

Crash Rates and Crash Densities on Secondary Roads in Iowa by Surface Type

2002 – 2011

Prepared by:

Office of Traffic and Safety
Systems Operation Bureau
Highway Division

In cooperation with:

Office of Driver Services
Motor Vehicle Division

February 18th, 2013

Iowa Department of Transportation

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
10-year Averages: 2002 - 2011**

Road System	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
State				
Earth	8.89	9.25	197	554
Granular	6.10	6.79	158	392
Hard-Surfaced	4.21	4.54	126	325
Paved	2.62	2.89	56	165

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
9-year Averages: 2003 - 2011**

Road System	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
State				
Earth	9.84	10.23	185	514
Granular	6.00	6.70	154	381
Hard-Surfaced	3.89	4.26	125	323
Paved	2.58	2.85	55	164

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
8-year Averages: 2004 - 2011**

Road System	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
State				
Earth	8.88	8.88	179	490
Granular	5.91	6.61	152	372
Hard-Surfaced	3.75	4.08	122	316
Paved	2.57	2.84	55	162

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
7-year Averages: 2005 - 2011**

Road System	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
State				
Earth	7.64	7.64	174	479
Granular	5.91	6.67	149	366
Hard-Surfaced	3.89	4.17	120	311
Paved	2.55	2.84	55	160

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
6-year Averages: 2006 - 2011**

Road System	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
State				
Earth	7.17	7.17	168	454
Granular	5.89	6.64	145	357
Hard-Surfaced	4.22	4.55	117	305
Paved	2.46	2.71	53	159

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
5-year Averages: 2007 - 2011**

Road System	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
State				
Earth	7.24	7.24	164	442
Granular	5.91	6.62	139	346
Hard-Surfaced	4.42	4.68	113	298
Paved	2.36	2.59	52	157

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
4-year Averages: 2008 - 2011**

Road System	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
State				
Earth	6.33	6.33	155	422
Granular	5.69	6.35	135	336
Hard-Surfaced	4.56	4.72	110	287
Paved	2.38	2.61	51	154

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
3-year Averages: 2009 - 2011**

Road System	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
State				
Earth	5.97	5.97	153	401
Granular	5.68	6.24	135	332
Hard-Surfaced	3.89	4.10	108	282
Paved	2.34	2.54	49	149

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
2-year Averages: 2010 - 2011**

Road System	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
State				
Earth	7.16	7.16	159	381
Granular	5.39	5.79	133	324
Hard-Surfaced	3.24	3.56	109	282
Paved	2.26	2.47	48	146

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2011**

Road System	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
State				
Earth	7.16	7.16	165	372
Granular	5.12	5.74	131	314
Hard-Surfaced	1.94	1.94	94	257
Paved	2.32	2.47	48	144

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
10-year Averages: 2002 - 2011**

Road System	All Crash Rates	Fatal Crash Rates	Fatal + Injury Crash Rates	Fatal + Major Injury Crash Rates	Injury Crash Rates	Major Injury Crash Rates	Minor Injury Crash Rates	Possible/Unknown Injury Crash Rates	Property Damage Only Crash Rates	All Injury Rates	Fatality Rates	Fatal + Major Injury Rates	Major Injury Rates	Minor Injury Rates	Possible Injury Rates	Unknown Injury Rates
State	554	8.89	197	34.85	188	25.96	82	80	357	308	9.25	43.74	34.49	129	113	22.05
Earth	392	6.10	158	27.45	152	21.35	60	70	234	232	6.79	34.47	27.68	88	94	15.54
Granular	325	4.21	126	22.51	121	18.30	49	54	199	182	4.54	26.92	22.37	72	75	8.15
Hard-Surfaced Paved	165	2.62	56	10.79	53	8.18	20	25	110	80	2.89	13.26	10.37	29	33	4.71

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
9-year Averages: 2003 - 2011**

Road System	All Crash Rates	Fatal Crash Rates	Fatal + Injury Crash Rates	Fatal + Major Injury Crash Rates	Injury Crash Rates	Major Injury Crash Rates	Minor Injury Crash Rates	Possible/Unknown Injury Crash Rates	Property Damage Only Crash Rates	All Injury Rates	Fatality Rates	Fatal + Major Injury Rates	Major Injury Rates	Minor Injury Rates	Possible Injury Rates	Unknown Injury Rates
State																
Earth	514	9.84	185	33.05	175	23.21	76	76	329	291	10.23	41.71	31.48	123	105	21.64
Granular	381	6.00	154	26.56	148	20.55	58	70	227	225	6.70	33.25	26.55	85	91	16.35
Hard-Surfaced	323	3.89	125	22.25	121	18.36	49	54	197	181	4.26	26.36	22.10	72	74	8.44
Paved	164	2.58	55	10.61	53	8.04	20	25	108	79	2.85	13.03	10.18	29	33	4.94

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
8-year Averages: 2004 - 2011**

Road System	All Crash Rates	Fatal Crash Rates	Fatal + Injury Crash Rates	Fatal + Major Injury Crash Rates	Injury Crash Rates	Major Injury Crash Rates	Minor Injury Crash Rates	Possible/Unknown Injury Crash Rates	Property Damage Only Crash Rates	All Injury Rates	Fatality Rates	Fatal + Major Injury Rates	Major Injury Rates	Minor Injury Rates	Possible Injury Rates	Unknown Injury Rates
State	490	8.88	179	29.75	171	20.87	75	75	311	286	8.88	38.19	29.31	121	104	23.09
Earth	372	5.91	152	26.02	146	20.12	56	69	220	222	6.61	32.80	26.19	83	90	17.16
Granular	316	3.75	122	21.04	118	17.29	48	53	194	176	4.08	25.03	20.96	71	72	7.75
Hard-Surfaced Paved	162	2.57	55	10.48	52	7.91	20	25	107	79	2.84	12.91	10.07	28	32	5.13

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
7-year Averages: 2005 - 2011**

Road System	All Crash Rates	Fatal Crash Rates	Fatal + Injury Crash Rates	Fatal + Major Injury Crash Rates	Injury Crash Rates	Major Injury Crash Rates	Minor Injury Crash Rates	Possible/Unknown Injury Crash Rates	Property Damage Only Crash Rates	All Injury Rates	Fatality Rates	Fatal + Major Injury Rates	Major Injury Rates	Minor Injury Rates	Possible Injury Rates	Unknown Injury Rates
State	479	7.64	174	26.99	166	19.35	72	75	304	273	7.64	33.10	25.46	110	105	24.44
Earth	366	5.91	149	25.04	143	19.13	55	69	216	218	6.67	31.62	24.95	80	88	17.81
Granular	311	3.89	120	20.57	116	16.68	47	53	191	172	4.17	24.37	20.20	68	71	7.88
Hard-Surfaced Paved	160	2.55	55	10.22	52	7.67	19	25	106	78	2.84	12.54	9.70	28	32	5.22

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
6-year Averages: 2006 - 2011**

Road System	All Crash Rates	Fatal Crash Rates	Fatal + Injury Crash Rates	Fatal + Major Injury Crash Rates	Injury Crash Rates	Major Injury Crash Rates	Minor Injury Crash Rates	Possible/Unknown Injury Crash Rates	Property Damage Only Crash Rates	All Injury Rates	Fatality Rates	Fatal + Major Injury Rates	Major Injury Rates	Minor Injury Rates	Possible Injury Rates	Unknown Injury Rates
State																
Earth	454	7.17	168	27.48	161	20.31	73	68	286	259	7.17	32.86	25.69	109	99	18.52
Granular	357	5.89	145	24.33	139	18.44	53	67	212	212	6.64	30.97	24.33	78	86	16.38
Hard-Surfaced	305	4.22	117	19.48	113	15.26	46	51	187	168	4.55	23.16	18.61	67	71	6.06
Paved	159	2.46	53	9.98	51	7.52	19	24	106	75	2.71	12.16	9.45	27	31	4.53

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
5-year Averages: 2007 - 2011**

Road System	All Crash Rates	Fatal Crash Rates	Fatal + Injury Crash Rates	Fatal + Major Injury Crash Rates	Injury Crash Rates	Major Injury Crash Rates	Minor Injury Crash Rates	Possible/Unknown Injury Crash Rates	Property Damage Only Crash Rates	All Injury Rates	Fatality Rates	Fatal + Major Injury Rates	Major Injury Rates	Minor Injury Rates	Possible Injury Rates	Unknown Injury Rates
State																
Earth	442	7.24	164	26.77	157	19.54	72	66	278	258	7.24	31.11	23.88	107	104	15.20
Granular	346	5.91	139	23.80	133	17.88	51	64	207	203	6.62	30.27	23.66	75	83	14.80
Hard-Surfaced	298	4.42	113	18.86	109	14.44	45	50	185	161	4.68	22.51	17.82	64	68	5.98
Paved	157	2.36	52	9.62	50	7.26	19	24	105	74	2.59	11.77	9.18	26	31	4.17

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
4-year Averages: 2008 - 2011**

Road System	All Crash Rates	Fatal Crash Rates	Fatal + Injury Crash Rates	Fatal + Major Injury Crash Rates	Injury Crash Rates	Major Injury Crash Rates	Minor Injury Crash Rates	Possible/Unknown Injury Crash Rates	Property Damage Only Crash Rates	All Injury Rates	Fatality Rates	Fatal + Major Injury Rates	Major Injury Rates	Minor Injury Rates	Possible Injury Rates	Unknown Injury Rates
State																
Earth	422	6.33	155	25.32	148	18.99	67	62	268	225	6.33	27.13	20.80	94	91	12.66
Granular	336	5.69	135	22.82	130	17.13	50	63	201	198	6.35	29.19	22.84	74	81	14.22
Hard-Surfaced	287	4.56	110	19.20	105	14.64	42	49	177	157	4.72	23.43	18.71	62	67	4.56
Paved	154	2.38	51	9.26	48	6.88	18	23	103	72	2.61	11.33	8.72	26	31	3.98

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
3-year Averages: 2009 - 2011**

Road System	All Crash Rates	Fatal Crash Rates	Fatal + Injury Crash Rates	Fatal + Major Injury Crash Rates	Injury Crash Rates	Major Injury Crash Rates	Minor Injury Crash Rates	Possible/Unknown Injury Crash Rates	Property Damage Only Crash Rates	All Injury Rates	Fatality Rates	Fatal + Major Injury Rates	Major Injury Rates	Minor Injury Rates	Possible Injury Rates	Unknown Injury Rates
State																
Earth	401	5.97	153	25.07	147	19.10	69	58	248	220	5.97	27.46	21.49	93	87	11.94
Granular	332	5.68	135	23.21	129	17.52	50	61	197	196	6.24	29.31	23.06	73	79	14.49
Hard-Surfaced	282	3.89	108	16.84	104	12.95	41	50	174	153	4.10	19.43	15.32	59	70	4.10
Paved	149	2.34	49	9.04	47	6.70	17	22	100	70	2.54	11.05	8.50	25	30	3.78

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
2-year Averages: 2010 - 2011**

Road System	All Crash Rates	Fatal Crash Rates	Fatal + Injury Crash Rates	Fatal + Major Injury Crash Rates	Injury Crash Rates	Major Injury Crash Rates	Minor Injury Crash Rates	Possible/Unknown Injury Crash Rates	Property Damage Only Crash Rates	All Injury Rates	Fatality Rates	Fatal + Major Injury Rates	Major Injury Rates	Minor Injury Rates	Possible Injury Rates	Unknown Injury Rates
State																
Earth	381	7.16	159	25.07	152	17.91	77	57	222	233	7.16	28.65	21.49	106	84	14.32
Granular	324	5.39	133	22.97	128	17.58	49	62	191	193	5.79	28.81	23.02	70	79	14.71
Hard-Surfaced	282	3.24	109	17.16	106	13.92	39	53	173	147	3.56	19.43	15.86	52	72	3.89
Paved	146	2.26	48	8.81	46	6.54	17	22	97	69	2.47	10.76	8.29	25	29	3.80

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2011**

Road System	All Crash Rates	Fatal Crash Rates	Fatal + Injury Crash Rates	Fatal + Major Injury Crash Rates	Injury Crash Rates	Major Injury Crash Rates	Minor Injury Crash Rates	Possible/Unknown Injury Crash Rates	Property Damage Only Crash Rates	All Injury Rates	Fatality Rates	Fatal + Major Injury Rates	Major Injury Rates	Minor Injury Rates	Possible Injury Rates	Unknown Injury Rates
State	372	7.16	165	28.65	158	21.49	93	43	208	261	7.16	32.23	25.07	125	97	7.16
Earth	314	5.12	131	22.80	126	17.67	50	59	183	191	5.74	29.34	23.59	71	77	12.99
Granular	257	1.94	94	13.60	92	11.66	36	44	163	131	1.94	16.19	14.25	45	68	2.59
Hard-Surfaced	144	2.32	48	9.37	46	7.04	17	22	96	69	2.47	11.18	8.71	25	30	3.20
Paved																

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

Crash Densities (crashes/mile)
by Surface Type and Severity
Statewide, Secondary Road Crashes
10-year Averages: 2002 - 2011

Road System	All Crash Densities	Fatal Crash Densities	Fatal + Injury Crash Densities	Fatal + Major Injury Crash Densities	Injury Crash Densities	Major Injury Crash Densities	Minor Injury Crash Densities	Possible/Unknown Injury Crash Densities	Property Damage Only Crash Densities	All Injury Densities	Fatality Densities	Fatal + Major Injury Densities	Major Injury Densities	Minor Injury Densities	Possible Injury Densities	Unknown Injury Densities
State	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.01	0.01	0.00
Earth	0.07	0.00	0.03	0.00	0.03	0.00	0.01	0.01	0.04	0.04	0.00	0.01	0.00	0.02	0.02	0.00
Granular	0.33	0.00	0.13	0.02	0.12	0.02	0.05	0.05	0.20	0.18	0.00	0.03	0.02	0.07	0.08	0.01
Hard-Surfaced	0.39	0.01	0.13	0.03	0.13	0.02	0.05	0.06	0.26	0.19	0.01	0.03	0.02	0.07	0.08	0.01
Paved																

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

Crash Densities (crashes/mile)
by Surface Type and Severity
Statewide, Secondary Road Crashes
9-year Averages: 2003 - 2011

Road System	All Crash Densities	Fatal Crash Densities	Fatal + Injury Crash Densities	Fatal + Major Injury Crash Densities	Injury Crash Densities	Major Injury Crash Densities	Minor Injury Crash Densities	Possible/Unknown Injury Crash Densities	Property Damage Only Crash Densities	All Injury Densities	Fatality Densities	Fatal + Major Injury Densities	Major Injury Densities	Minor Injury Densities	Possible Injury Densities	Unknown Injury Densities
State	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.01	0.01	0.00
Earth	0.07	0.00	0.03	0.00	0.03	0.00	0.01	0.01	0.04	0.04	0.00	0.01	0.00	0.01	0.02	0.00
Granular	0.33	0.00	0.13	0.02	0.12	0.02	0.05	0.05	0.20	0.18	0.00	0.03	0.02	0.07	0.08	0.01
Hard-Surfaced	0.39	0.01	0.13	0.03	0.12	0.02	0.05	0.06	0.26	0.19	0.01	0.03	0.02	0.07	0.08	0.01
Paved																

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

Crash Densities (crashes/mile)
by Surface Type and Severity
Statewide, Secondary Road Crashes
8-year Averages: 2004 - 2011

Road System	All Crash Densities	Fatal Crash Densities	Fatal + Injury Crash Densities	Fatal + Major Injury Crash Densities	Injury Crash Densities	Major Injury Crash Densities	Minor Injury Crash Densities	Possible/Unknown Injury Crash Densities	Property Damage Only Crash Densities	All Injury Densities	Fatality Densities	Fatal + Major Injury Densities	Major Injury Densities	Minor Injury Densities	Possible Injury Densities	Unknown Injury Densities
State	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.01	0.01	0.00
Earth	0.06	0.00	0.03	0.00	0.03	0.00	0.01	0.01	0.04	0.04	0.00	0.01	0.00	0.01	0.02	0.00
Granular	0.32	0.00	0.12	0.02	0.12	0.02	0.05	0.05	0.20	0.18	0.00	0.03	0.02	0.07	0.07	0.01
Hard-Surfaced	0.38	0.01	0.13	0.02	0.12	0.02	0.05	0.06	0.25	0.19	0.01	0.03	0.02	0.07	0.08	0.01
Paved																

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

Crash Densities (crashes/mile)
by Surface Type and Severity
Statewide, Secondary Road Crashes
7-year Averages: 2005 - 2011

Road System	All Crash Densities	Fatal Crash Densities	Fatal + Injury Crash Densities	Fatal + Major Injury Crash Densities	Injury Crash Densities	Major Injury Crash Densities	Minor Injury Crash Densities	Possible/Unknown Injury Crash Densities	Property Damage Only Crash Densities	All Injury Densities	Fatality Densities	Fatal + Major Injury Densities	Major Injury Densities	Minor Injury Densities	Possible Injury Densities	Unknown Injury Densities
State	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.01	0.01	0.00
Earth	0.06	0.00	0.03	0.00	0.02	0.00	0.01	0.01	0.04	0.04	0.00	0.01	0.00	0.01	0.02	0.00
Granular	0.32	0.00	0.12	0.02	0.12	0.02	0.05	0.05	0.19	0.18	0.00	0.02	0.02	0.07	0.07	0.01
Hard-Surfaced	0.38	0.01	0.13	0.02	0.12	0.02	0.05	0.06	0.25	0.18	0.01	0.03	0.02	0.07	0.08	0.01
Paved																

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Densities (crashes/mile)
by Surface Type and Severity
Statewide, Secondary Road Crashes
6-year Averages: 2006 - 2011**

Road System	All Crash Densities	Fatal Crash Densities	Fatal + Injury Crash Densities	Fatal + Major Injury Crash Densities	Injury Crash Densities	Major Injury Crash Densities	Minor Injury Crash Densities	Possible/Unknown Injury Crash Densities	Property Damage Only Crash Densities	All Injury Densities	Fatality Densities	Fatal + Major Injury Densities	Major Injury Densities	Minor Injury Densities	Possible Injury Densities	Unknown Injury Densities
State	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.01	0.01	0.00
Earth	0.06	0.00	0.02	0.00	0.02	0.00	0.01	0.01	0.04	0.04	0.00	0.01	0.00	0.01	0.01	0.00
Granular	0.31	0.00	0.12	0.02	0.12	0.02	0.05	0.05	0.19	0.17	0.00	0.02	0.02	0.07	0.07	0.01
Hard-Surfaced	0.37	0.01	0.12	0.02	0.12	0.02	0.04	0.06	0.25	0.18	0.01	0.03	0.02	0.06	0.07	0.01
Paved																

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

Crash Densities (crashes/mile)
by Surface Type and Severity
Statewide, Secondary Road Crashes
5-year Averages: 2007 - 2011

Road System	All Crash Densities	Fatal Crash Densities	Fatal + Injury Crash Densities	Fatal + Major Injury Crash Densities	Injury Crash Densities	Major Injury Crash Densities	Minor Injury Crash Densities	Possible/Unknown Injury Crash Densities	Property Damage Only Crash Densities	All Injury Densities	Fatality Densities	Fatal + Major Injury Densities	Major Injury Densities	Minor Injury Densities	Possible Injury Densities	Unknown Injury Densities
State	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.00
Earth	0.06	0.00	0.02	0.00	0.02	0.00	0.01	0.01	0.04	0.03	0.00	0.01	0.00	0.01	0.01	0.00
Granular	0.31	0.00	0.12	0.02	0.11	0.01	0.05	0.05	0.19	0.16	0.00	0.02	0.02	0.07	0.07	0.01
Hard-Surfaced	0.37	0.01	0.12	0.02	0.12	0.02	0.04	0.06	0.25	0.17	0.01	0.03	0.02	0.06	0.07	0.01
Paved																

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

Crash Densities (crashes/mile)
by Surface Type and Severity
Statewide, Secondary Road Crashes
4-year Averages: 2008 - 2011

Road System	All Crash Densities	Fatal Crash Densities	Fatal + Injury Crash Densities	Fatal + Major Injury Crash Densities	Injury Crash Densities	Major Injury Crash Densities	Minor Injury Crash Densities	Possible/Unknown Injury Crash Densities	Property Damage Only Crash Densities	All Injury Densities	Fatality Densities	Fatal + Major Injury Densities	Major Injury Densities	Minor Injury Densities	Possible Injury Densities	Unknown Injury Densities
State	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00
Earth	0.06	0.00	0.02	0.00	0.02	0.00	0.01	0.01	0.03	0.03	0.00	0.00	0.00	0.01	0.01	0.00
Granular	0.30	0.00	0.11	0.02	0.11	0.02	0.04	0.05	0.18	0.16	0.00	0.02	0.02	0.06	0.07	0.00
Hard-Surfaced	0.36	0.01	0.12	0.02	0.11	0.02	0.04	0.05	0.24	0.17	0.01	0.03	0.02	0.06	0.07	0.01
Paved																

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

Crash Densities (crashes/mile)
by Surface Type and Severity
Statewide, Secondary Road Crashes
3-year Averages: 2009 - 2011

Road System	All Crash Densities	Fatal Crash Densities	Fatal + Injury Crash Densities	Fatal + Major Injury Crash Densities	Injury Crash Densities	Major Injury Crash Densities	Minor Injury Crash Densities	Possible/Unknown Injury Crash Densities	Property Damage Only Crash Densities	All Injury Densities	Fatality Densities	Fatal + Major Injury Densities	Major Injury Densities	Minor Injury Densities	Possible Injury Densities	Unknown Injury Densities
State	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00
Earth	0.06	0.00	0.02	0.00	0.02	0.00	0.01	0.01	0.03	0.03	0.00	0.00	0.00	0.01	0.01	0.00
Granular	0.29	0.00	0.11	0.02	0.11	0.01	0.04	0.05	0.18	0.16	0.00	0.02	0.02	0.06	0.07	0.00
Hard-Surfaced	0.35	0.01	0.11	0.02	0.11	0.02	0.04	0.05	0.23	0.16	0.01	0.03	0.02	0.06	0.07	0.01
Paved																

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Densities (crashes/mile)
by Surface Type and Severity
Statewide, Secondary Road Crashes
2-year Averages: 2010 - 2011**

Road System	All Crash Densities	Fatal Crash Densities	Fatal + Injury Crash Densities	Fatal + Major Injury Crash Densities	Injury Crash Densities	Major Injury Crash Densities	Minor Injury Crash Densities	Possible/Unknown Injury Crash Densities	Property Damage Only Crash Densities	All Injury Densities	Fatality Densities	Fatal + Major Injury Densities	Major Injury Densities	Minor Injury Densities	Possible Injury Densities	Unknown Injury Densities
State	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00
Earth	0.06	0.00	0.02	0.00	0.02	0.00	0.01	0.01	0.03	0.03	0.00	0.00	0.00	0.01	0.01	0.00
Granular	0.29	0.00	0.11	0.02	0.11	0.01	0.04	0.06	0.18	0.15	0.00	0.02	0.02	0.05	0.08	0.00
Hard-Surfaced	0.34	0.01	0.11	0.02	0.11	0.02	0.04	0.05	0.23	0.16	0.01	0.03	0.02	0.06	0.07	0.01
Paved																

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

Crash Densities (crashes/mile)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2011

Road System	All Crash Densities	Fatal Crash Densities	Fatal + Injury Crash Densities	Fatal + Major Injury Crash Densities	Injury Crash Densities	Major Injury Crash Densities	Minor Injury Crash Densities	Possible/Unknown Injury Crash Densities	Property Damage Only Crash Densities	All Injury Densities	Fatality Densities	Fatal + Major Injury Densities	Major Injury Densities	Minor Injury Densities	Possible Injury Densities	Unknown Injury Densities
State	0.02	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.00
Earth	0.05	0.00	0.02	0.00	0.02	0.00	0.01	0.01	0.03	0.03	0.00	0.01	0.00	0.01	0.01	0.00
Granular	0.27	0.00	0.10	0.01	0.10	0.01	0.04	0.05	0.17	0.14	0.00	0.02	0.01	0.05	0.07	0.00
Hard-Surfaced	0.34	0.01	0.11	0.02	0.11	0.02	0.04	0.05	0.22	0.16	0.01	0.03	0.02	0.06	0.07	0.01
Paved																

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2011**

Road System	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
State				
Earth	7.16	7.16	165	372
Granular	5.12	5.74	131	314
Hard-Surfaced	1.94	1.94	94	257
Paved	2.32	2.47	48	144

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2010**

Road System	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
State				
Earth	7.16	7.16	154	390
Granular	5.66	5.83	135	333
Hard-Surfaced	4.53	5.18	124	306
Paved	2.20	2.47	48	147

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2009**

Road System	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
State				
Earth	3.58	3.58	140	440
Granular	6.27	7.16	138	349
Hard-Surfaced	5.18	5.18	106	284
Paved	2.49	2.69	50	155

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2008**

Road System	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
State				
Earth	7.46	7.46	160	489
Granular	5.70	6.66	137	348
Hard-Surfaced	6.61	6.61	116	301
Paved	2.49	2.80	57	169

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2007**

Road System	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
State				
Earth	10.86	10.86	203	521
Granular	6.81	7.68	151	384
Hard-Surfaced	3.90	4.55	127	344
Paved	2.29	2.51	57	169

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2006**

Road System	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
State				
Earth	6.85	6.85	185	511
Granular	5.79	6.74	177	413
Hard-Surfaced	3.22	3.86	137	335
Paved	2.97	3.33	59	169

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2005**

Road System	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
State				
Earth	10.34	10.34	210	620
Granular	5.99	6.84	174	414
Hard-Surfaced	1.93	1.93	139	350
Paved	3.11	3.57	63	169

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2004**

Road System	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
State				
Earth	17.37	17.37	215	570
Granular	5.92	6.26	168	417
Hard-Surfaced	2.72	3.40	135	351
Paved	2.68	2.87	57	171

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2003**

Road System	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
State				
Earth	17.25	20.70	231	700
Granular	6.75	7.34	171	449
Hard-Surfaced	5.17	5.90	155	383
Paved	2.66	2.93	58	180

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2002**

Road System	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
State				
Earth	0.00	0.00	303	924
Granular	6.97	7.56	194	485
Hard-Surfaced	7.38	7.38	128	346
Paved	2.98	3.29	60	182

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2011

Road System	All Crash Rates	Fatal Crash Rates	Fatal + Injury Crash Rates	Fatal + Major Injury Crash Rates	Injury Crash Rates	Major Injury Crash Rates	Minor Injury Crash Rates	Possible/Unknown Injury Crash Rates	Property Damage Only Crash Rates	All Injury Rates	Fatality Rates	Fatal + Major Injury Rates	Major Injury Rates	Minor Injury Rates	Possible Injury Rates	Unknown Injury Rates
State	372	7.16	165	28.65	158	21.49	93	42.97	208	261	7.16	32	25.07	125	96.69	7
Earth	314	5.12	131	22.80	126	17.67	50	59.02	183	191	5.74	29	23.59	71	77.40	13
Granular	257	1.94	94	13.60	92	11.66	36	44.03	163	131	1.94	16	14.25	45	67.99	3
Hard-Surfaced	144	2.32	48	9.37	46	7.04	17	21.70	96	69	2.47	11	8.71	25	29.64	3
Paved																

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2010**

Road System	All Crash Rates	Fatal Crash Rates	Fatal + Injury Crash Rates	Fatal + Major Injury Crash Rates	Injury Crash Rates	Major Injury Crash Rates	Minor Injury Crash Rates	Possible/Unknown Injury Crash Rates	Property Damage Only Crash Rates	All Injury Rates	Fatality Rates	Fatal + Major Injury Rates	Major Injury Rates	Minor Injury Rates	Possible Injury Rates	Unknown Injury Rates
State	390	7.16	154	21.49	147	14.32	61	72	236	204	7.16	25.07	17.91	86	72	21.49
Earth	333	5.66	135	23.15	129	17.50	48	64	199	195	5.83	28.28	22.44	69	81	16.43
Granular	306	4.53	124	20.72	119	16.19	41	62	183	163	5.18	22.66	17.48	59	76	5.18
Hard-Surfaced Paved	147	2.20	48	8.24	46	6.04	18	23	99	69	2.47	10.35	7.88	25	29	4.40

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2009**

Road System	All Crash Rates	Fatal Crash Rates	Fatal + Injury Crash Rates	Fatal + Major Injury Crash Rates	Injury Crash Rates	Major Injury Crash Rates	Minor Injury Crash Rates	Possible/Unknown Injury Crash Rates	Property Damage Only Crash Rates	All Injury Rates	Fatality Rates	Fatal + Major Injury Rates	Major Injury Rates	Minor Injury Rates	Possible Injury Rates	Unknown Injury Rates
State																
Earth	440	3.58	140	25.07	136	21.49	54	61	301	193	3.58	25.07	21.49	68	93	7.16
Granular	349	6.27	138	23.68	132	17.41	53	61	211	204	7.16	30.31	23.15	79	80	14.05
Hard-Surfaced	284	5.18	106	16.19	101	11.01	45	45	177	164	5.18	19.43	14.25	74	67	4.53
Paved	155	2.49	50	9.51	47	7.02	17	23	105	72	2.69	11.62	8.93	25	32	3.74

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2008**

Road System	All Crash Rates	Fatal Crash Rates	Fatal + Injury Crash Rates	Fatal + Major Injury Crash Rates	Injury Crash Rates	Major Injury Crash Rates	Minor Injury Crash Rates	Possible/Unknown Injury Crash Rates	Property Damage Only Crash Rates	All Injury Rates	Fatality Rates	Fatal + Major Injury Rates	Major Injury Rates	Minor Injury Rates	Possible Injury Rates	Unknown Injury Rates
State	489	7.46	160	26.13	153	18.66	60	75	328	243	7.46	26.13	18.66	97	105	14.93
Earth	348	5.70	137	21.64	132	15.95	50	66	211	203	6.66	28.83	22.17	74	87	13.41
Granular	301	6.61	116	26.43	109	19.82	46	44	186	170	6.61	35.68	29.07	71	58	5.95
Hard-Surfaced	169	2.49	57	9.92	54	7.43	21	26	112	78	2.80	12.18	9.38	29	33	4.58
Paved																

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2007

Road System	All Crash Rates	Fatal Crash Rates	Fatal + Injury Crash Rates	Fatal + Major Injury Crash Rates	Injury Crash Rates	Major Injury Crash Rates	Minor Injury Crash Rates	Possible/Unknown Injury Crash Rates	Property Damage Only Crash Rates	All Injury Rates	Fatality Rates	Fatal + Major Injury Rates	Major Injury Rates	Minor Injury Rates	Possible Injury Rates	Unknown Injury Rates
State	521	10.86	203	32.57	192	21.71	90	80	318	387	10.86	47.04	36.18	159	156	25.33
Earth	384	6.81	151	27.68	144	20.87	55	69	233	223	7.68	34.58	26.90	81	90	17.12
Granular	344	3.90	127	17.54	123	13.64	55	55	216	174	4.55	18.84	14.29	73	70	11.69
Hard-Surfaced Paved	169	2.29	57	11.07	54	8.78	21	25	112	80	2.51	13.51	11.00	29	33	4.93

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2006

Road System	All Crash Rates	Fatal Crash Rates	Fatal + Injury Crash Rates	Fatal + Major Injury Crash Rates	Injury Crash Rates	Major Injury Crash Rates	Minor Injury Crash Rates	Possible/Unknown Injury Crash Rates	Property Damage Only Crash Rates	All Injury Rates	Fatality Rates	Fatal + Major Injury Rates	Major Injury Rates	Minor Injury Rates	Possible Injury Rates	Unknown Injury Rates
State																
Earth	511	6.85	185	30.85	178	23.99	79	75	326	267	6.85	41.13	34.27	120	72	34.27
Granular	413	5.79	177	26.95	171	21.17	65	84	236	255	6.74	34.38	27.65	95	102	24.10
Hard-Surfaced	335	3.22	137	22.52	134	19.30	55	59	198	202	3.86	26.38	22.52	83	86	6.43
Paved	169	2.97	59	11.78	56	8.81	21	26	110	83	3.33	14.11	10.78	30	33	6.30

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2005**

Road System	All Crash Rates	Fatal Crash Rates	Fatal + Injury Crash Rates	Fatal + Major Injury Crash Rates	Injury Crash Rates	Major Injury Crash Rates	Minor Injury Crash Rates	Possible/Unknown Injury Crash Rates	Property Damage Only Crash Rates	All Injury Rates	Fatality Rates	Fatal + Major Injury Rates	Major Injury Rates	Minor Injury Rates	Possible Injury Rates	Unknown Injury Rates
State	620	10.34	210	24.12	200	13.78	65	121	410	355	10.34	34.46	24.12	117	145	58.58
Earth	414	5.99	174	29.16	168	23.17	64	82	239	253	6.84	35.40	28.56	92	99	26.17
Granular	350	1.93	139	27.08	137	25.14	50	61	211	196	1.93	31.59	29.66	72	73	18.70
Hard-Surfaced	169	3.11	63	11.63	60	8.52	22	29	106	92	3.57	14.81	11.24	31	37	9.33
Paved																

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2004

Road System	All Crash Rates	Fatal Crash Rates	Fatal + Injury Crash Rates	Fatal + Major Injury Crash Rates	Injury Crash Rates	Major Injury Crash Rates	Minor Injury Crash Rates	Possible/Unknown Injury Crash Rates	Property Damage Only Crash Rates	All Injury Rates	Fatality Rates	Fatal + Major Injury Rates	Major Injury Rates	Minor Injury Rates	Possible Injury Rates	Unknown Injury Rates
State	570	17.37	215	48.65	198	31.27	97	69	354	375	17.37	72.97	55.60	195	94	13.90
Earth	417	5.92	168	32.72	162	26.80	65	70	249	251	6.26	40.83	34.58	98	100	12.76
Granular	351	2.72	135	24.47	132	21.75	58	52	217	207	3.40	29.90	26.50	91	80	6.80
Hard-Surfaced Paved	171	2.68	57	12.27	55	9.59	21	24	114	86	2.87	15.45	12.58	33	33	4.56

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2003**

Road System	All Crash Rates	Fatal Crash Rates	Fatal + Injury Crash Rates	Fatal + Major Injury Crash Rates	Injury Crash Rates	Major Injury Crash Rates	Minor Injury Crash Rates	Possible/Unknown Injury Crash Rates	Property Damage Only Crash Rates	All Injury Rates	Fatality Rates	Fatal + Major Injury Rates	Major Injury Rates	Minor Injury Rates	Possible Injury Rates	Unknown Injury Rates
State	700	17.25	231	58.66	214	41.40	86	86	469	328	20.70	69.01	48.31	138	110	10.35
Earth	449	6.75	171	30.70	164	23.95	68	72	279	248	7.34	36.68	29.35	99	102	10.12
Granular	383	5.17	155	33.21	150	28.05	55	66	228	226	5.90	38.38	32.48	80	93	14.76
Hard-Surfaced	180	2.66	58	11.70	55	9.05	22	25	122	86	2.93	14.02	11.09	33	35	3.42
Paved																

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2002

Road System	All Crash Rates	Fatal Crash Rates	Fatal + Injury Crash Rates	Fatal + Major Injury Crash Rates	Injury Crash Rates	Major Injury Crash Rates	Minor Injury Crash Rates	Possible/Unknown Injury Crash Rates	Property Damage Only Crash Rates	All Injury Rates	Fatality Rates	Fatal + Major Injury Rates	Major Injury Rates	Minor Injury Rates	Possible Injury Rates	Unknown Injury Rates
State	924	0.00	303	51.77	303	51.77	133	118	621	466	0.00	62.86	62.86	181	196	25.88
Earth	485	6.97	194	35.27	187	28.30	84	75	292	289	7.56	45.09	37.53	119	116	8.48
Granular	346	7.38	128	25.10	120	17.72	49	53	219	188	7.38	32.49	25.10	72	78	5.17
Hard-Surfaced	182	2.98	60	12.62	57	9.64	24	24	122	88	3.29	15.58	12.29	33	37	2.33
Paved																

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Densities (crashes/mile)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2011**

Road System	All Crash Densities	Fatal Crash Densities	Fatal + Injury Crash Densities	Fatal + Major Injury Crash Densities	Injury Crash Densities	Injury Crash Densities	Injury Crash Densities	Possible/Unknown Injury Crash Densities	Property Damage Only Crash Densities	All Injury Densities	Fatality Densities	Fatal + Major Injury Densities	Major Injury Densities	Minor Injury Densities	Possible Injury Densities	Unknown Injury Densities
State																
Earth	0.02	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.00
Granular	0.05	0.00	0.02	0.00	0.02	0.00	0.01	0.01	0.03	0.03	0.00	0.01	0.00	0.01	0.01	0.00
Hard-Surfaced	0.27	0.00	0.10	0.01	0.10	0.01	0.04	0.05	0.17	0.14	0.00	0.02	0.01	0.05	0.07	0.00
Paved	0.34	0.01	0.11	0.02	0.11	0.02	0.04	0.05	0.22	0.16	0.01	0.03	0.02	0.06	0.07	0.01

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Densities (crashes/mile)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2010**

Road System	All Crash Densities	Fatal Crash Densities	Fatal + Injury Crash Densities	Fatal + Major Injury Crash Densities	Injury Crash Densities	Injury Crash Densities	Injury Crash Densities	Possible/Unknown Injury Crash Densities	Property Damage Only Crash Densities	All Injury Densities	Fatality Densities	Fatal + Major Injury Densities	Major Injury Densities	Minor Injury Densities	Possible Injury Densities	Unknown Injury Densities
State																
Earth	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Granular	0.06	0.00	0.02	0.00	0.02	0.00	0.01	0.01	0.03	0.03	0.00	0.00	0.00	0.01	0.01	0.00
Hard-Surfaced	0.32	0.00	0.13	0.02	0.12	0.02	0.04	0.06	0.19	0.17	0.01	0.02	0.02	0.06	0.08	0.01
Paved	0.34	0.01	0.11	0.02	0.11	0.01	0.04	0.05	0.23	0.16	0.01	0.02	0.02	0.06	0.07	0.01

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

Crash Densities (crashes/mile)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2009

Road System	All Crash Densities	Fatal Crash Densities	Fatal + Injury Crash Densities	Fatal + Major Injury Crash Densities	Injury Crash Densities	Injury Crash Densities	Injury Crash Densities	Possible/Unknown Injury Crash Densities	Property Damage Only Crash Densities	All Injury Densities	Fatality Densities	Fatal + Major Injury Densities	Major Injury Densities	Minor Injury Densities	Possible Injury Densities	Unknown Injury Densities
State																
Earth	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.00
Granular	0.06	0.00	0.02	0.00	0.02	0.00	0.01	0.01	0.04	0.03	0.00	0.01	0.00	0.01	0.01	0.00
Hard-Surfaced	0.29	0.01	0.11	0.02	0.11	0.01	0.05	0.05	0.18	0.17	0.01	0.02	0.01	0.08	0.07	0.00
Paved	0.36	0.01	0.12	0.02	0.11	0.02	0.04	0.05	0.25	0.17	0.01	0.03	0.02	0.06	0.07	0.01

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

Crash Densities (crashes/mile)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2008

Road System	All Crash Densities	Fatal Crash Densities	Fatal + Injury Crash Densities	Fatal + Major Injury Crash Densities	Injury Crash Densities	Injury Crash Densities	Injury Crash Densities	Possible/Unknown Injury Crash Densities	Property Damage Only Crash Densities	All Injury Densities	Fatality Densities	Fatal + Major Injury Densities	Major Injury Densities	Minor Injury Densities	Possible Injury Densities	Unknown Injury Densities
State																
Earth	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.01	0.01	0.00
Granular	0.06	0.00	0.02	0.00	0.02	0.00	0.01	0.01	0.04	0.03	0.00	0.00	0.00	0.01	0.01	0.00
Hard-Surfaced	0.30	0.01	0.12	0.03	0.11	0.02	0.05	0.04	0.19	0.17	0.01	0.04	0.03	0.07	0.06	0.01
Paved	0.40	0.01	0.13	0.02	0.13	0.02	0.05	0.06	0.26	0.18	0.01	0.03	0.02	0.07	0.08	0.01

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Densities (crashes/mile)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2007**

Road System	All Crash Densities	Fatal Crash Densities	Fatal + Injury Crash Densities	Fatal + Major Injury Crash Densities	Injury Crash Densities	Injury Crash Densities	Injury Crash Densities	Possible/Unknown Injury Crash Densities	Property Damage Only Crash Densities	All Injury Densities	Fatality Densities	Fatal + Major Injury Densities	Major Injury Densities	Minor Injury Densities	Possible Injury Densities	Unknown Injury Densities
State																
Earth	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.01	0.01	0.00
Granular	0.07	0.00	0.03	0.00	0.02	0.00	0.01	0.01	0.04	0.04	0.00	0.01	0.00	0.01	0.02	0.00
Hard-Surfaced	0.34	0.00	0.13	0.02	0.12	0.01	0.06	0.05	0.22	0.17	0.00	0.02	0.01	0.07	0.07	0.01
Paved	0.40	0.01	0.13	0.03	0.13	0.02	0.05	0.06	0.26	0.19	0.01	0.03	0.03	0.07	0.08	0.01

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

Crash Densities (crashes/mile)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2006

Road System	All Crash Densities	Fatal Crash Densities	Fatal + Injury Crash Densities	Fatal + Major Injury Crash Densities	Injury Crash Densities	Injury Crash Densities	Injury Crash Densities	Possible/Unknown Injury Crash Densities	Property Damage Only Crash Densities	All Injury Densities	Fatality Densities	Fatal + Major Injury Densities	Major Injury Densities	Minor Injury Densities	Possible Injury Densities	Unknown Injury Densities
State																
Earth	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.01	0.00	0.00
Granular	0.07	0.00	0.03	0.00	0.03	0.00	0.01	0.01	0.04	0.04	0.00	0.01	0.00	0.02	0.02	0.00
Hard-Surfaced	0.34	0.00	0.14	0.02	0.14	0.02	0.06	0.06	0.20	0.20	0.00	0.03	0.02	0.08	0.09	0.01
Paved	0.40	0.01	0.14	0.03	0.13	0.02	0.05	0.06	0.26	0.20	0.01	0.03	0.03	0.07	0.08	0.01

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

Crash Densities (crashes/mile)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2005

Road System	All Crash Densities	Fatal Crash Densities	Fatal + Injury Crash Densities	Fatal + Major Injury Crash Densities	Injury Crash Densities	Injury Crash Densities	Injury Crash Densities	Possible/Unknown Injury Crash Densities	Property Damage Only Crash Densities	All Injury Densities	Fatality Densities	Fatal + Major Injury Densities	Major Injury Densities	Minor Injury Densities	Possible Injury Densities	Unknown Injury Densities
State																
Earth	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.02	0.02	0.00	0.00	0.00	0.01	0.01	0.00
Granular	0.07	0.00	0.03	0.01	0.03	0.00	0.01	0.01	0.04	0.04	0.00	0.01	0.01	0.02	0.02	0.00
Hard-Surfaced	0.35	0.00	0.14	0.03	0.14	0.03	0.05	0.06	0.21	0.20	0.00	0.03	0.03	0.07	0.07	0.02
Paved	0.40	0.01	0.15	0.03	0.14	0.02	0.05	0.07	0.25	0.22	0.01	0.04	0.03	0.07	0.09	0.02

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

Crash Densities (crashes/mile)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2004

Road System	All Crash Densities	Fatal Crash Densities	Fatal + Injury Crash Densities	Fatal + Major Injury Crash Densities	Injury Crash Densities	Injury Crash Densities	Injury Crash Densities	Possible/Unknown Injury Crash Densities	Property Damage Only Crash Densities	All Injury Densities	Fatality Densities	Fatal + Major Injury Densities	Major Injury Densities	Minor Injury Densities	Possible Injury Densities	Unknown Injury Densities
State	0.03	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.02	0.02	0.00	0.00	0.00	0.01	0.01	0.00
Earth	0.07	0.00	0.03	0.01	0.03	0.00	0.01	0.01	0.04	0.04	0.00	0.01	0.01	0.02	0.02	0.00
Granular	0.35	0.00	0.13	0.02	0.13	0.02	0.06	0.05	0.22	0.21	0.00	0.03	0.03	0.09	0.08	0.01
Hard-Surfaced Paved	0.41	0.01	0.14	0.03	0.13	0.02	0.05	0.06	0.27	0.21	0.01	0.04	0.03	0.08	0.08	0.01

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Densities (crashes/mile)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2003**

Road System	All Crash Densities	Fatal Crash Densities	Fatal + Injury Crash Densities	Fatal + Major Injury Crash Densities	Injury Crash Densities	Injury Crash Densities	Injury Crash Densities	Possible/Unknown Injury Crash Densities	Property Damage Only Crash Densities	All Injury Densities	Fatality Densities	Fatal + Major Injury Densities	Major Injury Densities	Minor Injury Densities	Possible Injury Densities	Unknown Injury Densities
State																
Earth	0.04	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.03	0.02	0.00	0.00	0.00	0.01	0.01	0.00
Granular	0.08	0.00	0.03	0.01	0.03	0.00	0.01	0.01	0.05	0.04	0.00	0.01	0.01	0.02	0.02	0.00
Hard-Surfaced	0.37	0.01	0.15	0.03	0.15	0.03	0.05	0.06	0.22	0.22	0.01	0.04	0.03	0.08	0.09	0.01
Paved	0.43	0.01	0.14	0.03	0.13	0.02	0.05	0.06	0.29	0.21	0.01	0.03	0.03	0.08	0.09	0.01

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Densities (crashes/mile)
by Surface Type and Severity
Statewide, Secondary Road Crashes
1-year Average: 2002**

Road System	All Crash Densities	Fatal Crash Densities	Fatal + Injury Crash Densities	Fatal + Major Injury Crash Densities	Injury Crash Densities	Injury Crash Densities	Injury Crash Densities	Possible/Unknown Injury Crash Densities	Property Damage Only Crash Densities	All Injury Densities	Fatality Densities	Fatal + Major Injury Densities	Major Injury Densities	Minor Injury Densities	Possible Injury Densities	Unknown Injury Densities
State	0.05	0.00	0.02	0.00	0.02	0.00	0.01	0.01	0.03	0.02	0.00	0.00	0.00	0.01	0.01	0.00
Earth	0.09	0.00	0.03	0.01	0.03	0.01	0.01	0.01	0.05	0.05	0.00	0.01	0.01	0.02	0.02	0.00
Granular	0.34	0.01	0.12	0.02	0.12	0.02	0.05	0.05	0.21	0.18	0.01	0.03	0.02	0.07	0.08	0.01
Hard-Surfaced Paved	0.41	0.01	0.14	0.03	0.13	0.02	0.05	0.05	0.28	0.20	0.01	0.04	0.03	0.08	0.08	0.01

Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
2002 - 2011 Annual Summary**

Earth

	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
2002	0.00	0.00	303	924
2003	17.25	20.70	231	700
2004	17.37	17.37	215	570
2005	10.34	10.34	210	620
2006	6.85	6.85	185	511
2007	10.86	10.86	203	521
2008	7.46	7.46	160	489
2009	3.58	3.58	140	440
2010	7.16	7.16	154	390
2011	7.16	7.16	165	372

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
2002 - 2011 Annual Summary**

Granular

	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
2002	6.97	7.56	194	485
2003	6.75	7.34	171	449
2004	5.92	6.26	168	417
2005	5.99	6.84	174	414
2006	5.79	6.74	177	413
2007	6.81	7.68	151	384
2008	5.70	6.66	137	348
2009	6.27	7.16	138	349
2010	5.66	5.83	135	333
2011	5.12	5.74	131	314

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
2002 - 2011 Annual Summary**

Hard-Surfaced

	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
2002	7.38	7.38	128	346
2003	5.17	5.90	155	383
2004	2.72	3.40	135	351
2005	1.93	1.93	139	350
2006	3.22	3.86	137	335
2007	3.90	4.55	127	344
2008	6.61	6.61	116	301
2009	5.18	5.18	106	284
2010	4.53	5.18	124	306
2011	1.94	1.94	94	257

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**

**Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)
by Surface Type and Severity
2002 - 2011 Annual Summary**

	Paved			
	Fatal Crash Rates	Fatality Rates	Fatal + Injury Crash Rates	All Crash Rates
2002	2.98	3.29	60	182
2003	2.66	2.93	58	180
2004	2.68	2.87	57	171
2005	3.11	3.57	63	169
2006	2.97	3.33	59	169
2007	2.29	2.51	57	169
2008	2.49	2.80	57	169
2009	2.49	2.69	50	155
2010	2.20	2.47	48	147
2011	2.32	2.47	48	144

**Source: Iowa Department of Transportation, Office of Traffic and Safety
February 18, 2013**