Alachua County Board of County Commissioners Department of Public Works



Crash Analysis CR 231 and NW 156th Avenue



Alachua County Public Works Department

Ramon D. Gavarrete, P. E., Public Works Director

The analysis in this document was performed using generally accepted engineering practices in the State of Florida and in accordance with the Manual on Uniform Traffic Control Studies (MUTS) published by the Florida Department of Transportation (FDOT) and the Highway Safety Manual 2010 published by the American Association of State Highway and Transportation Officials (AASHTO).

This Report and the content listed in the Table of Contents was prepared under the direction and responsible charge of:

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I. Introduction

The following report is intended to accompany Alachua County's Highway Safety Improvement Program (HSIP) application for improvements at the intersection of CR 231 and NW 156^{th} Avenue. This report includes a crash and benefit cost analysis for the proposed modification to reduce crash frequency at the intersection.

II. Existing Conditions

CR 231 and NW 156th Avenue form a two-way, stop-controlled, intersection with four legs. The intersection is located in the northwest part of Alachua County. CR 231 and NW 156th Avenue are both two-way, two-lane rural undivided paved roads with CR 231 (major road) running north/south and NW 156th Avenue (minor road) running east/west. A typical day has an average of 4,267 vehicles per day entering the intersection from all approaches. The approaches on NW 156th Avenue have rumble strips. The rumble strips on the west leg are installed to current standards, the ones on the east leg are not. The intersection has adequate sight distance for both the posted approach speed of 55 MPH and the 85th percentile speed of 62 MPH. The west approach has a skew angle of 5 degrees.



Image 1 – Aerial View of County Road 231 & NW 156th Avenue



III. Crash Analysis

The crash analysis was completed for a five-year period beginning in 2012 and ending in 2016. The crash data was provided by law enforcement agency crash reports by responding officers of the Florida Highway Patrol and the Alachua County Sheriff's Office. These reports were compiled by the Signal 4 Analytics Database published by the UF GeoPlan Center.

A total of six crashes occurred at the intersection in the five-year period analyzed and each crash report was reviewed for accuracy. After further investigation it was determined that two of the six crashes were correctable angle crashes caused by failure to yield right-of-way. The four remaining crashes included one angle crash by running a stop sign, one other crash due to careless driving, one run off the road crash due to loss of control, and one rear end crash due to loss of control. One crash resulted in a fatality, two involved injuries, and three were property damage only.

All of the crashes are included in the Crash Summary and Collision Diagram found in Appendix A and B, respectively.

IV. Counter Measures

In an attempt to reduce the amount of angle crashes at the intersection an intersection conflict warning system (ICWS) with post mounted signs and flashers in advance of the intersection should be installed on CR 231, with detection loops on NW $156^{\rm th}$ Avenue.

V. Benefit/Cost Analysis

The benefit cost analysis was completed using a Crash Modification Factor (CMF) from the Crash Modification Factors Clearinghouse for installing an ICWS at the intersection. The CMF selected can be found in Appendix C. Construction costs were obtained using the most current FDOT Historical Cost information.

The estimated total cost to implement the ICWS, for a six-year span, is \$147,653.33 with annual cost of \$28,188.47. The calculated benefit/cost for the installation of the ICWS is 4.08 with a total annual benefit of \$115,072.12. The complete Benefit/Cost Analysis can be found in Appendix D.



Appendix A: Crash Summary

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400040	100010	Pedestrian	0	%0.0
0 0 0 11 0	0 0 0 0 0	Rear End	1	16.7%
0 0 1 0	0 11 0	Right Turn	0	%0.0
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0	0	Other	1	16.7%
		Unknown	0	%0.0

Contributing Causes	Loss of Veneral Safe.	Caretes In long
Contrib	Ran Stop Sign 17%	Faired to vine fitting the order of some states

CONTRIBUTING CAUSES	CAUSES	
Improperly Backing	0	0.0%
Loss of Control	2	33.3%
Drowsy/Falling Asleep	0	0.0%
Failed to Keep in Proper Lane	0	0.0%
Distracted Driving	0	0.0%
Careless Driving	1	16.7%
Animal in Roadway	0	0.0%
Failed to Yield Right of Way	2	33.3%
Exceed Speed	0	0.0%
Unknown	0	0.0%
Under the Influence	0	0.0%
Improper Lane Change	0	0.0%
Equipment Fallure	0	%0.0
Over-Correcting/Over Steering	0	0.0%
Ran Stop Sign	1	16.7%



Appendix B: Collision Diagram

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

750-020-05 TRAFFIC ENGINEERING OPERATIONS 10/15

COLLISION DIAGRAM - INTERSECTION

		SION DIAGRAM	ite Information	
Gerneral Analysis Int	formation		one mormation	
Intersection Number Intersection Name Analysis Years	CR 231 and NW 156 2012-2016		Location Project Number	Alachua County
Notes				
				ty Manual should be used.
2) The legend may be	used to clarify symbology	that identifies total n	umber of crashes, in	juries, fatalities, pavement conditions, etc.
Field Data Collection				
Legen C Dry Clear W Wet N Night Injury Fatal	d L Dawn/Dusk D Day A Alcohol or Drug-Related	040	CD OF CD	Legend Rear-End Head-On Sideswipe Angle
Stree			A CO	Street Name



Appendix C: Crash Modification Factor



CMF / CRF Details

CMF ID: 8464

Install an intersection conflict warning system (ICWS) with post mounted signs (various messages) and flashers in advance of the intersection on major; loop on minor

Description: Install an intersection conflict warning system (ICWS) with post mounted signs (various messages) and flashers in advance of the intersection on major; loop on minor

Prior Condition: No intersection conflict warning systems

Category: Signs

Study: Multi-State Safety Evaluation of Intersection Conflict Warning Systems

(ICWS), Himes et al, 2016

Star Quality Rating:	NAMES OF	[View score details]	

Cr	ash Modification Factor (CMF)
Value:	0.454
Adjusted Standard Error:	
Unadjusted Standard Error:	0.067

Crash Reduction Factor (CRF)

Value:	54.6 (This value indicates a decrease in crashes)
Adjusted Standard Error:	
Unadjusted Standard Error:	6.7

	Applicability
Crash Type:	Angle
Crash Severity:	All
Roadway Types:	Not specified
Number of Lanes:	2
Road Division Type:	
Speed Limit:	
Area Type:	Rural
Traffic Volume:	
Time of Day:	Not specified
If a	countermeasure is intersection-based
Intersection Type:	Roadway/roadway (not interchange related)
Intersection Geometry:	4-leg
Traffic Control:	Stop-controlled
Major Road Traffic Volume:	
Minor Road Traffic Volume:	

	Development Details
Date Range of Data Used:	

Municipality:	
State:	MN, MO, NC
Country:	
Type of Methodology Used:	Before/after using empirical Bayes or full Bayes
Sample Size Used:	

Other Details								
Included in Highway Safety Manual?	No							
Date Added to Clearinghouse:	Jan-17-2017							
Comments:	CMF for 2-lane at 2-lane intersections							

This site is funded by the U.S. Department of Transportation Federal Highway Administration and maintained by the University of North Carolina Highway Safety Research Center

The information contained in the Crash Modification Factors (CMF) Clearinghouse is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The U.S. Government assumes no liability for the use of the information contained in the CMF Clearinghouse. The information contained in the CMF Clearinghouse does not constitute a standard, specification, or regulation, nor is it a substitute for sound engineering judgment.



Appendix D: Benefit/Cost Analysis



HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) BENEFIT/COST AND NET PRESENT VALUE ANALYSIS

PROJECT TITLE County Road													
	231 & N	W 156	th Aven	iue							RIORITY NO.		
COUNTY Alachua					SI	ECTION		U.S. ROAD			SPEED (MPH)		
B.M.P.	E.M.P				L	ENGTH		SR					156th AV
													und), and
LOCATION Intersection of	of Count	v Road	231 an	d NW	156th	Avenue							WW 156th estbound)
FACILITY TYPE 2 Lane Rura											-	AT (II	estibound)
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CRASH REDUCTION INFORMATION	ON												
CALVIAN ON ON ANY NEONAND	, X7-1.:-1.		d	• • • • • • • • • • • • • • • • • • • •		41		-1 -CNIV 15(4)	A C.:1	4	i-l+ -f	40 ali:	1
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PROPOSED IMPROVEMENTS										s on major roa	ad (CR 231) in	advance	or the
(LIST AND DISCUSS)	intersec	ction w	ıtıı 1001	os insta	nea or	the min	or approach (IV	w 136th Avenue)	•				
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OR LOW REDVICES OF A GROUP	LOWE			1 -:	/CI1		0.546						
CRASH REDUCTION FACTORS	icws.	- post n	nounted	1 signs/	flashe		0.546	_					
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CRASH TYPE AND FREQUENCY													
CRASH TYPES	T	NO O	F CRAS	SHES		T		Γ					
FATAL (K), Injury (A) - Serious	2012	2013		2015	2016	CRF %	PREVENTED	CR	ASH INFORMATIO	N FOR FACILITY		No	. Years
ICWS - post mounted signs/flasher	2012	2013	2014	2013	1	55%	0.55		COST PER CRASH		526,887.00	110	5
The state of the s						0%	0.00		CRASH CLEANUP	\$100	per year		
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ICWS - post mounted signs/flasher	1					55% 0%	0.00	SIGNAGE	\$ 98,435.39	6	0.1908	\$	18,777.72
	1								\$ 98,435.39	6	0.1908	\$	18,777.72
	1					0%	0.00	SIGNAGE	\$ 98,435.39	6	0.1908	\$	18,777.72
	1					0% 0%	0.00	SIGNAGE LIGHTING	\$ 98,435.39	6	0.1908	\$	18,777.72
	2012	2013	2014	2015	2016	0% 0% 0%	0.00 0.00 0.00	SIGNAGE LIGHTING DRAINAGE	\$ 9,843.59	6	0.1908	S	1,877.78
ICWS - post mounted signs/flasher		2013	2014	2015	2016	0% 0% 0% 0%	0.00 0.00 0.00 0.00	SIGNAGE LIGHTING DRAINAGE EARTHWORK	\$ 9,843.59 \$ 14,765.38	6	0.1908 0.1908	\$ \$	1,877.78 2,816.67
ICWS - post mounted signs/flasher PDO (O)		2013	2014	2015	2016	0% 0% 0% 0% CRF %	0.00 0.00 0.00 0.00 PREVENTED 0.00	SIGNAGE LIGHTING DRAINAGE EARTHWORK MOT MOBILIZATION OTHER	\$ 9,843.59	6	0.1908	S	1,877.78
ICWS - post mounted signs/flasher PDO (O)		2013	2014	2015	2016	0% 0% 0% 0% CRF % 55%	0.00 0.00 0.00 0.00 PREVENTED 0.00	SIGNAGE LIGHTING DRAINAGE EARTHWORK MOT MOBILIZATION	\$ 9,843.59 \$ 14,765.38 \$ 14,765.38	6 6	0.1908 0.1908 0.1908	\$ \$ \$	1,877.78 2,816.67 2,816.67
ICWS - post mounted signs/flasher PDO (O)		2013	2014	2015	2016	0% 0% 0% 0% CRF % 55%	0.00 0.00 0.00 0.00 PREVENTED 0.00	SIGNAGE LIGHTING DRAINAGE EARTHWORK MOTI MOBILIZATION OTHER CONTIGENCY PECEI	\$ 9,843.59 \$ 14,765.38 \$ 14,765.38 \$ 9,843.59	6 6	0.1908 0.1908	\$ \$ \$	1,877.78 2,816.67 2,816.67
ICWS - post mounted signs/flasher PDO (O)	2012					0% 0% 0% 0% CRF % 55% 0%	0.00 0.00 0.00 0.00 PREVENTED 0.00 0.00	SIGNAGE LIGHTING DRAINAGE EARTHWORK MOT MOBILIZATION OTHER CONTIGENCY	\$ 9,843.59 \$ 14,765.38 \$ 14,765.38	6 6	0.1908 0.1908 0.1908 0.1908	\$ \$ \$ \$	1,877.78 2,816.67 2,816.67 1,877.78 28,166.63
ICWS - post mounted signs/flasher PDO (O)	2012	0	0	0	1	0% 0% 0% 0% CRF % 55% 0% 0%	0.00 0.00 0.00 0.00 PREVENTED 0.00 0.00 0.00 0.00	SIGNAGE LIGHTING DRAINAGE EARTHWORK MOTI MOBILIZATION OTHER CONTIGENCY PECEI	\$ 9,843.59 \$ 14,765.38 \$ 14,765.38 \$ 9,843.59	6 6 6	0.1908 0.1908 0.1908 0.1908 CRASH CLEANUP	\$ \$ \$ \$ \$	1,877.78 2,816.67 2,816.67 1,877.78 28,166.63 21.84
ICWS - post mounted signs/flasher PDO (O) ICWS - post mounted signs/flasher	2012	0 0				0% 0% 0% 0% CRF % 55% 0% 0%	0.00 0.00 0.00 0.00 PREVENTED 0.00 0.00 0.00	SIGNAGE LIGHTING DRAINAGE EARTHWORK MOTI MOBILIZATION OTHER CONTIGENCY PECEI	\$ 9,843.59 \$ 14,765.38 \$ 14,765.38 \$ 9,843.59	6 6 6	0.1908 0.1908 0.1908 0.1908	\$ \$ \$ \$ \$	1,877.78 2,816.67 2,816.67 1,877.78 28,166.63
ICWS - post mounted signs/flasher PDO (O) ICWS - post mounted signs/flasher TOTAL CRASHES (ALL TYPES)	2012	0	0	0 0	1 0.546	0% 0% 0% 0% 0% CRF % 55% 0% 0% 0%	0.00 0.00 0.00 0.00 0.00 PREVENTED 0.00 0.00 0.00 0.00 0.00	SIGNAGE LIGHTING DRAINAGE EARTHWORK MOTI MOBILIZATION OTHER CONTIGENCY PECEI	\$ 9,843.59 \$ 14,765.38 \$ 14,765.38 \$ 9,843.59	6 6 6	0.1908 0.1908 0.1908 0.1908 CRASH CLEANUP	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	1,877.78 2,816.67 2,816.67 1,877.78 28,166.63 21.84 28,188.47
ICWS - post mounted signs/flasher PDO (O) ICWS - post mounted signs/flasher TOTAL CRASHES (ALL TYPES)	2012	0 0	0	0 0	1 0.546	0% 0% 0% 0% 0% CRF % 55% 0% 0% 0%	0.00 0.00 0.00 0.00 0.00 PREVENTED 0.00 0.00 0.00 0.00 1.09	SIGNAGE LIGHTING DRAINAGE EARTHWORK MOTI MOBILIZATION OTHER CONTIGENCY PECEI	\$ 9,843.59 \$ 14,765.38 \$ 14,765.38 \$ 9,843.59	6 6 6 6	0.1908 0.1908 0.1908 0.1908 CRASH CLEANUP AL ANNUAL COST	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	1,877.78 2,816.67 2,816.67 1,877.78 28,166.63 21.84 28,188.47
ICWS - post mounted signs/flasher PDO (O) ICWS - post mounted signs/flasher TOTAL CRASHES (ALL TYPES)	2012	0 0	0	0 0 TOTAL	1 0.546 AL CRAS	0% 0% 0% 0% 0% CRF % 55% 0% 0% 0% 0%	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	SIGNAGE LIGHTING DRAINAGE EARTHWORK MOTI MOBILIZATION OTHER CONTIGENCY PECEI	\$ 9,843.59 \$ 14,765.38 \$ 14,765.38 \$ 9,843.59	6 6 6 6 TOI	0.1908 0.1908 0.1908 0.1908 0.1908 CRASH CLEANUP AL ANNUAL COST CURRENT YEAR	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	1,877.78 2,816.67 2,816.67 1,877.78 28,166.63 21.84 28,188.47 018
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ICWS - post mounted signs/flasher PDO (O) ICWS - post mounted signs/flasher TOTAL CRASHES (ALL TYPES)	2012	0 0	0	0 0 TOTAL	1 0.546 AL CRAS	0% 0% 0% 0% 0% 0% CRF % 55% 0% 0% 0% 0% 1H BENEFIT	0.00 0.00 0.00 0.00 0.00 PREVENTED 0.00 0.00 0.00 0.00 0.00 0.00 \$ 1.09 \$ 575,360,60 \$ 115,072.12	SIGNAGE LIGHTING DRAINAGE EARTHWORK MOTI MOBILIZATION OTHER CONTIGENCY PECEI	\$ 9,843.59 \$ 14,765.38 \$ 14,765.38 \$ 9,843.59	6 6 6 6 TOI	0.1908 0.1908 0.1908 0.1908 0.1908 CRASH CLEANUP AL ANNUAL COST CURRENT YEAR	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	1,877.78 2,816.67 2,816.67 1,877.78 28,166.63 21.84 28,188.47 018
ICWS - post mounted signs/flasher PDO (O) ICWS - post mounted signs/flasher TOTAL CRASHES (ALL TYPES) TOTAL CRASHES TO BE PREVENTED	2012 1 0.546 BEN	0 0 WEFIT	0 0	0 0 TOTAL	1 0.546 AL CRASS ANNUA BENEF	0% 0% 0% 0% 0% 0% CRF % 55% 0% 0% 0% 0% 1H BENEFIT	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	SIGNAGE LIGHTING DRAINAGE EARTHWORK MOT MOBILIZATION OTHER CONTIGENCY PECEI SUBTOTAL	\$ 9,843.59 \$ 14,765.38 \$ 14,765.38 \$ 9,843.59 \$ 147,653.33	6 6 6 6 TOI	0.1908 0.1908 0.1908 0.1908 CRASH CLEANUP AL ANNUAL COST CURRENT YEAR OMPLETION YEAR ESENT VALUE	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	1,877.78 2,816.67 2,816.67 1,877.78 28,166.63 21.84 28,188.47 018 023 984.91
PDO (O) ICWS - post mounted signs/flasher PDO (O) ICWS - post mounted signs/flasher TOTAL CRASHES (ALL TYPES) TOTAL CRASHES TO BE PREVENTED A total of six crashes occurred at the intersect	2012 1 0.546 BEN	0 0 NEFIT	0 0	0 0 TOTAL	1 0.546 AL CRASI ANNUA BENEFI	0% 0% 0% 0% 0% 0% 0% 55% 0% 0% 0% 0% 0% 0% 0% 0f the sign of the s	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	SIGNAGE LIGHTING DRAINAGE EARTHWORK MOTI MOBILIZATION OTHER CONTIGENCY PE/CEI SUBTOTAL	\$ 9,843.59 \$ 14,765.38 \$ 14,765.38 \$ 9,843.59 \$ 147,653.33	6 6 6 6 TOI	0.1908 0.1908 0.1908 0.1908 CRASH CLEANUP AL ANNUAL COST CURRENT YEAR OMPLETION YEAR ESENT VALUE	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	1,877.78 2,816.67 2,816.67 1,877.78 28,166.63 21.84 28,188.47 018 023 984.91
ICWS - post mounted signs/flasher PDO (O) ICWS - post mounted signs/flasher TOTAL CRASHES (ALL TYPES) TOTAL CRASHES TO BE PREVENTED	2012 1 0.546 BEN	0 0 NEFIT	0 0	0 0 TOTAL	1 0.546 AL CRASI ANNUA BENEFI	0% 0% 0% 0% 0% 0% 0% 55% 0% 0% 0% 0% 0% 0% 0% 0f the sign of the s	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	SIGNAGE LIGHTING DRAINAGE EARTHWORK MOTI MOBILIZATION OTHER CONTIGENCY PE/CEI SUBTOTAL	\$ 9,843.59 \$ 14,765.38 \$ 14,765.38 \$ 9,843.59 \$ 147,653.33	6 6 6 6 TOI	0.1908 0.1908 0.1908 0.1908 CRASH CLEANUP AL ANNUAL COST CURRENT YEAR OMPLETION YEAR ESENT VALUE	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	1,877.78 2,816.67 2,816.67 1,877.78 28,166.63 21.84 28,188.47 018 023 984.91
PDO (O) ICWS - post mounted signs/flasher PDO (O) ICWS - post mounted signs/flasher TOTAL CRASHES (ALL TYPES) TOTAL CRASHES TO BE PREVENTED A total of six crashes occurred at the intersect	2012 1 0.546 BEN	0 0 NEFIT	0 0	0 0 TOTAL	1 0.546 AL CRASI ANNUA BENEFI	0% 0% 0% 0% 0% 0% 0% 55% 0% 0% 0% 0% 0% 0% 0% 0f the sign of the s	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	SIGNAGE LIGHTING DRAINAGE EARTHWORK MOTI MOBILIZATION OTHER CONTIGENCY PE/CEI SUBTOTAL	\$ 9,843.59 \$ 14,765.38 \$ 14,765.38 \$ 9,843.59 \$ 147,653.33	6 6 6 6 TOI	0.1908 0.1908 0.1908 0.1908 CRASH CLEANUP AL ANNUAL COST CURRENT YEAR OMPLETION YEAR ESENT VALUE	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	1,877.78 2,816.67 2,816.67 1,877.78 28,166.63 21.84 28,188.47 018 023 984.91
ICWS - post mounted signs/flasher PDO (O) ICWS - post mounted signs/flasher TOTAL CRASHES (ALL TYPES) TOTAL CRASHES TO BE PREVENTED A total of six crashes occurred at the intersect	2012 1 0.546 BEN	0 0 NEFIT	0 0	0 0 TOTAL	1 0.546 AL CRASI ANNUA BENEFI	0% 0% 0% 0% 0% 0% 0% 55% 0% 0% 0% 0% 0% 0% 0% 0f the sign of the s	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	SIGNAGE LIGHTING DRAINAGE EARTHWORK MOTI MOBILIZATION OTHER CONTIGENCY PE/CEI SUBTOTAL	\$ 9,843.59 \$ 14,765.38 \$ 14,765.38 \$ 9,843.59 \$ 147,653.33	6 6 6 6 TOI	0.1908 0.1908 0.1908 0.1908 CRASH CLEANUP AL ANNUAL COST CURRENT YEAR OMPLETION YEAR ESENT VALUE	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	1,877.78 2,816.67 2,816.67 1,877.78 28,166.63 21.84 28,188.47 018 023 984.91
ICWS - post mounted signs/flasher PDO (O) ICWS - post mounted signs/flasher TOTAL CRASHES (ALL TYPES) TOTAL CRASHES TO BE PREVENTED A total of six crashes occurred at the intersect	2012 1 0.546 BEN	0 0 NEFIT	0 0	0 0 TOTAL	1 0.546 AL CRASI ANNUA BENEFI	0% 0% 0% 0% 0% 0% 0% 55% 0% 0% 0% 0% 0% 0% 0% 0f the sign of the s	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	SIGNAGE LIGHTING DRAINAGE EARTHWORK MOTI MOBILIZATION OTHER CONTIGENCY PE/CEI SUBTOTAL	\$ 9,843.59 \$ 14,765.38 \$ 14,765.38 \$ 9,843.59 \$ 147,653.33	6 6 6 6 TOI	0.1908 0.1908 0.1908 0.1908 CRASH CLEANUP AL ANNUAL COST CURRENT YEAR OMPLETION YEAR ESENT VALUE	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	1,877.78 2,816.67 2,816.67 1,877.78 28,166.63 21.84 28,188.47 018 023 984.91
ICWS - post mounted signs/flasher PDO (O) ICWS - post mounted signs/flasher TOTAL CRASHES (ALL TYPES) TOTAL CRASHES TO BE PREVENTED A total of six crashes occurred at the intersect	2012 1 0.546 BEN	0 0 NEFIT	0 0	0 0 TOTAL	1 0.546 AL CRASI ANNUA BENEFI	0% 0% 0% 0% 0% 0% 0% 55% 0% 0% 0% 0% 0% 0% 0% 0f the sign of the s	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	SIGNAGE LIGHTING DRAINAGE EARTHWORK MOTI MOBILIZATION OTHER CONTIGENCY PE/CEI SUBTOTAL	\$ 9,843.59 \$ 14,765.38 \$ 14,765.38 \$ 9,843.59 \$ 147,653.33	6 6 6 6 TOI	0.1908 0.1908 0.1908 0.1908 CRASH CLEANUP AL ANNUAL COST CURRENT YEAR OMPLETION YEAR ESENT VALUE	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	1,877.78 2,816.67 2,816.67 1,877.78 28,166.63 21.84 28,188.47 018 023 984.91
ICWS - post mounted signs/flasher PDO (O) ICWS - post mounted signs/flasher TOTAL CRASHES (ALL TYPES) TOTAL CRASHES TO BE PREVENTED A total of six crashes occurred at the intersect correctable with the ICWS. CMF for ICWS ut	2012 1 0.546 BEN	0 0 NEFIT	0 0	0 0 TOTAL	1 0.546 AL CRASI ANNUA BENEFI	0% 0% 0% 0% 0% 0% 0% 55% 0% 0% 0% 0% 0% 0% 0% 0f the sign of the s	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	SIGNAGE LIGHTING DRAINAGE EARTHWORK MOTI MOBILIZATION OTHER CONTIGENCY PE/CEI SUBTOTAL	\$ 9,843.59 \$ 14,765.38 \$ 14,765.38 \$ 9,843.59 \$ 147,653.33	6 6 6 6 TOI	0.1908 0.1908 0.1908 0.1908 CRASH CLEANUP AL ANNUAL COST CURRENT YEAR OMPLETION YEAR ESENT VALUE	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	1,877.78 2,816.67 2,816.67 1,877.78 28,166.63 21.84 28,188.47 018 023 984.91
ICWS - post mounted signs/flasher PDO (O) ICWS - post mounted signs/flasher TOTAL CRASHES (ALL TYPES) TOTAL CRASHES TO BE PREVENTED A total of six crashes occurred at the intersect	2012 1 0.546 BEN	0 0 NEFIT	0 0	0 0 TOTAL	1 0.546 AL CRASI ANNUA BENEFI	0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	SIGNAGE LIGHTING DRAINAGE EARTHWORK MOT MOBILIZATION OTHER CONTIGENCY PECEI SUBTOTAL	\$ 9,843.59 \$ 14,765.38 \$ 14,765.38 \$ 9,843.59 \$ 147,653.33	6 6 6 6 TOI PROJECT C NET PRI right-of-way o	0.1908 0.1908 0.1908 0.1908 0.1908 CRASH CLEANUP FAL ANNUAL COST CURRENT YEAR OMPLETION YEAR ESENT VALUE IN NW 156th Av	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	1,877.78 2,816.67 2,816.67 1,877.78 28,166.63 21.84 28,188.47 018 023 984.91