Design Exceptions and Design Variations

Jeremy Fletcher and Benjamin Gerrell
State Roadway Design Office
Quality Assurance & Engineering Support

Design Exception Success

The earlier the better for smooth sailing…

Late submittals could lead to rough waters…

Design Exceptions & Variations

Definitions and Criteria

What are Design Exceptions?

A documented decision to design a highway element or a segment of highway to design criteria that do not meet minimum values or ranges established for that highway or project.

FHWA Mitigation Strategies for Design Exceptions
July 2007

Exceptions

Design Exceptions are required when proposed design elements are below both FDOT and AASHTO criteria for FHWA's 13 "Controlling" Criteria.

- Design Speed
- Lane Width
- Shoulder Width
- Bridge Width
- Structural Capacity
- Vertical Clearance
- Grade
- Cross Slope
- Superelevation
- Horizontal Alignment
- Vertical Alignment
- Stopping Sight Distance
- Horizontal Clearance (lateral offset to obstruction)

FHWA Direction (MAP-21)

NHS Design Standards and Design Exceptions

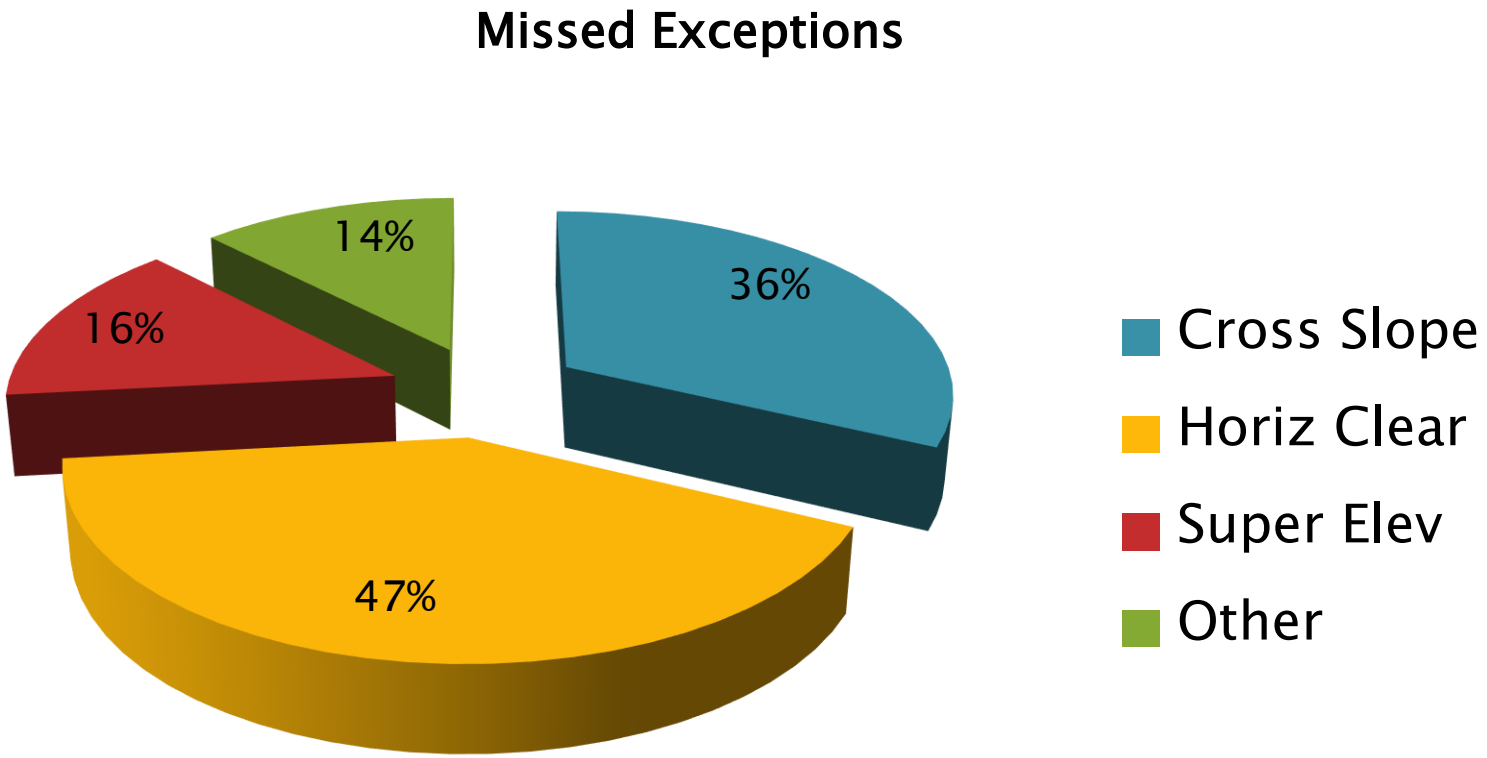
"We encourage State DOTs and local agencies to consider using design exceptions as a useful tool to achieve a design that balances project and user needs, performance, cost, environmental implications, and community values. State DOTs or local authorities must evaluate, approve, and document design exceptions."

Effective Oct 1, 2012, All NHS projects under MAP-21 must meet FHWA approved standards or receive approved Design Exceptions.

Most Common Design Exceptions

1. Shoulder Width
2. Cross Slope
3. Horizontal Clearance
4. Bridge Width
5. Stopping Sight Distance
6. Vertical Alignment
7. Structural Capacity

QAR Findings (2009–2012)



QARs: Horizontal Clearance

QARs Cross Slope

QARs: Superelevation

Design Variations

Required when proposed design elements are below the Department's criteria and where a Design Exception is not required. Some examples include:

- Border Width
- Sidewalks
- Bike Lanes
- Hand Rails
- Front Slope

- Design Memo or Formal Submittal Allowed

Why do we consider Design Exceptions and Variations?

Why do we consider Design Exceptions and Variations?

Why do we consider Design Exceptions and Variations?

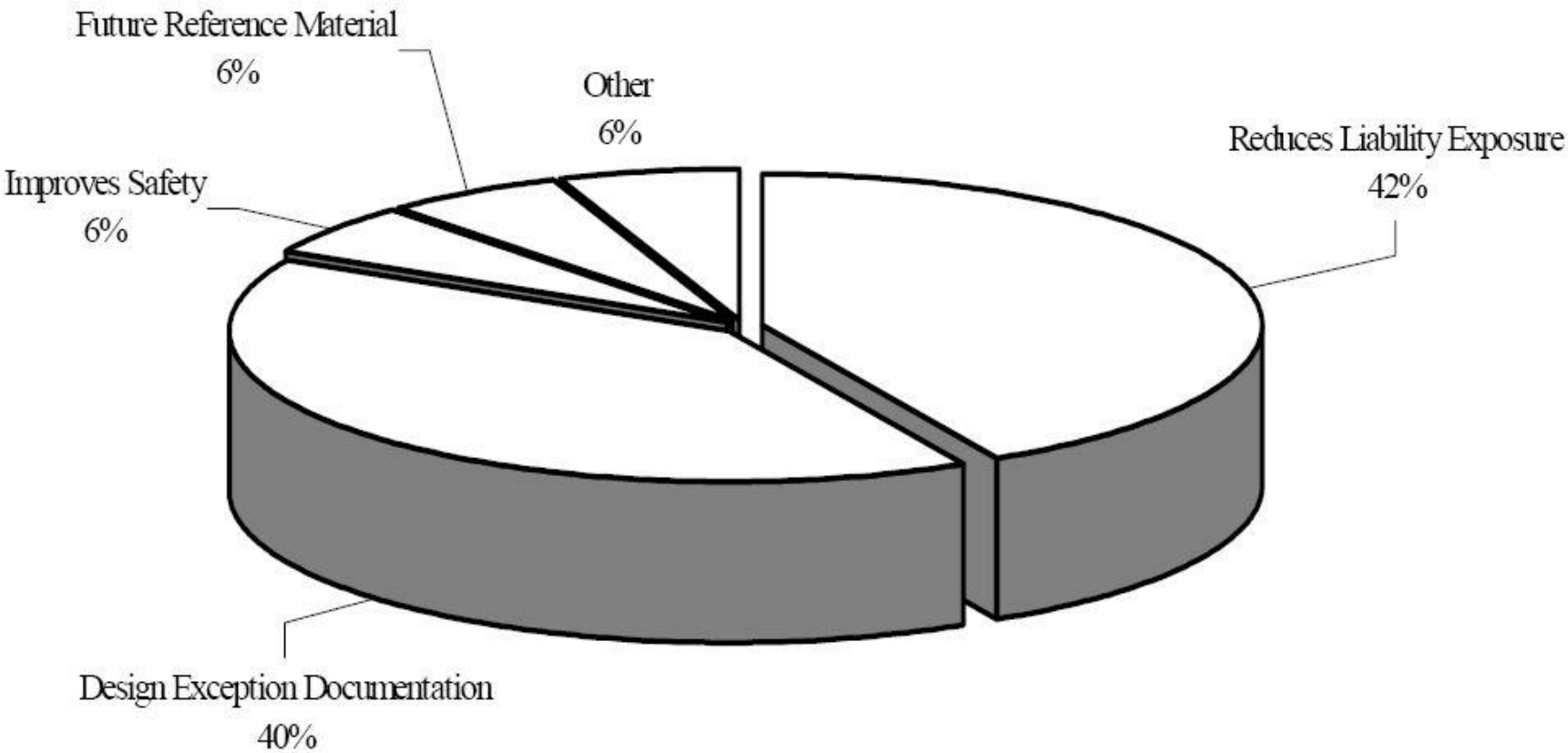
Why do we consider Design Exceptions and Variations?

Why do we consider Design Exceptions and Variations?

Why do we consider Design Exceptions and Variations?

Why do we consider Design Exceptions and Variations?

Why document?



- Source: FHWA "Developing Stronger Justification for Design Exceptions", 2009.

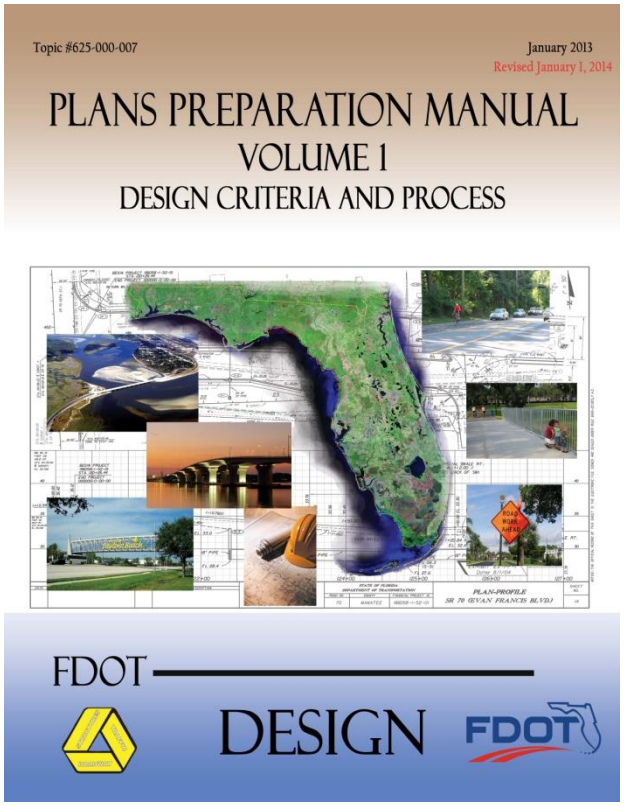
Design Project Scopes

- Set design criteria according to your scope.
  - New Construction (Design/Bid/Build)
  - RRR (D/B/B)
  - Local/LAP
  - Design/Build
  - Design/Build/Operate/Maintain/Finance
  - Drainage, Safety, and Traffic Ops Projects (Exceptions may not be required)
  - Maintenance resurfacing (Some Exclusions)

Criteria Resources:

FDOT	AASHTO
Plans Preparation Manual (PPM)	AASHTO Greenbook
Design Standards	AASHTO Interstate Standards
Structures Manual	AASHTO Roadside Design Guide

Plans Preparation Manual (PPM) 2014

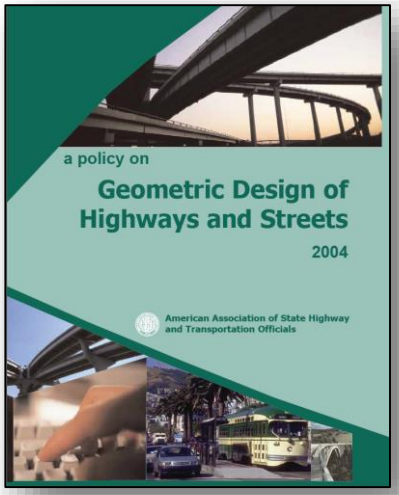


<u>Chapter 2, 4, 23, 25</u>

- Ch 2 and 25 New/RRR Criteria
- Ch. 4 Roadside Safety
- Ch 23 Approval processes:
  - Design Exceptions
  - Design Variations

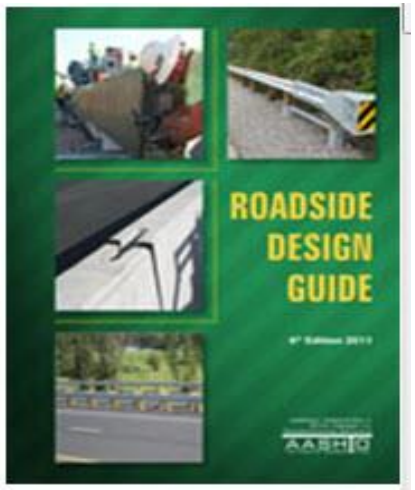
AASHTO Criteria

A Policy on Geometric Design of Highways and Streets (Greenbook)

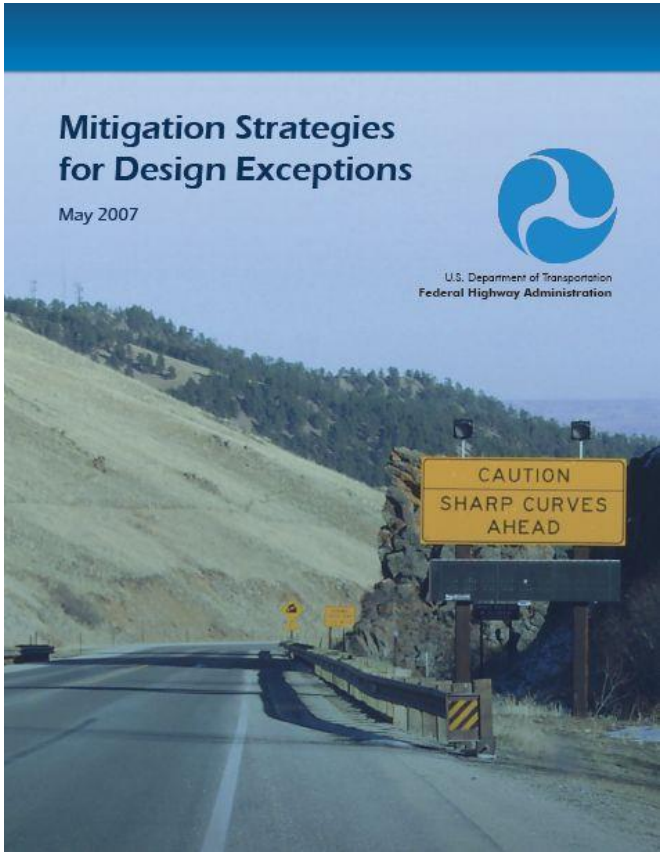


A Policy on Design Standards Interstate System

Roadside Design Guide



FHWA Mitigation Strategies for Design Exceptions

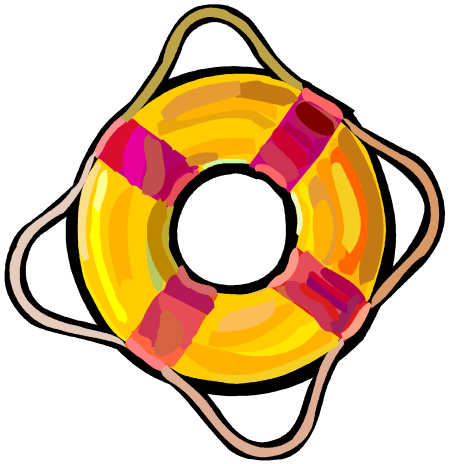


1. Basic Information
2. Design Exception Process
3. Clarifies Criteria
4. Potential Mitigation Strategies
5. Case Studies

Website: http://safety.fhwa.dot.gov/geometric/pubs/mitigationstrategies/index.htm/

Design Exceptions & Variations

- Safety Analysis



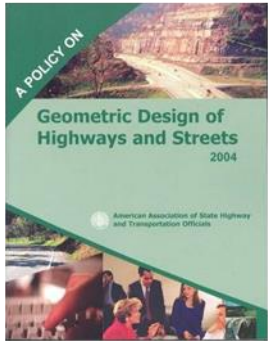
Defining Safety for Road Design

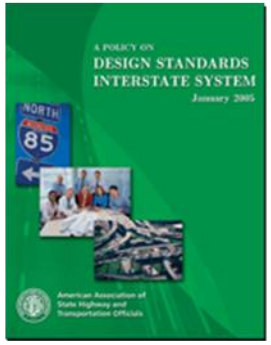
- NOMINAL SAFETY

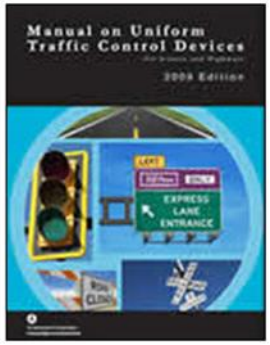
examined in reference to compliance with standards, warrants, guidelines and sanctioned design procedures

- SUBSTANTIVE SAFETY

actual or expected crash frequency and severity for a highway or roadway segment or intersection



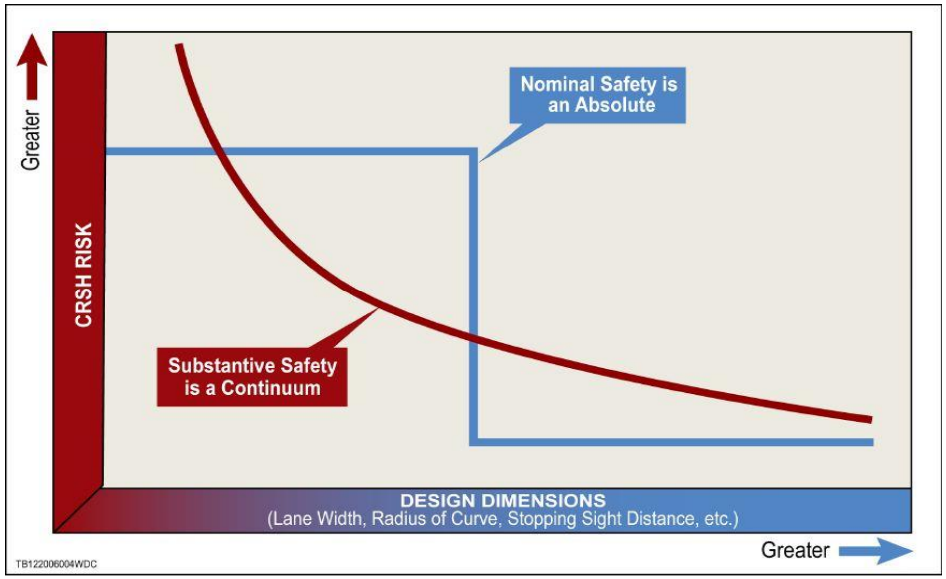




Source: FHWA Resource Center
Developing Strong Justifications for Design Exceptions

Nominal vs. Substantive:

- Nominal safety changes abruptly along with criteria change



- Substantive safety continuously changes with changes in historical or predicted crashes.

CRFs

- CRFs (Crash Reduction Factors): Measure the percent reduction in the number of crashes as a result of the implementation of one or more countermeasures.
  - Generally used with Historical Crash Analyses
  - Apply to crashes attributable to the deficient condition. Used for the benefit portion of the B/C equation.

CMFs

- CMFs (Crash Modification Factors/AMF): measure the percentage of change in the number of crashes as a result of implementing one or more countermeasures.
  - Generally used in HSM and Predictive Analyses
  - Apply this factor to the total amount of crashes for each alternative.
  - CMF= 1- (CRF/100)

Analytical Methods and Tools

- Historical
  - Historical crash method
  - 5 Year Analysis
  - Uses Historical Crashes
  - Use CRFs.
- Predictive
  - HSM
  - RSAP
  - Design Life Analysis
  - Uses future crashes
  - Uses CMFs.

Historical Crash Method

- Compares annualized observed crashes over 5 years attributable to a deficient condition to the costs for construction to meet criteria. <u>Uses CRFs.</u>
  - Would like an alternative Benefit/Cost (B/C) comparison, when possible.
  - Use crash analysis detailed later with CRFs to generate annual reductions in attributable crashes.

Highway Safety Manual

- 1st Edition 2010
- FDOT Implementation under development
- "Resource that provides safety knowledge and tools in a useful form to facilitate improved decision making based on safety performance." Excerpt from 2010 HSM
- Design Exception Safety Analysis Tool

Highway Safety Manual

Safety Analysis Combinations:

- Apply Part C SPFs (Safety Performance Functions) with Part C CMFs.
- Apply Part C SPFs with Part D CMFs.
- Apply Part C SPFs with FHWA Clearinghouse CMFs.
- Apply Part D CMFs to Historical Crash rates.

- Design Exception Training with an HSM component is coming soon statewide.

Design Exception Tools

SAFETY ANALYSIS TOOLS FOR DESIGN EXCEPTIONS AND VARIATIONS (MAY 2013)

13 Controlling Design Elements	2-lane Undivided			4-lane Undivided			4-lane Divided			Urban & Suburban Arterials			Freeways			Speed Change Lanes			Ramps			All Facilities		Reference ID for State Safety Office CRFs or CRF Recommended Range
	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Roadside Safety Analysis Program (RSAP)	Historical Crash Method (HCM)	
	Part C	Part D		Part C	Part D		Part C	Part D		Part C	Part D		Part C	Part D		Part C	Part D		Part C	Part D				
Design Speed			1-Star (1)			1-Star (1)			1-Star (1)		✓	3-Star (3) 4-Star (1) 1-Star (3)			1-Star (1)								✓	45, 116
Lane Width	✓	✓	2-Star (4) 4-Star (4) 5-Star (12) Unrated (7)	✓	✓	2-Star (4) 4-Star (4) 5-Star (10) Unrated (5)	✓	✓	2-Star (4) 4-Star (4) 5-Star (8) Unrated (5)	✓	✓	2-Star (3) 4-Star (3) 5-Star (17) Unrated (5)	✓	✓	1-Star (1) 4-Star (1) 5-Star (1)	✓	✓		✓	✓			✓	18-22, 40-44, 48, 80, 95, 106, 118, 120-122, 126
Shoulder Width	✓	✓	2-Star (4) 4-Star (4) 5-Star (15) Unrated (7)	✓	✓	2-Star (4) 4-Star (4) 5-Star (12) Unrated (5)	✓	✓	2-Star (4) 3-Star (4) 5-Star (8) Unrated (5)		✓	2-Star (3) 4-Star (3) 5-Star (10) Unrated (5)	✓	✓	2-Star (1) 4-Star (1) 5-Star (1)	✓	✓		✓			✓	✓	18-22, 40-44, 48, 91, 92, 95, 106, 117, 118, 120-126, 126
Bridge Width																							✓	94
Horizontal Alignment	✓	✓										5-Star (1)	✓			✓			✓				✓	84, 94
Superelevation	✓	✓																					✓	85, 95, 96
Vertical Alignment		✓	2-Star (1) Unrated (1)																				✓	
Grade	✓	✓	2-Star (1) Unrated (1)																				✓	85
Stopping Sight Distance																							✓	104
Cross Slope																							✓	Recommended CRF Range 0.80 - 0.83
Vertical Clearance																							✓	
Horizontal Clearance (lateral offset to obstruction)	✓	✓	2-Star (4) 4-Star (2) 5-Star (7) Unrated (12)		✓	2-Star (1) 4-Star (1) 5-Star (1)		✓	2-Star (1) 4-Star (6) 5-Star (4)		✓	2-Star (1) 4-Star (2) 5-Star (1)		✓	2-Star (1) 4-Star (1) 5-Star (1)		✓		✓	✓		✓	✓	14-29, 35-38, 78-83, 101, 102, 114, 125, 127
Structural Capacity	Provide Load Rating Calculations and Maintenance Office Recommendation for Inventory Ratings less than 1.0. See FDOT Structures Design Guide Sections 1.7, 3.10.14, 4.6.10, & 7.1.1 and FDOT Bridge Load Rating Manual (http://www.dot.state.fl.us/statemaintenanceoffice/LRManual2012.pdf)																							105

NOTES:
1. The interactive version of this spreadsheet will be coming soon.
2. 1-Star (#) - Numbers in parenthesis indicate number of available FHWA Clearinghouse CMFs with its corresponding Star Rating as of May 2013. This table will be updated on an as-needed basis using the latest FHWA Clearinghouse CMFs which are updated quarterly.
3. CMF - measures the percentage of change in number of crashes as a result of implementing one or more countermeasures; typically are applied in HSM Predictive Analyses.
4. CRF - measures the percent reduction in number of crashes as a result of implementing one or more countermeasures; typically are applied in Historical Crash Method Analyses.
5. CMF & CRF - multiplicative factors that can help identify the safety impacts of implementing one or more countermeasures. Mathematically related: CMF = 1 - (CRF / 100).
6. FDOT State Safety Office CRFs with less than 3 Projects are not recommended for use. In any analysis, no more than 3 Cumulative CMFs/CRFs should be used. Non cumulative CRFs or CRFs shall not be used together. (e.g. a stop sign and a traffic signal)
7. FHWA CRFs can be used with the Historical Crash Method.
8. References used to produce this table include:

Reference	Website
Highway Safety Manual	www.highwaysafetymanual.org
FHWA Clearinghouse	www.cmfclearinghouse.org
FDOT State Safety Office CRFs	www.dot.state.fl.us/safety/ss/Crf/Crfs/CRF.pdf
FDOT Roadway Design Office	www.dot.state.fl.us/roadway/default.htm
FHWA Desktop Reference for Crash Reduction Factors	safety.fhwa.dot.gov/tools/crf/resources/fhwa08011

Design Exception Tools

SAFETY ANALYSIS TOOLS FOR DESIGN EXCEPTIONS AND VARIATIONS (MAY 2013)

13 Controlling Design Elements	2-lane Undivided			4-lane Undivided			4-lane Divided			Urban & Suburban Arterials			Freeways			Speed-Change Lanes			Ramps			All Facilities		Reference ID for State Safety Office CRFs or CRF Recommended Range
	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Roadside Safety Analysis Program (RSAP)	Historical Crash Method (HCM)	
	Part C	Part D		Part C	Part D		Part C	Part D		Part C	Part D		Part C	Part D		Part C	Part D		Part C	Part D				
Design Speed			5-Star (5)			5-Star (5)			5-Star (5)		✓	3-Star (8) 4-Star (2) 5-Star (8)			5-Star (5)								✓	45, 116
Lane Width	✓	✓	2-Star (4) 4-Star (6) 5-Star (12) Unrated (7)	✓	✓	2-Star (4) 4-Star (6) 5-Star (10) Unrated (5)	✓	✓	2-Star (4) 4-Star (6) 5-Star (8) Unrated (5)	✓	✓	2-Star (8) 4-Star (8) 5-Star (17) Unrated (5)	✓	✓	3-Star (6) 4-Star (2) 5-Star (5)	✓	✓		✓	✓			✓	18-22, 40-44, 48, 90, 95, 106, 118, 120-122, 126
Shoulder Width	✓	✓	2-Star (4) 4-Star (6) 5-Star (15) Unrated (7)	✓	✓	2-Star (4) 4-Star (8) 5-Star (10) Unrated (5)	✓	✓	3-Star (4) 4-Star (8) 5-Star (8) Unrated (5)		✓	2-Star (4) 4-Star (8) 5-Star (20) Unrated (5)	✓	✓	2-Star (5) 4-Star (1) 5-Star (1)	✓	✓		✓			✓	✓	18-22, 40-44, 48, 91, 92, 95, 106, 117, 118, 120-122, 126
Bridge Width																							✓	94
Horizontal Alignment	✓	✓										5-Star (3)	✓			✓			✓				✓	84, 99
Superelevation	✓	✓																					✓	85, 95, 96
Vertical Alignment		✓	2-Star (1) Unrated (2)																				✓	
Grade	✓	✓	2-Star (1) Unrated (2)																				✓	85
Stopping Sight Distance																							✓	104
Cross Slope																							✓	Recommended CRF Range 0.80 - 0.33
Vertical Clearance																							✓	
Horizontal Clearance (lateral offset to obstruction)	✓	✓	2-Star (4) 4-Star (2) 5-Star (7) Unrated (22)		✓	2-Star (2) 4-Star (1) 5-Star (2)		✓	2-Star (2) 4-Star (6) 5-Star (4)		✓	2-Star (2) 4-Star (1) 5-Star (1)		✓	2-Star (2) 4-Star (1) 5-Star (1)		✓		✓	✓		✓	✓	23-29, 35-38, 78-83, 101, 107, 114, 125, 127
Structural Capacity	Provide Load Rating Calculations and Maintenance Office Recommendation for Inventory Ratings less than 1.0. See FDOT Structures Design Guide Sections 1.7, 3.15.14, 4.8.10, & 7.1.1 and FDOT Bridge Load Rating Manual (http://www.dot.state.fl.us/statemaintenance/ftp/LRManual2012.pdf)																							105

NOTES:
1. The interactive version of this spreadsheet will be coming soon.
2. 1-Star (#) - Numbers in parenthesis indicate number of available FHWA Clearinghouse CMFs with its corresponding Star Rating as of May 2013. This table will be updated on an as-needed basis using the latest FHWA Clearinghouse CMFs which are updated quarterly.
3. CMF - measures the percentage of change in number of crashes as a result of implementing one or more countermeasures; typically are applied in HSM Predictive Analyses.
4. CRF - measures the percent reduction in number of crashes as a result of implementing one or more countermeasures; typically are applied in Historical Crash Method Analyses.
5. CMF & CRF - multiplicative factors that can help identify the safety impacts of implementing one or more countermeasures. Mathematically related: CMF = 1 - (CRF / 100).
6. FDOT State Safety Office CRFs with less than 3 Projects are not recommended for use. In any analysis, no more than 3 Cumulative CMFs/CRFs should be used. Non cumulative CRFs or CRFs shall not be used together. (e.g. a stop sign and a traffic signal)
7. FHWA CRFs can be used with the Historical Crash Method.
8. References used to produce this table include:

Reference	Website
Highway Safety Manual	www.highwaysafetymanual.org
FHWA Clearinghouse	www.cmfclearinghouse.org
FDOT State Safety Office CRFs	www.dot.state.fl.us/rdesign/DM/tools/CRF.pdf
FDOT Roadway Design Office	www.dot.state.fl.us/rdesign/DM/draft.htm
FHWA Desktop Reference for Crash Reduction Factors	safety.fhwa.dot.gov/tools/crf/resources/fhwasa08011

Design Exception Tools

13 Controlling Design Elements	2-lane Undivided			4-lane Undivided			
	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	High
	Part C	Part D		Part C	Part D		Part
Design Speed			5-Star (5)			5-Star (5)	
Lane Width	✓	✓	3-Star (4) 4-Star (6) 5-Star (12) Unrated (7)	✓	✓	3-Star (4) 4-Star (6) 5-Star (10) Unrated (5)	✓
Shoulder Width	✓	✓	3-Star (4) 4-Star (6) 5-Star (15) Unrated (7)	✓	✓	3-Star (4) 4-Star (6) 5-Star (10) Unrated (5)	✓
Bridge Width							
Horizontal Alignment	✓	✓					

Design Exception Tools

SAFETY ANALYSIS TOOLS FOR DESIGN EXCEPTIONS AND VARIATIONS (MAY 2013)

13 Controlling Design Elements	2-lane Undivided			6-lane Undivided			4-lane Divided			Urban & Suburban Arterials			Freeways			Speed Change Lanes			Ramps			All Facilities			Reference ID for State Safety Office CRFs or CRF Recommended Range
	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	FHWA Clearinghouse CMFs	Roadside Safety Analysis Program (RSAP)	Historical Crash Method (HCM)	
	Part C	Part D		Part C	Part D		Part C	Part D		Part C	Part D		Part C	Part D		Part C	Part D		Part C	Part D					
Design Speed			1-Star (1)			1-Star (1)			1-Star (1)		✓	1-Star (8) 4-Star (1) 5-Star (8)			1-Star (1)									✓	45, 116
Lane Width	✓	✓	2-Star (4) 4-Star (6) 5-Star (12) Unrated (7)	✓	✓	2-Star (4) 4-Star (4) 5-Star (10) Unrated (3)	✓	✓	2-Star (4) 4-Star (4) 5-Star (8) Unrated (3)	✓	✓	2-Star (3) 4-Star (8) 5-Star (17) Unrated (3)	✓	✓	1-Star (1) 4-Star (1) 5-Star (1)	✓	✓		✓	✓				✓	19-22, 30-34, 41, 90, 95, 106, 118, 120-122, 126
Shoulder Width	✓	✓	2-Star (4) 4-Star (6) 5-Star (15) Unrated (7)	✓	✓	2-Star (4) 4-Star (8) 5-Star (12) Unrated (3)	✓	✓	2-Star (4) 4-Star (8) 5-Star (8) Unrated (3)		✓	2-Star (3) 4-Star (8) 5-Star (10) Unrated (3)	✓	✓	2-Star (1) 4-Star (1) 5-Star (1)	✓	✓		✓				✓	✓	19-22, 30-34, 41, 91, 92, 95, 106, 117, 119, 120-122, 126
Bridge Width																								✓	94
Horizontal Alignment	✓	✓										5-Star (1)	✓			✓			✓					✓	94, 96
Superelevation	✓	✓																						✓	85, 95, 96
Vertical Alignment		✓	2-Star (1) Unrated (1)																					✓	
Grade	✓	✓	2-Star (1) Unrated (1)																					✓	95
Stopping Sight Distance																								✓	104
Cross Slope																								✓	Recommended CRF Range 0.80 - 0.33
Vertical Clearance																								✓	
Horizontal Clearance (lateral offset to obstruction)	✓	✓	2-Star (4) 4-Star (2) 5-Star (7) Unrated (42)		✓	2-Star (3) 4-Star (1) 5-Star (3)		✓	2-Star (3) 4-Star (6) 5-Star (4)		✓	2-Star (3) 4-Star (1) 5-Star (1)		✓	2-Star (3) 4-Star (1) 5-Star (1)		✓		✓	✓		✓	✓	✓	13-29, 35-40, 78-83, 101, 107, 114, 125, 127
Structural Capacity	Provide Load Rating Calculations and Maintenance Office Recommendation for Inventory Ratings less than 1.0. See FDOT Structures Design Guide Sections 1.7, 3.15.14, 4.8.10, & 7.1.1 and FDOT Bridge Load Rating Manual (http://www.dot.state.fl.us/statemaintenanceoffice/LRManual82012.pdf)																								105

NOTES:
1. The interactive version of this spreadsheet will be coming soon.
2. 1-Star (#) - Numbers in parenthesis indicate number of available FHWA Clearinghouse CMFs with its corresponding Star Rating as of May 2013. This table will be updated on an as-needed basis using the latest FHWA Clearinghouse CMFs which are updated quarterly.
3. CMF - measures the percentage of change in number of crashes as a result of implementing one or more countermeasures; typically are applied in HSM Predictive Analyses.
4. CRF - measures the percent reduction in number of crashes as a result of implementing one or more countermeasures; typically are applied in Historical Crash Method Analyses.
5. CMF & CRF - multiplicative factors that can help identify the safety impacts of implementing one or more countermeasures. Mathematically related: CMF = 1 - (CRF / 100).
6. FDOT State Safety Office CRFs with less than 3 Projects are not recommended for use. In any analysis, no more than 3 Cumulative CMFs/CRFs should be used. Non cumulative CRFs or CRFs shall not be used together. (e.g. a stop sign and a traffic signal)
7. FHWA CRFs can be used with the Historical Crash Method.
8. References used to produce this table include:

Reference	Website
Highway Safety Manual	www.highwaysafetymanual.org
FHWA Clearinghouse	www.cmfclearinghouse.org
FDOT State Safety Office CRFs	www.dot.state.fl.us/rdwdesign/DS/tools/CRF.pdf
FDOT Roadway Design Office	www.dot.state.fl.us/rdwdesign/defaultdesign
FHWA Desktop Reference for Crash Reduction Factors	safety.fhwa.dot.gov/tools/crf/resources/fhwasa09011

Design Exception Tools

	Ramps			All Facilities		
/A house Fs	Highway Safety Manual		FHWA Clearinghouse CMFs	Roadside Safety Analysis Program (RSAP)	Historical Crash Method (HCM)	State Safety Office CRFs (Countermeasure IDs) or CRF Recommended Range
	Part C	Part D				
					✓	45, 116
	✓	✓			✓	18-22, 30-34, 43, 90, 95, 106, 118, 120-122, 126
	✓			✓	✓	18-22, 30-34, 43, 91, 92, 95, 106, 117, 118, 120-123, 126
					✓	94

Design Exception Tools

SAFETY ANALYSIS TOOLS FOR DESIGN EXCEPTIONS AND VARIATIONS (MAY 2013)

13 Controlling Design Elements	2-lane Undivided			4-lane Undivided			4-lane Divided			Urban & Suburban Arterials			Freeways			Speed Change Lanes			Ramps			All Facilities		Reference ID for State Safety Office CRMs or CRF Recommended Range
	Highway Safety Manual		FHWA Clearinghouse CMMs	Highway Safety Manual		FHWA Clearinghouse CMMs	Highway Safety Manual		FHWA Clearinghouse CMMs	Highway Safety Manual		FHWA Clearinghouse CMMs	Highway Safety Manual		FHWA Clearinghouse CMMs	Highway Safety Manual		FHWA Clearinghouse CMMs	Highway Safety Manual		FHWA Clearinghouse CMMs	Roadside Safety Analysis Program (RSAP)	Historical Crash Method (HCM)	
	Part C	Part D		Part C	Part D		Part C	Part D		Part C	Part D		Part C	Part D		Part C	Part D		Part C	Part D				
Design Speed			3-Star (3)			3-Star (3)			3-Star (3)		✓	3-Star (8) 4-Star (1) 5-Star (8)			3-Star (3)								✓	45, 116
Lane Width	✓	✓	2-Star (4) 4-Star (9) 5-Star (12) Unrated (7)	✓	✓	2-Star (4) 4-Star (9) 5-Star (18) Unrated (5)	✓	✓	2-Star (4) 4-Star (9) 5-Star (9) Unrated (5)	✓	✓	2-Star (1) 4-Star (9) 5-Star (17) Unrated (5)	✓	✓	3-Star (3) 4-Star (1) 5-Star (1)	✓	✓		✓	✓			✓	18-22, 30-34, 43, 90, 95, 106, 118, 120-122, 126
Shoulder Width	✓	✓	2-Star (4) 4-Star (9) 5-Star (15) Unrated (7)	✓	✓	2-Star (4) 4-Star (9) 5-Star (12) Unrated (5)	✓	✓	2-Star (4) 4-Star (9) 5-Star (9) Unrated (5)		✓	2-Star (1) 4-Star (9) 5-Star (18) Unrated (5)	✓	✓	2-Star (1) 4-Star (1) 5-Star (1)	✓	✓		✓			✓	✓	18-22, 30-34, 43, 91, 92, 95, 106, 117, 118, 120-122, 126
Bridge Width																							✓	94
Horizontal Alignment	✓	✓										5-Star (1)	✓			✓			✓				✓	94, 96
Superelevation	✓	✓																					✓	85, 95, 96
Vertical Alignment		✓	2-Star (1) Unrated (1)																				✓	
Grade	✓	✓	2-Star (1) Unrated (1)																				✓	85
Stopping Sight Distance																							✓	104
Cross Slope																							✓	Recommended CRF Range 0.80 - 0.88
Vertical Clearance																							✓	
Horizontal Clearance (lateral offset to obstruction)	✓	✓	2-Star (4) 4-Star (2) 5-Star (7) Unrated (22)		✓	2-Star (1) 4-Star (1) 5-Star (1)		✓	2-Star (1) 4-Star (6) 5-Star (8)		✓	2-Star (1) 4-Star (1) 5-Star (1)		✓	2-Star (1) 4-Star (1) 5-Star (1)		✓		✓	✓		✓	✓	33-39, 45-48, 78-83, 101, 107, 114, 115, 127
Structural Capacity	Provide Load Rating Calculations and Maintenance Office Recommendation for Inventory Ratings less than 1.0. See FDOT Structures Design Guide Sections 1.7, 3.15.14, 4.8.10, & 7.1.1 and FDOT Bridge Load Rating Manual (http://www.dot.state.fl.us/statemaintenanceoffice/LRManual82012.pdf)																							105

NOTES:
1. The interactive version of this spreadsheet will be coming soon.
2. 1-Star (#) - Numbers in parenthesis indicate number of available FHWA Clearinghouse CMMs with its corresponding Star Rating as of May 2013. This table will be updated on an as-needed basis using the latest FHWA Clearinghouse CMMs which are updated quarterly.
3. CMF - measures the percentage of change in number of crashes as a result of implementing one or more countermeasures; typically are applied in HSM Predictive Analyses.
4. CRF - measures the percent reduction in number of crashes as a result of implementing one or more countermeasures; typically are applied in Historical Crash Method Analyses.
5. CMF & CRF - multiplicative factors that can help identify the safety impacts of implementing one or more countermeasures. Mathematically related: CMF = 1 - (CRF / 100).
6. FDOT State Safety Office CRMs with less than 3 Projects are not recommended for use. In any analysis, no more than 3 Cumulative CMFs/CRMs should be used. Non cumulative CRMs or CRFs shall not be used together. (e.g. a stop sign and a traffic signal)
7. FHWA CRMs can be used with the Historical Crash Method.
8. References used to produce this table include:

Reference	Website
Highway Safety Manual	www.highwaysafetymanual.org
FHWA Clearinghouse	www.cmfclearinghouse.org
FDOT State Safety Office CRMs	www.dot.state.fl.us/rdwdesign/QR/Tools/CRF.pdf
FDOT Roadway Design Office	www.dot.state.fl.us/rdwdesign/DesignStandards.htm
FHWA Desktop Reference for Crash Reduction Factors	safety.fhwa.dot.gov/tools/crf/resources/Preview/DRCF/

Design Exception Tools

		✓	104
		✓	Recommended CRF Range 0.30 - 0.33
		✓	
	✓	✓	23-29, 35-38, 78-83, 101, 107,

Design Exception Tools

SAFETY ANALYSIS TOOLS FOR DESIGN EXCEPTIONS AND VARIATIONS (MAY 2013)

13 Controlling Design Elements	2-lane Undivided			4-lane Undivided			4-lane Divided			Urban & Suburban Arterials			Freeways			Speed-Change Lanes			Ramps			All Facilities		Reference ID for State Safety Office CRFs or CRF Recommended Range
	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Highway Safety Manual		FHWA Clearinghouse CMFs	Roadside Safety Analysis Program (RSAP)	Historical Crash Method (HCM)	
	Part C	Part D		Part C	Part D		Part C	Part D		Part C	Part D		Part C	Part D		Part C	Part D		Part C	Part D				
Design Speed			1-Star (1)			1-Star (1)			1-Star (1)		✓	3-Star (3) 4-Star (1) 1-Star (3)			1-Star (1)								✓	45, 116
Lane Width	✓	✓	2-Star (4) 4-Star (3) 5-Star (12) Unrated (7)	✓	✓	2-Star (4) 4-Star (3) 5-Star (10) Unrated (5)	✓	✓	2-Star (4) 4-Star (3) 5-Star (8) Unrated (5)	✓	✓	2-Star (3) 4-Star (3) 5-Star (17) Unrated (5)	✓	✓	1-Star (1) 4-Star (1) 1-Star (1)	✓	✓		✓	✓			✓	18-22, 30-34, 43, 90, 95, 106, 118, 120-122, 126
Shoulder Width	✓	✓	2-Star (4) 4-Star (3) 5-Star (15) Unrated (7)	✓	✓	2-Star (4) 4-Star (3) 5-Star (12) Unrated (5)	✓	✓	2-Star (4) 4-Star (3) 1-Star (4) Unrated (5)		✓	2-Star (3) 4-Star (3) 5-Star (10) Unrated (5)	✓	✓	2-Star (1) 4-Star (1) 5-Star (1)	✓	✓		✓			✓	✓	18-22, 30-34, 43, 95, 92, 95, 106, 117, 118, 120-122, 126
Bridge Width																							✓	94
Horizontal Alignment	✓	✓										5-Star (1)	✓			✓			✓				✓	94, 96
Superelevation	✓	✓																					✓	85, 95, 96
Vertical Alignment		✓	2-Star (1) Unrated (1)																				✓	
Grade	✓	✓	2-Star (1) Unrated (1)																				✓	85
Stopping Sight Distance																							✓	104
Cross Slope																							✓	Recommended CRF Range 0.80 - 0.83
Vertical Clearance																							✓	
Horizontal Clearance (lateral offset to obstruction)	✓	✓	2-Star (4) 4-Star (2) 5-Star (7) Unrated (12)		✓	2-Star (1) 4-Star (1) 5-Star (1)		✓	2-Star (2) 4-Star (6) 5-Star (4)		✓	2-Star (1) 4-Star (2) 5-Star (1)		✓	2-Star (1) 4-Star (1) 5-Star (1)		✓		✓	✓			✓	✓	13-29, 35-40, 78-83, 101, 107, 114, 125, 127
Structural Capacity	Provide Load Rating Calculations and Maintenance Office Recommendation for Inventory Ratings less than 1.0. See FDOT Structures Design Guide Sections 1.7, 3.15.14, 4.8.10, & 7.1.1 and FDOT Bridge Load Rating Manual (http://www.dot.state.fl.us/structuresmaintenanceoffice/LRManual2012.pdf)																							105

NOTES:
1. The interactive version of this spreadsheet will be coming soon.
2. 1-Star (#) - Numbers in parenthesis indicate number of available FHWA Clearinghouse CMFs with its corresponding star rating as of May 2013. This table will be updated on an as-needed basis using the latest FHWA Clearinghouse CMFs which are updated quarterly.
3. CMF - measures the percentage of change in number of crashes as a result of implementing one or more countermeasures, typically are applied in HSM Predictive Analyses.
4. CRF - measures the percent reduction in number of crashes as a result of implementing one or more countermeasures, typically are applied in Historical Crash Method Analyses.
5. CMF & CRF - multiplicative factors that can help identify the safety impacts of implementing one or more countermeasures. Mathematically related: CMF = 1 - (CRF / 100).
6. FDOT State Safety Office CRFs with less than 3 Projects are not recommended for use. In any analysis, no more than 3 Cumulative CMFs/CRFs should be used. Non cumulative CRFs or CRFs shall not be used together. (e.g. a stop sign and a traffic signal)
7. FHWA CRFs can be used with the Historical Crash Method.
8. References used to produce this table include:

Reference	Website
Highway Safety Manual	www.highwaysafetymanual.org
FHWA Clearinghouse	www.cmfclearinghouse.org
FDOT State Safety Office CRFs	www.dot.state.fl.us/safetyoffice/Tools/CRF.pdf
FDOT Roadway Design Office	www.dot.state.fl.us/roadwaydesign/default.htm
FHWA Desktop Reference for Crash Reduction Factors	safety.fhwa.dot.gov/tools/crf/resources/fhwa09011

Design Exception Tools: Notes

- References
- Website Links
- Special Notes for CMFs/CRFs
- Legend for acronyms in spreadsheet

NOTES:

1. The interactive version of this spreadsheet can be found on-line at the following website: www.dot.state.fl.us/rddesign/QA/Tools.shtm
2. 1-Star (#) - Numbers in parenthesis indicate number of available FHWA Clearinghouse CMFs with its corresponding Star Rating as of May 2013. This table will be updated on an as-
3. CMF - measures the percentage of change in number of crashes as a result of implementing one or more countermeasures; typically are applied in HSM Predictive Analyses
4. CRF - measures the percent reduction in number of crashes as a result of implementing one or more countermeasures; typically are applied in Historical Crash Method Analyses.
5. CMF & CRF - multiplicative factors that can help identify the safety impacts of implementing one or more countermeasures. Mathematically related: CMF = 1 - (CRF / 100)
6. FDOT State Safety Office CRFs with less than 3 Projects are not recommended for use.
7. References used to produce this table include:

Reference	Website
Highway Safety Manual	www.highwaysafetymanual.org
FHWA Clearinghouse	www.clearinghouse.org
FDOT State Safety Office CRFs	www.dot.state.fl.us/rddesign/QA/Tools/CRF.pdf
FDOT Roadway Design Office	www.dot.state.fl.us/rddesign/default.shtm
FHWA Desktop Reference for Crash Reduction Factors	safety.fhwa.dot.gov/tools/crf/resources/fhwasa08011

Design Exceptions & Variations

Historical Crash Analysis

Historical Crash Reports Provide Clues

Historical Crash Analysis: Bridge Width Highlights

Identify the location(s)

↓

Gather Data

↓

Analyze Crashes

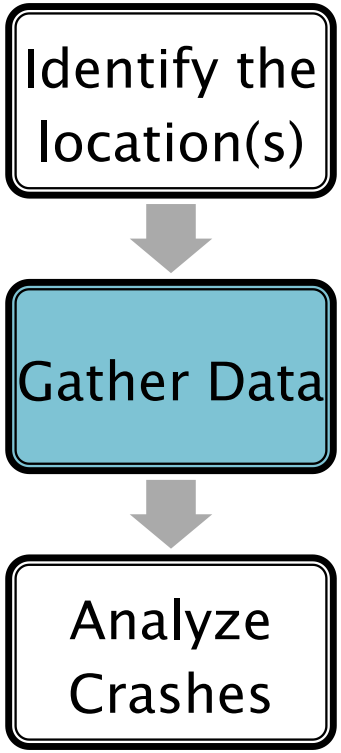
District Three: SR 97 Escambia County

Historical Crash Analysis
Highlights

Establishing Limits

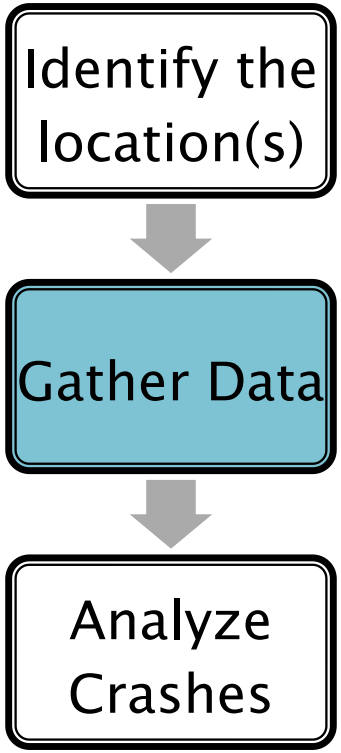
- Project
  - MP 0.615 – 20.070
- Bridge
  - MP 16.087 – 16.101

Historical Crash Analysis Highlights



- Analysis Period
  - 5 Complete Years of crash data
- What Years?
  - 2007 – 2011 Minimum

Historical Crash Analysis Highlights



- Crash Analysis Reporting (C.A.R.) System
  - Detail or Summary Reports
  - Law Enforcement Crash Reports (Long Forms)
  - **Order CARS crash records through your Project Manager.**

Detail Output (5 Year Minimum)

```
REPORT...CARPJ13-01                                FLORIDA - DEPARTMENT OF TRANSPORTATION                                PAGE NO:       2
  DATE...06/05/2013                                 C A R - CRASH ANALYSIS REPORTING SYSTEM                               USERID:  RD960JF
  TIME...10:21:24                          CRASH DATA DETAIL AND EXTRACT FOR STATE-MAINTAINED ROADS                       I/O....  CARO213

COMMENT:                                    1 - SORT BY ROADWAY, MILE POINT
  FROM: 01/01/2007 TO 12/31/2011                                       RAMPS INCL
  FROM CO/SEC/SUB: 48 004 000               MP: 008.334                 INFL INCL
  TO   CO/SEC/SUB: 48 004 000               MP: 010.043                CR/OS INCL

   C      ROADWYID   M     N    S    ADT   Y  M  D  H  CRCC  A H  L W R T  R  SL R A V  V  VM V PI CC D  V  V  V  V PI CC D  # # N
   R N    C S   S    I     EN   TR   VAR   E  O  A  O  RALA  L AE I E D RC OC IO O C ET EU EO E OM OA RA ET EU EM E OM OA RA     UI
   A U    O E   E    L     AO   AO   EIA   A  N  Y  U  ATAT  C RV G A   AO AO TC A C HY HS HV H IP NU IG HY HS HO H IP NU IG V K MN
   S M    U C  SC    E     RD   TA   RLF   R  T     R  SESE    ME H T S FN DN EA D   IP IE IM   NA TS VE IP IE IV   NA TS VE E I BJ
   H B    N T  UT    P     EE   ED   AYF      H        H SG  I FN T H U FT  D  T   L CE C  CN D TC RE /  CE C  C  D TC RE /  H L EU
     E    T I  BI    O     S         G I                  O  N UT I E R IR  T  I S N L  L1 LT I  T I  P1 L  L2 L2 I  T I  P2 C L RR
     R    Y O   O    S     T         E C                  R  V L  N R F CO  N  O D   E1 E  E  R O  B1 E  E2 E  E  R O  B2 E  L E  E
            N   N    T                                    Y     1 G      L  S  N   #        1 1 F1    D           2 F2    D  S D  D
***********************************************************************************************************************************
828406930Y48040000 01.920 1729   95 012300 11 12 07 16 U-4DP 0 09 1 1 1 01 01 03 R 1 02 01 01 N 03 02 21 01 01 02 N 10 00 56 2 0 00
828313680Y48040000 01.930 1729   95 012300 11 11 15 16 U-4DP 0 01 2 2 1 01 01 01 R 2 01 01 01 N 01 02 65 03 01 02 N 08 00 44 3 0 02
768417400Y48040000 01.939 1729   95 016800 07 09 14 15 U-4DP 0 01 1 2 1 03 01 01 R 2 03 01 01 N 01 02 00 01 01 02 N 08 00 61 2 0 00
768432310Y48040000 01.941 1729   95 016800 07 09 18 13 U-4DP 0 01 1 1 1 05 01 03 R 2 01 01 01 N 01 02 25 01 01 02 N 08 00 38 2 0 01
768483110 48040000 01.949 1729   95 020300 08 05 20 15 U-4DP 0 01 1 1 1 03 01 02 L 1 01 01 02 S 01 02 00 01 01 02 S 08 00 18 2 0 00
768376760 48040000 01.958 1729   95 016800 07 02 10 03 U-4DP 1 03 4 2 1 05 01 02 L 2 01 01 01 S 01 77 25 01 01 01 W 04 21 21 2 0 03
768400520 48040000 01.958 1729   95 016800 07 03 28 12 U-4DP 0 01 1 1 1 03 01 01 T 1 03 01 01 W 01 77 21 01 01 02 W 08 00 46 4 0 00
768369460 48040000 01.958 1729   95 016800 07 03 31 21 U-4DP 0 01 5 3 2 05 01 03 S 2 01 01 01 W 01 02 00 01 01 02 W 08 00 31 3 0 00
768413750 48040000 01.958 1729   95 016800 07 05 30 13 U-4DP 0 06 1 3 2 05 01 02 L 1 00 00 03 N 02 03 00 01 01 01 W 13 00 26 2 0 02
768413780 48040000 01.958 1729   95 016800 07 05 31 13 U-4DP 0 01 1 2 1 05 01 02 L 2 01 01 01 W 01 02 21 01 01 02 W 08 00 32 2 0 00
768454160 48040000 01.958 1729   95 016800 07 11 03 23 U-4DP 1 00 4 1 1 05 01 02 R 2 03 01 01 N 01 00 34 01 01 01 E 03 00 56 2 0 01
768473940 48040000 01.958 1729   95 020300 08 01 18 07 U-4DP 0 01 1 1 1 03 01 02 R 2 01 01 01 E 01 02 36 01 01 02 E 08 00 63 2 0 02
770769700 48040000 01.958 1729   95 020300 08 07 16 13 U-4DP 0 03 1 1 1 05 01 02 L 1 01 01 01 W 03 03 44 03 01 01 S 01 00 28 2 0 02
770792380 48040000 01.958 1729   95 020300 08 10 22 12 U-4DP 0 03 1 2 1 05 01 02 T 1 01 01 01 W 03 20 26 01 01 01 S 02 00 42 2 0 02
770844820 48040000 01.958 1729   95 013300 09 05 23 22 U-4DP 0 03 4 2 1 05 01 02 L 2 01 01 01 N 01 11 21 01 01 01 W 01 00 19 2 0 02
770835130 48040000 01.958 1729   95 013300 09 05 24 12 U-4DP 0 03 5 2 2 05 01 02 R 1 02 01 01 W 14 11 32 01 01 01 N 06 00 17 3 0 01
770947520 48040000 01.958 1729   95 011500 10 06 13 20 U-4DP 0 03 5 1 1 05 01 02 R 1 01 01 03 E 05 06 22 01 01 01 N 02 00 33 2 0 00
770950270 48040000 01.958 1729   95 011500 10 08 05 07 U-4DP 0 01 1 2 2 03 01 03 L U 01 01 01 S 00 02 00 01 01 02 S 08 00 29 2 0 00
770963570 48040000 01.958 1729   95 011500 10 08 22 17 U-4DP 0 03 1 3 2 05 01 02 L 1 01 01 01 E 01 11 39 01 01 01 S 04 00 70 2 0 03
770990060 48040000 01.958 1729   95 011500 10 11 29 19 U-4DP 0 03 5 3 2 05 01 02 R 2 01 01 01 N 01 11 58 01 01 01 E 04 00 46 3 0 02
820337500 48040000 01.958 1729   95 012300 11 01 10 19 U-4DP 0 03 4 1 1 05 01 02 L 1 01 01 01 S 01 11 21 03 01 01 W 05 00 49 4 0 02
820721060 48040000 01.958 1729   95 012300 11 04 02 21 U-4DP 0 03 5 1 1 05 01 02 I M 01 01 03 S 02 03 31 03 01 01 N 02 00 32 2 0 10
819477390 48040000 01.958 1729   95 012300 11 11 08 10 U-4DP 0 01 1 1 1 05 01 02 I M 03 01 03 N 14 02 54 01 01 03 N 08 00 31 2 0 00
768369860 48040000 01.961 1729   95 017700 07 01 04 05 U-4DP 0 01 4 2 1 05 01 02 L 2 01 01 01 S 01 02 00 03 01 01 S 09 00 46 2 0 00
768427460 48040000 01.961 1729   95 017700 07 08 29 11 U-4DP 0 01 1 1 1 05 01 02 L L 03 01 01 S 01 02 26 01 01 02 S 08 00 77 2 0 02
770808200Y48040000 01.967 1729   95 013500 09 01 23 24 U-4DP 0 01 1 1 1 03 01 03 L 1 01 01 01 S 00 02 54 01 01 02 S 08 00 61 2 0 03
770919550Y48040000 01.967 1729   95 012000 10 03 05 19 U-4DP 0 01 5 1 1 05 01 03 L 1 03 01 01 S 01 02 53 03 01 02 S 08 00 45 2 0 01
768378220Y48040000 01.977 1729   95 017700 07 01 25 16 U-4DP 0 05 1 1 1 03 01 04 L 2 01 01 05 E 14 03 00 01 01 02 S 02 00 19 2 0 00
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
822047330Y48003000 02.679 1369  289 017000 11 04 12 18 U-4DP 0    1 1 1 05 01 03 R 1                  00 01 01 01 N 09    38 2 0 00
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
735524640 48070000 02.686 0245  291 020100 07 01 02 11 S-4DP 0 77 1 1 1 05 01 02 R 1 00 00 05    00 03 00 03 01 01 N 08 00 00 3 0 00
711602780 48070000 02.686 0245  291 020100 07 03 04 21 S-4DP 0 77 4 1 1 05 01 02 R 2 03 01 01 N 01 02 42 01 01 02 N 08 00 51 2 0 03
089429570 48070000 02.686 0245  291 020100 07 06 19 07 S-4DP 0 02 1 2 1 05 01 02 I M 01 01 03 E 01 03 47 01 01 01 W 14 00 47 2 0 01
801563050 48070000 02.686 0245  291 020100 07 11 17 22 S-4DP 0 04 4 1 1 05 01 02 L 2 03 01 03 N 14 01 41 01 01 01 S 01 00 46 2 0 02
801521620 48070000 02.686 0245  291 005700 08 02 23 06 S-4DP 0 04 4 1 1 05 01 02 L 1 01 01 03 W 02 03 18 01 01 01 S 14 00 59 2 0 00
801544950 48070000 02.686 0245  291 005700 08 03 14 11 S-4DP 0 03 1 2 1 05 01 02 R L 01 01 03 N 02 03 27 01 01 01 S 14 00 44 2 0 00
```

Detail Output Legend

REPORT...CARPJ13-01
DATE...06/05/2013
TIME...10:21:24

FLORIDA - DEPARTMENT OF TRANSPORTATION
C A R - CRASH ANALYSIS REPORTING SYSTEM
CRASH DATA DETAIL AND EXTRACT FOR STATE-MAINTAINED ROADS
CODE SHEET

PAGE NO: 1
USERID: RD960JF
I/O.... CAR0113

CRASH NUMBER: THE 9 DIGIT CRASH REPORT NUMBER
ROADWAY ID: THE 8 DIGIT NUMBER THAT IDENTIFIES THE PART OF THE STATE ROAD SYSTEM ON WHICH THE CRASH HAS OCCURRED
COUNTY: THE FIRST TWO DIGITS OF THE ROADWAY ID ARE THE NUMERIC D.O.T. CODE FOR COUNTY
SECTION: THE THIRD, FOURTH AND FIFTH DIGITS OF THE ROADWAY ID ARE THE SECTION OF THE STATE ROAD SYSTEM, WITHIN COUNTY, ON WHICH THE CRASH OCCURRED
SUBSECTION: THE SIXTH, SEVENTH AND EIGHTH DIGITS OF THE ROADWAY ID IDENTIFY THE SUBDIVISION OF THE PRIMARY SECTION ON WHICH THE CRASH OCCURRED
MILEPOST: THE MILEPOST IDENTIFIES THE EXACT POINT ON THE ROADWAY ID WHERE THE CRASH HAS OCCURRED
NEAREST NODE: THE NEAREST NODE IS THE CLOSEST NODE (A DEFINED POINT ON THE STATE ROAD SYSTEM) TO THE LOCATION OF THE CRASH
STATE ROAD: THE STATE ROAD IS THE ROUTE NUMBER ASSIGNED TO THE ROADWAY ID
AVERAGE DAILY TRAFFIC: THE AVERAGE NUMBER OF VECHICLES PER DAY PASSING THE MILE POINT WHERE CRASHES OCCURRED
YEAR: THE YEAR IN WHICH THE CRASH OCCURRED (FINAL TWO DIGITS)
MONTH: THE MONTH OF THE CRASH
DAY: THE DAY OF THE MONTH ON WHICH THE CRASH OCCURRED
HOUR: THE TIME AT WHICH THE CRASH OCCURRED, MILITARY TIME
CRASH RATE CLASS CATEGORY: THIS FIVE-LETTER/NUMBER CODE IS A COMBINATION OF RURAL/URBAN/ SUBURBAN CLASSIFICATION, NUMBER OF LANES, DIVIDED/UNDIVIDED CODE, TYPE OF MEDIAN AND SUBSECTION TYPE. FOR THOSE NOT OTHERWISE DEFINED BELOW:
- A FIRST LETTER "U" MEANS "URBAN" (CURB & GUTTER), "S" MEANS "SUBURBAN", (OPEN DRAINAGE INSIDE CITY OR URBAN AREA), "R" MEANS RURAL (OPEN DRAINAGE OUTSIDE CITY OR URBAN AREA).
- AFTER THE HYPHEN (-) THE NUMBER GIVES THE NUMBER OF THRU LANES: "2" MEANS 2-3, "4" MEANS 4-5, "6" MEANS 6 OR MORE.
- THE LETTER IN THE 4TH POSITION DISTINGUISHES DIVIDED ("D") FROM UNDIVIDED ("UN")
- THE LETTER IN THE FINAL POSITION INDICATES THE TYPE OF MEDIAN: "R" FOR RAISED, "P" FOR PAINTED AND "UN" FOR NOT DIVIDED.
- "INT" MEANS INTERSTATE
- "TOL" MEANS TOLL ROAD
- "OLA" MEANS OTHER LIMITED ACCESS
- "RAMP" MEANS RAMP
- "1WAY" MEANS ONE WAY
- "UNKN" MEANS UNKNOWN

ALC INV: ALCOHOL INVOLVED CODE, COMBINED CRASH-LEVEL CODE FOR ALL OF DRIVERS AND PEDESTRIANS INVOLVED IN CRASH
0 - NONE
1 - ALCOHOL INVOLVED
2 - DRUGS INVOLVED
3 - ALCOHOL AND DRUGS
4 - UNDETERMINED

HARMFUL EVENT 1: FIRST HARMFUL EVENT FOR FAULT/1ST VEHICLE AS REPORTED BY OFFICER
00 - UNKNOWN/NOT CODED
01 - REAR-END
02 - HEAD-ON
03 - ANGLE
04 - LEFT-TURN
05 - RIGHT-TURN
06 - SIDESWIPE
07 - BACKED INTO
08 - COLL. W/ PARKED CAR
09 - COLL. W/ MV ON ROADWAY
10 - COLL. W/ PEDESTRIAN
11 - COLL. W/ BICYCLE
12 - COLL. W/ BICYCLE (BIKE LANE)
13 - COLLISION WITH MOPED
14 - COLLISION WITH TRAIN
15 - COLLISION WITH ANIMAL
16 - HIT SIGN/SIGN POST
17 - UTILITY/LIGHT POLE
18 - HIT GUARDRAIL
19 - HIT FENCE
20 - HIT CONC. BARRIER WALL
21 - HIT BRIDGE/PIER/ ABUTMENT/RAIL
22 - HIT TREE/SHRUBBERY
23 - COLL. W/CONSTRUCTION BARRICADE/SIGN
24 - COLL. W/TRAFFIC GATE
25 - COLL. W/CRASH ATTENUATORS
26 - COLL. W/FIXED OBJECT ABOVE ROAD
27 - HIT OTHER FIXED OBJECT
28 - COLL. W/MOVEABLE OBJECT ON ROAD
29 - RAN IN DITCH/CULVERT
30 - RAN OFF RD INTO WATER
31 - OVERTURNED
32 - OCCUPANT FELL FROM VEH
33 - JACKKNIFED
34 - FIRE
35 - EXPLOSION
36 - DOWNHILL RUNAWAY
37 - CARGO LOSS OR SHIFT
38 - SEPARATION OF UNITS
39 - MEDIAN CROSSOVER
77 - ALL OTHER (EXPLAIN)

LIGHTING: LIGHTING CONDITIONS AT TIME OF CRASH, AS REPORTED BY OFFICER
01 - DAYLIGHT 02 - DUSK
03 - DAWN
04 - DARK (STREET LIGHT)
05 - DARK (NO STREET LIGHT)
88 - UNKNOWN

WEATHER: WEATHER CONDITIONS AT TIME OF CRASH, AS REPORTED BY OFFICER
01 - CLEAR 02 - CLOUDY
03 - RAIN 04 - FOG
77 - ALL OTHER 88 - UNKNOWN

RD SURF: ROAD SURFACE CONDITIONS AT TIME OF CRASH, AS REPORTED BY OFFICER
01 - DRY 02 - WET
03 - SLIPPERY 04 - ICY
77 - ALL OTHER 88 - UNKNOWN

TRAFFIC CONTROL: TRAFFIC CONTROL AT SITE OF CRASH, AS REPORTED BY OFFICER
00 - UNKNOWN/NOT CODED
01 - NO CONTROL
02 - SPECIAL SPEED ZONE
03 - SPEED CONTROL SIGN
04 - SCHOOL ZONE
05 - TRAFFIC SIGNAL
06 - STOP SIGN
07 - YIELD SIGN
08 - FLASHING LIGHT
09 - RAILROAD SIGNAL
10 - OFFICER/GUARD/FLAGMAN
11 - POSTED NO U-TURN
12 - NO PASSING ZONE
77 - ALL OTHER

ROAD CONDTNS: ROAD CONDITIONS AT TIME AND LOCATION OF CRASH, AS REPORTED BY OFFICER
00 - UNKNOWN/NOT CODED
01 - NO DEFECTS
02 - OBSTRUCTION W/ WARNING
03 - OBSTRUCTION WO WARNING
04 - ROAD UNDER REPAIR/ CONSTRUCTION
05 - LOOSE SURFACE MATERIAL
06 - SHLDR - SOFT/LOW/HIGH
07 - HOLES/RUTS/UNSAFE PAVED EDGES
08 - STANDING WATER
09 - WORN/POLISHED RD SURF
77 - ALL OTHER (EXPLAIN)

SITE LOCATION: D.O.T. SITE LOCATION AS CODED BY SAFETY OFFICE
01 - NOT AT INTERSECTION/ RRXING/BRIDGE
02 - AT INTERSECTION
03 - INFLUENCED BY INTERSECTION
04 - DRIVEWAY ACCESS
05 - RAILROAD CROSSING
06 - BRIDGE
07 - ENTRANCE RAMP
08 - EXIT RAMP
09 - PARKING LOT (PUBLIC)
10 - PARKING LOT (PRIVT)
11 - PRIVATE PROPERTY
12 - TOLL BOOTH
13 - PUBLIC BUS STOP ZONE
77 ALL OTHER

Detail Output Legend

```
REPORT...CARPJ13-01                    FLORIDA - DEPARTMENT OF TRANSPORTATION                    PAGE NO:      2
  DATE...06/05/2013                    C A R - CRASH ANALYSIS REPORTING SYSTEM                   USERID:  RD960JF
  TIME...10:21:24                CRASH DATA DETAIL AND EXTRACT FOR STATE-MAINTAINED ROADS      I/O....  CARO113
                                                CODE SHEET
ROAD SD: SIDE OF ROAD, AS
  REPORTED BY FLORIDA DEPT OF
  TRANSPORTATION SAFETY OFFICE
  FOR FIRST POINT OF IMPACT IN
  CRASH
    E - END OF STATE ROAD
    I - INTERSECTION
    L - LEFT
    M - MEDIAN
    R - RIGHT
    S - SIDE ROAD RIGHT
    T - SIDE ROAD LEFT
    U - UNKNOWN
ACC LN #: ACCIDENT LANE
  LOCATION, AS REPORTED BY
  FLORIDA DEPT OF
  TRANSPORTATION SAFETY OFFICE
  FOR FIRST POINT OF IMPACT IN
  CRASH
    A - ACCEL/MERGE LANE
    B - TOLL PLAZAS
    C - CROSSWALK
    E - END OF STATE ROAD
    H - ISLAND AREA
    K - SERVICE/ACCESS ROAD
    L - LEFT TURN LANE
    M - MEDIAN
    P - PARKING LANE
    R - RIGHT TURN LANE
    S - SIDE OF THE ROAD
    T - CONTINUOUS TURN LANE
        (CENTER)
    U - UNKNOWN
    V - BICYCLE LANE
    X - RAMP
    1 - 9 THROUGH-LANE
      (NUMBERED FROM CENTER)
VEHICLE TYPE 1 OR 2: VEHICLE
  TYPE FOR FIRST OR SECOND
  VEHICLE, AS REPORTED BY THE
  OFFICER
    00 - UNKNOWN/NOT CODED
    01 - AUTOMOBILE
    02 - PASSENGER VAN
    03 - PICKUP/LIGHT TRUCK (2
         REAR TIRES)
    04 - MEDIUM TRUCK (4 REAR
         TIRES)
    05 - HEAVY TRUCK (2 OR MORE
         REAR AXLES)
    06 - TRUCK TRACTOR (CAB)
    07 - MOTOR HOME (RV)
    08 - BUS (DRIVR + 9-15 PASS)
    09 - BUS (DRIVR + > 15 PASS)
    10 - BICYCLE
    11 - MOTORCYCLE
    12 - MOPED
    13 - ALL TERRAIN VEHICLE
    14 - TRAIN
    15 - LOW SPEED VEHICLE
    77 - OTHER
VEHICLE USE 1 OR 2: VEHICLE USE
  FOR FIRST OR SECOND VEHICLE,
  AS REPORTED BY THE OFFCER
    00 - N/A
    01 - PRIVATE TRANSPORTATION
    02 - COMMERCIAL PASSENGERS
    03 - COMMERCIAL CARGO
    04 - PUBLIC TRANSPORTATION
    05 - PUBLIC SCHOOL BUS
    06 - PRIVATE SCHOOL BUS
    07 - AMBULANCE
    08 - LAW ENFORCEMENT
    09 - FIRE/RESCUE
    10 - MILITARY
    11 - OTHER GOVERNMENT
    12 - DUMP
    13 - CONCRETE MIXER
    14 - GARBAGE OR REFUSE
    15 - CARGO VAN
    77 - OTHER
    88 - UNKNOWN/DUMMY RECORD
VEHICLE MOVMNT 1 OR 2: VEHICLE
  MOVEMENT FOR FIRST OR SECOND
  VEHICLE, AS REPORTED BY THE
  OFFICER
    01 - STRAIGHT AHEAD
    02 - SLOWING/STOPPED/STALLED
    03 - MAKING LEFT TURN
    04 - BACKING
    05 - MAKING RIGHT TURN
    06 - CHANGING LANES
    07 - ENTRNG/LVNG PRKING SPCE
    08 - PROPERLY PARKED
    09 - IMPROPERLY PARKED
    10 - MAKING U-TURN
    11 - PASSING
    12 - DRIVERLESS/RUNAWAY VEH
    77 - ALL OTHERS
    88 - UNKNOWN
VEH DIR1 OR DIR 2: VEHICLE
  DIRECTION FOR FIRST OR SECOND
  VEHICLE, AS REPORTED BY THE
  OFFICER
    E - EAST    N - NORTH
    S - SOUTH   U - UNKNOWN
    W - WEST
POINT OF IMPACT 1 OR 2: POINT
  OF IMPACT FOR FIRST OR SECOND
  VEHICLE, AS REPORTED BY THE
  OFFICER
    00 - NOT APPLICABLE
    01 - FRONT END
    02 - RIGHT FRONT CORNER
    03 - RIGHT FRONT QUTR PANEL
    04 - RIGHT FRONT DOOR
    05 - RIGHT REAR DOOR
    06 - RIGHT REAR QUTR PANEL
    07 - RIGHT REAR CORNER
    08 - REAR END
    09 - LEFT REAR CORNER
    10 - LEFT REAR QUTR PANEL
    11 - LEFT REAR DOOR
    12 - LEFT FRONT DOOR
    13 - LEFT FRONT QUTR PANEL
    14 - LEFT FRONT CORNER
    15 - HOOD
    16 - ROOF
    17 - TRUNK
    18 - UNDERCARRIAGE
    19 - OVERTURN
    20 - WINDSHIELD
    21 - TRAILER
    88 - UNKNOWN
CONTRIB CAUSE 1 OR 2: DRIVER
  CONTRIBUTING CAUSE FOR FIRST
  OR SECOND VEHICLE DRIVER, AS
  REPORTED BY THE OFFICER
    00 - UNKNOWN/NOT CODED
    01 - NO IMPROPER DRVNG/ACT
    02 - CARELESS DRIVING
    03 - FAILED TO YIELD
    04 - IMPROPER BACKING
    05 - IMPROPER LANE CHANGE
    06 - IMPROPER TURN
    07 - ALCHOL-UNDER INFL
    08 - DRUGS-UNDER INFLUENCE
    09 - ALC & DRUGS-UNDER INFL
    10 - FOLLOWED TOO CLOSELY
    11 - DISREGARDED TRAFF SGNL
    12 - EXCEEDED SAFE SPD LMT
    13 - DISREGARDED STOP SIGN
    14 - FAILED TO MAINTAIN
         EQUIPMENT/VEHICLE
    15 - IMPROPER PASSING
    16 - DROVE LEFT OF CENTER
    17 - EXCEED STATED SPD LMT
    18 - OBSTRUCTING TRAFFIC
    19 - IMPROPER LOAD
    20 - DISREGARDED OTHER
         TRAFFIC CONTROL
    21 - DRIVING WRONG SIDE/WAY
    22 - FLEEING POLICE
    23 - VEHICLE MODIFIED
    24 - DRIVER DISTRACTION
    77 - ALL OTHER (EXPLAIN)
DRIVER/PED AGE 1 OR 2: DRIVER
  OR PEDESTRIAN AGE FOR FORM
  SECTION 1 OR 2, AS REPORTED
  BY THE OFFICER
# VEHCLS: TOTAL NUMBER OF
  VEHICLES INVOLVED IN THE
  CRASH. IF THE NUMBER IS
  HIGHER THAN 9 THEN THIS FIELD
  WILL DISPLAY AN ASTERISK (*).
# KILLED: TOTAL NUMBER OF
  FATALITIES AS A RESULT OF THE
  CRASH.  IF THE NUMBER IS
  HIGHER THAN 9 THEN THIS FIELD
  WILL DISPLAY AN ASTERISK (*).
NUMBER INJURED: TOTAL NUMBER OF
  INJURIES AS A RESULT OF THE
  CRASH.  IF THE NUMBER IS
  HIGHER THAN 99 THEN THIS
  FIELD WILL DISPLAY
  ASTERISKS(**).

Y: THE "Y" THAT SOMETIMES
  APPEARS BETWEEN THE COLUMNS
  FOR CRASH NUMBER AND ROADWAY
  ID, IS A FLAG THAT IDENTIFIES
  CRASHES THAT ARE ON OTHER
  SR'S OR ON NON-MAINTAINED
  SIDE ROADS. THESE CRASHES ARE
  OCCURRING WITHIN 250 FEET
  OF THE QUERIED SR AND ARE
  CLASSIFIED AS INFLUENCED
  CRASHES. CRASHES ON OTHER
  ROADWAYS WHICH ARE AT THE
  INTERSECTION WITH THE QUERIED
  SR WILL ALWAYS BE REPORTED
  AND WILL NOT SHOW THIS FLAG.
```

COMMENT: 1 - SORT BY ROADWAY, MILE POINT
FROM: 01/01/2007 TO 12/31/2011 RAMPS INCL
FROM CO/SEC/SUB: 48 004 000 MP: 008.334 INFL INCL
TO CO/SEC/SUB: 48 004 000 MP: 010.043 CR/OS INCL

CRASH NUMBER	ROADWAY IDENTIFICATION (COUNTY, SECTION, SUBTYPE, TRUNK INDICATOR)	MILEPOST	NEAREST OFFICIAL ROAD	STATE ROAD	ADT VARIANCE (EIA RLF AYF IC)	YEAR	MONTH	DAY	HOUR	CRCC RALA ATAT SESE H SG	ALCOHOL	HAZARDOUS MATERIAL	LIGHT	WEATHER	RD SURFACE	TRAFFIC CONTROL	ROAD OCCUPANCY	SPECIAL IDENTIFICATION	RAILROAD CROSSING	ACCIDENT	VEHICLE IMPACT	VEHICLE EMPHASIS	VEHICLE MOVEMENT	VEHICLE HIT & RUN	PI OMIP NATCTO F1	CC OANUTSRE B1	DRIVER ACTION	VEHICLE EMPHASIS	VEHICLE EMPHASIS	VEHICLE EMPHASIS	VEHICLE HIT & RUN	PI OMIP NATCTO F2	CC OANUTSRE B2	DRIVER ACTION	# VEHICLES	# KILLED	NUMBER INJURED
828406930	Y48040000	01.920	1729	95	012300	11	12	07	16	U-4DP	0	09	1	1	1	01	01	03	R	1	02	01	01	N	03	02	21	01	01	02	N	10	00	56	2	0	00
828313680	Y48040000	01.930	1729	95	012300	11	11	15	16	U-4DP	0	01	2	2	1	01	01	01	R	2	01	01	01	N	01	02	65	03	01	02	N	08	00	44	3	0	02
768417400	Y48040000	01.939	1729	95	016800	07	09	14	15	U-4DP	0	01	1	2	1	03	01	01	R	2	03	01	01	N	01	02	00	01	01	02	N	08	00	61	2	0	00
768432310	Y48040000	01.941	1729	95	016800	07	09	18	13	U-4DP	0	01	1	1	1	05	01	03	R	2	01	01	01	N	01	02	25	01	01	02	N	08	00	38	2	0	01
768483110	48040000	01.949	1729	95	020300	08	05	20	15	U-4DP	0	01	1	1	1	03	01	02	L	1	01	01	02	S	01	02	00	01	01	02	S	08	00	18	2	0	00
768376760	48040000	01.958	1729	95	016800	07	02	10	03	U-4DP	1	03	4	2	1	05	01	02	L	2	01	01	01	S	01	77	25	01	01	01	W	04	21	21	2	0	03
768400520	48040000	01.958	1729	95	016800	07	03	28	12	U-4DP	0	01	1	1	1	03	01	01	T	1	03	01	01	W	01	77	21	01	01	02	W	08	00	46	4	0	00
768369460	48040000	01.958	1729	95	016800	07	03	31	21	U-4DP	0	01	5	3	2	05	01	03	S	2	01	01	01	W	01	02	00	01	01	02	W	08	00	31	3	0	00
768413750	48040000	01.958	1729	95	016800	07	05	30	13	U-4DP	0	06	1	3	2	05	01	02	L	1	00	00	03	N	02	03	00	01	01	01	W	13	00	26	2	0	02
768413780	48040000	01.958	1729	95	016800	07	05	31	13	U-4DP	0	01	1	2	1	05	01	02	L	2	01	01	01	W	01	02	21	01	01	02	W	08	00	32	2	0	00
768454160	48040000	01.958	1729	95	016800	07	11	03	23	U-4DP	1	00	4	1	1	05	01	02	R	2	03	01	01	N	01	00	34	01	01	01	E	03	00	56	2	0	01
768473940	48040000	01.958	1729	95	020300	08	01	18	07	U-4DP	0	01	1	1	1	03	01	02	R	2	01	01	01	E	01	02	36	01	01	02	E	08	00	63	2	0	02
770769700	48040000	01.958	1729	95	020300	08	07	16	13	U-4DP	0	03	1	1	1	05	01	02	L	1	01	01	01	W	03	03	44	03	01	01	S	01	00	28	2	0	02
770792380	48040000	01.958	1729	95	020300	08	10	22	12	U-4DP	0	03	1	2	1	05	01	02	T	1	01	01	01	W	03	20	26	01	01	01	S	02	00	42	2	0	02
770844820	48040000	01.958	1729	95	013300	09	05	23	22	U-4DP	0	03	4	2	1	05	01	02	L	2	01	01	01	N	01	11	21	01	01	01	W	01	00	19	2	0	02
770835130	48040000	01.958	1729	95	013300	09	05	24	12	U-4DP	0	03	5	2	2	05	01	02	R	1	02	01	01	W	14	11	32	01	01	01	N	06	00	17	3	0	01
770947520	48040000	01.958	1729	95	011500	10	06	13	20	U-4DP	0	03	5	1	1	05	01	02	R	1	01	01	03	E	05	06	22	01	01	01	N	02	00	33	2	0	00
770950270	48040000	01.958	1729	95	011500	10	08	05	07	U-4DP	0	01	1	2	2	03	01	03	L	U	01	01	01	S	00	02	00	01	01	02	S	08	00	29	2	0	00
770963570	48040000	01.958	1729	95	011500	10	08	22	17	U-4DP	0	03	1	3	2	05	01	02	L	1	01	01	01	E	01	11	39	01	01	01	S	04	00	70	2	0	03
770990060	48040000	01.958	1729	95	011500	10	11	29	19	U-4DP	0	03	5	3	2	05	01	02	R	2	01	01	01	N	01	11	58	01	01	01	E	04	00	46	3	0	02
820337500	48040000	01.958	1729	95	012300	11	01	10	19	U-4DP	0	03	4	1	1	05	01	02	L	1	01	01	01	S	01	11	21	03	01	01	W	05	00	49	4	0	02
820721060	48040000	01.958	1729	95	012300	11	04	02	21	U-4DP	0	03	5	1	1	05	01	02	I	M	01	01	03	S	02	03	31	03	01	01	N	02	00	32	2	0	10
819477390	48040000	01.958	1729	95	012300	11	11	08	10	U-4DP	0	01	1	1	1	05	01	02	I	M	03	01	03	N	14	02	54	01	01	03	N	08	00	31	2	0	00
768369860	48040000	01.961	1729	95	017700	07	01	04	05	U-4DP	0	01	4	2	1	05	01	02	L	2	01	01	01	S	01	02	00	03	01	01	S	09	00	46	2	0	00
768427460	48040000	01.961	1729	95	017700	07	08	29	11	U-4DP	0	01	1	1	1	05	01	02	L	L	03	01	01	S	01	02	26	01	01	02	S	08	00	77	2	0	02
770808200	Y48040000	01.967	1729	95	013500	09	01	23	24	U-4DP	0	01	1	1	1	03	01	03	L	1	01	01	01	S	00	02	54	01	01	02	S	08	00	61	2	0	03
770919550	Y48040000	01.967	1729	95	012000	10	03	05	19	U-4DP	0	01	5	1	1	05	01	03	L	1	03	01	01	S	01	02	53	03	01	02	S	08	00	45	2	0	01
768378220	Y48040000	01.977	1729	95	017700	07	01	25	16	U-4DP	0	05	1	1	1	03	01	04	L	2	01	01	05	E	14	03	00	01	01	02	S	02	00	19	2	0	00
~~822047330~~	~~Y48003000~~	~~02.679~~	~~1369~~	~~289~~	~~017000~~	~~11~~	~~04~~	~~12~~	~~18~~	~~U-4DP~~	~~0~~		~~1~~	~~1~~	~~1~~	~~05~~	~~01~~	~~03~~	~~R~~	~~1~~													~~00~~	~~01~~	~~01~~	~~01~~	~~N~~	~~09~~		~~38~~	~~2~~	~~0~~	~~00~~
~~735524640~~	~~48070000~~	~~02.686~~	~~0245~~	~~291~~	~~020100~~	~~07~~	~~01~~	~~02~~	~~11~~	~~S-4DP~~	~~0~~	~~77~~	~~1~~	~~1~~	~~1~~	~~05~~	~~01~~	~~02~~	~~R~~	~~1~~	~~00~~	~~00~~	~~05~~		~~00~~	~~03~~	~~00~~	~~03~~	~~01~~	~~01~~	~~N~~	~~08~~	~~00~~	~~00~~	~~3~~	~~0~~	~~00~~
~~711602780~~	~~48070000~~	~~02.686~~	~~0245~~	~~291~~	~~020100~~	~~07~~	~~03~~	~~04~~	~~21~~	~~S-4DP~~	~~0~~	~~77~~	~~4~~	~~1~~	~~1~~	~~05~~	~~01~~	~~02~~	~~R~~	~~2~~	~~03~~	~~01~~	~~01~~	~~N~~	~~01~~	~~02~~	~~42~~	~~01~~	~~01~~	~~02~~	~~N~~	~~08~~	~~00~~	~~51~~	~~2~~	~~0~~	~~03~~
~~009429570~~	~~48070000~~	~~02.686~~	~~0245~~	~~291~~	~~020100~~	~~07~~	~~06~~	~~19~~	~~07~~	~~S-4DP~~	~~0~~	~~02~~	~~1~~	~~2~~	~~1~~	~~05~~	~~01~~	~~02~~	~~I~~	~~M~~	~~01~~	~~01~~	~~03~~	~~E~~	~~01~~	~~03~~	~~47~~	~~01~~	~~01~~	~~01~~	~~W~~	~~14~~	~~00~~	~~47~~	~~2~~	~~0~~	~~01~~
~~801563050~~	~~48070000~~	~~02.686~~	~~0245~~	~~291~~	~~020100~~	~~07~~	~~11~~	~~17~~	~~22~~	~~S-4DP~~	~~0~~	~~04~~	~~4~~	~~1~~	~~1~~	~~05~~	~~01~~	~~02~~	~~L~~	~~2~~	~~03~~	~~01~~	~~03~~	~~N~~	~~14~~	~~01~~	~~41~~	~~01~~	~~01~~	~~01~~	~~S~~	~~01~~	~~00~~	~~46~~	~~2~~	~~0~~	~~02~~
~~801521620~~	~~48070000~~	~~02.686~~	~~0245~~	~~291~~	~~005700~~	~~08~~	~~02~~	~~23~~	~~06~~	~~S-4DP~~	~~0~~	~~04~~	~~4~~	~~1~~	~~1~~	~~05~~	~~01~~	~~02~~	~~L~~	~~1~~	~~01~~	~~01~~	~~03~~	~~W~~	~~02~~	~~03~~	~~18~~	~~01~~	~~01~~	~~01~~	~~S~~	~~14~~	~~00~~	~~59~~	~~2~~	~~0~~	~~00~~
~~801544950~~	~~48070000~~	~~02.686~~	~~0245~~	~~291~~	~~005700~~	~~08~~	~~03~~	~~14~~	~~11~~	~~S-4DP~~	~~0~~	~~03~~	~~1~~	~~2~~	~~1~~	~~05~~	~~01~~	~~02~~	~~R~~	~~L~~	~~01~~	~~01~~	~~03~~	~~N~~	~~02~~	~~03~~	~~27~~	~~01~~	~~01~~	~~01~~	~~S~~	~~14~~	~~00~~	~~44~~	~~2~~	~~0~~	~~00~~

COMMENT: 1 - SORT BY ROADWAY, MILE POINT
FROM: 01/01/2007 TO 12/31/2011 RAMPS INCL
FROM CO/SEC/SUB: 48 004 000 MP: 008.334 INFL INCL
TO CO/SEC/SUB: 48 004 000 MP: 010.043 CR/OS INCL

CRASH NUMBER	ROADWAY CODE	ROADWAY SECTION	MILE POINT	ENDING MILE POINT	STATE ROAD	ADT VARIANCE	YEAR	MONTH	DAY	HOUR	CRCC RALA ATATSESE HSG	ALCIAL	HAEIRVME	LIGHT	WEATHER	RDSFC	TRAFFIC CONTROL	ROAD CONDITION	SLOPE	RAMP	ACCDN	VEHICLE HYPIP	VEHICLE EUCE	VEHICLE HSL1	VEHICLE IEE	VEHICLE EMCE1	VEHICLE HOCL2	VEHICLE IVE	VEHICLE DIR 1	PIOMIPNATC TO F1	CCOANUTSRE TI B1	DRAIGVE/P1E D	VETHYIPCEL E2	VEUHSIEC L2 E	VEMHOIVE	VEHICLE DIR 2	PIOMIPNATC TO F2	CCOANUTSRE TI B2	DRAIGVE/P2E D	# VEHICLES	# KILLED	NUMBER UNITS
828406930Y	48040000	01.920	1729		95	012300	11	12	07	16	U-4DP	0	09	1	1	1	01	01	03	R	1	02	01	01	N	03	02	21	01	01	02	N	10	00	56	2	0	00
828313680Y	48040000	01.930	1729		95	012300	11	11	15	16	U-4DP	0	01	2	2	1	01	01	01	R	2	01	01	01	N	01	02	65	03	01	02	N	08	00	44	3	0	02
768417400Y	48040000	01.939	1729		95	016800	07	09	14	15	U-4DP	0	01	1	2	1	03	01	01	R	2	03	01	01	N	01	02	00	01	01	02	N	08	00	61	2	0	00
768432310Y	48040000	01.941	1729		95	016800	07	09	18	13	U-4DP	0	01	1	1	1	05	01	03	R	2	01	01	01	N	01	02	25	01	01	02	N	08	00	38	2	0	01
768483110	48040000	01.949	1729		95	020300	08	05	20	15	U-4DP	0	01	1	1	1	03	01	02	L	1	01	01	02	C	01	02	00	01	01	02	C	08	00	18	2	0	00
768376760	48040000	01.958	1729		95	016800	07	02	10	03	U-4DP	1	03	4	2	1	05	01	02	L	2	01	01	01	C	01	77	25	01	01	01	W	04	21	21	2	0	03
768400520	48040000	01.958	1729		95	016000	07	03	28	12	U-4DP	0	01	1	1	1	03	01	01	T	1	03	01	01	W	01	77	21	01	01	02	W	00	00	46	4	0	00
768369460	48040000	01.958	1729		95	016000	07	03	31	21	U-4DP	0	01	5	3	2	05	01	03	S	2	01	01	01	W	01	02	00	01	01	02	W	00	00	31	3	0	00
768413750	48040000	01.958	1729		95	016800	07	05	30	13	U-4DP	0	06	1	3	2	05	01	02	L	1	00	00	03	N	02	03	00	01	01	01	W	13	00	26	2	0	02
768413780	48040000	01.958	1729		95	016800	07	05	31	13	U-4DP	0	01	1	2	1	05	01	02	L	2	01	01	01	W	01	02	21	01	01	02	W	08	00	32	2	0	00
768454160	48040000	01.958	1729		95	016800	07	11	03	23	U-4DP	1	00	4	1	1	05	01	02	R	2	03	01	01	N	01	00	34	01	01	01	E	03	00	56	2	0	01
768473940	48040000	01.958	1729		95	020300	08	01	18	07	U-4DP	0	01	1	1	1	03	01	02	R	2	01	01	01	E	01	02	36	01	01	02	E	08	00	63	2	0	02
770769700	48040000	01.958	1729		95	020300	08	07	16	13	U-4DP	0	03	1	1	1	05	01	02	L	1	01	01	01	W	03	03	44	03	01	01	S	01	00	28	2	0	02
770792380	48040000	01.958	1729		95	020300	08	10	22	12	U-4DP	0	03	1	2	1	05	01	02	T	1	01	01	01	W	03	20	26	01	01	01	S	02	00	42	2	0	02
770844820	48040000	01.958	1729		95	013300	09	05	23	22	U-4DP	0	03	4	2	1	05	01	02	L	2	01	01	01	N	01	11	21	01	01	01	W	01	00	19	2	0	02
770835130	48040000	01.958	1729		95	013300	09	05	24	12	U-4DP	0	03	5	2	2	05	01	02	R	1	02	01	01	W	14	11	32	01	01	01	N	06	00	17	3	0	01
770947520	48040000	01.958	1729		95	011500	10	06	13	20	U-4DP	0	03	5	1	1	05	01	02	R	1	01	01	03	E	05	06	22	01	01	01	N	02	00	33	2	0	00
770950270	48040000	01.958	1729		95	011500	10	08	05	07	U-4DP	0	01	1	2	2	03	01	03	L	U	01	01	01	S	00	02	00	01	01	02	S	08	00	29	2	0	00
770963570	48040000	01.958	1729		95	011500	10	08	22	17	U-4DP	0	03	1	3	2	05	01	02	L	1	01	01	01	E	01	11	39	01	01	01	S	04	00	70	2	0	03
770990060	48040000	01.958	1729		95	011500	10	11	29	19	U-4DP	0	03	5	3	2	05	01	02	R	2	01	01	01	N	01	11	58	01	01	01	E	04	00	46	3	0	02
820337500	48040000	01.958	1729		95	012300	11	01	10	19	U-4DP	0	03	4	1	1	05	01	02	L	1	01	01	01	S	01	11	21	03	01	01	W	05	00	49	4	0	02
820721060	48040000	01.958	1729		95	012300	11	04	02	21	U-4DP	0	03	5	1	1	05	01	02	I	M	01	01	03	S	02	03	31	03	01	01	N	02	00	32	2	0	10
819477390	48040000	01.958	1729		95	012300	11	11	08	10	U-4DP	0	01	1	1	1	05	01	02	I	M	03	01	03	N	14	02	54	01	01	03	N	08	00	31	2	0	00
760369060	48040000	01.961	1729		95	017700	07	01	04	05	U-4DP	0	01	4	2	1	05	01	02	L	2	01	01	01	S	01	02	00	03	01	01	S	09	00	46	2	0	00
760427460	48040000	01.961	1729		95	017700	07	08	29	11	U-4DP	0	01	1	1	1	05	01	02	L	L	03	01	01	S	01	02	26	01	01	02	S	08	00	77	2	0	02
770000200Y	48040000	01.967	1729		95	013500	09	01	23	24	U-4DP	0	01	1	1	1	03	01	03	L	1	01	01	01	S	00	02	54	01	01	02	S	08	00	61	2	0	03
770919550Y	48040000	01.967	1729		95	012000	10	03	05	19	U-4DP	0	01	5	1	1	05	01	03	L	1	03	01	01	S	01	02	53	03	01	02	S	08	00	45	2	0	01
768378220Y	48040000	01.977	1729		95	017700	07	01	25	16	U-4DP	0	05	1	1	1	03	01	04	L	2	01	01	05	E	14	03	00	01	01	02	S	02	00	19	2	0	00
822047330Y	48003000	02.679	1369		289	017000	11	04	12	18	U-4DP	0		1	1	1	05	01	03	R	1							00	01	01	01	N	09			38	2	0	00
735524640	48070000	02.686	0245		291	020100	07	01	02	11	S-4DP	0	77	1	1	1	05	01	02	R	1	00	00	05		00	03	00	03	01	01	N	08	00	00	3	0	00
711602780	48070000	02.686	0245		291	020100	07	03	04	21	S-4DP	0	77	4	1	1	05	01	02	R	2	03	01	01	N	01	02	42	01	01	02	N	08	00	51	2	0	03
009429570	48070000	02.686	0245		291	020100	07	06	19	07	S-4DP	0	02	1	2	1	05	01	02	I	M	01	01	03	E	01	03	47	01	01	01	W	14	00	47	2	0	01
801563050	48070000	02.686	0245		291	020100	07	11	17	22	S-4DP	0	04	4	1	1	05	01	02	L	2	03	01	03	N	14	01	41	01	01	01	C	01	00	46	2	0	02
801521620	48070000	02.686	0245		291	005700	08	02	23	06	S-4DP	0	04	4	1	1	05	01	02	L	1	01	01	03	W	02	03	18	01	01	01	C	14	00	59	2	0	00
801544950	48070000	02.686	0245		291	005700	08	03	14	11	S-4DP	0	03	1	2	1	05	01	02	R	L	01	01	03	N	02	03	27	01	01	01	S	14	00	44	2	0	00

Caution should be used with eliminating crash reports to review!

```
REPORT...CARPJ13-01                    FLORIDA - DEPARTMENT OF TRANSPORTATION                          PAGE NO:      2
  DATE...06/05/2013                    C A R - CRASH ANALYSIS REPORTING SYSTEM                         USERID:  RD960JF
  TIME...10:21:24                CRASH DATA DETAIL AND EXTRACT FOR STATE-MAINTAINED ROADS            I/O....  CARO213

COMMENT:                                  1 - SORT BY ROADWAY, MILE POINT
  FROM: 01/01/2007 TO 12/31/2011                                   RAMPS INCL
  FROM CO/SEC/SUB: 48 004 000             MP: 008.334               INFL INCL
  TO   CO/SEC/SUB: 48 004 000             MP: 010.043              CR/OS INCL

  C      ROADWYID   M     N    S    ADT   Y  M  D  H  CRCC  A  H  L W R T  R  SL R A V  V  VM V PI CC D  V  V  V  V PI CC D  # # N
  R N    C S   S    I     EN   TR   VAR   E  O  A  O  RALA  I  AE I E D RC OC IO O C ET HS EO E OM OA RA ET HS EM E OM OA RA     UI
  A U    O E   E    L     AO   AO   EIA   A  N  Y  U  ATAT  C  RV G A   AO AO TC A D  HY IE HV H IP NU IG HY IE HO H IP NU IG V E I  MN
  S M    U C   SC   E     RD   TA   RLF   R  T     R  SESE    ME T S FN DN EA D   IP CE IM   NA TS VE IP CE IV   NA TS VE / H C L  EU
  H B    N T   UT   P     EE   ED   AYF      H        H SG  I FT T U FT D T   L CE C CN D TC RE / CE C C D TC RE / C E I  BJ
    E    T I   BI   O     S         G I               O  N IR E R IR T I S N L1 L CT I T I P1 L L2 E I T I P2 E L S L  EU
    R    Y O   O    S     T         E C               R  V CO N F CO N O D  E1 E E R O B1 E E2 E R O B2 E S D  RR
           N   N    T                                 Y    L S   L S N  #        1 1 F1    D           2 F2    D      D
*****************************************************************************************************************************
828406930Y48040000 01.920 1729   95 012300 11 12 07 16 U-4DP ( 09 L 1 1 01 01 03 R 1 02 01 01 N 03 02 21 01 01 02 N 10 00 56 2 0 00
828313680Y48040000 01.930 1729   95 012300 11 11 15 16 U-4DP ( 01 2 2 1 01 01 01 R 2 01 01 01 N 01 02 65 03 01 02 N 08 00 44 3 0 02
768417400Y48040000 01.939 1729   95 016800 07 09 14 15 U-4DP ( 01 L 2 1 03 01 01 R 2 03 01 01 N 01 02 00 01 01 02 N 08 00 61 2 0 00
768432310Y48040000 01.941 1729   95 016800 07 09 18 13 U-4DP ( 01 L 1 1 05 01 03 R 2 01 01 01 N 01 02 25 01 01 02 N 08 00 38 2 0 01
768483110 48040000 01.949 1729   95 020300 08 05 20 15 U-4DP ( 01 L 1 1 03 01 02 L 1 01 01 02 C 01 02 00 01 01 02 C 08 00 18 2 0 00
768376760 48040000 01.958 1729   95 016800 07 02 10 03 U-4DP ( 03 4 2 1 05 01 02 L 2 01 01 01 C 01 77 25 01 01 01 W 04 21 21 2 0 03
768400520 48040000 01.958 1729   95 016800 07 03 20 12 U-4DP ( 01 L 1 1 03 01 01 T 1 03 01 01 W 01 77 21 01 01 02 W 08 00 46 4 0 00
768369460 48040000 01.958 1729   95 016800 07 03 31 21 U-4DP ( 01 5 3 2 05 01 03 S 2 01 01 01 W 01 02 00 01 01 02 W 08 00 31 3 0 00
768413750 48040000 01.958 1729   95 016800 07 05 30 13 U-4DP ( 06 L 3 2 05 01 02 L 1 00 00 03 N 02 03 00 01 01 01 W 13 00 26 2 0 02
768413780 48040000 01.958 1729   95 016800 07 05 31 13 U-4DP ( 01 L 2 1 05 01 02 L 2 01 01 01 W 01 02 21 01 01 02 W 08 00 32 2 0 00
768454160 48040000 01.958 1729   95 016800 07 11 03 23 U-4DP ( 00 4 1 1 05 01 02 R 2 03 01 01 N 01 00 34 01 01 01 E 03 00 56 2 0 01
768473940 48040000 01.958 1729   95 020300 08 01 10 07 U-4DP ( 01 L 1 1 03 01 02 R 2 01 01 01 E 01 02 36 01 01 02 E 08 00 63 2 0 02
770769700 48040000 01.958 1729   95 020300 08 07 16 13 U-4DP ( 03 L 1 1 05 01 02 L 1 01 01 01 W 03 03 44 03 01 01 S 01 00 28 2 0 02
770792380 48040000 01.958 1729   95 020300 08 10 22 12 U-4DP ( 03 L 2 1 05 01 02 T 1 01 01 01 W 03 20 26 01 01 01 S 02 00 42 2 0 02
770844820 48040000 01.958 1729   95 013300 09 05 23 22 U-4DP ( 03 4 2 1 05 01 02 L 2 01 01 01 N 01 11 21 01 01 01 W 01 00 19 2 0 02
770835130 48040000 01.958 1729   95 013300 09 05 24 12 U-4DP ( 03 5 2 2 05 01 02 R 1 02 01 01 W 14 11 32 01 01 01 N 06 00 17 3 0 01
770947520 48040000 01.958 1729   95 011500 10 06 13 20 U-4DP ( 03 5 1 1 05 01 02 R 1 01 01 03 E 05 06 22 01 01 01 N 02 00 33 2 0 00
770950270 48040000 01.958 1729   95 011500 10 08 05 07 U-4DP ( 01 L 2 2 03 01 03 L U 01 01 01 S 00 02 00 01 01 02 S 08 00 29 2 0 00
770963570 48040000 01.958 1729   95 011500 10 08 22 17 U-4DP ( 03 L 3 2 05 01 02 L 1 01 01 01 E 01 11 39 01 01 01 S 04 00 70 2 0 03
770990060 48040000 01.958 1729   95 011500 10 11 29 19 U-4DP ( 03 5 3 2 05 01 02 R 2 01 01 01 N 01 11 58 01 01 01 E 04 00 46 3 0 02
820337500 48040000 01.958 1729   95 012300 11 01 10 19 U-4DP ( 03 4 1 1 05 01 02 L 1 01 01 01 S 01 11 21 03 01 01 W 05 00 49 4 0 02
820721060 48040000 01.958 1729   95 012300 11 04 02 21 U-4DP ( 03 5 1 1 05 01 02 I M 01 01 03 S 02 03 31 03 01 01 N 02 00 32 2 0 10
819477390 48040000 01.958 1729   95 012300 11 11 08 10 U-4DP ( 01 L 1 1 05 01 02 I M 03 01 03 N 14 02 54 01 01 03 N 08 00 31 2 0 00
768369860 48040000 01.961 1729   95 017700 07 01 04 05 U-4DP ( 01 4 2 1 05 01 02 L 2 01 01 01 S 01 02 00 03 01 01 S 09 00 46 2 0 00
768427460 48040000 01.961 1729   95 017700 07 08 29 11 U-4DP ( 01 L 1 1 05 01 02 L L 03 01 01 S 01 02 26 01 01 02 S 08 00 77 2 0 02
770800200Y48040000 01.967 1729   95 013500 09 01 23 24 U-4DP ( 01 L 1 1 03 01 03 L 1 01 01 01 C 00 02 54 01 01 02 C 08 00 61 2 0 03
770919550Y48040000 01.967 1729   95 012000 10 03 05 19 U-4DP ( 01 5 1 1 05 01 03 L 1 03 01 01 S 01 02 53 03 01 02 S 08 00 45 2 0 01
768378220Y48040000 01.977 1729   95 017700 07 01 25 16 U-4DP ( 05 L 1 1 03 01 04 L 2 01 01 05 E 14 03 00 01 01 02 S 02 00 19 2 0 00
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
822047330Y48003000 02.679 1369  289 017000 11 04 12 18 U-4DP (    L 1 1 05 01 03 R 1                 00 01 01 01 N 09    38 2 0 00
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
735524640 48070000 02.686 0245  291 020100 07 01 02 11 S-4DP ( 77 L 1 1 05 01 02 R 1 00 00 05    00 03 00 03 01 01 N 08 00 00 3 0 00
711602780 48070000 02.686 0245  291 020100 07 03 04 21 S-4DP ( 77 4 1 1 05 01 02 R 2 03 01 01 N 01 02 42 01 01 02 N 08 00 51 2 0 03
089429570 48070000 02.686 0245  291 020100 07 06 19 07 S-4DP ( 02 L 2 1 05 01 02 I M 01 01 03 E 01 03 47 01 01 01 W 14 00 47 2 0 01
801563050 48070000 02.686 0245  291 020100 07 11 17 22 S-4DP ( 04 4 1 1 05 01 02 L 2 03 01 03 N 14 01 41 01 01 01 S 01 00 46 2 0 02
801521620 48070000 02.686 0245  291 005700 08 02 23 06 S-4DP ( 04 4 1 1 05 01 02 L 1 01 01 03 W 02 03 18 01 01 01 S 14 00 59 2 0 00
801544950 48070000 02.686 0245  291 005700 08 03 14 11 S-4DP ( 03 L 2 1 05 01 02 R L 01 01 03 N 02 03 27 01 01 01 S 14 00 44 2 0 00
```

Caution should be used with eliminating crash reports to review!

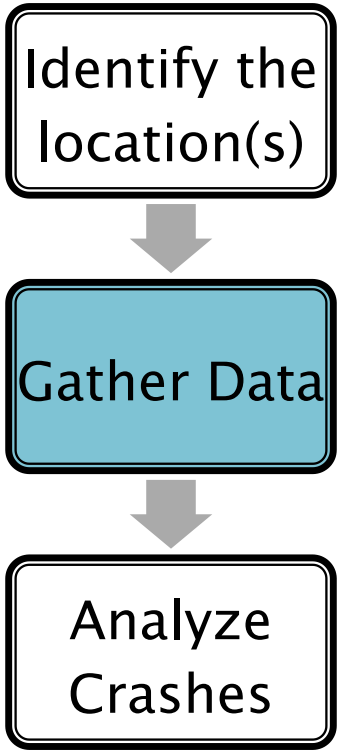
COMMENT: 1 - SORT BY ROADWAY, MILE POINT
FROM: 01/01/2007 TO 12/31/2011 RAMPS INCL
FROM CO/SEC/SUB: 48 004 000 MP: 008.334 INFL INCL
TO CO/SEC/SUB: 48 004 000 MP: 010.043 CR/OS INCL

CRASH NUMBER	ROADWAY CO/SEC/SUB/TYPE	MILEPOST	NEAR AROAD	STATE AROAD	ADT VARIAGE	YEAR	MONTH	DAY	HOUR	CRCC RALATAT SESEH	ALCINV	HAZMEFNUTL	LIGHT	WEATHER	RDSURF	TRAFFICO	ROUTEFNL	RDOCCOND	SLOPTCEAT	ROADSIDE	ACCLOC	VEHHYIPCEL	VEHUSEDCE1	VMOVIMCNLTE	VEHMOVE1	PIOMNATCTF1	CCOANUTSREB1	DRAIGVEP1E	VETIPCEL2	VEUSEDCE2	VEMOVIVCE2	VEHDIRO	PIOMNATCTOF2	CCOANUTSREB2	DRAIGVEP2E	# VEHCLSD	# INJLED	NUMBER OF UNITS BEJRRED
828406930Y	48040000	01.920	1729	95	012300	11	12	07	16	U-4DP	0	09	1	1	1	01	01	03	R	1	02	01	01	N	03	02	21	01	01	02	N	10	00	56	2	0	00
828313680Y	48040000	01.930	1729	95	012300	11	11	15	16	U-4DP	0	01	2	2	1	01	01	01	R	2	01	01	01	N	01	02	65	03	01	02	N	08	00	44	3	0	02
768417400Y	48040000	01.939	1729	95	016800	07	09	14	15	U-4DP	0	01	1	2	1	03	01	01	R	2	03	01	01	N	01	02	00	01	01	02	N	08	00	61	2	0	00
768432310Y	48040000	01.941	1729	95	016800	07	09	18	13	U-4DP	0	01	1	1	1	05	01	03	R	2	01	01	01	N	01	02	25	01	01	02	N	08	00	38	2	0	01
768483110	48040000	01.949	1729	95	020300	08	05	20	15	U-4DP	0	01	1	1	1	03	01	02	L	1	01	01	02	S	01	02	00	01	01	02	S	08	00	18	2	0	00
768376760	48040000	01.958	1729	95	016800	07	02	10	03	U-4DP	1	03	4	2	1	05	01	02	L	2	01	01	01	S	01	77	25	01	01	01	W	04	21	21	2	0	03
768400520	48040000	01.958	1729	95	016800	07	03	28	12	U-4DP	0	01	1	1	1	03	01	01	T	1	03	01	01	W	01	77	21	01	01	02	W	08	00	46	4	0	00
768369460	48040000	01.958	1729	95	016800	07	03	31	21	U-4DP	0	01	5	3	2	05	01	03	S	2	01	01	01	W	01	02	00	01	01	02	W	08	00	31	3	0	00
768413750	48040000	01.958	1729	95	016800	07	05	30	13	U-4DP	0	06	1	3	2	05	01	02	L	1	00	00	03	N	02	03	00	01	01	01	W	13	00	26	2	0	02
768413780	48040000	01.958	1729	95	016800	07	05	31	13	U-4DP	0	01	1	2	1	05	01	02	L	2	01	01	01	W	01	02	21	01	01	02	W	08	00	32	2	0	00
768454160	48040000	01.958	1729	95	016800	07	11	03	23	U-4DP	1	00	4	1	1	05	01	02	R	2	03	01	01	N	01	00	34	01	01	01	E	03	00	56	2	0	01
768473940	48040000	01.958	1729	95	020300	08	01	18	07	U-4DP	0	01	1	1	1	03	01	02	R	2	01	01	01	E	01	02	36	01	01	02	E	08	00	63	2	0	02
770769700	48040000	01.958	1729	95	020300	08	07	16	13	U-4DP	0	03	1	1	1	05	01	02	L	1	01	01	01	W	03	03	44	03	01	01	S	01	00	28	2	0	02
770792300	48040000	01.958	1729	95	020300	08	10	22	12	U-4DP	0	03	1	2	1	05	01	02	T	1	01	01	01	W	03	20	26	01	01	01	S	02	00	42	2	0	02
770844820	48040000	01.958	1729	95	013300	09	05	23	22	U-4DP	0	03	4	2	1	05	01	02	L	2	01	01	01	N	01	11	21	01	01	01	W	01	00	19	2	0	02
770835130	48040000	01.958	1729	95	013300	09	05	24	12	U-4DP	0	03	5	2	2	05	01	02	R	1	02	01	01	W	14	11	32	01	01	01	N	06	00	17	3	0	01
770947520	48040000	01.958	1729	95	011500	10	06	13	20	U-4DP	0	03	5	1	1	05	01	02	R	1	01	01	03	E	05	06	22	01	01	01	N	02	00	33	2	0	00
770950270	48040000	01.958	1729	95	011500	10	08	05	07	U-4DP	0	01	1	2	2	03	01	03	L	U	01	01	01	S	00	02	00	01	01	02	S	08	00	29	2	0	00
770963570	48040000	01.958	1729	95	011500	10	08	22	17	U-4DP	0	03	1	3	2	05	01	02	L	1	01	01	01	E	01	11	39	01	01	01	S	04	00	70	2	0	03
770990060	48040000	01.958	1729	95	011500	10	11	29	19	U-4DP	0	03	5	3	2	05	01	02	R	2	01	01	01	N	01	11	58	01	01	01	E	04	00	46	3	0	02
820337500	48040000	01.958	1729	95	012300	11	01	10	19	U-4DP	0	03	4	1	1	05	01	02	L	1	01	01	01	S	01	11	21	03	01	01	W	05	00	49	4	0	02
820721060	48040000	01.958	1729	95	012300	11	04	02	21	U-4DP	0	03	5	1	1	05	01	02	I	M	01	01	03	S	02	03	31	03	01	01	N	02	00	32	2	0	10
819477390	48040000	01.958	1729	95	012300	11	11	08	10	U-4DP	0	01	1	1	1	05	01	02	I	M	03	01	03	N	14	02	54	01	01	03	N	08	00	31	2	0	00
768369060	48040000	01.961	1729	95	017700	07	01	04	05	U-4DP	0	01	4	2	1	05	01	02	L	2	01	01	01	S	01	02	00	03	01	01	S	09	00	46	2	0	00
768427460	48040000	01.961	1729	95	017700	07	08	29	11	U-4DP	0	01	1	1	1	05	01	02	L	L	03	01	01	S	01	02	26	01	01	02	S	08	00	77	2	0	02
770000200Y	48040000	01.967	1729	95	013500	09	01	23	24	U-4DP	0	01	1	1	1	03	01	03	L	1	01	01	01	S	00	02	54	01	01	02	S	08	00	61	2	0	03
770919550Y	48040000	01.967	1729	95	012000	10	03	05	19	U-4DP	0	01	5	1	1	05	01	03	L	1	03	01	01	S	01	02	53	03	01	02	S	08	00	45	2	0	01
768378220Y	48040000	01.977	1729	95	017700	07	01	25	16	U-4DP	0	05	1	1	1	03	01	04	L	2	01	01	05	E	14	03	00	01	01	02	S	02	00	19	2	0	00
822047330Y	48003000	02.679	1369	289	017000	11	04	12	18	U-4DP	0		1	1	1	05	01	03	R	1							00	01	01	01	N	09		38	2	0	00
735524640	48070000	02.686	0245	291	020100	07	01	02	11	S-4DP	0	77	1	1	1	05	01	02	R	1	00	00	05		00	03	00	03	01	01	N	08	00	00	3	0	00
711602780	48070000	02.686	0245	291	020100	07	03	04	21	S-4DP	0	77	4	1	1	05	01	02	R	2	03	01	01	N	01	02	42	01	01	02	N	08	00	51	2	0	03
089429570	48070000	02.686	0245	291	020100	07	06	19	07	S-4DP	0	02	1	2	1	05	01	02	I	M	01	01	03	E	01	03	47	01	01	01	W	14	00	47	2	0	01
801563050	48070000	02.686	0245	291	020100	07	11	17	22	S-4DP	0	04	4	1	1	05	01	02	L	2	03	01	03	N	14	01	41	01	01	01	S	01	00	46	2	0	02
801521620	48070000	02.686	0245	291	005700	08	02	23	06	S-4DP	0	04	4	1	1	05	01	02	L	1	01	01	03	W	02	03	18	01	01	01	S	14	00	59	2	0	00
801544950	48070000	02.686	0245	291	005700	08	03	14	11	S-4DP	0	03	1	2	1	05	01	02	R	L	01	01	03	N	02	03	27	01	01	01	S	14	00	44	2	0	00

COMMENT: 1 - SORT BY ROADWAY, MILE POINT
FROM: 01/01/2007 TO 12/31/2011 RAMPS INCL
FROM CO/SEC/SUB: 48 004 000 MP: 008.334 INFL INCL
TO CO/SEC/SUB: 48 004 000 MP: 010.043 CR/OS INCL

CRASH NUMBER	ROADWAY ID COUNTY	SECTION	MILE POINT	NEAR AOR	STATE ROAD	ADT VARIANCE	YEAR	MONTH	DAY	HOUR	CRCC RALA ATATSESE SG	ALCOHOL	HAZARDMATERIALS	LIGHT	WEATHER	ROADSURFACE	TRAFFICCONTROL	ROADCONDITION	SPECIALCONDITION	RAILROADCROSSING	ACCIDENT	VEHICLE1	VEHICLE2	VEHICLE3	VEHICLE4	PEDESTRIAN1	CONDITION1	DRIVER1	VEHICLE5	VEHICLE6	VEHICLE7	VEHICLE8	PEDESTRIAN2	CONDITION2	DRIVER2	# OF VEHICLES	# OF NONMOTORISTS	NUMBER OF FATALITIES
828406930	48040000	01.920	1729	95	012300	11	12	07	16	U-4DP	0	09	1	1	1	01	01	03	R	1	02	01	01	N	03	02	21	01	01	02	N	10	00	56	2	0	00
828313680	48040000	01.930	1729	95	012300	11	11	15	16	U-4DP	0	01	2	2	1	01	01	01	R	2	01	01	01	N	01	02	65	03	01	02	N	08	00	44	3	0	02
768417400	48040000	01.939	1729	95	016800	07	09	14	15	U-4DP	0	01	1	2	1	03	01	01	R	2	03	01	01	N	01	02	00	01	01	02	N	08	00	61	2	0	00
768432310	48040000	01.941	1729	95	016800	07	09	18	13	U-4DP	0	01	1	1	1	05	01	03	R	2	01	01	01	N	01	02	25	01	01	02	N	08	00	38	2	0	01
768483110	48040000	01.949	1729	95	020300	08	05	20	15	U-4DP	0	01	1	1	1	03	01	02	L	1	01	01	02	E	01	02	00	01	01	02	E	08	00	18	2	0	00
768376760	48040000	01.958	1729	95	016800	07	02	10	03	U-4DP	1	03	4	2	1	05	01	02	L	2	01	01	01	S	01	77	25	01	01	01	W	04	21	21	2	0	03
768400520	48040000	01.958	1729	95	016800	07	03	28	12	U-4DP	0	01	1	1	1	03	01	01	T	1	03	01	01	W	01	77	21	01	01	02	W	08	00	46	4	0	00
768369460	48040000	01.958	1729	95	016800	07	03	31	21	U-4DP	0	01	5	3	2	05	01	03	S	2	01	01	01	W	01	02	00	01	01	02	W	08	00	31	3	0	00
768413750	48040000	01.958	1729	95	016800	07	05	30	13	U-4DP	0	06	1	3	2	05	01	02	L	1	00	00	03	N	02	03	00	01	01	01	W	13	00	26	2	0	02
768413780	48040000	01.958	1729	95	016800	07	05	31	13	U-4DP	0	01	1	2	1	05	01	02	L	2	01	01	01	W	01	02	21	01	01	02	W	08	00	32	2	0	00
768454160	48040000	01.958	1729	95	016800	07	11	03	23	U-4DP	1	00	4	1	1	05	01	02	R	2	03	01	01	N	01	00	34	01	01	01	E	03	00	56	2	0	01
768473940	48040000	01.958	1729	95	020300	08	01	10	07	U-4DP	0	01	1	1	1	03	01	02	R	2	01	01	01	E	01	02	36	01	01	02	E	08	00	63	2	0	02
770769700	48040000	01.958	1729	95	020300	08	07	16	13	U-4DP	0	03	1	1	1	05	01	02	L	1	01	01	01	W	03	03	44	03	01	01	E	01	00	28	2	0	02
770792380	48040000	01.958	1729	95	020300	08	10	22	12	U-4DP	0	03	1	2	1	05	01	02	T	1	01	01	01	W	03	20	26	01	01	01	S	02	00	42	2	0	02
770844820	48040000	01.958	1729	95	013300	09	05	23	22	U-4DP	0	03	4	2	1	05	01	02	L	2	01	01	01	N	01	11	21	01	01	01	W	01	00	19	2	0	02
770835130	48040000	01.958	1729	95	013300	09	05	24	12	U-4DP	0	03	5	2	2	05	01	02	R	1	02	01	01	W	14	11	32	01	01	01	N	06	00	17	3	0	01
770947520	48040000	01.958	1729	95	011500	10	06	13	20	U-4DP	0	03	5	1	1	05	01	02	R	1	01	01	03	E	05	06	22	01	01	01	N	02	00	33	2	0	00
770950270	48040000	01.958	1729	95	011500	10	08	05	07	U-4DP	0	01	1	2	2	03	01	03	L	U	01	01	01	E	00	02	00	01	01	02	E	08	00	29	2	0	00
770963570	48040000	01.958	1729	95	011500	10	08	22	17	U-4DP	0	03	1	3	2	05	01	02	L	1	01	01	01	E	01	11	39	01	01	01	S	04	00	70	2	0	03
770990060	48040000	01.958	1729	95	011500	10	11	29	19	U-4DP	0	03	5	3	2	05	01	02	R	2	01	01	01	N	01	11	58	01	01	01	E	04	00	46	3	0	02
820337500	48040000	01.958	1729	95	012300	11	01	10	19	U-4DP	0	03	4	1	1	05	01	02	L	1	01	01	01	S	01	11	21	03	01	01	W	05	00	49	4	0	02
820721060	48040000	01.958	1729	95	012300	11	04	02	21	U-4DP	0	03	5	1	1	05	01	02	I	M	01	01	03	S	02	03	31	03	01	01	N	02	00	32	2	0	10
819477390	48040000	01.958	1729	95	012300	11	11	08	10	U-4DP	0	01	1	1	1	05	01	02	I	M	03	01	03	N	14	02	54	01	01	03	N	08	00	31	2	0	00
768369860	48040000	01.961	1729	95	017700	07	01	04	05	U-4DP	0	01	4	2	1	05	01	02	L	2	01	01	01	S	01	02	00	03	01	01	S	09	00	46	2	0	00
768427460	48040000	01.961	1729	95	017700	07	08	29	11	U-4DP	0	01	1	1	1	05	01	02	L	L	03	01	01	S	01	02	26	01	01	02	S	08	00	77	2	0	02
770800200	48040000	01.967	1729	95	013500	09	01	23	24	U-4DP	0	01	1	1	1	03	01	03	L	1	01	01	01	E	00	02	54	01	01	02	E	08	00	61	2	0	03
770919550	48040000	01.967	1729	95	012000	10	03	05	19	U-4DP	0	01	5	1	1	05	01	03	L	1	03	01	01	S	01	02	53	03	01	02	S	08	00	45	2	0	01
768378220	48040000	01.977	1729	95	017700	07	01	25	16	U-4DP	0	05	1	1	1	03	01	04	L	2	01	01	05	E	14	03	00	01	01	02	S	02	00	19	2	0	00
822047330	48003000	02.679	1369	289	017000	11	04	12	18	U-4DP	0		1	1	1	05	01	03	R	1							00	01	01	01	N	09		38	2	0	00
735524640	48070000	02.686	0245	291	020100	07	01	02	11	S-4DP	0	77	1	1	1	05	01	02	R	1	00	00	05		00	03	00	03	01	01	N	08	00	00	3	0	00
711602780	48070000	02.686	0245	291	020100	07	03	04	21	S-4DP	0	77	4	1	1	05	01	02	R	2	03	01	01	N	01	02	42	01	01	02	N	08	00	51	2	0	03
889429570	48070000	02.686	0245	291	020100	07	06	19	07	S-4DP	0	02	1	2	1	05	01	02	I	M	01	01	03	E	01	03	47	01	01	01	W	14	00	47	2	0	01
801562050	48070000	02.686	0245	291	020100	07	11	17	22	S-4DP	0	04	4	1	1	05	01	02	L	2	02	01	03	N	14	01	41	01	01	01	S	01	00	46	2	0	02
801521620	48070000	02.686	0245	291	005700	08	02	23	06	S-4DP	0	04	4	1	1	05	01	02	L	1	01	01	03	W	02	03	18	01	01	01	E	14	00	59	2	0	00
801544950	48070000	02.686	0245	291	005700	08	03	14	11	S-4DP	0	03	1	2	1	05	01	02	R	L	01	01	03	N	02	03	27	01	01	01	S	14	00	44	2	0	00

Historical Crash Analysis Highlights



- Crash Analysis Reporting (C.A.R.) System
  - Detail or Summary Reports
  - Law Enforcement Crash Reports (Long Forms)

HSMV 90010 S – New Crash Report

FLORIDA TRAFFIC CRASH REPORT

LONG FORM ☐ SHORT FORM ☐ (Shaded Areas) UPDATE ☐

MAIL TO: DEPARTMENT OF HIGHWAY SAFETY & MOTOR VEHICLES
TRAFFIC CRASH RECORDS, NEIL KIRKMAN BUILDING
TALLAHASSEE, FL 32399-0537

TOTAL # OF VEHICLE SECTION(S) ____
TOTAL # OF PERSON SECTION(S) ____
TOTAL # OF NARRATIVE SECTION(S) ____

CRASH DATE | TIME OF CRASH | DATE OF REPORT | REPORTING AGENCY CASE NUMBER | HSMV CRASH REPORT NUMBER

CRASH IDENTIFIERS

COUNTY CODE | CITY CODE | COUNTY OF CRASH | PLACE OR CITY OF CRASH | CHECK IF WITHIN CITY LIMITS ☐ | TIME REPORTED | TIME DISPATCHED

TIME ON SCENE | TIME CLEARED SCENE | CHECK IF COMPLETED ☐ | REASON (If Investigation NOT Complete) | Notified By: 1 Motorist 2 Law Enforcement ☐

ROADWAY INFORMATION (CHOOSE ONLY 1 OF 4 OPTIONS)

CRASH OCCURRED ON STREET, ROAD, HIGHWAY | (1) AT STREET ADDRESS # | (2) AT LATITUDE AND LONGITUDE

FEET | MILES | N S E W | (3) AT / FROM INTERSECTION WITH STREET, ROAD, HIGHWAY | (4) OR FROM MILEPOST #

Road System Identifier
1 Interstate 2 U.S. 3 State 4 County 5 Local 6 Turnpike/Toll 7 Forest Road 8 Private Roadway 9 Parking Lot 77 Other, Explain in Narrative

Type of Shoulder
1 Paved 2 Unpaved 3 Curb

Type of Intersection
1 Not at Intersection 2 Four-Way Intersection 3 T-Intersection 4 Y-Intersection 5 Traffic Circle 6 Roundabout 7 Five-Point, or More 77 Other, Explain in Narrative

CRASH INFORMATION (CHECK IF PICTURES TAKEN) ☐

Light Condition
1 Daylight 2 Dusk 3 Dawn 4 Dark-Lighted 5 Dark-Not Lighted 6 Dark-Unknown Lighting 77 Other, Explain in Narrative 88 Unknown

Weather Condition
1 Clear 2 Cloudy 3 Rain 4 Fog, Smog, Smoke 5 Sleet/Hail/Freezing Rain 6 Blowing Sand, Soil, Dirt 7 Severe Crosswinds 77 Other, Explain in Narrative

Roadway Surface Condition
1 Dry 2 Wet 4 Ice/Frost 5 Oil 6 Mud, Dirt, Gravel 7 Sand 8 Water (standing/moving) 77 Other, Explain in Narrative 88 Unknown

School Bus Related
1 No 2 Yes, School Bus Directly Involved 3 Yes, School Bus Indirectly Involved

Manner of Collision/Impact
1 Front to Rear 2 Front to Front 3 Angle 4 Sideswipe, Same Direction 5 Sideswipe, Opposite Direction 6 Rear to Side 7 Rear to Rear 77 Other, Explain in Narrative 88 Unknown

First Harmful Event
Non-Collision: 1 Overturn/Rollover 2 Fire/Explosion 3 Immersion 4 Jackknife 5 Cargo/Equipment Loss or Shift 6 Fell/Jumped From Motor Vehicle 7 Thrown or Falling Object 8 Ran into Water/Canal 9 Other Non-Collision
Collision Non-Fixed Object: 10 Pedestrian 11 Pedalcycle 12 Railway Vehicle (train, engine) 13 Animal 14 Motor Vehicle in Transport 15 Parked Motor Vehicle 16 Work Zone/Maintenance Equipment 17 Struck By Falling, Shifting Cargo 18 Other Non-Fixed Object
Collision with Fixed Object: 19 Impact Attenuator/Crash Cushion 20 Bridge Overhead Structure 21 Bridge Pier or Support 22 Bridge Rail 23 Culvert 24 Curb 25 Ditch 26 Embankment 27 Guardrail Face 28 Guardrail End 29 Cable Barrier 30 Concrete Traffic Barrier 31 Other Traffic Barrier 32 Tree (standing) 33 Utility Pole/Light Support 34 Traffic Sign Support 35 Traffic Signal Support 36 Other Post, Pole or Support 37 Fence 38 Mailbox 39 Other Fixed Object (wall, building, tunnel, etc.)

First Harmful Event within Interchange
1 No 2 Yes 88 Unknown

First Harmful Event Location
1 On Roadway 2 Off Roadway 3 Shoulder 4 Median 6 Gore 7 Separator 8 In Parking Lane or Zone 9 Outside Right-of-way 10 Roadside 88 Unknown

First Harmful Event Relation to Junction
1 Non-Junction 2 Intersection 3 Intersection-Related 4 Driveway/Alley Access Related 5 Railway Grade Crossing 14 Entrance/Exit Ramp 15 Crossover - Related 16 Shared-Use Path or Trail 17 Acceleration/Deceleration Lane 18 Through Roadway 77 Other, Explain in Narrative 88 Unknown

Contributing Circumstances: Road
1 None 4 Work Zone (construction/maintenance/utility) 6 Shoulders (none, low, soft, high) 7 Rut, Holes, Bumps 9 Worn, Travel-Polished Surface 10 Road Surface Condition (wet, icy, snow, slush, etc.) 11 Obstruction in Roadway 12 Debris 13 Traffic Control Device Inoperative, Missing or Obscured 14 Non-Highway Work 77 Other, Explain in Narrative 88 Unknown

Contributing Circumstances: Environment
1 None 2 Weather Conditions 3 Physical Obstruction(s) 4 Glare 5 Animal(s) in Roadway 77 Other, Explain in Narrative 88 Unknown

Work Zone Related
1 No 2 Yes 88 Unknown

Crash in Work Zone
1 Before the First Work Zone Warning Sign 2 Advance Warning Area 3 Transition Area 4 Activity Area 5 Termination Area

Type of Work Zone
1 Lane Closure 2 Lane Shift/Crossover 3 Work on Shoulder or Median 4 Intermittent or Moving Work 77 Other, Explain in Narrative

Workers in Work Zone
1 No 2 Yes 88 Unknown

Law Enforcement in Work Zone
1 No 2 Officer Present 3 Law Enforcement Vehicle Only Present

WITNESSES

NAME	ADDRESS	CITY & STATE	ZIP CODE
NAME	ADDRESS	CITY & STATE	ZIP CODE
NAME	ADDRESS	CITY & STATE	ZIP CODE

NON VEHICLE PROPERTY DAMAGE

VEHICLE #	PERSON #	PROPERTY DAMAGE – OTHER THAN VEHICLE	EST. AMOUNT	OWNER'S NAME ☐ (Check if Business)	ADDRESS	CITY & STATE	ZIP CODE
VEHICLE #	PERSON #	PROPERTY DAMAGE – OTHER THAN VEHICLE	EST. AMOUNT	OWNER'S NAME ☐ (Check if Business)	ADDRESS	CITY & STATE	ZIP CODE

HSMV 90010 S (E) (rev 10/10)

Page ___ of ___

VEHICLE # ☐ **Check if Commercial** ☐ | REPORTING AGENCY CASE NUMBER | HSMV CRASH REPORT NUMBER

1 Vehicle in Transport 2 Parked Motor Vehicle 3 Working Vehicle ☐ | VEHICLE LICENSE NUMBER | STATE | REGISTRATION EXPIRES | Check if Permanent Registration ☐ | VIN

Hit and Run 1 No 2 Yes 88 Unknown ☐ | YEAR | MAKE | MODEL | STYLE | COLOR | DAMAGE: 1 Disabling 2 Functional 4 Minor 88 Unknown 9 None ☐ | EST. AMOUNT

INSURANCE COMPANY | INSURANCE POLICY NUMBER | Towed due to Damage: 1 No 2 Yes ☐ | VEHICLE REMOVED BY | 1 Rotation 2 Owner Request 3 Driver 4 Other, Explain in Narrative ☐

NAME OF VEHICLE OWNER (Check if Business) ☐ | CURRENT ADDRESS | CITY & STATE | ZIP CODE

TRAILER # | LICENSE NUMBER | STATE | REGISTRATION EXPIRES | Check if Permanent Registration ☐ | VIN | YEAR | MAKE | LENGTH | AXLES

TRAILER # | LICENSE NUMBER | STATE | REGISTRATION EXPIRES | Check if Permanent Registration ☐ | VIN | YEAR | MAKE | LENGTH | AXLES

VEHICLE TRAVELING N S E W Off-Road Unknown ☐ | ON STREET, ROAD, HIGHWAY | AT EST. SPEED | POSTED SPEED | TOTAL LANES

HAZ. MAT. RELEASED 1 No 2 Yes 88 Unknown ☐ | HAZ. MAT PLACARD 1 No 2 Yes 88 Unknown ☐ | HAZ. MAT. NUMBER | HAZ. MAT. CLASS

Area of Initial Impact: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Undercarriage 19 Overturn 20 Windshield 21 Trailer

Most Damaged Area: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

MOTOR CARRIER NAME | US DOT NUMBER

MOTOR CARRIER ADDRESS | CITY & STATE | ZIP CODE | PHONE NUMBER

Vehicle Body Type
1 Passenger Car 2 Passenger Van 3 Pickup 7 Motor Home 8 Bus 11 Motorcycle 12 Moped 13 All Terrain Vehicle (ATV) 15 Low Speed Vehicle 16 (Sport) Utility Vehicle 17 Cargo Van (10,000 lbs (4,536 kg) or less) 18 Motor Coach 19 Other Light Trucks (10,000 lbs (4,536 kg) or less) 20 Medium/Heavy Trucks (more than 10,000 lbs (4,536 kg)) 21 Farm Labor Vehicle 77 Other, Explain in Narrative 88 Unknown

Trafficway
1 Two-Way, Not Divided 2 Two-Way, Not Divided, with a Continuous Left Turn Lane 3 Two-Way, Divided, Unprotected (painted >4 feet) Median 4 Two-Way, Divided, Positive Median Barrier 5 One-Way Trafficway 88 Unknown

Commercial Motor Vehicle Configuration
1 Vehicle 10,000 lbs or less Placarded for Hazardous Materials 2 Single-Unit Truck (2-axle and GVWR more than 10,000 lbs (4,536 kg)) 3 Single-Unit Truck (3 or more axles) 4 Truck Pulling Trailer(s) 5 Truck Tractor (bobtail) 6 Truck Tractor/Semi-Trailer 7 Truck Tractor/Double Truck 8 Tractor/Triple 9 Truck more than 10,000 lbs (4,536 kg), Cannot Classify 10 Bus/Large Van (seats for 9-15 occupants, including driver) 11 Bus (seats for more than 15 occupants, including driver) 77 Other, Explain in Narrative 88 Unknown

Trailer Type
TRAILER 1 | TRAILER 2
1 Single Semi Trailer 2 Tandem Semi Trailer 3 Tank Trailer 4 Saddle Mount/Trailer 5 Boat Trailer 6 Utility Trailer 7 House Trailer 8 Pole Trailer 9 Towed Vehicle 10 Auto Transport 77 Other, Explain in Narrative 88 Unknown

Cargo Body Type
1 No Cargo 2 Bus 3 Van/Enclosed Box 4 Hopper 5 Pole-Trailer 6 Cargo Tank 7 Flatbed 8 Dump 9 Concrete Mixer 10 Auto Transport 11 Garbage/Refuse 12 Log 13 Intermodal Container Chassis 14 Vehicle Towing Another Vehicle 15 Not Applicable (vehicle 10,000 lbs (4,536kg) or less not displaying HM placard) 77 Other, Explain in Narrative 88 Unknown

Comm/Non-Commercial
1 Interstate Carrier 2 Intrastate Carrier 3 Not In Commerce/Government 4 Not In Commerce/Other Truck

Comm GVWR/GCWR
1 10,000 lbs (4,536 kg) or less 2 10,001-26,000 lbs (4,536-11,793 kg) 3 More than 26,000 lbs (11,793 kg) 4 Not Applicable

Most Harmful Event
Non-Collision: 1 Overturn/Rollover 2 Fire/Explosion 3 Immersion 4 Jackknife 5 Cargo/Equipment Loss or Shift 6 Fell/Jumped From Motor Vehicle 7 Thrown or Falling Object 8 Ran into Water/ Canal 9 Other Non-Collision
Collision with Non-Fixed Object: 10 Pedestrian 11 Pedalcycle 12 Railway Vehicle (train, engine) 13 Animal 14 Motor Vehicle in Transport 15 Parked Motor Vehicle 16 Work Zone/Maintenance Equipment 17 Struck By Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle 18 Other Non-Fixed Object
Collision Fixed Object: 19 Impact Attenuator/Crash Cushion 20 Bridge Overhead Structure 21 Bridge Pier or Support 22 Bridge Rail 23 Culvert 24 Curb 25 Ditch 26 Embankment 27 Guardrail Face 28 Guardrail End 29 Cable Barrier 30 Concrete Traffic Barrier 31 Other Traffic Barrier 32 Tree (standing) 33 Utility Pole/Light Support 34 Traffic Sign Support 35 Traffic Signal Support 36 Other Post, Pole, or Support 37 Fence 38 Mailbox 39 Other Fixed Object (wall, building, tunnel, etc.)

Emergency Vehicle Use
1 No 2 Yes 88 Unknown

Sequence of Events
1st 2nd 3rd 4th
(40-46 Sequence of Events only) 40 Equipment Failure (blown tire, brake failure, etc.) 41 Separation of Units 42 Ran Off Roadway, Right 43 Ran Off Roadway, Left 44 Cross Median 45 Cross Centerline 46 Downhill Runaway

Vehicle Maneuver Action
1 Straight Ahead 2 Turning Right 3 Turning Left 4 Backing 5 Turning Right 6 Changing Lanes 8 Parked 10 Making U-Turn 11 Overtaking/Passing 13 Stopped in Traffic 14 Slowing 15 Negotiating a Curve 16 Leaving Traffic Lane 17 Entering Traffic Lane 77 Other, Explain in Narrative 88 Unknown

Traffic Control Device For This Vehicle
1 No Controls 4 School Zone Sign/Device 5 Traffic Control Signal 6 Stop Sign 7 Yield Sign 8 Flashing Signal 9 Railway Crossing Device 10 Person (including Flagman, Officer, Guard, etc.) 13 Warning Sign 77 Other, Explain in Narrative 88 Unknown

Vehicle Defects
1 None 2 Brakes 3 Tires 4 Lights (head, signal, tail) 6 Steering 7 Wipers 9 Exhaust System 10 Body, Doors 11 Power Train 12 Suspension 13 Wheels 14 Windows/Windshield 15 Mirrors 16 Truck Coupling/Trailer Hitch/Safety Chains 77 Other, Explain in Narrative 88 Unknown

Roadway Grade
1 Level 2 Hillcrest 3 Uphill 4 Downhill 5 Sag (bottom)

Roadway Alignment
1 Straight 2 Curve Right 3 Curve Left

Special Function of Motor Vehicle
1 No Special Function 2 Farm Vehicle 3 Police 7 Taxi 8 Military 9 Ambulance 10 Fire Truck 11 Farm Labor Transport 12 School Bus 13 Transit/Commuter Bus 14 Intercity Bus 15 Charter/Tour Bus 16 Shuttle Bus 17 Farm Labor Bus 88 Unknown

VIOLATIONS

PERSON #	NAME OF VIOLATOR	FL STATUTE NUMBER	CHARGE	CITATION NUMBER
PERSON #	NAME OF VIOLATOR	FL STATUTE NUMBER	CHARGE	CITATION NUMBER
PERSON #	NAME OF VIOLATOR	FL STATUTE NUMBER	CHARGE	CITATION NUMBER

HSMV 90010 S (V/P) (rev 10/10)

Page ___ of ___

HSMV 90010 S – New Crash Report

PERSON # | REPORTING AGENCY CASE NUMBER | HSMV CRASH REPORT NUMBER

1 Driver
2 Non-Motorist
3 Passenger

VEHICLE # | NAME | PHONE NUMBER | Check if Recommend Driver Re-exam

CURRENT ADDRESS (Number and Street) | CITY & STATE | ZIP CODE

DATE OF BIRTH | SEX: 1 Male 2 Female 88 Unknown | DRIVER LICENSE NUMBER | STATE | EXPIRES | INJURY SEVERITY (INJ): 1 None 2 Possible 3 Non-Incapacitating 4 Incapacitating 5 Fatal (within 30 days) 6 Non-Traffic Fatality

DRIVER

DL Type
1 A 2 B 3 C
4 D/Chauffeur
5 E/Operator
6 F/Oper – Rest
7 None

Required Endorsements
1 Yes
2 No
3 No Req. Endorsement

Driver's Actions at Time of Crash

1st / 2nd / 3rd / 4th
1 No Contributing Action
2 Operated MV In Careless or Negligent Manner
3 Failed to Yield Right-of- Way
4 Improper Backing
6 Improper Turn
10 Followed too Closely
11 Ran Red Light
12 Drove too Fast for Conditions
13 Ran Stop Sign
15 Improper Passing
17 Exceeded Posted Speed
21 Wrong Side of Wrong Way
25 Failed to Keep in Proper Lane
26 Ran off Roadway
27 Disregarded other Traffic Sign
28 Disregarded Other Road Markings
29 Over-Correcting/Over-Steering
30 Swerved or Avoided : Due to Wind, Slippery Surface, MV, Object, Non-Motorist in Roadway, etc.
31 Operated MV in Erratic, Reckless or Aggressive Manner
77 Other Contributing Action

Condition At Time of Crash
1 Apparently Normal
3 Asleep or Fatigued
5 Ill (sick) or Fainted
6 Seizure, Epilepsy, Blackout
7 Physically Impaired
8 Emotional (depression, angry, disturbed, etc.)
9 Under the Influence of Medications/Drugs/Alcohol
77 Other, Explain In Narrative
88 Unknown

Driver Distracted By
1 Not Distracted
2 Electronic Communication Devices (cell phone, etc.)
3 Other Electronic Device (navigation device, DVD player)
4 Other Inside the Vehicle (explain in narrative)
5 External Distraction (outside the vehicle, explain in narrative)
6 Texting
7 Inattentive
88 Unknown

Driver Vision Obstructions
1 Vision Not Obscured
2 Inclement Weather
3 Parked/Stopped Vehicle
4 Trees/Crops/Bushes
5 Load on Vehicle
6 Building/Fixed Object
7 Signs/Billboards
8 Fog
9 Smoke
10 Glare
77 All Other, Explain In Narrative

DRIVER OR PASSENGER

Helmet Use (HU)
1 DOT-Compliant Motorcycle Helmet
2 Other Helmet
3 No Helmet

Eye Protection (EP)
1 Yes
2 No
3 Not Applicable

Restraint Systems (RS)
1 Not Applicable
2 None Used - Motor Vehicle Occupant
3 Shoulder and Lap Belt Used
4 Shoulder Belt Only Used
5 Lap Belt Only Used
6 Restraint Used - Type Unknown
7 Child Restraint System - Forward Facing
8 Child Restraint System - Rear Facing
9 Booster Seat
10 Child Restraint Type Unknown
77 Other, Explain In Narrative

DRIVER OR PASSENGER

Motor Vehicle Seating Position:
LOCATION: (LOC) SEAT ROW OTHER

Seat
1 Left
2 Middle
3 Right
77 Other (explain in narrative)
88 Unknown

Row
1 Front
2 Second
3 Third
4 Fourth
77 Other Row
88 Unknown

Other
1 Not Applicable
2 Sleeper Section of Truck Cab
3 Other Enclosed Cargo Area
4 Unenclosed Cargo Area
5 Trailing Unit
6 Riding on Motor Vehicle Exterior (non-trailing unit)
88 Unknown

Ejection (EJECT)
1 Not Ejected
2 Ejected, Totally
3 Ejected, Partially
4 Not Applicable
88 Unknown

Air Bag Deployed (ABD)
1 Not Applicable
2 Not Deployed
3 Deployed-Front
4 Deployed-Side
5 Deployed-Other (knee, air belt, etc.)
6 Deployed-Combination
7 Deployed-Curtain
88 Deployment Unknown

NON-MOTORIST

Non-Motorist Description
1 Pedestrian
2 Other Pedestrian (wheelchair, person in a building, skater, pedestrian conveyance, etc.)
3 Bicyclist
4 Other Cyclist
5 Occupant of Motor Vehicle Not in Transport (parked, etc.)
6 Occupant of a Non-Motor Vehicle Transportation Device
7 Unknown Type of Non-Motorist

Non-Motorist Location At Time of Crash
1 Intersection - Marked Crosswalk
2 Intersection - Unmarked Crosswalk
3 Intersection – Other
4 Midblock - Marked Crosswalk
5 Travel Lane - Other Location
6 Bicycle Lane
7 Shoulder/Roadside
8 Sidewalk
9 Median/Crossing Island
10 Driveway Access
11 Shared-Use Path or Trail
12 Non-Trafficway Area
77 Other, Explain In Narrative
88 Unknown

Action Prior to Crash
1 Crossing Roadway
2 Waiting to Cross Roadway
3 Walking/Cycling Along Roadway with Traffic (in or adjacent to travel lane)
4 Walking/Cycling Along Roadway Against Traffic (in or adjacent to travel lane)
5 Walking/Cycling on Sidewalk
6 In Roadway – Other (working, playing, etc.)
7 Adjacent to Roadway (e.g., shoulder, median)
8 Going to or from School (K-12)
9 Working in Trafficway (incident response)
10 None
77 Other, Explain In Narrative
88 Unknown

Safety Equipment
1 None
2 Helmet
3 Protective Pads Used (elbows, knees, shins, etc.)
4 Reflective Clothing (jacket, backpack, etc.)
5 Lighting
6 Not Applicable
77 Other, Explain In Narrative
88 Unknown

Non-Motorist Actions/Circumstances
1st / 2nd
1 No Improper Action
2 Dart/Dash
3 Failure to Yield Right-of-Way
4 Failure to Obey Traffic Signs, Signals, or Officer
5 In Roadway Improperly (standing, lying, working, playing)
6 Disabled Vehicle Related (working on, pushing, leaving/approaching)
7 Entering/Exiting Parked/Standing Vehicle
8 Inattentive (talking, eating, etc)
9 Not Visible (dark clothing, no lighting, etc.)
10 Improper Turn/Merge
11 Improper Passing
12 Wrong-Way Riding or Walking
77 Other, Explain In Narrative
88 Unknown

ALCOHOL/DRUG/EMS

SUSPECTED ALCOHOL USE: 1 No 2 Yes 88 Unknown
ALCOHOL TESTED: 1 Test Not Given 2 Test Refused 3 Test Given 88 Unknown, If Tested
ALCOHOL TEST TYPE: 1 Blood 2 Breath 3 Urine 77 Other, Explain In Narrative
ALCOHOL TEST RESULT: 1 Pending 2 Completed 88 Unknown
BAC
SUSPECTED DRUG USE: 1 No 2 Yes 88 Unknown
DRUG TESTED: 1 Test Not Given 2 Test Refused 3 Test Given 88 Unknown, If Tested
DRUG TEST TYPE: 1 Blood 3 Urine 77 Other, Explain In Narrative
DRUG TEST RESULT: 1 Positive 2 Negative 3 Pending 88 Unknown

SOURCE OF TRANSPORT TO MEDICAL FACILITY: 1 Not Transported 2 EMS 3 Law Enforcement 77 Other, Explain In Narrative 88 Unknown | EMS AGENCY NAME OR ID | EMS RUN NUMBER | MEDICAL FACILITY TRANSPORTED TO

ADDITIONAL PASSENGERS

PERSON # | VEHICLE # | NAME | DATE OF BIRTH | INJ | SEX | LOC: S R O | EJECT | HU | EP | ABD | RS
CURRENT ADDRESS (Number and Street) | CITY & STATE | ZIP CODE
SOURCE OF TRANSPORT TO MEDICAL FACILITY: 1 Not Transported 2 EMS 3 Law Enforcement 77 Other, Explain In Narrative 88 Unknown | EMS AGENCY NAME OR ID | EMS RUN NUMBER | MEDICAL FACILITY TRANSPORTED TO

PERSON # | VEHICLE # | NAME | DATE OF BIRTH | INJ | SEX | LOC: S R O | EJECT | HU | EP | ABD | RS
CURRENT ADDRESS (Number and Street) | CITY & STATE | ZIP CODE
SOURCE OF TRANSPORT TO MEDICAL FACILITY: 1 Not Transported 2 EMS 3 Law Enforcement 77 Other, Explain In Narrative 88 Unknown | EMS AGENCY NAME OR ID | EMS RUN NUMBER | MEDICAL FACILITY TRANSPORTED TO

HSMV 90010 S (V/P) (rev 10/10)

Page ___ of ___

NARRATIVE | REPORTING AGENCY CASE NUMBER | HSMV CRASH REPORT NUMBER

ADDITIONAL PASSENGERS

PERSON # | VEHICLE # | NAME | DATE OF BIRTH | INJ | SEX | LOC: S R O | EJECT | HU | EP | ABD | RS
CURRENT ADDRESS (Number and Street) | CITY & STATE | ZIP CODE
SOURCE OF TRANSPORT TO MEDICAL FACILITY: 1 Not Transported 2 EMS 3 Law Enforcement 77 Other, Explain In Narrative 88 Unknown | EMS AGENCY NAME OR ID | EMS RUN NUMBER | MEDICAL FACILITY TRANSPORTED TO

PERSON # | VEHICLE # | NAME | DATE OF BIRTH | INJ | SEX | LOC: S R O | EJECT | HU | EP | ABD | RS
CURRENT ADDRESS (Number and Street) | CITY & STATE | ZIP CODE
SOURCE OF TRANSPORT TO MEDICAL FACILITY: 1 Not Transported 2 EMS 3 Law Enforcement 77 Other, Explain In Narrative 88 Unknown | EMS AGENCY NAME OR ID | EMS RUN NUMBER | MEDICAL FACILITY TRANSPORTED TO

ADDITIONAL VIOLATIONS

PERSON #	NAME OF VIOLATOR	FL STATUTE NUMBER	CHARGE	CITATION NUMBER
PERSON #	NAME OF VIOLATOR	FL STATUTE NUMBER	CHARGE	CITATION NUMBER

REPORTING OFFICER

ID/BADGE NUMBER | RANK & NAME | DEPARTMENT | FHP SO PD OTHER

HSMV 90010 S (N/O) (rev 10/10)

Page ___ of ___

ONLY the Crash Reports Tells the Story

Historical Crash Analysis Highlights

- Contributing Factors
  - Road Condition (Road design)**
  - Human (Driver behavior)
  - Vehicle (Vehicle design and maintenance)
  - Environmental (Weather)

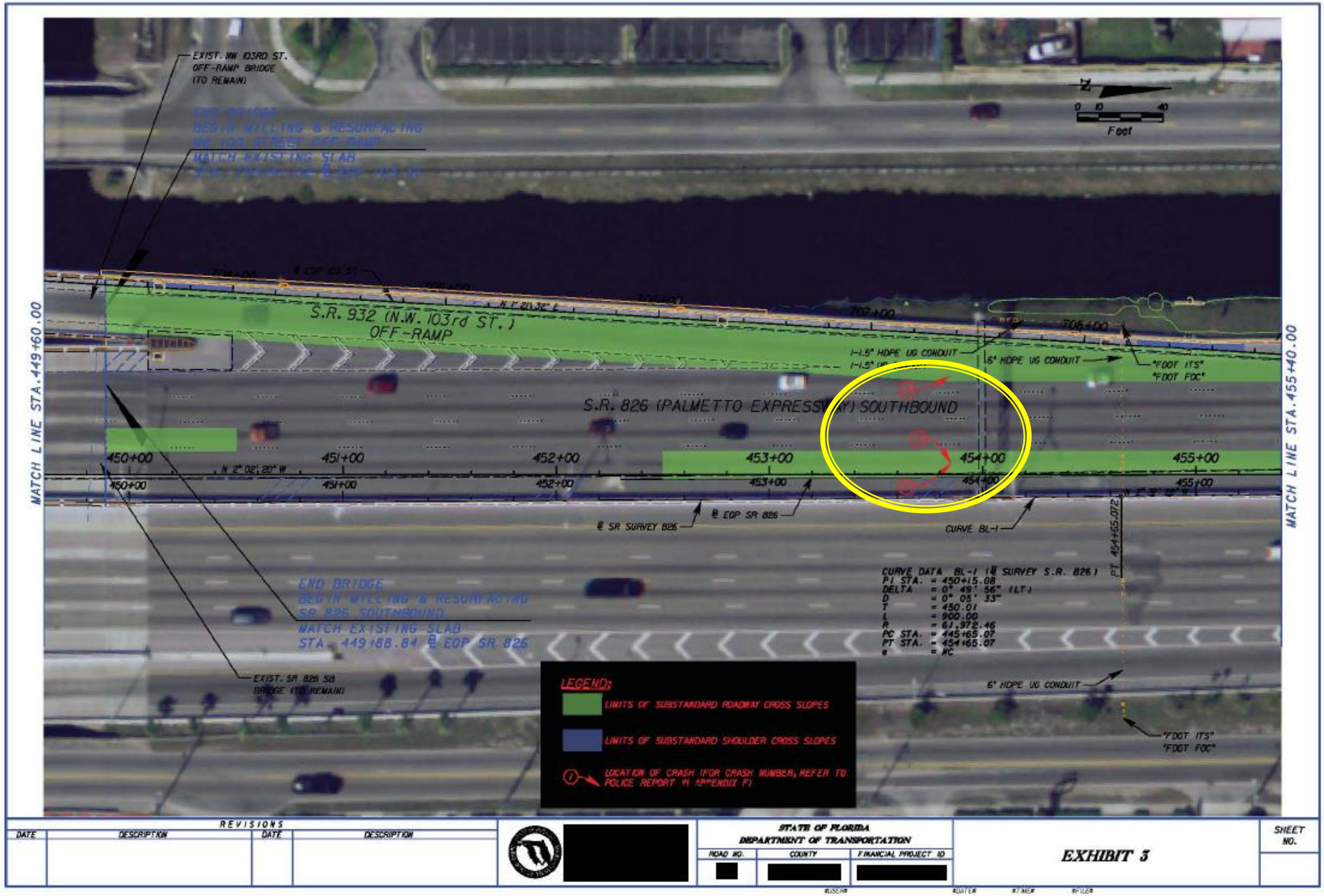
Historical Crash Analysis Highlights

- Crash Patterns
  - Identify Crash Patterns and Significant Trends.

Cross Slope Example: Crash Analysis

A Design Exception Request for Substandard (flat) Cross Slope on a RRR Project:

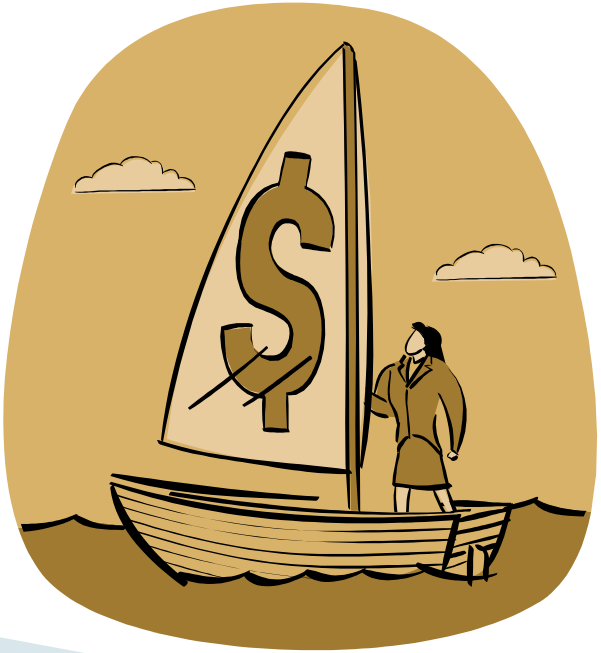
- 5 years of crash data reveals 434 crashes within the design exception limits.
- 61 occurred under wet pavement conditions.
- Further evaluation of the police reports indicate 8 out of 61 crashes which occurred under wet pavement conditions may have been attributed to substandard cross slope.
- A crash diagram was used for further evaluation.



Crash Numbers: 4, 5 & 11

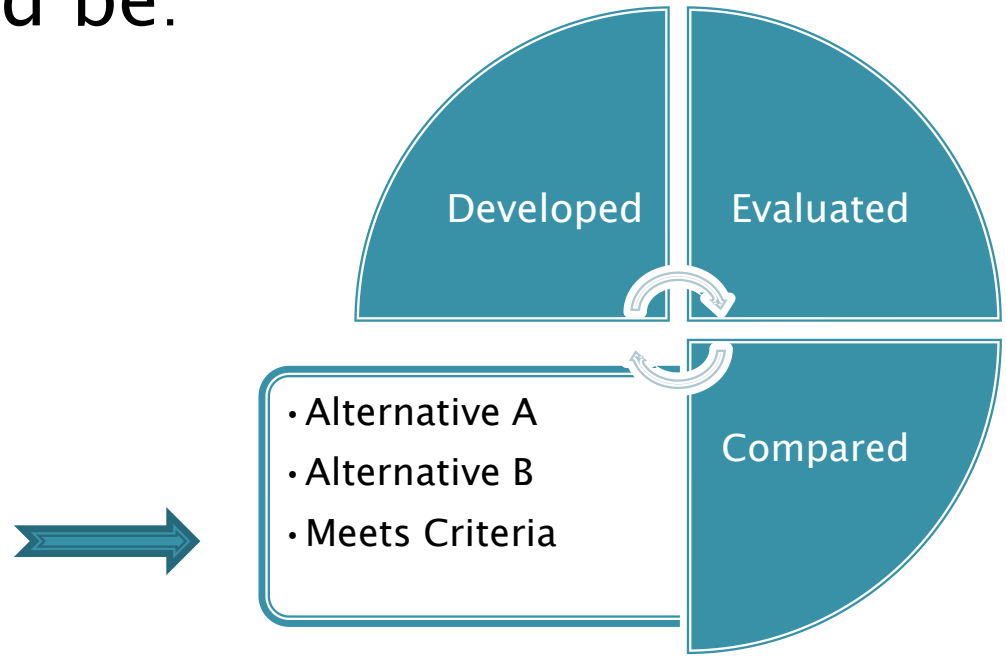
Design Exceptions & Variations

- Economic Analysis



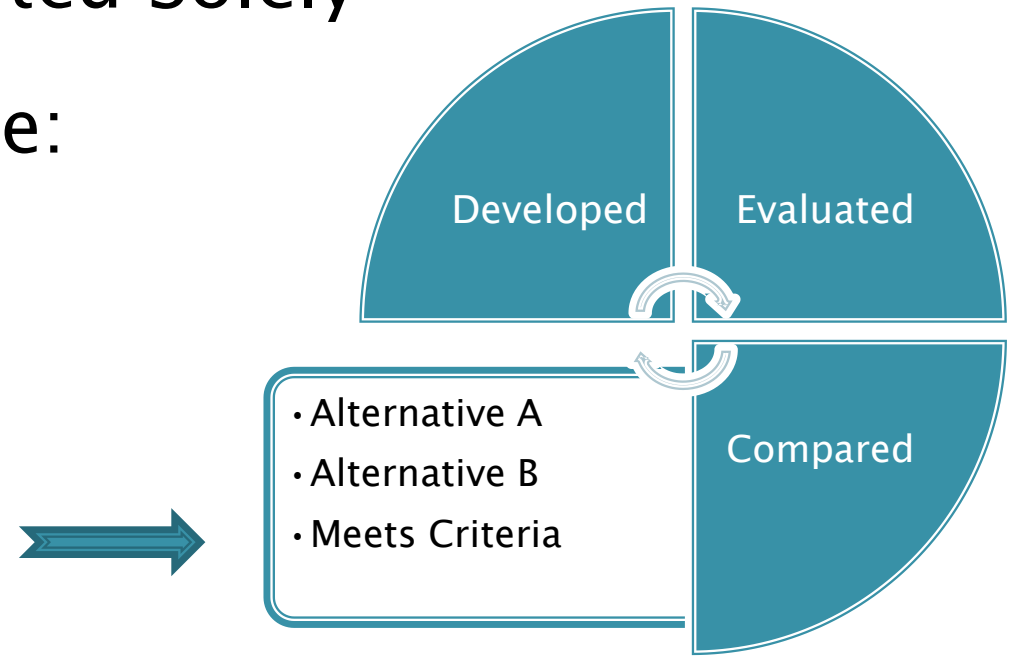
Identify Alternatives

- If it appears that meeting criteria may not be feasible at a particular location, alternatives should be:



Benefit/Cost Analysis for Alternatives

- The Analysis Should Only Include the Benefits and Costs Attributed Solely to Each Alternative:

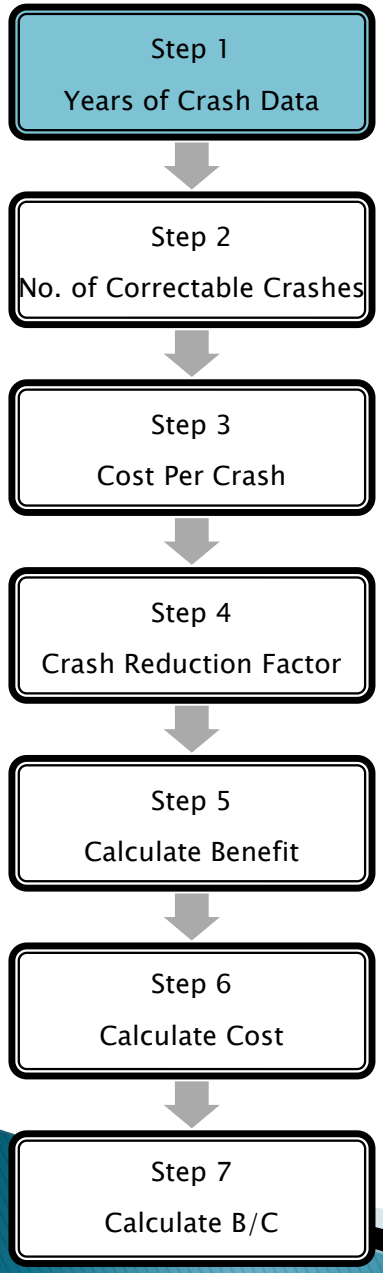


Economic Analysis

- Historical Tools
  - Historical Crash Method
- Predictive Tools
  - HSM
  - RSAP
  - Safety Analyst
  - IHSDM

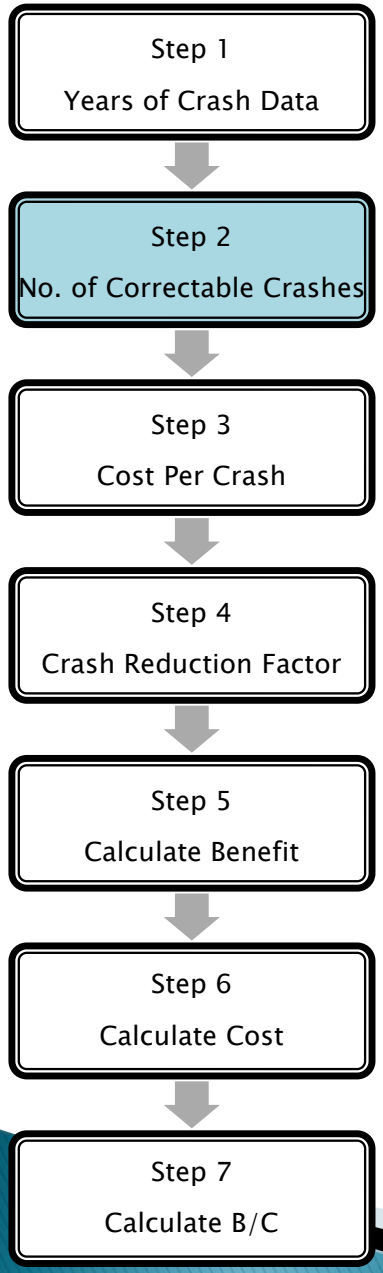
7 Steps to B/C Analysis

Note: When using the Historical Crash Method, if there isn't a history of attributable crashes, a B/C Analysis is not necessary.



Crash Data

1. Minimum of 5 most recent years of crash data.



Number of Correctable Crashes

2. Number of correctable crashes that were directly related to the deficient roadway element.

Step 1
Years of Crash Data

Step 2
No. of Correctable Crashes

Step 3
Cost Per Crash

Step 4
Crash Reduction Factor

Step 5
Calculate Benefit

Step 6
Calculate Cost

Step 7
Calculate B/C

Societal Cost
(Cost Per Crash)

3. Societal Cost provided by the SSO found in the PPM by facility type

HSIPG COST/CRASH BY FACILITY TYPE						
FACILITY TYPE	DIVIDED			UNDIVIDED		
	URBAN	SUBURBAN	RURAL	URBAN	SUBURBAN	RURAL
2-3 Lanes	$98,837	$150,613	$262,821	$114,040	$222,040	$416,658
4-5 Lanes	$110,115	$183,372	$369,954	$87,390	$158,476	$93,628
6+ Lanes	$109,638	$130,645	$545,271	n/a	n/a	n/a
Interstate	$138,873	n/a	$274,449	n/a	n/a	n/a
Turnpike	$127,584	n/a	$218,394	n/a	n/a	n/a

All State Roads Average Cost/Crash: **$141,085**

Step 1

Years of Crash Data

Step 2

No. of Correctable Crashes

Step 3

Cost Per Crash

Step 4

Crash Reduction Factor

Step 5

Calculate Benefit

Step 6

Calculate Cost

Step 7

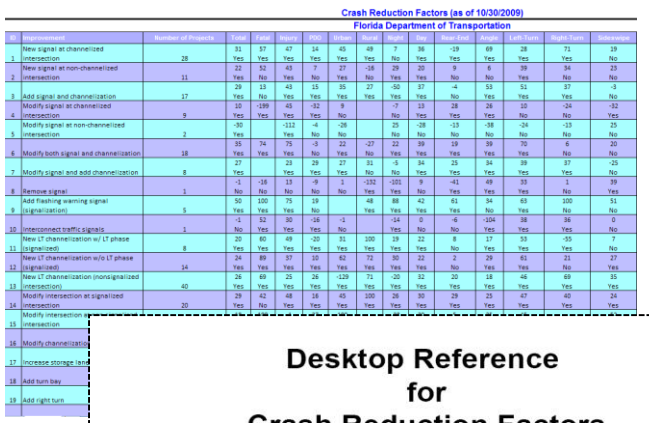
Calculate B/C

Crash Reduction Factor

4. Select a CRF (FDOT Table)

References

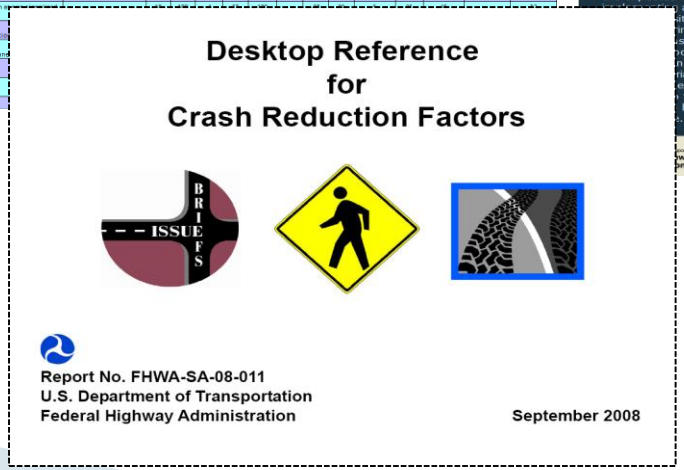
- AASHTO Highway Safety Manual
- FDOT State Safety Office
- FHWA CMF Clearinghouse
- FHWA Desktop Reference



Crash Reduction Factors (as of 10/30/2009)

Florida Department of Transportation

	Improvement	Number of Projects	Total	Fatal	Major	PDO	Other	Night	Dawn	Day	Dusk	Angle	Left Turn	Right Turn	Sideswipe
1	New signal at channelized intersection	28	31 Yes	57 Yes	47 Yes	14 Yes	45 Yes	49 Yes	7 No	36 Yes	-19 Yes	69 Yes	28 Yes	71 Yes	19 No
2	New signal at non-channelized intersection	11	22 Yes	52 No	43 Yes	7 No	27 Yes	-16 No	29 Yes	20 Yes	9 No	6 No	39 Yes	34 No	23 No
3	Add signal and channelization	17	29 Yes	13 No	43 Yes	15 Yes	35 Yes	27 Yes	-50 Yes	37 Yes	-4 No	53 Yes	51 Yes	37 Yes	-3 No
4	Modify signal at channelized intersection	9	10 Yes	-199 Yes	41 Yes	-32 Yes	9 No		-7 No	13 Yes	28 Yes	28 Yes	10 No	-24 No	-32 Yes
5	Modify signal at non-channelized intersection	2	-30 Yes		-112 Yes	-4 No	-26 No		25 No	-28 No	-13 No	-38 No	-24 No	-13 No	25 No
6	Modify both signal and channelization	18	35 Yes	74 Yes	75 Yes	-3 No	22 Yes	-27 No	22 Yes	39 Yes	19 Yes	39 Yes	70 Yes	6 No	20 No
7	Modify signal and add channelization	8	27 Yes		23 Yes	28 Yes	27 Yes	31 No	-5 No	34 Yes	25 Yes	34 Yes	39 Yes	37 Yes	-25 No
8	Remove signal	1	-1 No	-16 No	13 No	-9 No	1 No	-132 Yes	-101 Yes	9 No	-41 Yes	49 Yes	33 Yes	1 No	39 Yes
9	Add flashing warning signal (signalization)	5	50 Yes	100 Yes	75 Yes	19 No		-48 Yes	88 Yes	42 Yes	61 Yes	34 Yes	63 No	100 Yes	51 No
10	Interconnect traffic signals	1	-1 No	52 Yes	30 Yes	-16 Yes	-1 No		-14 Yes	0 No	-6 No	-104 Yes	38 Yes	36 Yes	0 No
11	New LT channelization w/ LT phase (signalized)	8	20 Yes	60 Yes	49 Yes	-20 Yes	31 Yes	100 Yes	19 Yes	22 Yes	8 No	17 Yes	53 Yes	-55 Yes	7 No
12	New LT channelization w/o LT phase (signalized)	14	24 Yes	89 Yes	57 Yes	10 Yes	62 Yes	72 Yes	30 Yes	22 Yes	2 No	29 Yes	61 Yes	21 No	27 Yes
13	New LT channelization (nonsignalized intersection)	40	26 Yes	69 Yes	25 Yes	26 Yes	-129 Yes	71 Yes	-20 Yes	32 Yes	20 Yes	18 Yes	46 Yes	69 Yes	35 Yes
14	Modify intersection at signalized intersection	20	29 Yes	42 No	48 Yes	16 Yes	45 Yes	100 Yes	26 Yes	30 Yes	29 Yes	25 Yes	47 Yes	40 Yes	24 Yes
15	Modify intersection intersection														
16	Modify channelizatio														
17	Increase storage lan														
18	Add turn bay														
19	Add right turn														



Desktop Reference
for
Crash Reduction Factors

Report No. FHWA-SA-08-011
U.S. Department of Transportation
Federal Highway Administration

September 2008

CMF
CRASH MODIFICATION FACTORS CLEARINGHOUSE

Skip to main content | Site Map | Notice | Home

About CMFs | Find CMFs | Submit CMFs | Resources | Contact

Quick Search

enter search term(s)

Roadside

- narrow by crash type -

- narrow by crash severity -

- narrow by roadway type -

Advanced Search

Need Help?

Search CMFs

Featured Resource:
Desktop Reference for Crash Reduction Factors

Developed by the Federal Highway Administration, the Desktop Reference is a compilation of CRFs relating to

A crash modification factor (CMF) is a multiplicative factor used to compute the expected number of crashes after

a given countermeasure

ate. The Crash Modification

inghouse houses a Web-

se of CMFs along with

ocumentation to help

n engineers identify the

riate countermeasure for

eeds. Using this site, you

find CMFs or submit your

be included in the

This site is funded by the

and maintained by the U

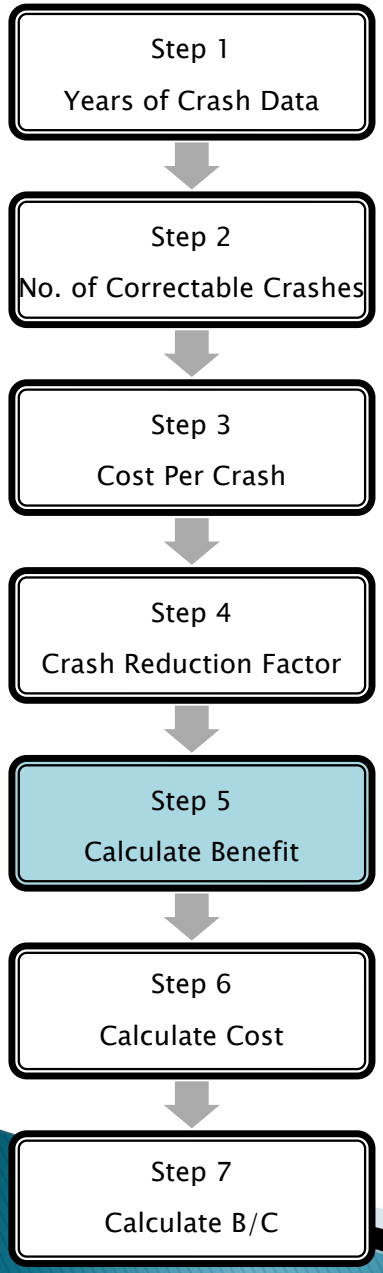
HIGHWAY SAFETY MANUAL

1st Edition

Volume 1 • 2010

HSM

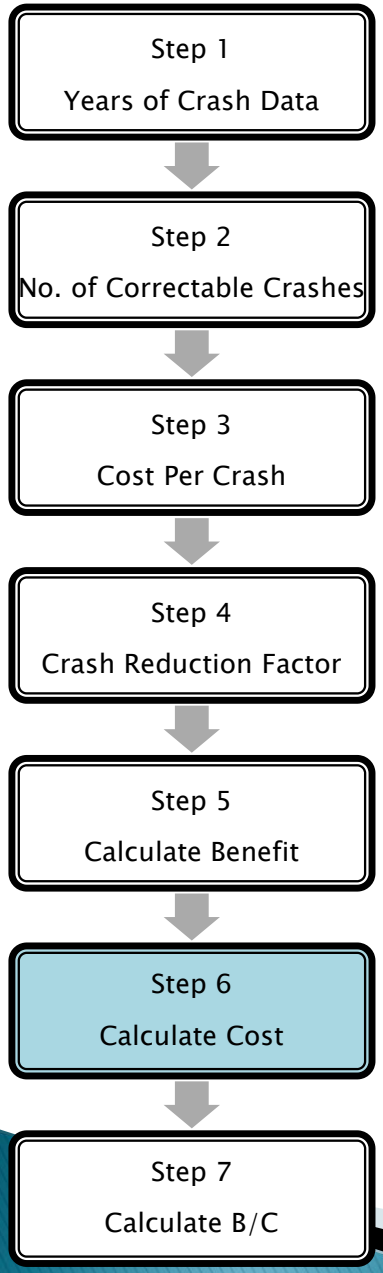
AASHTO



Calculate the Benefit

5. The Benefit is the anticipated total annual crash cost saving.

$$\text{Annual Benefit} = \frac{\text{No. Correctable Crashes X Cost per Crash X CRF}}{\text{No. Years of Crash Data}}$$



Calculate Cost

6. Cost from the Historical Trends or Long Range Estimate (LRE). See FDOT Estimates Website.

   Use Capital Recovery Factor (Std. Financial Tables)

   Service Life (FDOT Tables)

   Discount Rate (4%)

$$\text{Annual Cost} = \sum \text{Construction Cost per Feature X (Capital Recovery Factor)}$$

Step 1
Years of Crash Data

Step 2
No. of Correctable Crashes

Step 3
Cost Per Crash

Step 4
Crash Reduction Factor

Step 5
Calculate Benefit

Step 6
Calculate Cost

Step 7
Calculate B/C

Calculate B/C

7. The B/C is the Annual Benefit divided by the Annual Cost

$$\frac{B}{C} = \frac{\text{Annual Crash Reduction Benefit}}{\text{Annual Cost to Fix Condition}}$$

Design Exceptions & Variations

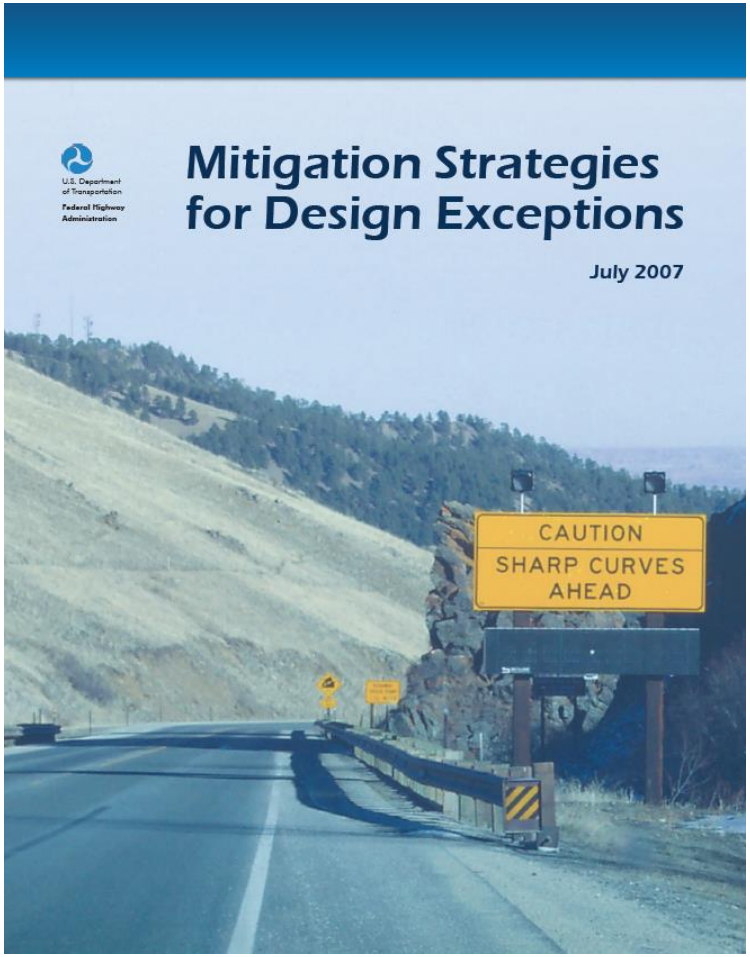
- Mitigation Strategies

HIKERS and BIKERS
Move to the side of
the road when a
vehicle approaches

Mitigation Strategies

Mitigation is a through process. Every Exception is unique.

Mitigation Strategies for Design Exceptions (July 2007) is a resource for evaluating and implementing.



Mitigation Strategies

TABLE 22
Potential Mitigation Strategies

Design Element	Objective	Potential Mitigation Strategies
1. Design Speed	Reduce operating speeds to the design speed.	Cross-sectional elements to manage speed.
2. Lane Width & 3. Shoulder Width	Optimize safety and operations by distributing available cross-sectional width.	Select optimal combination of lane and shoulder width based on site characteristics.
	Provide advance warning of lane width reduction.	Signing.
	Improve ability to stay within the lane.	Wide pavement markings.
		Recessed pavement markings.
		Raised pavement markings.
		Delineators.
		Lighting.
		Centerline rumble strips.
		Shoulder rumble strips.
		Painted edgeline rumble strips.
	Improve ability to recover if driver leaves the lane.	Paved or partially-paved shoulders.
		Safety edge.

Potential Mitigation Strategies
Remove or relocate fixed objects.
Traversable slopes.
Breakaway safety hardware.
Shield fixed objects and steep slopes.
Pull-off areas.
Signing.
Reflectors on approach guardrail and bridge rail.
Post-mounted delineators.
Object markers.
High-visibility bridge rail.
Bridge lighting.
Enhanced pavement markings.
Skid-resistant pavement.
Anti-icing systems.
Crashworthy bridge rail and approach guardrail.
Pull-off areas.
Surveillance.
Signing.
Pavement marking messages.
Dynamic curve warning systems.
Chevrons.
Post-mounted delineators.
Reflectors on barrier.
Widen the roadway.
Skid-resistant pavement.
Enhanced pavement markings.
Lighting.
Centerline rumble strips.
Shoulder rumble strips.

8. Superelevation	Improve ability to stay within the lane.		
11. Ve Cl		Address drainage on flat grades.	Adjusting gutter profile on curbed cross sections.
			Continuous drains.
	9. Stopping Sight Distance	Mitigate sight distance restrictions.	Signing and speed advisory plaques (crest vertical curves).
			Lighting (sag vertical curves).
12. La Ol			Adjust placement of lane within the roadway cross section (horizontal).
		distributing available cross-sectional width.	offset.
		Improve visibility of the lane lines.	Enhanced pavement markings.
13. Structural Capacity	Not addressed in this Guide.		

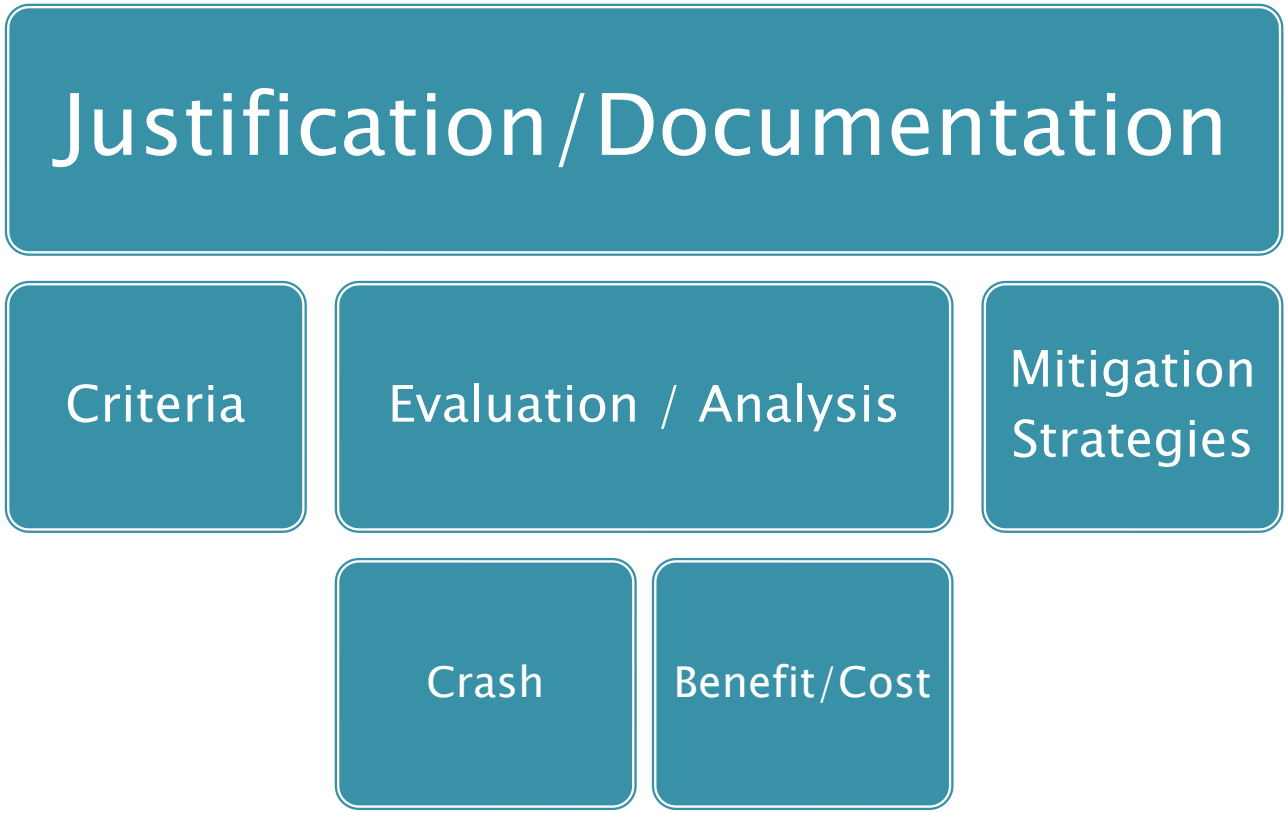
Mitigation Strategies

- Include a Section In Your Report that Discusses all Mitigation Strategies:
  - Existing
  - Considered
  - Proposed

Design Exceptions & Variations

- Justification and Documentation

Most Common Reasons for Denial



Justification

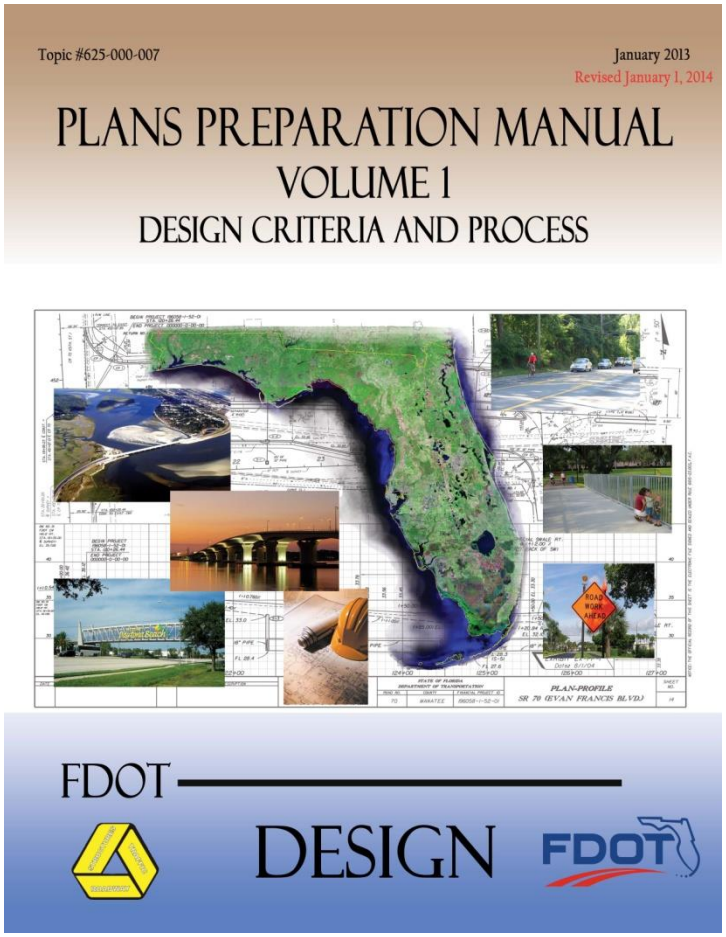
- A Strong Case for an Exception Can Be Made If:
  - The Required Criteria Are Not Applicable to the Site Specific Conditions.
  - The Project Can be as Safe by Not Following the Criteria
  - The Environmental or Community Needs Prohibit Meeting Criteria

Justification

- A Case Should Not Be Made Based Solely On the Basis That:
  - The Department can save money.
  - The Department can save time.
  - The proposed design is similar to other designs.

Documentation

- Plans Preparation Manual <u>Chapter 23</u>
  - Working to streamline documentation required.
  - See Section 23.5 for other requirements.



Documentation

- Use engineering judgment
- Length of documentation is not important.
- The key is to provide clarity and completeness to someone not familiar with the project or the design.

Note: Provide Enough Time for Central Office and for FHWA Review

Design Exceptions & Variations

- Approvals

Submittal and Approval Process

- Submit Design Exceptions early for improved flexibility.
- Check to ensure that you have the adequate appendices. (TSP, Crash Summary, Project Traffic, Plans, Schedule, etc.)
- Submit through your project manager.
- A denial does not necessarily imply a disagreement with the decision, but usually just inadequacies or errors in the documentation.
- <u>Reminder…Most Design Exceptions are ultimately approved.</u>

Approval Process (PPM Exhibit 23-B)

**Exhibit 23-B Central Office Approvals-
Design Exceptions and Design Variations**

Design Element	State Roadway Design Engineer	State Structures Design Engineer	State Transportation Planner	Chief Engineer	FHWA Division Admin.*
	Approval	Approval	Review	Approval	
Design Speed Exception	X				
-FIHS/SIS	X		X	X	
Design Speed Variation -FIHS/SIS			X	X	
Lane Width Exception	X				
Shoulder Width Exception	X				
Bridge Width Exception	X	X			
Bridge Width Variation (Category 2 Structures)		X			
Structural Capacity of Bridge Exception		X			
Structural Capacity of Bridge Variation					
-Category 2 Structures		X			
-Deficient Load Ratings (Category 1 and 2 Structures)		X			
-Traffic Railing (Category 1 and 2 Structures)		X			
Vertical Clearance Exception	X				
-16' for rural Interstate routes or single urban Interstate route	X				X
-All Category 1 and 2 Structures	X	X			
Vertical Clearance Variation (Category 2 Structures)		X			
Grades Exception	X				
Cross Slope Exception	X				
Superelevation Exception	X				

**Exhibit 23-B Central Office Approvals-
Design Exceptions and Design Variations (continued)**

Design Element	State Roadway Design Engineer	State Structures Design Engineer	State Transportation Planner	Chief Engineer	FHWA Division Admin.*
	Approval	Approval	Review	Approval	
Horizontal Alignment Exception	X				
Vertical Alignment Exception	X				
Stopping Sight Distance Exception	X				
Horizontal Clearance Exception	X				
-RR-South Fla Rail Corridor	X				
-Category 1 and 2 Structures	X	X			
Horizontal Clearance Variation (Category 2 Structure)		X			
Design Variation: Rumble strip requirements	X				
Design Variation: Crossovers on Limited Access Facilities	X				X
Design Variation: Patterned Pavement Technical Special Provisions	X				
Roundabout Designs-All	X				
Colored Bike Lane Assessments (The first 3 years after installation)	X				
Design Variation: Community Structures Non-Interstate	X				
Design Variation: Community Structures Interstate	X				X
Lump Sum Contracts (Non-Typical)	X				

*Design Exceptions on full FHWA oversight projects

Helpful Hints…

1. For Cross slope, include a station table of cross slopes for the deficient areas.
2. For Superelevation, include the 6% and 12% superelevation values from the AASHTO tables.
3. Generally, most crest vertical alignment exceptions are stopping sight distance exceptions as well, so include a table of Existing vs. FDOT vs. AASHTO values for K and SSD.
4. For lane width and shoulder width exceptions, include the limits of the deficiencies and strategies for addressing stalled vehicles.

Helpful Hints…

5. Check your vertical clearances on RRR projects. For Railroad related Vertical Clearances, please include a letter of concurrence from the owner of the Rail facility for all associated vertical or horizontal clearances.
6. Consider design alternatives (e.g. Existing To Remain, Meets FDOT Criteria, and possibly Partial Correction Meeting AASHTO Criteria or Practical Design.)
7. Include a copy of the Typical Section Package in your submittal. Criteria, Traffic, Design Exceptions, and Typicals are valuable when reviewing Design Exceptions.

Helpful Hints…

8. For Crash Analyses, always include at least the last 5 years. More than 5 years is allowed, but outdated data will likely be sent back as a denial. (See PPM Ch. 23 for latest years certified)
9. Include a section in your report called Mitigation Strategies. It is important to document that strategies for mitigating deficient elements have been evaluated and included as applicable for your site specific conditions. (See FHWA Mitigation Strategies for Design Exceptions)
10. Verify that your seal is visible in the pdf file (e.g. Pencil shade over crimp seals prior to scanning). Prepare 2 files, one for the report and one for the approval document. Sign and date the letter. Only sign and seal the report.

Who has the first question??

Central Office Contacts

Quality Assurance: Exceptions and Variations

Jeremy Fletcher, P.E., P.S.M.
Quality Assurance Engineer
(850) 414-4320
Jeremy.fletcher@dot.state.fl.us

Benjamin Gerrell, P.E.,
Quality Assurance Engineer
(850) 414-4318
benjamin.gerrell@dot.state.fl.us

FDOT Quality Assurance Website

http://www.dot.state.fl.us/rddesign/QA/QA.shtm