

APPENDIX B

Crash Data

Improve Safety

Improving safety within the I-70 FTEIS Study Area must be a key element of improvement strategies. Traffic crashes cost the travelers of I-70 in a variety of ways. Some crashes cost lives, cause severe injury or result in property damage. Traffic crashes also create congestion from blocked travel lanes resulting in increased gas consumption and lost time. I-70 improvements should work to reduce the crash rates compared to the statewide average and to reduce the crash severity.

The Draft FTEIS contained crash rates from 2003 to 2007 using MoDOT data. These have been updated for years 2005 to 2009 using MARC crash data. Both datasets (from MoDOT and MARC) came from the same master database. The new crash data were evaluated and five year crash rates were developed across the corridor. The Study Team identified rates that were more than 150% of the statewide average as undesirable. Rates between 100% and 150% of the statewide average are defined to be approaching undesirable characteristics. Any rates equal to or less than the statewide average were categorized as adequate, but the Study Team will look at potential improvements that will reduce crash rates throughout the corridor.

In the five year period from 2005 to 2009, 21 crashes on I-70 within the study area involved a fatality. The locations of those fatal crashes are shown in **Figure 1**. This is comparable to the 20 fatal crashes reported between 2003 to 2007.

Figure 1: Fatal Crash Locations in the I-70 Corridor 2005 to 2009



The locations with the highest crash rates between 2003 and 2007 were the downtown loop, westbound from the Benton curve to the downtown loop, eastbound from the Jackson curve to I-435, and the I-435 interchange. New 2005 to 2009 data shows the same segments with the highest crash rates with one exception. The crash rate for westbound I-70 at the Manchester Interchange nearly doubled, likely due to recent lane closures and construction on and around the Manchester viaduct.

The latest data also shows a drop in the crash rate at the U.S. 40 West interchange and a simultaneous increase in the crash rate at the U.S. 40 East interchange. This is likely more a result of the processing of the crash location than the actual locations of the crashes. The algorithm used by MARC to geocode crash locations likely located some of the crashes meant for the U.S. 40 West interchange to the U.S. 40 East interchange instead. The Study Team believes that, similar to the 2003 to 2007 data, eastbound I-70 at the U.S. 40 West interchange still has an undesirable crash rate while U.S. 40 East interchange is approaching the undesirable crash rate, but is not as high as the data indicates.

A crash analysis summary from 2005 to 2009 is provided in **Table 1**. Undesirable rates – those greater than 150% of the statewide rate – are highlighted in red.

Table 1: FTEIS Crash Rate Summary

Analysis Sections		Length (miles)	2005 to 2009 Crash Rate (Crashes Per 100 Million Vehicle Miles of Travel)		5 Year Crash Rate versus Statewide Average Crash Rate* (130.62)	
			Eastbound	Westbound	Eastbound	Westbound
1	Downtown Loop	3.45	223.51		171%	
2	Paseo Interchange	0.86	110.34	163.75	84%	125%
3	Benton Curve	1.20	145.82	191.59	112%	147%
4	23rd Street Interchange	0.67	59.32	44.37	45%	34%
5	Jackson Curve	0.88	262.34	93.24	201%	71%
6	Van Brunt Interchange	0.73	217.16	121.29	166%	93%
7	U.S. 40 West Interchange	0.59	74.37	44.77	57%	34%
8	Manchester Interchange	0.57	165.04	206.48	126%	158%
9	I-435 Interchange	0.96	169.00	196.09	129%	150%
10	Blue Ridge Cutoff Interchange	1.28	97.76	109.61	75%	84%
11	U.S. 40 East Interchange	1.60	215.05	135.70	165%	104%
12	Noland Road Interchange	1.50	146.44	131.71	112%	101%
13	Lee's Summit Road Interchange	1.35	97.63	96.76	75%	74%
14	I-470 Interchange	1.51	94.41	90.84	72%	70%

* Statewide average crash rate for urbanized interstates.

In general, the crash rates in the study area from 2005 to 2009 are lower than those calculated from 2003 to 2007. There are several likely factors contributing to this trend:

1. With higher gasoline prices and the economic recession over the past two years, fewer vehicles have been on the roadways. Fewer vehicles and less congestion contributes to a lower crash risk.
2. Construction on I-29/I-35 northeast of the downtown loop, which began in 2008, has temporarily shifted traffic patterns, particularly around the downtown loop and along I-70 from the downtown loop to I-435. In many of these locations, traffic volumes and crash risk have decreased.
3. MARC's algorithm for locating crashes is not able to locate 100 percent of reported crashes, meaning that it is likely that some of the crashes are not included in the data. This would have also been true with the 2003-2007 MoDOT data.

The comparison to the statewide crash rate has changed since the 2003-2007 analysis. The 2003-2007 crash rates were compared to the five-year statewide urban interstate crash rate, which in 2007 was reportedly 107.82 crashes per 100 million vehicle miles traveled (HMVMT). The new 2005-2009 crash rates are instead being compared to the five-year statewide urbanized interstate crash rate, which in 2009 was 130.62 crashes per HMVMT. An urbanized area is one with a population greater than 50,000, whereas an urban area has a population of 5,000 to 50,000. The urbanized crash rate is more representative of the study area in the Kansas City metropolitan area. For comparison purposes, the five-year statewide urbanized crash rate in 2007 was 138.13 crashes per HMVMT, so this rate has also decreased in the last two years. Based on the 2009 statewide urbanized crash rate, the downtown loop and an additional three sections eastbound

and two sections westbound are defined as undesirable because the crash rate exceeds 150% of the rate of 130.62 crashes per HMVMT.

Based on 2005 to 2009 data, the majority of the crashes involve multiple vehicles (79%) while 17% are a collision with a fixed object. Of the crashes involving multiple vehicles, most (63%) are rear end. 22% are sideswipes due to passing, and 10% are angle collisions. Rear end collisions often occur in congested areas as drivers fail to stop for slow moving traffic. About 77% of the total crashes cause property damage only and about 22% cause injury. About 24% of all crashes occur in dark conditions and about 20% occur in icy/snow/wet pavement conditions. All of these observations are consistent with the 2003 to 2007 data. The time of day of the crashes could not be determined for the 2005 to 2009 data because it was unavailable through MARC. From the 2003 to 2007 data, approximately 30% occur during the weekday peak period of traffic (7-9 am and 4-6 pm), which has the largest effect on delay for motorists.