

COLLISION ANALYSIS

Safety is a primary concern when evaluating each of the median openings and signalized intersections along the study corridor. A collision analysis was performed for each of the median openings and signalized intersections based on the crash history from April 1, 2004 to March 31, 2007 (three years) obtained from Hillsborough County Sheriff's Office Records Section. The crash analysis for the study period is summarized in Table 5. The overall crash analysis indicated that there were a total of 587 crashes. Of these crashes there was one fatal crash and 206 injury crashes. Appendix E provides the crash summaries and collision diagrams for each year.

The crash analysis is used to identify the number of correctable crashes that can potentially be corrected by implementing access management techniques (i.e., closing or directionalizing full access median openings). Additionally, measures to reduce the crashes at signalized intersections were investigated. Typically, right-angle and left-turn crashes are considered to be correctable crashes as a result of an access management plan. These types of crashes are the main focus of the collision analysis because of their potential for severe injury. As shown in Table 5, there were 97 correctable crashes along the study corridor with most of the correctable crashes (77) occurring at signalized intersections. All of the median openings had five or less correctable crashes during the three year study period.

Right-angle and left-turn crashes that occurred at the signalized intersections may be a result of the clearance interval duration and/or red-light running. Clearance intervals for all the signalized intersections were reviewed based on the timing plans provided by the County. It appears that the clearance intervals were set based on FDOT's Traffic Engineering Manual. That is, typically the yellow interval is 3.5 seconds for approach speeds of 30 mph or less, 4.3 seconds for approach speeds of 45 mph, and 4.7 seconds for approach speeds of 50 mph. The all-red interval is 1.0 second for approach speeds of 50 mph or less. The Traffic Engineering Manual recommends adjusting these timings upward based on factors such as grades, sight distance problems, complex intersections, wide intersections, and engineering judgment. It is possible

Table 5: Crash Summary - April 2004 to March 2007

Median Opening Number	Median Opening ID	Median Opening Type	South Cross Street	North Cross Street	Right Angle	Type of Crash										Total	Number of Fatalities	Number of Injuries	Pro. Dam. Only	Correctable Crashes
						Left-turn	Rear End	Side-swipe	Head-on	Right-turn	Ped./Bike	Other ¹¹								
1	A	Full/Signal	Bruce B. Downs Boulevard	Bruce B. Downs Boulevard	10	15	113	23	3	12	6	4	186	0	60	126	25			
2	B	Full/Unsignalized	USF Driveway	Pediatric Care Center	4	1	3	2	0	0	0	2	12	0	4	8	5			
3	C	Full/Unsignalized	N/A	Hospital Private Driveway	4	1	7	2	0	0	0	1	15	0	8	7	5			
4	D	Full/Unsignalized	N/A	Park Place Apartments East	2	0	7	0	0	0	0	0	9	0	3	6	2			
5	E	Full/Signal	Magnolia Drive	3450 Medical Plaza	3	10	14	5	0	0	0	2	34	0	14	20	13			
6	F	Full/Unsignalized	N/A	Aldania Apartments East	1	0	3	0	0	0	0	0	4	0	4	0	1			
7	G	Full/Unsignalized	N/A	John Knox West (Main)	2	0	6	0	0	0	0	0	8	0	1	7	2			
8	H	Full/Signal	N/A	N. 42nd Street	9	6	44	6	0	1	0	3	69	0	17	52	15			
9	I	Full/Signal	N. Palm Drive	N/A	1	3	24	2	0	0	3	1	34	0	16	18	4			
10	J	Directional	N/A	Avalon Heights Boulevard	0	4	9	0	0	0	1	3	17	0	4	13	4			
11	K	Full/Signal	N/A	N. 46th Street	1	8	63	6	1	1	2	3	85	1	34	50	9			
12	L	Directional	Maple Drive	N/A	0	0	5	2	0	1	0	4	12	0	5	7	0			
13	M	Full/Signal	N. 50th Street	N/A	2	6	26	1	0	1	0	7	43	0	17	26	8			
14	N	Full/Unsignalized	N. 52nd Street	N/A	0	0	8	0	0	0	0	2	10	0	5	5	0			
15	O	Full/Unsignalized	N. 53rd Street	N/A	0	1	9	0	1	0	0	0	11	0	5	6	1			
16	P	Full/Signal	N. 56th Street	N/A	1	2	23	7	0	2	0	3	38	0	9	29	3			
			Total	Total	40	57	364	56	5	18	12	35	587	1	206	380	97			

Notes:

- (1) Crashes include hit fixed object, backed into, out of control, and incomplete crash reports.
- (2) Include right-angle and left-turn crashes.

that a combination of clearance interval adjustments and law enforcement of red-light violations could help reduce right-angle and left-turn crashes at the signalized intersections along Fletcher Avenue.

Of the total 587 crashes, 364 (62 percent) were rear-end crashes with the majority of the rear-end crashes (307) occurring at the signalized intersections. Rear-end crashes typically occur at signalized intersections as a result of severe congestion and the need for signal timing modifications. It is anticipated that optimizing the signal timings on Fletcher Avenue will improve progression and help reduce rear-end crashes at the signalized intersections along Fletcher Avenue.

QUALITATIVE ANALYSIS

A qualified registered professional traffic engineer conducted a qualitative assessment at all of the signalized intersections and median openings along the study corridor during the AM and PM peak hours under normal weekday conditions. Operational and safety problems were noted as well as other factors that might influence the roadway operation. It was anticipated that operational or safety problems observed during the qualitative assessment would provide useful information regarding the decision to close or directionalize the median openings. The qualitative assessment is included in Appendix F and a general summary is provided below:

- There were signal timing and progression issues at the signalized intersections.
- Queues at the signalized intersections at times block the median openings that are located east and west of the intersection. However, at most of the median openings along the study corridor, the side-street traffic had adequate gaps to ingress and egress.
- There were significant pedestrian volumes because of the University of South Florida located on the south side of Fletcher Avenue.
- During the PM peak hour a Florida Highway Patrol officer controlled traffic movements at the University Professional Center driveway. The police officer parked his vehicle facing east in the inside westbound left-turn lane for the intersection of Fletcher Avenue and Magnolia Drive. The police officer would stop the westbound through traffic on Fletcher

APPENDIX E
CRASH SUMMARIES AND COLLISION DIAGRAMS

Fletcher Avenue Crash Summary - April 2004 to March 2005

Median Opening Number	Median Opening ID	Median Opening Type	South Cross Street	North Cross Street	Right Angle	Left-Turn	Rear End	Side-swipe	Head on	Type of Crash				Total	Number of			Pro. Dam. Only	Correctable Crashes
										Right-Turn	Fed./Bike	Other (1)	Fatalities		Injuries	Crashes			
1	A	Full/Signal	Bruce B. Downs Boulevard	Bruce B. Downs Boulevard	3	5	37	7	0	0	2	1	56	0	18	38	8		
2	B	Full/Unsignalized	USF Drive	Pediatric Care Center	2	0	1	0	0	0	0	0	3	0	1	2	2		
3	C	Full/Unsignalized	N/A	Hospital Private Driveway	2	0	0	1	0	0	0	0	4	0	2	2	2		
4	D	Full/Unsignalized	N/A	Park Place Apartments East	0	0	3	0	0	0	0	0	3	0	1	2	0		
5	E	Full/Signal	Magnolia Drive	3450 Medical Plaza	2	5	2	0	0	0	0	0	9	0	4	5	7		
6	F	Full/Unsignalized	N/A	Adagio Apartments East	0	0	0	0	0	0	0	0	0	0	0	0	0		
7	G	Full/Unsignalized	N/A	John Knox West (Main)	0	0	2	0	0	0	0	0	2	0	0	2	0		
8	H	Full/Signal	N/A	N. 42nd Street	5	1	12	0	0	0	0	2	20	0	10	10	6		
9	I	Full/Signal	N. Palm Drive	N/A	0	2	5	0	0	0	1	0	8	0	4	4	2		
10	J	Directional	N/A	Avalon Heights Boulevard	1	3	4	0	0	0	0	0	7	0	1	6	3		
11	K	Full/Signal	N/A	N. 46th Street	1	2	25	1	0	0	0	2	31	1	12	18	3		
12	L	Directional	Maple Drive	N/A	0	0	0	0	0	0	0	2	2	0	2	0	0		
13	M	Full/Signal	N. 50th Street	N/A	0	1	9	1	0	0	0	6	17	0	4	13	1		
14	N	Full/Unsignalized	N. 52nd Street	N/A	0	0	1	0	0	0	0	1	2	0	1	1	0		
15	O	Full/Unsignalized	N. 53rd Street	N/A	0	0	1	0	0	0	0	0	1	0	0	1	0		
16	P	Full/Signal	N. 56th Street	N/A	0	0	2	2	0	0	0	2	6	0	1	5	0		
			Total	Total	15	19	104	12	0	2	2	17	171	1	62	108	34		

Footnotes:

- (1) Crashes include hit fixed object, backed into, out of control, and incomplete crash reports.
- (2) Include right-angle and left-turn crashes.

Fletcher Avenue Crash Summary - April 2005 to March 2006

Mediam Number	Mediam Opening ID	Mediam Opening Type	South Cross Street	North Cross Street	Type of Crash										Correctable Crashes		
					Right Angle	Left-Turn	Rear-End	Side-swipe	Head on	Right-Turn	PeL/Bike	Other (1)	Total	Fatalities		Number of Injuries	Pro. Dam. Only
1	A	Full/Signal	Bruce B. Downs Boulevard	Bruce B. Downs Boulevard	4	4	41	11	2	7	3	1	73	0	23	50	8
2	B	Full/Unsignalized	USF Drive	Pediatric Care Center	2	0	2	1	0	0	0	0	5	0	1	4	2
3	C	Full/Unsignalized	N/A	Hospital Private Driveway	1	1	3	0	0	0	0	0	5	0	4	1	2
4	D	Full/Unsignalized	N/A	Park Place Apartments East	1	0	3	0	0	0	0	0	4	0	1	3	1
5	E	Full/Signal	Magnolia Drive	3450 Medical Plaza	1	2	8	4	0	0	0	1	16	0	6	10	3
6	F	Full/Unsignalized	N/A	Adagio Apartments East	0	0	1	0	0	0	0	0	1	0	1	0	0
7	G	Full/Unsignalized	N/A	John Knox West (Main)	0	0	3	0	0	0	0	0	3	0	1	2	0
8	H	Full/Signal	N/A	N. 42nd Street	2	1	19	5	0	1	0	0	28	0	1	27	3
9	I	Full/Signal	N. Palm Drive	N/A	1	1	9	1	0	0	2	1	15	0	8	7	2
10	J	Directional	N/A	Avalon Heights Boulevard	0	0	3	0	0	0	0	3	6	0	0	6	0
11	K	Full/Signal	N/A	N. 46th Street	0	2	15	1	0	1	2	1	22	0	10	12	2
12	L	Directional	N/A	N/A	0	0	2	0	0	0	0	0	2	0	0	2	0
13	M	Full/Signal	Mistle Drive	N/A	0	2	8	0	0	0	0	1	11	0	6	5	2
14	N	Full/Signal	N. 50th Street	N/A	0	0	2	0	0	0	0	1	3	0	2	1	0
15	O	Full/Unsignalized	N. 52nd Street	N/A	0	0	2	0	0	0	0	0	4	0	3	1	1
16	P	Full/Unsignalized	N. 53rd Street	N/A	0	1	2	0	1	0	0	0	4	0	3	1	1
		Full/Signal	N. 56th Street	N/A	1	2	12	3	0	1	0	1	20	0	6	14	3
			Total	Total	13	16	133	26	3	10	7	10	218	0	73	145	29

Footnotes:

- (1) Crashes include hit fixed object, backed into, out of control, and incomplete crash reports.
- (2) Include right-angle and left-turn crashes.

Fletcher Avenue Crash Summary - April 2006 to March 2007

Median Opening Number	Median Opening ID	Median Opening Type	South Cross Street	North Cross Street	Right Angle	Type of Crash				Total	Number of Fatalities	Number of Injuries	Pro. Dam. Only	Correctable Crashes
						Left-Turn	Rear End	Side-swipe	Head on					
1	A	Full/Signal	Bruce B. Downs Boulevard	Bruce B. Downs Boulevard	3	6	35	5	1	3	2	19	38	9
2	B	Full/Unsignalized	USF Drive	Pediatric Care Center	0	1	0	1	0	0	0	2	2	1
3	C	Full/Unsignalized	N/A	Hospital Private Driveway	1	0	4	1	0	0	0	2	4	1
4	D	Full/Unsignalized	N/A	Park Place Apartments East	1	0	1	0	0	0	0	1	1	1
5	E	Full/Signal	Magnolia Drive	3450 Medical Plaza	0	3	4	1	0	0	0	4	5	3
6	F	Full/Unsignalized	N/A	Adagio Apartments East	1	0	2	0	0	0	0	3	0	1
7	G	Full/Unsignalized	N/A	John Knox West (Main)	2	0	1	0	0	0	0	0	3	2
8	H	Full/Signal	N/A	N. 42nd Street	2	4	13	1	0	0	0	6	15	6
9	I	Full/Signal	N. Palm Drive	N/A	0	0	10	1	0	0	0	4	7	0
10	J	Directional	N/A	Avalon Heights Boulevard	0	1	2	0	0	0	1	3	1	1
11	K	Full/Signal	N/A	N. 46th Street	0	4	23	4	1	0	0	32	20	4
12	L	Directional	N/A	N/A	0	0	3	2	0	0	0	8	5	0
13	M	Full/Signal	Maple Drive	N/A	2	3	9	0	0	1	0	7	8	5
14	N	Full/Unsignalized	N. 50th Street	N/A	0	0	5	0	0	0	0	2	3	0
15	O	Full/Unsignalized	N. 52nd Street	N/A	0	0	6	0	0	0	0	1	5	0
16	P	Full/Signal	N. 53rd Street	N/A	0	0	9	2	0	1	0	2	10	0
			N. 56th Street	N/A	0	0	9	1	0	0	0	2	10	0
			Total	Total	12	22	127	18	2	6	8	71	127	34

Footnotes:

- (1) Crashes include hit fixed object, backed into, out of control, and incomplete crash reports.
- (2) Include right-angle and left-turn crashes.