8:20 PM	72	Injury	SW 6 Street
	701887540	11/08/03	Fri	11:12 PM	43	Injury	SW 7 Street
	701893980	10/28/03	Mon	4:30 PM	72	Injury	SW 8 Street
	723739110	07/17/04	Fri	5:40 PM	UNK	Injury	SW 4 Street
	736744360	09/13/04	Sun	2:23 PM	81	Injury	SW 8 Street
NW 2 Street (From South River Dr. to NW 17 Avenue)	701883400	03/24/02	Sat	3:25 AM	26	Injury	SW 8 Avenue
	743005560	12/23/03	Mon	1:05 PM	31	Injury	971 NW 2 Street
	743199030	12/05/04	Sat	5:00 PM	20	Injury	NW 8 Avenue

Note: Juvenile crashes are highlighted in gray.

5. RECOMMENDED SRTS

Following the process described in Section 4, the recommended SRTS was developed for Riverside 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 Riverside Elementary School were conducted on May 31, 2007. The primary deficiencies that were identified along the proposed safe routes were missing crosswalks, school zone signage, pedestrian heads, and missing and noncompliant ADA ramps. A list of the comprehensive deficiencies observed can be found in Appendix C.

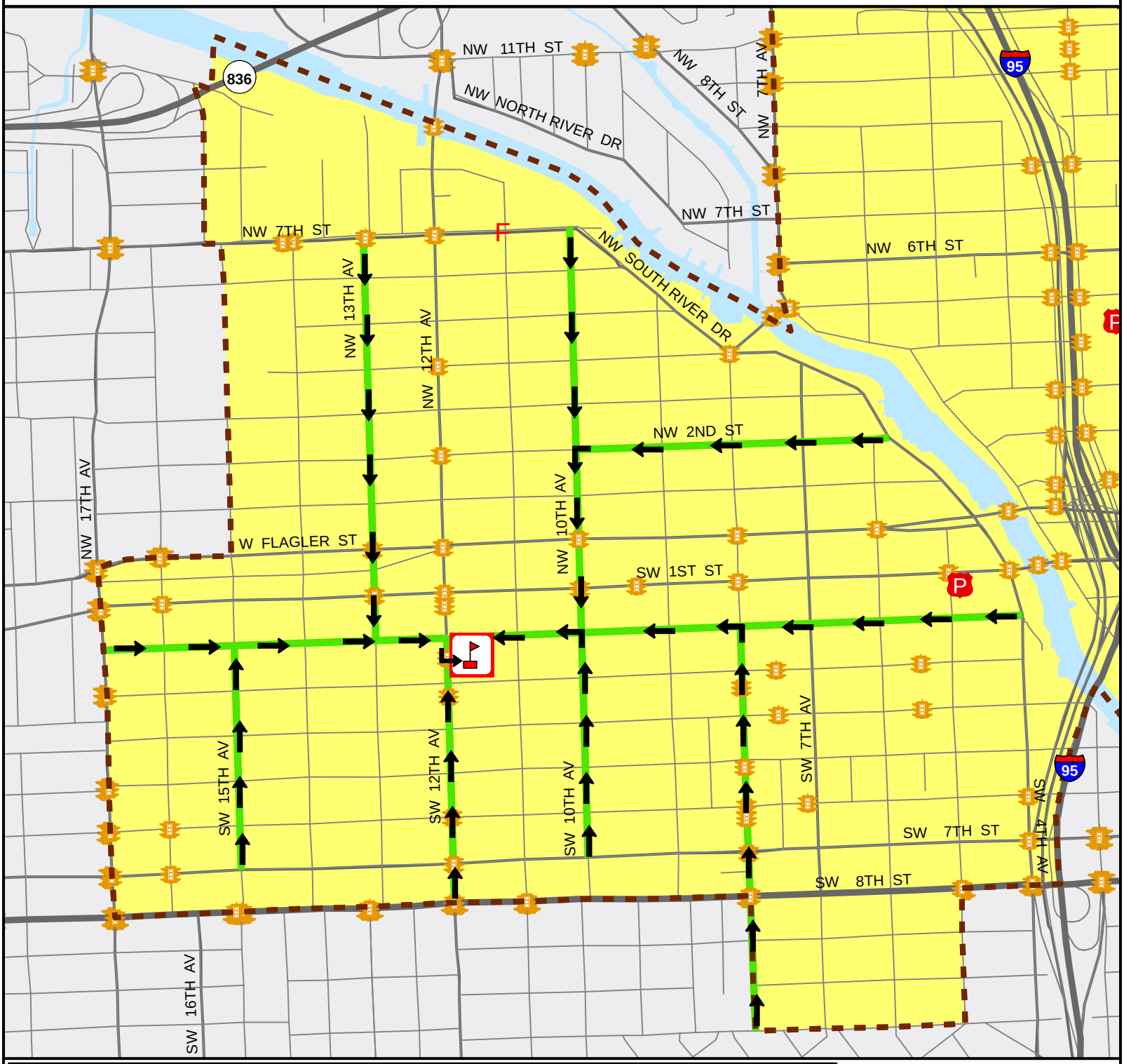
7. RECOMMENDED IMPROVEMENTS AND COST ESTIMATES

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 $30,258.15.

RIVERSIDE ELEMENTARY SCHOOL

1190 SW 2nd Street, Miami 33130

SAFE ROUTES TO SCHOOL



MIAMI-DADE COUNTY

Miami-Dade County Public Schools

MIAMI-DADE MPO Metropolitan Planning Organization

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

Road	Segment		Facility Type	Speed Limit	AADT[1]	Ped & Bike Crashes[2]
	From	To				
NW 13th Avenue	NW 7th Street	NW 2nd Street	City Local Street	35 mph	Low	11
NW 10th Avenue	NW 7th Street	SW 7th Street	City Local Street	35 mph	Low	4
SW 8th Avenue	SW 11th Street	SW 2nd Street	City Collector	40 mph	Moderate	9
SW 2nd Street	South River Drive	SW 17th Avenue	City Local Street	35 mph	Low	4
NW 2nd Street	South River Drive	NW 10th Avenue	City Local Street	35 mph	Low	9
SW 15th Avenue	SW 2nd Street	SW 7th Street	City Local Street	35 mph	Low	5

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

Table 4

Riverside Elementary School

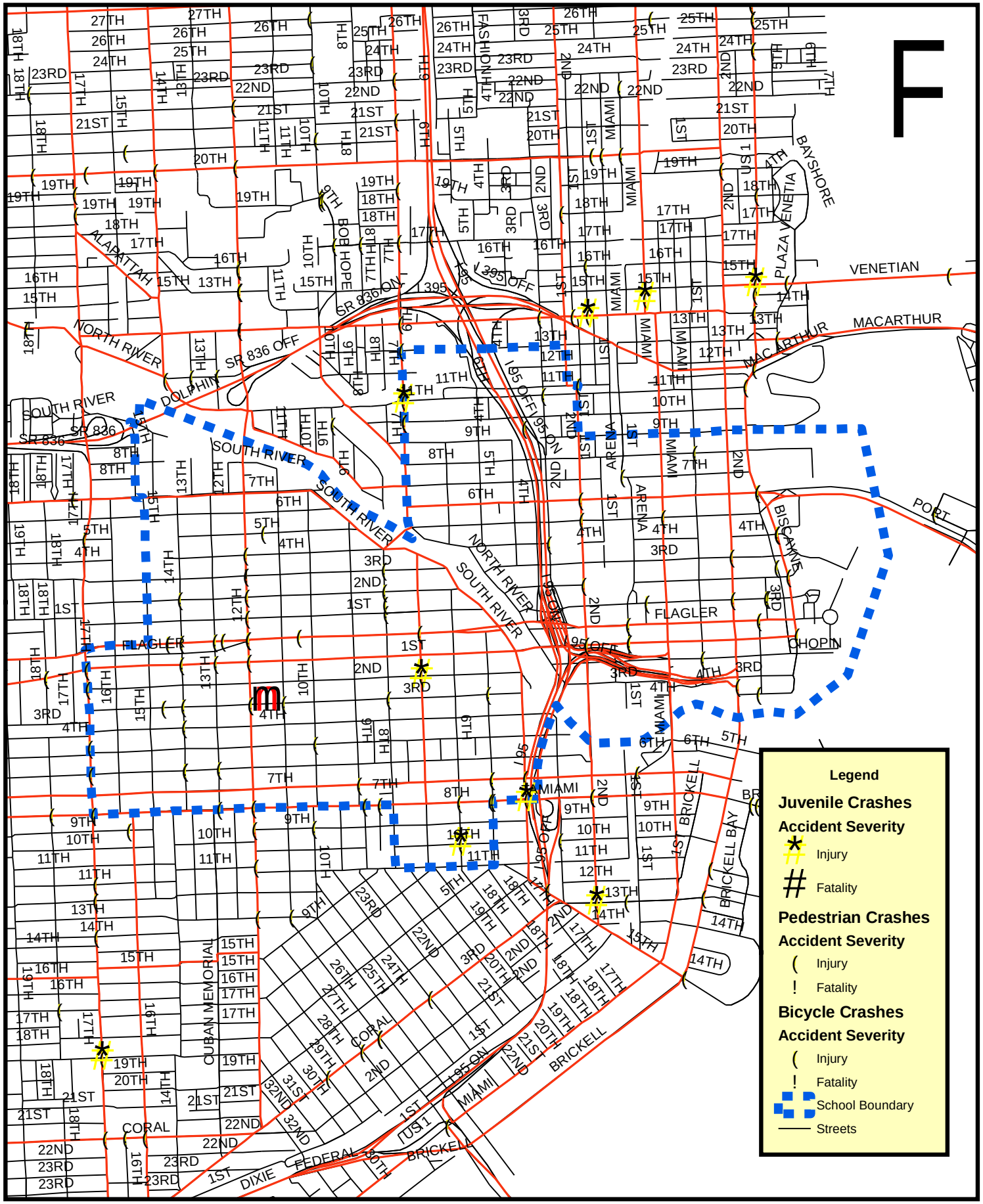
Cost Estimate for Recommended Improvements

Road Segment	Recommended Improvements	Length (ft)	Unit Cost	Unit	Total
NW 13 Avenue (From NW 7 Street To SW 2 Street)	- Install crosswalk at NW 5th Street- east and west side	50	$2.00	ft	$100.00
	- Install 4" sidewalk extension at NW 5th Street - west side	12	$49.70	sy	$397.60
	- Install crosswalk at NW 4th Street- east and west side	72	$2.00	ft	$144.00
	- Install crosswalk at NW 3rd Street- east and west side	80	$2.00	ft	$160.00
	- Install 4" sidewalk extension at NW 3rd Street - east and west sides	16	$49.70	sy	$530.13
	- Install crosswalk at NW 2nd Street- east and west side	90	$2.00	ft	$180.00
	- Install 4" sidewalk extension at NW 2nd Street - west side	8	$49.70	sy	$265.07
	- Install crosswalk at NW 1st Street- east and west side	70	$2.00	ft	$140.00
	- Install crosswalk at Flagler Street- east and west side	70	$2.00	ft	$140.00
	- Install crosswalk at SW 2nd Street- east and west side	70	$2.00	ft	$140.00
	- Install 4" sidewalk extension at SW 2nd Street - northwest, southwest, and northeast corners	15	$49.70	sy	$497.00
	- Install crosswalk at Flagler Terrace- east and west side	60	$2.00	ft	$120.00
	- Install 4" sidewalk extension at Flagler Terrace - all four corners	20	$49.70	sy	$662.67
NW 10 Avenue (From NW 7 Street To SW 7 Street)	- Install crosswalk at NW 6th Street- east and west side	60	$2.00	ft	$120.00
	- Install 4" sidewalk extension at NW 6th Street - all four corners	20	$49.70	sy	$662.67
	- Install crosswalk at NW 5th Street- east and west side	50	$2.00	ft	$100.00
	- Install 4" sidewalk extension at NW 5th Street - all four corners	24	$49.70	sy	$795.20
	- Install crosswalk at NW 4th Street- east and west side	50	$2.00	ft	$100.00
	- Install 4" sidewalk extension at NW 4th Street - all four corners	24	$49.70	sy	$795.20
	- Install crosswalk at NW 3rd Street- east and west side	60	$2.00	ft	$120.00
	- Install 4" sidewalk extension at NW 3rd Street - all four corners	24	$49.70	sy	$795.20
	- Install crosswalk at NW 2nd Street- east and west side	100	$2.00	ft	$200.00
	- Install4" sidewalk extension at NW 2nd Street - all four corners	24	$49.70	sy	$795.20
	- Install crosswalk at NW 1st Street- east and west side	60	$2.00	ft	$120.00
	- Install 4" sidewalk extension at NW 1st Street - all four corners	20	$49.70	sy	$662.67
	- Install 4" sidewalk extension at Flagler Street- all four corners	30	$49.70	sy	$994.00
	- Install crosswalk at SW 2nd Street- east and west side	80	$2.00	ft	$160.00
	- Install 4" sidewalk extension at SW 2nd Street - northeast and southwest corners	12	$49.70	sy	$397.60
	- Install crosswalk at SW 3rd Street- east and west side	80	$2.00	ft	$160.00
	- Install crosswalk at SW 4th Street- east and west side	70	$2.00	ft	$140.00
	- Install crosswalk at SW 5th Street- east and west side	60	$2.00	ft	$120.00
	- Install crosswalk at SW 6th Street- east and west side	80	$2.00	ft	$160.00
SW 8 Avenue (From SW 11 Street To SW 2 Street)	- Install crosswalk at SW 5th Street- east side	30	$2.00	ft	$60.00
	- Install crosswalk at SW 9th Street- east and west side	80	$2.00	ft	$160.00
	- Install crosswalk at SW 10th Street- east side	35	$2.00	ft	$70.00

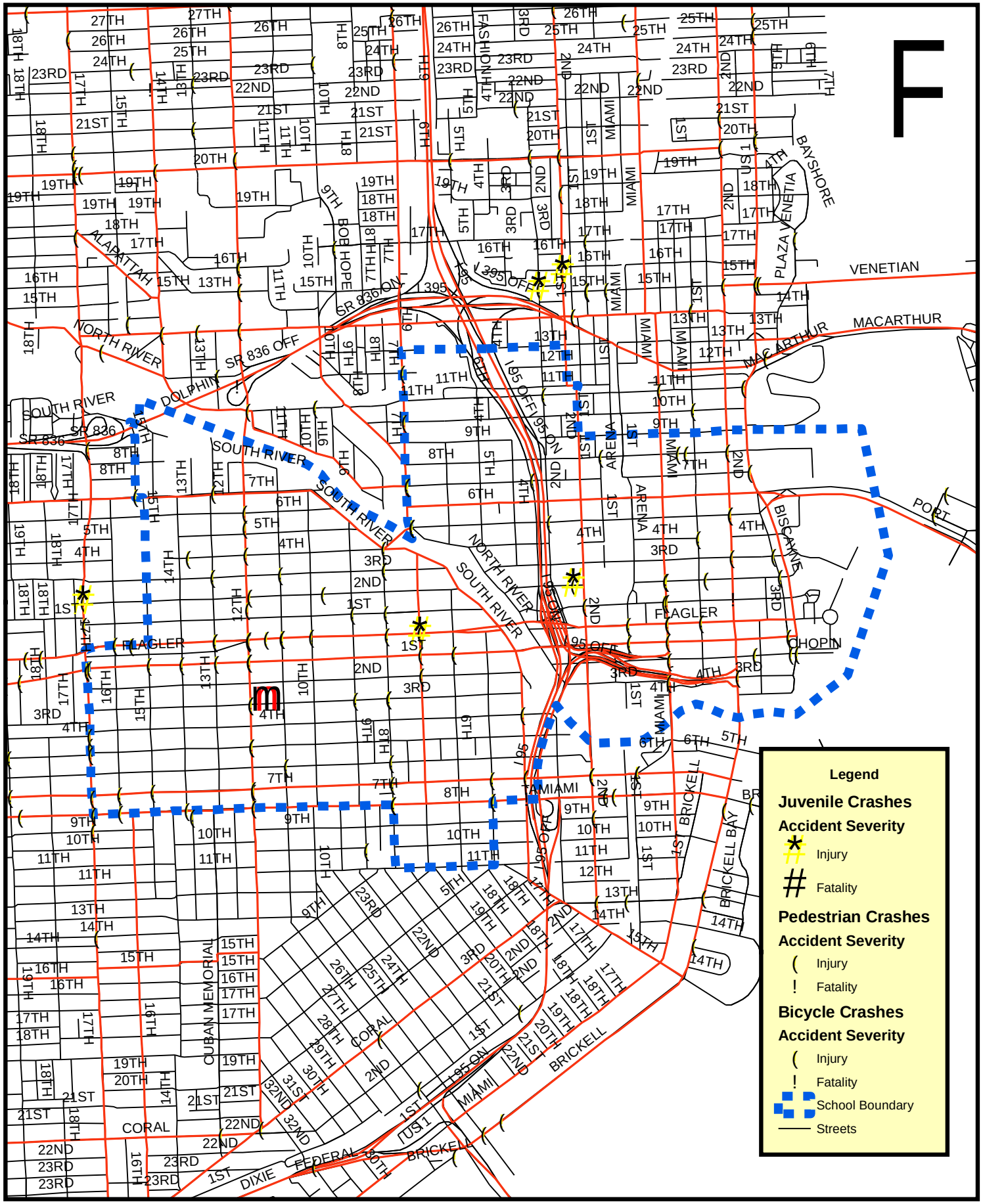
LIST OF APPENDICES

APPENDIX A

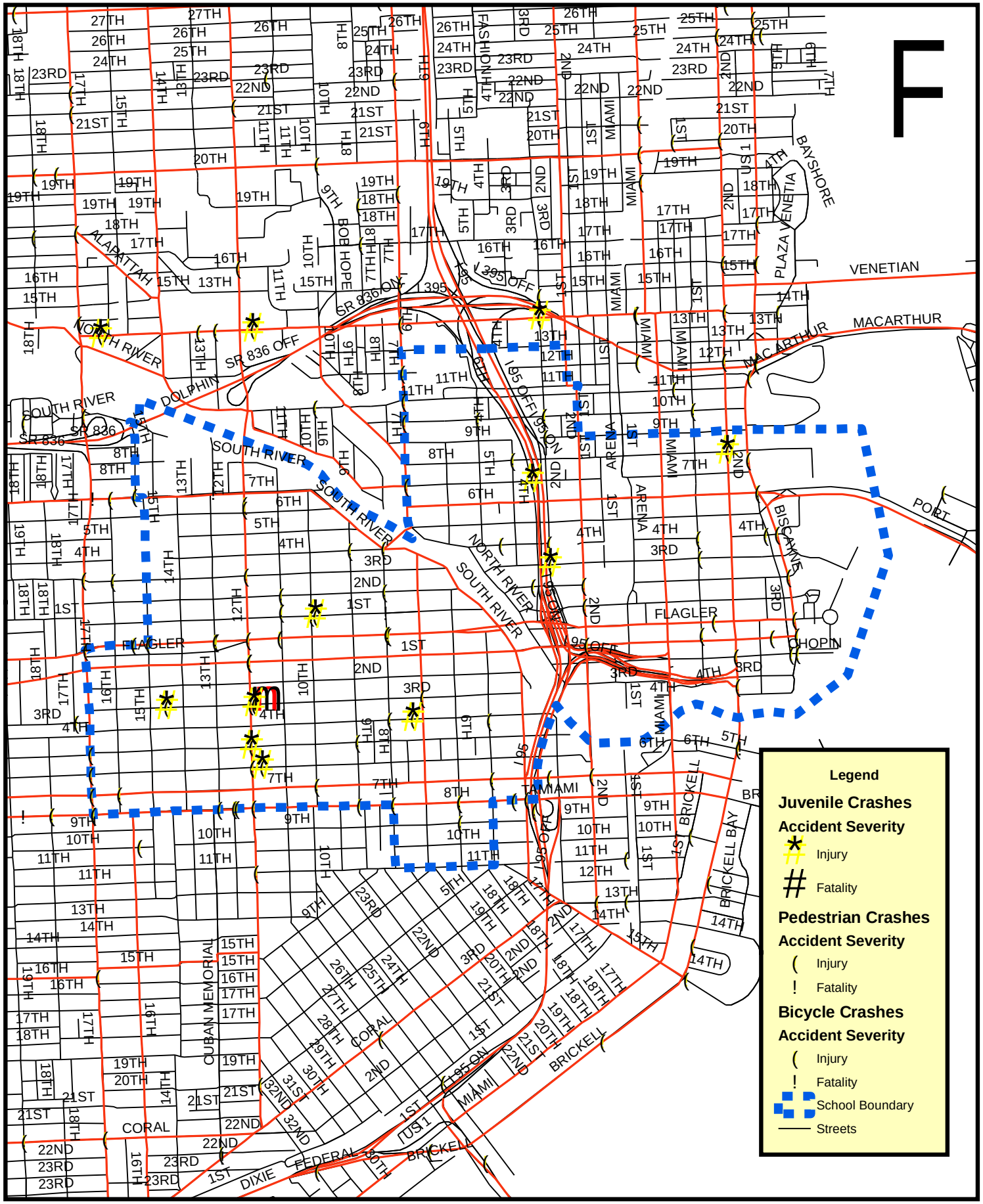
Maps of Pedestrian and Bicycle Crashes



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



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

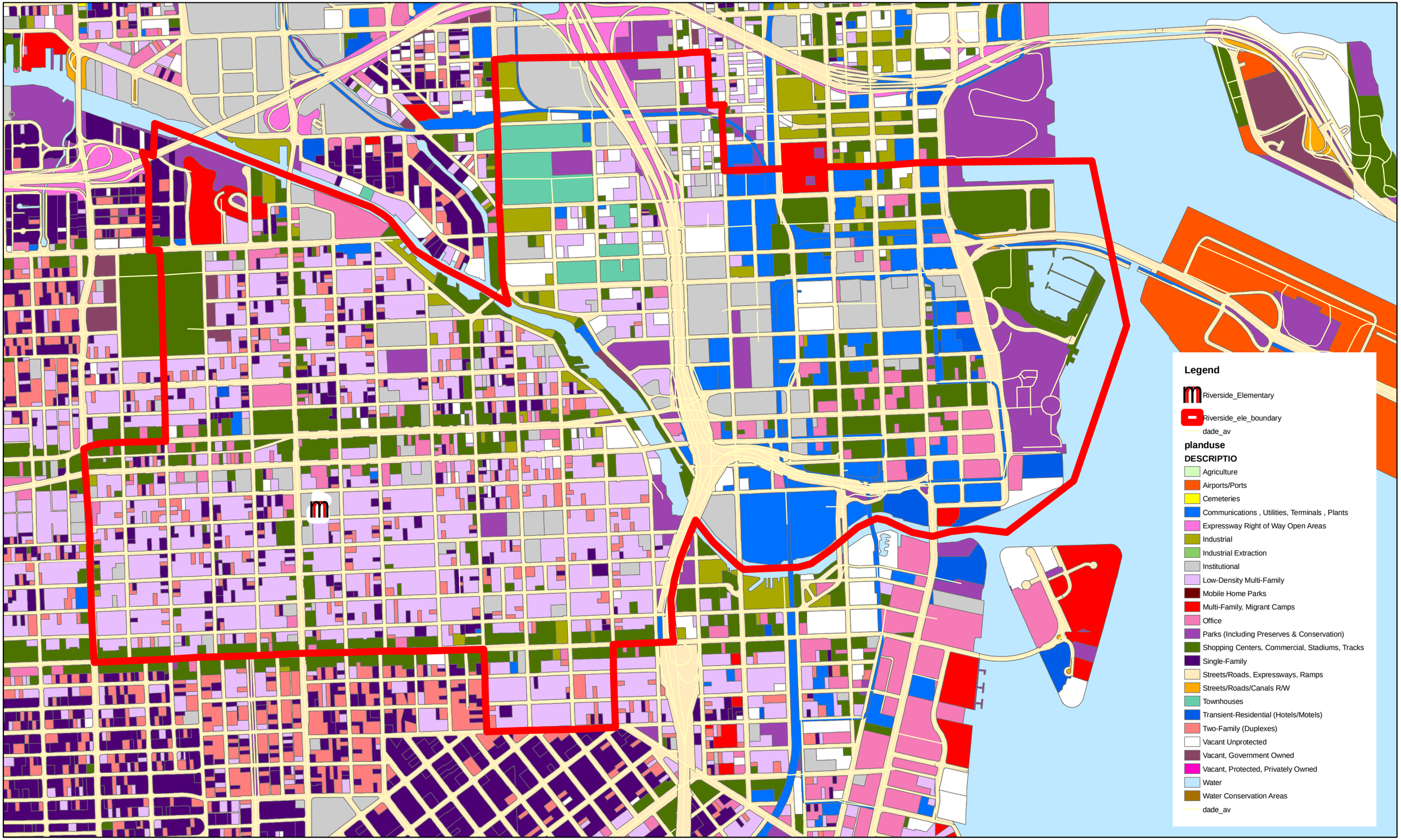


RS&H		Pedestrian and Bicycle Crashes Riverside Elementary	2004	Appendix A

APPENDIX B

Land Use Map

Riverside Elementary



APPENDIX C
Existing Route Deficiencies

SAFE ROUTE TO SCHOOL PROJECT

Riverside Elementary
1190 SW 2nd Street, Miami, FL 33130

Improvements Needed

From the Field:
Route- NW 13 Avenue (From NW 7 St. to SW 2 St.)

- At NW 5th Street crosswalk needed on the east and west side and ADA ramps needed on the west side.
- At NW 4th Street crosswalk needed on the east and west side.
- At NW 3rd Street crosswalk needed on the east and west side and ADA ramps needed on the east and west side.
- At NW 2nd Street crosswalk needed on the east and west side and ADA ramos needed on the west side.
- At NW 1st Street crosswalk needed on the east and west side.
- At Flagler Street crosswalk needed on the east and west side.
- At SW 2nd Street crosswalk needed on the east and west side and ADA ramps are needed on the NW, SW and NE corners.
- At Flagler Terrace crosswalk is needed on the east and west side and ADA ramps are needed on all four corners.

Route- NW 10 Avenue (From NW 7th St. to SW 7th St.)

- At NW 6th Street crosswalk is needed on the east and west side and ADA ramps are needed on all four corners.
- At NW 5th Street crosswalk is needed on the east and west side and ADA ramps are needed on all four corners.
- At NW 4th Street crosswalk is needed on the east and west side and ADA ramps are needed on all four corners.
- At NW 3rd Street crosswalk is needed on the east and west side and ADA ramps are needed on all four corners.
- At NW 2nd Street crosswalk is needed on the east and west side and ADA ramps are needed on all four corners.
- At NW 1st Street crosswalk is needed on the east and west side and ADA ramps are needed on all four corners.
- At Flagler Street ramps are needed on all four corners.
- At SW 2nd Street crosswalk is needed on the east and west side and ADA ramps are needed on the NE and SW corners.
- At SW 3rd Street crosswalk is needed on the east and west side.
- At SW 4th Street crosswalk is needed on the east and west side.
- At SW 5th Street crosswalk is needed on the east and west side.
- At SW 6th Street crosswalk is needed on the east and west side.

Route- SW 12 Avenue (From SW 8th Street to SW 2nd Street)

- No improvements.

Route- SW 8 Avenue (From SW 11 Street to SW 2nd Street)

- At SW 5th Street crosswalk is needed on the east side.
- At SW 9th Street crosswalk is needed on the east and west side.
- At SW 10th Street crosswalk is needed on the east side.

Route- NW 2nd Street (From South River Drive to NW 10th Avenue)

- At NW 6th Avenue crosswalk is needed on the south side.
- At NW 7th Avenue crosswalk is needed on the north and south side and ADA ramps needed on all four corners.
- At NW 8th Avenue crosswalk is needed on the north and south side.
- At NW 9th Avenue crosswalk is needed on the north and south side and ADA ramps needed on the NW, SW and SE corners.

Route- SW 2nd Street (From South River Drive to NW 17 Avenue)

- At SW 5th Avenue crosswalk is needed on the north and south side.
- At SW 6th Avenue crosswalk is needed on the north and south side.
- At SW 7th Avenue crosswalk is needed on the north and south side.
- At SW 8th Avenue crosswalk is needed on the north and south side.
- At SW 9th Avenue crosswalk is needed on the north and south side.
- At SW 10th Avenue crosswalk is needed on the north and south side.
- At SW 13th Avenue crosswalk is needed on the north and south side and ADA ramps are needed on all four corners.
- At SW 14th Avenue crosswalk is needed on the north and south side.
- At SW 15th Avenue crosswalk is needed on the north and south side and ADA ramps are needed on all four corners.
- At SW 16th Avenue crosswalk is needed on the north and south side and ADA ramps are needed on the SW and NE corners.

Route- SW 15th Avenue (From SW 2nd Street to SW 7th Street)

- At SW 5th Street crosswalk is needed on the east and west side.
- At SW 4th Street crosswalk is needed on the east and west side and ADA ramps are needed on the NE corners.
- At SW 3rd Street crosswalk is needed on the east and west side.

DISTRICTWIDE TRAFFIC OPERATIONS STUDIES

FM NO. 250093-1-32-03

TWO NO. 26

SAFE ROUTES TO SCHOOL

SOUTHSIDE 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.: 26

FINAL REPORT
for
Southside Elementary School

Prepared for:

Florida Department of Transportation

District 6

Prepared by:

REYNOLDS, SMITH & HILLS, INC.

July 11, 2007

TABLE OF CONTENTS

LIST OF FIGURES

SECTION **PAGE**

LIST OF TABLES

SECTION **PAGE**

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 Southside 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 Southside Elementary School for the SRTS program.

2. PROJECT SCHOOL DATA

The following information pertains to the project school.

Name: Southside Elementary

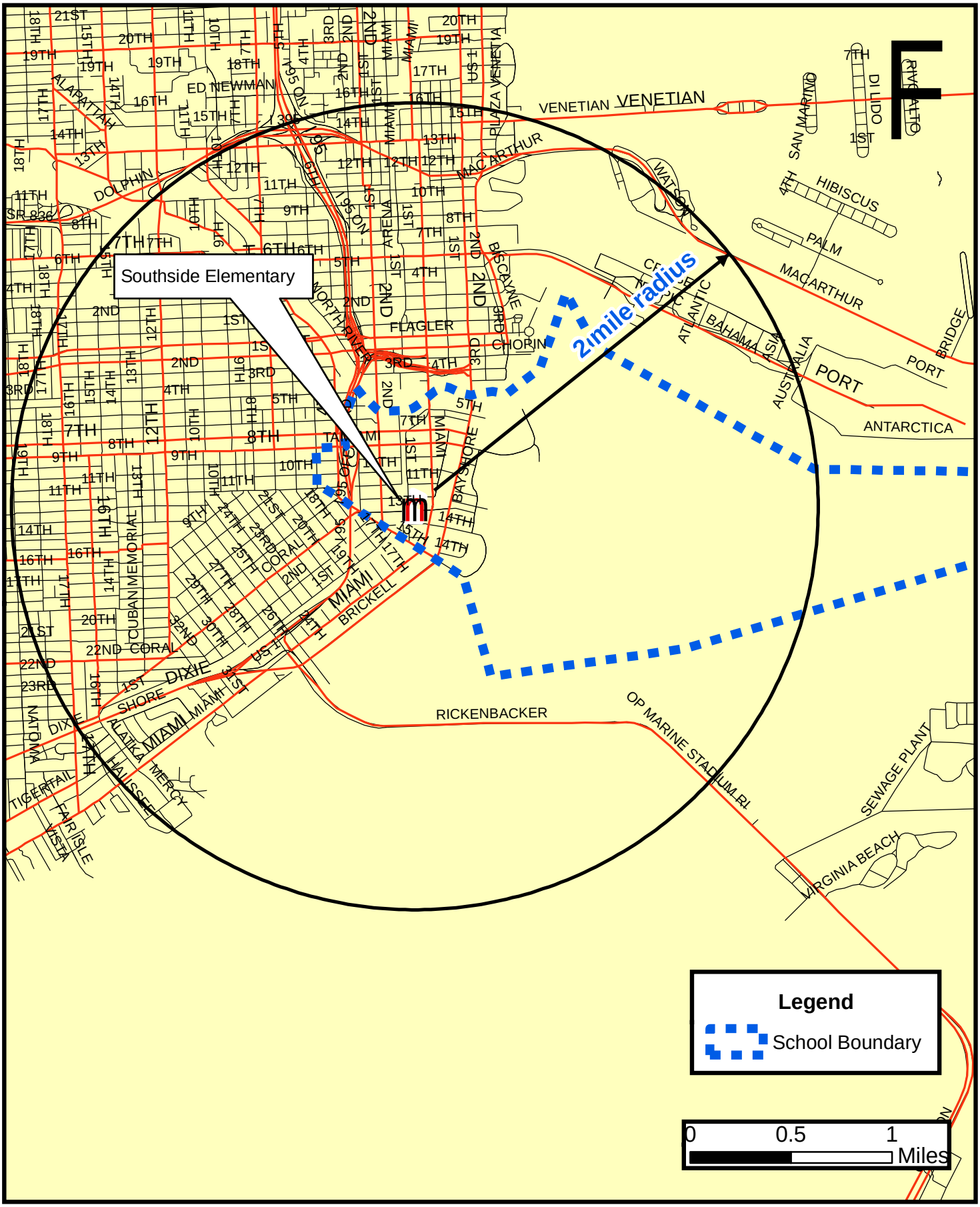
Address: 45 SW 13th Street, Miami, Fl 33130 (Figure 1 shows project location map)

Enrollment: 447 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 = 48%
- Private Car = 41%
- Buses = 11%



RS&H		Southside Elementary 45 SW 13th Street Miami, Fl. 33130	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 Southside 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 2 Avenue – 7 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
Southside 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 Avenue	SW 8 Street	SW 11 Street	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0
SW 4 Avenue	SW 8 Street	SW 12 Street	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	1	0	1
SW 3 Avenue	SW 4 Street	Coral Way	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
SW 2 Avenue	SW 5 Street	SW 14 Street	0	1	0	1	0	2	0	0	0	3	0	3	0	0	0	0	0	0
SW 1 Avenue	SW 15 Street	SW 5 Street	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0
Brickell Avenue	SW 15 Street	SW 4 Street	0	0	0	3	0	3	0	0	0	3	0	3	0	0	0	4	0	4
SW 8 Street	SW 5 Avenue	Brickell Avenue	0	0	0	4	0	4	0	0	0	3	0	3	0	0	0	2	0	2
Coral Way	SW 3 Avenue	Brickell Bay	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	1	0	1
SW 5 Street	N. Miami Avenue	Brickell Avenue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
SW 7 Street	I-95	Brickell Avenue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
SW 10 Street	SW 3 Avenue	SW 1 Avenue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
SW 11 Street	SW 3 Avenue	SW 1 Avenue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total			**0**	**2**	**0**	**12**	**0**	**14**	**0**	**0**	**1**	**12**	**1**	**12**	**0**	**0**	**1**	**11**	**1**	**11**

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
Southside Elementary, 2002-2004

CRASH DETAILS							
Safe Route	**Case Number**	**Date of Crash**	**Day of Week**	**Time**	**Pedestrian Age**	**Injury/Fatality**	**Location of Crash**
SW 2 Avenue (From SW 7 Street to SW 13 Street)	733500350	06/27/02	Wed	11:25 PM	15	Injury	Sw 8 Street
	743041450	11/06/02	Tue	8:00 AM	49	Injury	SW 13 Street
	738276520	05/07/03	Tue	1:13 PM	Not Available	Injury	SW 7 Street
	723727350	06/03/03	Mon	5:50 PM	25	Injury	SW 9 Street
	721367330	02/22/03	Fri	12:15 PM	72	Injury	SW 13 Street
	743932240	03/21/04	Sat	11:45 AM	22	Injury	SW 7 Street
	743188530	07/21/04	Tue	11:00 AM	47	Injury	SW 13 Street
SW 13 Street (From SW 2 Avenue to Kagoshima Way)	701857550	01/31/02	Wed	5:10 PM	33	Injury	134 SW 13 Street
	736420970	05/28/03	Tue	11:24 PM	69	Injury	134 SW 13 Street
	743955500	05/20/04	Wed	1:10 PM	52	Injury	134 SW 13 Street

Note: Juvenile crashes are highlighted in gray.

4. DEVELOPMENT OF SRTS

SRTS for Southside 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 Southside 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.

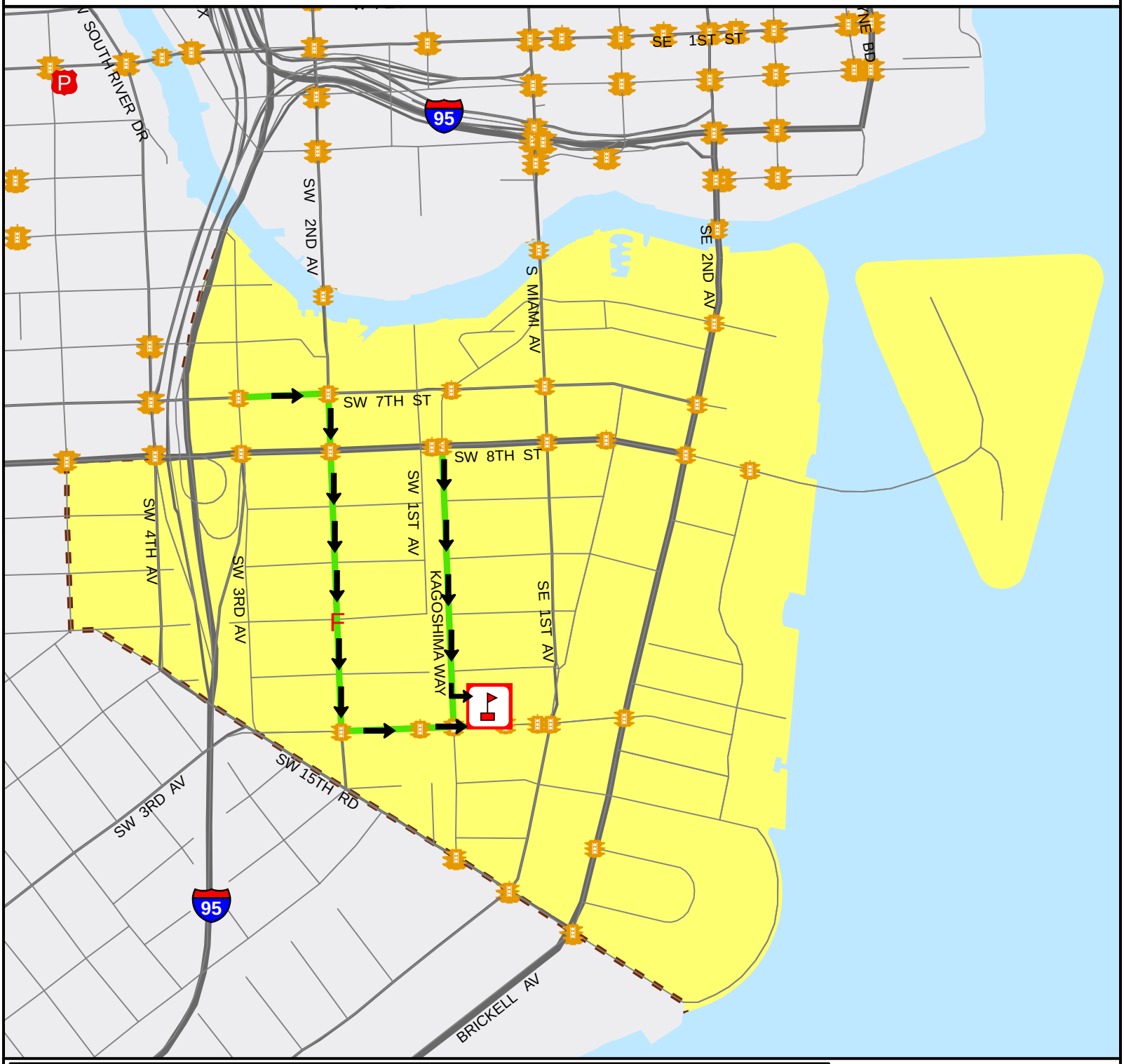
6. FIELD REVIEW

Field reviews for Southside Elementary School were conducted on May 22, 2007. The primary deficiencies that were identified along the proposed safe routes were missing crosswalks, school zone signage, and pedestrian heads. A list of the comprehensive deficiencies observed can be found in Appendix C.

SOUTHSIDE ELEMENTARY SCHOOL

45 SW 13th Street, Miami 33130

SAFE ROUTES TO SCHOOL



LEGEND

- School
- Safe Route
- Streets
- Highways
- Attendance Boundary
- 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
Southside Elementary
Exisiting Roadway and Traffic Characterisitcs for SRTS Segments

Road	Segment		Facility Type	Speed Limit	AADT[1]	Ped & Bike Crashes[2]
	From	To				
SW 7th Street	SW 3rd Avenue	SW 2nd Avenue	State Road (Principal Arterial)	40 mph	High	1
SW 2nd Avenue	SW 7th Street	SW 13th Street	City Collector	35 mph	Moderate	5
SW 13th Street	SW 2nd Avenue	Kagoshima Way	City Collector	35 mph	Moderate	0
Kagoshima Way	SW 8th Street	SW 13th Street	City Collector	35 mph	Moderate	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 $15,888.30.

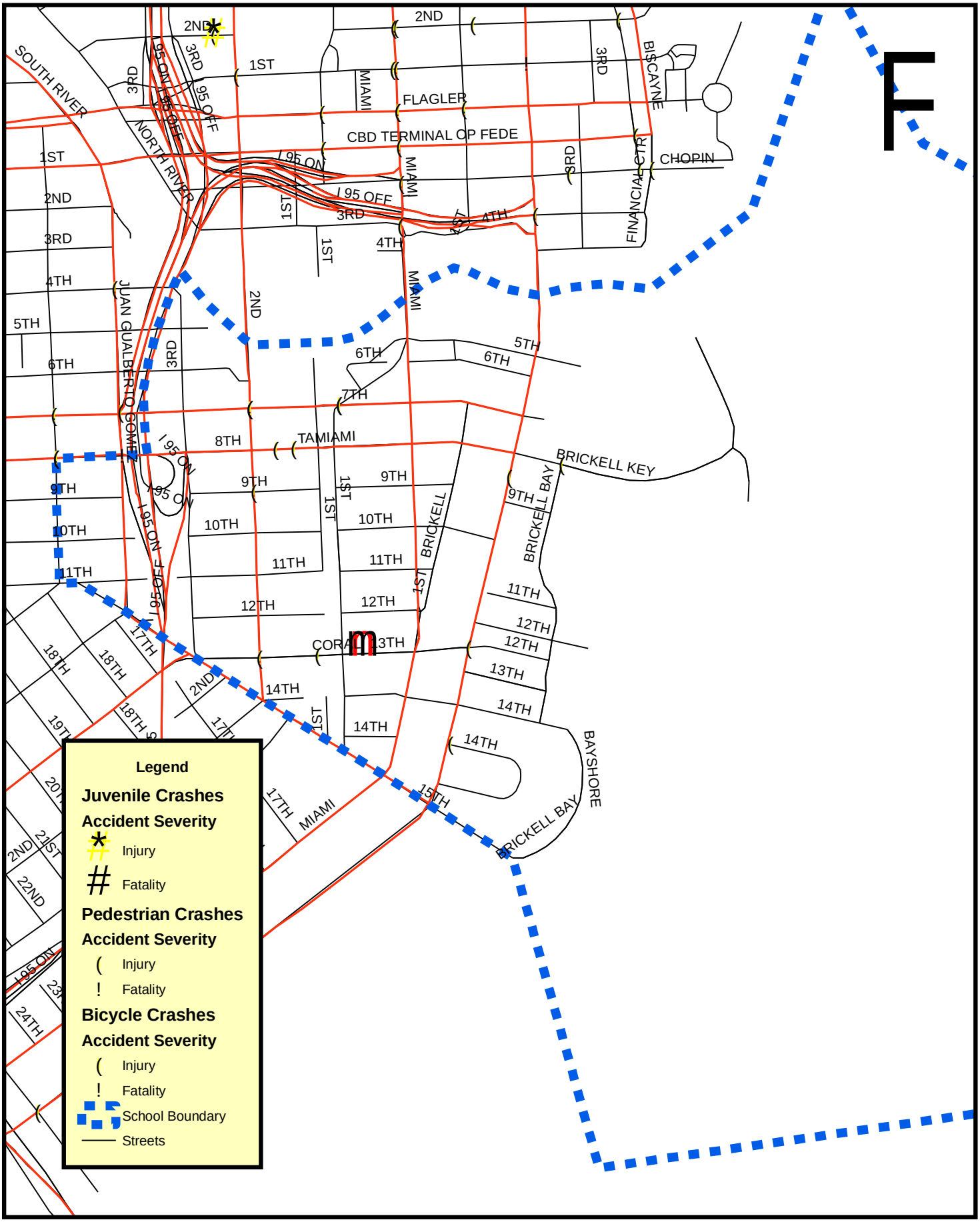
Table 4
Southside Elementary School
SRTS Infrastructure Improvements

Road Segment	Recommended Improvements	Length (ft)	Unit Cost	Unit	Total
SW 7 Street (From SW 3 Avenue To SW 2 Avenue)	- No Improvements required on this segment	0	$0.00	n/a	$0.00
SW 2 Avenue (From SW 7 Street To SW 13 Street)	- Install crosswalk at SW 9 Street - east and west sides	80	$2.00	ft	$160.00
	- Install crosswalk at SW 10 Street - east and west sides	85	$2.00	ft	$170.00
	- Install crosswalk at SW 11 Street - east and west sides	80	$2.00	ft	$160.00
	- Install crosswalk at SW 12 Street - east and west sides	85	$2.00	ft	$170.00
SW 13 Street (From SW 2 Avenue To Kagoshima Way)	- Install pedestrian countdown signal heads at Kagoshima Way	4	$1,428.51	ea	$5,714.04
	- Install flourescent yellow green pedestrian sign	4	$244.41	ea	$977.64
Kagoshima Way (From SW 8 Street To SW 13 Street)	- Install crosswalk at SW 11 Street - east side	45	$2.00	ft	$90.00
	- Install crosswalk at SW 12 Street - east side	40	$2.00	ft	$80.00
	- Install 4" sidewalk 180 feet north of SW 13 Street	86	$49.70	sy	$2,849.47
	- Install flourescent yellow green pedestrian sign	4	$244.41	ea	$977.64
Prelimiary Total Cost					$11,348.79
Contingencies (20%)					$2,269.76
Mobilization (10%)					$1,134.88
Maintence of Traffic (10%)					$1,134.88
Grand Total Cost					$15,888.30

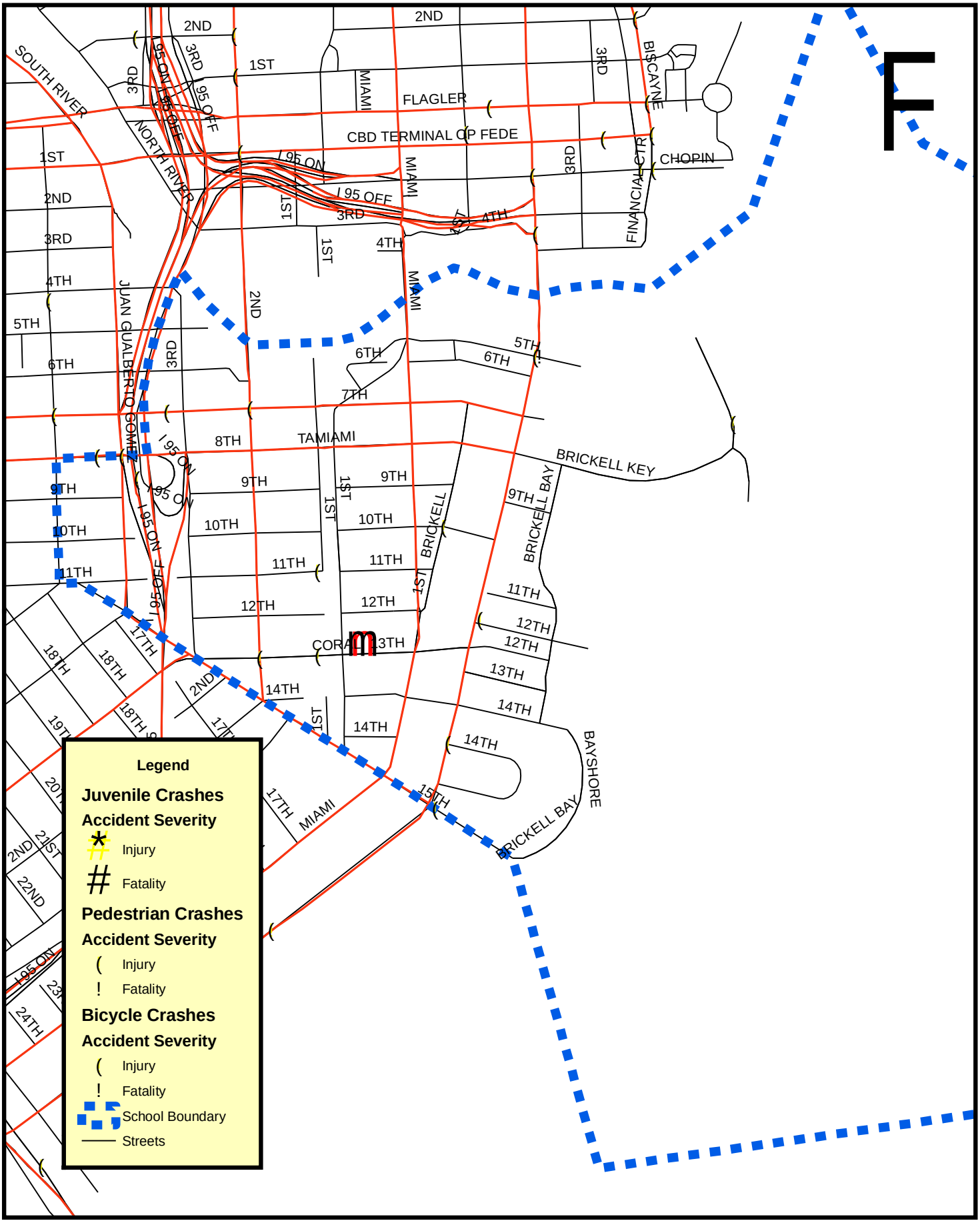
LIST OF APPENDICES

APPENDIX A

Maps of Pedestrian and Bicycle Crashes



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

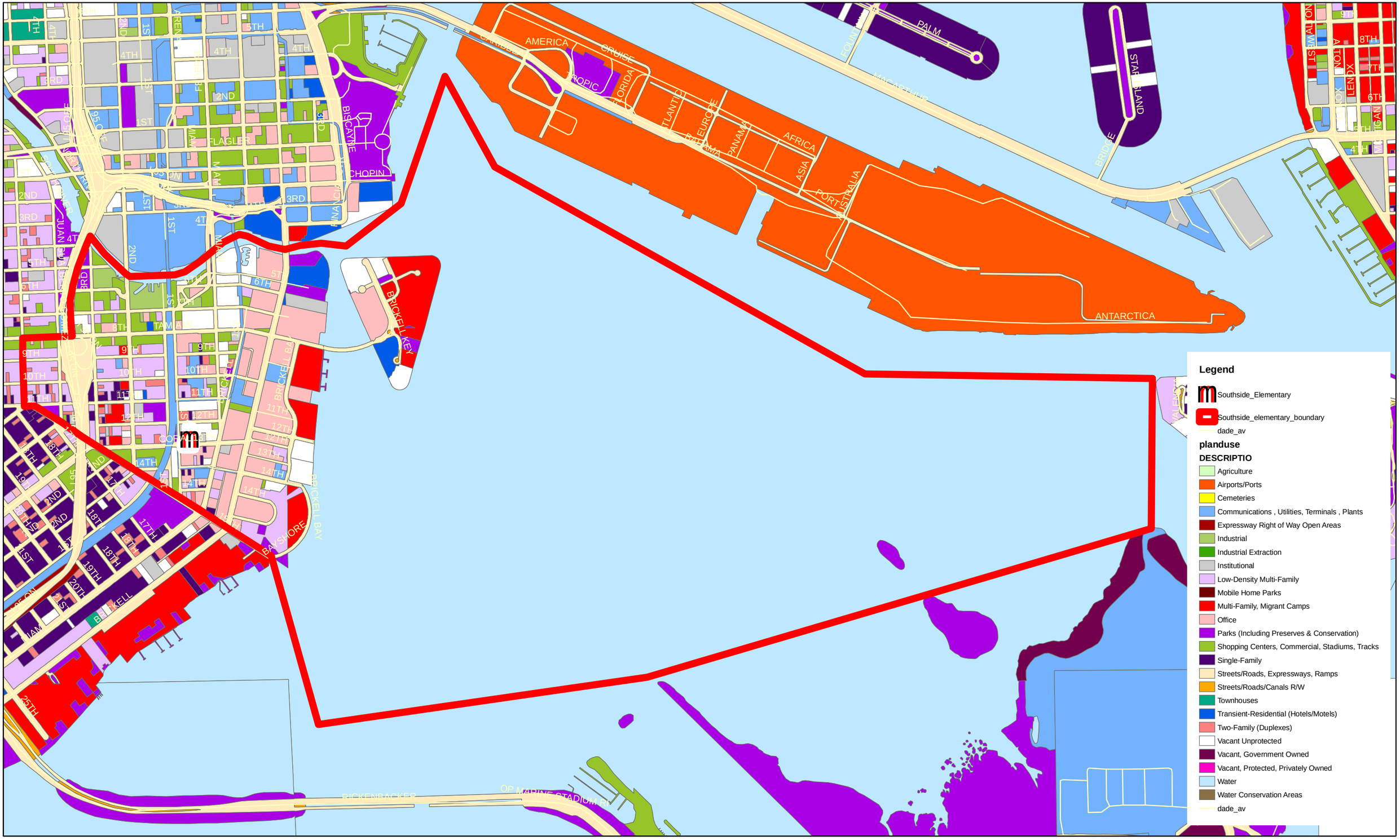


RS&H		Pedestrian and Bicycle Crashes Southside Elementary	2004	Appendix A

APPENDIX B

Land Use Map

Southside Elementary



APPENDIX C
Existing Route Deficiencies

SAFE ROUTE TO SCHOOL PROJECT

Southside Elementary
45 SW 13 St, Miami FL 33130

Improvements Needed

From the Field:

Route- SW 3rd Avenue (From SW 7th St. to SW 6th St.)

- There are not any residential areas on SW 3rd Ave. It is a commercial area, no improvements necessary. Remove segment from Safe Route.

Route- SW 2nd Avenue (From SW 7th St. to SW 13th St.)

- Crosswalks are missing at 9th St., 10th St., 11th St. and 12th St on the East and West Sides.

Route- SW 13th St. (From SW 2nd Ave to Kagoshima Way)

- No improvements needed for this segment.

Route- Kagoshima Way (From SW 8th St. to SW 13th St.)

- Crosswalks are needed at 11th St. and 12th St. on the East Side.
- Pavement of 86 feet needs to be added on dirt path next to the metrorail station.

Route- SW 7th St. (From SW 2nd Ave. to SW 3rd Ave.)

- No improvements needed for this segment.

DISTRICTWIDE TRAFFIC OPERATIONS STUDIES

FM NO. 250093-1-32-03

TWO NO. 26

SAFE ROUTES TO SCHOOL

W. J. BRYAN 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.: 26

FINAL REPORT
for
WJ Bryan Elementary School

Prepared for:

Florida Department of Transportation

District 6

Prepared by:

REYNOLDS, SMITH & HILLS, INC.

July 11, 2007

TABLE OF CONTENTS

LIST OF FIGURES

SECTION **PAGE**

LIST OF TABLES

SECTION **PAGE**

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 WJ Bryan 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 WJ Bryan Elementary School for the SRTS program.

2. PROJECT SCHOOL DATA

The following information pertains to the project school.

Name: WJ Bryan Elementary

Address: 1201 NE 125th Street, North Miami, Fl 33161 (Figure 1 shows project location map)

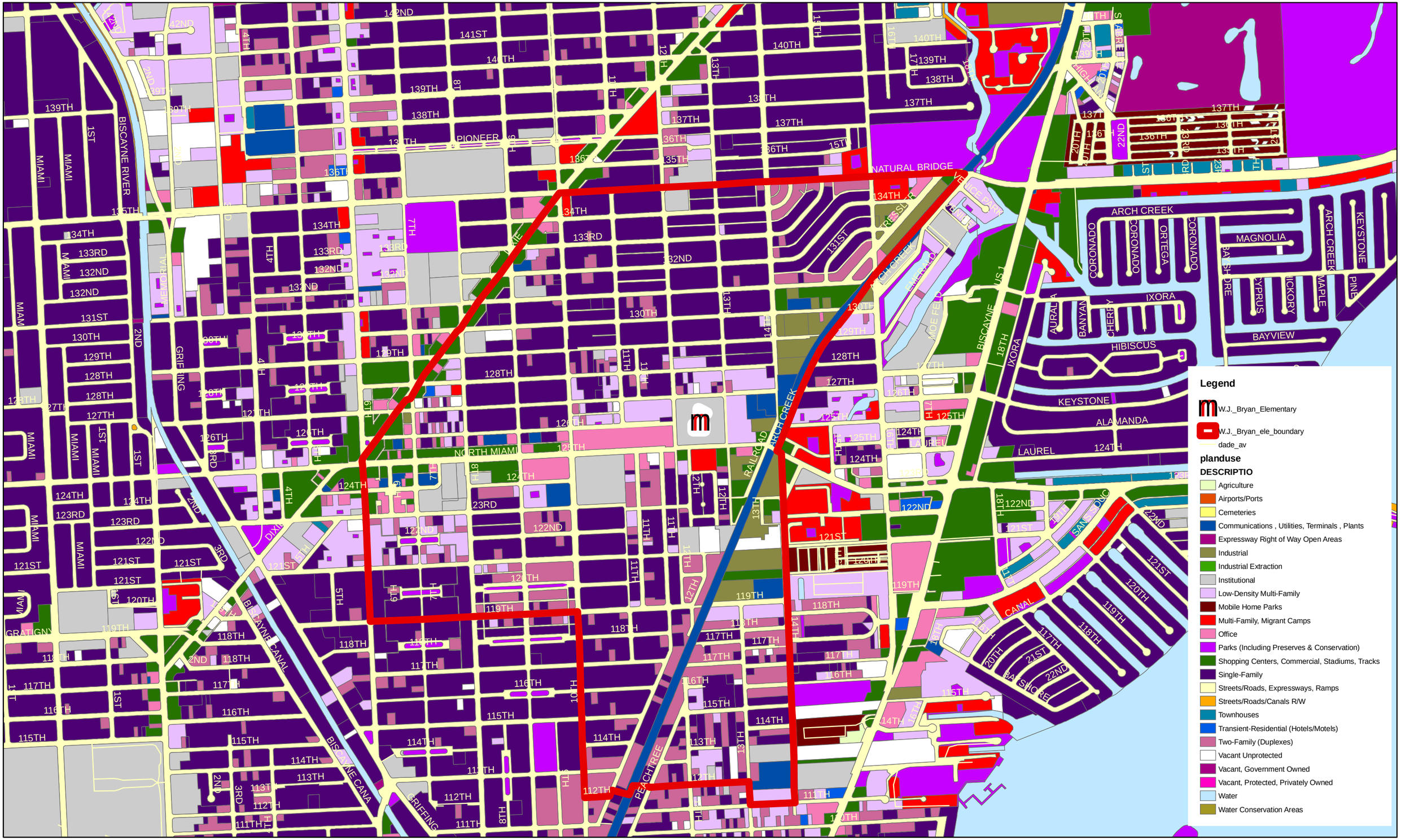
Enrollment: 771 students (School year 2006 to 2007)

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 = Not Available
- Private Car = Not Available
- Buses = Not Available

W.J. Bryan Elementary



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 W.J. Bryan 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, relatively few pedestrian/bicycle crashes were experienced along the recommended safe routes during the 3-year study period and none involved juveniles. Three pedestrian crashes were reported on NE 13 Avenue, three on NE 125 Street and two on NE 13 Avenue. 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
WJ Bryan 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
NE 6 Avenue	NE 125 Street	NE 119 Street	0	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0
West Dixie Highway	NE 125 Street	NE 135 Street	0	2	0	1	0	3	0	2	0	1	0	3	0	0	1	1	1	1
NE 125 Street	NE 6 Avenue	NE 14 Avenue	0	0	0	4	0	4	0	0	0	10	0	10	0	1	0	7	0	8
NE 12 Avenue	NE 125 Street	NE 135 Street	0	1	0	1	0	2	0	0	0	0	0	0	0	0	0	1	0	1
NE 13 Avenue	NE 123 Street	NE 135 Street	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
NE 135 Street	NE 10 Avenue	Arch Creek	0	0	0	3	0	3	0	0	0	2	0	2	0	0	0	0	0	0
NE 117 Street	NE 13 Avenue	NE 14 Avenue	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
NE 118 Street	NE 10 Avenue	NE 11 Avenue	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
NE 14 Avenue	NE 125 Street	NE 135 Street	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	1	0	1
NE 16 Avenue	NE 135 Street	Arch Creek	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
NE 7 Avenue	NE 128 Street	NE 119 Street	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1
NE 119 Street	NE 6 Avenue	NE 14 Avenue	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
NE 111 Street	NE 13 Avenue	NE 14 Avenue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
NE 10 Avenue	NE 135 Street	NE 119 Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total			**0**	**4**	**0**	**15**	**0**	**19**	**0**	**2**	**0**	**17**	**0**	**19**	**0**	**0**	**1**	**12**	**1**	**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 on Proposed Safe Routes
W.J. Bryan Elementary, 2002-2004

CRASH DETAILS							
Safe Route	**Case Number**	**Date of Crash**	**Day of Week**	**Time**	**Pedestrian Age**	**Injury/Fatality**	**Location of Crash**
NE 13 Avenue (From NE 125 Street to NE 135 Street)	733751320	06/14/02	Thu	7:55 AM	4	Injury	NE 127 Street
	733776670	05/19/03	Sun	8:15 AM	17	Injury	NE 131 Street
NE 123 Street (From NE 6 Avenue to NE 11 Place)	733780070	01/16/03	Wed	11:00 PM	25	Injury	NE 7 Avenue
	737781030	01/25/04	Sat	11:00 PM	50	Injury	NE 6 Avenue
	737797660	06/23/04	Tue	10:09 AM	30	Injury	NE 10 Avenue
NE 125 Street (From NE 13 Avenue to NE11 Place)	733784860	07/01/03	Mon	6:46 PM	43	Injury	NE 11 Place
	737774570	10/19/04	Mon	11:08 AM	38	Injury	NE 12 Avenue
	737799090	02/15/04	Sat	4:45 PM	UNK	Injury	NE 12 Court

Note: Juvenile crashes are highlighted in gray.

4. DEVELOPMENT OF SRTS

SRTS for WJ Bryan 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

5. RECOMMENDED SRTS

Following the process described in Section 4, the recommended SRTS was developed for WJ Bryan 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.

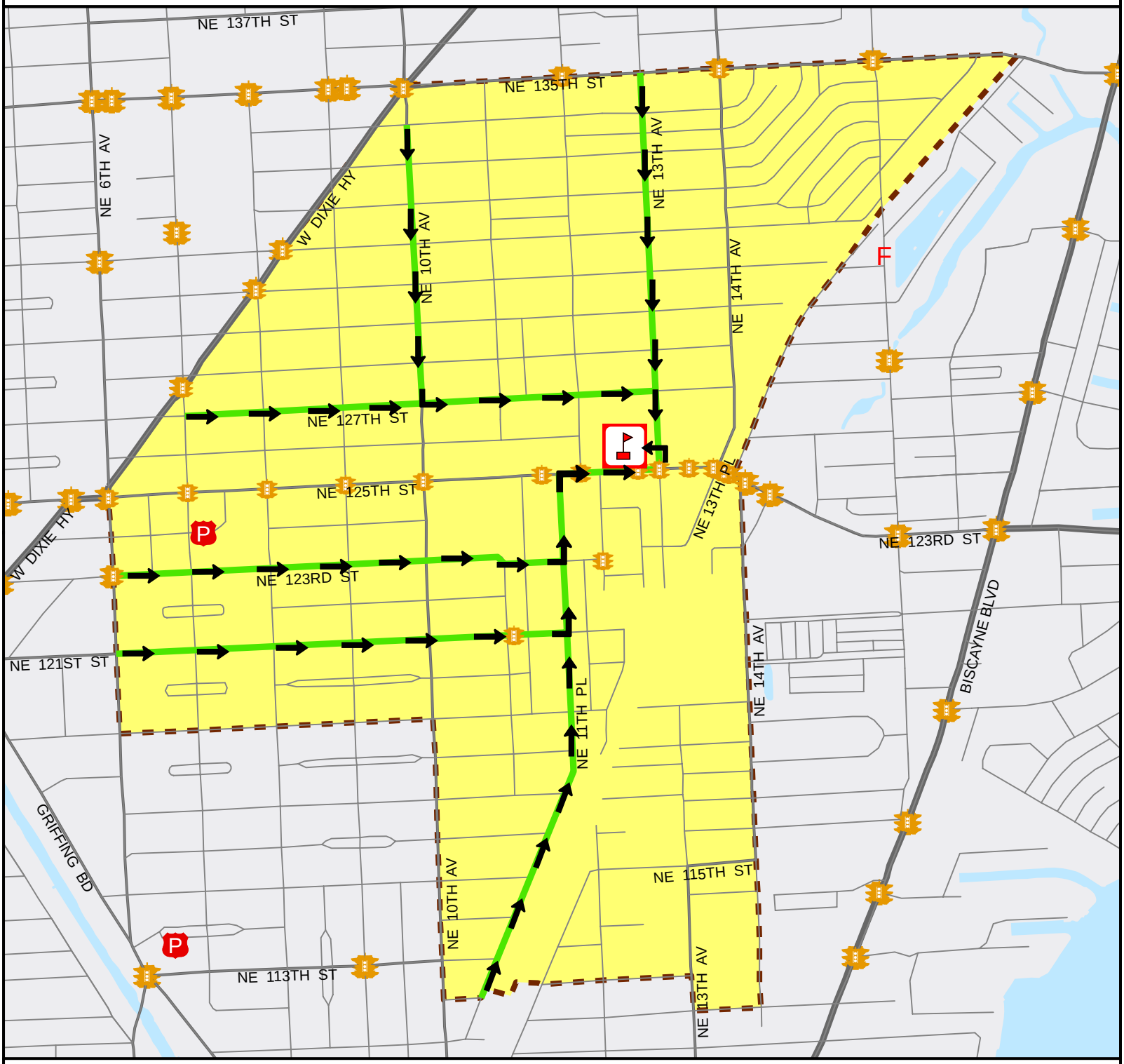
6. FIELD REVIEW

Field reviews for WJ Bryan Elementary School were conducted on March 9, 2007. The primary deficiencies that were identified along the proposed safe routes were missing sidewalk, crosswalks, school zone signage, and pedestrian heads. A list of the comprehensive deficiencies observed can be found in Appendix C.

W.J. BRYAN ELEMENTARY SCHOOL

1201 NE 125th Street, North Miami 33161

SAFE ROUTES TO SCHOOL



LEGEND

- School
- Safe Route
- Streets
- Highways
- Attendance Boundary
- 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
WJ Bryan Elementary
Exisiting Roadway and Traffic Characterisitcs for SRTS Segments

Road	Segment		Facility Type	Speed Limit	AADT[1]	Ped & Bike Crashes[2]
	From	To				
NE 10th Avenue	NE 134th Street	NE 127th Street	City Local Street	35 mph	Low	1
NE 13th Avenue	NE 135th Street	NE 1253th Street	City Local Street	35 mph	Low	1
NE 127th Street	NE 5th Avenue	NE 13th Avenue	City Local Street	35 mph	Low	0
NE 11th Place	NE 125th Street	NE 112th Street	City Local Street	35 mph	Low	0
NE 121st Street	NE 6th Avenue	NE 11th Place	City Local Street	35 mph	Low	0
NE 123rd Street	NE 6th Avenue	NE 11th Place	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 $671,765.84.

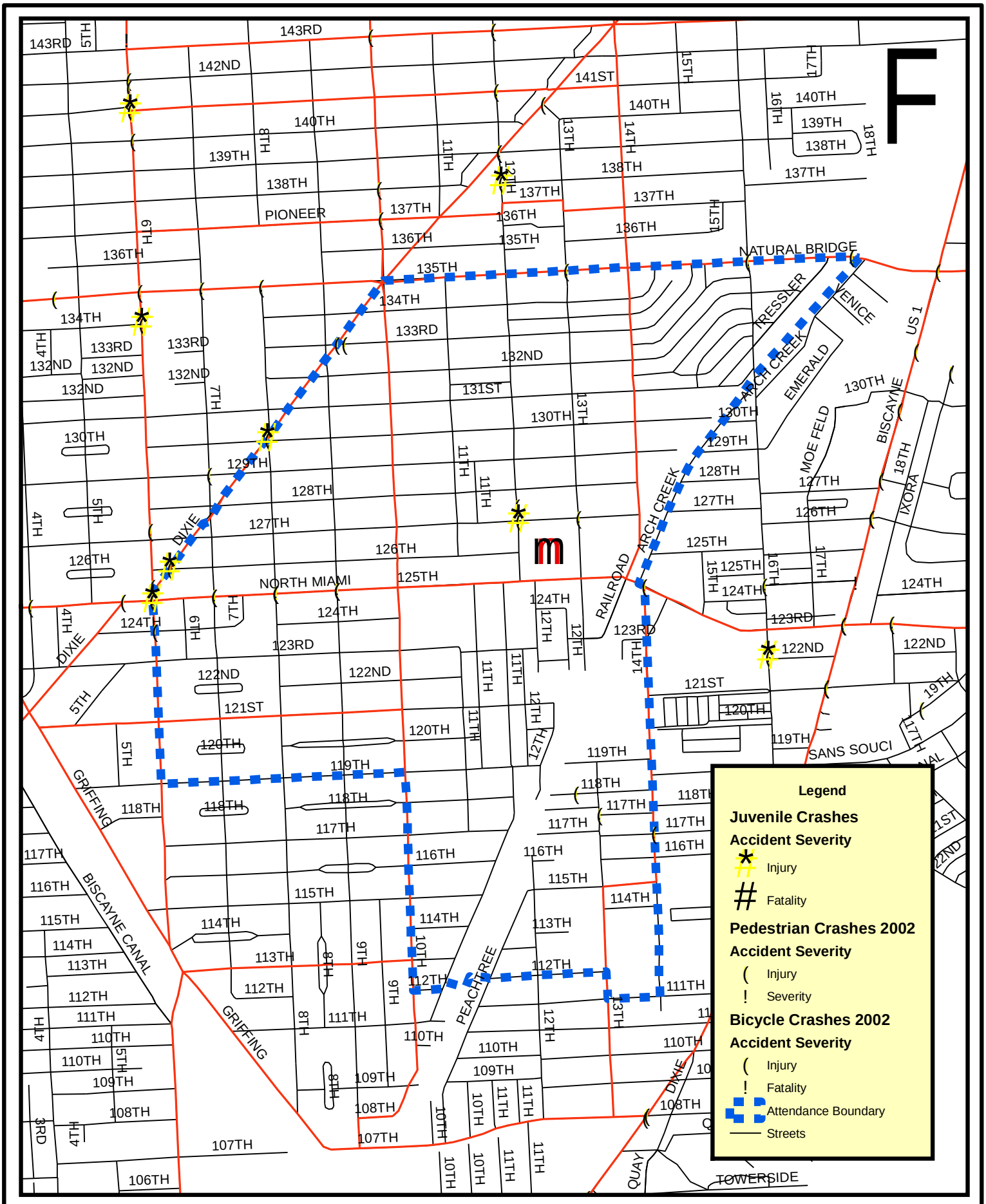
Table 4
W.J. Bryan Elementary School
Cost Estimate for Recommended Improvementes

Road Segment	Recommended Improvements	Length (ft)	Unit Cost	Unit	Total
NE 10 Avenue (From NE 134 Street To NE 127 Street)	- Install crosswalk at NE 133 Street - east and west sides	60	$2.00	ft	$120.00
	- Install 4" sidewalk between NE 133 Street and NE 132 Street	46	$49.70	sy	$1,524.13
	- Install 6" sidewalk between NE 133 Street and NE 132 Street	24	$79.59	sy	$1,273.44
	- Install crosswalk at NE 132 Street - east and west sides	80	$2.00	ft	$160.00
	- Install crosswalk at NE 131 Street - east and west sides	80	$2.00	ft	$160.00
	- Install 4" sidewalk between NE 131 Street and NE 130 Street	222	$49.70	sy	$7,355.60
	- Install 6" sidewalk between NE 131 Street and NE 130 Street	36	$79.59	sy	$1,910.16
	- Install crosswalk at NE 130 Street - east and west sides	90	$2.00	ft	$180.00
	- Install 4" sidewalk extension at NE 130 Street - west side	15	$49.70	sy	$497.00
	- Install 4" sidewalk between NE 130 Street and NE 129 Street	198	$49.70	sy	$6,560.40
	- Install 6" sidewalk between NE 130 Street and NE 129 Street	43	$79.59	sy	$2,281.58
	- Install 4" sidewalk extension at NE 130 Street - east side	20	$49.70	sy	$662.67
	- Install crosswalk at NE 129 Street - east and west sides	75	$2.00	ft	$150.00
	- Install 4" sidewalk between NE 129 Street and NE 128 Street	257	$49.70	sy	$8,515.27
	- Install 6" sidewalk between NE 129 Street and NE 128 Street	24	$79.59	sy	$1,273.44
	- Install 4" sidewalk extension at NE 129 Street - east side	20	$49.70	sy	$662.67
NE 13 Avenue (From NE 135 Street To NE 125 Street)	- Install crosswalk at NE 128 Street - east and west sides	80	$2.00	ft	$160.00
	- Install crosswalk at NE 129 Street - east and west sides	80	$2.00	ft	$160.00
	- Install 4" sidewalk extension at NE 129 Street - south side	20	$49.70	sy	$662.67
	- Install crosswalk at NE 130 Street - east and west sides	80	$2.00	ft	$160.00
	- Install crosswalk at NE 131 Street - east and west sides	80	$2.00	ft	$160.00
	- Install crosswalk at NE 132 Street - east and west sides	75	$2.00	ft	$150.00
	- Install 4" sidewalk extension at NE 132 Street - east side	30	$49.70	sy	$994.00
	- Install crosswalk at NE 133 Street - east and west sides	90	$2.00	ft	$180.00
	- Install 4" sidewalk extension at NE 133 Street - east side	24	$2.00	ft	$48.00
	- Install crosswalk at NE 134 Street - east and west sides	65	$2.00	ft	$130.00
	- Install 4" sidewalk extension at NE 134 Street - east side	48	$49.70	sy	$1,590.40
	- Install flourescent yellow green pedestrian sign	2	$244.41	ea	$488.82
	- Install pedestrian countdown signals	8	$1,428.51	ea	$11,428.08
NE 127 Street (From NE 5 Avenue To NE 13 Avneue)	- Install crosswalk at NE 8 Avenue - north and south sides	90	$2.00	ft	$180.00
	- Install crosswalk at NE 9 Avenue - north and south sides	85	$2.00	ft	$170.00
	- Install crosswalk at NE 10 Avenue - north and south sides	100	$2.00	ft	$200.00
	- Install crosswalk at NE 11 Avenue - north and south sides	65	$2.00	ft	$130.00
	- Install crosswalk at NE 11 Court - north and south sides	30	$2.00	ft	$60.00
	- Install crosswalk at NE 12 Avenue - north and south sides	90	$2.00	ft	$180.00
	- Install 4" sidewalk extension at NW 12 Avenue - southeast and northwest corners	30	$49.70	sy	$994.00

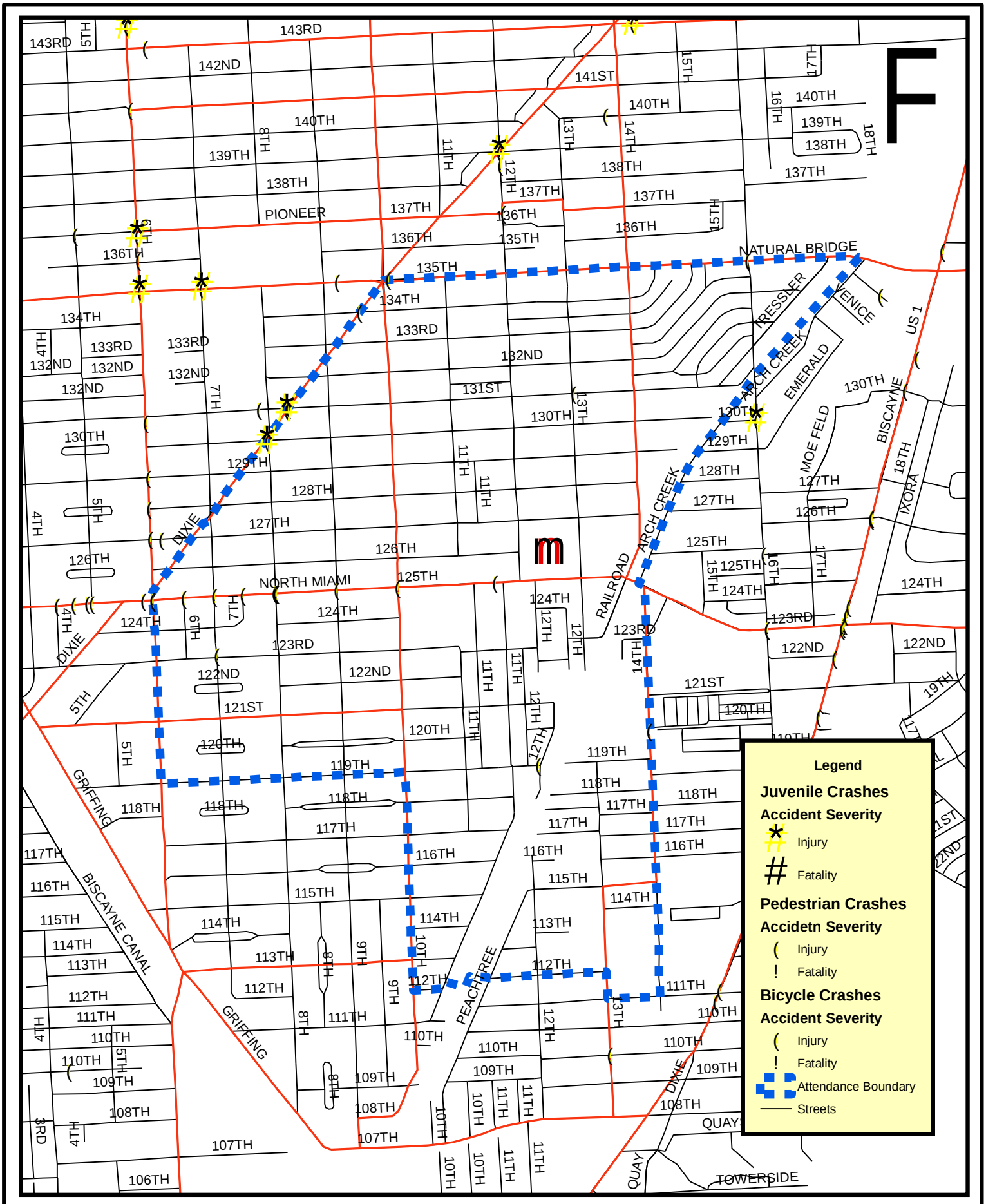
LIST OF APPENDICES

APPENDIX A

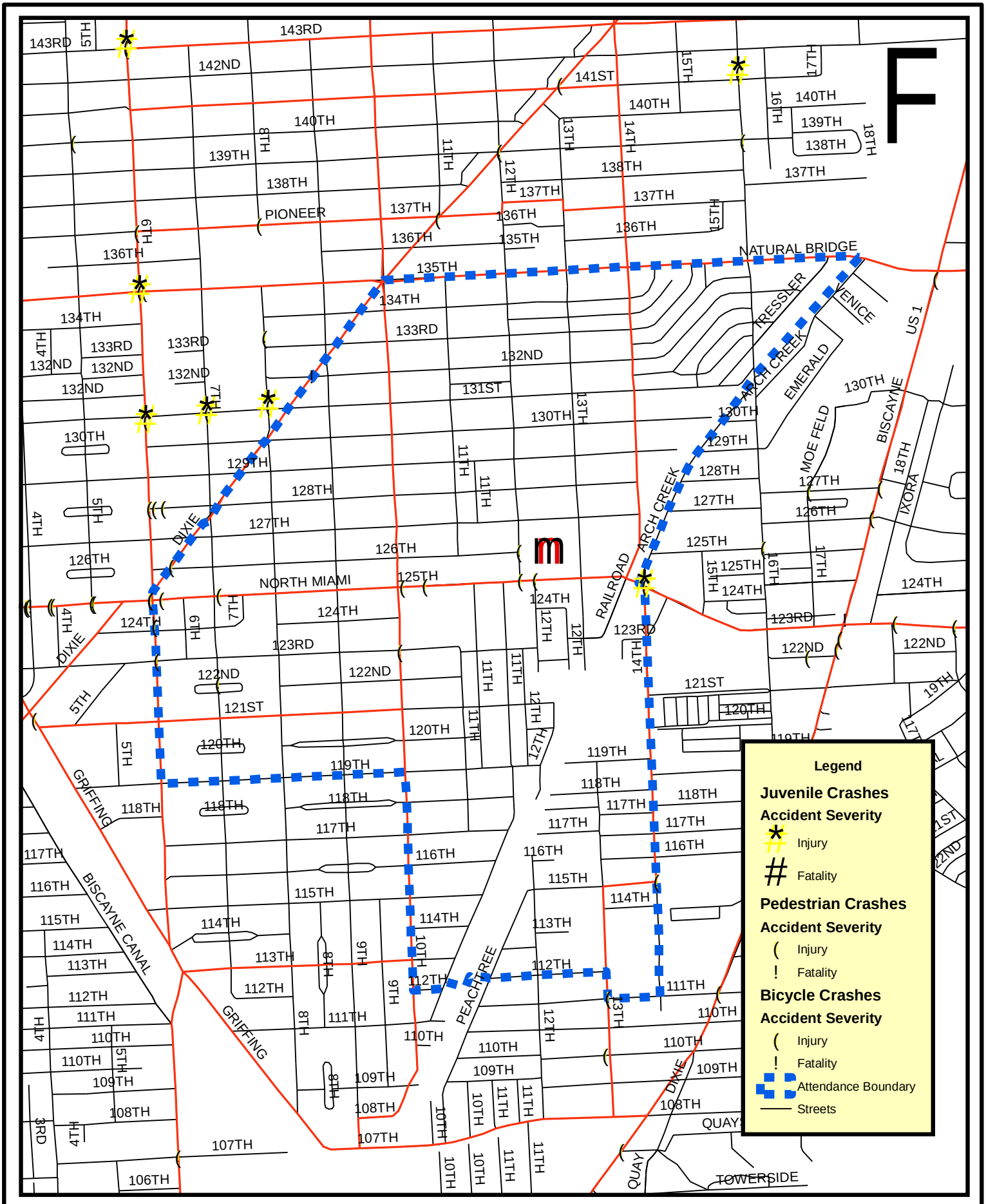
Maps of Pedestrian and Bicycle Crashes



RS&H		Pedestrian and Bicycle Crashes W.J. Bryan Elementary	2002	Appendix A



RS&H		Pedestrian and Bicycle Crashes W.J. Bryan Elementary	2003	Appendix A

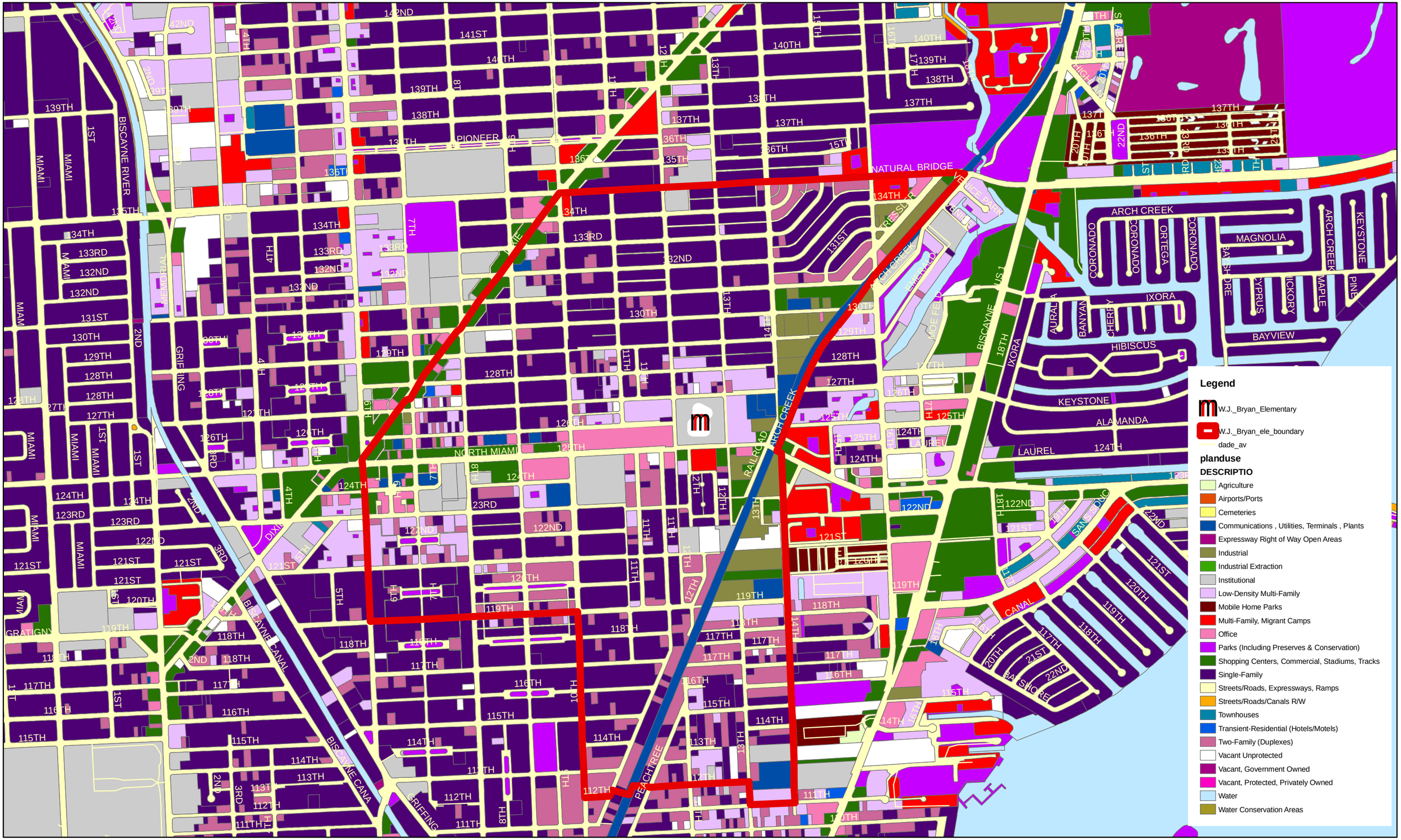


RS&H		Pedestrian and Bicycle Crashes W.J. Bryan Elementary	2004	Appendix A

APPENDIX B

Land Use Map

W.J. Bryan Elementary



APPENDIX C
Existing Route Deficiencies

SAFE ROUTE TO SCHOOL PROJECT

1200 NE 125 Street, North Miami, FL 33161

Improvements Needed

From the Field:

Route- NE 10 Avenue (From NE 134 St. to NE 127 St.)

- At NE 133 Street crosswalk is needed on the east and west side.
- Between NE 133 Street and NE 132 Street sidewalk is missing approximately 70 feet and 115 feet north of NE 132 Street.
- At NE 132 Street crosswalk is needed on the east and west side.
- At NE 131 Street crosswalk is needed on the east and west side.
- Sidewalk is missing in between NE 131 St. and NE 130 St. Approximately 258 feet.
- At NE 130 Street crosswalk is needed on the east and west side and sidewalk extension is missing on the west side.
- Sidewalk missing south of NE 130 Street (Approximately 123 feet) and sidewalk extension on the east side.
- At NE 129 Street crosswalk is needed on the east and west side.
- At NE 129 Street just north is missing sidewalk. Approximately 118 feet.
- Sidewalk is missing(App. 281 feet) between NE 128 Street and NE 129 Street.
- At NE 128 Street crosswalk is missing on the east and west side and sidewalk extension missing on the east side.

Route- NE 13 Avenue (From NE 135 St. to NE 125 St.)

- At NE 128 Street crosswalk is needed on the east and west side.
- At NE 129 Street crosswalk is needed on the east and west side and there is sidewalk extension needed on the south side.
- At NE 130 Street crosswalk is needed on the east and west side.
- At NE 131 Street crosswalk is needed on the east and west side.
- At NE 132 Street crosswalk is needed on the east and west side and sidewalk extension on the east side.
- NE 133 Street crosswalk is needed on the east and west side and sidewalk extension is needed on the east side.
- NE 134 Street crosswalk is needed on the east and west side and sidewalk extension is needed on the east side.

Route- NE 131 Street (From US 1 to NE 15 Avenue)

- At NE 13 Avenue crosswalk is needed on the north and south side.
- At NE 12 Avenue crosswalk is needed on the north and south side.
- At NE 11 Avenue crosswalk is needed on the north and south side.

- At NE 10 Avenue crosswalk is needed on the north and south side.
- At NE 9 Avenue crosswalk is needed on the north and south side.

Route- NE 127 Street (From NE 5 Ave. to NE 13 Ave.)

- At NE 8 Avenue crosswalk is needed on the north and south side.
- At NE 9 Avenue crosswalk is needed on the north and south side.
- At NE 10 Avenue crosswalk is needed on the north and south side.
- At NE 11 Avenue crosswalk is needed on the north and south side.
- At NE 11 Court crosswalk is needed on the north side.
- At NE 12 Avenue crosswalk is needed on the north side and sidewalk extension missing in the southeast and northwest corner.

Route- NE 11 Place (From NE 125 St. to NE 112 St.)

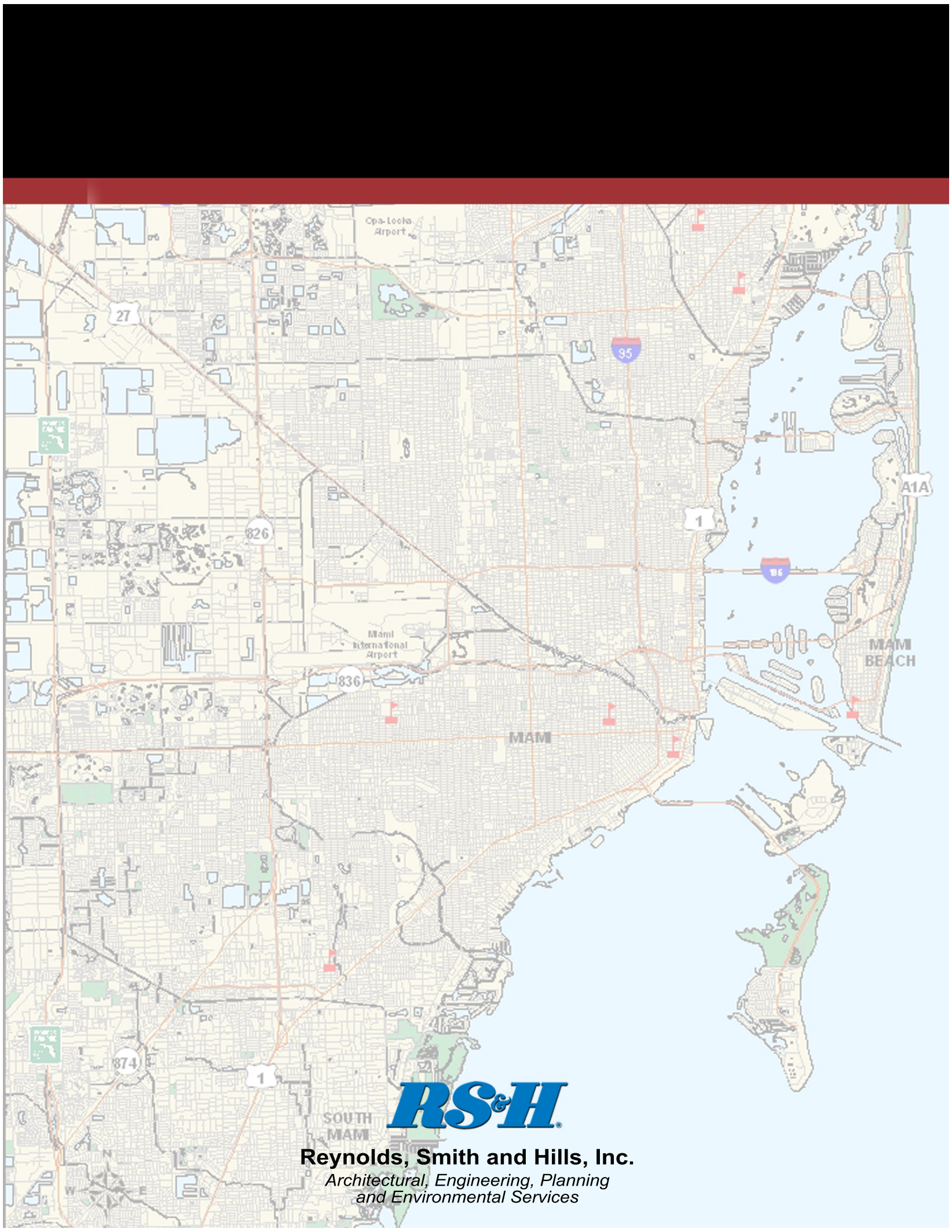
- At NE 123 Street crosswalk is needed on the east and west side and sidewalk extension is needed on all four corners.
- At NE 121 Street crosswalk is needed on the east and west side and sidewalk extension is needed on all four corners.
- Sidewalk is missing between NE 121 St. to NE 112 St. on both the east and west side.
- At NE 119 place crosswalk is needed on the east and west side and sidewalk extension is needed on all four corners.
- At NE 118 Street crosswalk is needed on the west side.
- At NE 117 Street crosswalk is needed on the west side.
- At NE 116 Street crosswalk is needed on the west side.
- At NE 115 Street crosswalk is needed on the west side.
- At NE 114 Street crosswalk is needed on the west side.
- At NE 113 Street crosswalk is needed on the west side.

Route- NE 121 Street (From NE 6 Avenue to NE 11 Place)

- Sidewalk is missing from NE 11 Place to NE 8 Avenue.
- At 11 Street crosswalk is missing on the north and south side and sidewalk extension is needed on all four corners.
- At NE 10 Avenue crosswalk is needed on the north and south side and sidewalk extension is needed on all four corners.
- At NE 9 Avenue crosswalk is needed on the north and south side and sidewalk extension is needed on all four corners.
- At NE 8 Avenue crosswalk is needed on the north and south side and sidewalk extension is needed on all four corners.
- At NE 7 Avenue crosswalk is needed on the north and south side and sidewalk extension is needed on all four corners.
- Sidewalk is missing between NE 8 Avenue and NE 9 Avenue on the north side.(App. 214 feet)

Route- NE 123 Street (From NE 6 Avenue to NE 11 Place)

- At NE 6 Court there is crosswalk needed on the north side.
- At NE 7 Avenue there is crosswalk needed on the north and south side. Sidewalk extension is missing on the west side.
- At NE 8 Avenue there is crosswalk needed on the north and south side. Sidewalk extension is missing on the southeast corner.
- There is sidewalk missing between 8 Avenue and 9 Avenue. On the south side approximately 544 feet and on the north side approximately 372 feet.
- At NE 9 Avenue there is crosswalk needed on the north and south side and sidewalk extension is needed on the south side.
- There is sidewalk missing between 11 Avenue and 10 Avenue on the south side.
- At NE 11 Court there is crosswalk needed on the north and south side and sidewalk extension on all four corners.
- At NE 11 Place there is crosswalk needed on the north and south side and sidewalk extension on all four corners.
- Sidewalk is missing between 11 Court and 11 place on the north side.
- At 11 Avenue sidewalk extension is missing in the southeast corner.


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