

**BITHLO/CHRISTMAS
TRAFFIC SAFETY AUDIT
ORANGE COUNTY DISTRICT 5**



**PUBLIC WORKS DEPARTMENT
TRAFFIC ENGINEERING DIVISION**

Ruby Dempsey-Rozier, Manager

4200 S John Young Parkway ♦ Orlando, FL 32839-9205

407-836-7890 ♦ Fax 407-836-7869

www.orangecountyfl.net

AUDIT TEAM:

Ching Yang, P.E., Senior Engineer

Christine Lofye, P.E., Engineer III

Darryl Johnson, Assistant Project Manager

Krista Barber, Engineer I

OCTOBER 2010

Table of Contents

	Page No.
I. Introduction	1
II. Purpose	1
III. Study Area	1
IV. Data Collection	3
A. Citizen Complaint History	3
B. Crash History	3
C. School Locations and School Safety Studies	3
D. Field Data Collection	8
E. Community Meeting	8
F. Speed Studies and Traffic Counts	8
V. Findings and Recommended Countermeasures	17
A. 6 th Street	18
B. Belvedere Road	22
C. County Road 13.	24
D. Chuluota Road	28
E. Fort Christmas Road	43
F. Lake Pickett Road	49
G. Old Cheney Hwy	54
H. Old Lake Pickett Road.	56
I. S. Tanner Road	60
J. W. Christmas Road	66
VI. Solutions to Citizen Concerns Outside the Study Area or Orange County Jurisdiction	68
VII. Recommended Long-Term Capital Improvements	68
VIII. Conclusion	68
<u>Appendix</u>	70
Community Meeting Sign-in Sheets	

List of Figures

<u>Figure No.</u>	<u>Page No.</u>
Figure 1 – Study Area	2
Figure 2 – Crash History (2006-2008)	6
Figure 3 – School Locations	7
Figure 4 – Field Prompt List	9
Figure 5 – Intersection Field Inspection Form	10
Figure 6 – Community Meeting Notice	11

List of Tables

<u>Table No.</u>	<u>Page No.</u>
Table 1 – Study Area Roadways	4
Table 2 – Citizen Complaint History (2006-2009)	5
Table 3 – Citizen Concerns from Community Meetings (2009)	12-14
Table 4 – Citizen Concerns by Phone or Email (2009)	15
Table 5 – Speed Study Results	16

I. Introduction

The Orange County Traffic Engineering Division conducted a comprehensive traffic safety audit in the Bithlo/Christmas area of northeast Orange County. The entire audit is located in District 5. Members of the audit team were:

Ching Yang, P.E., Senior Engineer
Christine Lofye, P.E. Engineer III
Darryl Johnson, Assistant Project Manager
Krista Barber, Engineer I

The safety audit consisted of daytime and night-time drives of the identified study area roadways, a review of past citizen complaints in the study area, analysis of crash records for study area roadways and intersections, the collection of citizen concerns at a community meeting, and input from the District 5 County Commissioner.

Identified traffic safety issues were evaluated and appropriate improvements were determined. The improvements were classified as either a short-term high priority safety improvement, short-term low or medium priority safety improvement, or long-term capital improvement. The results of the audit are presented herein.

II. Purpose

The purpose of this traffic safety audit is to evaluate the rural roads in the Bithlo/Christmas area of Orange County from a safety perspective and recommend improvement strategies.

According to the Federal Highway Administration “a Road Safety Audit (RSA) is the formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team. It qualitatively estimates and reports on potential road safety issues and identifies opportunities for improvement in safety for all road users.

The aim of an RSA is to answer the following questions:

- What elements of the road may present a safety concern: to what extent, to which road user, and under what circumstances?
- What opportunities exist to eliminate or mitigate identified safety concerns?”

III. Study Area

The study area boundaries are the Econlockhatchee River on the west, Fort Christmas Road on the east, and the Seminole County line on the north. The southern boundaries are south of 1st Street for the region west of SR 520, and SR 50 for the region east of SR 520. The location of the study area is presented in Figure 1.

Figure 1 – Study Area

The roads that were identified to be audited are listed in Table 1. The top section of the table lists roadways in the study area that are included in the Concurrency Management System (CMS). The bottom section of the table lists roadways in the study area that are not in the CMS, but include other functionally classified roadways, roadways for which the Traffic Engineering Division has received citizen complaints or roadways that otherwise provide for travel between CMS roadways.

Signalized intersections that were evaluated as part of the study are:

Chuluota Road & Lake Pickett Road

Chuluota Road & Colonial Drive (SR 50)

CR 13 & Colonial Drive (SR 50)

IV. Data Collection

A. Citizen Complaint History

As part of the data collection process, citizen complaints from 2006 through the present were collected. The purpose was to identify areas of repeated traffic complaints and issues so that on-going issues in the area were not overlooked. These citizen complaints are summarized in Table 2 along with the resolution to the complaint.

B. Crash History

Although the road safety audit process is intended to be proactive in its approach by anticipating safety hazards and implementing improvements prior to crashes occurring, the analysis of crash data is equally important in order to address existing safety problems.

Crash data for three years from 2006 to 2008 were collected and analyzed in order to identify patterns in crashes and areas for improvement. Crash data were separated into roadway segment crashes and intersection crashes. An intersection crash was defined to be a crash occurring within 250 feet of the intersection, as stated in the crash report. All other crashes were classified as roadway segment crashes.

Figure 2 shows the number of segment crashes and intersection crashes on study area roadways for years 2006 through 2008. An in-depth analysis of intersections with three or more crashes within the three-year analysis period was conducted, consisting of a crash summary table and a conflict diagram. The tables and conflict diagrams are included in Section V under the appropriate roadway.

C. School Locations and School Safety Studies

Locations of schools within the study area are presented in Figure 3. School Safety Studies had previously been conducted for Corner Lake Middle School and Columbia Elementary School as part of a separate county contract, therefore an in-depth analysis of school routes and crossings was not required at these schools. As a new school, East River High School has already been reviewed for safety concerns.

**Table 1
Bithlo/Christmas Traffic Safety Audit
Study Roadways**

Cnt Sta.	CMS	Roadway	From	To	Distance	Jrsdct	Func.	AT	Ln	2008 AADT	Posted Speed Limit
304	62	Chuluota Rd (CR 419)	Colonial Dr	Seminole County Line	3.74	County	Minor Arterial	Rural	2	9,525	50
303	235	Lake Pickett Rd (CR 420)	S. Tanner Rd	Chuluota Rd	2.51*	County	Major Collector	Rural	2	4,999	45
303	235	Lake Pickett Rd (CR 420)	Chuluota Rd	Fort Christmas Rd	3.01	County	Minor Collector	Rural	2	4,999	45

Cnt Sta.	CMS	Roadway	From	To	Distance	Jrsdct	Func.	AT	Ln	2008 AADT	Posted Speed Limit
N/A	N/A	6th St.	Colonial Dr	Bellmore Av	2.15	County	not classified	Rural	2	N/A	45
N/A	N/A	Belvedere Rd	Colonial Dr	E. Orlando Rd	1.50	County	not classified	Rural	2	N/A	30
N/A	N/A	County Rd 13	Retention Pond (N. of Belvedere Rd)	1st Street	2.91	County	not classified	Rural	2	N/A	30
N/A	N/A	Fort Christmas Rd	Colonial Dr	Lake Pickett Rd	6.43	County	Major Collector	Rural	2	N/A	45
N/A	N/A	Fort Christmas Rd	Lake Pickett Rd	Seminole County Line	1.72	County	Minor Collector	Rural	2	N/A	45
N/A	N/A	Old Cheney Hy	Columbia School Rd	to dead end	1.18	County	not classified	Rural	2	N/A	30
N/A	N/A	Old Lake Pickett Rd	Chuluota Rd	Lake Pickett Rd	0.42	County	Local	Rural	2	N/A	45
N/A	N/A	S. Tanner Rd	Old Cheney Hy	Colonial Dr	0.27	County	not classified	Rural	2	N/A	40
N/A	N/A	S. Tanner Rd	Colonial Dr	Lake Pickett Rd	1.58	County	Minor Collector	Rural	2	N/A	45
N/A	N/A	West Christmas Rd	Colonial Dr	Fort Christmas Rd	1.58	County	not classified	Rural	2	N/A	30

Total: 29.00 miles

* FHWA segment is from Urban Area Boundary to Chuluota Road with a distance of 2.997 miles

Table 2
Bithlo/Christmas Traffic Safety Audit
Citizen Concerns 2006-2009

Date	Main Street	Cross Street	Citizen	Concern	Resolution
Mar-09	Chuluota Rd	SR 50 to county line	Jay Zembower	Drainage issue	Reviewed by Roads & Drainage Division
Oct-07	Chuluota Rd	Lake Pickett Rd	Barbara Haynie	Dangerous intersection	Lake Pickett Rd re-aligned
Oct-07	Chuluota Rd	Old Lake Pickett Rd	Barbara Haynie	End of road assembly needed	Installed end of road assembly
Feb-09	Chuluota Rd	SR 50 to county line	William Zembower	Speeding	Requested enforcement & horse rider warning sign
Apr-07	Chuluota Rd	north of SR 50	Mr. Waters	Vehicles blocking commercial driveway	Installed "Do not block intersection" sign
Jun-08	Lake Pickett Rd	Fort Christmas Rd	John Snyder	Street sign missing	Replaced missing sign
May-06	County Road 13	residential area	Jessica Walker	Speeding through residential area	Installed speed limit signs
Apr-07	Ft Christmas Rd	north of SR 50	William Kahn	Speed limit too low	Field review, speed limit increased
Aug-06	S Tanner Rd	north of SR 50	Al Davis	Speed limit signs missing	Installation of additional speed limit signs

Figure 2 – crashes on study roadways and intersections

Figure 3 – location of schools

D. Field Data Collection

The audit team spent several days in the field driving study area roadways. Preparation for the field work included the development of forms and field notation sheets, a prompt list, and gathering of equipment.

Forms and field notation sheets were developed to make the data collection easier and to help organize the data collected. Straight line diagrams of study roadways, which consisted of distances to the tenth of a mile and cross streets, had been prepared in advance to use as field data collection forms. Aerial photographs of study area roadways were also prepared for use in locating and noting specific concerns. Photo log forms were developed to note the photo number and location of the photograph. A field prompt list was developed for reference in the field to ensure that important aspects were not overlooked. This field prompt list is included as Figure 4. An intersection field inspection form, Figure 5, was also used in auditing signalized intersections.

E. Community Meetings

A community meeting was conducted during the month of June 2010 to gather community input for the project. A community meeting notice, presented as Figure 6, was mailed to the mailing addresses of all parcels within the study area boundaries. The meeting, conducted on June 9th at Corner Lake Middle School, was very well attended. The sign-in sheets are included in the Appendix.

As part of the community meeting the study area was divided into six sections, with a different study map provided at each table. Citizens were asked to sit at a table and note any safety concerns by completing a comment form describing the issue or concern. The comment forms were to be numbered. The citizen was then asked to place a sticker with the same number at the location of the concern. The concerns submitted by citizens as part of the community meetings are summarized in Table 3.

Some citizens were not able to attend the community meetings, but phoned or emailed their concerns. The list of concerns submitted by citizens by phone or email is summarized in Table 4.

F. Speed Studies and Traffic Counts

Some of the comments from citizens were related to speeding. In order to determine the proper countermeasures speed studies were conducted to determine the 85th percentile speed and the speed range.

Figure 4
Bithlo/Christmas Traffic Safety Audit
Field Review Prompt List

I. Pavement

- a. poor surface condition
- b. poor shoulder condition
- c. pavement edge deterioration/drop offs
- d. evidence of ponding and/or flooding
- e. need for pavement widening along curve

II. Visibility

- a. vegetation obstructing traffic control devices
- b. vegetation obstructing sight distance
- c. obstructions to the sight distance triangle
- d. inadequate stopping sight distance
- e. passing may need to be restricted
- f. hidden driveway

III. Signing

- a. poor sign face legibility
- b. poor sign face retroreflectivity
- c. poor condition of sign supports
- d. sign clutter
- e. need for advance warning sign
- f. need for advisory speed plate
- g. need for object markers/delineators
- h. need for chevrons
- i. need for guide signing
- j. need for regulatory signing
- k. not appropriate height, offset, or distance

IV. Pavement Markings

- a. need to be refreshed
- b. need edge line
- c. need RPM's
- d. need intersection markings
- e. need rumble strips
- f. not visible at night
- g. old pavement markings still visible

V. Intersections

- a. maneuvers/lane use not obvious
- b. insufficient length of auxiliary/turn lanes

VI. Posted Speed

- a. speed limit appropriate?
- b. advisory speed needed on curve
- c. traffic observed to be speeding
- d. improper transition between speed limits

VII. Pedestrians and Bicyclists

- a. high usage/need for facilities
- b. inadequate facilities
- c. need signing for facilities
- d. need pavement markings for facilities
- e. need maintenance of facilities

VIII. Barriers and Clear Zone

- a. need for guardrail
- b. poor condition of guardrail
- c. need for delineation of guardrail or barrier
- d. presence of fixed object within clear zone
- e. sign within clear zone not break-away
- f. barrier needs proper end treatment

INTERSECTION FIELD INSPECTION FORM

LOCATION INFORMATION

Intersection Identification: _____ with _____

Approach Name: _____

Direction Heading: _____

PART 1. CHECK SIGNAL VISIBILITY

Type of Signal Mounting: **Span Wire Mast Arm Pole Structure** Sight Distance to the Signal: _____ feet

Requires Advance Warning Sign? **Y N** Advance Signal Warning Sign Present: **Y N**

Is anything blocking the view of the signals? **Y N** If yes, describe _____

Can signal faces on other approaches be seen? **Y N** If yes, do these signals have visors, shields, or programmable lenses? **Y N**

PART 2. CHECK SIGNAL CONSPICUITY

Could visual clutter detract from the signal? **Y N**

Are the signal indications confusing? **Y N**

If yes, explain: _____

Are backplates present? **Y N**

Are backplates necessary? **Y N**

Are other glare-reducing steps needed? **Y N**

Signal lens type: **Incandescent LEDs**

Signal Lens Size Adequate?:

Red signal lens size: **8 inch 12 inch**

Distance from stop line to signal: _____ feet

Near side signal? **Y N**

Is existing size adequate? **Y N**

Number of Signal Heads Adequate?

Total number of signal heads for major movement: _____

Total number of lanes for major movement: _____

Is existing number adequate? **Y N**

Signal Heads Placement Adequate? **Y N**

PART 3. CHECK SIGNAL CONTROL PARAMETERS

Grade (as decimal) $g =$ _____ (uphill is positive)

Approach speed $V =$ _____ mph

Cross street width $W =$ _____ feet

Calculate the needed change period (CP) for this approach using agency practice or the following equation:

$$CP = 1.0 + \frac{\overbrace{1.47 * V}^{\text{Yellow}}}{(20 + 64.4g)} + \frac{\overbrace{W + 20}^{\text{All-red}}}{1.47 * V}$$

	Actual Value	Calculated Value	Is Existing Adequate?	
Yellow Interval	_____	_____	Y	N
All Red Interval	_____	_____	Y	N

PART 4. CHECK OTHER FACTORS

Is horizontal location adequate? **Y N** Pavement condition on approach: **Adequate Polished Severely Rutted**

Should signal warranting study be conducted? **Y N** Other concerns: _____

PART 5. IDENTIFY PROMISING COUNTERMEASURES

Visibility Deficiency

Conspicuity Deficiency

Signal Timing Operation Deficiency

- _____ Install additional signals on near side
- _____ Change signal mounting
- _____ Install SIGNAL AHEAD sign
- _____ Install Advance Warning Flashers
- _____ Remove/relocate sight obstruction
- _____ Install programmable lenses
- _____ Install shields and visors
- _____ Other _____

- _____ Add signals to achieve one per lane
- _____ Replace with LED lens type
- _____ Replace with 12" signal head
- _____ Install double red signal
- _____ Install/enhance backplates
- _____ Install rumble strips on approach
- _____ Install near side signal

- _____ Change yellow interval
- _____ Add/change all-red interval

Other Measures

- _____ Determine if signal is warranted
- _____ Consider roundabout or innovative design
- _____ Improve pavement condition

Inspection By: _____

Date: _____

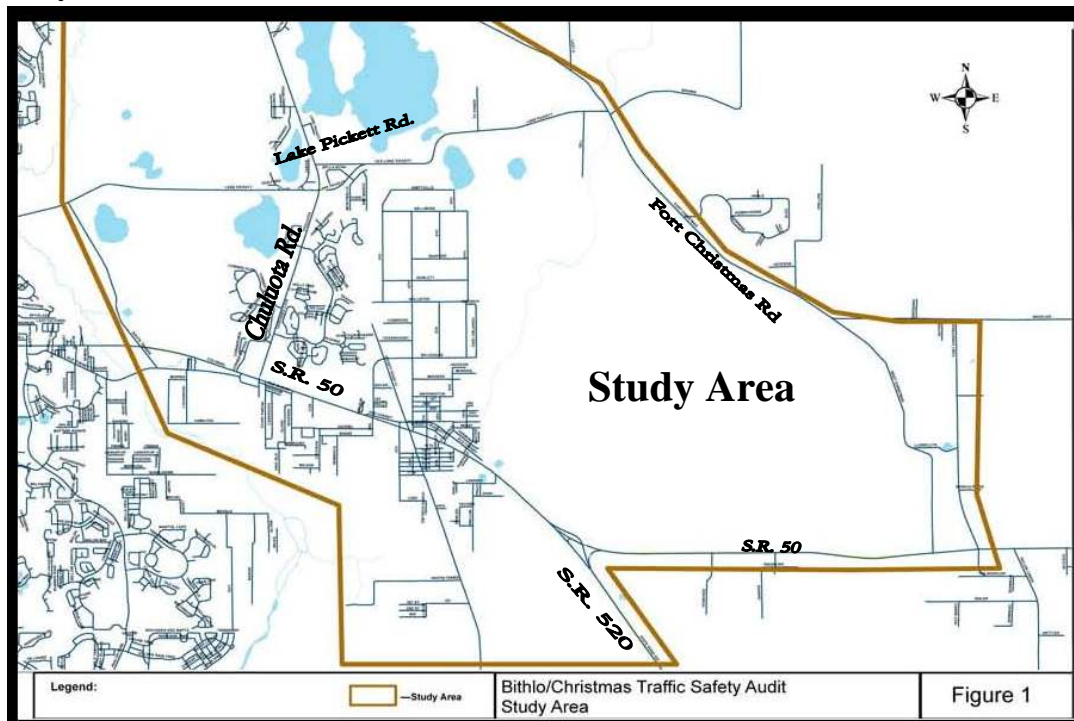
COMMUNITY MEETING



Bithlo/Christmas Traffic Safety Audit

June 9, 2010 at 6:30 pm
Corner Lake Middle School cafeteria
1700 Chuluota Road, Orlando, Florida 32820

Orange County is conducting a traffic safety audit of rural Orange County roads in the Bithlo/Christmas area. Please join your County Commissioner, Orange County staff, and your neighbors at a community meeting to discuss traffic safety issues and possible solutions within the study area.



Purpose:

The staff of the Orange County Traffic Engineering Division would like to receive input from you regarding traffic safety issues within the study area. At this meeting, representatives from Orange County will present the roads to be audited and the focus of the study. Property owners will have an opportunity to provide comments and ask questions. You are strongly encouraged to attend as your input is very important.

If you have questions regarding this community meeting, please call Christine Lofye, P.E. of the Orange County Traffic Engineering Division at (407) 836-8682 or via e-mail at Christine.Lofye@ocfl.net.

Para más información acerca de esta reunión, favor de comunicarse con Sr. Hector Bertran de la División de Ingeniería de Tránsito al número (407) 836 -7763.

**This project is located in District # 5
Commissioner Bill Segal**

Table 3
Bithlo / Christmas Orange County Traffic Safety Audit
Community Meeting Citizen Concerns (2010)

Map	Main Street	Cross Street	Citizen (name & Number)	Concern	Jurisdiction
1	Lk Pickett Rd	S. Tanner Rd	Patti Harris	Poor visibility for NBL due to vegetation in SE corner	OC study roadway
1	Chuluota Rd	Seminole Co. Line to SR 50	Gustav Anderson	Need deer crossing signs NB & SB	OC study roadway
1	S. Tanner Rd	Colonial Dr	Carmen Johnson	Numerous crashes and fatal accidents; requests signal	FDOT
1	S. Tanner Rd	Lake Pickett Rd	RD Bachelor	Speeding and high volume	OC study roadway
1	Chuluota Rd	Lake Drawdy Dr	Susan Collins	Need median at intersection to prevent passing in turn	OC study roadway
1	Chuluota Rd	Pickett Cove	Debbie Parrish	Dip in Road	OC study roadway
1	Chuluota Rd	Lake Pickett Rd	Thelma Bray	Request left turn lane / phase on Chuluota	OC study roadway
1	Chuluota Rd	Lake Pickett Rd	Angela Bray	Request left turn lane / phase on Chuluota	OC study roadway
1	6th Street	Bellmore Ave	John P. Davis	Traffic Calming request	OC study roadway
1	4th Street	Hollister Rd	John P. Davis	Need posted speed limit sign	Non Study Roadway
1	Lk Pickett Rd	Chuluota Rd	Robert Kupke	Water ponds on roadway near Mandarin Estates	OC study roadway
1	Lk Pickett Rd	east of Chuluota Rd	Steve Healy	Water ponds on south side of roadway	OC study roadway
1	Lk Pickett Rd	east of Chuluota Rd	Steve Healy	Edge line missing approx 500-600 ft	OC study roadway
1 & 2	6th Street	Bellmore Ave	Chris White	Requests guardrail at deadend of 6th St - cars running into residence	OC study roadway
2	Lk Pickett Rd	Ft Christmas Rd	Bob Carrigan	Visibility poor EBL	OC study roadway
2	6th Street	Colonial Dr	Carmen Johnson	Requests speed limit reduction and Traffic Calming	OC study roadway
2	Lk Pickett Rd	Ft Christmas Rd	Fred Burnett	Speeding on Ft Christmas; visibility for EBR	OC study roadway
2	6th Street	Bellmore Ave	Carmen Johnson	Requests guardrail at dead-end; house hit by vehicle 2X	OC study roadway
2	Colonial Dr	none	none	Relieve traffic on 50	FDOT
2	Lk Pickett Rd	none	Robert Kupke	Relieve traffic on 50	FDOT
2	Lk Pickett Rd	Old Lake Pickett Rd	Gustav Anderson	Addressing Concern	OC study roadway
2&3	6th Street	Bellmore Ave	Carmen Johnson	Speeding on 6th Street	OC study roadway
2	Lk Pickett Rd	Ft Christmas Rd	Gustav Anderson	Visibility poor EB making turns; can't see SB traffic;	OC study roadway
2	Lk Pickett Rd	Ft Christmas Rd	Robert Kupke	Request Multi Way stop	OC study roadway
2	6th Street	Bellmore Ave	Carmen Johnson	House hit by vehicle twice	OC study roadway
2	Lk Pickett Rd	Ft Christmas Rd	Robert Kupke	Requests bike lanes; esp. at curves	OC study roadway
2	6th Street	Bellmore Ave	Brenda Rogers	House hit by vehicle twice	OC study roadway
2	Amityville Dr	Lake Pickett Rd	none	Extend Amityville to Old Lake Pickett to relieve SR 50.	Non Study Roadway
2	Amityville Dr	Lake Pickett Rd	Robert Kupke	Need connection street to allow access at n. side of Biflows Estates	Non Study Roadway

**Table 3
Bithlo / Christmas Orange County Traffic Safety Audit
Community Meeting Citizen Concerns (2010)**

Map	Main Street	Cross Street	Citizen (name & Number)	Concern	Jurisdiction
3	SR 50	S. Tanner Rd	Mary Baucom	No lefts permitted onto 50	FDOT
3	Hamilton Dr	none	Mary Baucom	Transition to dirt road in bad condition	Non Study Roadway
3	SR 50	S. Tanner Rd	Al Johnson	Request signal	FDOT
3	S Tanner Rd	Lk Pickett Rd to SR 50	Jeanne McKnight	Speeding; cars passing in curves; requests "no passing" entire road	OC study roadway
3	Old Cheney Hwy	entire road	Tom Glover	Speeding; speed limit only posted once	OC study roadway
3	Lockwood Rd	near Old Cheney Hwy	Tom Glover	Speeding; speed limit only posted once; kids walking and on bikes at high risk	Non Study Roadway
3	Old Cheney Hwy	entire road	Tom Glover	Traffic Calming request	OC study roadway
3	Old Cheney Hwy	entire road	Tom Glover	Request for sidewalk on Old Cheney Rd	OC study roadway
3	SR 50	S. Tanner Rd	Angelene Bray	Request NBL from S Tanner	FDOT
3	SR 50	S. Tanner Rd	none	Requests Traffic Signal	FDOT
3	Old Cheney Hwy	Columbia School Rd	none	Congestion EBL	OC study roadway
3	Chuluota Road	SR 50	Angelene Bray	EBL turn lane short and timing issue	FDOT for turn lane; OC for signal
3	S Tanner Rd	Lk Pickett Rd	Sandra Bitikofer	Speeding	OC study roadway
3	SR 50	Chuluota Rd	Chris Farr	Speeding; concerned about students crossing intersection	OC study roadway
3	S. Tanner Rd	SR 50	Linda Wagner	Speeding; traffic calming request; need more speed limit signs	OC study roadway
3	Old Cheney Hwy	S. Tanner Rd	none	Pavement narrow, no pavement markings or sidewalk	OC study roadway
3	S. Tanner Rd	SR 50	Chien Nguyen	Speeding concern; need sidewalk	OC study roadway
3	SR 50	Chuluota Rd	none	EBL turn lane too short	FDOT
3	Old Cheney Hwy	Columbia School Rd	Josephine Hudson	Congestion EBL	OC study roadway
3	Old Cheney Hwy	S. Tanner Rd	J. Roberts	Build bridge over econ	OC study roadway
3	6th Street	Lynbrook Rd	Debra Vaughn	Street signs not visible due to vegetation	OC study roadway
4	6th Street	Belvedere Rd	Chris White	Requests flashing Multi Way stop	OC study roadway
4	CR 13	Old Cheney Hwy	Gregory Alaimo	Visibility of SB stop sign poor due to tree growth	OC study roadway
4	6th Street	Belvedere Rd; Madison	Tom Deitz	Speeding near Bithlo Park	OC study roadway
4	6th Street	Belvedere Rd	Walter Cevalin	Request Multi Way stop or light	OC study roadway
4	6th Street	Belvedere Rd	none	Ditch full of junk	Non Study Roadway
4	6th Street	Belvedere Rd	Shirly Yoakum	Requests Traffic Signal	OC study roadway

Table 3
Bithlo / Christmas Orange County Traffic Safety Audit
Community Meeting Citizen Concerns (2010)

Map	Main Street	Cross Street	Citizen (name & Number)	Concern	Jurisdiction
4	6th Street	Belvedere Rd	James Kehn	Requests Traffic Signal	OC study roadway
4	SR 50	Chuluota Rd to CR 13	Timothy McKinney	Requests sidewalk	FDOT
4	18427 Hewlett Rd	6th Street	Walter Cevelin	Flooding on street	Non Study Roadway
4&5	SR 50	Exeter	Michelle Brown	Congestion on SR 50	FDOT
5	CR 13	1360 New York Ave	Joe Perez	Road Maintenance	Non Study Roadway
5	18466 3rd Ave	Illinois Ave	Cynthia Hurst	Road Maintenance	Non Study Roadway
5	1360 New York Ave	Illinois Ave	Jennifer Perez	Road Maintenance	Non Study Roadway
5	1st Street	CR 13	Eddie Piloto	Road Maintenance	Non Study Roadway
5	18429 2nd Street	Illinois Ave	DeAnna Doel/Ugn Belanger	Road Maintenance	Non Study Roadway
5	SR 520	SR 50	Bob Carrigan	Roads poorly marked for WBL to SR 520 - very dark	FDOT
!,2,3,4,6	Lake Pickett Rd	N. Tanner Rd to Ft. Christmas Rd	James McKnight	Bike Lanes need to be larger	OC study roadway
none	SR 50	SR 408	Michelle Brown	Extend 408 to 50/520	FDOT jurisdiction
none	Lake Pickett Rd	Percival Rd to S. Tanner Rd	Patti Harris	Speeding; add add'l speed limit signs in EB direction	OC roadway - outside study area
1	Chuluota Rd	Lake Drawdy Dr	Susan Collins	Request SB right turn lane	OC study roadway
1	Lk Pickett Rd	Percival Rd	none	36" stop sign on Lake Pickett/30" stop sign on Percival	OC study roadway
1	N Tanner Rd	Lk Pickett Rd	none	Lane assignment signage needed	Non Study Roadway
none	Old Cheney Hwy	south of SR 50	none	Traffic Count request	OC study roadway
none	Lake Pickett Rd	SR 50	none	Timing concern	OC study roadway

Table 4
Bithlo/Christmas Traffic Safety Audit
Citizen Concerns by Phone or Email (2010)*

Main Street	Cross Street	Citizen	Concern	Jurisdiction
Union St	Colonial Dr	James Bowles	No parking request	Outside study area
Cypress Lakes Glen	Chuluota Rd	Terri Ladines	low trees overhanging street	O.C. non-study roadway
n/a	n/a	Mark Strang	information on development in the area	O.C. non-study roadway
n/a	n/a	Robert and Marylou Corcoran	information on development in the area	O.C. non-study roadway
Dill Rd	Colonial Dr	Shannon Decker	Wants Dill Rd paved or closed off	O.C. non-study roadway
Colonial Dr	n/a	Frank Monaco	Requests "Now Entering Christmas" signs; requests landscaping in median; safety for students at Chuluota/Publix	O.C. non-study roadway
Dill Rd	Colonial Dr	Edward Hammond	Wants Dill Rd completed to SR 50	O.C. non-study roadway
Chuluota Rd	Cypress Lakes entrances	Ming Wong	requests signalization at subdivision entrances	O.C. study roadway
n/a	n/a	Jeffry Nickl	Interested in new roads for the Orange County Acres subdivision	O.C. non-study roadway
Colonial Dr	S. Tanner Rd	Richard Wright	Does not want directional median opening by FDOT. Requests WBR turn lane.	O.C. non-study roadway
Dill Rd	Colonial Dr	Tom Hendricks	Wants Dill Rd completed to SR 50	O.C. non-study roadway
S. Tanner Rd	Colonial Dr. to Lake Pickett Rd	Jeanne McKnight	speeding; requests no passing signing; afraid to slow down in to driveway; requests private driveway signing; deer crossing	O.C. study roadway
Lake Pickett Rd	S. Tanner Rd	Kathleen Charles	requests speed limit signing east of S Tanner, reduced speed between N. and S. Tanner, deer crossing and horse riding signs	O.C. study roadway
Hollister Rd	10th Street	Robin Karaffa	Dirt bikes and 4-wheelers riding in the street and ditches; speeding in "S" curve	O.C. non-study roadway
Lake Pickett Rd	Percival Rd to S. Tanner Rd	Patti Harris	requests speed limit sign EB direction; does not want speed limit increased.	Outside study area

* Resulting from Community Meeting Notice

Speed studies were conducted for all study area roadways at the following locations:

Table 5
Bithlo/Christmas Traffic Safety Audit
Speed Study Results

Roadway	location	posted speed	study date	50 th percentile speed	85 th percentile speed	ADT
CR 13	north of Partin Farms Road	30	5/4-5/6	35.03	44.70	117
CR 13	south of Belvedere Road	30	4/20-4/22	32.57	40.40	216
6th Street	north of Madison Avenue	45	4/20-4/22	42.98	49.18	3,620
6th Street	south of Hollister Road	45	4/20-4/22	43.05	49.63	2,591
6th Street	south of Bellmore Avenue	45	4/20-4/22	41.57	48.67	611
Belvedere Road	east of 6th Street	30	4/20-4/22	34.55	41.43	930
Chuluota Road	south of the Seminole County line	50	3/9-3/11	52.92	58.78	7,718
Chuluota Road	south of Lake Pickett Road	50	3/23-3/25	52.00	58.05	10,440
Fort Christmas Road	south of Reindeer Road	45	3/9-3/11	52.10	59.85	1,168
Fort Christmas Road	south of the Seminole County line	45	3/9-3/11	45.90	53.33	1,110
Lake Pickett Road	west of Chuluota Road	45	3/23-3/25	52.58	59.17	5,726
Lake Pickett Road	east of TV Tower Road	45	3/9-3/11	51.98	59.57	1,452
Old Cheney Highway	east of Lockwood Drive	30	4/20-4/22	33.27	40.42	590
Old Lake Pickett Road	east of Chuluota Road	45	3/9-3/11	43.23	50.85	205
Reindeer Road	east of Fort Christmas Road (North of curve)	25	2/23-2/25	26.82	31.47	447
Reindeer Road	east of Fort Christmas Road (West of curve)	25	2/23-2/25	30.05	35.73	470
Reindeer Road	south of Hobbyhorse Lane	25	2/23-2/25	34.32	40.63	96
S. Tanner Road	north of Colonial Drive	45	3/23-3/25	45.93	52.33	2,922
W. Christmas Road	north of Colonial Drive	30	2/23-2/25	45.67	54.47	305

Volume counts and approach counts were taken at the following locations for determination of the proper improvement:

- 6th Street/Belvedere Road - approach count
- Chuluota Road/Cypress Lakes Glenn Drive – approach count
- Fort Christmas Road/Lake Pickett Road – approach count
- Old Cheney Hwy, east of Lockwood Drive – bi-directional volume count
- Old Cheney Hwy/5th Avenue – approach count

Turning movement counts were taken at the following locations for determination of the proper improvement:

- Chuluota Road/Cypress Lakes Glenn Drive
- Chuluota Road/Publix driveways

V. Findings and Recommended Countermeasures

This section includes a description of existing conditions for each study area roadway, a review of speed limits, and a summary of findings from the crash history and analyses. A spreadsheet was developed for each study area roadway which tabulates issues the audit team found while in the field, issues raised by citizens at the community meetings, and issues raised by citizens by phone or email. The description of the problem as well as the proposed solution is included.

Issues listed in the spreadsheet are rated by safety priority. The following describes the meaning of these ratings:

High-Priority Safety Improvement – Items where immediate safety improvements should be made

Medium- and Low-Priority Safety Improvement – Items where low-cost improvements could have a positive impact on safety and should be considered in a reasonable period of time

Following the sections for each roadway, capital improvements are listed for the long term. These are defined below:

Capital Improvements – Items that should be considered as funds become available for major reconstruction of the roadway or intersection.

A. 6th Street

Existing Conditions

Sixth Street is a two-lane roadway running north-south from Colonial Drive (SR 50) to Bellmore Avenue. The cross section is rural and serves residential land uses, including mobile homes. The speed limit is 45 mph throughout.

Pavement markings consist of double yellow centerline and edge line striping throughout, as well as reflective pavement markers on the centerlines. A sidewalk runs the entire length of the road on the east side. No bike lanes or turn lanes are provided.

Overhead utilities are provided mainly on the west side of the road throughout, with no street lighting.

The Bithlo Community Park is located on the east side of 6th Street, between Washington Avenue and Madison Avenue.

Crash History and Analysis

No crashes were reported along 6th Street segments (not located within 250 feet of an intersection) for the years 2006-2008. Two crashes were reported at the intersection of 6th Street and Colonial Drive, and one crash was reported at each of the intersections of 6th Street at Old Cheney Hwy and 6th Street at 1st Street.

Four crashes were reported at the intersection of 6th Street and Belvedere Road. The following pages include a detailed summary of the crashes at this intersection and a collision diagram to show the approximate location and types of crashes. Three out of the four crashes were right angle crashes and one was an out-of-control collision related to a DUI for the 3-year period.

Although our crash records did not include crashes at 6th Street and Bellmore Avenue, citizens reported multiple crashes at this “T”- intersection through comment forms at the community meeting. All referenced vehicles running the northbound stop sign and crashing into the property north of the intersection.

Recommended Countermeasures

The following table lists the areas for improvement for 6th Street. Items believed to be a high priority were located at intersection of 6th Street and Bellmore Avenue. A missing two-direction large arrow sign was replaced and additional signing to conform to standard end-of-road treatment was installed. This item was addressed immediately in order to avoid additional property damage to the homeowner.

The right angle crashes at the intersection of 6th Street and Belvedere Road were addressed by replacing the standard size stop signs in the east-west direction with oversized stop signs located closer to the stop bar to better alert drivers of the stop condition. This improvement is detailed in the table for Belvedere Road improvements. Although several citizens at the community meeting requested various improvements such as signalization or installation of an all-way stop, studies were conducted and these improvements were found not to be warranted.

Orange County Traffic Engineering Division
COLLISION DIAGRAM
















LOCATION ID: Belvedere Road at 6th Street

COUNTY: Orange CITY: Unincorporated
PERIOD 2006 TO: 2008 PREPARED BY: CNL



COLLISION SYMBOLS

CONDITION CODES

       	<p>VEHICLE PATH</p> <p>BACKING VEHICLE</p> <p>NON-INVOLVED VEH.</p> <p>PEDESTRIAN PATH</p> <p>FIXED OBJECT</p> <p>PARKED VEHICLE</p> <p>PERSONAL INJURY</p> <p>FATALITY</p>	      	<p>REAR-END COLLISION</p> <p>HEAD-ON COLLISION</p> <p>SIDE SWIPE</p> <p>OUT OF CONTROL</p> <p>OVERTURNED VEHICLE</p> <p>LEFT TURN COLLISION</p> <p>RIGHT ANGLE COLLISION</p>	<p>PAVEMENT CONDITION: D=DRY W=WET I=ICY</p> <p>WEATHER CONDITION: C=CLEAR R=RAIN F=FOG S=SNOW</p> <p>LIGHT CONDITION: L=DAYLIGHT N=NIGHT (DARK)</p> <p>TIME OF DAY (MILITARY)</p>
--	---	---	--	--

CRASH SUMMARY

	PROP. DMG ONLY	INJURY	FATAL	TOTAL
DAYTIME	0	3	0	3
NIGHTTIME	1	0	0	1
TOTAL	1	3	0	4

6th Street

Rural Road Safety Audit

Road: Colonial Drive to Bellmore Avenue

Date: 5/15/10

Number of lanes:

2LU

Speed limit:

45 mph

No.	From	To	Cross Street	Direction	Problem	Type of Work	Solution	Priority
1	throughout		n/a	NB & SB	grass growing over edge line	Roads & Drainage	edge grass	low
2	50'	100' south of	Everett Road	NB	gravel and dirt on the roadway	Roads & Drainage	remove gravel and dirt	low
3	north side of	n/a	Bellmore Avenue	NB	House has been hit several times; Two-direction Large Arrow sign missing.	Traffic Engineering Signs	Replace missing Two-Direction Large Arrow sign (W1-7). Install 2 yellow Type 1 object markers (OM1-1) to the left of the W1-7 and one to the right, according to FDOT Index 17349.	high
4	south of		Bellmore Avenue	SB	speed limit sign is missing	Traffic Engineering Signs	add speed limit sign (R2-1) (45 mph) 100' south of Bellmore Avenue	medium
5	n/a	n/a	Bellmore Avenue	NB & SB	citizen request - traffic calming	Traffic Engineering Admin	mailed traffic calming info	low
6	n/a	n/a	Colonial Dr	NB & SB	citizen request - speed limit reduction	Traffic Engineering Admin	speed study conducted; speed limit justified.	low
7	n/a	n/a	Colonial Dr	NB & SB	citizen request - speed enforcement	OSCO	speed study conducted; speeding found to be minimal; referred to OSCO	low
8	at	n/a	Belvedere Rd	NB & SB	citizen request - signalization	Traffic Engineering Admin	signalization warrant study conducted; not warranted	medium
9	at	n/a	Lynbrook Rd	NB & SB	citizen request - street signs not visible due to vegetation	Roads & Drainage	street signs found to be visible	low
10	at	at	Belvedere Rd	NB & SB	citizen request - flashing multi-way stop	Traffic Engineering Admin	multi-way stop study conducted; not warranted	medium
11	at	n/a	Belvedere Rd	NB & SB	citizen request - ditch full of junk	Roads & Drainage	remove trash	low

B. Belvedere Road

Existing Conditions

Belvedere Road is a two-lane rural roadway running north from Colonial Drive (SR 50) and then curving east prior to its intersection with CR 13 and extending in the east-west direction to East Orlando Road. The cross section is rural and the roadway serves residential land uses, including mobile homes. The speed limit is 30 mph throughout.

Four sets of speed humps are located north of Old Cheney Hwy to the curve. Speed hump warning signs with flashers are located on both approaches. A double yellow centerline with reflective pavement markers exists from the stop bar at Colonial Drive north approximately 400 feet, and then again just south of the curve and continuing through to East Orlando Road. Existing traffic volumes do not meet criteria for centerline striping or edge lines. The only pavement markings identify speed hump locations. There are no sidewalks, bike lanes, or turn lanes. A section of guardrail exists on the north side of the road east of 6th Street.

Overhead utilities are provided on both sides of the road throughout, with no street lighting.

Crash History and Analysis

No crashes were reported for Belvedere Road segments (not located within 250 feet of an intersection) from 2006 to 2008.

The following number of crashes was reported at each intersection:

Colonial Drive – 2

Old Cheney Hwy – 1

CR 13 - 2

6th Street – 4

The four crashes reported at the intersection of 6th Street and Belvedere Road are summarized in a table and collision diagram to be found in the 6th Street section of the report.

Recommended Countermeasures

The following table lists the areas for improvement for Belvedere Road. Only one improvement, a missing stop sign at Old Cheney Hwy, was considered to be high priority. The stop sign was replaced immediately. All other improvements were considered to be low-cost, low-to-medium priority safety improvements.

Again, the right angle crashes at the intersection of 6th Street and Belvedere Road were addressed by replacing the standard size stop signs in the east-west direction with oversized stop signs located closer to the stop bar to better alert drivers of the stop condition. Although several citizens at the community meeting requested various improvements such as signalization or installation of an all-way stop, studies were conducted and these improvements were found not to be warranted. Curve warning signing was installed at the turn from Belvedere Road to Orlando Road and speed hump pavement markings were refreshed approaching the speed humps north of Colonial Drive.

Belvedere Road

Rural Road Safety Audit

Road: Colonial Drive to E. Orlando Road

Date: 5/15/10

Number of lanes:

2LU

Speed limit:

30 mph

No.	From	To	Cross Street	Direction	Problem	Type of Work	Solution	Priority
1	Colonial Dr	300' north of	Dolan Lane	NB & SB	speed hump pavement markings are faded	Traffic Engineering Markings	refresh pavement markings approaching speed humps	medium
2	at	200' north of	Old Cheney Hwy	NB	speed hump flasher is not flashing - solar panel looks shaded	Traffic Engineering Signals	check bulb and/or trim branches for sunlight	medium
3	at	n/a	Old Cheney Hwy	EB	stop sign missing on eastbound approach	Traffic Engineering Signs	replace missing stop sign	high
4	at	n/a	6th Street	EB & WB	stop signs are beyond stop bar; history of angle crashes running stop sign	Traffic Engineering Signs	Replace with oversized 36"X36" stop signs, located closer to stop bar	medium
5	through curve	n/a	E. Orlando St.	EB & WB	no curve signing	Traffic Engineering Signs	Add turn warning signs (W1-1) w/ advisory speed place (W13-1P) (10mph) 100' in advance of curve and 2 chevrons (W1-8) spaced 40' apart	medium

C. CR 13

Existing Conditions

CR 13 is a two-lane roadway running north-south which was audited from 1st Street south of Colonial Drive to the retention pond north of Belvedere Road. From 1st Street to south of Nita Court the area is rural, heavily-wooded, and serves mostly rural farmland with a posted speed limit of 30 mph. North of Nita Court the land use is residential in nature, including mobile homes, with a posted speed limit of 30 mph. The cross section is rural throughout.

Traffic volumes do not warrant pavement markings from 1st Street to south of 17th Avenue. Pavement markings begin south of 17th Avenue and consist of double yellow centerline and edge line striping, continuing to 5th Street. Reflective pavement markers exist on the centerlines only between Colonial Drive and 5th Street. North of 5th Street pavement markings consist of double yellow markings spaced at sixty-foot intervals in the center of the roadway and no edge lines. Sidewalks exist on the east side of the road from 17th Avenue to the Citgo gas station south of Colonial Drive. There are no bike lanes.

Overhead utilities are provided for the length of the roadway with no street lighting. A section of guardrail is located on both sides of the road south of Nita Court.

Long Branch Park borders the west side of CR 13, south of 1st Street.

Crash History and Analysis

No crashes were reported for CR 13 segments (not located within 250 feet of an intersection) from 2006 to 2008.

The following number of crashes was reported at each intersection:

Nita Court – 1

17th Avenue – 1

16th Avenue – 1

Colonial Drive – 11

Old Cheney Hwy – 2

Belvedere Road – 2

Eleven crashes were reported at the intersection of CR 13 and Colonial Drive. The following pages include a detailed summary of the crashes at this intersection and a collision diagram to show the approximate location and types of crashes. Forty-five percent of the crashes were left turn crashes and 36% were rear-end collisions.

Recommended Countermeasures

The following table lists the areas for improvement for CR 13. Only one improvement was considered to be high priority. This was the trimming of tree branches which were reducing the visibility of the southbound stop sign at Belvedere Road. This was addressed immediately. All other improvements were considered to be low-cost, low-to-medium priority safety improvements.

Crash Summary											
Location: COLONIAL DRIVE						Intersection Control: Signalized					
Intersecting Route: CR 13						M.P.:		Engineer: CNL			
Study Period From: 2006						To: 2008		County: Orange			
NO.	DATE	DAY	TIME	TYPE	FATAL	INJURY	PROPERTY DAMAGE	DAY/NIGHT	WET/DRY	CONTRIBUTING CAUSE	ACCIDENT REPORT #
1	2/15/2006	Wed.	10:08 AM	right angle	No	No	\$8,000	Day	Dry	Failed to Yield R/W	FHPD06OFF016430
2	4/25/2006	Tues.	9:27 PM	rear-end	No	No	\$1,000	Night	Dry	Careless Driving	FHPD06OFF044183
3	3/14/2007	Wed.	5:35 PM	left turn	No	Yes	\$13,000	Day	Dry	Failed to Yield R/W	FHPD06OFF026604
4	7/28/2007	Sat.	4:01 PM	sideswipe	No	No	\$4,500	Day	Wet	All other (U-turn off-road to sideswipe)	FHPD07OFF076977
5	3/8/2008	Sat.	6:02 AM	left turn	No	No	\$11,000	Night	Dry	Disregarded Traffic Signal	FHPD08OFF023477
6	4/15/2008	Tues.	2:39 AM	left turn; out of control	No	No	\$3,000	Night	Dry	DUI, Careless Driving	FHPD08OFF037151
7	4/19/2008	Sat.	1:50 PM	rear-end	No	No	\$5,000	Day	Dry	Failed to Yield R/W; improper turn (U-turn)	FHPD08OFF038625
8	7/5/2008	Sat.	1:42 AM	rear-end	No	Yes	\$2,500	Night	Dry	Careless Driving	FHPD08OFF064728
9	7/6/2008	Sun.	9:20 PM	left turn/right turn	No	Yes-4	\$3,000	Night	Dry	None identified	FHPD08OFF065261
10	8/2/2008	Sat.	11:50 AM	left turn	No	Yes	\$5,000	Day	Dry	Failure to Yield R/W	FHPD08OFF073753
11	8/26/2008	Tues.	7:24 AM	rear-end	No	Yes	\$1,000	Day	Dry	Careless Driving	FHPD08OFF081347
TOTAL											
TOTAL NO.	FATAL	INJURY	P.D.	ANGLE	LEFT TURN	RIGHT TURN	REAR END	SIDE SWIPE	HEAD ON		
11	0	5	11	1	5	1	4	1	0		
%	0%	45%	\$57,000	9%	45%	9%	36%	9%	0%		
ONE VEHICLE	PED/BIKE	DAY	NIGHT	WET	DRY	EXCESS SPEED	FTY R/W	DUI			
1	0	6	5	1	10	0	4	1			
9%	0%	55%	45%	9%	91%	0%	36%	9%			
TOTAL VEHICLES ENTERING/ADT:						CRASH RATE:			MEV		

Orange County Traffic Engineering Division
COLLISION DIAGRAM

LOCATION ID: Colonial Drive and CR 13

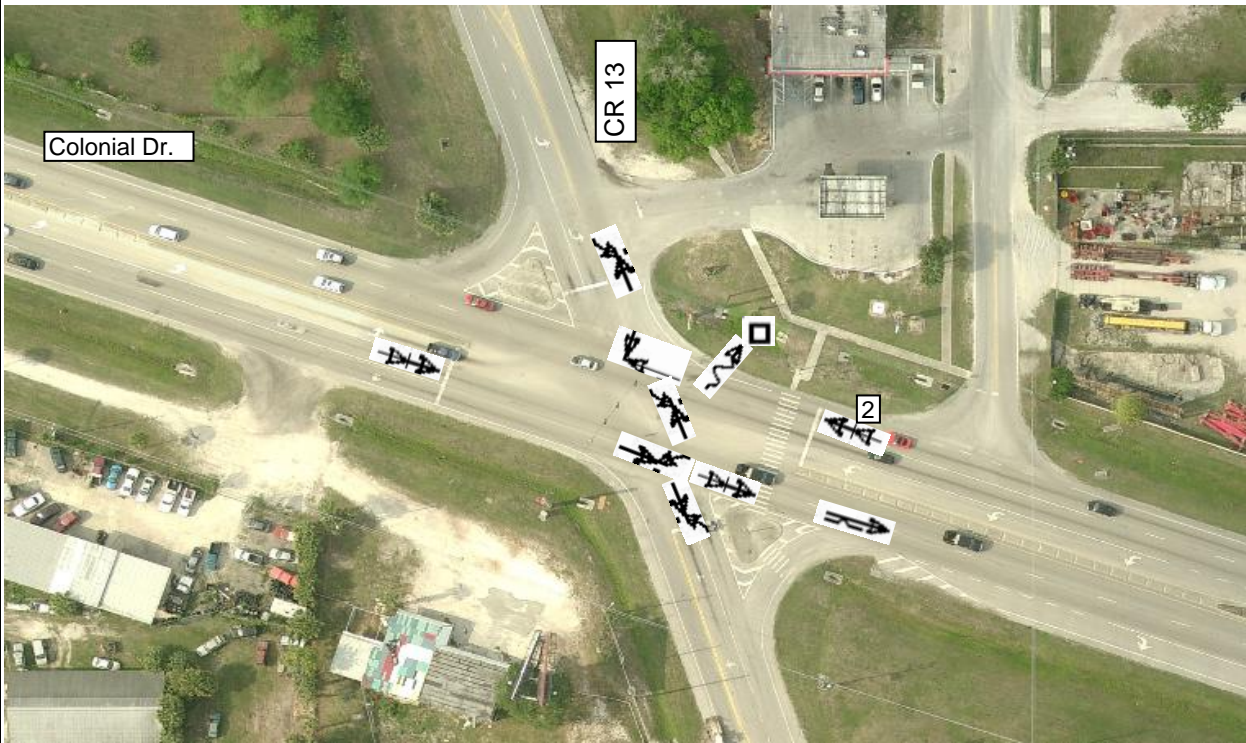
COUNTY: Orange

CITY: Unincorporated

PERIOD 2006

















TO: 2008

PREPARED BY: CNL



COLLISION SYMBOLS

CONDITION CODES

       	VEHICLE PATH BACKING VEHICLE NON-INVOLVED VEH. PEDESTRIAN PATH FIXED OBJECT PARKED VEHICLE PERSONAL INJURY FATALITY	       	REAR-END COLLISION HEAD-ON COLLISION SIDE SWIPE OUT OF CONTROL OVERTURNED VEHICLE LEFT TURN COLLISION RIGHT ANGLE COLLISION	PAVEMENT CONDITION: D=DRY W=WET I=ICY WEATHER CONDITION: C=CLEAR R=RAIN F=FOG S=SNOW LIGHT CONDITION: L=DAYLIGHT N=NIGHT (DARK) TIME OF DAY (MILITARY)
--	--	--	---	--

CRASH SUMMARY

	PROP. DMG ONLY	INJURY	FATAL	TOTAL
DAYTIME	3	3	0	6
NIGHTTIME	3	2	0	5
TOTAL	6	5	0	11

CR 13

Rural Road Safety Audit

Road: CR 13 from 1st Street to north dead-end

Date: 5/15/10

Number of lanes:

2LU

Speed limit:

30 mph

No.	From	To	Cross Street	Direction	Problem	Type of Work	Solution	Priority
1	just north of	n/a	1st Street	NB&SB	Steep drop-off to creek at drainage structure	Traffic Engineering Administration	Need for guardrail evaluated; guardrail request to R&D	medium
2	0'	100'	North of 529 driveway	NB	Tree trunk right on edge of pavement	Traffic Engineering Signs	Delineate tree trunk with OM2-1V object marker.	medium
3	0'	75'	North of guardrail, south of 1st St.	SB	group of trees requiring a jog in the road to the left	Traffic Engineering Signs	Delineate tree trunks with OM2-1V object marker.	medium
4	just south of	n/a	SR 50	SB	speed limit sign is crooked	Traffic Engineering Signs	reset sign	low
5	north of	n/a	SR 50	NB	speed limit sign is missing	Traffic Engineering Signs	install speed limit sign (R2-1)(30mph)	low
6	SR 50	5th St.	n/a	NB & SB	Pavement markings are faded	Traffic Engineering Markings	refresh pavement markings	medium
7	approaching	n/a	5th Street	NB	stop sign is offset too far from stop bar	Traffic Engineering Signs	relocate stop sign to 6' from edge of shoulder	medium
8	approaching	n/a	dead-end	NB	end of road is not signed	Traffic Engineering Signs	Add Dead-end sign (W14-1) north of Belvedere Rd.	low
9	0'	200' north of	Belvedere Rd	SB	tree branches reduce visibility of stop sign	Road & Drainage	trim trees	high
10	0'	50' south of	Belvedere Rd	SB	tree branches reduce visibility of speed limit sign	Road & Drainage	trim trees	low
11	100'	250' north of	5th Street	SB	tree branches reduce visibility of stop sign	Road & Drainage	trim trees	high
12	approaching	n/a	Old Cheney Hwy	SB	citizen concern - sight distance at stop sign. Requests a 4-way stop.	Traffic Engineering Administration	Conducted multi-way stop study; not warranted	medium

D. Chuluota Road

Existing Conditions

Chuluota Road is a minor arterial running north-south, audited from Colonial Drive to the Seminole County line. The segment from Colonial Drive to Cypress Lake Glen Boulevard is a four-lane undivided road with paved shoulder, transitioning to a two-lane undivided cross section with paved shoulder north of Cypress Lake Glen Boulevard. The cross section is rural except for a small section with curb and gutter north of Colonial Drive. Chuluota Road serves commercial land uses near Colonial Drive, but is mostly residential in nature with subdivisions and some rural farmland near Lake Pickett Road. The speed limit is 50 mph throughout.

Pavement markings through the four-lane section consist of a double yellow centerline with reflective pavement markers and white skip lane lines and edge lines. Within the two-lane section, pavements markings consist of a double yellow centerline with reflective pavement markers and edge lines, with a yellow skip centerline only between Cypress Lake Glen Boulevard/Long Boat Lane and Lake Pickett Road. Turn lanes are developed at Schoolview Way, Cypress Lake Glen Boulevard, Corner Lake Drive, Cypress Lake Glen Boulevard/Long Boat Lane, and Lake Drawdy Drive.

Sidewalk exists on the west side of the road from Colonial Drive to approximately ¼ mile north of Cypress Lake Glen Boulevard/Long Boat Lane. No bike lanes are present.

Overhead utilities are mainly provided on the east side of the road with street lighting from Colonial Drive to Old Lake Pickett Road on the west side. Street lights are provided on both sides of the road near Colonial Drive.

A school zone is marked between Schoolview Way and Cypress Lake Glen Boulevard to serve Corner Lake Middle School and Columbia Elementary School.

Crash History and Analysis

Fifteen crashes were reported along Chuluota Road segments (not located within 250 feet of an intersection) for the years 2006-2008. The following number of crashes was reported at each intersection:

Colonial Drive – 24
S. Publix driveway – 21
N. Publix driveway – 1
Schoolview Way – 3
Cypress Lake Glen Boulevard – 4
Cypress Lake Glen Boulevard/Long Boat Lane – 2
Lake Pickett Road – 6
Old Lake Pickett Road – 3
Lake Drawdy Drive – 1

The following pages include detailed summaries and collision diagrams for the intersections with three or more crashes during the three year analysis period.

At the intersection of Chuluota Road and Colonial Drive 37% of the crashes were left turn crashes and another 37% of the crashes were rear-end crashes.

At the intersection of Chuluota Road and the S. Publix driveway 86% of the crashes involved northbound vehicles turning left into the shopping center.

Two of the three crashes at the intersection of Chuluota Road and Schoolview Way were rear-end crashes and one was a head-on crash.

Two of the four crashes at the intersection of Chuluota Road and Cypress Lake Glen Boulevard were left turn crashes and two were single vehicle crashes.

At the intersection of Chuluota Road and Lake Pickett Road 33% of the crashes were left turn crashes. This intersection has been reconfigured and signalized since these crashes occurred. The crash analyses shown for this intersection is related to pre-construction conditions.

Recommended Countermeasures

The following table lists the areas for improvement for Chuluota Road.

Only one safety issue was considered to be high-priority. This was the high incidence of left turn crashes at the S. Publix driveway. Eighteen of the twenty-one crashes were related to northbound vehicles turning left and colliding with southbound vehicle. This occurred because the southbound vehicle queue at Colonial Drive extends past the S. Publix driveway during peak periods. A further search of crash records for 2009 and 2010 determined that the intersection improvements constructed at Colonial Drive in 2009 appear to have corrected the problem. Orange County intends to continue to monitor crashes at this intersection. If the crashes resume, Orange County will meet with the affected property owners to discuss modifying this access to a right-in, right-out driveway.

Several citizens requested turn lanes on Chuluota Road at the intersection of Lake Pickett Road. This project is currently under design as an intersection improvement project.

A signal was requested for the intersections of Chuluota Road and the entrances to the Cypress Lake subdivision at Cypress Lake Glen Boulevard and Cypress Lake Glen Boulevard/Long Boat Lane. A signalization warrant study was conducted and concluded that signalization at the intersection with Cypress Lake Glen Boulevard (southernmost subdivision entrance) is warranted and recommended for installation.

Other identified safety issues were classified as low-cost, low- or medium-priority safety improvements.

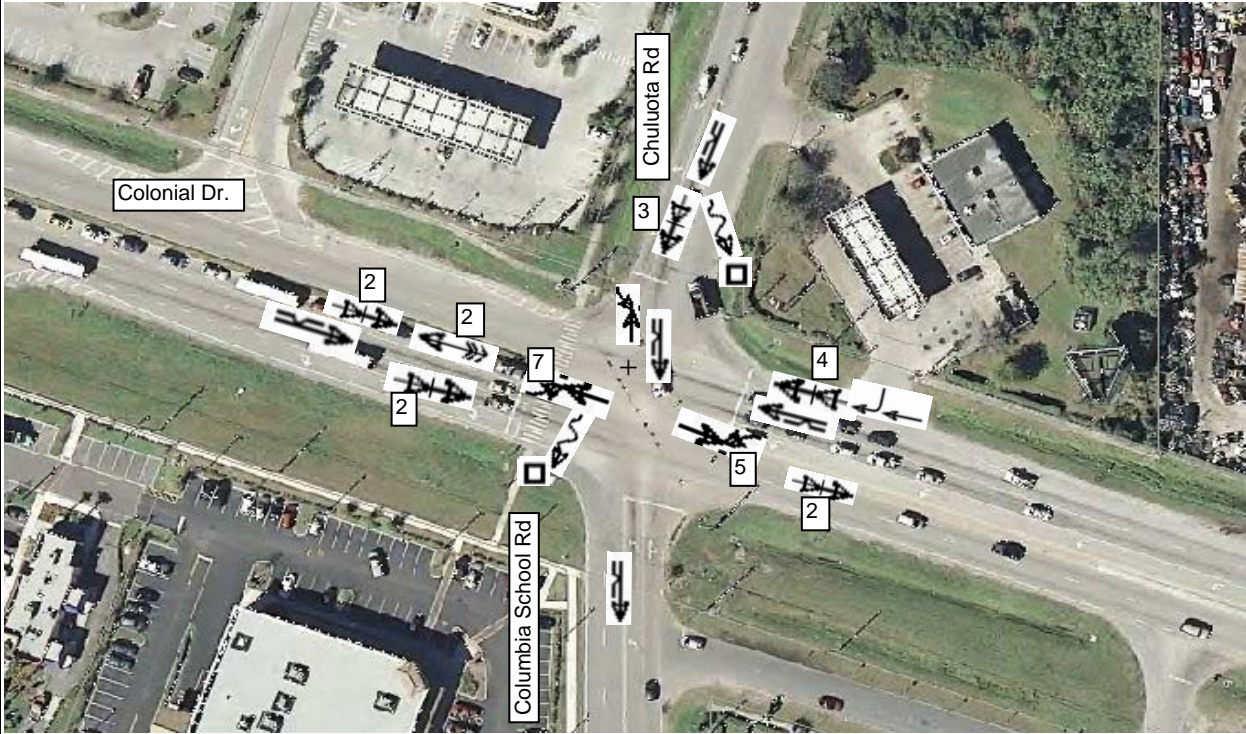
Crash Summary											
Location: CHULUOTA ROAD						Intersection Control: Signalized					
Intersecting Route: COLONIAL DRIVE						M.P.:		Engineer: CNL			
Study Period From: 2006						To: 2008		County: Orange			
NO.	DATE	DAY	TIME	TYPE	FATAL	INJURY	PROPERTY DAMAGE	DAY/NIGHT	WET/DRY	CONTRIBUTING CAUSE	ACCIDENT REPORT #
1	1/24/2006	Tues.	11:42 AM	out of control	No	Yes	\$24,000	Day	Wet	Careless Driving; Hydroplaned	FHPD06OFF008051
2	3/31/2006	Fri.	10:48 PM	rear-end	No	Yes	\$13,500	Night	Dry	Failure to Yield ROW; Careless Driving	FHPD06OFF034272
3	4/10/2006	Mon.	1:18 PM	left turn	No	Yes	\$10,000	Day	Dry	Careless Driving	FHPD06OFF038112
4	4/12/2006	Wed.	9:40 PM	rear-end	No	No	\$2,000	Night	Dry	Careless Driving	FHPD06OFF039040
5	8/14/2006	Mon.	8:40 PM	left turn	No	Yes	\$8,000	Night	Dry	Failure to Yield ROW	FHPD06OFF086984
6	10/13/2006	Fri.	8:20 AM	left turn	No	Yes	\$5,100	Day	Dry	Failure to Yield ROW	FHPD06OFF109357
7	11/15/2006	Wed.	4:40 PM	left turn	No	Yes	\$9,000	Day	Dry	Failure to Yield ROW	FHPD06OFF121494
8	3/23/2007	Fri.	11:09 AM	left turn	No	Yes	\$10,000	Day	Dry	Disregard traffic signal	FHPD07OFF029871
9	4/10/2007	Tues.	7:15 PM	left turn	No	Yes	\$4,500	Night	Wet	Failure to Yield ROW	FHPD07OFF037250
10	5/7/2007	Mon.	7:41 PM	rear-end	No	Yes	\$50	Night	Dry	Careless Driving	FHPD07OFF047070
11	6/9/2007	Sat.	6:17 PM	rear-end	No	No	\$4,500	Day	Dry	Careless Driving	FHPD07OFF058882
12	8/10/2007	Fri.	6:50 AM	Backing	No	No	\$700	Day	Dry	Improper backing	FHPD07OFF081872
13	9/2/2007	Sun.	3:14 AM	out of control	No	No	\$5,000	Night	Wet	Careless Driving	FHPD07OFF090838
14	9/16/2007	Sun.	12:23 PM	rear-end	No	Yes	\$8,000	Day	Dry	Careless Driving	FHPD07OFF095852
15	10/11/2007	Thurs.	2:50 PM	left turn	No	Yes	\$15,000	Day	Dry	Failure to Yield ROW	FHPD07OFF105263
16	10/24/2007	Wed.	9:08 AM	sideswipe	No	Yes	\$2,500	Day	Dry	Improper Lane Change	FHPD07OFF110036
17	11/7/2007	Wed.	7:44 PM	sideswipe	No	No	\$3,000	Night	Dry	Improper Lane Change	FHPD07OFF115580
18	11/25/2007	Sun.	4:15 AM	rear-end	No	No	\$6,000	Night	Dry	DUI	FHPD07OFF121465
19	12/1/2007	Sat.	8:09 PM	left turn	No	Yes	\$25,000	Night	Dry	Failure to Yield ROW; Improper Turn	FHPD07OFF123875
20	12/4/2007	Tues.	5:22 PM	left turn	No	Yes	\$18,000	Day	Dry	Improper Turn	FHPD07OFF124850
21	12/6/2007	Thurs.	12:11 AM	sideswipe	No	No	\$2,000	Night	Dry	Improper Lane Change	FHPD07OFF125418
22	12/22/2007	Sat.	5:45 PM	rear-end	No	Yes	\$10,000	Night	Dry	Driver Distraction; Careless Driving	FHPD07OFF131340

23	1/7/2008	Mon.	6:39 PM	Backing	No	No	\$5,500	Night	Wet	Improper backing	FHPD08OFF002103
24	1/9/2008	Wed.	10:35 PM	sideswipe	No	No	\$1,500	Night	Dry	Careless Driving	FHPD08OFF002750
25	2/3/2008	Sun.	11:41 AM	left turn	No	No	\$14,000	Day	Dry	Failure to Yield ROW	FHPD08OFF010916
26	2/5/2008	Tues.	7:47 AM	rear-end	No	No	\$700	Day	Dry	Careless Driving	FHPD08OFF011503
27	2/10/2008	Sun.	7:07 PM	rear-end	No	No	\$3,500	Night	Dry	DUI	FHPD08OFF013421
28	3/29/2008	Sat.	8:00 PM	left turn	No	Yes	\$10,000	Night	Dry	Disregard traffic signal	FHPD08OFF031120
29	4/1/2008	Tues.	12:12 PM	rear-end	No	No	\$5,000	Day	Dry	Careless Driving	FHPD08OFF032026
30	4/23/2008	Wed.	9:30 AM	left turn	No	Yes	\$16,000	Night	Dry	Failure to Yield ROW	FHPD08OFF040086
31	8/15/2008	Fri.	4:47 PM	rear-end	No	No	\$2,000	Day	Dry	Careless Driving	FHPD08OFF077798
32	10/4/2008	Sat.	8:50 AM	left turn	No	Yes	\$16,000	Day	Dry	Failure to Yield ROW	FHPD08OFF093067
33	11/14/2008	Fri.	10:57 PM	rear-end	No	No	\$550	Night	Dry	Careless Driving; DUI	FHPD08OFF105839
34	11/20/2008	Thurs.	4:45 PM	right turn	No	No	\$2,010	Day	Dry	Failure to Yield ROW	FHPD08OFF107569
35	12/7/2008	Sun.	10:34 PM	rear-end	No	Yes	\$7,500	Night	Dry	Careless Driving	FHPD08OFF112873
TOTAL											
TOTAL NO.	FATAL	INJURY	P.D.	ANGLE	LEFT TURN	RIGHT TURN	REAR END	SIDE SWIPE	HEAD ON		
35	0	19	35	0	13	1	13	4	0		
%	0%	54%	\$17	0%	37%	3%	37%	11%	0%		
ONE VEHICLE	PED/BIKE	DAY	NIGHT	WET	DRY	EXCESS SPEED	FTY R/W	DUI			
2	0	17	18	4	31	0	10	3			
6%	0%	49%	51%	11%	89%	0%	29%	9%			
TOTAL VEHICLES ENTERING/ADT:					CRASH RATE:				MEV		

Orange County Traffic Engineering Division
COLLISION DIAGRAM

LOCATION ID: Chuluota Road and Colonial Drive

COUNTY: Orange CITY: Unincorporated
PERIOD 2006 TO: 2008 PREPARED BY: CNL



COLLISION SYMBOLS

	VEHICLE PATH		REAR-END COLLISION
	BACKING VEHICLE		HEAD-ON COLLISION
	NON-INVOLVED VEH.		SIDE SWIPE
	PEDESTRIAN PATH		OUT OF CONTROL
	FIXED OBJECT		OVERTURNED VEHICLE
	PARKED VEHICLE		LEFT TURN COLLISION
	PERSONAL INJURY		RIGHT ANGLE COLLISION
	FATALITY		

CONDITION CODES

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN F=FOG S=SNOW
LIGHT CONDITION:
L=DAYLIGHT N=NIGHT (DARK)
TIME OF DAY (MILITARY)

CRASH SUMMARY

	PROP. DMG ONLY	INJURY	FATAL	TOTAL
DAYTIME	7	10	0	17
NIGHTTIME	9	9	0	18
TOTAL	16	19	0	35

Crash Summary											
Location: CHULUOTA ROAD						Intersection Control: Stop Controlled at driveway					
Intersecting Route: PUBLIX DRIVEWAY						M.P.:		Engineer: CNL			
Study Period From: 2006						To: 2008		County: Orange			
NO.	DATE	DAY	TIME	TYPE	FATAL	INJURY	PROPERTY DAMAGE	DAY/NIGHT	WET/DRY	CONTRIBUTING CAUSE	ACCIDENT REPORT #
1	2/17/2006	Fri.	7:56 AM	left turn	No	Yes	\$4,700	Day	Dry	Failed to Yield R/W; Improper Turn	FHPD06OFF017176
2	2/20/2006	Mon.	6:17 PM	left turn	No	Yes	\$8,000	Night	Dry	Failed to Yield R/W	FHPD06OFF018606
3	3/5/2006	Sun.	8:40 PM	left turn	No	No	\$2,000	Night	Dry	Careless Driving	FHPD06OFF023737
4	10/18/2006	Wed.	5:57 PM	left turn	No	Yes	\$10,000	Day	Dry	Failed to Yield R/W	FHPD06OFF111216
5	4/21/2007	Sat.	12:46 PM	left turn	No	No	\$6,000	Day	Dry	Failed to Yield R/W	FHPD07OFF041185
6	5/23/2007	Wed.	6:19 PM	left turn	No	No	\$6,000	Day	Dry	Failed to Yield R/W	FHPD07OFF052730
7	8/10/2007	Fri.	6:44 PM	left turn	No	No	\$1,000	Day	Dry	Failed to Yield R/W	FHPD07OFF082184
8	8/31/2007	Wed.	5:19 PM	left turn	No	No	\$5,000	Day	Dry	Improper Turn	FHPD07OFF090247
9	9/7/2007	Fri.	5:39 PM	left turn	No	No	\$2,500	Day	Dry	Failed to Yield R/W	FHPD07OFF092783
10	10/11/2007	Thurs.	5:45 PM	sideswipe	No	No	\$1,500	Night	Dry	Improper Turn	FHPD07OFF105345
11	10/14/2007	Sun.	4:53 PM	left turn	No	No	\$6,000	Day	Dry	Improper Turn	FHPD07OFF106399
12	12/5/2007	Wed.	9:31 AM	left turn	No	No	\$5,500	Day	Dry	Improper Turn	FHPD07OFF125026
13	1/11/2008	Fri.	5:06 PM	left turn	No	Yes	\$6,000	Day	Dry	Failed to Yield R/W	FHPD08OFF003345
14	2/7/2008	Thurs.	6:37 PM	left turn	No	No	\$5,100	Night	Dry	Failed to Yield R/W	FHPD08OFF012364
15	3/19/2008	Wed.	9:15 AM	left turn	No	No	\$5,000	Day	Dry	Failed to Yield R/W	FHPD08OFF027043
16	3/31/2008	Mon.	4:18 PM	left turn	No	Yes	\$3,500	Day	Dry	Failed to Yield R/W	FHPD08OFF031793
17	5/29/2008	Thurs.	6:08 PM	left turn	No	No	\$4,000	Day	Dry	Failed to Yield R/W	FHPD08OFF052540
18	7/16/2008	Wed.	5:59 PM	right turn	No	Yes	\$7,000	Day	Wet	Failed to Yield R/W	FHPD08OFF068484
19	8/16/2008	Sat.	9:15 PM	unable to determine	No	No	\$1,500	Night	Dry	Unable to determine - conflicting accounts	FHPD08OFF078226
20	11/22/2008	Sat.	12:48 PM	left turn	No	Yes	\$13,000	Day	Dry	Failed to Yield R/W	FHPD08OFF108163
21	12/1/2008	Mon.	4:59 PM	left turn	No	Yes	\$4,500	Day	Dry	Failed to Yield R/W	FHPD08OFF110976
TOTAL											
TOTAL NO.		FATAL	INJURY	P.D.	ANGLE	LEFT TURN	RIGHT TURN	REAR END	SIDE SWIPE	HEAD ON	

21	0	8	21	0	18	1	0	1	0
%	0%	38%	\$107,800	0%	86%	5%	0%	5%	0%
ONE VEHICLE	PED/BIKE	DAY	NIGHT	WET	DRY	EXCESS SPEED	FTY R/W	DUI	
0	0	16	5	1	20	0	15	0	
0%	0%	76%	24%	5%	95%	0%	71%	0%	
TOTAL VEHICLES ENTERING/ADT:					CRASH RATE:		MEV		

Orange County Traffic Engineering Division
COLLISION DIAGRAM

LOCATION ID: Chuluota Road and Publix driveway

COUNTY: Orange CITY: Unincorporated
PERIOD 2006 TO: 2008 PREPARED BY: CNL



COLLISION SYMBOLS

CONDITION CODES

↑	VEHICLE PATH	←→	REAR-END COLLISION	PAVEMENT CONDITION: D=DRY W=WET I=ICY WEATHER CONDITION: C=CLEAR R=RAIN F=FOG S=SNOW LIGHT CONDITION: L=DAYLIGHT N=NIGHT (DARK) TIME OF DAY (MILITARY)
↑↔	BACKING VEHICLE	↔↔	HEAD-ON COLLISION	
↑↑	NON-INVOLVED VEH.	↑↑	SIDE SWIPE	
↑	PEDESTRIAN PATH	↑S	OUT OF CONTROL	
□	FIXED OBJECT	↑↑	OVERTURNED VEHICLE	
▨	PARKED VEHICLE	↔↔	LEFT TURN COLLISION	
⊗	PERSONAL INJURY	↔↔	RIGHT ANGLE COLLISION	
⊗	FATALITY			

CRASH SUMMARY

	PROP. DMG ONLY	INJURY	FATAL	TOTAL
DAYTIME	9	7	0	16
NIGHTTIME	4	1	0	5
TOTAL	13	8	0	21

Chuluota Road

Rural Road Safety Audit

Road: SR 50 to Seminole Co. Line

Date: 6/8/10

Number of lanes:

2LU

Speed limit:

50 mph

No.	From	To	Cross Street	Direction	Problem	Type of Work	Solution	Priority
1	beginning of old pvmnt n. of SR 50	S. Cypress Lakes Glen Blvd.	throughout	NB & SB	pavement markings are faded and RPM's are missing sporadically	Traffic Engineering Markings	Refresh pavement markings and replace missing rpm's	medium
2	at	n/a	S. Publix driveway	NB & SB	high crash rate for NB left turns	Traffic Engineering Signs; Engineering Division	Short-term: Continue to monitor crash records at this intersection to see if crashes resume. Long-term: If crashes resume, modify access to right-in/right-out only by constructing a concrete channelizing island.	high
3	at	n/a	S. Publix driveway	SB	crosswalk crossing driveway is faded	Traffic Engineering Markings	Refresh crosswalk pavement markings	medium
4	at	n/a	Seminole County line	NB	Damaged pavement or pot hole	Roads & Drainage	Repair pavement	low
5	1300' north of	n/a	Corner Lake Drive	NB	Citizen Concern - deer crossing signs needed	Traffic Engineering Signs	Referred to EPD; Add "Wildlife Crossing" Sign	medium
6	100' south of	n/a	Seminole County line	SB	Citizen Concern - deer crossing signs needed	Traffic Engineering Signs	Referred to EPD; Add "Wildlife Crossing" Sign	medium
7	approaching	n/a	Lake Pickett Road	NB	Intersection Warning Sign is not appropriate for approach to signalized intersection	Traffic Engineering Signs	Replace existing intersection warning sign (W2-1) with signal ahead warning sign (W3-3), keeping street name plate.	low
8	approaching	n/a	Lake Pickett Road	SB	Intersection Warning Sign is not appropriate for approach to signalized intersection	Traffic Engineering Signs	Replace existing intersection warning sign (W2-1) with signal ahead warning sign (W3-3), keeping street name plate.	low
9	at	n/a	Lake Drawdy Drive	SB	Citizen Request - SB right turn lane is needed.	Traffic Engineering Administration	Conducted traffic counts. Right turn volume is minimal. Lane is not warranted.	low
10	at	n/a	Lake Drawdy Drive	NB & SB	Citizen Request - request construction of median to prevent passing	Traffic Engineering Administration	Request enforcement. Double yellow line is enforceable.	low
11	at	n/a	Cypress Lake Glen Blvd	NB & SB	Citizen Request - signal is needed at both subdivision intersections with Chuluota Rd	Traffic Engineering Administration	Signal warrant analysis conducted. Signalize Cypress Lake Glen Blvd intersection (southern intersection).	medium
12	approaching	n/a	Colonial Drive	SB	Citizen request - advance notification of lane use at intersection is needed	Traffic Engineering Signs	Install advanced intersection lane control sign (R3-8a) 350' north of stop bar.	low

E. Fort Christmas Road

Existing Conditions

Fort Christmas Road is a two-lane rural roadway running north-south (northwest-southeast) from SR 50 to the Seminole County line. It is functionally classified as a rural major collector from SR 50 to Lake Pickett Road and a rural minor collector from Lake Pickett Road to the Seminole County line. The road serves mostly rural farmland and agricultural residential land uses.

Pavement markings consist of yellow centerline and edge line striping throughout, as well as reflective pavement markers. The centerline pavement markings are striped as no passing zones through curves and upon approaches to sections of guardrail. The speed limit is 45 mph throughout. There are no sidewalks or bike lanes on either side of the road.

Overhead utilities are mainly provided on the west side of the road for the length of the roadway, with no street lighting. There are several sections of guardrail along Fort Christmas Road.

Fort Christmas Road provides access to both Fort Christmas Park and Orlando Wetlands Park.

Crash History and Analysis

Seven crashes are reported for Fort Christmas Road segments (not located within 250 feet of an intersection) from 2006 to 2008. Four fatalities occurred on Fort Christmas Road during the three-year period, with three occurring at intersections and one occurring on a roadway segment.

The following number of crashes was reported at each intersection:

Colonial Drive – 2
Christmas Cemetery Road – 1
Wheeler Road – 5
Birdsong Lane – 1
Lazy H Lane – 1

The following pages include a detailed summary and a collision diagram of the crashes at the intersection of Fort Christmas Road and Wheeler Road to show the approximate location and types of crashes. All of the crashes were single vehicle road departure crashes, one resulting in a fatality.

Recommended Countermeasures

The following table lists the areas for improvement for Fort Christmas Road. High-priority safety improvements were mainly related to guardrail nose retroreflective sheeting that has lost its retroreflectivity or vegetation growing over guardrail noses so that the sheeting is not visible. This issue was addressed immediately.

Another high priority safety issue is related to the high incidence of road departure crashes at the intersection of Fort Christmas Road and Wheeler Road. Orange County plans to remove the “split” of Wheeler Road at the intersection of Fort Christmas Road and re-align the Wheeler Road approach at a 90-degree angle to the curve. An eastbound left turn lane to Wheeler Road will be installed, as well as 4-foot paved shoulders throughout the curve. Audible, vibratory edge lines will be provided and chevron signing will be increased. A safe speed study was conducted which resulted in the need to reduce the advisory speed through the curve to 25 mph. These improvements will be funded through Federal Highway Safety Funds, with funding available for design beginning July 2012.

Several citizens at the community meeting requested that the intersection of Fort Christmas Road and Lake Pickett Road be modified to an all-way stop intersection. A multi-way stop warrant study was conducted and due to the low traffic volumes and low accident history a multi-way stop is not warranted at this time. In order to increase sight distance for vehicles stopped on Lake Pickett Road vegetation was trimmed back to the right-of-way line. In addition, in an effort to slow vehicles on Fort Christmas Road approaching Lake Pickett Road, curve warning signing for curves just north of Lake Pickett Road were installed with an advisory speed of 40 mph.

Fort Christmas Road

Rural Road Safety Audit

Road: Seminole County Line to SR 50

Date: 6/8/10

Number of lanes:

2LU

Speed limit:

45 mph

No.	From	To	Cross Street	Direction	Problem	Type of Work	Solution	Priority
1	400'	north of	Lake Pickett Rd	SB	vegetation on west side of rd blocks view for vehicles turning from Lake Pickett Rd; citizen complaint	Roads & Drainage	Trim vegetation back to R/W line (20' west of edge of pavement)	high
2	Lake Pickett Rd	Seminole Co. line	intermittently throughout	NB & SB	grass is growing over the white edge line	Roads & Drainage	edge grass	medium
3	approx. 150'	north of	Lake Pickett Rd	NB	speed limit cannot be safely maintained through curves	Traffic Engineering Signs	Install Reverse Curve warning sign (W1-4L) w/ advisory speed plate (W13-1)(40mph)	medium
4	at	2146 address driveway	north of Lake Pickett Rd	NB	speed limit cannot be safely maintained through curves	Traffic Engineering Signs	Install Curve warning sign (W1-2L) w/ advisory speed plate (W13-1)(40mph) approx. 200' in advance of curve.	medium
5	between	4346 address driveways	north of Lake Pickett Rd	SB	speed limit cannot be safely maintained through curves	Traffic Engineering Signs	Install Curve warning sign (W1-2R) w/ advisory speed plate (W13-1)(40mph) approx. 200' in advance of curve.	medium
6	approx. 1,000'	north of	Lake Pickett Rd	SB	speed limit cannot be safely maintained through curves	Traffic Engineering Signs	Install Reverse Curve warning sign (W1-4L) w/ advisory speed plate (W13-1)(40mph) approx. 200' in advance of curve.	medium
7	approx. 100'	north of	Lake Pickett Rd	NB	speed limit sign is too close to new reverse curve warning sign	Traffic Engineering Signs	Relocate existing 45 mph speed limit sign north to between 4346 address driveways (north of curves)	low
8	at	n/a	Wheeler Rd splits to WB/NB and SB Ft. Christmas Rd	WB/NB and SB	stop signs are missing	Traffic Engineering Signs	Install stop signs (R1-1)	high
9	at	n/a	Wheeler Rd splits to WB/NB and SB Ft. Christmas Rd	WB/NB and SB	history of road departure crashes	Traffic Engineering Signs	Short-term: Replace existing curve warning signs with turn warning sign (W1-1) w/advisory speed plate (W13-1)(25mph) both directions. Install add'l chevrons (W1-8). See diagram. Long-term: apply for HRRRP funding to "T" Wheeler Rd approach, add shoulders, EBL turn lane, and audible/vibratory edge lines.	high
10	at	n/a	Colonial Dr	SB	no signing for SR 50 divided highway	Traffic Engineering Signs	Add divided highway sign panel (R6-3a) to stop sign post.	medium
11	min. 400'	north of	Colonial Dr	SB	stop sign difficult to see at night	Traffic Engineering Signs	Install stop ahead warning sign (W3-1).	medium
12	Lake Pickett Rd	Seminole Co. line	intermittently throughout	NB & SB	RPM's are missing	Traffic Engineering Markings	replace missing RPM's	high
13	100' north of	100' south of	Reindeer Rd	NB & SB	RPM's are missing	Traffic Engineering Markings	replace missing RPM's	medium

Fort Christmas Road

Rural Road Safety Audit

Road: Seminole County Line to SR 50

Date: 6/8/10

Number of lanes:

2LU

Speed limit:

45 mph

No.	From	To	Cross Street	Direction	Problem	Type of Work	Solution	Priority
14	0'	approx. 700' south of	Reindeer Rd	SB	grass is growing over the white edge line from Reindeer Rd through curve to the south on west side of road	Roads & Drainage	edge grass	medium
15	W. Christmas	Duthie Ln	intermittently throughout	EB	grass is growing over the white edge line	Roads & Drainage	edge grass	low
16	Fire Station	SR 50	intermittently throughout	NB & SB	RPM's are missing	Traffic Engineering Markings	replace missing RPM's	medium
17	911 address	Fire Station	intermittently throughout	NB	grass is growing over the white edge line on the east side of the road	Roads & Drainage	edge grass	low
18	east of	n/a	Bird Song Lane	EB	brush is covering guardrail nose on south side of road	Roads & Drainage	trim vegetation	high
19	east of	n/a	Bird Song Lane	WB	reflective sheeting is missing from guardrail nose on south side of road.	Traffic Engineering Signs	Apply 8"X24" amber retroreflective sheeting to guardrail nose	high
20	east of	n/a	Bird Song Lane	WB	guardrail object markers are not visible at night	Traffic Engineering Signs	Replace Type 3 object markers (OM-3L on south side; OM-3R on north side)	high
21	approx. 400' east of Birdsong	approx. 400' north of W. Christmas	intermittently throughout	NB/WB	grass is growing over the white edge line on the east side of the road	Roads & Drainage	edge grass	medium
22	north of	n/a	SR 50	NB & SB	guardrail object markers are not visible at night	Traffic Engineering Signs	Replace Type 3 object markers (2) (OM-3L) and (2) (OM-3R)	high
23	north of	n/a	SR 50	NB	reflective sheeting is missing from guardrail nose on the east side of the road	Traffic Engineering Signs	Apply 8"X24" amber retroreflective sheeting to guardrail nose	high
24	north of	south of 21523 address	Phillips Rd	NB	reflective sheeting is missing from the guardrail nose on west side of the road	Traffic Engineering Signs	Apply 8"X24" amber retroreflective sheeting to guardrail nose	high
25	north of	south of 21523 address	Phillips Rd	SB	reflective sheeting is missing from the guardrail nose on east side of the road	Traffic Engineering Signs	Apply 8"X24" amber retroreflective sheeting to guardrail nose	high
26	approx. 3,300 ft	north of	Reindeer Rd	SB	brush is covering guardrail nose on west side of road	Roads & Drainage	trim vegetation	high
27	approx. 3,300 ft	north of	Reindeer Rd	SB	reflective sheeting is missing from the guardrail nose on east side of the road	Traffic Engineering Signs	Apply 8"X24" amber retroreflective sheeting to guardrail nose	high
28	approx. 3,300 ft	north of	Reindeer Rd	NB	reflective sheeting is missing from the guardrail nose on west side of the road	Traffic Engineering Signs	Apply 8"X24" amber retroreflective sheeting to guardrail nose	high

F. Lake Pickett Road

Existing Conditions

Lake Pickett Road is a two-lane roadway running east-west within the study area, from S. Tanner Road to Fort Christmas Road. Lake Pickett Road is functionally classified as a rural major collector from S. Tanner Road to Chuluota Road and a rural minor collector from Chuluota Road to Fort Christmas Road.

Lake Pickett Road east of Chuluota Road was recently realigned to connect with Lake Pickett Road west of Chuluota Road. The previous Lake Pickett Road alignment has been named Old Lake Pickett Road.

The Lake Pickett Road cross section is mostly rural and serves rural farmland and residential land uses. Curb and gutter exists from Chuluota Road to east of Old Lake Pickett Road, along with fragmented sidewalks in the areas of incomplete subdivisions. No bike lanes are provided.

Pavement markings consist of yellow centerline and edge line striping throughout, as well as reflective pavement markers. The centerline pavement markings are striped as no passing zones through curves and upon approaches to sections of guardrail. Rumble strips exist on the eastbound approach to Chuluota Road.

Turn lanes are provided at Oriskany Drive, Bella Nova Drive, and Fontana Estates Drive. The posted speed limit is 45 mph.

Overhead utilities are mainly provided on the north side of the road for the length of the roadway, with no street lighting. There are several sections of guardrail located along Lake Pickett Road.

Lake Pickett Road provides access to the Econlockhatchee Sandhill Preserve, an area of newly opened trails for use in horseback riding, hiking, and mountain biking east of S. Tanner Road.

Crash History and Analysis

Sixteen crashes were reported along Lake Pickett Road segments (not located within 250 feet of an intersection) for the years 2006-2008, with nine of these crashes occurring on the curve just east of S. Tanner Road. Two segment crashes in curves resulted in fatalities. Six crashes were reported at the intersection of Chuluota Road and one crash was reported at the intersection of S. Tanner Road.

A detailed summary of the crashes at the intersection of Lake Pickett Road and Chuluota Road and a collision diagram to show the approximate location and types of crashes were previously presented in the Chuluota Road section.

Recommended Countermeasures

The following table lists the areas for improvement for Lake Pickett Road.

The high-priority safety concerns are the need for curve warning signs and chevrons on curves where several crashes have occurred, including fatalities. Other high-priority safety concerns are related to guardrail nose retroreflective sheeting that has lost its retroreflectivity or vegetation growing over guardrail noses so that the sheeting is not visible. One section of guardrail had been damaged in a crash. These high-priority safety issues were corrected immediately, including replacement of the damaged guardrail. All other safety improvements were considered low-cost, low- or medium-priority improvements.

Lake Pickett Road

Rural Road Safety Audit

Road: S. Tanner Road to Fort Christmas Road

Date: 6/8/10

Number of lanes:

2LU

Speed limit:

45 mph

No.	From	To	Cross Street	Direction	Problem	Type of Work	Solution	Priority
1	approx. 0.47 mi	east of	S. Tanner Rd	EB	Guardrail on the south side of the road has been hit by a car.	Roads & Drainage	replace guardrail on south side of road	high
2	approx. 1750'	east of	S. Tanner Rd	EB	No warning signs for curve; frequent crashes	Traffic Engineering Signs	add curve warning sign (W1-2R) a minimum of 100' in advance of curve.	high
3	approx. 2500'	east of	S. Tanner Rd	WB	No warning signs for curve; frequent crashes	Traffic Engineering Signs	add curve warning sign (W1-2L) a minimum of 100' in advance of curve.	high
4	30'	85' west of	west end of 1st set of guardrail east of S. Tanner Rd	EB	crumbling edge of pavement losing edge line	Roads & Drainage	reinforce pavement edge	medium
5	225'	345' west of	west end of 1st set of guardrail east of S. Tanner Rd	EB	crumbling edge of pavement losing edge line; pavement edge drop-off	Roads & Drainage	reinforce pavement edge	medium
6	approx. 0.65 mi	east of	S. Tanner Rd	EB	vegetation is reducing visibility of reflective sheeting on guardrail nose on north side of road	Roads & Drainage	trim/mow vegetation	high
7	east of S. Tanner Rd.	west of Oriskany Dr.	intermittently throughout	EB & WB	RPM's are missing	Traffic Engineering Markings	Replace missing RPM's	medium
8	at	n/a	Oriskany Drive	EB	the left turn lane into Oriskany Drive was marked with a stop bar	Traffic Engineering Markings	remove stop bar	low
9	600' west of	600' east of	Oriskany Drive	EB & WB	the 10'-30' white skip from prior to widening was not removed	Traffic Engineering Markings	remove 10'-30' white skip through widened section	low
10	1,100'	west of	Oriskany Drive	EB	vegetation is reducing visibility of reflective sheeting on guardrail nose on north side of road	Roads & Drainage	trim/mow vegetation	high
11	east of	n/a	Chuluota Rd	WB	visibility of outermost signal head is reduced by tree branches	Roads & Drainage	trim tree branches	high
12	300' east of	900' east of	Old Lake Pickett Rd	EB	no edge line on short section between curbed section and old section w/ edge line. Citizen complaint of difficulty seeing edge after heavy rains.	Traffic Engineering Markings	Install 6" white edge line	medium
13	660' east of	900' east of	Old Lake Pickett Rd	WB	no edge line on short section between curbed section and old section w/ edge line. Citizen complaint of difficulty seeing edge after heavy rains.	Traffic Engineering Markings	Install 6" white edge line	medium
14	3,000'	3700' east of	Old Lake Pickett Rd	EB & WB	RPM's are missing through curve	Traffic Engineering Markings	Replace missing RPM's	medium
15	approx. 0.7 mi	east of	Old Lake Pickett Rd	EB	2nd from the last chevron is hanging on first part of reverse curve (east to north)	Traffic Engineering Signs	secure chevron sign	medium

Lake Pickett Road

Rural Road Safety Audit

Road: S. Tanner Road to Fort Christmas Road

Date: 6/8/10

Number of lanes:

2LU

Speed limit:

45 mph

No.	From	To	Cross Street	Direction	Problem	Type of Work	Solution	Priority
16	approx. 1.1 mi	east of	Old Lake Pickett Rd	EB	2nd post for chevron sign is missing a chevron panel for the EB direction on 2nd part of reverse curve (north to east)	Traffic Engineering Signs	Add chevron sign on 2nd post. See diagram.	high
17	approx. 0.84 mi	approx. 1.0 mi east of	Old Lake Pickett Rd	EB & WB	No chevrons exist at the beginning of the 2nd part of reverse curve in EB direction (north to east). (Existing chevrons are at end of curve)	Traffic Engineering Signs	Add chevrons (W1-8) both directions of 2nd part of reverse curve at 120' spacing. See diagram.	high
18	500'	west of	TV Tower Rd	EB & WB	vegetation is reducing visibility of reflective sheeting on guardrail noses	Roads & Drainage	trim/mow vegetation	high
19	500'	west of	Ft. Christmas Rd	EB	rough patch of pavement	Roads & Drainage	repair pavement	low
20	at	n/a	Ft. Christmas Rd	EB	street termination signing is not standard	Traffic Engineering Signs	Relocate existing W1-7 sign to align across from the left turn lane. Add (2) OM1-1 signs to the left of and (1) OM1-1 sign to the right of the W1-7.	medium
21	at	n/a	Ft. Christmas Rd	EB	right turn lane has no stop bar	Traffic Engineering Markings	Install a stop bar at end of concrete median, approx. 18' from painted merge gore along island edge line.	medium
22	at	n/a	Ft. Christmas Rd	EB	right turn lane stop sign is too far back for visibility of SB traffic	Traffic Engineering Signs	Remove existing stop sign for right turn. Install oversized stop sign (R1-1) (36") at new stop bar.	medium
23	at	n/a	Ft. Christmas Rd	EB	stop sign for left turn has multiple bullet holes	Traffic Engineering Signs	Replace existing stop sign in island with oversized stop sign (R1-1) (36").	medium
24	400'	west of	Ft. Christmas Rd	EB	need to warn of stop ahead	Traffic Engineering Signs	Install stop ahead warning sign (W3-1) 400' in advance of stop bar for left turn.	medium
25	0'	2500' west of	Ft. Christmas Rd	WB	grass is growing over the white edge line	Roads & Drainage	edge grass	low
26	N. Tanner Rd	Ft. Christmas Rd	throughout	EB & WB	Citizen request - bike lanes needed	Traffic Engineering Admin	already on the long range plan	medium
27	at	n/a	S. Tanner Rd	EB	Citizen request - vegetation reduces visibility for NB left movement	Roads & Drainage	visibility found to be adequate; trim vegetation	low
28	east of	Chuluota Rd	near Mandarin Estates	EB	Citizen concern - water ponds on roadway after rain	Roads & Drainage	investigate drainage	medium
29	at	n/a	Ft. Christmas Rd	EB	Citizen request - 3-way stop installation	Traffic Engineering Admin	Multiway stop warrant study conducted; not warranted	medium

Lake Pickett Road

Rural Road Safety Audit

Road: S. Tanner Road to Fort Christmas Road

Date: 6/8/10

Number of lanes:

2LU

Speed limit:

45 mph

No.	From	To	Cross Street	Direction	Problem	Type of Work	Solution	Priority
30	approx. 100'	east of	S. Tanner Rd	EB	Citizen request - speed limit sign	Traffic Engineering Admin	Install speed limit sign (R2-1) (45mph)	low
31	S. Tanner Rd	Ft. Christmas Rd	throughout	EB & WB	Citizen concern - speeding	Traffic Engineering Admin	Speed study conducted; results indicate speeding; referred to OCSO for enforcement	medium
32	S. Tanner Rd	new park	throughout	EB & WB	Citizen request - horse signs needed due to new Econlockhatchee Sandhill Preserves trails	Traffic Engineering Signs	Install (W11-7) horse signs: 1) just east of N. Tanner Rd EB; 2) approx. 500' east of fenced parking area (1800' east of S. Tanner) WB	low
33	east of	n/a	S. Tanner Rd	EB & WB	Citizen request - deer crossing signs	Traffic Engineering Admin	referred to EPD; Install Wildlife Crossing signs east of S. Tanner Rd EB and west of Chuluota Rd WB	medium

G. Old Cheney Hwy

Existing Conditions

Old Cheney Hwy is a two-lane roadway running east-west, audited from west of S. Tanner Road to Columbia School Road. The cross section is rural from west of S. Tanner Road to the curves near Columbia School Road, serves mostly rural farmland. From the curves to Columbia School Road the cross section is urban, serving commercial land uses.

No pavement markings exist through the rural section where the speed limit is 30 mph. No sidewalks or bike lanes are provided in the rural section. In the urban section pavement markings consist of double yellow centerline and white edge lines with reflective pavement markings on the centerline. Sidewalks are provided on both sides of the roadway and there are two mid-block crosswalks in the urban section. The speed limit drops to 25 mph in the urban section.

Overhead utilities are provided mainly on the south side of the road for the length of the roadway, with no street lighting.

Crash History and Analysis

One crash was reported along Old Cheney Hwy segments (not located within 250 feet of an intersection) for the years 2006-2008. No crashes were reported at the intersections.

Recommended Countermeasures

All safety issues were considered low-cost, low- or medium-priority concerns.

Citizen complaints from the community meeting were related to speeding and the need for sidewalks for students walking to East River High School. In response to these concerns, a request for sidewalk on the south side of the road was submitted for prioritization as a capital improvement project. A speed study was also conducted which verified that speeding was occurring. Speed enforcement was requested from the Orange County Sheriff's Office (OCSO) and an additional speed limit sign was installed in the westbound direction.

Another concern expressed by citizens was difficulty making an eastbound left turn from Old Cheney Hwy onto Columbia School Road during school start and end times. This is due to the queue of vehicles extending through the intersection. No modifications to the SR 50/Columbia School Road intersection can be made without affecting delay and level of service. However, recommendations related to improving internal vehicle circulation have been provided to the Orange County School Board which, if implemented, should reduce the queue of school traffic.

The following table lists the areas for improvement for Old Cheney Hwy.

Old Cheney Highway

Rural Road Safety Audit

Road: dead-end west of S. Tanner Rd to Columbia School Road

Date: 6/8/10

Number of lanes:

2LU

Speed limit:

30 mph from dead-end to curves at driveway connection; 25 mph from curves at driveway connection to Columbia School Road

No.	From	To	Cross Street	Direction	Problem	Type of Work	Solution	Priority
1	dead-end	Columbia School Road	throughout	both	grass growing over edge line	Roads & Drainage	edge grass	low
2	560'	605' west of	Columbia School Road	n/a	crosswalk faded on north side of Old Cheney	Traffic Engineering Markings	refresh crosswalk markings	low
3	at	n/a	S. Tanner Road	n/a	Property owner states vehicles run stop sign into fence	Traffic Engineering Signs	Install Two-Direction Large Arrow sign (W1-7) on S. side of Old Cheney to the east of the mailbox for 15952.	medium
4	east of	n/a	S. Tanner Road	EB	drainage structure is not delineated in the EB direction.	Traffic Engineering Signs	Install object markers (OM-3L) and (OM-3R) to delineate the drainage structure EB.	medium
5	Lockwood Rd	existing sidewalk to east	throughout	EB & WB	citizen concern - sidewalks needed for children on south side of road	Traffic Engineering Admin	Added to sidewalk request list for prioritization for capital improvement project	medium
6	dead-end	Columbia School Road	throughout	EB & WB	citizen request - traffic calming	Traffic Engineering Admin	sent traffic calming info	medium
7	dead-end	Columbia School Road	throughout	EB & WB	citizen concern - speeding	Traffic Engineering Admin	speed study conducted; speeding verified; referred to OCSO for enforcement	medium
8	dead-end	Columbia School Road	throughout	WB	citizen concern - speed limit sign missing	Traffic Engineering Signs	Install speed limit sign (R2-1) (30mph) WB direction, just west of curves and curb and gutter section, across from existing EB 25mph sign.	medium
9	at	n/a	Columbia School Road	EB	citizen concern - difficulty making a left turn onto Columbia School Rd during school hours	Traffic Engineering Admin	Evaluation completed - recommendations made to School Board.	low

H. Old Lake Pickett Road

Existing Conditions

Old Lake Pickett Road is a two-lane roadway running east-west from Chuluota Road to Lake Pickett Road, functionally classified as a rural local roadway. The cross section is rural and serves residential uses on the south side of the road and citrus groves on the north side.

Pavement markings consist of double yellow centerline and edge line striping throughout, as well as reflective pavement markers on the centerlines. The speed limit is 45 mph. No sidewalks or bike lanes are provided. Rumble strips exist on the westbound approach to Chuluota Road.

Overhead utilities are located on the north side of the road throughout. Street lighting is provided on the south side of the road near the intersection with Chuluota Road.

Crash History and Analysis

There are no crashes reported for Old Lake Pickett Road segments (not located within 250 feet of an intersection) from 2006 to 2008. Three crashes were reported for the intersection of Old Lake Pickett Road and Chuluota Road during the three-year period.

The following pages include a detailed summary and collision diagram for the intersection of Old Lake Pickett Road and Chuluota Road. The crash types include one left turn crash, one right turn crash, and one rear-end crash.

Recommended Countermeasures

The following table lists the areas for improvement for Old Lake Pickett Road. None of the improvements recommended were considered to be high-priority; all were low-cost, low- or medium-priority safety improvements.

Old Lake Pickett Road

Rural Road Safety Audit

Road: Chuluota Road to Lake Pickett Road

Date: 6/8/10

Number of lanes:

2LU

Speed limit:

45 mph

No.	From	To	Cross Street	Direction	Problem	Type of Work	Solution	Priority
1	at	n/a	Chuluota Road	WB	stop bar and approx. 50' of dbl yellow is faded	Traffic Engineering Markings	Refresh pavement markings	medium
2	at	n/a	Chuluota Road	WB	Street termination signing is not standard	Traffic Engineering Signs	Add (2) OM1-1 signs to the left of and (1) OM1-1 sign to the right of the existing W1-7.	medium
3	at	n/a	Chuluota Road	EB	Poor pavement condition in SE corner of intersection	Roads & Drainage	reinforce pavement edge	medium
4	Chuluota Rd	Lake Pickett Rd	intermittently throughout	EB & WB	grass growing over white edge line	Roads & Drainage	edge grass	medium
5	approx. 400'	west of	Lake Pickett Road	WB	no posted speed limit sign	Traffic Engineering Signs	Install speed limit sign (R2-1)(45mph)	medium
6	Chuluota Rd	Lake Pickett Rd	intermittently throughout	EB & WB	missing RPM's on centerline	Traffic Engineering Markings	replace missing RPM's	low
7	approx. 550'	west of	Lake Pickett Road	EB	speed limit cannot be safely maintained through curve	Traffic Engineering Signs	Install curve warning sign (W1-2R)(25mph) approx. 150' in advance of curve	medium
8	approx. 100'	west of	Lake Pickett Road	WB	speed limit cannot be safely maintained through curve	Traffic Engineering Signs	Install curve warning sign (W1-2L)(25mph)	medium

I. S. Tanner Road

Existing Conditions

S. Tanner Road is a two-lane roadway running north/south from Lake Pickett Road to Old Cheney Hwy. It is classified as a rural minor collector from Colonial Drive to Lake Pickett Road and is unclassified south of Colonial Drive. The cross section is rural and serves residential and rural farmland land uses. A Florida Power sub-station is located on the west side of the road north of Colonial Drive.

Pavement markings consist of yellow centerline and edge line striping throughout, as well as reflective pavement markers on the centerlines. The centerline pavement markings are striped as no passing zones through curves. The speed limit is 45 mph. There are no existing sidewalks or bike lanes.

Overhead utilities are provided throughout, mostly on the east side of the road. There is no street lighting.

Crash History and Analysis

Four crashes are reported for S. Tanner Road segments (not located within 250 feet of an intersection) from 2006 to 2008. During the three-year period twenty-two crashes were reported for the intersection of S. Tanner Road and Colonial Drive. The following pages include a detailed summary and a collision diagram of the crashes at the intersection to show the approximate location and types of crashes. Forty-one percent of the crashes were right angle crashes, 23% of the crashes were sideswipes, and another 23% of the crashes were single-vehicle crashes.

Recommended Countermeasures

Only one safety improvement was considered to be high-priority. The improvement was to trim vegetation to improve the visibility of the stop sign for the southbound direction approaching Old Cheney Hwy. This was addressed immediately.

Citizen concerns from the community meeting included a request for signalization at the intersection of S. Tanner Road with Colonial Drive instead of the improvement that was under construction at the time, directional left turns from Colonial Drive with a U-turn east of S. Tanner Road. As this was an FDOT construction project, these concerns were forwarded to FDOT. Other citizen concerns were related to speeding, the need for sidewalk, the need for deer crossing signs, and the overall increase in traffic the citizens are experiencing on the road.

The following table lists the areas for improvement for S. Tanner Road. Most improvements recommended were not considered to be high-priority, but were low-cost, low- to medium-priority safety improvements.

Crash Summary											
Location: S. TANNER ROAD						Intersection Control: Stop controlled on S. Tanner					
Intersecting Route: COLONIAL DRIVE						M.P.:		Engineer: CNL			
Study Period From: 2006						To: 2008		County: Orange			
NO.	DATE	DAY	TIME	TYPE	FATAL	INJURY	PROPERTY DAMAGE	DAY/NIGHT	WET/DRY	CONTRIBUTING CAUSE	ACCIDENT REPORT #
1	1/21/2006	SAT	10:29 AM	Rear end	No	Yes	\$7,000	Night	Dry	Careless Driving	FHPD06OFF007261
2	3/5/2006	SUN	6:56 AM	sideswipe	No	Yes	\$4,000	Day	Dry	Careless Driving	FHPD06OFF023457
3	4/10/2006	MON	9:31 PM	Right Turn	No	Yes	\$0	Night	Dry	Careless Driving; Hit Ped and run	FHPD06OFF038296
4	5/19/2006	FRI	4:48 PM	out of control	No	No	\$5,000	Day	Dry	No improper Driving; Driver illness	FHPD06OFF053339
5	6/4/2006	SUN	2:30 AM	sideswipe	No	Yes	\$15,000	Night	Dry	Improper lane change	FHPD06OFF059227
6	6/27/2006	TUE	11:37 PM	left turn	No	No	\$2,000	Night	Dry	Failed to Yield ROW	FHPD06OFF068496
7	8/9/2006	WED	6:40 PM	right angle	No	No	\$8,500	Day	Dry	Failed to Yield ROW	FHPD06OFF085060
8	10/16/2006	MON	9:15 PM	right angle	No	Yes	\$10,000	Night	Dry	DUI; Failed to Yield ROW	FHPD06OFF110555
9	11/1/2006	WED	6:35 AM	right angle	No	Yes	\$19,000	Day	Dry	Failed to Yield ROW	FHPD06OFF116095
10	11/6/2006	MON	8:41 PM	right angle w/ bicycle	No	Yes	\$11,200	Night	Dry	Careless Driving	FHPD06OFF118248
11	1/12/2007	FRI	7:00 AM	out of control	No	Yes	\$6,000	Day	Dry	Evasive action	FHPD07OFF003810
12	3/3/2007	SAT	5:03PM	sideswipe	No	No	\$7,000	Day	Wet	Improper lane change; evasive action	FHPD07OFF022017
13	4/10/2007	TUE	12:32pm	right angle	No	Yes	\$1,500	Day	Dry	Failed to Yield ROW	FHPD07OFF037001
14	5/13/2007	SUN	4:02AM	overturned	No	No	\$10,000	Night	Dry	Careless Driving	FHPD07OFF048986
15	5/21/2007	MON	6:08PM	out of control	No	Yes	\$5,000	Day	Dry	Unknown	FHPD07OFF052055
16	7/19/2007	THU	10:55PM	sideswipe	No	Yes	\$6,000	Night	Dry	DUI; Careless Driving	FHPD07OFF073631
17	9/19/2007	WED	6:51AM	right angle	No	Yes	\$9,500	Night	wet	Failed to Yield ROW	FHPD07OFF096781

18	3/10/2008	MON	5:02PM	sideswipe	No	No	\$550	Day	Dry	Improper Lane Change	FHPD08OFF024088	
19	4/6/2008	SUN	1:50AM	out of control	No	Yes	\$10,000	Night	Dry	Careless Driving	FHPD08OFF033954	
20	5/23/2008	FRI	4:38PM	right angle	No	Yes	\$13,000	Day	Wet	Failed to Yield ROW	FHPD08OFF050411	
21	6/9/2008	MON	3:37PM	right angle	No	Yes	\$16,000	Day	Dry	Failed to Yield ROW	FHPD08OFF056170	
22	10/30/2008	THU	4:57PM	right angle	No	Yes	\$16,000	Day	Dry	Failed to Yield ROW to emergency vehicle	FHPD08OFF101150	
TOTAL												
TOTAL NO.	FATAL	INJURY	P.D.	ANGLE	LEFT TURN	RIGHT TURN	REAR END	SIDE SWIPE	HEAD ON			
22	0	16	21	9	1	1	1	5	0			
%	0%	73%	\$16,000	41%	5%	5%	5%	23%	0%			
ONE VEHICLE	PED/BI KE	DAY	NIGHT	WET	DRY	EXCESS SPEED	FTY RW	DUI				
5	2	12	10	3	19	0	9	2				
23%	9%	55%	45%	14%	86%	0%	41%	9%				
TOTAL VEHICLES ENTERING/ADT:					CRASH RATE:			MEV				

S. Tanner Road

Rural Road Safety Audit

Road: Old Cheney Hwy to Lake Pickett Road

Date: 6/8/10

Number of lanes:

2LU

Speed limit:

40 mph south of Colonial Drive; 45 mph north of Colonial Drive

No.	From	To	Cross Street	Direction	Problem	Type of Work	Solution	Priority
1	0'	approx. 300' north of	Old Cheney Hwy	SB	visibility of stop sign is reduced by vegetation	Roads & Drainage	trim trees	high
2	at	n/a	Old Cheney Hwy	SB	citizen concern - vehicles go through stop sign	Traffic Engineerings Signs	Install stop ahead warning sign (W3-1) approx. 300' in advance of stop bar.	medium
3	just south of	n/a	Colonial Dr	SB	40 mph speed limit sign is bent over	Traffic Engineerings Signs	reset sign	low
4	approx. 1500'	north of	Colonial Dr	NB	curve not signed	Traffic Engineerings Signs	add curve warning sign (W1-2R) a minimum of 100' in advance of curve.	low
5	approx. 2300'	north of	Colonial Dr	NB	reverse curve not signed	Traffic Engineerings Signs	add reverse curve warning sign (W1-4R) with advisory speed place (W13-1P) (40mph) a minimum of 125' in advance of curve.	medium
6	approx. 4500'	north of	Colonial Dr	NB	curve not signed	Traffic Engineerings Signs	add curve warning sign (W1-2L) a minimum of 100' in advance of curve.	low
7	approx. 3800'	south of	Lake Pickett Rd	SB	curve not signed	Traffic Engineerings Signs	add curve warning sign (W1-2R) a minimum of 100' in advance of curve.	low
8	approx. 1mile	south of	Lake Pickett Rd	SB	reverse curve not signed	Traffic Engineerings Signs	add reverse curve warning sign (W1-4R) with advisory speed plate (W13-1P) (40mph) a minimum of 125' in advance of curve.	medium
9	approx. 6800'	south of	Lake Pickett Rd	SB	curve not signed	Traffic Engineerings Signs	add curve warning sign (W1-2L) a minimum of 100' in advance of curve.	low
10	approx. 300'	south of	Lake Pickett Rd	NB	need to increase awareness of T intersection ahead	Traffic Engineerings Signs	add T-intersection warning sign (W2-4) with street name panel (Lake Pickett Rd) approx. 300' in advance of intersection.	low
11	SR 50	Lk Pickett Rd	throughout	NB & SB	citizen concern - sidewalks needed	Traffic Engineering Admin	Added to sidewalk request list for prioritization for capital improvement	medium
12	at	n/a	Colonial Dr	NB & SB	citizen request - signalization	FDOT	referred to FDOT	low
13	SR 50	Lk Pickett Rd	throughout	NB & SB	citizen concern - speeding	Traffic Engineering Admin	Speed study conducted; speeding occurring; referred to OCSO for enforcement	medium

S. Tanner Road

Rural Road Safety Audit

Road: Old Cheney Hwy to Lake Pickett Road

Date: 6/8/10

Number of lanes:

2LU

Speed limit:

40 mph south of Colonial Drive; 45 mph north of Colonial Drive

No.	From	To	Cross Street	Direction	Problem	Type of Work	Solution	Priority
14	north of	n/a	Colonial Dr	NB & SB	citizen request - traffic calming	Traffic Engineering Admin	Speed limit too high for traffic calming; referred to OCSO	low
15	SR 50	Lk Pickett Rd	throughout	NB & SB	citizen request - need more speed limit signs	Traffic Engineering Admin	No additional speed limit signs needed; advisory speed will be posted on reverse curve.	low
16	SR 50	Lk Pickett Rd	throughout	NB & SB	citizen request - "no passing" entire road	Traffic Engineering Admin; Traffic Engineering Signs and Marking	No Passing Zone Study conducted; no passing zone to be extended. See diagram	medium
17	north of	n/a	Colonial Dr	NB & SB	citizen request - private driveway signing	Traffic Engineering Admin	Hidden driveway signing not warranted.	low
18	SR 50	Lk Pickett Rd	throughout	NB & SB	citizen request - deer crossing signing	Traffic Engineering Admin	referred to EPD; Install Wildlife Crossing signs north of SR 50 and south of Lake Pickett Rd	low

J. West Christmas Road

Existing Conditions

West Christmas Road is a two-lane roadway running north-south from Colonial Drive to Fort Christmas Road. The cross section is rural and serves rural farmland land uses.

Pavement markings consist of double yellow centerline with reflective pavement markers on the centerline. There is no white edge line. The speed limit is posted at 30 mph.

No sidewalks or bike lanes are present. Overhead utilities are provided for most of the roadway, alternating from the west to the east side. No street lighting exists for the length of the audited section.

Speed Limit

The posted speed limit on West Christmas Road is 30 miles per hour. The existing posted speed limit zone was established when the road was unpaved. However, the entire road is now conventionally paved and a new speed study indicates a prevailing 85th percentile speed of 54.47 mph.

The existing posted speed limit was increased from 30 miles per hour to 45 miles per hour on West Christmas Road from East Colonial Drive extending to 1500 feet south of Llewellyn Road. Due to roadway curvature, the posted speed limit was increased from 30 miles per hour to 35 miles per hour from 1500 feet south of Llewellyn Road to Fort Christmas Road.

Crash History and Analysis

Two crashes were reported along West Christmas Road segments (not located within 250 feet of an intersection) for the years 2006-2008. One crash was reported at the intersection of West Christmas Road and Llewellyn Road. This crash resulted in a fatality.

Recommended Countermeasures

The following table lists the areas for improvement for West Christmas Road. Most of the high-priority safety issues along West Christmas Road were related to the need for curve warning signs. One high-priority safety issue was the need for a stop sign for the northbound to eastbound movement at Fort Christmas Road. All other safety issues were considered low-cost, low- to medium-priority safety improvements.

West Christmas Road

Rural Road Safety Audit

Road: Colonial Drive to Ft. Christmas Road

Date: 5/15/10

Number of lanes:

2LU

Speed limit:

30 mph

No.	From	To	Cross Street	Direction	Problem	Type of Work	Solution	Priority
1	just south of	n/a	Ft. Christmas Rd	SB	speed limit sign is missing	Traffic Engineering Signs	add speed limit sign (R2-1) (35mph) 100' south of Ft. Christmas Rd	low
2	at	n/a	Ft. Christmas Rd split to EB	NB to EB	stop sign is missing	Traffic Engineering Signs	add stop sign (R1-1)	high
3	at	n/a	Ft. Christmas Rd split to EB	NB to EB	stop bar is missing	Traffic Engineering Markings	add stop bar	medium
4	approx. 2,270 ft	south of	Ft. Christmas Rd	NB & SB	drainage culvert headwall is within 5' to 7' of edge of pavement and is not delineated	Traffic Engineering Signs	Delineate drainage culvert headwall with Type 3 object markers (OM-3L) for SB direction; (OM-3R) for NB direction	high
5	approx. 2,000 ft	south of	Ft. Christmas Rd	SB	curve not signed (fatal crash around curve into culvert)	Traffic Engineering Signs	add curve warning sign (W1-2R) 100' north of curve	high
6	approx. 1,050 ft	north of	Llewellyn Road	SB	curve not signed (fatal crash around curve)	Traffic Engineering Signs	add curve warning sign (W1-2L) 100' north of curve	high
7	approx. 600 ft	south of	Llewellyn Road	SB	curve not signed	Traffic Engineering Signs	add curve warning sign (W1-2R) 100' north of curve	high
8	approx. 1,400 ft	south of	Llewellyn Road	NB	curve not signed	Traffic Engineering Signs	add curve warning sign (W1-2L) 100' south of curve	high
9	just north of	n/a	Llewellyn Road	NB	curve not signed (fatal crash around curve)	Traffic Engineering Signs	add curve warning sign (W1-2R) 100' south of curve	high
10	approx. 3,700 ft	south of	Ft. Christmas Rd	NB	curve not signed	Traffic Engineering Signs	add curve warning sign (W1-2L) 100' south of curve	high
11	280' north of	325' north of	Colonial Dr.	SB	Visibility of stop sign reduced by vegetation.	Roads & Drainage	Trim tree branches	high
12	just north of	n/a	Colonial Dr.	NB	Posted speed of 30 mph appears to be too low.	Traffic Engineering Admin; Traffic Engineering Signs	Speed study conducted. Posted speed limit to be increased to 45 mph from SR 50 to 1500' south of Llewellyn Rd and increased to 35 mph from 1500' south of Llewellyn Rd to Ft. Christmas Rd	medium
13	at	n/a	Colonial Dr	SB	divided highway at SR 50 not signed	Traffic Engineering Signs	Add one way sign panels to stop sign post. (R6-1R) facing SB; (R6-1L) facing NB according to FDOT Index 17349.	medium
14	200'	north of	Colonial Dr	SB	divided highway at SR 50 not signed	Traffic Engineering Signs	Install divided highway sign (R6-3a) according to FDOT Index 17349.	medium
15	min. 400'	north of	Colonial Dr	SB	Need warning of stop ahead at night.	Traffic Engineering Signs	Install stop ahead warning sign (W3-1).	medium

VI. Solutions to Citizen Concerns Outside the Study Area or Orange County Jurisdiction

Citizen complaints received from the community meetings related to roadways outside the study area will be addressed and resolved through the usual Orange County Traffic Engineering Division citizen complaint procedures.

Safety issues found through the study field data collection process or through citizen complaints will be forwarded to the appropriate agency for resolution.

VII. Recommended Long-Term Capital Improvements

As funds become available for major roadway or intersection improvements, the following projects should be considered:

- Fort Christmas Road and Wheeler Road – Remove the Wheeler Road “split” by “T”-ing Wheeler Road into Fort Christmas Road at a right angle, adding paved shoulder through the curve and an eastbound left turn lane into Wheeler Road
- Chuluota Road and Cypress Lake Glen Boulevard – Signalize intersection.
- S. Tanner Road – Construct sidewalk from north of Colonial Drive to Lake Pickett Road (placed on the sidewalk request list).
- Old Cheney Hwy – Construct sidewalk from Lockwood Road to existing sidewalk (placed on the sidewalk request list).
- Lockwood Road – Construct sidewalk (placed on the sidewalk request list).
- Lake Pickett Road – Construct bike lanes (already on the long range plan).
- Chuluota Road and S. Publix Driveway – If future crash data shows the need, add channelizing island to restrict movement to right-in/right-out only.
- CR 13, 0.5 mile north of 1st Street – Install guardrail at drainage structure ID# BIBEC001.

VIII. Conclusion

Extensive data collection, including daytime drives and night-time drives, and a community meeting for citizen input, were conducted to evaluate traffic safety conditions in this rural Bithlo/Christmas study area. Speed limits were also reviewed, with changes to posted speeds implemented on West Christmas Road.

The results of the traffic safety audit indicate that many improvements are recommended to increase roadway safety. Most of the high-priority safety concerns were related to the

need for increased curve warning signing and visibility of traffic control devices due to growth of vegetation. These concerns were addressed immediately. Low- to medium-priority safety concerns will be addressed and resolved according to standard scheduling. These consist mainly of improvements to pavement markings and replaced or revised roadway signs. Desirable long-term capital improvements were identified for implementation as funds become available.

Appendix
Community Meeting Sign-In Sheets