



Safety Assessment Process: DFW Connector

Work Zone Performance
Management Peer Exchange
Workshop

May 8, 2013 ♦ Atlanta, Georgia

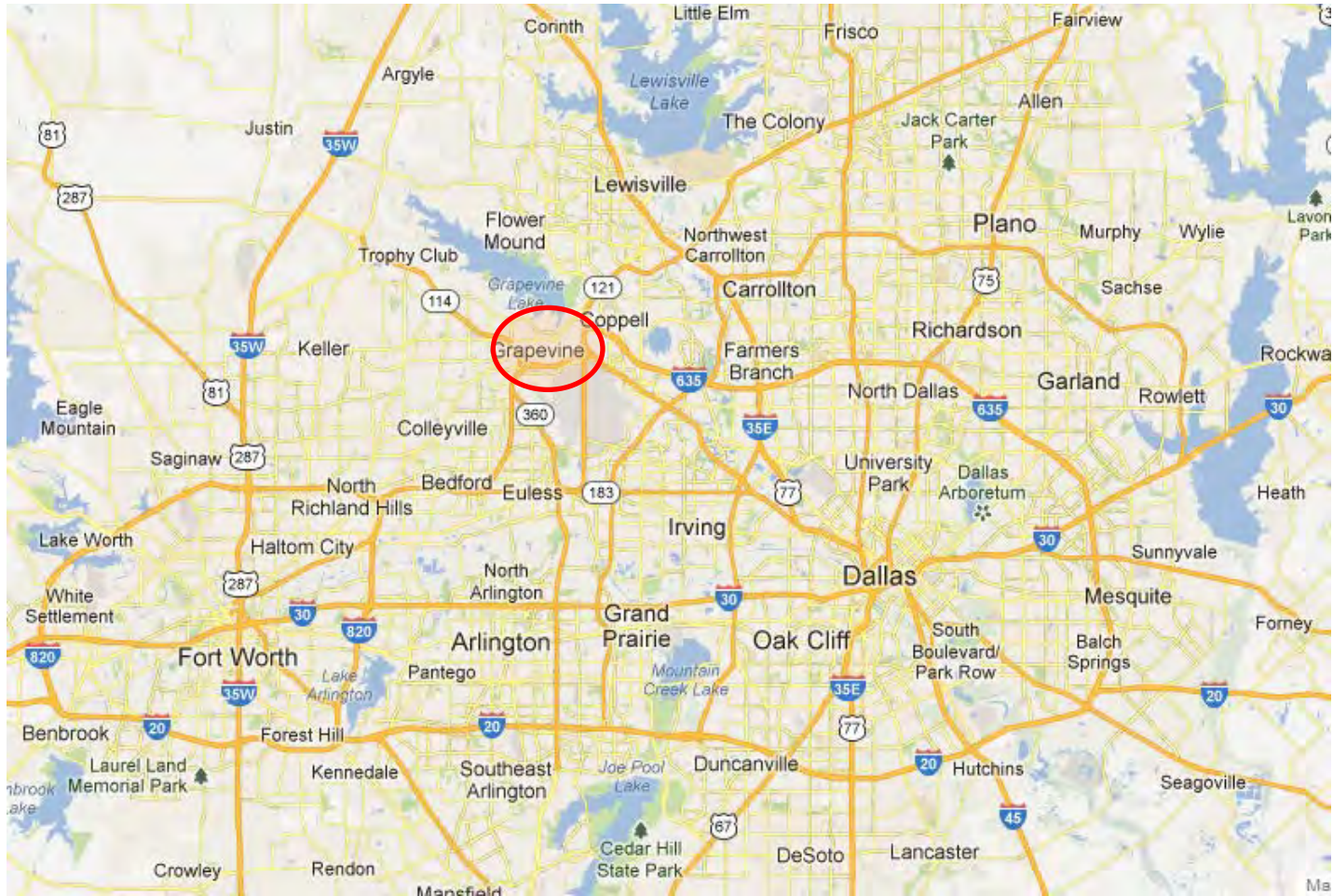




Presentation Outline

- Project Description
- Methods
- Findings

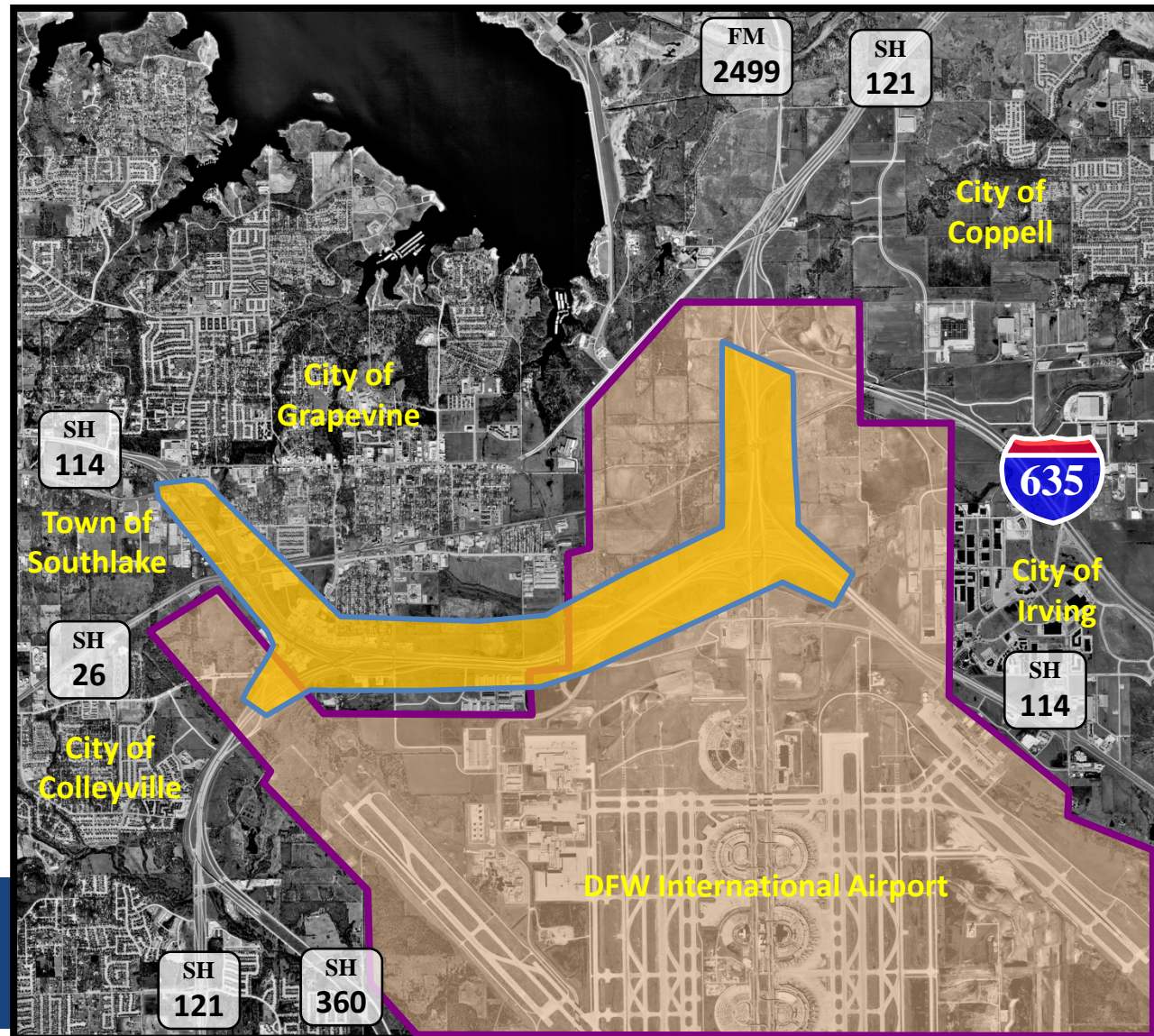
Orientation



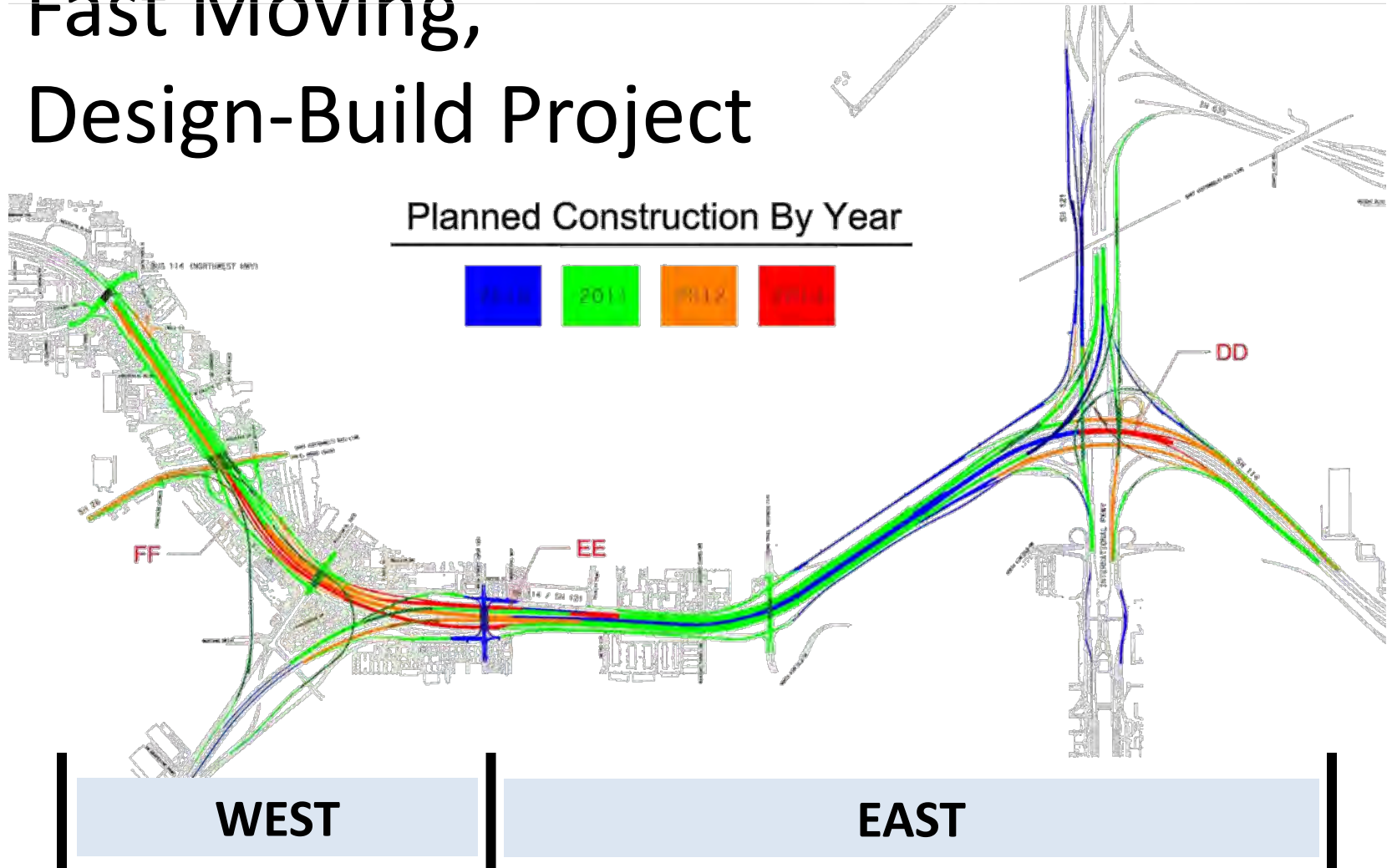


Project Description

- 8.4 miles
- Developer: NorthGate Constructors
- \$1.02 billion design-build project
- Construction Start: Feb 17, 2010
- Estimated Completion: Summer 2013



Fast Moving, Design-Build Project



"It is a changing landscape. You can drive through there one day and it can change the next," NorthGate spokeswoman Selma Stockstill.



June 2010

December 2010

April 2011



Sept 2010

Dec 2010

Apr 2011

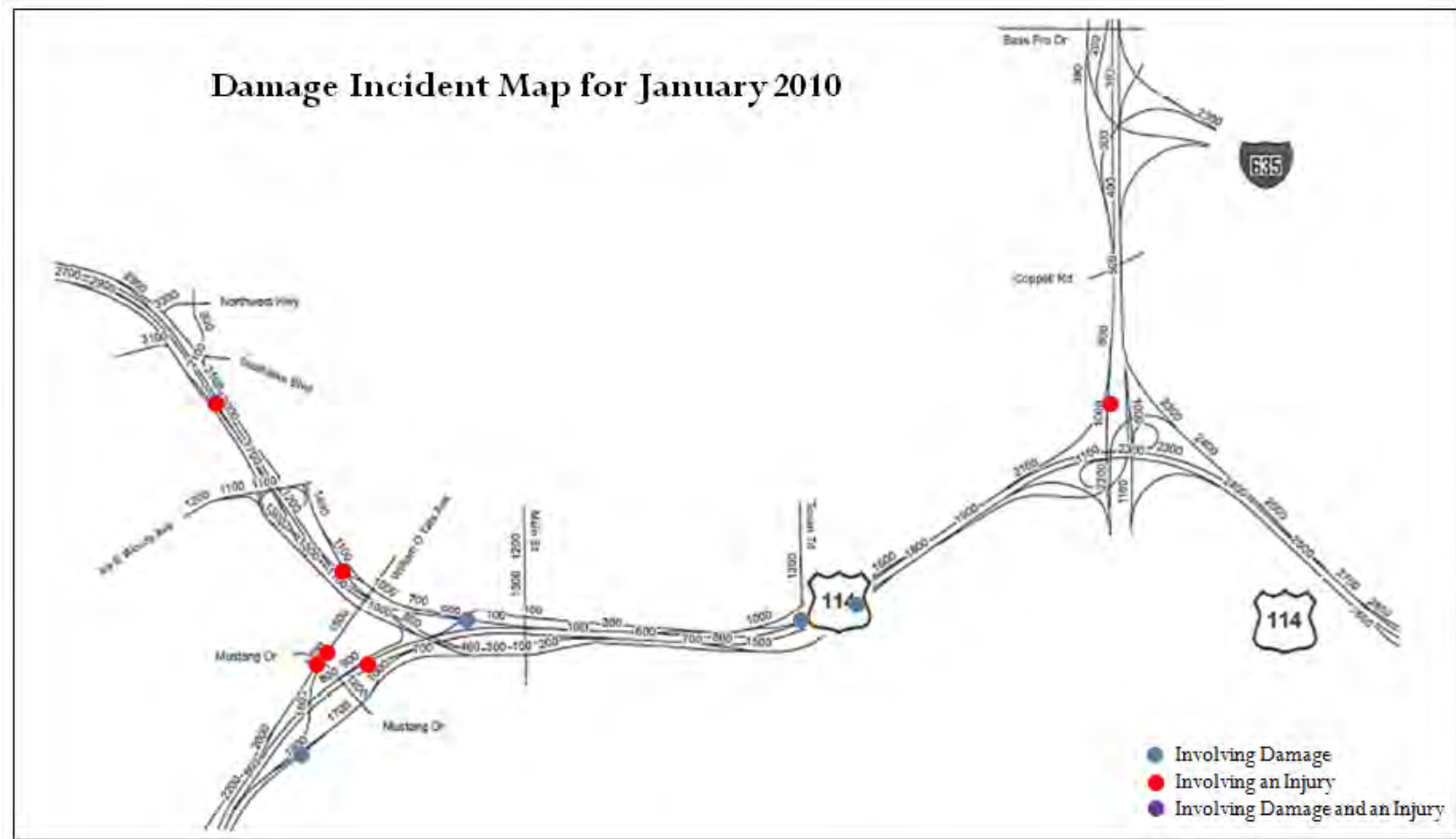
Jul 2011



DFW Connector

- Allowable Mainlane Lane Closures
 - Weekdays 8 PM to 6 AM
 - Weekends
- Incident Reporting
 - Project TMC
 - Courtesy Patrol
 - Emergency Response
 - Action-oriented Culture

Contractor Tracking – Jan 2010





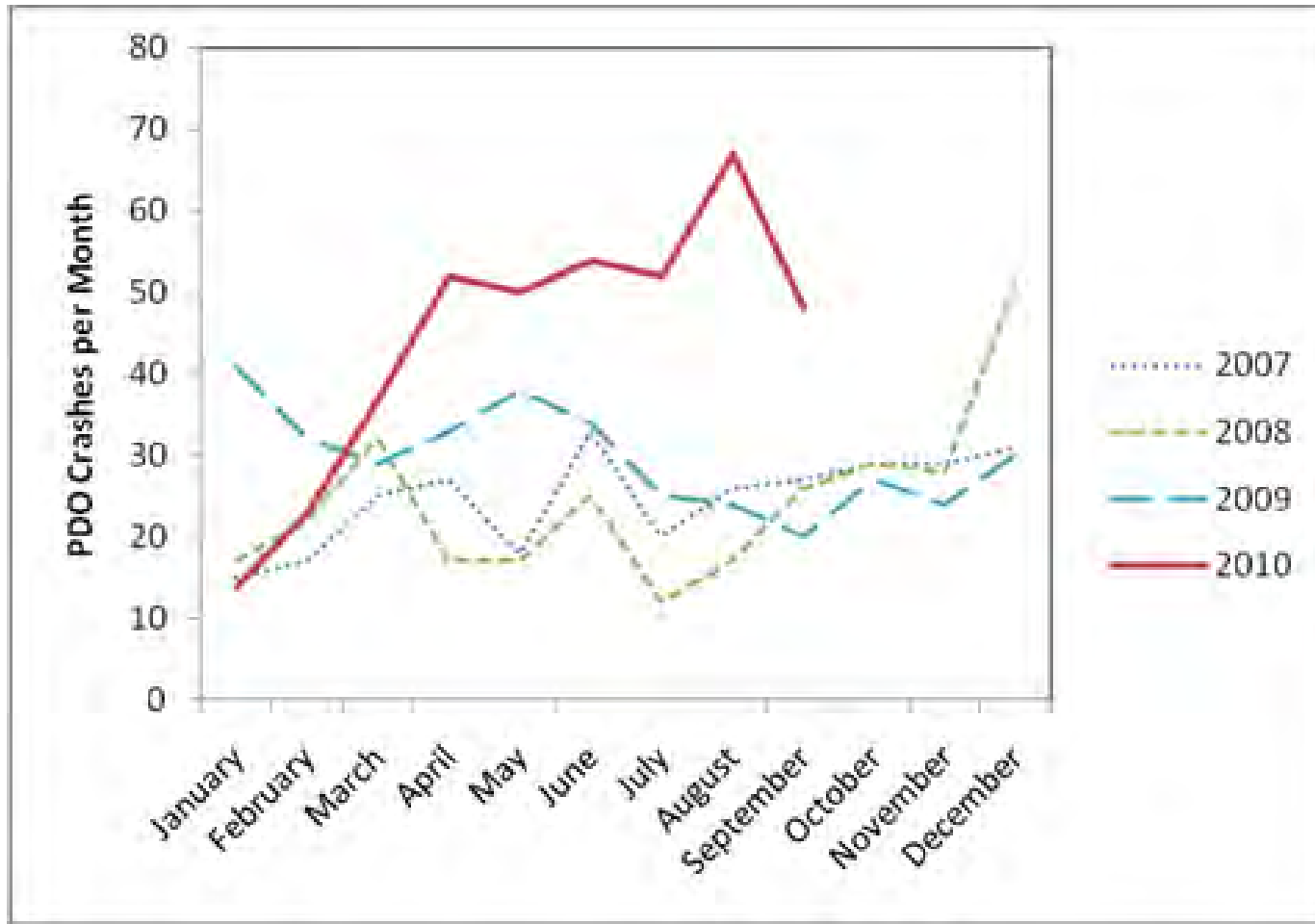
Methods

- Data
 - Historical Crash Records
 - In-Construction Crash Records
 - TxDOT Traffic Data
- Analysis
 - Modified Ohio Procedures
 - Injury and Property Damage Only (PDO)
 - Expected vs. Observed Crashes
 - Statistical Significance
- Field Reviews

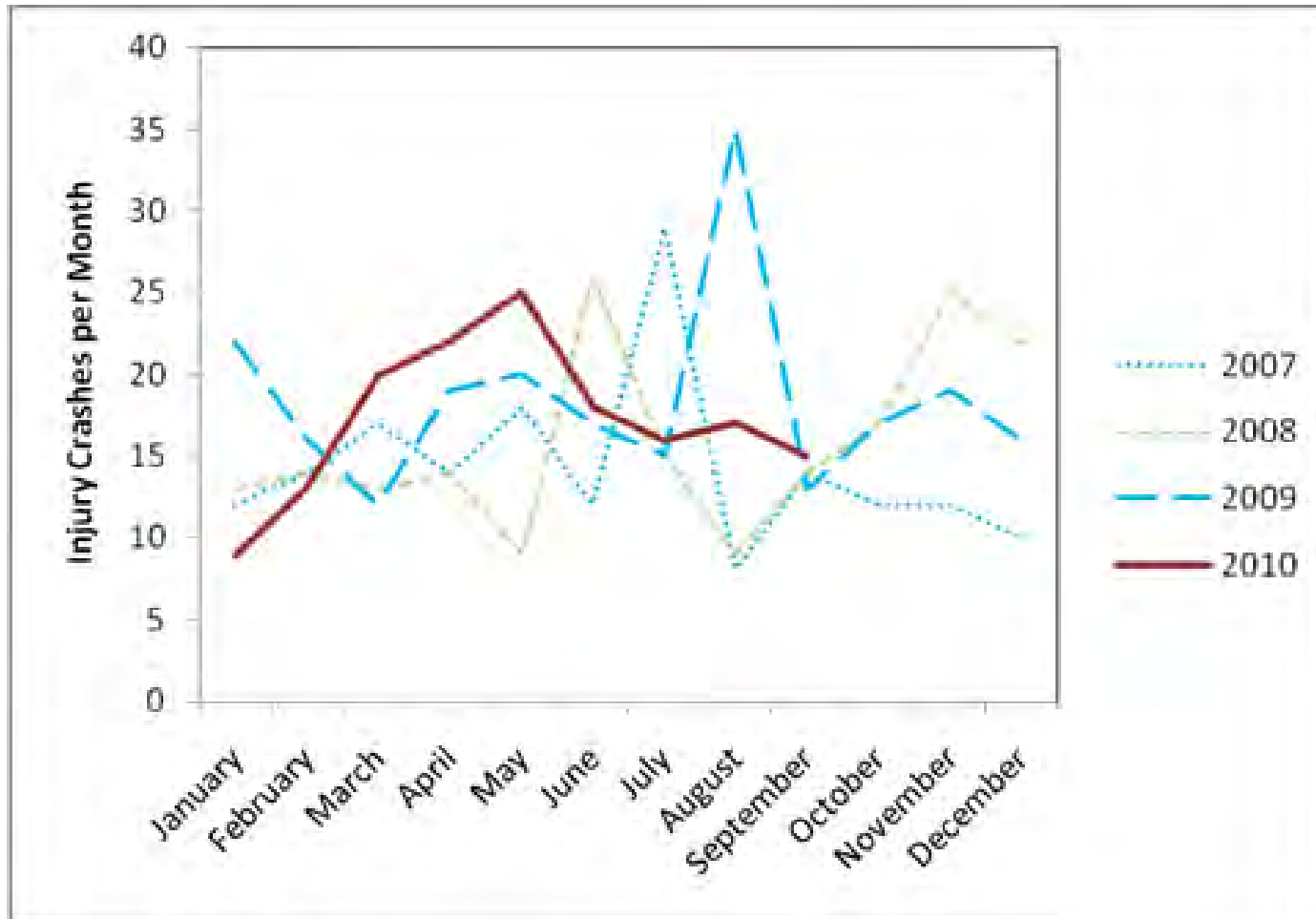
Creation of Small Zones



Monthly PDO Crash Trends



Monthly Injury Crash Trends





Crash Frequency within Project Limits

Q1 2011 from Baseline

Time Period	Injury Crashes	PDO Crashes	Total
Weekdays	+32%*	+174%*	+121%*
Weeknights/ Weekends	-27%	+61%*	+31%*
Total	+16%	+139%*	+94%*

* percent change is statistically significant $\alpha = 0.10$

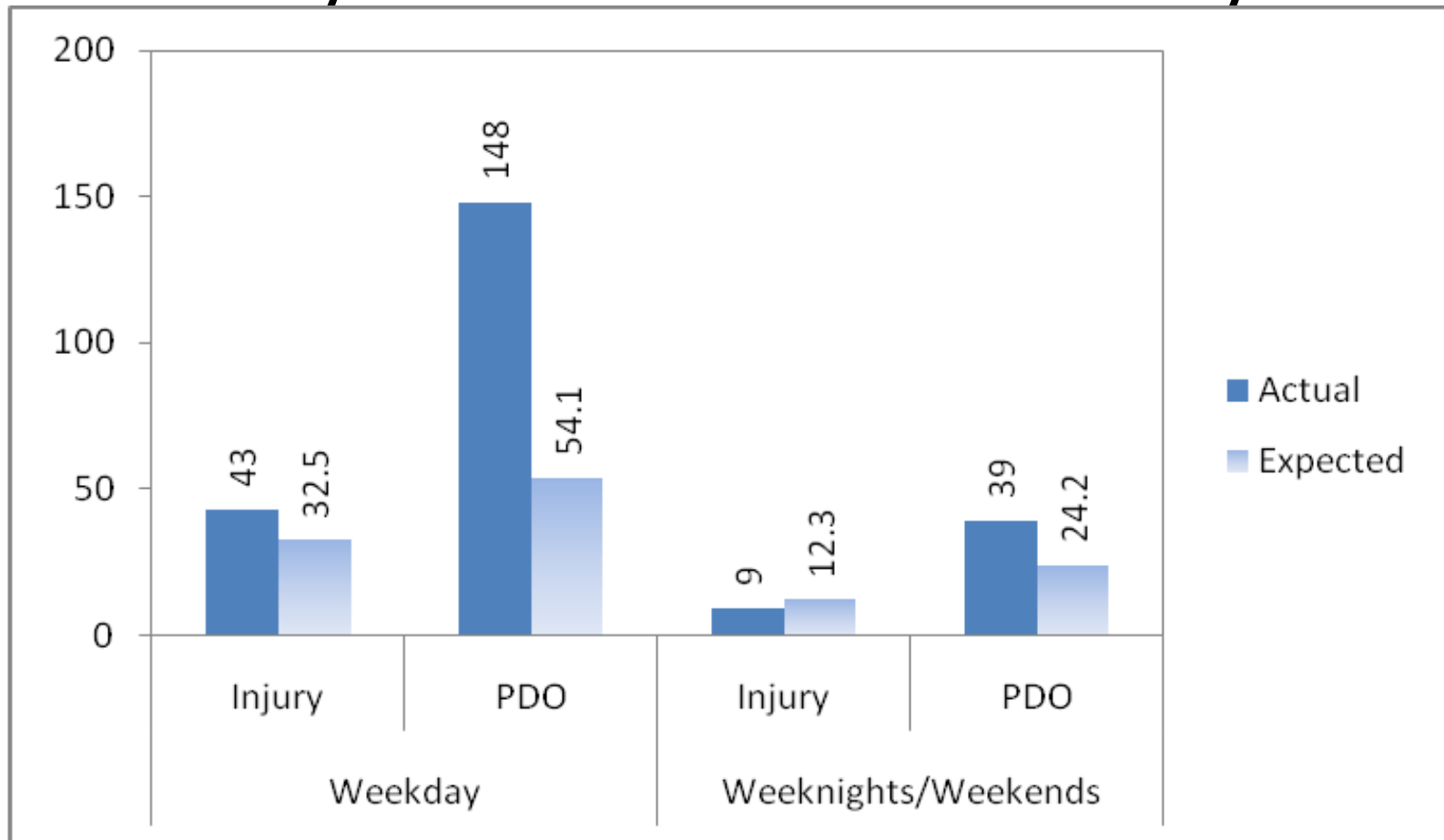



Lower than expectations
NCHRP 627



Higher than expectations
NCHRP 627

Comparison of Actual and Expected Q1 2011 Project Limit Crashes by Time Period and Severity



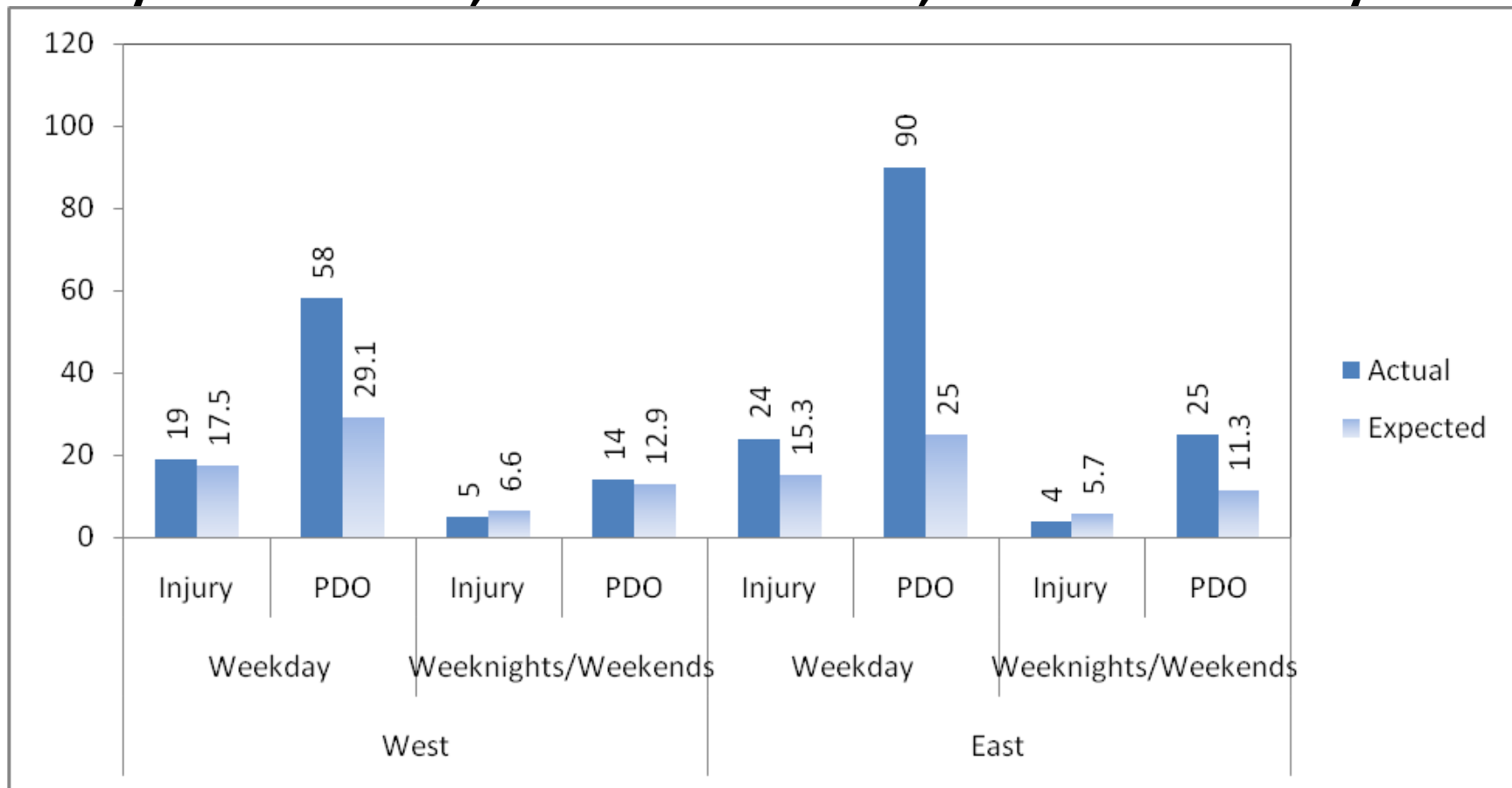


Change in Crashes by Location in Project Q1 2011

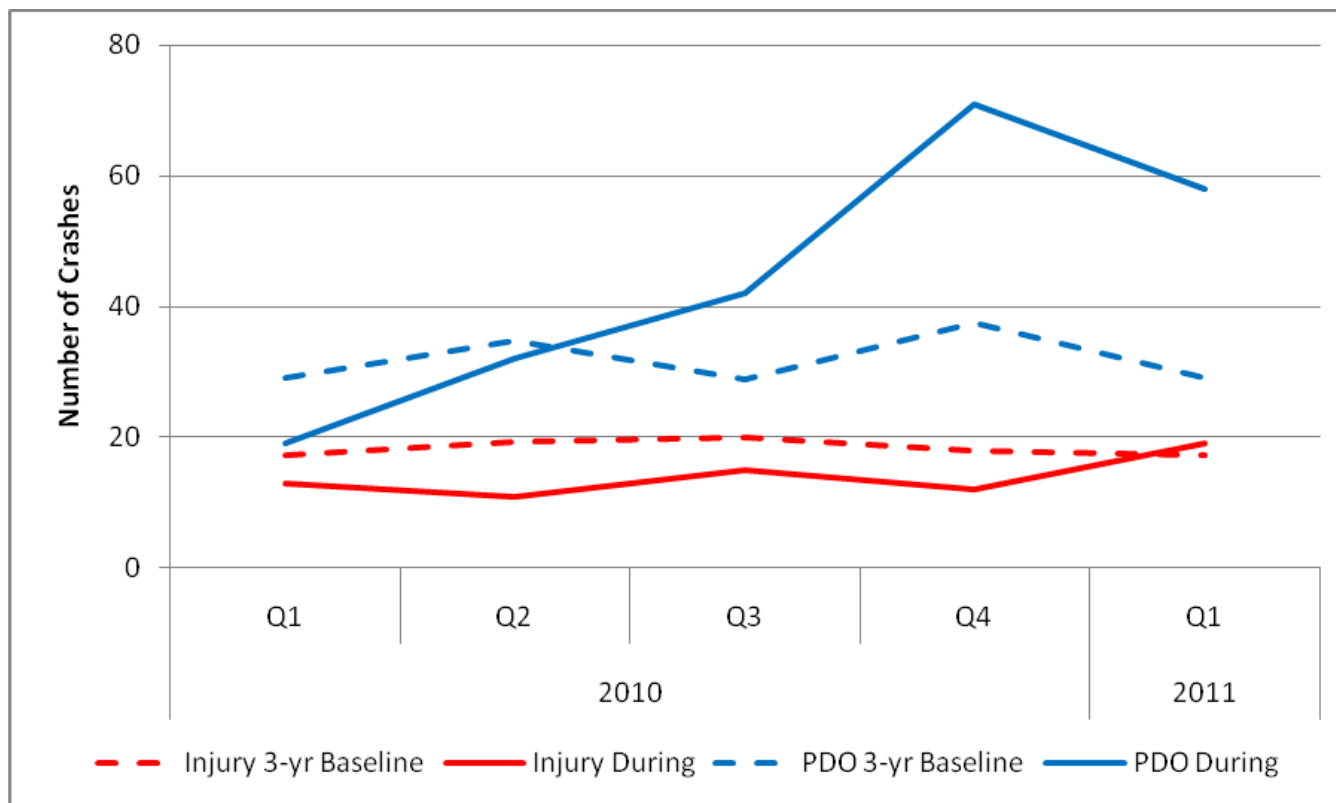
Time Period	West Segment		East Segment	
	Injury Crashes	PDO Crashes	Injury Crashes	PDO Crashes
Weekdays	+9%	+99%*	+57%*	+260%*
Weeknights/Weekends	-24%	+9%	-30%	+121%*
Total	No change	+71%*	+33%*	+217%*

* percent change is statistically significant at $\alpha = 0.10$

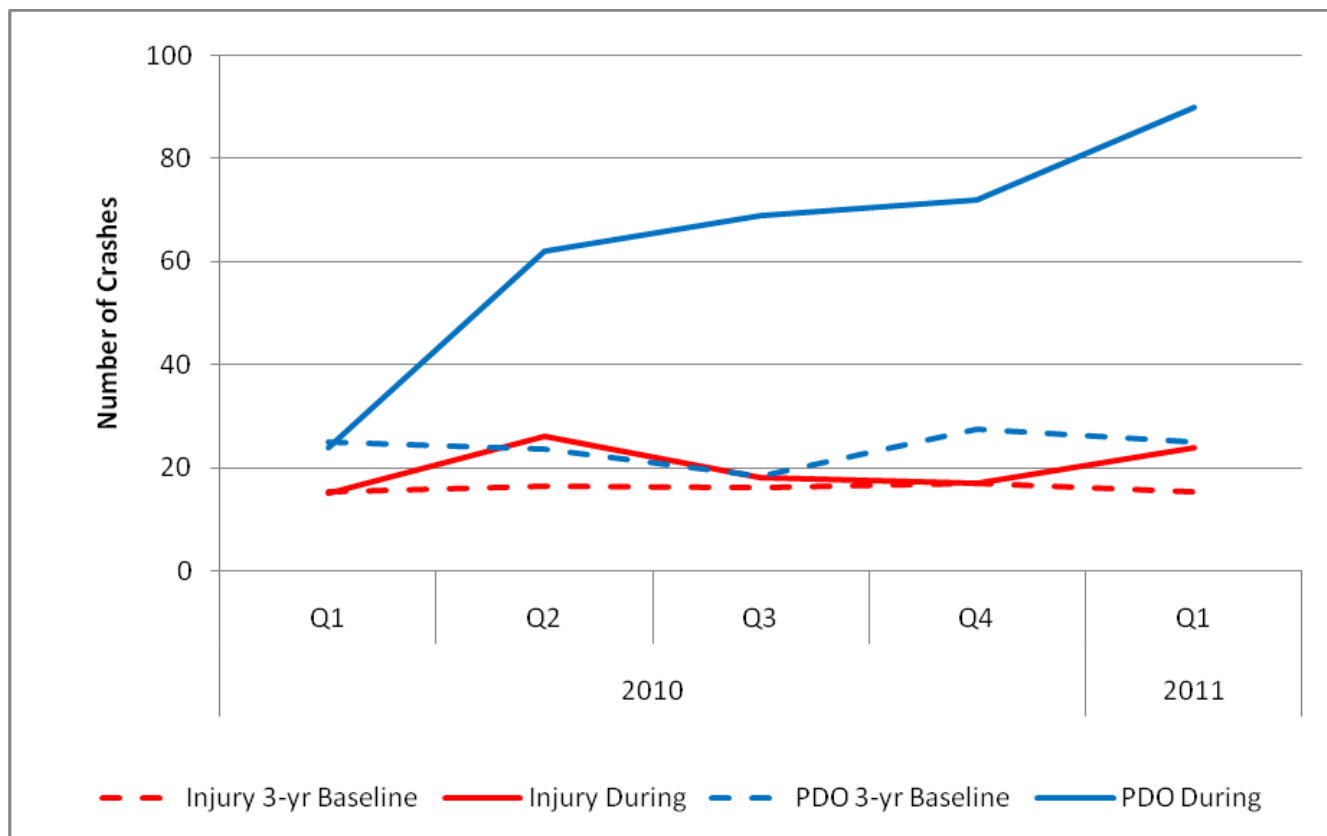
Comparison of Actual and Expected Q1 2011 Project Limit Crashes by Location, Time Period, and Severity



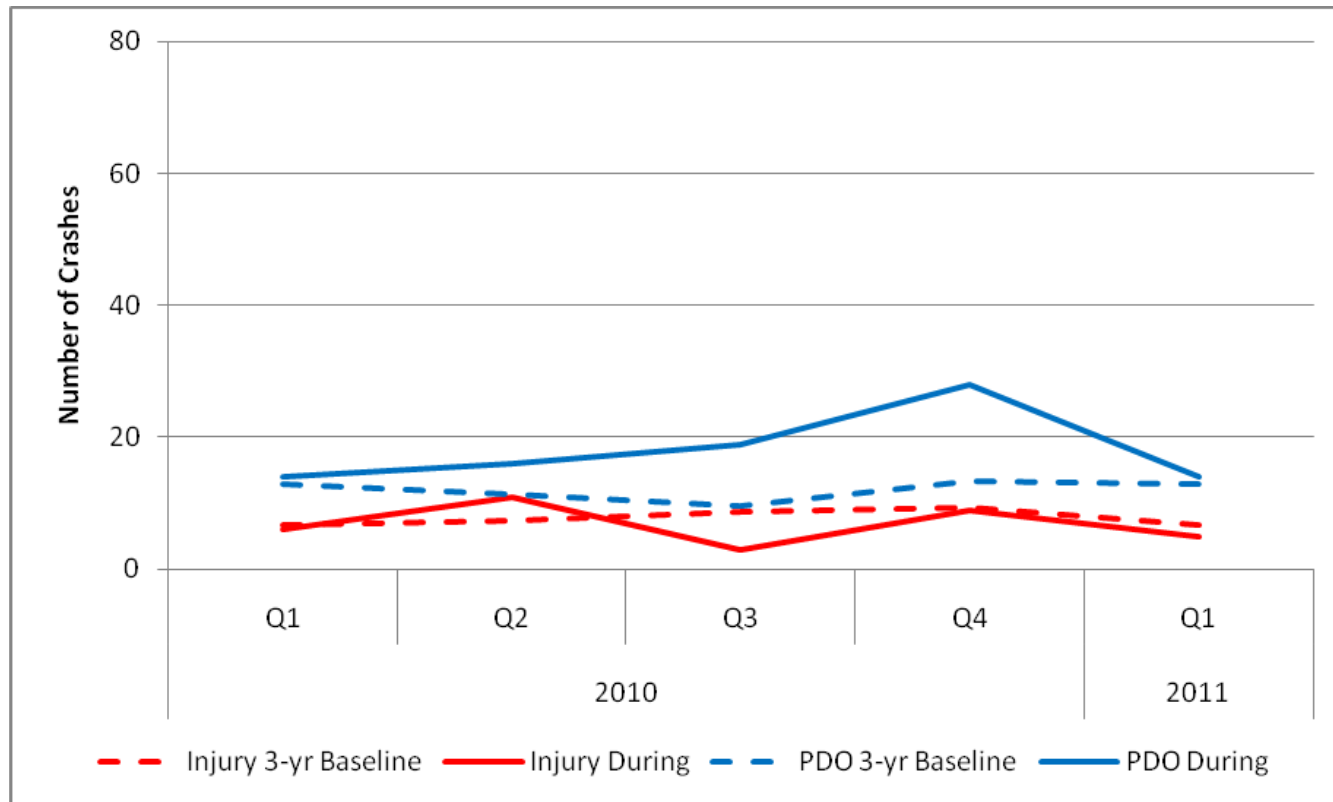
Weekday, West Side Injury and PDO Crashes



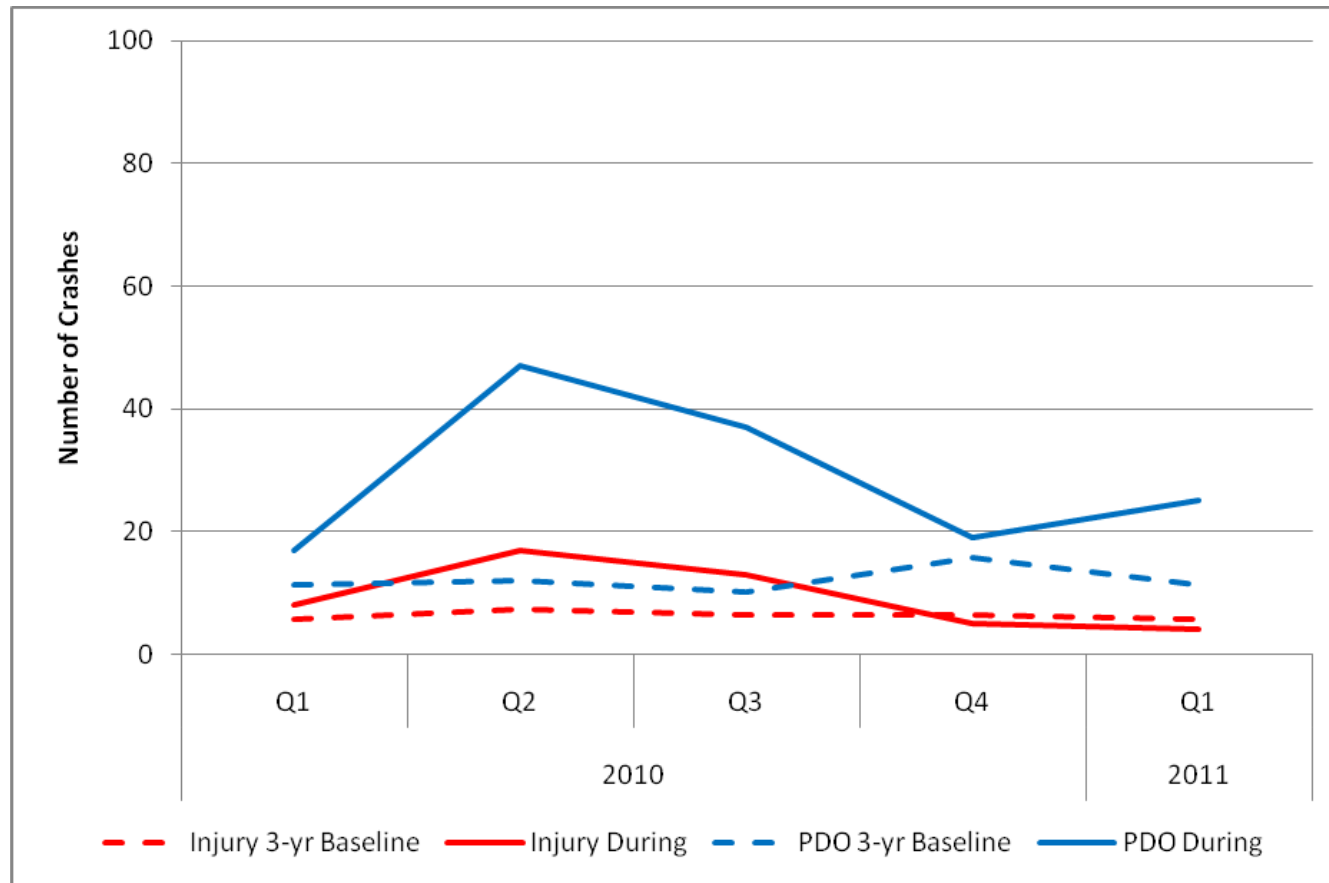
Weekday, East Side Injury and PDO Crashes



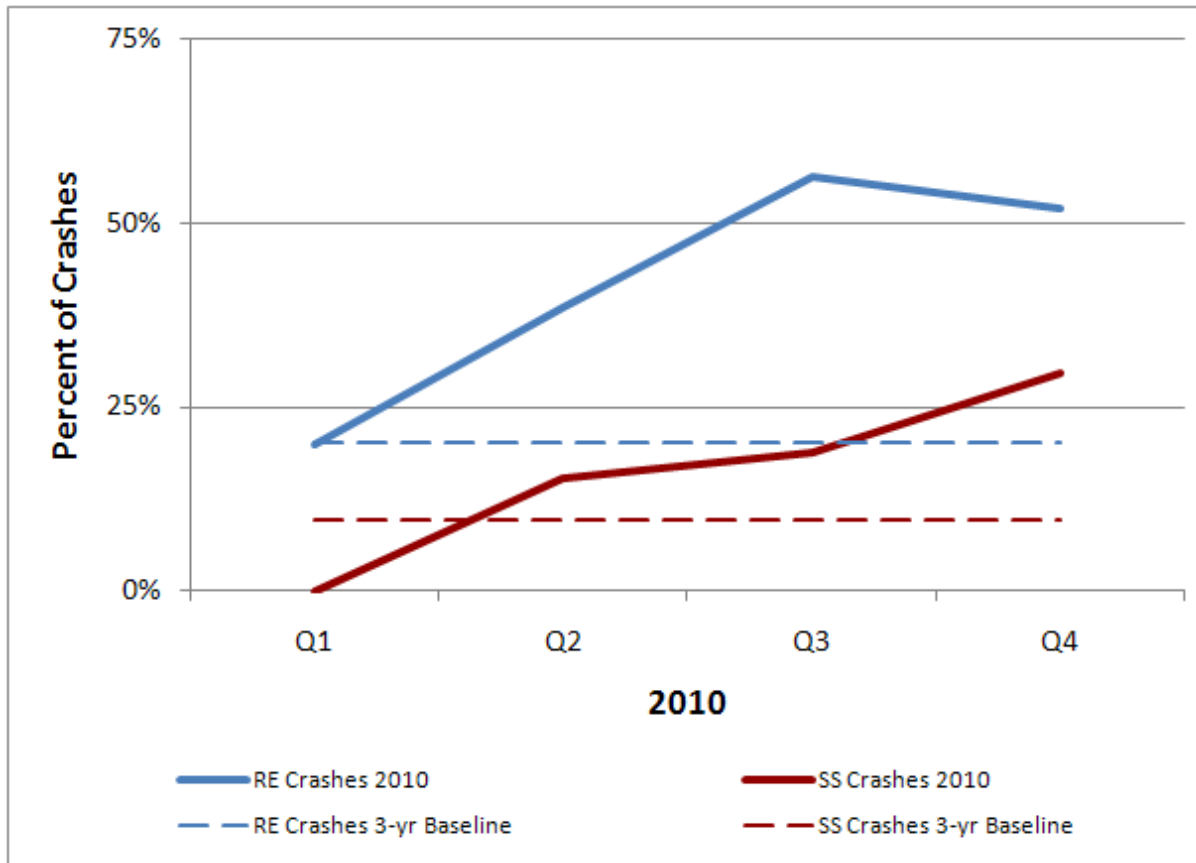
Weeknight/Weekend, West Side Injury and PDO Crashes



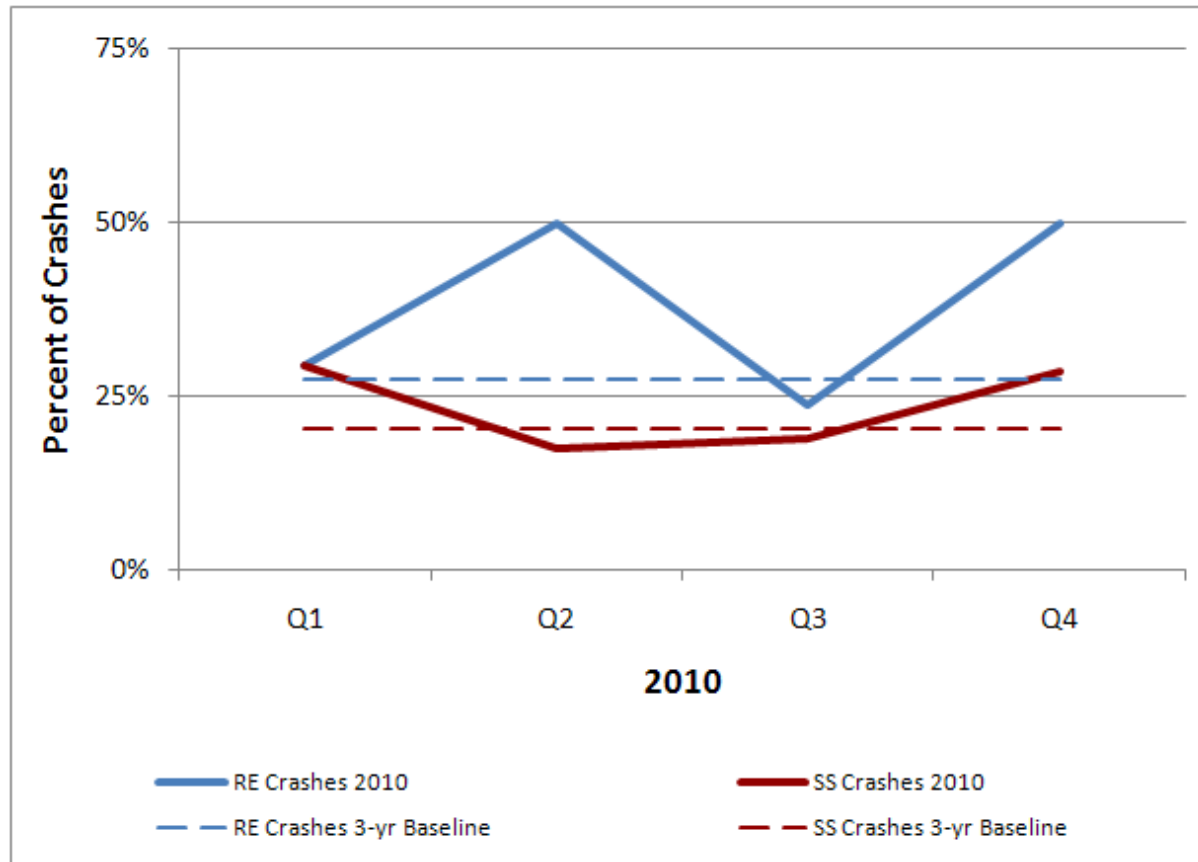
Weeknight/Weekend, East Side Injury and PDO Crashes



Weeknight/Weekend, West Side Rear-end (RE) and Side-swipe (SS) Crashes



Weeknight/Weekend, East Side Rear-end (RE) and Side-swipe (SS) Crashes





Field Review

- Observe conditions to understand nature of crashes
- Example observations
 - Pavement marking visibility under high sun reflectivity
 - Directional lighting
 - Lane shifts in/near ends of horizontal curves and ramp merges
 - Guide sign placement within 10° cone of vision



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